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INFO

#25 MAR/APR 1989

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FIRST LOOK AT:

⇒ DPAINT III

⇒ Arkanoid II

⇒ Falcon

for
AMIGA and
COMMODORE
COMPUTERS

INFO LOOKS AT
ANIMATION ON
THE AMIGA

also for
AMIGA:

- ⇒ Amiga Artist
Dr. Rodney Chang
- ⇒ 22 Games Reviewed
- ⇒ Microfiche Filer Plus
-News-
-Show Reports-

also for
C64, C128:

- ⇒ 16 Games Reviewed
- ⇒ Copy Corner
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- ⇒ SID Stereo Cartridge
- ⇒ Enhanced Music
System



THE **FIRST** PERSONAL COMPUTER MAGAZINE
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The latest multi-player multi-format PC game from Australia is different to all forms of Poker.

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With a guest, the **20** Finalists will be flown to Las Vegas to play **Aussie JOKER POKER** for a first prize of **\$100,000 in cash** at the **Golden Nugget**.

1,220 Prizes Value \$200,000

1,200 Joker PC software games at \$29.95 to \$49.95 dependent on disk format. Game prizes at sole discretion of sponsor.

Cash Prizes for Aussie JOKER POKER Contest Grand Final:

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Second Highest Scorer:	\$5,000
Third Highest Scorer:	\$2,500
Lowest Scorer:	\$1,500
16 Consolation Prizes of \$1,000 each to eliminated Finalists	\$16,000

Prize includes air travel for Finalists and their guests from the major airport to Las Vegas with two days and two nights accommodation at the Golden Nugget (approx. retail value \$750 each subject to departure points).

All taxes and other expenses not specified herein are sole responsibility of winners. All winners will be notified in writing.



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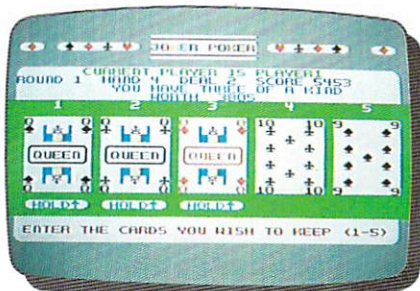
Aussie JOKER POKER is available for SIX major PC's

If your PC has a mouse or keyboard, a mono or color monitor and a 512K minimum ram (except Apple II and C64/128 use 64K and keyboard only) you and your family can practise at home for the Las Vegas final of the **Aussie JOKER POKER** contest.

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C64/128	\$29.95

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C64/128™



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Aussie JOKER POKER Contest Rules

1. No purchase necessary to enter.
2. Void where prohibited by state or federal law.
3. To enter, simply complete and return the the official entry form.
4. Limit five entries per family or household. Five free entry forms and full contest rules are included with "Aussie Joker Poker" or may be obtained by sending a stamped self-addressed envelope larger than 5½" x 7½" with a hand written request to: Aussie Joker Poker Contest Entry Forms, P.O. Box 22381, Gilroy, CA 95021-2381. Mail-in requests limited to one per name, household or family and must be received no later than 3/31/89. WA & VT residents need not include return postage. Full rules also available from participating Mindscape retailers.
5. Monthly entries must be received no later than the last day of the month in which a drawing will take place in order to participate in the month's drawing. Drawings will be held from December, 1988 through April 1989, inclusive. Final entries must be received by 4/30/89.
6. Contest open to legal residents of the U.S.A. and Canada (other than Quebec).
7. Odds of winning depend on number of eligible entries received.
8. Contest subject to complete official rules.

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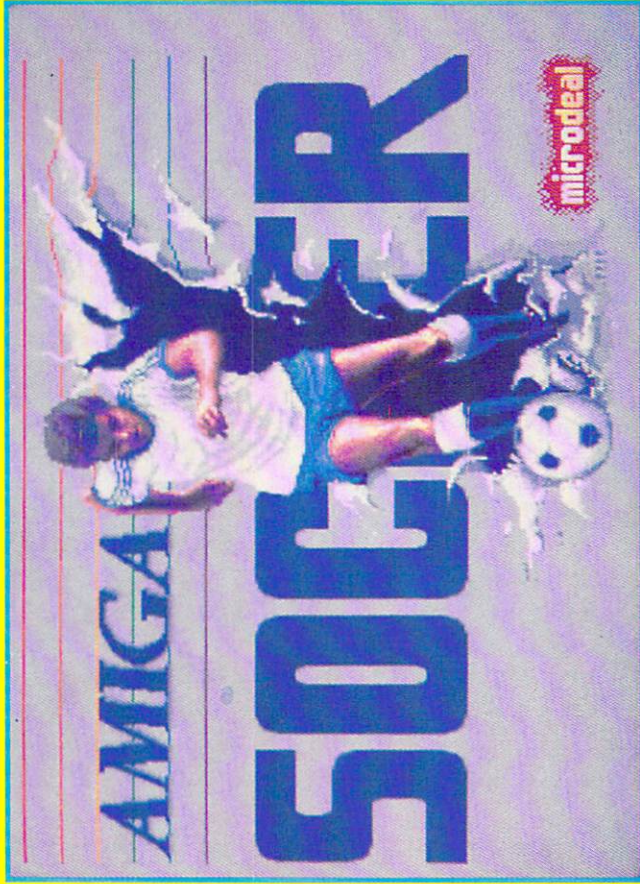
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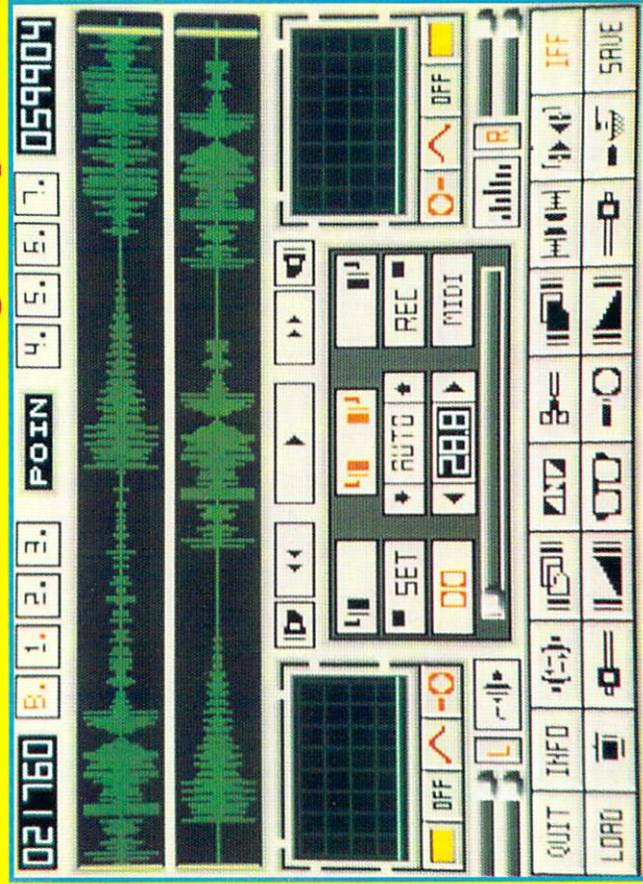
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International Soccer



A.M.A.S. The Advanced MIDI Amiga Sampler



"Without a doubt the best of the soccer action games"

Amiga Computing, October 1988

If you're a soccer fan, then Microdeal's International Soccer is the game for you. Superb graphics, plus the ability to select team colors, wind direction and speed, wet or dry weather, and day or night game conditions, make this one of the best simulations ever. You can have high caliber competition under any conditions. One or two players can take on the computer, or two players can play against each other. With the optional four player adapter from Microdeal you can pit three players against the computer, two players against two players, or two against one. You won't believe the action. The animated crowd, electronic scoreboard, and on screen refereeing keep the gameplay fast and furious. Don't be left out of bounds. International Soccer is playing now!

(Color only—1,2,3, or 4 joysticks required, optional 4 player adapter available)



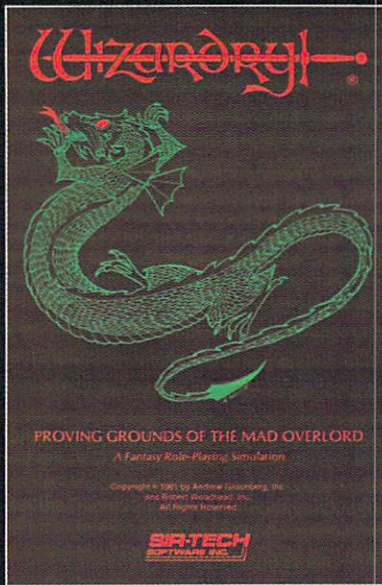
AMAS is a full featured Stereo audio digitizer complete with a full implementation MIDI interface, all built into a single stylish hardware unit that complements your computer. There are no cumbersome extras needed. The digitizer accepts mono or stereo input via its line input sockets and is provided with an extra microphone socket for direct vocal input. The MIDI sockets consist of MIDI IN, OUT, and THRU. Hardware versions exist in A1000 and A500/2000 formats. The software employs the ultimate graphics/mouse user interface. Features include:

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PROVING GROUNDS of the MAD OVERLORD



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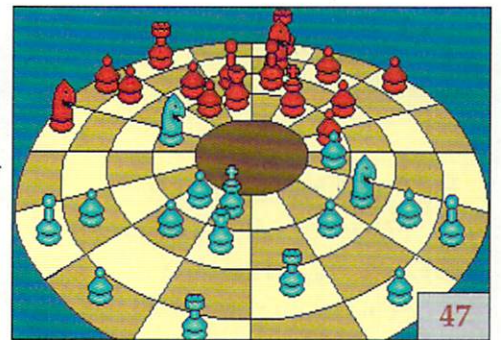
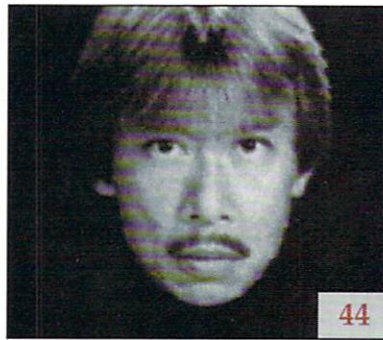
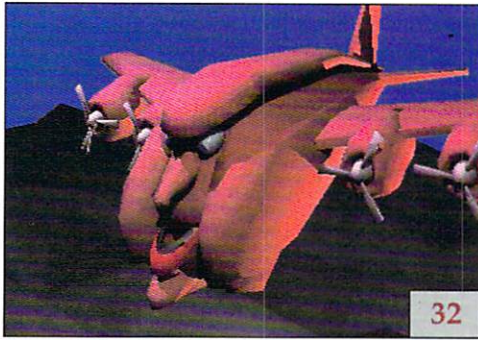
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PLAY IT TO THE HILT!

* Many other Wizardry scenarios coming for Commodore players.



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- 44 **Dr. Rodney Chang: Artist on the Edge:** INFO interviewer, Mindy Skelton, tracks down the prolific and provocative "conceptualist of the internationally renowned discotheque-dental office environment".

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About the Cover

Meet Vector: "A 3D Guy in a 2D World". The wild creation of 3D artist/ animator Bruce Granofsky, **Vector** will debut in a new experimental 3D comic strip (along with **Pixel**, the Lo-Res Dog) in the next issue of INFO (don't miss it!). **Vector** lives as a construct in a Ray-Traced world created with Sculpt-Animate 4D. The cover illustration is taken from an animation sequence in which **Vector's** head pops magically thru an Amiga screen!

About INFO

INFO is a living showcase of what can be produced with affordable personal computer equipment (the Commodore Amiga, in particular), and readily available consumer software, peripherals, and services. INFO was originally produced by one person using a single Commodore 64, one disk drive, and dot matrix printer; today INFO is the bi-monthly effort of a handful of dedicated computer nerds holed-up in Iowa with 14 computers, a massive monthly utility bill, and more fun software and toys than anyone deserves in a lifetime!

With the exception of most of the ads, and the screen-shot of *Falcon* on page 48, everything in this issue, including color screen shots and photos, was digitally created, edited, composed, printed, and color-separated as complete assembled pages on Amigas running *Professional Page*, and output to a Linotronic L300 typesetting device at 1235 dots per inch.

One last note: we have advertisers, but advertisers do not have us.

- Enjoy



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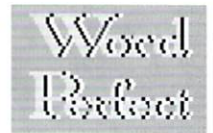
123 N. Linn St., Suite 2A

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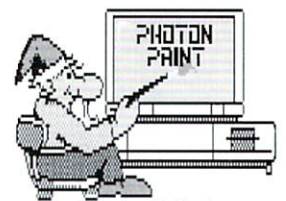


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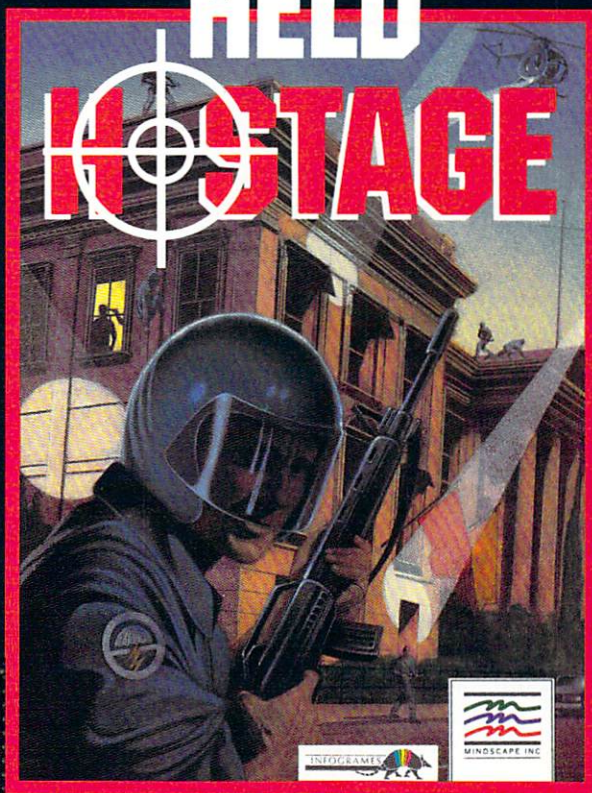
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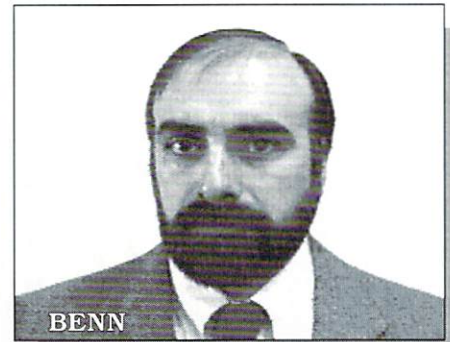
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MARK

Editors' Page



BENN

ANIM "STANDARD"

One of the major forces that has driven Amiga graphics development is the IFF standard. While IBM types and even C64 owners have to contend with dozens of different graphic file formats, the Amiga has many graphics modes but only one Interchange File Format. Setting a standard early on was a smart thing, and it's much to the credit of Commodore (and Electronic Arts) that the standard was pushed hard and widely accepted. To introduce an Amiga graphics program now without IFF support would be suicide.

Animation is another thing entirely. There is an ANIM format, to be sure, but the one great surprise we ran into while putting together this issue was finding out that less than half of the animation packages available support it. Instead of standardization, we found a plethora of

custom animation formats, all of them incompatible with one another.

Most of the non-ANIM programs include freely distributable stand-alone animation players so that others don't have to own the animation system just to be able to play its creations. But you still can't transfer the results from one program into another. You can't do what you can do with paint programs, which is to buy every one that has a new feature the others lack, and load your work into each to do what each does best. Once you choose to work with a non-ANIM animation program, you're stuck with it for the duration of your project.

The only reliable form of compatibility among animation packages lies with still frames and the IFF standard. With only a single exception, all of the animation programs in this issue load

and/or save IFF pictures.

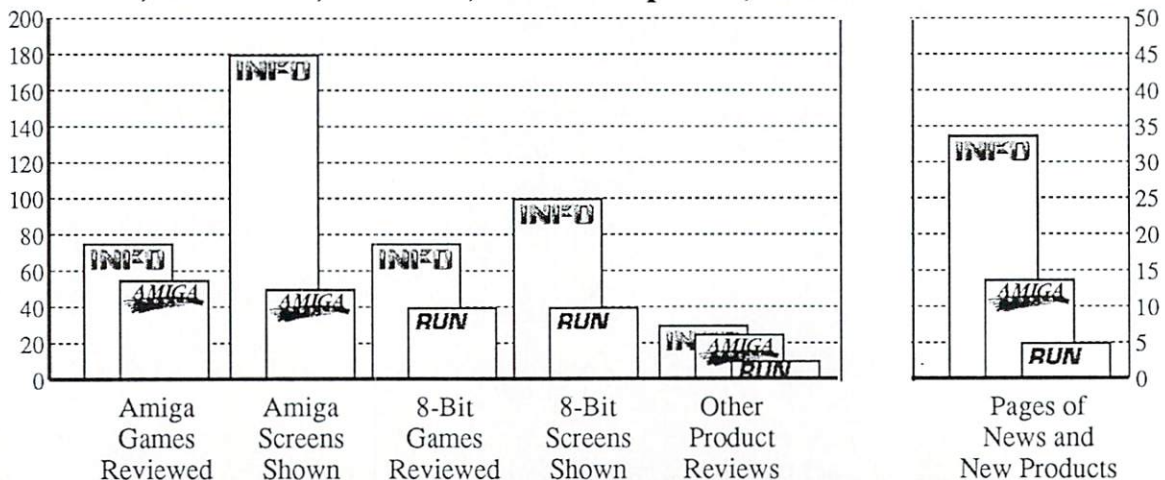
Programmers and software publishers who don't use the ANIM standard tell us it's because ANIM creates files that are too "fat", or that it doesn't allow them to incorporate sound or special effects. But we've heard similar arguments about the IFF format in the past. The point is, without a standard there's never going to be an easy way to integrate all this stuff. I'd love to be able to use various tools and effects from *Fantavision*, *MovieSetter*, and *Zoetrope* in a single animation, but each of these programs has its own non-ANIM proprietary animation format. That's silly, and it's short-sighted.

There are a lot of clever people out there in the Amiga community. If the ANIM standard is not good enough, let's update the standard. Let's not all go off in our own directions, or using the Amiga will be no better than using a Mac or an IBM clone.

- Mark & Benn

What delivers more Amiga coverage than an issue of *AmigaWorld* and more C64 coverage than an issue of *RUN* all in one place? You guessed 'er, Chester; a single issue of *INFO*. The graph below was compiled from the latest 3 regular issues of each magazine. And the results are similar vs. *Amazing*, *Ahoy!*, *Commodore*, and *Gazette!*

For News, Reviews, Games, and Graphics, there is no better *INFO*.



zo·ë·trope (zō'ə trōp)

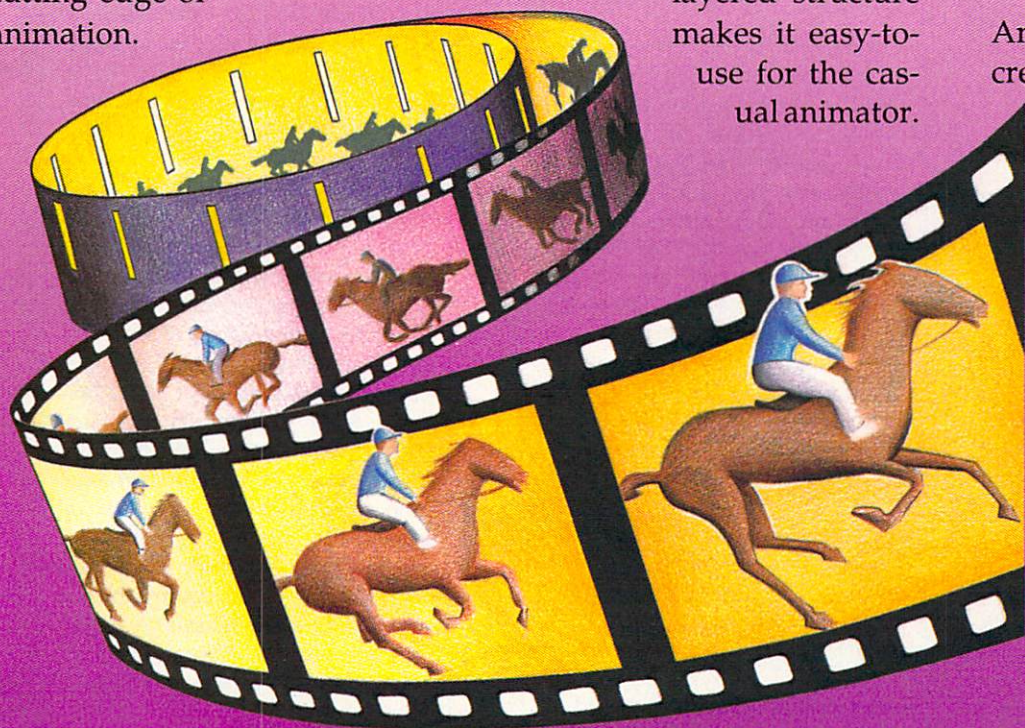
n. [irreg. f. Gr. *zoe-*, life + *tropos*, turning] 1. a device that gave static images an illusion of motion. Known as the "wheel of life", the zoetrope brought the magic of animation to the parlours of the mid-1800's. 2. a new state-of-the-art advanced animation system for the Amiga® computer from Antic Software.

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Taking animation into the 21st Century

By Jim Kent, the creator of Aegis Animator*



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Please don't call the INFO offices with general questions about computing or send self-addressed stamped envelopes expecting a personal reply. We just don't have the staff to handle it.

Thanks.

QLink Mail From: JOEY 13

You guys really did me wrong this time; I ordered the "Skylab Explores the Earth" book that you mentioned in your Real World column -- ouch, what a waste! I was hoping for some high quality photos, but instead they look like close up photos of one of my kid's mud pies. Well at least I'm now on the Government Printing Office's mailing list; thanks for that at least.

Sorry, Joey. After reading your letter, I took a close look at the order numbers and realized that the older Skylab book I have is different from the one the GPO is selling now. It was full of great photos, but I'll take your word that the new one is junk. I suggest you try again,

though. They really do publish some great NASA photo books. Good luck!

- Mark & Benn

QLink Mail From: CraigsRUs

I'm the former editor of a trade magazine called *Art Material Trade News*. While I was there, I wrote a pair of articles on desktop publishing. In the first, which discussed the potential of desktop publishing, I said that desktop publishing would one day be the only kind of publishing there is. In the second, which addressed the limitations of desktop publishing, I said that desktop publishing might someday match the quality of traditional techniques, but it wasn't possible at that time. I'd say your Nov/Dec issue just about renders my "limitations" article obsolete! Congratulations on a great technical achievement.

Thanks for the professional pat on the back. It feels good to know that the blood, sweat, and tears (mostly Megan's) are paying off!

- Mark & Benn

QLink Mail From: Bryan Costin

I recently found a book I think you guys would like. It's "Future Magic" by Dr. Robert L. Forward, and it's all about real technology and theoretical speculation that may result in such things as time-travel, antimatter drives (right out of Star Trek!), FTL travel, and all sorts of other stuff, all well explained and very interesting reading (published by Avon Books).

Thanks for the tip. We've put in an order for a copy over at Prairie Lights Bookstore.

- Mark & Benn

U.S. Mail From: Chris Crawford
I want to thank you for your editorial in INFO #23, "The State of Games". You're right: the computer games publishers have been, for the most part, entirely too gutless when it comes to releasing innovative products. We have to concede that there have been some dramatically different games (my own *Trust & Betrayal* providing an excellent example) that bombed in the marketplace. Still, there have been plenty of radically different games that were big successes. Publishers can't plead that they must follow the market. Those who are willing to lead have had some phenomenal successes. After nearly a decade of obediently purchasing whatever the publishers offered, consumers at last seem to be sitting up and demanding some honest creativity in game design. Please, keep up the pressure - it can only make games better!

*We'll do our part, guy! Chris Crawford is the award-winning, best-selling author of such computer classics as **Balance of Power**.*

- Mark & Benn

QLink Mail From: JerryK10

Since your magazine tracks other computer magazines, do you know the status of *Money Machine*? Is it dead or just in a coma? Is there any hope of a refund for an unfulfilled subscription?

Money Machine is missing and presumed dead. The phone is disconnected, and publisher Don Vandeventer hasn't been in touch with us in ages.

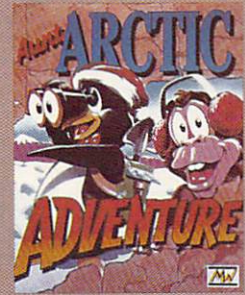
Mark & Benn

More Reader Mail on page 56

More than a game... it's a LIFESTYLE!

Aunt Arctic Adventure challenges you, Charlie the Chimp, and your friend Penguin Pete to rescue your aunt, who has been kidnapped by the diabolical Big Borus, and forced to work as a circus performer!

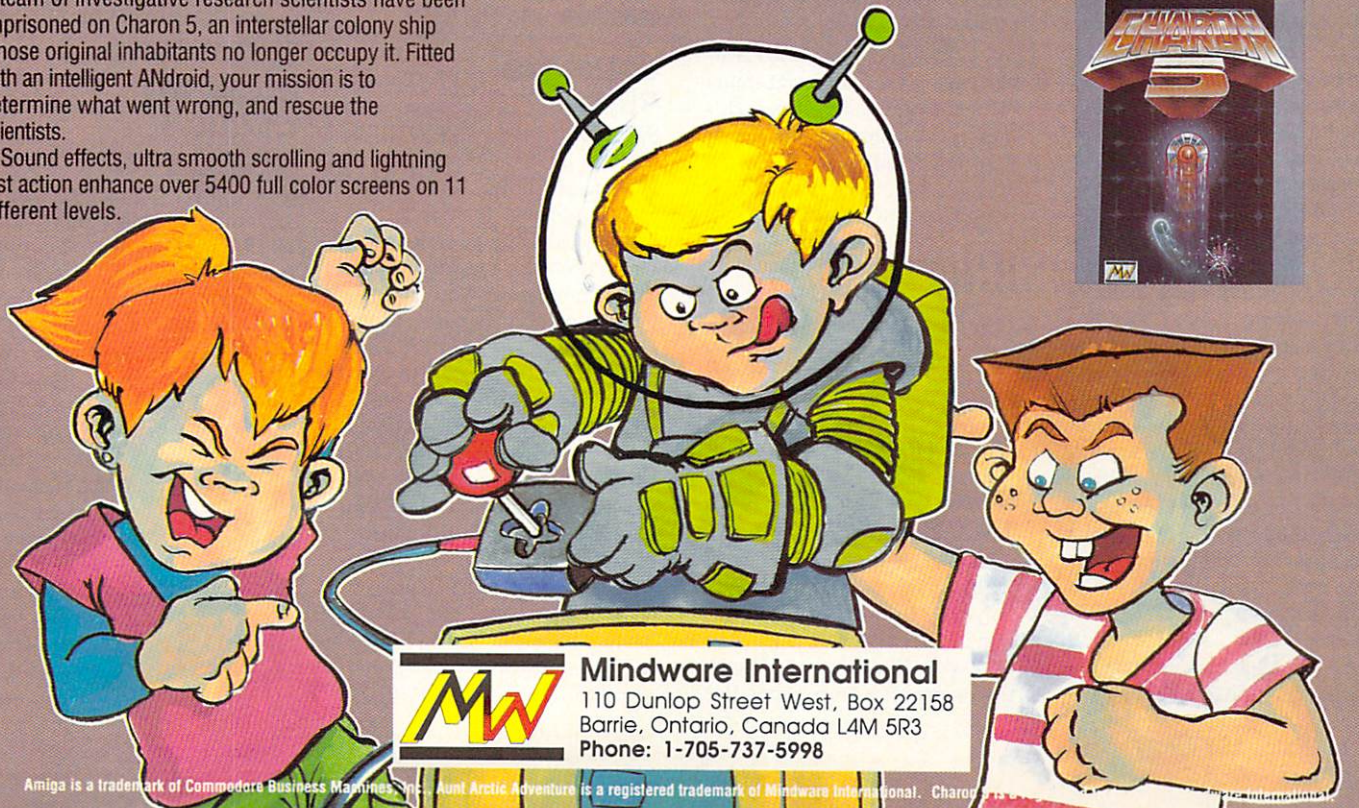
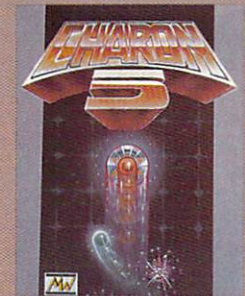
Battle your way through 50 levels of scrolling mazes, encounters with hostile eskimos and confrontations with vicious polar bears and nasty penguins in your rescue attempt!



More than a game... it's a LIFESTYLE!

A team of investigative research scientists have been imprisoned on Charon 5, an interstellar colony ship whose original inhabitants no longer occupy it. Fitted with an intelligent ANdroid, your mission is to determine what went wrong, and rescue the scientists.

Sound effects, ultra smooth scrolling and lightning fast action enhance over 5400 full color screens on 11 different levels.



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New Products & Reviews



GENERIC

IT'S A YOKE

Flight simulators are among the most popular entertainment titles and we've often wondered why no one has come out with a yoke (an airplane's steering wheel) that will work with them. Well, *Beeshu*, makers of a line of joysticks we're particularly fond of, has done just that. *Zoomer* makes flying a simulator much more realistic, and much easier for those of us who find that joysticks and mice don't offer the right feel for flight. We would have been perfectly happy with just the yoke, but *Beeshu* also added variable speed rapid fire to the thing. Retail price is \$49.95. A cordless model is in the works. And while we're on the subject, *Beeshu* also makes the *Ultimate Superstick*, a joystick that has just about every function you could want: suction cup feet, four buttons to accommodate two players, with variable speed rapid fire for each player. It's \$39.95 and a

cordless version of it is also in progress. 101 Wilton Ave., Middlesex, NJ, 08846. 201-968-6868.

NEW SENSATIONS

Computer Sensations sent us a roll of their new un-perfed banner paper. The side perfs come off, but there are no cross perforations. It comes in several patterns and retails for \$14.95 for a 36-foot roll. PO Box 3744, Long Beach, CA 90803.

8-BIT SOFTWARE

This section contains every single C64/C128 non-game product we've heard of in the last two months. Honest.

TAX BREAK

Timeworks sent along a copy of *Swiftax* in the 1988 version. Anything to make the bloodletting easier is welcome. The package will guide you through the preparation process one line

at a time, with instructions and prompts for each. Help screens are included, as is a pop-up calculator. The finished form can be printed onto a regular IRS form or onto plain paper. Forms 1040, 1040A, 1040EZ, 2106, 2441, 8615, and schedules 1, A, B, C, D, E, F, R, and SE are included. *Timeworks* has also set up a customer support hotline. \$49.95. 444 Lake Cook Rd., Deerfield, IL 60015. 312-948-9200.

1581 AID

The *1581 Toolkit* is a collection of ten utilities to make living with your 3.5" drive a little easier. For a mere \$39.95 you get a couple of fast copiers, a track & sector editor, partition creator, and relocatable fast loader, among other things. The manual (most of it written by INFO's own David Martin) will tell you more than you ever wanted to know about the drive. *Software Support International*, 2700 NE Andresen Rd., Vancouver, WA 98661. 206-695-1005.

PRISMATIC

Spectrum 128 (\$39.95) is another in the recent spate of 128-specific products from *Free Spirit Software*. (Kudos to Joe Hubbard and company for their support of the machine.) This paint program operates in 80 column mode and has a 640 x 200 resolution. A 1351 (or compatible) mouse is required, as is 64K of video RAM. The regular 16 colors are further dithered and combined for another 128 shades. It's all menu driven, and the list of features goes on and on: air brush, block fill, mirror, 3D solid primitives, and adjustable font sizes just to name a few. *Spectrum 128* is compatible with *BASIC 8* files, as well as *Print Shop*, *Sketchpad 128*, and *News Maker 128*

graphics. Speaking of *News Maker 128* (\$29.95), it's a new desktop publishing package from *Free Spirit*. The user is provided with five preset page formats (though custom pages can be designed as well). A text editor is included, but text can be imported from any sequential file. Art tools are incorporated, and graphics can be imported from other sources. And if you think we're done with *Free Spirit*, read on. *ESP Tester* (\$24.95) evaluates the user's abilities in precognition, clairvoyance, and telepathy. 58 Noble St., Kutztown, PA 19530. 215-683-5609.

MR. FIXIT

Tab Books has published Art Margolis' book on what to do if your C128 is sick. *Troubleshooting and Repairing Your Commodore 128* gives 435 pages of information. Check your local bookstores. \$18.95 paperback, \$27.95 hardcover. *Tab Books*, Blue Ridge Summit, PA 17294-0850. 717-794-2191.

TAXING PROPOSITION

Three software packages have been released that might make tax time a little easier for you. *Tax Aid* (\$49.95, which is deductible) will help you prepare your tax forms for 1988. *Future Tax* is a tax planner that will compute your taxes for 1989 and 1990 (based on current tax laws) and give you something to base your financial planning on. *Bookkeeper's Aid* (\$39.95) is a system for keeping track of your expenses. All three are available in C128, C64, and PLUS/4 (!!!!) formats. *Tax Aid Software*, 606 Second Ave., PO Box 100, Two Harbors, MN 55616. 218-834-5012.

Why is a "rad" surfer hanging out with a Shakespeare-spouting elf maiden, a shining knight for hire, and a bunch of other off-beat folks? Find out in...

Tangled Tales™

The Misadventures of a Wizard's Apprentice



APPLE II SCREENS SHOWN

Coming in March to your favorite software retailer for Apple II and Commodore 64/128!

Not available at your local retailer? Call 1-800-999-4939 (8am to 5pm EST) for VISA/MC orders; or mail check/money order (U.S. \$) to ORIGIN, 136-B Harvey Road, Londonderry, NH 03053. All versions \$29.95. Allow 1-2 weeks for delivery.

New Products & Reviews

... continued



T.H.I.S. v2.0

\$49.50

Micro-Aided Designs, PO Box 1982, Placentia CA 92670, 714-996-0723

Although I've watched the development of T.H.I.S. for something over two years, I still can't figure out what the program is supposed to be used for. The full name -- <T>echnological, <H>ighbred, <I>ntegrated <S>ystem -- is a misnomer: as the programmer's first commercial product, it has no breeding, much less high; with only drawing functions, nothing is integrated; and in this context, I don't know what a technological system is.

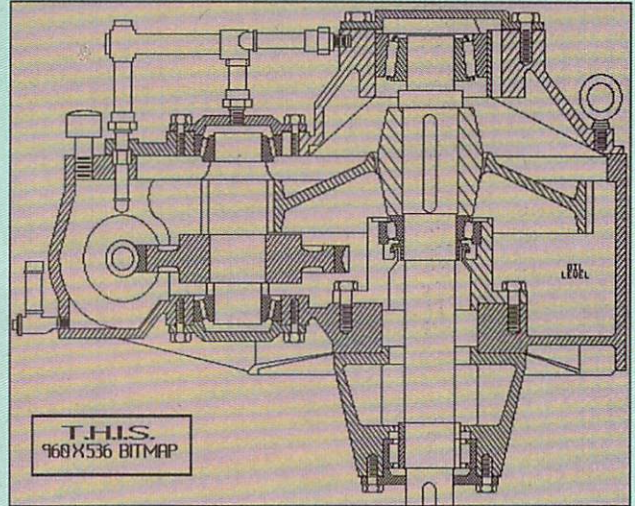
The product suffers from three fundamental flaws: 1) other products do the same thing more cheaply and more easily; 2) the documentation is bad; 3) the software is bug-ridden.

T.H.I.S. is a high-resolution bit-mapped graphics editor on the order of *Doodle!*, but it does not support any form of color editing, and the files are not fully compatible with either *Doodle!* (color) or *Flexidraw* (monochrome). If it were truly a CAD program -- if it were object oriented rather than bit-mapped, and if printing worked -- the lack of color and compatibility might be acceptable.

In addition, though T.H.I.S. itself is less than \$50, it is cumulatively expensive: it requires a lightpen or a mouse and a 17xx RAM Expansion Unit, compared to *Doodle!*, which requires only a joystick. T.H.I.S. does provide some nice functions for polygons, text fonts and sizes, and block rotations; but *Doodle!* provides color editing and full 320x200 screen size pictures.

As an editor, the collection of features is generally pretty good. Most of the options -- such as box, arc, fill, and circle/ ellipse/ polygons -- come directly from BASIC 7.0 commands; some options -- *sshape*, and BASIC's *gshape* -- are enhanced; a few options -- rotation of saved shapes, and plotting grids -- have no direct analog in BASIC. I do like the way multiple fonts and sizes are handled.

Most options are provided in drop-down windows, but several (non-text) functions require keyboard action, apparently to give your hand a break from gripping the light pen or mouse. And some other options are buried



960 X 536 sample drawing from T.H.I.S. disk.

deep: to print, the documentation directs you to 1) press <line feed>, 2) press <ESC>, 3) press <logo><f1> for the printer menu, 4) press <d> for a directory, 5) press <d> again, to see the printer drivers. At this point, T.H.I.S. locks up. To make it print, reset the computer, find the printer drivers (there are two of them), reboot, and repeat steps 1 through 3. Then instead of pressing <d>, press <l> to "load" a printer driver, and continue as the documentation directs. This sends *something* to the printer -- I used the program's "commodore.sd.pdv" printer driver on an MPS 803, and barely recognized the result.

When editing graphics, there are several frustrating problems. For example, while in the middle of setting the points for some object -- a circle, or arc, or a rotated shape -- the cursor often disappears and you have to return to the menu to start the object over. Another symptomatic problem is that objects can be pasted only starting at character grid corners, a severe handicap when trying to create symmetrical objects.

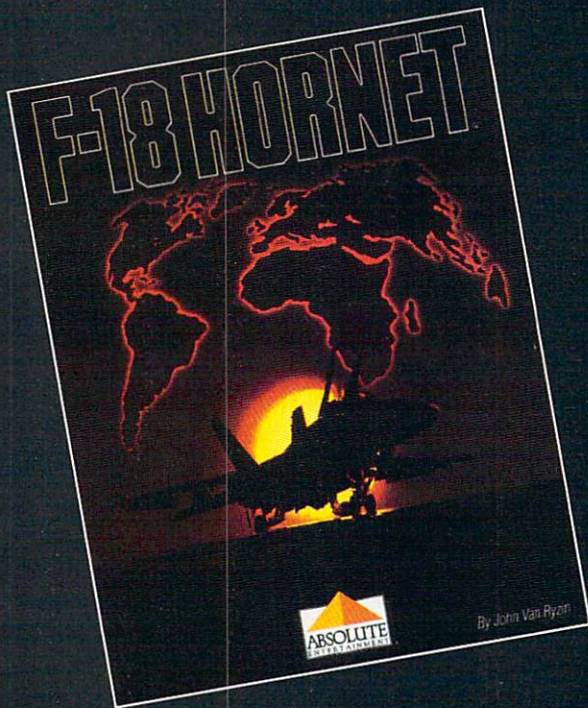
Finally, the documentation is poorly organized, poorly written, usually inadequate, and often incorrect.

In sum, while I would like to commend any programmer who develops products for the C128, T.H.I.S. is simply not a good product.

-Tim Sickbert

"A First Class Simulation."

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F-18 HORNET™ features solid 3-D graphics and responsive instrumentation for an incredible sensation of flight. Experience the thrill of the latest, greatest Commodore flight simulation!

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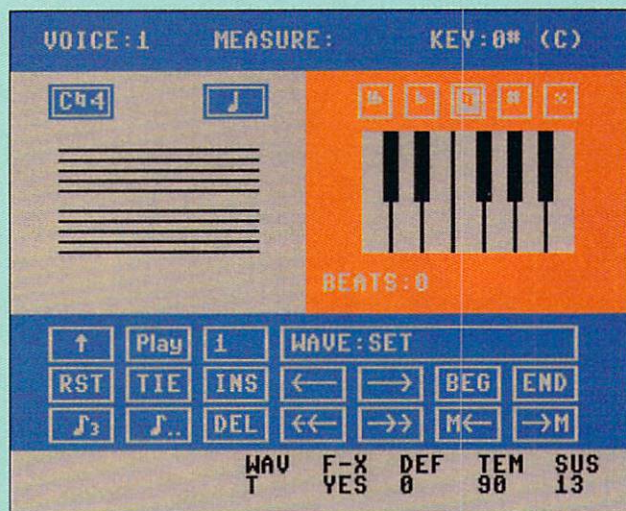
*New York Times, December 20, 1988.

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New Products & Reviews

... continued



SID Editor from the Enhanced Music System.



ENHANCED MUSIC SYSTEM \$24.95

COMPUTE! Publications, PO Box 5406, Greensboro NC 27403, 919-275-9809

The *Enhanced Music System for the Commodore 128 & 64* by Craig Chamberlain includes SIDPlayer, a music editing system which has become the most popular ever for the Commodore 64. Unfortunately, thanks to neglect and an almost Commodore-like flair for non-promotion, the book was nearly doomed to the nether realms. The book/disk combo was even discontinued for a while, with paid orders returned to more than a few frustrated customers. But *Enhanced Music System* is back in print and only a little worse for wear (the manual is no longer ring-bound, which was a real convenience).

The Enhanced System provides a new SID Editor for the 128, tweaks more performance out of many old commands and functions, adds several new ones (like JIF, which solves the tempo meter limitations of the original SID Editor) and expands both the keyboard and joystick support. As if that weren't enough, both the 64 and 128 versions are rewritten entirely in machine language. (Oops! Almost forgot to mention that a couple of

new help/control screens have been tossed in, too.)

Still, the nicest thing about using the SID Editor is that it doesn't require much in the way of previous music theory, music reading ability or instrument playing skills. The book/manual is an extensive, easy to follow tutorial/reference to both musical notation and the SID Editor. Entering music into the SID Editor can be as easy as matching the notes on the SID Editor's musical staff to the sheet music.

The second nicest thing, from a person who spent days troubleshooting the original 20-some K BASIC program, is that everything you need for both the 128 and 64, including lots of example song files and an Enhanced SIDPlayer program is included on disk with the book.

This is the best C64 music system -- no doubt about it.



SID STEREO CARTRIDGE \$34.95

Dr. Evil Labs, PO Box 190, St. Paul IN 47272

Once upon a time, an intrepid soul set two 64s together and called it stereo. Not long after, another voided the warranty on his 64, hacked an extra SID chip onto his motherboard and heard. It was good.

These days, six-voice stereo SID music on a 64 or 128 doesn't require such draconian measures as these. It only requires the SID Symphony Stereo Cartridge from Dr. Evil Laboratories, a second RCA-jacked cable to your stereo, a good PD mono/stereo SID player like "Stereo-player" and lots of nine volt batteries. Twice the pleasure. Twice the fun. I guar-un-tee!

The SID Symphony cartridges are a great value for the money, especially considering that they're being hand-made by a couple of really nice guys (business moniker aside) from a small Indiana town. But one change worth paying extra for would be to somehow lose the batteries.

Apparently, the problem is that amperage from regular cheapo 9-volt powerpacks is not regulated, and the SID chip burns itself up on the extra juice. Drawing power from the computer problematically requires hardware modifications to it. Thus the regular payments to Eveready.

Even with the batteries, though, SID Symphony is a gem that no serious SID music buff should be without.

- Don Romero

8-BIT HARDWARE

BIG PICTURE

Software Support International is shipping version four of their excellent **Super Snapshot** cartridge. For \$64.95 this little wonder gives you every C64 utility you can think of in one small box. There's an M/L monitor, screen snapshotter (to disk or printer, and it will even print sprites), DOS wedge and turbo DOS, function keys, fast disk and file copier, sprite killer and re-enabler, a brand new sprite monitor, BASIC extensions, track and sector editor, and memory snapshot backup utility (plus over 100 parameters on disk). This cartridge just keeps getting better with every release. There's nothing else that can even touch it. And, like their ads say, we use it to grab the C64 screens we print in INFO. If you own any previous incarnation of Super Snapshot, you can upgrade for \$20, and that's quite a deal. C128 owners, be sure to add \$8 and get the disable switch to save wear and tear on your cartridge port. 2700 NE Andresen Rd., Vancouver, WA 98661, 800-356-1179.

AMIGA SOFTWARE

GENE POOL

Norris Software sent us a copy of their genealogical database manager, **norgen** (\$79.95). Data entry is a simple process and printed reports can be generated in a variety of ways. The documentation is short and to the point. Utilities are included for clearing, reorganizing, and restoring records. There's not much in the way of surface

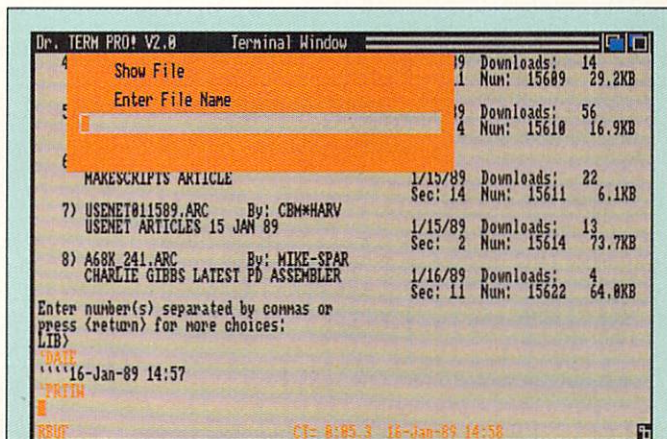
niceties or graphic pizzazz, but the product appears to be well-done in the most important area: indexing. It will run on a 512K machine, but 1 MB is recommended. 3208 W. Lake St., Ste. 65, Minneapolis, MN 55416. 612-827-2766.

FONT WARS

The latest salvo in font collections comes from *New Horizons*, publisher of *ProWrite*. **ProFonts** is two volume collection (\$34.95 for each volume) specifically designed to be used with *ProWrite* and a dot matrix printer. (As always, you'll get much better results using a 24-pin or laser printer.) Utilities are included for moving and installing the fonts. PO Box 43167, Austin, TX 78745. 512-328-6650.

SPREADING OUT

The Amiga community has been waiting a long time for a Lotus-killer spreadsheet. It appears that *Precision*, makers of *Superbase Professional*, may have come up with just the thing. The list of features **Superplan** (an evolutionary descendent of their excellent *Logistix*) sports goes on and on. Among the highlights are 68020/68881 support, time and project management, critical path analysis, spreadsheet size up to 2048 rows by 1024 columns, and a plethora of graphic functions. 74 different functions are available (including math, statistical, calendar, financial, logical, and statistical) and "what-if" tables with variables are provided as well. *Superplan* even supports full color output, and Superbase, Lotus, dBase, DIF, CSV, and text files can be read. Retail is \$149.95. 8404 Sterling St., Suite A, Irving, TX 75063. 214-929-4888.



DR. TERM PROFESSIONAL \$99.95

Progressive Peripherals & Software,
464 Kalamath Street, Denver CO 80204, 303-825-4144

Dr. Term Pro is one of the most complex telecommunications packages available for the Amiga. But its extensive capabilities come at the expense of utility. Its complexity and difficulty of use make it a program that cannot be recommended for either the novice or the expert user. In fact, complexity and non-standard features conspire to make this a completely unsatisfactory program.

Overall, the program's features for controlling terminal parameters are very extensive, and it supports a variety of protocols (i.e. Xmodem, CompuServe B, etc.). The non-standard Xmodem protocol does not support automatic pad stripping and is useless for downloading executable files. On most other Amiga terminals this feature is automatic.

Dr. Term Pro claims to emulate a few of the standard terminals (i.e. VT52 and VT100), but when asked to do so, it fails horribly in some cases (i.e. VT100).

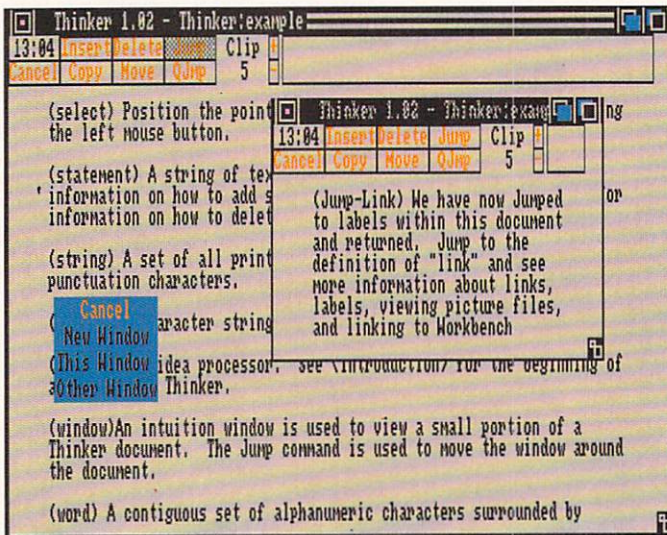
Although Dr. Term Pro offers a variety of features and an extensive script language, it does not even feel "Amiga". The pull-down menus, requestors, and gadgets are there, but they have been implemented helter-skelter without regard to convenience. For example, the requestor to save a file is a single type-a-line box -- if you need to see a directory, that's a separate process.

I had great expectations for this program, but it turned out to be a little like your grandfather's toolbox: lots of tools tossed in every which-way, some usable, some rusty or broken, some with missing parts, and some just plain incomprehensible.

- David Martin

New Products & Reviews

... continued



Thinker, the first HyperText system for the Amiga.

RODIN WARE

Thinker, from *Poor Person Software*, is billed as an idea processor, something we've seen before. What we haven't seen before is *Thinker's* hypertext capabilities. As a matter of fact, this is the first Amiga product we've seen that supports hypertext at all. What hypertext does is provide links between text, images, Workbench applications, and the like. It's sort of like an outline processor with relational database overtones. A good example is included in the cover letter that came with the software: one user intends to use *Thinker* to keep track of orchid breeding. The descriptive text will have links to a picture of the flower, as well as to its parents and offspring, and jumps to the subtopic or image are accomplished by a mouseclick on the appropriate word. The possibilities of hypertext are limited only by the user's imagination. (Take a look at Ted Nelson's *Computer Lib - Dream Machines* for more about the hypertext

concept.) *Thinker* is being offered at an introductory price of \$59 until April, after that it will retail for \$79. 3721 Starr King Circle, Palo Alto, CA 94306.

PROTECTION

The latest entrant in the war on viruses comes from *DevWare*. **Anti-Virus** displays a visual bootblock every time you do a warm boot - if there's a virus present, the custom logo isn't displayed. The package also includes a bootblock archiver for added protection. Cost is \$39.95. 10474 Rancho Carmel Dr., San Diego, CA 92128. 619-673-0759.

TOP 40

Aegis has released **Sonix Soundtrax Volumes One & Two**, which are collections of interactive songs to use with *Sonix*. There are two disks in each volume, and each volume retails for \$19.95. 2115 Pico Blvd., Santa Monica, CA 90405. 213-392-9972.

COMING SOON

This list of over 60 new games includes recent releases (marked with an asterisk '*') and others that have been announced by their publishers as "coming soon". For even more new game titles, see the Consumer Electronics Show report elsewhere in this issue.

C64:

Accolade: *TKO**, *Grand Prix Circuit**, *Jack Nicklaus**
Activision: *Chop 'n Drop**
Electronic Arts: *Jordan vs. Bird**
Epyx: *Dive Bomber**, *Street Sports Football**, *Space Station Oblivion**, *Legend of Blacksilver**
Gamestar/Activision: *Take Down*
Konami: *Blades of Steel*
Kyodai: *Hydride*, *Babylon*
Lifestyle Publishing Group: *The Naval Battle of Guadalcanal*
Mindscape: *Aussie Games*, *Hostage*, *Combat Course*, *Sgt. Slaughter*, *International Team Sports*, *After Burner*, *Shinobi*, *Action Fighter*
Origin: *Tangled Tales (Mar.)*
PSS/EA: *Annals of Rome**
Sega/Mindscape: *Alien Syndrome**
Scorpion: *International Soccer**
SSG/EA: *MacArthur's War**
Taito: *Operation Wolf**
Titus: *Crazy Cars**

AMIGA:

Anco: *Super 6* (a collection including *Grid Start*, *XR35*, *Karting Grand Prix*, *Las Vegas*, *Flight Path*,

Thai Boxing)

Broderbund: *Operation Cleanstreets**
DigiTek: *Skyblaster**, *Hole in One Course Disk**
Epyx: *Technocop**, *Legend of Blacksilver**, *Battleship**, *California Games**
Ethos: *Casino Fever**
First Row: *Prime Time**
Incognito: *Snake Pit**
Joker/Mindscape: *Joker Poker**
Mastertronic: *War in Middle Earth*
Microdeal: *International Soccer**, *Talespin*, *Golddrunker II*
Mindscape: *Hostage*, *Combat Course*, *After Burner*, *Shinobi*, *Action Fighter*, *Deja Vu II: Lost in Las Vegas*
Mindware: *Charon 5**
Paragon: *Master Ninja**, *Twilight's Ransom**
PSS/EA: *Annals of Rome**
Psygnosis: *Captain Fizz Meets the Blastamen*
Rainbird: *Universal Military Simulator**, *UMS Vietnam Scenario Disk**, *UMS Civil War Scenario Disk**
Scorpion: *Space School**, *Purple Heart*
Sierra: *Silpheed*
Spinnaker: *Star Ray**
SSI/EA: *Rebel Charge at Chickamauga**
Terrific/Antic: *Crash Garrett**
Titus: *Galactic Conqueror*

New Products & Reviews



AC/BASIC 1.3

Absoft Corporation, 2781 Bond Street,
Auburn Hills MI 48057, (313) 853-0050

\$195.00

Absoft's AC/BASIC compiler for AmigaBASIC has become quite popular with novice and intermediate Amiga programmers. The latest version, 1.3, is intended to correct some flaws in the earlier releases and add new features. Owners of version 1.2 who registered by May 16, 1988 received 1.3 for free. If you registered after July 16, 1988, you'll have to pay a \$50 upgrade fee.

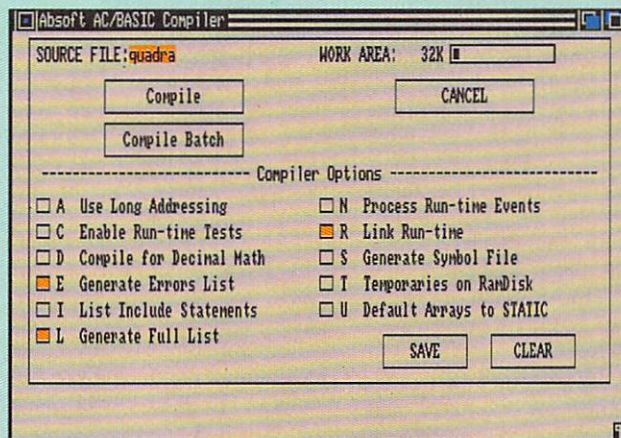
Because Absoft produces companion compilers for the Mac and Apple IIGS, AC/BASIC source code is easily portable between these systems and the Amiga. A BCD math option provides accuracy for calculations where round-off errors are unacceptable, and the compiler now uses full 32-bit addresses for virtually unlimited program size and compatibility with 68020 microprocessors.

There are no royalty fees for distributing compiled programs, although you must register them with Absoft first.

One of AC/BASIC's greatest strengths is its degree of compatibility with the Microsoft AmigaBASIC interpreter. I tested the AC/BASIC compiler with all sorts of AmigaBASIC programs, including several I had written a couple of years ago and many from public domain sources. Since the compiler can only understand plain ASCII text files, tokenized AmigaBASIC programs have to be loaded into the interpreter and resaved with the "A" (ASCII) option before they can be compiled. Once this was done, all of them compiled and ran, although many required minor changes first (even one of the demo programs included with AC/BASIC!). If a program is written with the compiler in mind, there should be no problems.

AC/BASIC comes with a 450-page manual that does a much better job as a reference and tutorial to the language

Why compile a BASIC program? The answer is pure and simple: speed. A simple FOR/NEXT loop (FOR x = 0 to 100000 : NEXT x) that took 43 seconds to execute under AmigaBASIC took less than 10 seconds to execute after compilation with AC-BASIC. You can imagine what that kind of speed improvement does to pokey AmigaBASIC games and applications!



than the original AmigaBASIC manual. Although the illustrations and some of the typesetting are crude, the text itself is clear and concise. A fairly thorough index rounds out the manual. Despite all this, if you're new to programming, you'll still need a tutorial BASIC book.

Code size for stand-alone executable programs is relatively large, due to a 43K run-time library; to be fair, this is a problem with most BASIC compilers. A compiler option allows programs to dynamically link to the library; in this configuration, it exists as a separate file that is loaded at run-time by the program. Multiple programs can use the same library file, but you must make sure the separate library file is included on the disk. This allows substantial space savings at the cost of convenience.

Despite extensions provided by Absoft (including a SELECT CASE statement), the BASIC language still has some shortcomings; for example, it lacks records or structures. If you want to do serious low-level programming of the Amiga, these constructs are necessary, and another language would be more appropriate.

Finally, the compiler ought to be able to understand tokenized AmigaBASIC programs in addition to ASCII text files. This would make the transition from interpreter to compiler much easier.

As usual, Absoft has produced a fast and solid compiler. Its ease of use (and the readily available AmigaBASIC interpreter) make it ideal for novices, while its speed and power will satisfy intermediate and even some advanced users. Although not very practical for Amiga system-level programming, the AC/BASIC compiler provides a simple but powerful alternative to traditional compiler languages.

- Warren Block

New Products & Reviews

... continued

MORE DESIGN

Antic Software is releasing the latest in their **Design** series of objects for 3D rendering. This one is the **Interior Design Disk** and will retail for the same price at the earlier volumes, \$34.95. It features a collection of furniture, appliances, and the like ready for your rendering. 544 2nd St. San Francisco, CA 94107. 415-957-0886.

THE WINNER IS...

The folks at *Baudville* sent along a copy of their latest productivity package, **Award Maker Plus**. It's an easy to use program to generate awards and certificates in black and white or color. (I was wearing one of the included gold seals on my forehead, but Megan tried to run me through the INFO embosser, so I put it back on her Witch Award where it belongs.) \$49.95. 5380 52nd St. SE, Grand Rapids, MI 49508. 616-698-0888.

REF BOOKS

Two more books arrived from *Abacus*. **AmigaDOS Quick Reference** (\$14.95) is a slim (114 p.) pocket sized volume that contains just about anything you need to know about using CLI. The book is thoughtfully laid out and clearly written. *Workbench 1.3* is also covered in it. The other volume is **Amiga C for Beginners** (\$19.95). A quick thumb-through shows it to be just that. It starts with using a C compiler and, thankfully, doesn't assume any prior knowledge of the language. There are lots of sample listings to learn from and the explanations are lucid. 5370 52nd St. SE, Grand Rapids, MI 49508. 616-698-0330.

LISTEN HERE

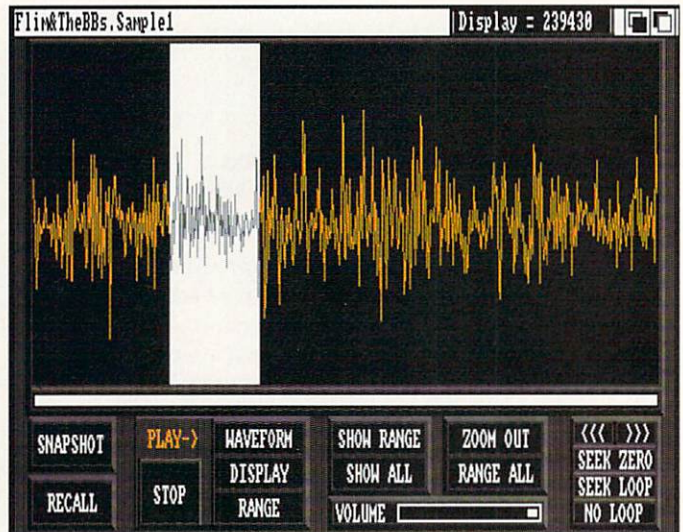
Aegis sent along a copy of **Audiomaster II**, their stereo sound digitizing software. (You'll need to provide your own hardware sampler - there are several on the market.) The software can be used to fine tune your sample, add digital effects to it, edit it, and generally muck about with it. One very nice feature is an automatic loop-seek function that will help find points for looping the sample for instrument creation. 2115 Pico Blvd., Santa Monica, CA 90405. 213-392-9972.

FEELING PECKISH?

Rob Peck, Amiga guru of the first rank and author of the *Amiga ROM Kernel Manual*, sent us copies of two of his books: **The Amiga Companion** (\$19.95, published by *IDGC/Peterborough* (and that means *AmigaWorld*), 80 Elm St., Peterborough, NH 03458.) will guide you through the intricacies of the CLI. **Programmer's Guide to the Amiga** (\$24.95 from *Sybox*, 2021 Challenger Dr., #100, Alameda, CA 94501. 415-523-8233) is oriented to using C, and provides specific technical information on taking advantage of the Amiga's capabilities through C. Please note, though, that this isn't a C tutorial, and that the book assumes a knowledge of C. The underlying theme of the book is examples, examples, and more examples. A disk of the listings is also available.

McDISK

If, for some peculiar reason, you want to transfer files from a Mac to an Amiga it's now possible. *Central Coast Software* is



Audiomaster II's editing screen.

coming out with **MAC-2-DOS**. Actually, there are several reasons you might want to do so: outputting PostScript files and transferring Mac graphics spring to mind. An external Mac drive is required and the package comes with an adapter cable. Tentative prices are \$295 with a Mac drive, \$89.95 without the drive. Contact the company for final pricing. Also available from *Central Coast Software* is **Quarterback Tools** (\$79.95), which is a collection of utilities designed to make life with a hard drive a little easier. 424 Vista Ave., Golden CO 80401. 303-526-1030.

RIGHT OF ASSEMBLY

Michtron sent along the latest version of their **Devpac Amiga** machine language assembler. Version 2 supports macros, long labels (whether they're local or global), multiple sections, and compatibility with *Metacomco's* assembler. It comes with the necessary 'include' files, a

reconfigurable editor, a linker, and debugger. A stand-alone version of the assembler is also included, just in case you would rather use a different editor for writing your source. The debugger uses its own screen, so you can multitask it. Additionally, the assembler and the debugger are accessible from within the editor. \$99.95. 576 S. Telegraph, Pontiac, MI 48053. 313-334-5700.

PRISTINE HUES

Pure Color is a disk of reference palettes from *Graphic Design Studio*. The screens, in *Dpaint* lo-res format, are intended to be used as reference charts for color proofing with any color printer. Each screen has thirty colors on it, with each color clearly labeled with the RGB values required to produce it. The whole works can also be printed out for a wall-sized chart. Cost is \$19.95. 417 Transcontinental Dr., Metairie, LA 70001. 501-455-0341.

New Products & Reviews



MICROFICHE FILER PLUS \$179.00

Software Visions, PO Box 3319, Framingham MA 01701, 617-877-1266

Using the microfiche metaphor for database management is a novel concept, and Microfiche Filer Plus makes that metaphor work exceptionally well.

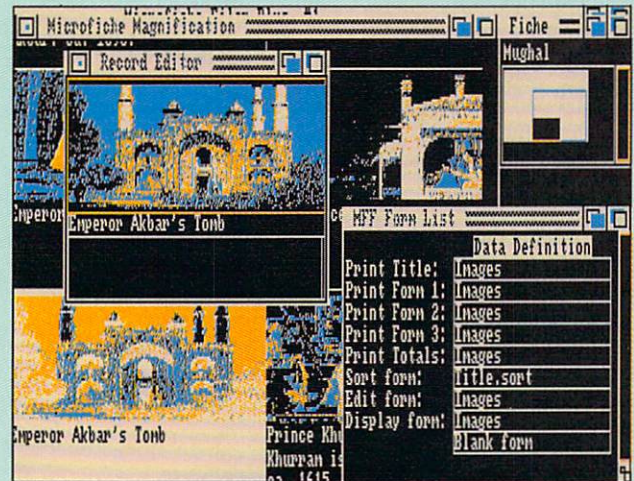
Microfiche are a form of microfilm often used by libraries (INFO is available on microfiche) in order to save space. Each page of a book or magazine is photographed and drastically reduced. A standard film microfiche can hold about 100 pages. To read the contents again, a magnifier is used. Microfiche Filer Plus (MFF) employs the same techniques for organizing data, but can hold many more fiche than the film kind.

The initial screen shows three windows: one for data, one for positioning the magnifier, and the third, and most important, for manipulating the format in which the data is displayed. By making the file and form editors an up-front and easily changed part of working with the data, MFF offers great flexibility.

In initial file setup, MFF is the only database manager I've ever seen that doesn't require specifying a character length for each field. The user is presented with a generic, malleable field that can be enlarged, shrunk, moved around, and generally prodded into whatever shape or function is required. That includes calculations and pictures.

It's in MFF's unique graphic orientation that it really shines. Because data is displayed onscreen in shrunken form, it is ideally suited for keeping track of graphics files. There are even tools for enhancing the reduced images to make them more recognizable. There is an absolute beauty in this idea. Let's say you're looking for a particular graphic, but you've forgotten what the filename is. (Not that I ever do that, personally. Well, OK, maybe a couple of times. All right, so I do it twenty times a day. Wanna make something of it?) With MFF, it's likely you can find the image you're looking for without having to load in file after file. All you have to do is move the magnifier across the fiche until you spot the one you're looking for. (Of course, you can also search any text attached to the image if you need to.)

And that brings us to speed. MFF is so fast it plays like an arcade game. Sorts are so fast they appear instantane-



ous. Shifting from one form to another is accomplished in a blink. There is a price to pay for that speed, though: the size of your file is limited to available memory. If you plan to work with very large files, you're likely to run into problems. To their credit, Software Visions have done all they can to use memory efficiently.

MFF is the first database manager to have integral ARexx capabilities, effectively making it programmable. Some 30 ARexx commands specific to database work have been built into MFF. (Please note that you'll have to buy ARexx separately, and you definitely should; MFF provides the hooks but not the program.*)

Thoughtfulness is a quality often missing from software, but MFF is filled with touches that make working with files and entering data less onerous. The editing commands are sensible and carefully thought out. There are keyboard commands for virtually every menu selection. Going through the manual's Quick Tour is absolutely mandatory before you even try setting up a file, but the actual process is fast and simple.

I didn't expect to be nearly as impressed as I am with Microfiche Filer Plus. It is an elegant program that belies its power. The only weakness I can find in it is the memory limitation. For most individuals and small businesses, it would be an ideal alternative for data management. And if that data is graphic, Microfiche Filer Plus has no peers.

- Tom Malcom

*ARexx is available from William S. Hawes, PO Box 308, Maynard, MA 01754.

New Products & Reviews

... continued

NOTEWORTHY

Dr. T's Music Software is shipping their *Copyist Professional* sheet music publisher. Scores can be imported from Dr. T's own music software titles, as well as from standard MIDI files or SMUS format. It includes all the usual musical symbols, along with guitar chord grids. It has 16 stave capability which will handle orchestral percussion. The package supports both dot matrix and laser printers and the sample output page they sent along looks great. Cost is \$275. 220 Boylston St., Suite 206, Chestnut Hill, MA 02167. 617-244-6954.

TAXING EXPERIENCE

The words "Form 1040, Schedules A-E, SE, 2106, 2441", and "IRS" are enough to strike fear into the hearts of most everyone. **TaxBreak** handles all of them and will guide you through your Federal tax preparation. Online help and a pop-up calculator are also included, and the output is an acceptable official IRS facsimile. \$79.95 from *Oxxi*, PO Box 90309, Long Beach, CA 90809. 213-427-1227.

NOVELTY FONTS

InterActive Softworks is releasing a two disk set of novelty fonts created with their own *Calligrapher* font design package. **Novelty CalligraFonts** contains 30 fonts in such styles as Ice, Pencil, and Stars and Stripes, in point sizes ranging from 32 to 84. Cost is \$69.95. 2521 S. Vista Way, Suite 254, Carlsbad, CA 92008. 619-434-5327.

BEGINNER AMIGA

If you're new to the Amiga, **Amikit** provides an introduction to using both Workbench and CLI. The three disk set has a bunch of public domain software, including a wordprocessor, spreadsheet, games, demos, toys, and the like. The manual will guide the tyro through the confusion of Preferences, and even gives directions for creating a customized Workbench disks. \$39.95 from *Vega Technologies*, 3171 Iris St., San Ysidro, CA 92073. 619-477-2024.

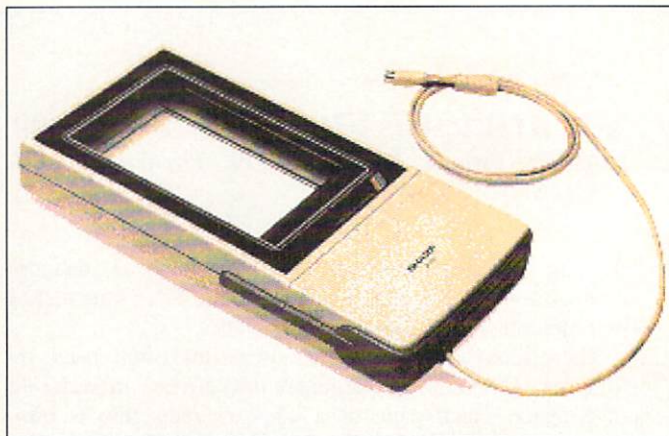
PS

PrintScript is a PostScript printing utility from *Pixelations*. It works with Preferences printers, converting PostScript to something that can be understood by dot printers. The specs we have say that 9-pin output is suitable only for preview, but 24-pin dot matrix is adequate, and that DeskJet output is virtually indistinguishable from LaserJet print (which it also supports). It also supports halftone images and comes with two built-in fonts. \$89 from *Pixelations*, PO Box 547, Northboro, MA 01532.

AMIGA HARDWARE

PLAYING OCTOPUS

MicroDeal is offering a joystick adapter cable that plugs into the Amiga parallel port and adds two additional joystick ports. So far, two of *MicroDeal*'s games, *Leatherneck* and *International Soccer*, support a four-player mode, and more are to follow. It's \$14.95. 576 S. Telegraph, Pontiac, MI 48053. 313-334-8729.



The Sharp JX-100 scanner

LITTLE SCAN

We told you about *ASDG*'s color scanner in issue #24. Now they have come out with a low-end model, the **ScanLab/100**. It's a hand-held unit that will scan an area about 4" x 6" at a resolution of 200 DPI. The scanner itself is *Sharp*'s model **JX-100**. (The special cable and software from *ASDG* are specific to the JX-100, which means you won't be able to plug a bigger scanner into it if you should want to upgrade in the future.) The price for the JX-100 is \$995, and the cost for the cable and software has yet to be announced. 925 Stewart St., Madison, WI 53713. 608-273-6585.

CARD STUFF

If you've been envious of A2000 owners' ability to plug cards into their machines, and you have an A1000 or A500, envy no more. *Phoenix Electronics* have produced an expansion chassis for each machine. Each one will accept all the usual A2000 cards

(including the 2088 PC emulator and the 2090 hard drive controller as well as all the DMA hard cards and SCSI controllers). There are two models of the A500 and A1000 boxes, one with a power supply (\$253.95) and one without (\$179.95). The chassis are side-mounted and have pass-thrus. *Phoenix* is also producing two more models, these with coprocessor slots. No price has been set yet. 314 Court St., Clay Center, KS 67432. 913-632-2159.

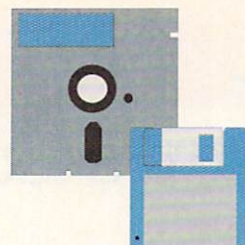
NEW RODENT

Southern Technologies, one of the country's largest Amiga distributors, has come out with a product of their own. For \$59.95, you can have a **My T Mouse**, a lightweight, 3-button mouse. The size of the leftmost button has been reduced so you can find it more easily by touch. It's compatible with current and future Workbench versions. (V1.4 will support a 3-button mouse.) 2009 McKenzie, Suite 110, Dallas, TX, 75006. 214-247-7373.



COPY CORNER

By David W. Martin



JIFFYDOS

C64 System \$59.95, C128D System \$69.95, 1581 or 1571 ROM \$29.95
Creative Micro Designs, P.O. Box 789,
Wilbraham MA 01095 413-525-0023

QUICK! QUICKER!

JiffyDOS is truly an innovative C64/128 product. It's currently the only speedup system that supports more than nine different drives. The list includes most of the third party drives and all the Commodore drives (1541/71/81).

Installation of JiffyDOS is simple and painless; at least, it is if you're not afraid of opening the computer's case and replacing a chip. A switch to control the on/off status of JiffyDOS can be mounted by drilling a hole or simply taping the switch to the computer's case (like I did using insulated electrical tape). The same is true for the disk drives: simply replace a chip and install the switch where you want it. (Not all drives support the on/off switch; some are software controlled.)

JIFFYDOS VS. RAPIDOS PROFESSIONAL

(Only C64/1541 times are listed)

	JIFFY	RAPI
Load 202 blocks	00:12	00:03
Save 202 blocks	00:56	00:08
Format 35 tracks	00:21	00:18
All file types?	YES	YES
DOS wedge?	YES	YES
Function keys?	YES	YES
C64 and C128 mode?	YES	NO
Works with a modem?	YES	NO
Compatibility		
Guarantee?	YES	NO
INFO RATING	★★★★	★★★

JIFFYDOS SPEEDUP TIMES

	1541	1571	1581	NORMAL
LOAD 202 BLOCK FILE C64/128	00:12/00:12	00:09/00:09	00:08/00:08	02:14/00:49
SAVE 202 BLOCK FILE C64/128	00:56/00:58	00:52/00:50	00:28/00:32	2:00/01:33
FORMAT A DISK TRACKS/TIME	35/00:21	35/00:21	80/01:40 70/00:40	35/00:90 70/00:40

Listing format: C64/C128 in mm:ss System used: C128D with external 1541 & 1581

The JiffyDOS system that I tested on a C128D provided disk speedup in both C64 and C128 mode. There was no need for two different versions of the hardware for the computer. This ability is something no other hardware speedup currently offers.

For the most part, JiffyDOS speeds up the loading and saving times of files by a wide margin. Due to the variety of drives supported, please refer to the tables for load time comparisons. The second chart compares JiffyDOS and RapiDOS Professional when used with a 1541 disk drive.

The JiffyDOS system also adds some nice features to the computer. The screen editor is enhanced, with the addition of a BASIC listing freezer. Preprogrammed function keys put all of the most commonly used commands just one keypress away. And if you see something on a text screen that you need a hardcopy of, a keystroke will dump it to the printer. An added plus is that all device commands default to the disk drive instead of the cassette (the cassette is the only device that is not accessible when using JiffyDOS).

A comprehensive DOS wedge is included, making the disk drive and BASIC easier to work with. Commands for viewing files on the screen, a BASIC un-NEW, and file lock and unlock (locked files cannot be scratched) are just many of the enhanced JiffyDOS wedge features.

Overall, JiffyDOS is a wonderful disk speedup system. Both expert and casual users will find its features easy to use and a useful addition to their computer systems. Unlike RapiDOS Professional, JiffyDOS allows total access to the modem using both slow and fast disk accesses. There are no cables to plug and unplug. My only wish would be for an on/off switch for the versions which don't have them, specifically the 1571 and 1581. (I ran into some incompatibilities with SSI's *1581 ToolKit* that required a ROM swap before things would operate correctly. A switch would have saved the day.)

Installation of the JiffyDOS system was easy, and it worked the first time with no glitches. The installation documentation was great. In fact, the entire set of documentation was professionally done. After installing the system, I ran some tests that came very close to advertised figures. JiffyDOS was definitely faster than standard DOS by a wide margin in all cases tested, and, though it was generally not as fast as RapiDOS Professional, I encountered fewer compatibility problems.

JiffyDOS is a very fast, versatile, and reliable disk speedup package for the C64 or C128 which supports a wide variety of disk drives. It worked well with most of the programs I tested, including programs using heavy protection schemes and their own fastloaders. I'm impressed. ★

News & Views

NEW OUTLETS

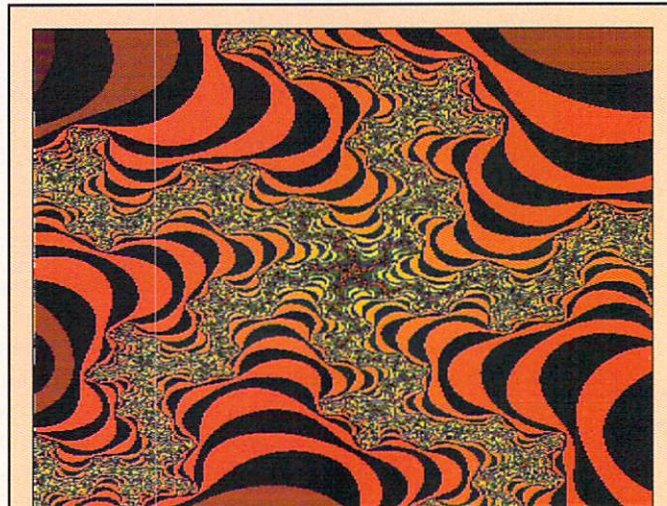
It just got a lot easier to find Amiga software and hardware. Software Etc., WaldenSoftware, and Electronics Boutique are now carrying Commodore Amigas and software. This adds almost 400 highly visible new Amiga stores nationwide: Software Etc. has 230 stores, Electronics Boutique has 140, and WaldenSoftware has 27. Looks like those "new faces" at Commodore are starting to bring home the bacon.

WORLD'S FASTEST COMPUTER

NASA's Ames Research Center in Mountain View, California, has taken delivery on the world's fastest supercomputer. The Cray Y-MP performs at a peak speed of 2.37 billion operations per second, a factor of 10 faster than the Cray-2, the previous record holder. The Cray Y-MP incorporates 8 parallel processors to achieve its speed, and relies heavily on short-path custom chip designs to keep the speed of light from becoming the limiting factor in its operation. This particular system came with 32 megabytes of main memory and 256 megabytes of semiconductor storage, but you can't buy videogame one to play on it. It will be used to run simulations of new aircraft and spacecraft designs.

BADGE WINNERS

INFO is proud to have been a sponsor of the First Annual BADGE Killer Demo Contest. (This is the second such contest -- the first was numbered the "Zeroth".) Our congratulations



FRACTAL NEWS

If you're a regular traveller into the Mandelbrot set, you'll want to check out *Amygdala*, a periodical devoted to fractals in general and the Mandelbrot set in particular. It contains lively discussions of fractal formulae and theory, the artistic aspects of fractals, and new ways of displaying and interpreting the results of classic calculations. This nicely-produced 8-page black & white newsletter is for all personal computers, and lists sources of software, fractal art, and literature. *Amygdala* is \$25 for 10 issues, or \$45 with a set of 24 companion color slides. The two issues we've seen (#13 and #14) include fascinating articles on plotting fractal "worm tracks" and the beginning of what looks to be an enlightening series explaining the calculation of fractal dimensions. Box 219, San Cristobal NM 87564, 505-758-7461.

to all the winners, and to all those who competed. It's Killer Demos like those generated by this contest which help to sell new Amigas, and that benefits us all. Thanks to the Bay Area Amiga Developers Groupe for all their work in organizing this competition.

Judged Best Overall (and winning a brand new Amiga 2000, courtesy of Commodore) was Brad Schenck for his Director animation *Charon*. Other winners were: Best Custom

Demo -- *Tank* by Vince Lee; Funniest -- *Not Boing Again* by Dr. Gandalf; Best Sound -- *Charon*, by Brad Schenck; Best Graphics -- *Tychoid* by John M. Olsen.

Two disks with the top three demos are available from BADGE for \$5.00 by sending your request to: Badge Killer Demo Contest, c/o Randy Spencer, PO Box 4542, Berkeley CA 94704. All of the entries will be included in the Fish Disk PD collection.

THE TAXMAN COMETH

The January 4th edition of the Philadelphia Inquirer reported that the IRS is seeking \$74.1 million in back taxes from Commodore. The IRS notice follows a four year investigation of Commodore's 1981-1983 tax returns. The newspaper story says the notice was mailed at 11:59 PM Saturday, just one day before the statute of limitations expired. The IRS is seeking the back taxes on the grounds that they believe Commodore's U.S. subsidiary should rightly be considered the parent company of its worldwide operations. Commodore contends that it is incorporated in the Bahamas and therefore owes no U.S. tax on overseas sales, which amount to 80% of their revenues. To offset any potential IRS levy, Commodore has \$113 million in tax-loss carry-forwards and about \$14 million in R&D tax credits, as well as a \$45 million tax reserve. Commodore notes that they have not hidden the IRS problem, mentioning the ongoing audit in each of their annual reports since 1984. They plan to "vigorously contest" the IRS's action.

VIDEO INSTRUCTION

Video Graphics Techniques is a 30-minute instructional videotape that will give you an overview of just how computer graphics can be incorporated into your desktop presentations. Produced with an Amiga, the tape comes in VHS format and retails for \$41.50. From *Cape Fear Teleproductions*, 605 Dock St., Wilmington, NC 28401. 919-762-8028.

INFOMania Game Tips

Here are some secret "side doors" and "back doors" to your favorite C64 and Amiga games, discovered by INFO readers!

C64

Dr. J and Larry Bird Go One-on-One: To shatter the backboard, press the slash (/) key and then perform a dunk. It should shatter the backboard every time. - Chad Paulson

Neuromancer: To get all the money you'll ever need, send your BAMA ID to Armitage via PAX. He'll upload \$10,000 to your account and tell you to meet him in front of the Matrix restaurant. Go there and get arrested. After your trial, repeat the actions. You must be carrying a little money or the court will start giving you the death penalty. This trick will only work on the first 'day' of the game. - Norman Fair

Double Dragon: To cause your enemy to become stuck in one place, move all the way to the top, then jump over your opponent. He will then be stuck in place and you can turn around and kick him. Moving back down the screen will make the game continue normally. - Ami Mukerjee

Bard's Tale II: The dream spell for this game is ZZGO. Using it will let you go into any dungeon you want. - Thanh-Do Nguyen

Ghost Chaser: To start on Level Two, type FANDA at any time during play. Type FRANK for free lives. - Scott Duren

AMIGA

F/A-18 Interceptor: From the main menu of Interceptor, select option 2, "Free Flight - no enemy confrontation." When you are asked to select starting position 1 to 4, press zero. The screen goes into a spiral and begins to scroll south on the satellite map, all the way down to 34 by 117 degrees. Your plane is placed in the middle of a desert (green area) without a runway! The only way you can take off from this point is to fire the afterburners. You can try to fly in different directions, but you won't be able to fly any further south than the horizontal "117" mark on the map. I don't know what purpose this aspect of the game serves, but it is interesting. - Anthony Maraldo

Sword of Sodan: For unlimited lives type NANCY <return> on the high scores screen - Meyer Toole

Leisure Suit Larry: To bypass the proof-of-age questions, hit Alt-x - Bryan Ansari

Better Dead Than Alien: On the options screen, type CHAMP. Then hit the Help key and you'll be presented with a list of cheat keys. - David Norton

If you've discovered hidden "secret tricks" in your favorite game, share them with other INFO readers! We're not interested in strategy tips, but true "side doors" or "back doors" that work to your advantage, or let you do something weird and wonderful. If we print your tip, we'll include your name and send you a world-famous INFOManiac Kit! Don't forget to tell us which machine the tip is for! Send to: INFO Mania, PO Box 2300, Iowa City IA 52244.

VIRUS UPDATE

Reports from England tell of a new Amiga virus, and we've heard rumors of it on this side of the Big Ditch, too. This one is not a simple bootblock virus, but a worm which attaches itself to the first executable file it finds in a disk's startup-sequence.

If also has an affinity for the DIR command in the C: directory. The only thing it seems to do is change the title of the first window opened (usually the CLI) to its own name, *IRQ VIRUS*. It also seeks new victims by polling the startup-sequence of any new disks inserted into the drives. It crashes the system under KickStart v1.3 and, because it is file-based and not bootblock-based, this virus can be transmitted via downloaded software.

Version 3.1 of Steve Tibbett's *VirusX* will detect and kill the IRQ Virus, and the public domain program *KV* will check for it in an entire directory. Without these programs, your only clue to its existence may be about a 10 second longer boot time and a longer file length for any file it attaches to. Since we know this particular virus seeks the C:DIR command and the first executable file in a startup-sequence, those files are the ones to keep the closest eye on.

It's time to archive all your file lengths with the LIST command, gang! Remember: **LIST >filename** will save to disk a text list of the lengths of the files in your current directory. If you later have doubts about a file, you can check its length with LIST and compare it to what the file says. Don't forget to leave disks write protected unless you are writing to them, too. The war is escalating -- take every precaution.

News & Views

... continued

COMMODORE IN THE MEDIA

INFO's readers report Commodore sightings on film, on television, and in print.

COMING SOON: Look for *Borders*, a "political art video" coming in April on the PBS series *New Television*. The 53-minute video integrates live footage with art and special effects created on the Amiga. It combines a variety of images and ideas, from commentary on the government to scenes of King Kong at the Guggenheim Museum. The video was produced by Merrill Aldighieri and Joe Tripician using *Deluxe Paint*, *Photon Paint*, and *Aegis Animator*, among others. We haven't seen it yet, but it sounds very strange and interesting.

If you saw the scoreboard in action at Superbowl XXIII in Miami, then you witnessed the Amiga at work. An Amiga running Antic Software's *Zoetrope* was used to create the animated sequences displayed on the "Jumbotron" scoreboard throughout the game.

The new CBS television series *TV 101* uses an on-camera A1000 running *Deluxe Paint II* to create titles and animations. This TV show is about high school kids who produce a TV show, and the Amiga gets considerable airtime.

On the Dec 30 broadcast of the CBS newsmagazine *20/20*, a Commodore 64C appeared in a segment on winter depression. It was being used to control artificial lighting, which seemed to help alleviate depression. Let's hope they had a few games around to play, too. Nothing

beats winter depression like a little alien-blasting!

A C64 running a Jack the Ripper videogame was featured in a *West 57th* story about the 100th anniversary of the Ripper's crimes.

In the film *Police Academy 3: Back in Training*, a C64 was used to track police officers in the field. But the bad guys reprogrammed it so that the radar blip turned into a *Pacman* figure. The screen display also intermittently displayed the game *Paperboy*.

A California show called, appropriately enough, *California Stories*, broadcast an episode about a NASA artist who uses *DigiView* and *Deluxe Paint II* to digitize and manipulate astro images, which he then paints in oils.

In the 1986 film *Choose Me*, a C64 and 1702 were used by a radio station to post the names of incoming callers for the radio personalities to read. Commodore was even listed in the film credits.

A C64 and 1541 have a cameo role in one of the newer *Twilight Zone* episodes. The plot revolves around a bank loan officer whose broken glasses give him the ability to see the future. In a scene where the bank president orders the hero to foreclose on a poor farmer, the C64 and 1541 can be seen on a desk in the background.

On the January 3, 1989 installment of *Late Night with David Letterman*, the first episode of the season, they segued to the first commercial

break with a slide depicting a Late Night logo being displayed on a 1080 monitor hooked up to a C64. And this was on the coveted first commercial break, gang!

Have you seen the feminine product commercial with the Amiga 1000 in the background?

The November issue of the trade magazine *Lasers and Optronics* has a nice big feature on vector scan laser lightshow images created by Pangolin Laser Software's Amiga-based system. The laser control is all done using the Amiga's own chipset.

Also in the trade mags, the Nov/Dec issue of *Presentation Products Magazine* had a piece on how Martin-Marietta used the Amiga to put together a killer presentation to compete for the contract for the FTS

2000 federal phone system, the largest contract ever awarded by Uncle Sam. 20 people worked six weeks on six Amigas producing the video equivalent of 1800 slides. The final presentation was given in a specially-constructed room with two ten-foot TV screens.

Thanks to online Commodore spotters PK Labs (Brian Barrett), Tasmanian, WayneL, GregR8, R Jae, and Roofeer (Richard St. Clair), and U.S. Snail correspondents Michael A. Sexton, Tom, Jim Townsend, Dan Zellers, Dean Dey, and Al Panzieri.

If you've spotted a Commodore product in the media, report it to *INFO Sightings*, PO Box 2300, Iowa City IA 52245, or on *QLink* send *EMail* to *INFO Mag*. If it's the first we've heard of it, we'll print it here and give you credit. Such a deal!

COMPUTER SHOWS

SHOW	CITY	DATES
AMIEXPO/NY	NEW YORK	MAR 3-5
COMDEX/SPRING	CHICAGO	APR 10-13
WOC/LA	LOS ANGELES	MAY 19-21
CES/SUMMER	CHICAGO	JUN 3-6
AMIGA DEVCON	SAN FRANCISCO	JUN ???
AMIEXPO/MIDW	CHICAGO	JUL 28-30
AMIEXPO/EUROPE	FRANKFURT	SEP 15-17
WOC/PHILLY	PHILADELPHIA	SEP 21-24
AMIEXPO/CA	SANTA CLARA	OCT 20-22
COMDEX/FALL	LAS VEGAS	NOV 13-17
WOC/TORONTO	TORONTO	NOV 30-DEC 3
CES/WINTER	LAS VEGAS	JAN 6-9 1990

For Registration Information Call:

WOC: HUNTER GROUP TORONTO ONT 416-595-5906
AMIEXPO: AMIEXPO NEW YORK NY 800-32-AMIGA
COMDEX: INTERFACE GROUP NEEDHAM MA 617-449-6600
CES: CES WASHINGTON DC 202-457-8700
DEVCON: COMMODORE WEST CHESTER PA 215-431-9100

THINGS WE'D LIKE TO SEE:

- ❶ A utility to UNDELETE a single file on the Amiga. These abound for the C64, but the only one I've seen for the Amiga was written in 1986 and only works with floppies. You also have to know the name verbatim, and it recovers the file not on its own disk but to another disk in drive df1:, provided you own a drive df1:. I'd like to see one that would scan for potentially recoverable files and let you pick what to recover, then recover it in place, resolving any conflicts.
- ❷ For both Amiga and C64, a utility which would let you scan DISK SECTORS or MEMORY BLOCKS in ASCII, then mark and link them to create new files. You could recover long-lost text blocks, documents in memory after a warm boot, and more. I've never seen a utility like this.
- ❸ How about a "fast boot" utility for the Amiga that would use a hotkey to intelligently snapshot a dump of memory to disk, skipping unused areas. A custom bootblock would blit the saved memory map back into RAM in a matter of a few seconds. You could set up your Workbench, startup-sequence, utilities, et al, the way you wanted them, boot once the "long way", and snapshot the whole works. From then on, warm-booting to your own custom Workbench set-up would be as fast as booting to a simple CLI window.
- ❹ Amiga again: why doesn't the operating system warn you when you're about to overwrite a file? The C64 won't let you overwrite a file, but the Amiga lets you make this common mistake as many times as you like without warning. Why not a simple "File Exists. Overwrite? YES/NO" requester like we see in so many programs?



Rumor Mill

DISCLAIMER: The following are among the most entertaining rumors we've heard the past couple of months. They are presented for your entertainment and amusement only. Please do not make any important decisions based on these rumors, as many will prove to be inaccurate or just plain false.

> Word on the street says that Commodore has stopped making the 1571 disk drive, but we hear otherwise. The full story seems to be that the marketing firm that distributes Commodore systems to mass merchants in the U.S. has decided to stop carrying the 1571, though they will still distribute the less expensive 1541 and 1581. Foreign markets are still able to get plenty of 1571s, so you may find yourself having to mail order one from Canada. We wonder if it's the same story with the hard-to-find MS/DOS-compatible Amiga 1020 5.25" drive?

> While we're on the topic of the 1571 and MS/DOS compatibility, we hear that a third party is working on an IBM/PC interface and software which would let it use the 1571 to access a wide variety of disk formats. It seems the 1571 is a lot more versatile than your standard MS/DOS drive.

> The Rumor Mill is churning with stories of not one, but two prototypical dedicated game machines taking shape in Commodore's R&D labs. Remembering that much of what is developed is never marketed, here's what we've scoped out on the two machines so far:

> The first is an 8-bit game machine (!) loosely based on C64 technology. "Loosely" because it will not run C64 software, and the cartridge port is totally different. The CPU is said to be an 8-10 MHz 6502; the video chip's an advanced VIC-III chip with an added 80-column mode. It will address a meg of RAM, though it will probably initially have only 256K-512K. Some of the specs we hear sound kind of...well, stupid, for what is supposed to be a game machine. Examples? How about a full keyboard; optional disk drive (neither C64 nor Amiga compatible); built-in serial and parallel ports; RGBA video output but no composite or RF video; and a pricetag of over \$300? Some of the sources we talked to are speculating that the chip design guys at Commodore are just trying to justify their existence with this one -- the smart money is betting it will never see daylight.

> The second game machine seems more probable -- it will be a stripped-down Amiga 500 with a cartridge port. It'll probably be configured with 512K of RAM, though some are talking half that much (we hope not). The cartridge port will likely be "credit-card" size. There is speculation that keyboard and disk drive connectors would be installed so that gamers could upgrade to full computer status -- for a price. No one we talked to would speculate on retail price, but we hear software developers are balking at the thought of having to produce versions of their disk games in the costlier cartridge format.

Magazine Index

INFO's Guide to the Best From the Rest

Ahoy!

Ahoy! is dead. January, the fifth anniversary issue, was their last. Publisher David Allikas tells us that Ahoy! is offering subscribers three options: a cash refund; a subscription to *Ahoy!'s AmigaUser*; or the equivalent in Ahoy! program disks. *AmigaUser* will continue publication on a monthly schedule.

Ahoy!'s

AmigaUser

There's a lot of information in the February issue, including a sizable new products section. There are reviews of Progressive Peripheral's *Frame Grabber* and A-Squared's *Live!* There's also an interesting AmigaBASIC program listing for flicker-free BOBs. The techniques used, similar to C's double buffering, should vastly improve the BASIC animations we see.

Amazing COMPUTING

In the wake of a tsunami of letters protesting the content (questionable) and tone (arrogant) of Amazing's Roomers column, the letters column of the December issue is devoted almost exclusively to letters praising it, and publisher Don Hicks' editorial is also in defense of Roomers. We don't dispute the entertainment value of Roomers; after all, we have our own Rumor Mill column. What we object to is irresponsible rumormongering that may damage someone's reputation or business. We do think Amazing may be protesting too much - the issue's Roomers column is considerably toned down. On the positive side, there is a delightful letter from Amiga artist Lewis Tilley, disputing Amazing's allegations that he is an elf. (I've met him, and despite his denials, he really is.) Amazing's comprehensive Product Guide should be available by the time you read this.

THE AMIGA SENTRY.

The January issue has reports on Fall Comdex and the World of Commodore Show in Philadelphia. There are also re-

views of both *Turbo Silver* and *Caligari*, as well as Abacus' *Professional Data Retrieve*. Games reviewed include *Dragon's Lair* and the as-of-then beta test version of *Roger Rabbit*.

AMIGA WORLD

The January AW focuses on desktop publishing but barely bothers to mention *Professional Page*, and the article has no graphics. There is, however, an interesting piece on UCLA's Brain Imaging Research Project, which uses Amigas in its work. The February issue features an illustrated preview of NewTek's Video Toaster (no, it still isn't available) and then goes on to discuss six video packages, without benefit of any graphics. There's also a handy list of Amiga reference books.

BYTE

I know, I know. This is two issues in a row I've had something nice to say about this Amiga-ignoring tree-killer. I'm sorry. But there's an article by Ronald Pearson in the December issue that reiterates what we've been saying about placing too much trust in spreadsheets. If you use a spreadsheet, please read the piece. It goes into considerable detail about what can go wrong and could save you both time and money.

Commodore MAGAZINE

It was coming down to deadline and we were getting a little worried that we hadn't come up with the INFO Quote of the Bi-Month. Then the February issue of Commodore Magazine arrived and there it was: "CP/M: The operating system used by Jerry Pournelle." That's from "Buzzwords - The Commodore Guide to Programmer's Slang", a must-read compendium of hilarity that defines the terms used at several software companies. There's also a piece on a visit to game publisher DigiTek, and another on Amiga ÇAD. Moving backward, the January issue has a long piece on EA's *Jordan vs. Bird*, complete with interviews with the game's designer, Mark Madland, and the star of the game, Michael Jordan. Must reading for hoop fans.

COMPUTER Gaming World

The December issue has a nice 'point-counterpoint' review of *AD&D Pool of Radiance* by Ken St. Andre and Tracie Forman Hines (he likes it, she doesn't). We like the idea of printing opposing views, and in fact had been discussing doing the same in INFO. The January issue contains an interesting (and too short) piece on coin-op conversions and their inherent difficulties. There's also a continuation of CGW's gallivant through the game companies, this time visiting Origin and SSI.

VIDEO GAMES & COMPUTER ENTERTAINMENT

This new publication, owned by *Hustler* publisher Larry Flynt, covers all electronic games. The names of Arnie Katz, Bill Kunkel, and Joyce Worley lend credibility to the slick pages. The emphasis seems to be on cartridge games, though computer games get some ink, too. There are solutions for *Spelunker* and *Life Force* (Nintendo), complete with photographic composite maps. We hope in the future they'll do the same for some C64 and Amiga games. This issue's feature story is about World War II games and simulations.

COMPUTER SHOPPER

Publisher Stan Veit continues his nostalgic and fascinating look back at the industry in the January issue. Cheryl Peterson carries on with her CP/M column, and recommends INFO while she's at it. If you need CP/M information, Ms. Peterson's column is one of the few places to look. There is an abundance of Commodore related articles scattered through the issue, including a review of Syndesis' *Interchange* and a how-to piece on digitizing.

COMPUTE!

The February issue has a good article on buying (or selling) a used computer. Check it out if you're in the market. Arlan Levitan keeps up his usual standard of hilarity with a piece on COMDEX and Las Vegas.

COMPUTE!'S AMIGA RESOURCE

Benn and Mark snagged a copy of this new mag at CES in Las Vegas. Compute! Publications hasn't changed their generic editorial policy in launching a new title. The Buyer's Guide charts for memory expansion and disk drives look to be useful if you're doing some comparison shopping. The game section does include short descriptions, but nothing resembling an opinion.

COMPUTE!'S GAZETTE

The January volume offers some advice on getting your programming efforts published in a magazine. There's also a survey of the major online services. The February issue is pretty bland, but does have a passable piece on Commodore computing abroad. There's also a buyer's guide to publishing software, without, of course, opinions.

Electronic Musician

Those of you with an interest in sound digitizing will find Editor-in-Chief Craig Anderson's February cover piece on sampling enlightening. While the article is aimed at musicians, the principles involved are universal. There's even advice on organizing your sound collection with a database manager.

HomeOffice COMPUTING

This will probably be the last time we mention this publication. The only place in the January issue that Commodore machines are even mentioned is in the miniscule game section, and there only in the machine availability blurbs. That's not to say HOC is a bad magazine, they've just moved off in a direction of little interest to Commodore users. We'll keep an eye on it for you, though, and if we come across anything interesting, we'll let you know.

ROBO CITY NEWS A MAGAZINE FOR AMIGA USERS

Vol. IV Issue 5 marks Robo City's third anniversary. Congrats to editor Mitch Lopes

and his crew. The author list of the issue reads like a Who's Who of Amigadom. Matthew Leeds talks about desktop presentations, Peggy Herrington (now senior editor of AMnews) discusses telecommunications, Robert Blackwell (a member of the NewTek gang) examines video, and the omnipresent John Foust gives us his wish list for an Amiga/AT hybrid. And just for icing on the birthday cake, the latest chapter in Mike Smithwick's hilarious "StarChip Enterboing" saga is included.

RUN

There's a truly bizarre collection of lists in the January issue. Topics include such oddities as What to Do with a Dead C64 (a door stop is the most popular answer). This issue also has Run's annual index of articles. In the February issue, Loren Lovhaug finishes up his series about the big three online services with a look at CompuServe, and there's a piece on C64s being used in TV news production at the Carleton University School of Journalism that's worth a skim. Run's annual Special Programming Issue is a disappointment in comparison to earlier ones. There's no index and the quantity of Magic items and tips is way down. There is, however, a handy-dandy programmers reference card that folds down to shirt pocket size.

TWIN CITIES 128

It's been a while since we've mentioned this important resource for 128 owners. In issue #22, publisher Loren Lovhaug came up with a much-needed conversion routine for bringing Amiga IFF graphics over to the 128 (!!!). It's a BASIC 8 program and it does work. Loren deserves big kudos for his efforts. #23 features a piece from Commodore's 8-bit guru Fred Bowen on modifying BASIC 8 so it's compatible with the 128's RAM disk. [PO Box 4625, St. Paul, MN 55104]

DISK MAGAZINES



Probably the best article in Vol.1 Issue 3 is the second part of Matthew Leeds' piece on

starting a software company. This time he talks about the money end of things. Also included on this disk are a quartet of PD programs from Steve Tibbett, including *VirusX*. Bob Lindstrom takes a look at some recent games and there's also a PD demo of Maxis Software's *Sky Chase*. The AMnews interface seems to have been modified a little: there's no way to escape from the ads, and the music, well-done though it is, has an annoying way of turning itself back on after being turned off. Be aware too, that AMnews is a memory hog and refuses to multi-task. Don't let this put you off, though. Despite technical difficulties, the content seems to be improving steadily under Peggy Herrington's guidance.

JUMPDISK

The February disk is Jumpdisk's annual Cabin Fever Issue and it looks like a sure cure for the winter malady. There is a killer collection of 13, count 'em, 13 utilities that you'll want to copy right over to your C directory: *Filter* will remove non-ASCII characters from your files, *Wordcount* computes number of words as well as byte count and average word length, *Compare* will show you any differences between two files, and the others are equally useful. The issue also contains a very good *Tetris* clone. (See the review of Tetris this INFO's Games section.) And just for fun, be sure to read the bug fix called Toasted Board Busters.

MISSING FROM THE INDEX THIS ISSUE:

Transactor, which we are told by readers and Transactor staffers alike, is shipping again in both 8-bit and Amiga versions, though the post office has apparently eaten our copies.

InfoWorld, which is heavily mired in MS/DOS and Mac news these last two months, as usual.

Computer Play, with just nothing worth mentioning this time.

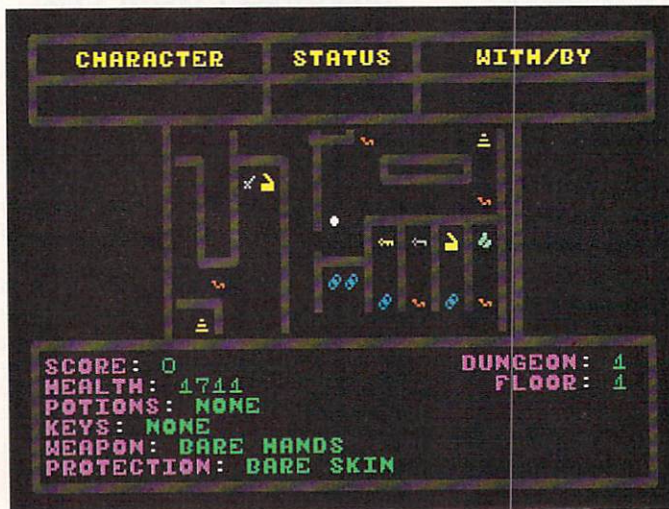
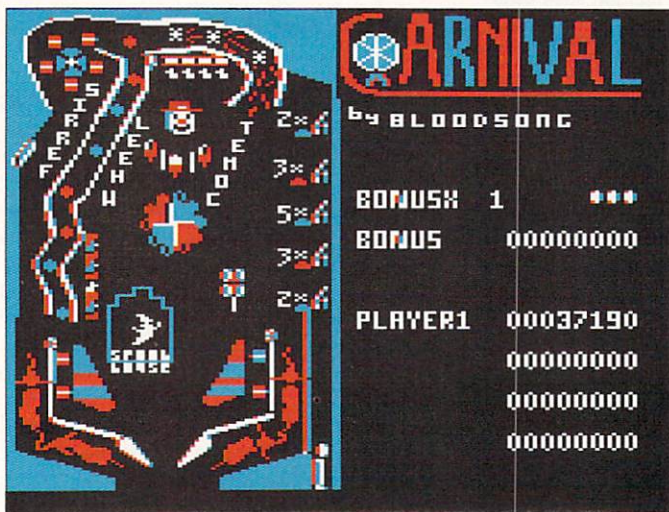
Loadstar, *Questbusters*, *Science News*, *Popular Science*, and others that were literally too numerous to mention, but worthwhile nonetheless. Check them out.

- Tom Malcom

Public Domain

The programs listed here are available on QuantumLink and American PeopleLink, and on other networks, local BBSs, and on public domain disk collections. You don't have to belong to these online services to obtain these programs. But if you're interested, you can get information about signing up for these network services by calling:

QUANTUMLINK:
703-883-0788
AMERICAN PEOPLELINK:
312-670-2666



QUANTUMLINK GEMS

GRABBERS.SDA

Here is a marvelous PD graphics grabber. There are actually three grabber programs here for text, graphic screens, and sprites. You capture graphics from a running program by pressing the reset button on your C64 or C128. (If you don't already have one for your C64, you'll have to install one.) The reset button causes a warm start which leaves graphics, text, and sprite data in the computer's memory. When you load and run the appropriate grabber program, it seeks out and displays the graphics in memory, which you can then save by pressing "s". I used the graphics grabber to capture a *GEOS* screen as well as several game screens. [From: DHW; Author: Dell Warwick; Location: CIN/ browse c-64 software/ graphics/ graphics utilities/ graphics creations aids]

GRAPHICSTORM

This program takes your *Newsroom*, *Print Shop* and *Print Master* graphics and translates them to *GEOS* format. The resulting file is then placed into your photo album for future use. Graphicstorm itself runs under *GEOS* from an icon; it has helped me to increase my graphic library without complications. [Shareware: \$3; Author: joe buckley; From: fleximan; Location: CIN/ software library/c64 library/ graphics/ graphics utilities/ picture conversion programs]

CARNIVAL.PB.SDA

Bill Budge's *Pinball Construction Set* from Electronic Arts lets you create stand-alone pinball games. This is what QLinker Bloodsongi has done; Carnival is just one of a series of enjoyable pinball games he has uploaded to QLink. [Author/From: Bloodsongi; Location: CIN/ browse c-64 software/ game world/ arcade/ other]

ADEPT LAD.LBR

This is one of the more exciting adventure programs on QLink. You play the part of the brave adept. You seek the red amulet which is hidden in one of the dungeons beneath your village. During your quest, you will encounter the forces of good and evil, and pick up armaments and keys to open doors to new passageways. This game is joystick-controlled, with an informative three-section display that shows you a map of the dungeon, battle and encounter information, and your score and wealth. When you first play, I suggest you leave the first screen up for a while to become familiar with the symbols used in this game. [Freeware: Donation; Author: Jerry Lavis; From: Treasure; Location: CIN/ computing support group/ game world/ software libraries/ games/ adventure/ text and graphics]

- Saul Cohen

8-BIT PEOPLELINK

UNO.SDA

This game is identical to the popular card game *UNO*. You play the computer, which happens to be very smart. Instructions are available to those of you who are not familiar with the game, and the one-key commands are visible on the screen during the entire game. The graphics are fine, and the game keeps a file of high scores. Warning: This game can be very addictive. [Section 8 #8258]

JUGGLER

This excellent animation is a C64 adaptation of the popular Amiga Juggler animation by Dr. Eric Graham. The frames for this demo were all hand-drawn, and the results are nearly as good as the Amiga original. [Section 14 #9105]

KRACKOUT

Krackout is probably the best public domain Arkanoid clone you'll ever find, with excellent graphics, smooth gameplay, fantastic music and sound effects, and even a full screen of user-alterable game characteristics. This is one fantastic game you'll be extremely glad you took the time to download. [Section 8 #8,945]

PROBE 80

Bret Brunk has released his version 3.2 of PROBE 80 for the C128. It is a fine disk editor which allows you to change bytes on your disk, filenames, etc. It is definitely thorough. Once you have used the cursor to select your choice, use the keys around the "5" key on the keypad to move the cursor along the bytes of the current block. It is written for 80-column mode. [Section 12 #8343]

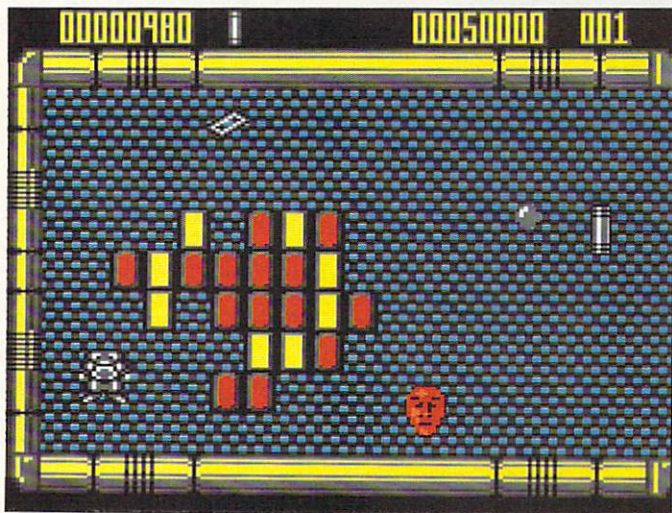
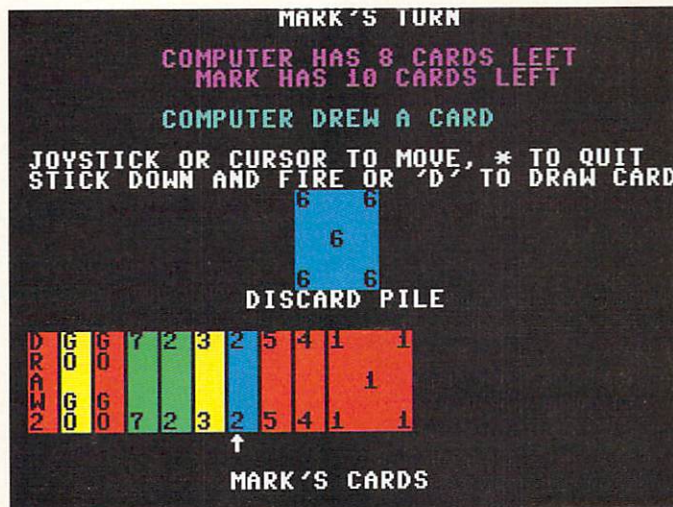
CPAINT 5.0

Sean K. Tiffany has written a program that allows C128 owners to create their own hi-res graphics on the 80-column screen. Choose your brush, pattern, and color. Then begin to draw circles, boxes, lines, or freehand, among other patterns. The program is window driven, and your joystick in port #2 allows you to make your choices. Save your finished product to disk. [Section 10 #8960]

EBBS128 V4.1 & STARBBS V5.6

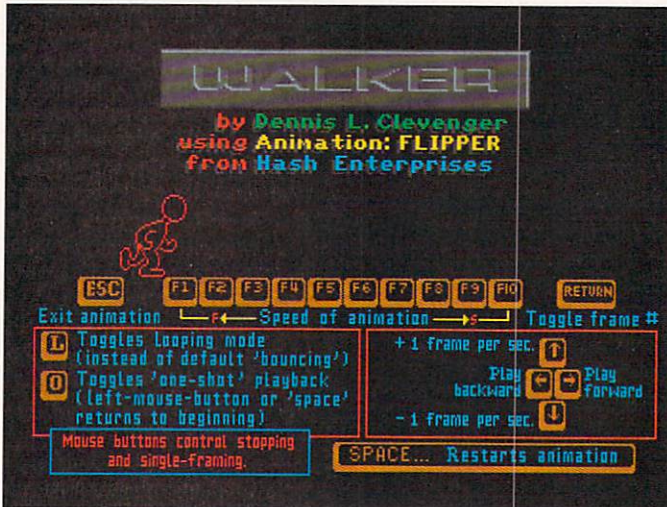
The latest public domain versions of these two C128 BBSs are now in section 12 on Plink. They both have their plusses, but Ed Parry's EBBS128 gets the extra nod for handling 2400 baud. If you've ever thought about starting a BBS, then grab either of these, follow all of the included instructions for setting it up, and enjoy. (Feel free to advertise your new BBS on Plink!) [Section 12 #8959 & #8942]

- Bob Umfer



Public Domain

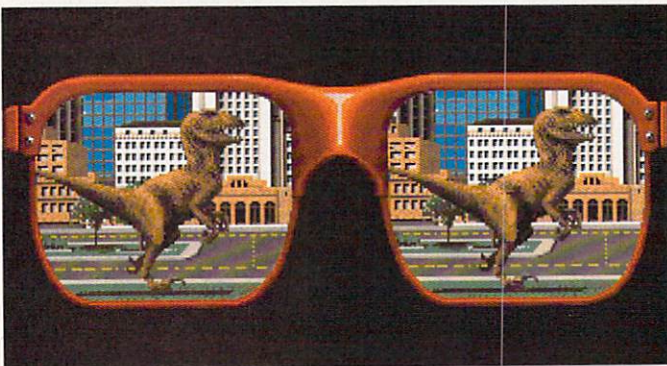
... continued



Tutorial animation from DISPLAY.ARC [#12785].



NOT AGAIN.ARC [#14144] by Eric (Dr. Gandalf) Fleischer.



SUNGLASSES.ARC [#4782] by Jim Sachs.

PEOPLELINK AMIGA

In the world of Amiga animation programs, you literally can't tell the players without a scorecard. With some exceptions, each commercially sold animation package requires its own "player" to view its animations. In most cases the players are freely distributable, meaning that, although they remain property of the publisher, you may pass them around to your friends and over the networks without fear of software piracy. The problem faced by many people, especially beginners, is knowing which player to use with which animations. Here are the most popular and frequently used of the animation players:

SHOWANIM53.ARC [#13,661] by Gary Bonham is up to version 5.3. Its primary use is to view animations created with Aegis products but it'll work on any "opt 5" format ANIM file. This player is invoked via the CLI. Many playing options are displayed as your animation loads. Sound is not directly supported.

MOVIE13-FIXED.ARC [#14,364], written by Eric Graham of Byte by Byte, is primarily intended for playing animations created with *Sculpt-Animate 3D* and *4D*. Animations can be synced with sound effects or music using a small script file as explained in the documentation. Also included are *DILBM* and *PILBM*, two programs for creating Movie-compatible animations.

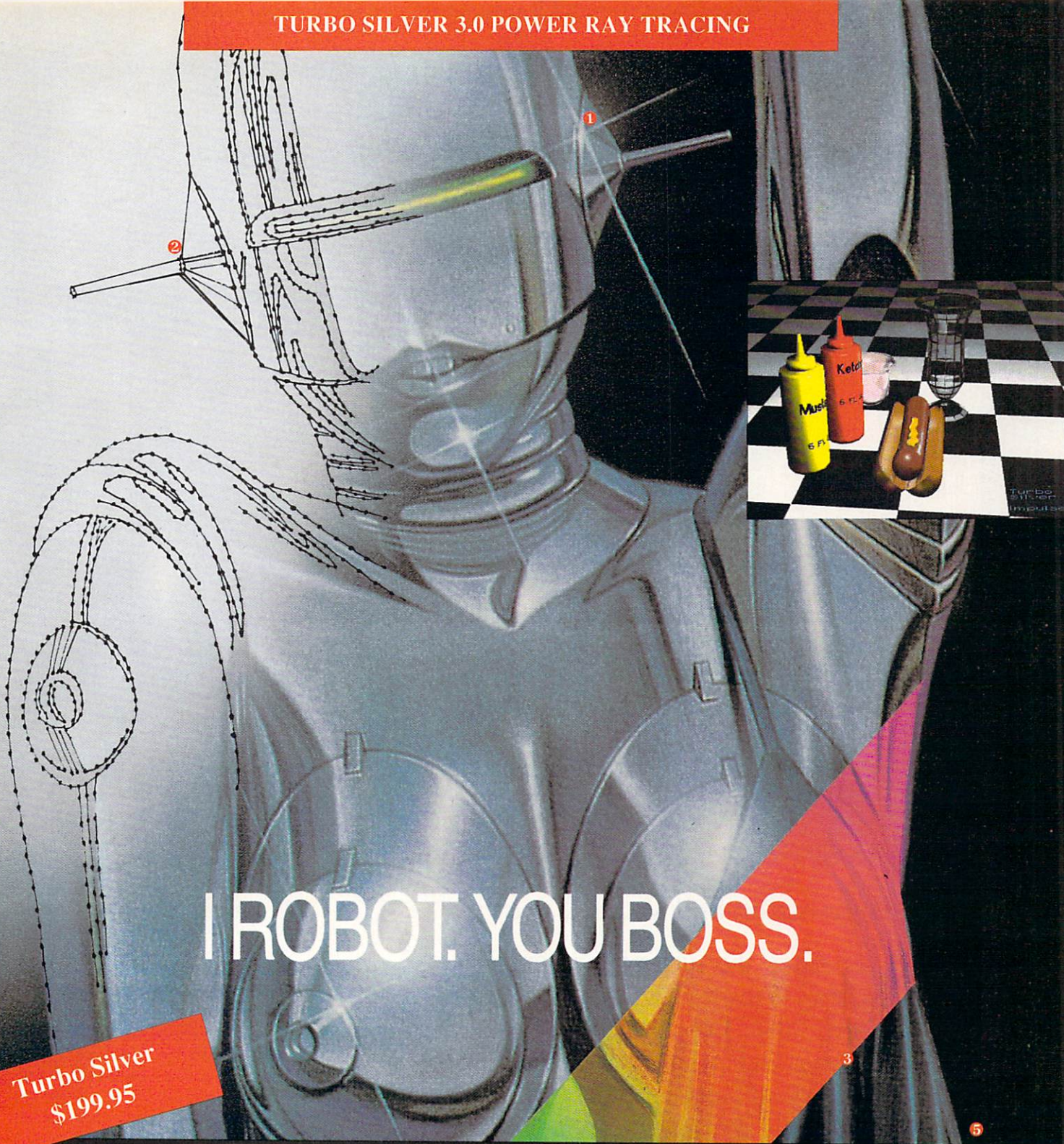
DISPLAY.ARC [#12,785] was written by Martin Hash and his crew at Hash Enterprises. It is equipped to handle ANIM format as well as Hash format animations. Unlike many other players, this one has a built-in file requester and many playing options, which are explained not only in the documentation but also in a little animation, included. Display can also show single-frame IFF pictures, but there's no support for sound.

PROJECTOR.ARC [#11,231] by Keith Doyle is a player for animations created using The Right Answers Group's *Director*. It reads a compiled Director script and then looks for and loads the various bits and pieces (IFF pictures, brushes, sound files) which it plays in the sequence dictated by that script. *Sound.mod* is a separate module you only need on your disk if you are projecting a film which has sound effects or music.

PLAYER.ARC [#14,272] ships with and is meant to be used for viewing animations created using *Turbo Silver* from Impulse. It's invoked from the CLI and has no audio capabilities. Short and sweet.

Aegis Animator, the first commercial Amiga animation creator, is still supported by a large pool of public domain animations, and *ANIPLAYER.ARC* [#4,724] is what you need to view them. It was written by Jim Kent, who is also the author of Antic's new *Zoetrope* animation software.

- Harv Laser (CBM*HARV)



Turbo Silver
\$199.95

I ROBOT. YOU BOSS.

For both the professional and the amateur, Impulse introduces the fastest, most full-featured Ray Tracing and Animation package available for the Amiga computer line. You have seen the images that many have created using the Amiga computer that are stunning to say the least. Now you, too, can create these images with TURBO SILVER 3.0. Here is a partial list of features found in TURBO SILVER 3.0: IFF wrapping, Texture bumping, Stencils, Story paths, Extrusions, Spins, Sweeps, Full color control as well as reflection and refraction. You can make true glass objects, not just fake transparency. TURBO SILVER 3.0 also includes free of charge the Floating Point version for those of you with 68020/881/882 accelerator boards. ● Easy to use, complete manual with tutorials - this feature alone helps you get up and running immediately. What's even more powerful is the fact

that SILVER is THE FASTEST ray tracing product on the market. SILVER requires 1 meg of memory. ● Impulse also offers you FREE technical support to help you work out any problems that you may encounter. TURBO SILVER also comes with a Lifetime Warranty. ● To receive further information, call our HOTLINE at 1-800-328-0184 10AM to 4PM CST: We will be glad to give you the name of the dealer nearest you so that you can receive a demonstration first hand.

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GO WITH THE POWER. GO WITH YOUR IMPULSE.



By Benn Dunnington and Mark R. Brown

Ever since the turn of the century, when Winsor McCay first put Gertie the Dinosaur on the movie screen, the American public has had a fascination with animation. Every year Mickey Mouse pulls down more money than any live entertainer you can name, and he's been doing it now for over 60 years. It's hard to explain why we are so infatuated with animated cartoons. Perhaps it's the "magic factor" of little blobs of ink moving and taking on personalities of their own. And cartoon characters can do crazy things that we can only dream of.

We of the television generation grew up watching thousands of classic Warner Brothers, Disney, and Hanna-Barbera animated cartoons, and most of us have fantasized at one time or another about making cartoons of our own. I know that I've wanted to make my own animated cartoons for as long as I can remember. When I was eight or nine years old, I took the shade off a lamp and put it under one of my mom's glass-topped end tables to make an animation stand. I turned out dozens of flip-books on that setup, and lusted earnestly after a single-frame 8mm movie camera so I could put my work on film. If we had been able to afford one then, I'm sure Don Bluth would be working for me now.

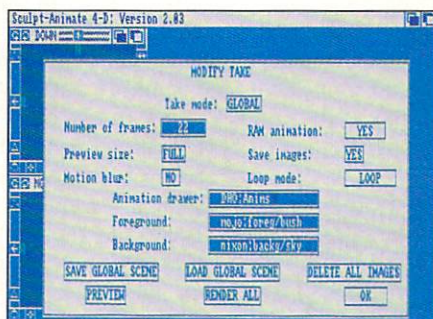
These days, Amiga animation software puts professional-quality animation within the reach of millions of would-be Walt Disneys. All you need is a thousand bucks or so, a modicum of artistic talent, and a lot of patience.

So what's the logical justification for laying out your hard-earned cash for some of these fantastic new tools? Well, if you really need an excuse beyond being able to produce your own animated cartoons, here

The title illustration (left) was created by Benn using frames from *Boing-Yo*, a **Sculpt/Animate 4D** animation in progress. Using **Photonpaint.II**, four of the images were superimposed as brushes using varying intensities of the blend mode. The lettering was done with **Kara Fonts** from within Photonpaint. To the right are frames from Bruce Granofsky's outrageous animations, *Clerk Bomber*, and *Clerk Car*. All of Granofsky's work is currently being done on a Bernoulli-equipped "turbo" A2000 running **Sculpt-Animate 4D**.

are some other ideas: you can spruce up your home videos with titles, sound, and special effects; produce instructional and promotional videos for your school, church, or organization; or even start a business. Producing animated commercials for your local cable TV channel and creating titles and effects for local videotaping services come to mind.

Are these tools good enough for an animation professional to use? Maybe. If the pro in question is used to working with film, he probably won't be satisfied with the results he gets on video, period. But video animators will be able to produce animations that are very near the quality they can achieve with super-expensive graphics workstations. And even film animators will be able to use these Amiga tools to "pencil test" their concepts much more quickly and efficiently than they ever could on paper.



Sculpt -Animate 4D

HOW IT'S DONE

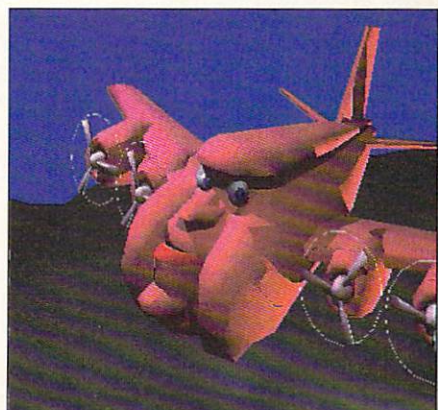
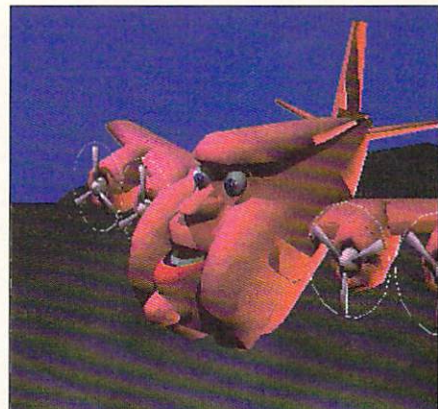
All animation works the same way: a series of images are presented to the eye so quickly that the differences are perceived as motion. Even a standard TV image is really an animated sequence of still frames, presented at a rate of 60 frames per second (50 frames in many foreign countries). Movies work the same way, with a frame rate of about 18 frames per second. The very best animators use a frame rate about equal to the movies. But the human eye will perceive motion at rates as low as four frames per second, though it will appear jerky. Low-budget Saturday morning cartoons run at somewhat less than 10 frames per second. Amiga video anima-

tions seem to run smoothly at rates of 8-12 frames per second, depending on how much activity is going on.

Your average movie displays a continuous stream of thousands of frames to achieve the illusion of motion. Obviously, if you had to store every frame of video data in an Amiga, the animations you could present would be seriously limited by RAM. The Amiga (and, indeed, most other personal computers) gets around this to some extent by using a technique called "double buffering", which keeps only two full frames of an

animation in memory at any one time. The rest of the animation is stored as compressed data. As one frame is displayed, the Amiga quickly updates the unseen frame, then displays it. By repeating the process, animations of respectable length can be played on even 512K machines.

The data itself is in a highly compressed format. Just as there is the IFF Amiga standard for picture files, there is an officially sanctioned ANIM format for animation files. The standard calls for the first frame of an animation to be stored as a full IFF picture file, but subsequent frames are stored as *delta* files; that is, only the information that has changed since the previous frame is stored. If not much has happened in the interim, this technique saves a lot of file and RAM storage space. If a lot has changed in the picture, you may find the file just as large as if you had saved both frames in their entirety. Digitized images are particularly notorious for changing lots of pixels each frame, and that is why digitized animation files tend to be particularly large.



Shown here are 8 frames from **Bruce Granofsky's** hilarious *Clerk Headkick*. Contrary to persistent rumors, Granofsky claims that neither Commodore's Al Duncan, Atari's Jack Tramiel, or TV personality Phil Silvers served as the inspiration for the *Clerk* character. Bruce Granofsky resides and works in Montreal, Quebec, Canada. He is occasionally available (not cheap) for projects at: (514) 487-5520



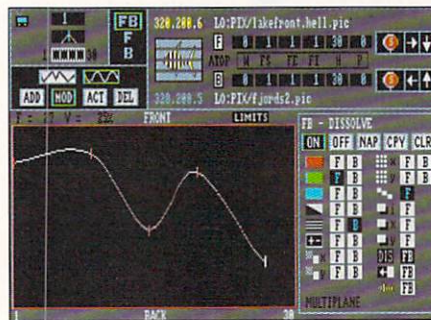
THE ANIM "STANDARD"

Though it is the only "official" standard out there, not many Amiga animation programs seem to use ANIM format files. Since an ANIM format file is simply a compressed data file, software publishers complain that there is no room for them to efficiently include sound, wipes, and special effects within the ANIM format guidelines. So they make up their own formats. *Zoetrope* uses the officially sanctioned RIF standard, which is also used by the *Amiga LIVE!* digitizer. *Sculpt*, *Caligari*, *Pageflipper Plus F/X*, *Animation: Apprentice*, *MovieSetter*, *Forms in Flight II*, and *Fantavision* all have their own custom file formats. (For information about stand-alone players for all these formats, see Harv Laser's Public Domain column in this issue.) *Pageflipper* and *Zoetrope* include translation programs for inputting ANIM files, but not for translating their output to ANIM format. Aegis, MicroIllusions, and Electronic Arts support ANIM in all of their animation products. *Design 3D* and *The Director* also use the ANIM format. For now, the best route to compatibility lies in importing and exporting IFF still art, using the strengths of each program for certain scenes, and tying the result together on videotape.

HARDWARE

Because of the way animations tend to expand to fit available storage and RAM, serious animators will find that they need to expand their computer systems, too. Though you can do some animation with 512K, most Amiga anima-

tion programs require at least a megabyte, and I've found three megs to be just about perfect. Of course, you can add up to nine megabytes of RAM to your Amiga, but then nobody else will be able to play the animations you create. Mass storage is important, too, and animators can quickly fill up even a twenty or forty megabyte hard drive. Removable mass storage devices such as a Bernoulli box, removable hard disk, or 10 megabyte floppy disk drive are much better solutions if you intend



Multiplane

to get serious about animation. (We'll have more on these devices in the next issue of INFO.) If you get into 3D animation, you'll probably want to look at a 68020 or 68030 accelerator card. They can shave object generation times from hours to minutes.

VIDEO

If you want to copy your animations to videotape, there are a couple of things you should know. First of all, look for support for overscan and interlace images. Video looks best when the picture is borderless, and

you'll get a better looking image in interlace mode. (We know it's a strain when you're editing, but when you see the difference it makes on tape, you'll thank us.)

No matter how much memory you have, you'll only be able to produce a few seconds of animation at a time on an Amiga. You'll have to tape sequences end-to-end to create longer videos. If you have a steady hand and don't mind a bit of video noise, you can use about any VCR and a finger on the pause button to do the job, but timing is critical. Expect to attempt several "takes" to get a relatively smooth transition. Or you can invest some money in an automated transport controller to do it for you. It isn't cheap—just the software can cost you in the neighborhood of \$300. But if you're into serious production, it may be worth the cost. A better way might be to tape the sequences with gaps between them on the best VCR you can rent, borrow, or buy, then rent some editing time at a local editing studio. Video stores sometimes have editing studios in the back room that they'll rent out for \$25 or so an hour, and you should be able to piece together most animations in just a couple of hours. Once the staff sees what you're doing, the odds are good that they'll beg to jump in and help!

PAINT PROGRAMS

No matter what type of animation you get into, you'll need a good paint program, if just for occasional touchup. More likely, you'll use it to create or extensively edit and modify the still images that make up your animation. And



at least two new paint programs include versatile animation capabilities of their own.

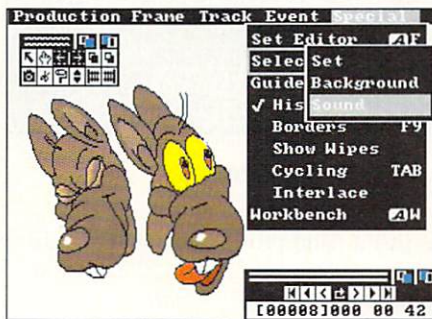
Deluxe Paint III (see page 39) includes extensive new animation tools. Besides simple page flipping, there's a whole new menu of brush animation tools that spin, flip, and move a brush in all three visual dimensions. Even better, once a brush has been animated you can pick it up and draw with it. By combining page flipping with the new "Ani-painting" modes and using *DPaint III's* sophisticated shadow, perspective, and other special effects, you can produce some pretty effective animations without having to ever leave your paint program. It will even save the finished work in ANIM format for importation into other animation programs. For many hobbyists, *DPaint III* may provide all the animation power they need.

Even though there's a new halfbrite mode in *DPaint III*, it still doesn't do HAM images. If you have a need to animate digitized, ray-traced, or hand-drawn HAM images, take a look at the latest version of *Photon Paint* from MicroIllusions. *Photon Paint II* includes many new tools that help ease the process of creating animation cels, including a new stencil tool and automatic shadowing. Best of all, *Photon Paint* now supports page flipping, so you can create an entire animated sequence right in memory. Though *Photon Paint II* has none of the sophisticat-

ed brush animation tools of the new version of *DPaint*, it's still possible to put together some fantastic animations.

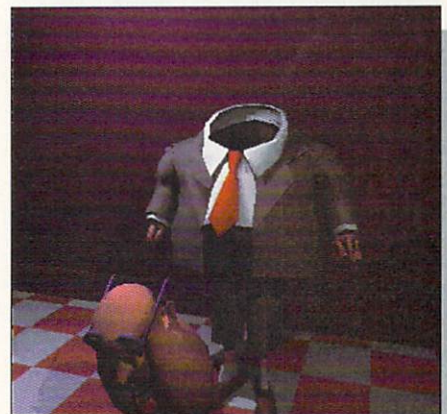
2D ANIMATION

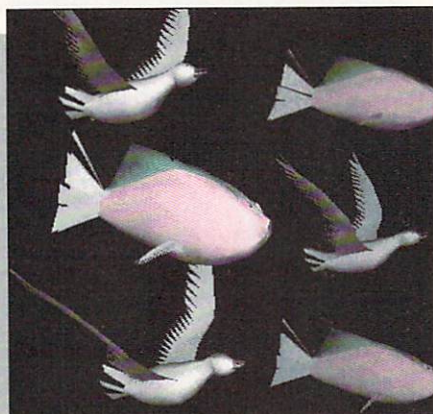
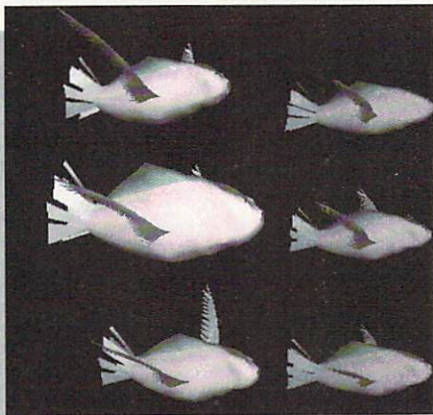
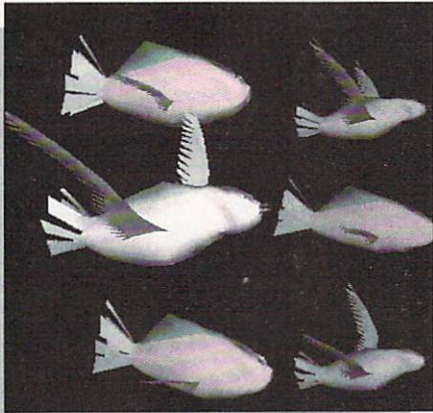
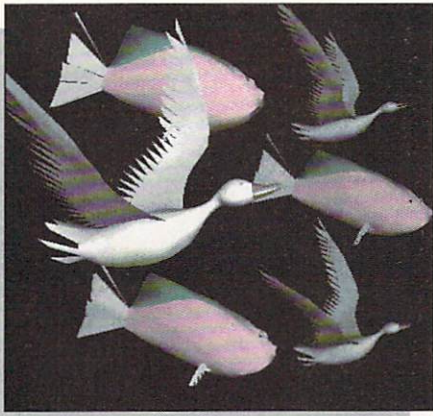
When you talk about animation, you're probably thinking of traditional cel animation. That's the process by which animated cartoons are created. Characters are painted on transparent sheets of acetate, which are laid on background paintings and photographed. Two-dimensional animation programs do almost exactly the same thing, but with brushes and IFF background pictures.



MovieSetter

Aegis Animator was the first animation program for the Amiga and it looks a little dated today, thanks mostly to its lo-res 320 x 200 pixel screen. But for the first program out of the gate, it incorporated some pretty sophisticated tools. Besides allowing you to load in backgrounds and move brushes along a preset path, it also allowed you to create polygons which could be moved and polymorphed as they move. The process of automatically changing an object from one shape to another is called *tweening* ("in-betweening"), and is still not a standard feature on most 2D Amiga animation programs. Among the six 2D animation programs we looked at for this article, only *Aegis Animator* and *Fantavision* offer some form of shape tweening. *Fantavision* is particularly impressive at





Flock is a short looping *Sculpt 4D* animation by Mission Graphics' Tony Dispoto. Tony is said to be especially fond of and adept at "morphing" (changing one thing into another). Here we see excerpts from the elegant Escher-esque transformation of birds into fish and fish into birds.

Mission Graphics, described by *High Times* as New York City's *Cyber Salon* is directed by Vincent Billotta. Part retail store, part clubhouse, Mission Graphics is a hotbed of emerging Amiga animation talent. (212) 473-2443

the process; one of this program's sample animations shows a Neanderthal man evolving into a modern man by tweening between just two hand-drawn frames! It also has the ability to tween sound effects. For example, it will smoothly pan a sound in stereo from left to right between two frames by merely defining it as coming from the left in one frame, and from the right in the next.

Of all the programs we examined, *Fantavision*, *MovieSetter*, and *Zoetrope* come closest to what might be called "traditional" animation systems. *Zoetrope* is more of a paint/animation system, with dozens of incredibly fun paint and motion options. Outlining, erase-to-edge, and other effects are particularly easy to do, and can have some dramatic effects on your animation. *Zoetrope* is almost worth buying as just a paint program, with animation as sort of an "extra". But the "APM" motion effects and the easy frame editing make it an excellent animation program, too. *MovieSetter* is, for my money, the most satisfying of the bunch, with separate background and "set" editors which allow you to create all the elements for an animation in a single package. There are many nice effects available, such as scrolling backgrounds, synchronized sound effects, and even object "history" so you can see how a character's motion is built up. Though it lacks ANIM support (as do *Zoetrope* and *Fantavision*), there is a stand-alone animation player included. If I had to pick just one of these programs for creating my own animated cartoons, it would be *MovieSetter*.

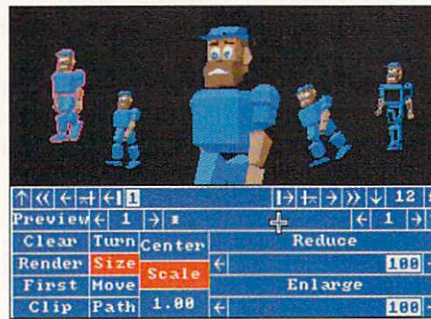
Two of the 2D programs we examined are simply tools for the assembly of pre-drawn frames into page-flip ani-

mations. *Pageflipper Plus F/X* can add a wide variety of wipes, fades, and effects as it assembles an animation. It specializes in the combining of multiple animations and effects by mixing bitplanes, and has no drawing functions. *Photon Video Cel Animator* is more of a pre-production tool for professional animators. Its main features are "pencil testing" - making rough draft animations - and synchronizing them with a digitized sound track. *Cel Animator* does have some elementary drawing tools, but they are best suited only for emergency last-minute touch-up, or sketching of the roughest variety. Both of these programs struck us as best suited for those who really know what they're doing and need the specific features offered by each. Amateurs will quickly become bogged down in technical details with *Pageflipper*,

and will be disappointed with the lack of "flashy" tools in the case of *Cel Animator*.

3D ANIMATION

Last issue we talked about 3D graphics programs. Not surprisingly, most of these programs offer some form of animation. 3D animation operates as a sort of "automated claymation", in that you define and create 3D shaded objects, then program them to go into motion. Most offer such sophistications as "Parent" and "Child" animation, in which one object's motion is dependent on the movement of another. To animate in 3D, you generally establish "key frames" and set one or more motion paths. The software then calculates new object positions, lighting, and camera angles, and generates the in-between frames that make up the animated sequence. You



Zoetrope

Tim Finebrock and **Mary Belis**, also out of the **Mission Graphics** stable, collaborated to produce the animation excerpted at right. The title, *Past the Deadline*, was arrived at after the elaborate work (500 frames rendered in *Sculpt-Animate*'s Photo mode) was disqualified from an MTV computer animation contest for being submitted too late. MTV's loss, our gain. The print media does not begin to do justice to the deep moody color of the on-screen original. I am sure we will be seeing plenty more from this duo in coming years.

can set things up, walk away, and come back to a finished (and hopefully perfect) animation.

VideoScape 3D is the "Granddaddy" of 3D animation programs, and there are a lot of wonderful public domain animations that have been done with it. Animating a scene can be very complex, depending on how much motion you want. Point-to-point movement can be accomplished using the screen gadgets, but more complex motion involves writing and executing animation scripts. *VideoScape*'s learning curve is high, but the results can be very good.

Sculpt-Animate 4D is arguably the most powerful of the 3D packages. It seems to be the darling of most of the artists we've talked to who are serious about 3D animation on the Amiga. Many of the animated images you see on these pages

were generated using *Sculpt*, and you can judge the results for yourself. Moving objects around can be as easy as defining a path for them to follow, though you can get into editing scripts if you want to. Reading the manual is a must, but if you are willing to put in some time, you can create some real masterpieces with *Sculpt*. If you can live with the "previous generation" and less speed, the combination of *Sculpt 3D* and *Animate 3D* costs about \$200 less than *Sculpt-Animate 4D*.

Turbo Silver is the third of the "big three" 3D animation programs, and it's highly capable, too. It's friendlier than *VideoScape*, and is capable of creating much more detailed renderings. It's also easy to set up animation paths, and scripts are there to work with if you want to.

Forms in Flight II, *Caligari*, and *Animation: Apprentice* remain enigmas to

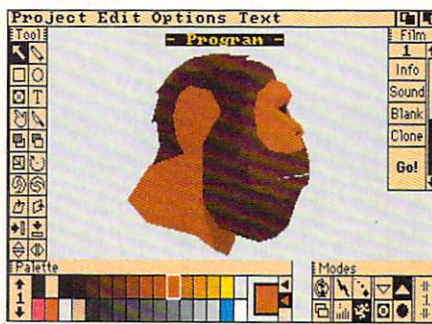
me. *Forms in Flight* is so much different than the other 3D programs that it takes a whole new mindset to even approach it. It provides powerful tools like path animation, parent and child motion, and mapping IFF files to objects, but I keep fighting the user interface. Generating shapes by drawing flat curves and quadratic surfaces may appeal to the math-minded, but I think most budding animators will be frustrated by this approach.

With a price tag of \$2000, *Caligari* is nothing the masses are going to have to worry about. The 3D perspective user interface is intriguing, but the limitation of 16 colors and lack of IFF support is puzzling, to say the least.

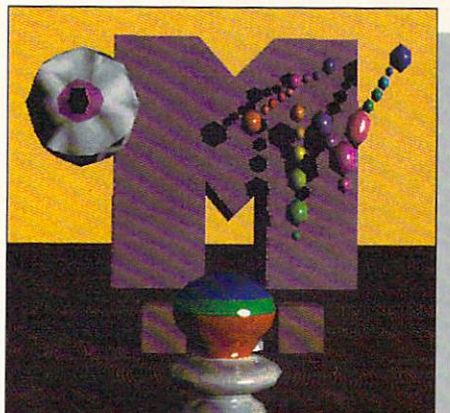
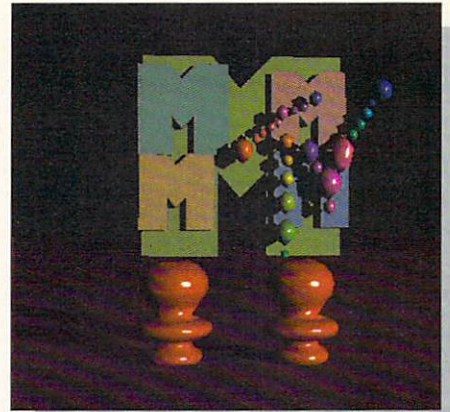
We hear good things about *Animation: Apprentice* from those who are heavily into using it, and I have to admit I like the idea. It

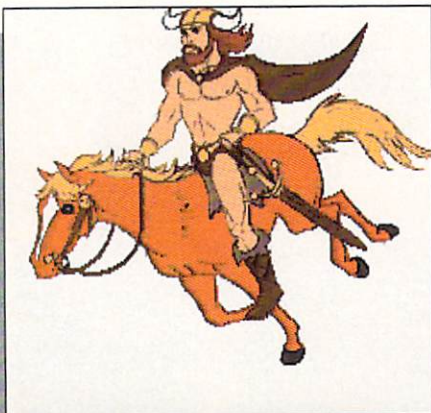
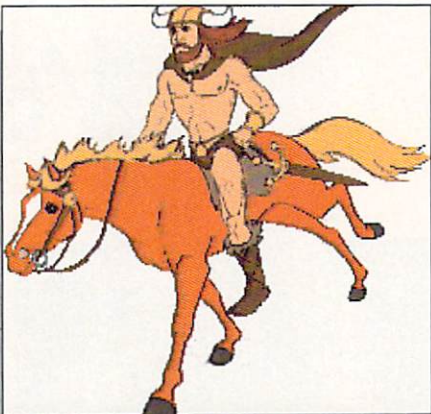
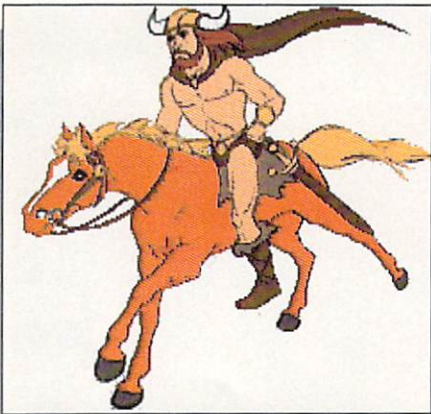
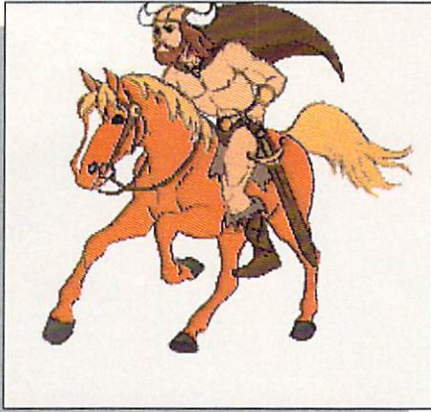
uses a modular approach; you buy what you need. *Rotoscope*, *Flipper*, *Effects*, *Multiplane*, etc., are all available separately from the main module. The *Apprentice* module itself generates 3D animated figures and animates them. The system it uses is unique, involving front and side views and building up characters from "slices". But the whole works seems geared to those who are looking for a set of tools to create involved productions with lots of different effects. Unless you fall into that category, you will probably be quickly confused by this software.

Which leaves us with the more CAD-like *3D Professional* and *Design 3D*. We have little in the way of details on *3D Professional*, which has not been released yet, though the sample animations we've seen show metallic objects spinning in 3D in a most impressive way. It'll definitely be worth a look.



Fantavision





The animation frames to the left are from a demo sequence on the *Photon Cel Animator* diskette. The page-flipped animation has a traditional "pencil test" feel evocative of the "how we make cartoons" segments most of us remember from watching old episodes of the *Walt Disney Show*. HAM mode creates the effect of higher apparent resolution than actually available.

Design 3D lets you define objects in a CAD-like tri-window environment. Animation is strictly via a script language, which must be entered using a separate text editor. However, you can preview the script's actions in wireframe before you commit your animation to a file.

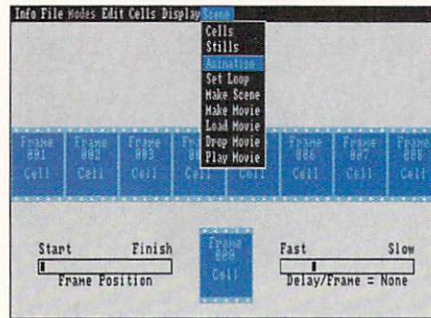
PRESENTATION

So what do you do with your animations once they've been created? How about incorporating them into video presentations? Several programs exist which can tie together ANIM files, still frames, and sound effects, and spruce them up with wipes, fades, and visual effects. *The Director* is a presentation programming language that can create interactive videos, and many great public domain demos have been put together using it. One of the most impressive is Imaginetics' incredible *Walker II* demo, which fills two disks and strings together eight ANIM files and over a dozen IFF pictures. *Lights, Camera, Action!* also produces presentation videos from IFF, ANIM, sound, and SMUS music files. *Deluxe Video 1.3* is the only one of the three which doesn't import ANIM files, though it can do its own brush animations.

THE FUTURE

What does the future hold? We expect to see easier interfaces, more video effects, more 3D options, and more music and sound capabilities. We may see a modular approach, with 3D modules, music track synchronizers, sound effects timers, background effects modules, and more all available from a single master menu. Storyboarding like *Deluxe Video's* would be a very useful tool in animation programs. We suspect you may see some innovative data compression techniques, and real-time playback spooling of long animations from disk. We also hope to see some real standards emerge so that animation programs can talk to each other with the same ease that paint programs are now able to.

In many ways, though, the future is here now. This crop of software is powerful enough to let an individual do animations that took a studio full of people to do twenty years ago. We are already beginning to witness the emergence of small, highly professional animation studios, a phenomenon unseen since the birth of the animation industry.



Turbo Silver 3.0

Don't miss INFO's Animation Software Comparison Chart on page 40.

Unfortunately, the way I phrased my review of *Sculpt-Animate 4D* last issue made it seem like I was saying that *Turbo Silver 3.0* doesn't have any animation capabilities. Not only does *Silver* incorporate some very powerful animation tools, but the very first screen it presents you with is the animation cel editor we've pictured here. The folks at Impulse got over 300 calls in 48 hours (!) because of that article, and I'd like to apologize for the confusion. In the future, I'll try to untangle my tongue before I speak!

- Benn

DELUXE PAINT III

Deluxe Paint in any of its incarnations is the one program every Amiga user has to own. Even if you're not an artist, it's still one heck of a lot of fun! Version one sold a lot of Amigas. Version two blew people away with incredible special effects. Now with *Deluxe Paint III*, Amiga users will once again have to redefine the word "fantastic".

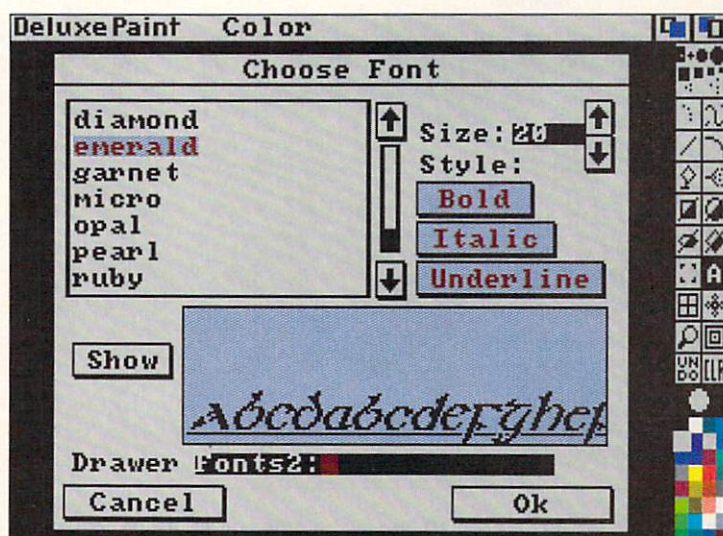
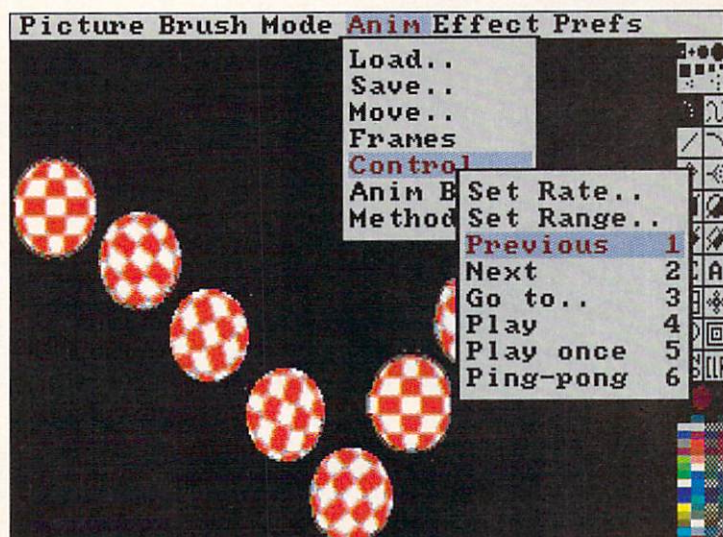
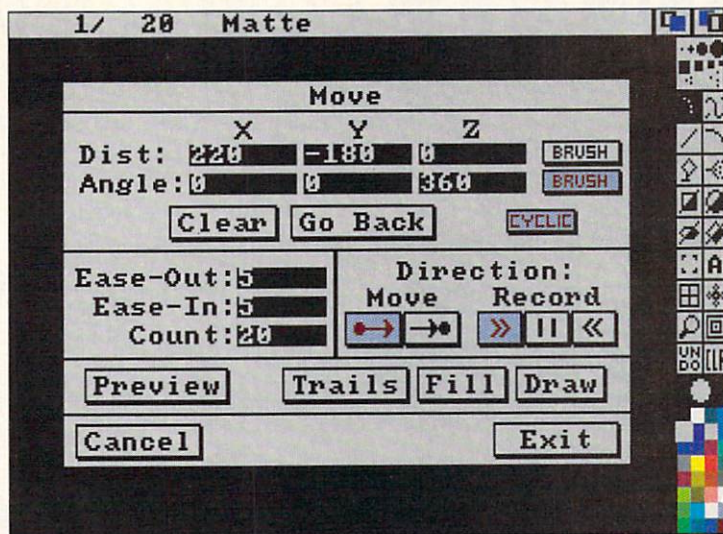
The little annoyances of *DPaint I* and *II* have been done away with. The file requestor is polite (it doesn't insist on a disk in the drive), it can handle long path names, and it even knows what storage devices you really have up and running. The old font menu is gone, replaced by a new font requestor that lets you pick the pathname for your fonts, and even lets you preview what they look like before you use them.

There are lots of new subtleties, like being able to draw geometrics with the airbrush tool or with dotted lines. You can flip the entire screen horizontally or vertically with a single keystroke. You can now work in "live overscan", drawing up to and beyond the edges of the screen in real time. The brush handle can be adjusted to any position. And everything is much, much quicker than it used to be. But most of the changes in *DPaint* are even more dramatic.

There's a new halfbrite mode, for example, and a corresponding halfbrite brush mode for automatic shadowing. Another new brush mode lets you add a single-pixel outline to, or strip a single pixel from, its outside edge. But the really big news is in the new animation features.

Where the font menu used to be is a new menu labelled simply "Anim". From this menu you can perform enough animation magic to keep most casual animators completely satisfied. You can pageflip to your heart's content, up to the limits of memory. A new Move requestor twists, turns, and moves your brush in 3D space. You can automatically place it into motion over a span of screens, then pick it up and draw in a new "Anibrush" mode that produces incredible effects. If you don't go nuts over the animation features in *Deluxe Paint III*, you must be nuts already!

We'll take a more detailed look at *DPaint III* in the next issue of *INFO*, when we focus on paint programs. But we thought you'd like a "sneak preview" of this fantastic new program. Save your nickels, gang. This one is a "must-have".



ANIMATION COMPARISON CHART

KEY TO PROGRAM FEATURES

IFF - official picture format **Hi-res** - 640 pixels wide **Interlace** - 400 pixels high **Overscan** - no screen borders **HAM** - 4096 colors **HalfBrite** - 64 colors **Drawing** - allows object creation **Tweening** - auto-changes shapes **Wipes** - video transition effects **Scripts** - ASCII editable scripts **Sound** - digitized sound effects **Music** - plays music files **ANIM** - official animation format **Player** - stand-alone player

3D		IFF	Hi-res	Interlace	Overscan	HAM	HalfBrite	Drawing	Tweening	Wipes	Scripts	Sound	Music	ANIM	Player
3D Professional Progressive Peripherals	\$299.95	-	C	O	M	I	N	G	-	S	O	O	N	-	-
Animation: Apprentice * Hash Enterprises	\$299.95	X	X	X	X	X		X							X
Caligari Octree	\$1995.00		X	X	X			X			X				
Design 3D Gold Disk	\$99.95	X	X	X				X			X			X	X
Forms in Flight II Centaur	\$119.00	X	X	X	X	X		X	X						X
Sculpt 3D & Animate 3D Byte-by-Byte	\$299.90	X	X	X	X	X		X	X		X				X
Sculpt-Animate 4D Byte-by-Byte	\$499.95	X	X	X	X	X		X	X		X				X
Turbo Silver 3.0 Impulse	\$199.00	X	X	X	X	X		X	X		X			X	X
VideoScope 3D Aegis	\$199.95	X	X	X	X			X	X		X			X	X
2D		IFF	Hi-res	Interlace	Overscan	HAM	HalfBrite	Drawing	Tweening	Wipes	Scripts	Sound	Music	ANIM	Player
Aegis Animator Aegis	\$99.95	X						X	X		X				X
Fantavision Broderbund	\$59.95	X	X	X	X	X		X	X			X			
MovieSetter Gold Disk	\$99.95	X		X	X			X		X		X			X
Pageflipper Plus F/X Mindware	\$159.95	X	X	X	X	X	X			X	X				X
Photon Video Cel Animator MicroIllusions **	\$149.95	X	X	X	X	X		X				X		X	X
Zoetrope Antic	\$139.95	X						X							X
PAINT		IFF	Hi-res	Interlace	Overscan	HAM	HalfBrite	Drawing	Tweening	Wipes	Scripts	Sound	Music	ANIM	Player
Deluxe Paint III Electronic Arts	\$149.00	X	X	X	X		X	X						X	X
Photon Paint II MicroIllusions	N/A	X	X	X	X	X		X						X	X
PRESENTATION		IFF	Hi-res	Interlace	Overscan	HAM	HalfBrite	Drawing	Tweening	Wipes	Scripts	Sound	Music	ANIM	Player
Deluxe Video 1.2 Electronic Arts	\$129.95	X	X	X	X					X		X	X		
The Director Right Answers Group	\$69.95	X	X	X	X	X	X			X	X	X		X	X
Lights/Camera/Action! Aegis	\$79.95	X	X	X	X	X	X			X	X	X	X	X	X

* Flipper/Multiplane/Stand/Effects and Rotoscope modules \$49.95 to \$89.95 each

** Photon Video Transport Controller \$299.95

COMPANIES

Aegis
2115 Pico Blvd.
Santa Monica, CA 90405
213-392-9972

Antic
544 2nd St.
San Francisco, CA 94107
415-957-0886

Broderbund
17 Paul Dr.
San Rafael, CA 94903
415-492-3200

Byte-by-Byte
Arboretum Plaza II, Ste. 150
9442 Capitol of Texas Hwy.
Austin, TX 78759
512-343-4357

Centaur Software
14040 Tahiti Way, Ste. 528
Marina Del Ray, CA 90292

Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
415-571-7171

Gold Disk
2179 Dunwin Dr., #6
Mississauga, ON L5L 1X2
CANADA
416-828-0913

Hash Enterprises
2800 E. Evergreen Blvd.
Vancouver, WA 98661
206-256-8567

Impulse
6860 Shingle Creek Pkwy., #110
Minneapolis, MN 55430
612-566-0221

MicroIllusions
17408 Chatsworth St.
Granada Hills, CA 91344
818-360-3715

Mindware International
110 Dunlop St. West
Box 22158
Barrie, ON L4M 5R3
CANADA
705-737-5998

Octree
311 W. 43rd St., Ste. 904
New York, NY 10036
212-262-3116

Progressive Peripherals
464 Kalamath St.
Denver, CO 80204
303-825-4144

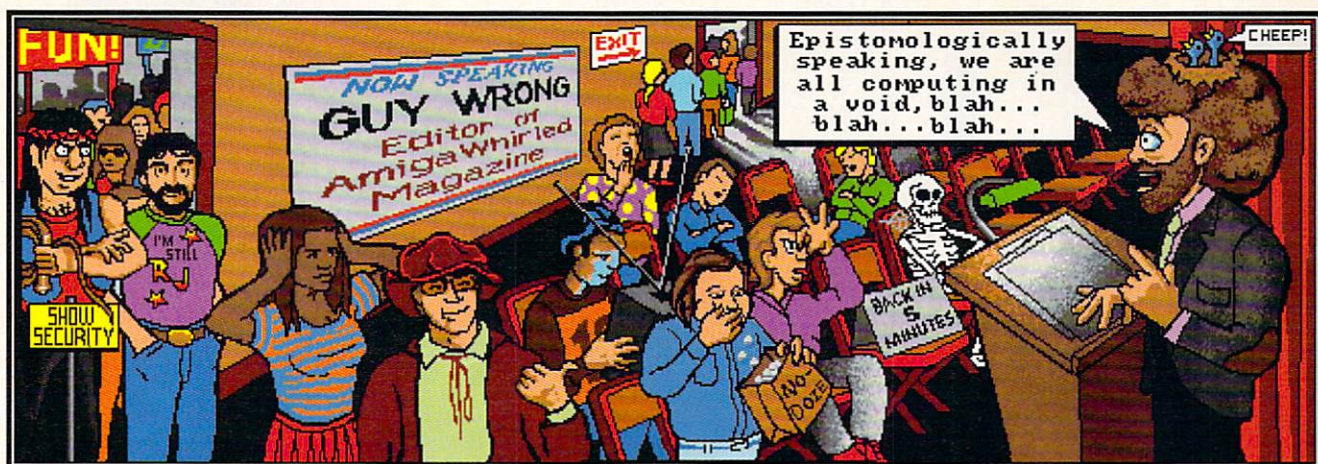
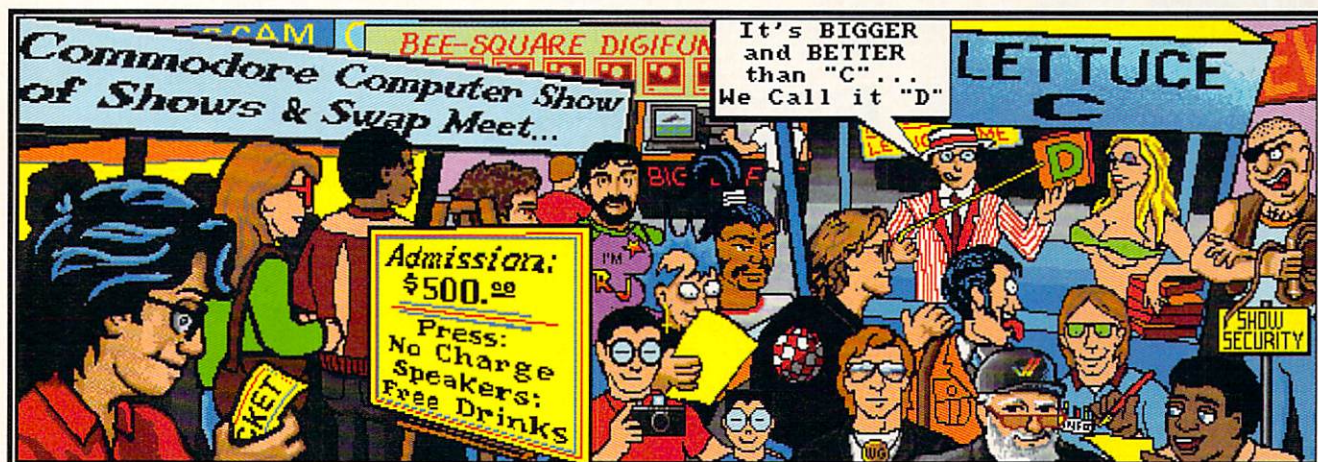
Right Answers Group
PO Box 3699
Torrance, CA 90510
213-325-1311

BRYCE



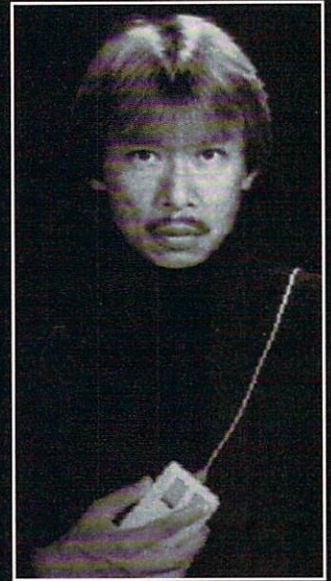
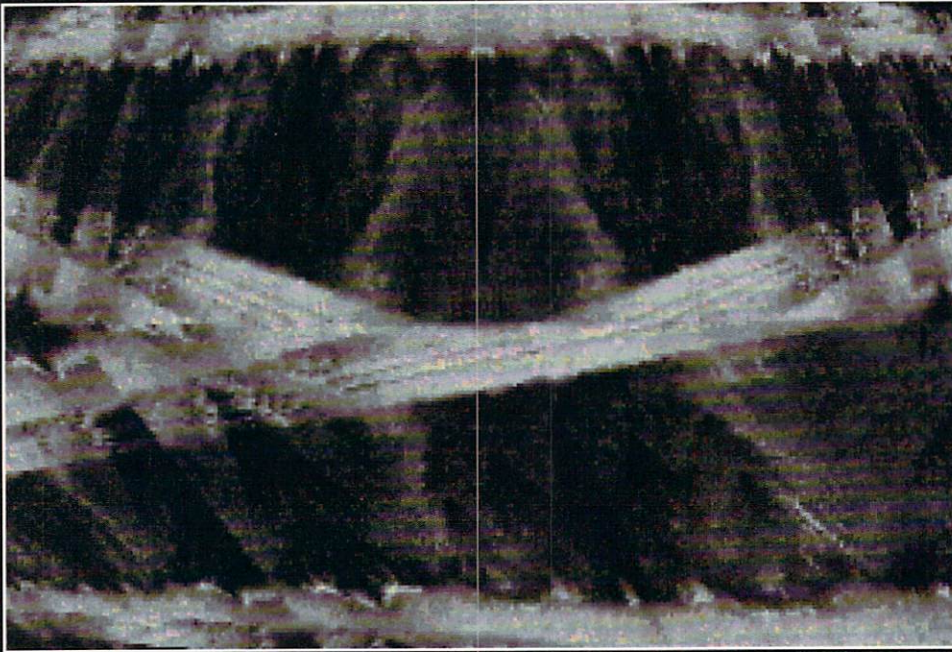
"BRYCE GOES TO A COMPUTER SHOW"

ART: Gregory Conley
CONTINUITY: Mark R. Brown



Rodney Chang: Artist on the Edge

an Interview
by Mindy Skelton



MTIBC 1988

The Hawaiian islands have given us more than grass skirts, surfing, slack key guitar, and Don Ho. They've given us Dr. Rodney Chang - artist, innovator, dentist, world traveler and teacher, holder of ten degrees and, most importantly, a man who pushes the definition of "computer art" right to the edge.

INFO: You started out as a 'traditional artist', working with bronze, ceramics, silkscreens, and paint. How do those media compare with computer art?

CHANG: Working with traditional media doesn't mean you are a traditional artist. It's possible to make liberal statements with traditional media, but changing to the unknown medium of the computer makes it easier to make new statements. When I switched to computers in 1985, I didn't even learn how to turn the machine on or off. A graphic artist friend acted as the computer operator (at \$25 per hour) and I talked him through creating my graphic. It got to the point where it was getting addictive, and \$25 an hour was becoming a burden, so I went looking for a computer. When I found the

Amiga, my friend told me I would be dissatisfied; I would find it toy-like, and how could I stoop below the 256 colors of the IBM palette? This was a challenge. I got the Amiga, my friend lost a client, I was finally touching the computer, and I've had a love affair with the Amiga ever since. In the last three years with my Amiga I have done over 1000 images, and I would say that 200 are show quality.

INFO: You are about to be featured in *American Artist* magazine. That's an extremely traditional magazine. Are they showing your computer work?

CHANG: I will be in an issue in '89 as a computer artist. Although I learned on an IBM, the image I'm submitting to

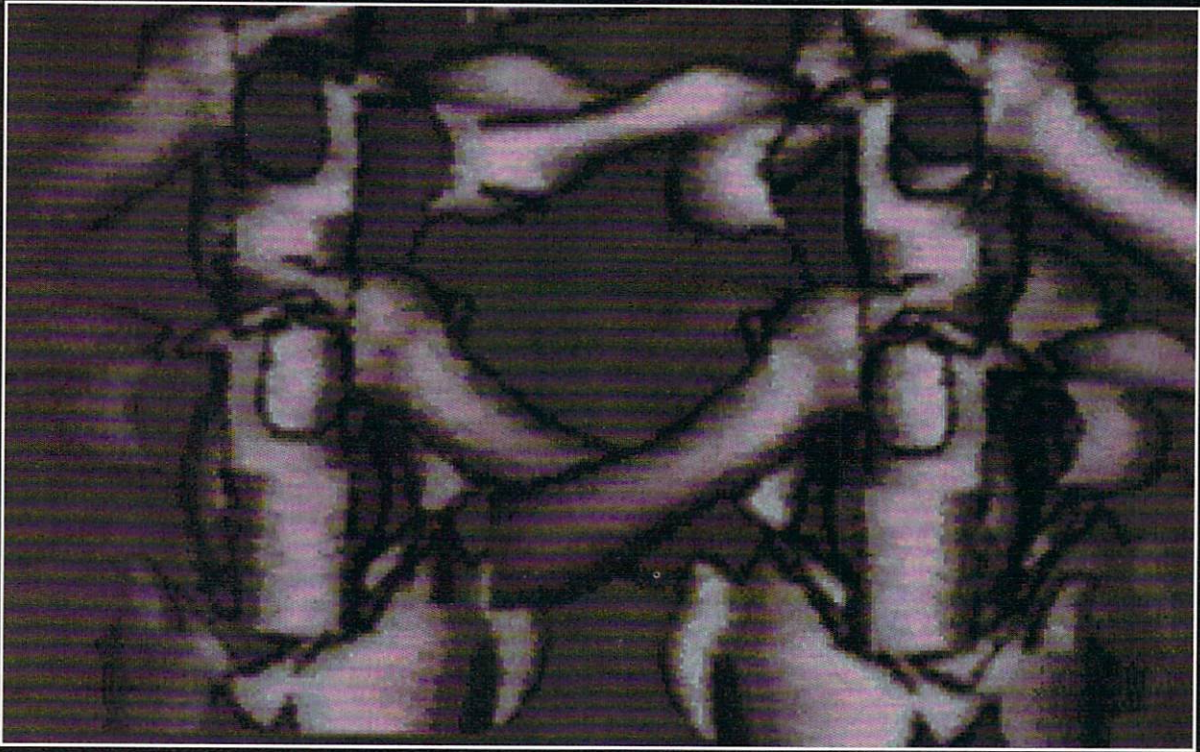
American Artist was done on the Amiga. It has only 32 colors, but it's stronger than my original work. I've seen a lot of changes in acceptance of computer art as a true art form. I'm the only computer artist listed in the *Encyclopedia Of Living American Artists*, but things are opening up.

INFO: Will computer art eventually be treated as 'serious' art by the art community?

CHANG: By the turn of the century, I think it might be the hottest medium around. There's some prejudice against the Amiga in the computer community, but not in the art community. My Amiga work is always rejected when I enter it in art shows stressing computers, but in juried art shows stressing art, it is accepted.

INFO: We understand you just had a show in mainland China.

CHANG: I had a major show of mainly Amiga images in Shanghai. It was the first computer art exhibition in China. My work was shown at the Shanghai Art Museum. The curator sanctioned it as high art. People flowed



Bunnies 1988

in and looked at what the West was up to in contemporary art. They were very open minded. They accepted my work as art equal to any traditional art of China. The Shanghai University Department of Fine Arts picked up the bill for the gallery in exchange for the Amiga I did the slides with. I set them up with *Deluxe Paint* and taught a short course on using the computer to the best artists they had. Now there are about 40 computer artists in Shanghai trying to get started. I promised to review their work if they send me disks. I'll be publishing a book in 1989 called "Rodney Chang - Computer Artist" which will contain one hundred color images, of which over seventy are Amiga images from the Shanghai show, so that people will get a chance to see what the Chinese saw.

INFO: Do you get the same criticisms that used to be directed at photography: "You're just reproducing a negative. It's not really art."?

CHANG: Yeah. That has to do with the art market. People want originals because the rarity factor keeps the price up. I rebel against that whole system. I

play on those arguments by making up the term "Original Copy". When I work on the monitor, I consider the work a completed piece in light; a first-generation image. The actual art is on a disk. However, to make a living at this, I have to produce a sellable hard copy. I can't use a printer because the fine arts quality is not there, so I turn to painting. The average time I spend on one image is about half an hour, then I stray off to something else. Why should I have to paint the picture after the fact? That would make the monitor image only a design tool, even though I consider it the final product. I have another artist do a "paint out" for me. The artist works from a projected image of the slide. They don't go down to the pixel level -- they just step back and paint.

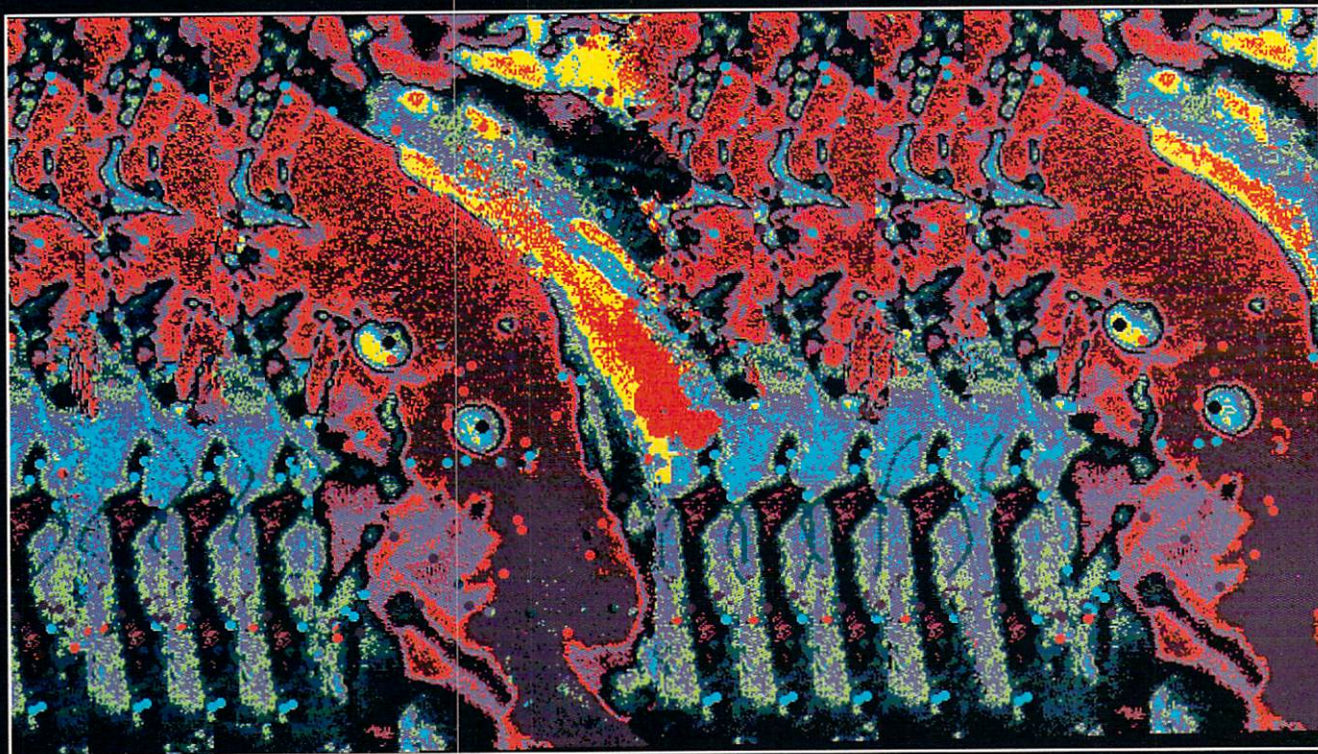
INFO: Do you think that having a technical background is a hindrance to a computer artist?

CHANG: For me, and for most people, I think it gives you a certain perspective, a frame of reference, that is not good for an artist. I think of myself as semi-illiterate when it comes to computers. I still like to think of it as magic.

Also, because I don't know how programs are written, I can come up with ideas that would never occur to programmers. Since I don't know what the limitations are, programs are limitless.

INFO: How has your Amiga work changed over the years?

CHANG: When I started, I used *Deluxe Paint* and worked for one whole year in the high-res mode. I never touched low-res because I wanted the best line the Amiga could give. I stayed with the mouse, even when I got the lightpen, because of the way I work. I like process, fast flowing movement. The mouse captures that movement, especially with *Deluxe Paint's* multiple image brush. You can replicate an image with the speed of your hand determining the spacing and number of repetitions of the image. Since I got *Deluxe Paint II* with its perspective and stencil modes, I do only low-res images. One reason I use low-res now is that hidden in the perspective mode is the ability to blend colors. The final picture really looks better than hi-res. I see my evolution as an Amiga artist going hand in hand with the improvements in the



Assembly 1987

software. My work helps document the progress the software makes. You need to transcend the software, get individual expression through someone else's software and particular hardware, and make your work expressive enough that people see the art and not the computer. I hope more graphic artists take up computer art. We need more people in the cause convincing the world that fine arts can come through a computer. Each new century brings a new way of seeing things. For the first time, I'm going to bring the act of painting with a brush into real time. I'm going to paint simultaneously as I work on the computer, using different hands. Then the act of painting isn't after the fact. It evolves as I paint. The paint drips on the canvas, the video camera digitizes the image and puts it on the monitor. I manipulate that stroke and, with an overhead projector, project the image back onto the canvas.

INFO: Let me see if I have this...you'll have a digitizer scanning your painting and feeding an image to your monitor and the image on your monitor will be projected onto your canvas?

CHANG: Yeah! Great stuff! I call it "Real Time Painting". I can't delegate it, so I'm challenged. My next role in computer art will evolve to automatic image processing. I'll just use a computer without a monitor so I can be like a chess master and see many moves ahead. I'll punch in a hundred or so commands, automatically save the results after each command executes, and go away for a week. When I come back I'll have files that I can look at and enhance or manipulate. Meantime I can be out at the beach. By doing this, I'll break another 'should not'. One of the complaints people have about computer art is, "Oh, you're using a machine. It's not art." Let's take that to its logical end. Rather than trying to defend yourself by saying the computer's just a design tool, my goal is to let the computer be the artist. I'm just leading it on. Then I come back and judge and select and take on the role of art critic.

INFO: Do you have any closing words of wisdom?

CHANG: I'd like to share with you the attributes of a computer artist: don't learn programming; have innate talent

that you could apply to any media; believe in your talent so that you become dedicated and practice; be energetic, 'cause you're gonna need to hold down another job during the couple of decades you're a struggling artist; be persistent and be able to handle chronic rejection; be ambitious; and finally, be a gambler. You have to gamble three fourths of your life on the chance you'll be discovered. Especially if you work in a medium that's not accepted yet. (It also helps to have a good agent, a full time publicist, and the backing of a good gallery!) My ultimate goal is to legitimize the computer as artist, releasing control from the human. The computer will become the artist and I become the computer as I develop the understanding of what the programs do. I see the monitors in my mind, create the images and then approach the computer with images already in my mind based on the capabilities of my computer.

Closing note: For those of you interested in purchasing Dr. Chang's book (\$9.95) or any of his other work, you can contact him at 2119 N. King St, Suite 206, Honolulu, Hawaii 96819.

GAMES FOR YOUR AMIGA

★★★★
OUTSTANDING

★★★★
VERY GOOD

★★★
SATISFACTORY

★★
POOR

★
DREK

Dungeon Master is the game for those who fancy themselves to be Adventurers, First Class. You'll find yourself humbled right away. You must rescue the Firestaff by guiding four champions of your choosing through twists and turns, traps and travails, monsters and miscreants that will leave your mind boggled, your sword bloody, and your heart pounding.

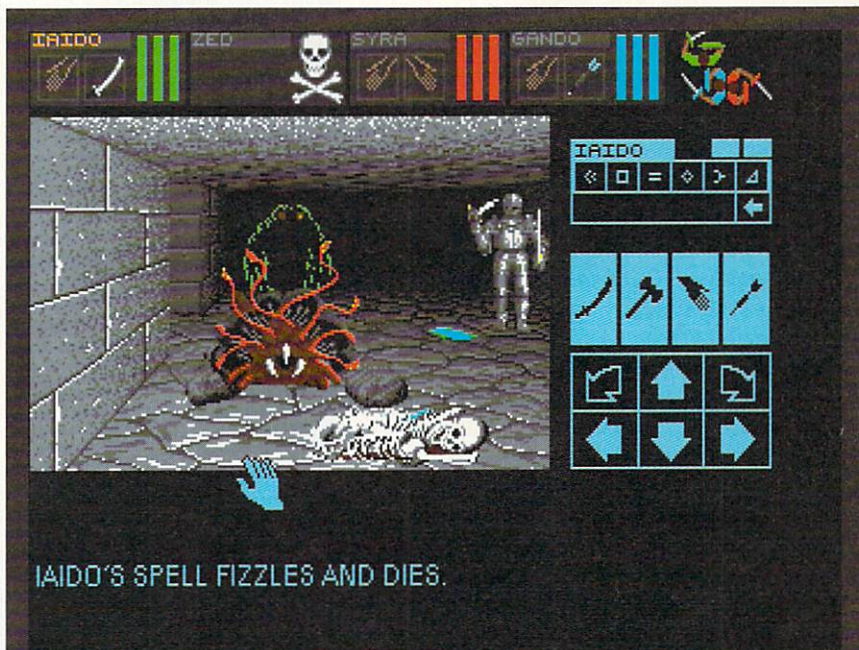
You don't play this game, you live it. *DM's* user interface is so intuitive that it becomes invisible. Within minutes of booting, you will be running for your life from (or fighting to the death with) wailing mummies, creepy green screamers, and Blue Blob monsters.

What sets this game apart from other "hit-points-and-dungeons" adventure games is the unique interface. Could Stamm use a new weapon? Does Morphus need some food? If you find something you need, just click on it and it's yours. Decide who needs it most, and give it to them with another click of the mouse. With one glance at a character's pop-up status window, you can see everything that your champion is carrying, his physical condition, and his attributes. To finish off a monster, you don't choose options from menus -- you simply smack him with your sword. The gameplay is smooth and elegant. Look and listen, point and click; what could be easier?

There are fourteen levels of dungeons to explore and conquer. Pack a lunch, because this is going to take you a while. You begin by choosing four heroes whose souls Chaos has imprisoned in mirrors. Cold-heartedly examine their attributes and their strengths to determine who has the greatest likelihood of success. Will it be Hulk the Barbarian, or perhaps Syra, Child of Nature? After you have decided on your party, you head deep into the heart of the Dungeon. There's no turning back; the door slams shut behind you! As you journey boldly forth, collecting treasure and assorted dungeon paraphernalia, practicing magic spells and the arts of dungeon fighting, you'll see things never before seen by mere mortals.

Well, Benn & Mark, you've been proven wrong. Here, I say with obvious satisfaction and love of adventuring, is a dungeon adventure game that scales new heights of innovation and sophistication. And it's great fun, too.

- Judith Kilbury-Cobb



IAIDO'S SPELL FIZZLES AND DIES.

DUNGEON MASTER

★★★★★

FTL
P.O. Box 112489
San Diego, CA 92111
619-453-5711

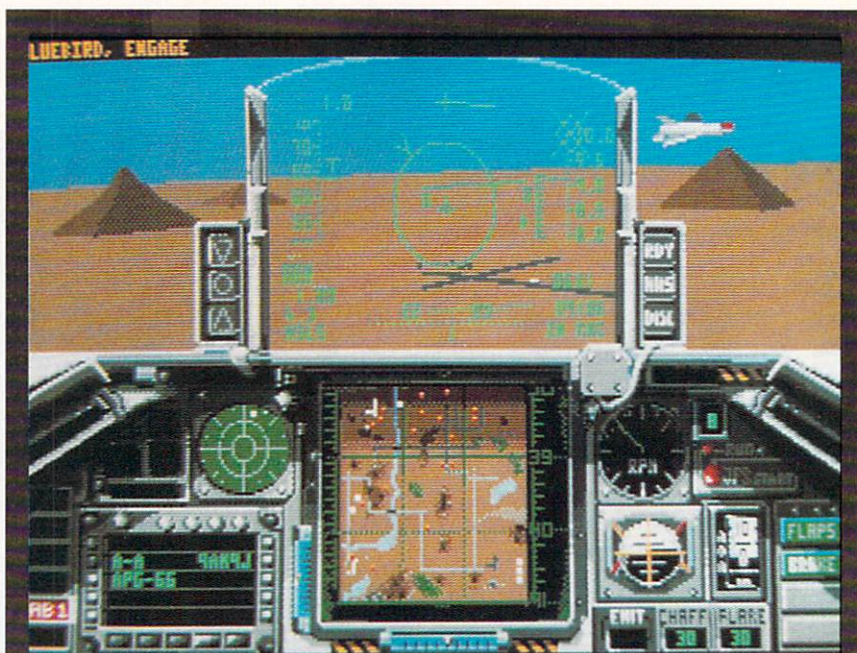


JOYCE NEEDS FLASK IN HAND FOR POTION.

GAMES FOR YOUR AMIGA

For a long time, SubLogic's *Flight Simulator II* was the uncontested flying experience for armchair pilots, then *JET* and *F/A-18 Interceptor* entered the ring in a dead tie, each a killer Flight Sim of the first order, each with its own following of hard-core fanatics. At INFO we were delighted with both, but unable to declare a winner. Well, start saving your money, joystick jockeys, Spectrum HoloByte's *Falcon* is here, and it blows both *JET* and *Interceptor* right out of the simulated water! *Falcon* brings a new level of realism to fighter simulation with better graphics, superior real-time animation, and greater detail than has been seen to date in any simulation. Not just a port of the top-selling Mac version, *Falcon* has been expertly re-written to take advantage of the Amiga's superior talents. Besides incorporating about twice as much authentic instrumentation as its competition, *Falcon* also sports several advanced features including: 4 distinct Heads Up Displays, a "black box" feature that allows replaying missions in a zoomable orthographic display, multiple missions, maneuver training, and the ability to battle other players via phone-link (even if your opponent has a Mac or IBM deck!). *Our socks are gone!*

-Benn Dunnington

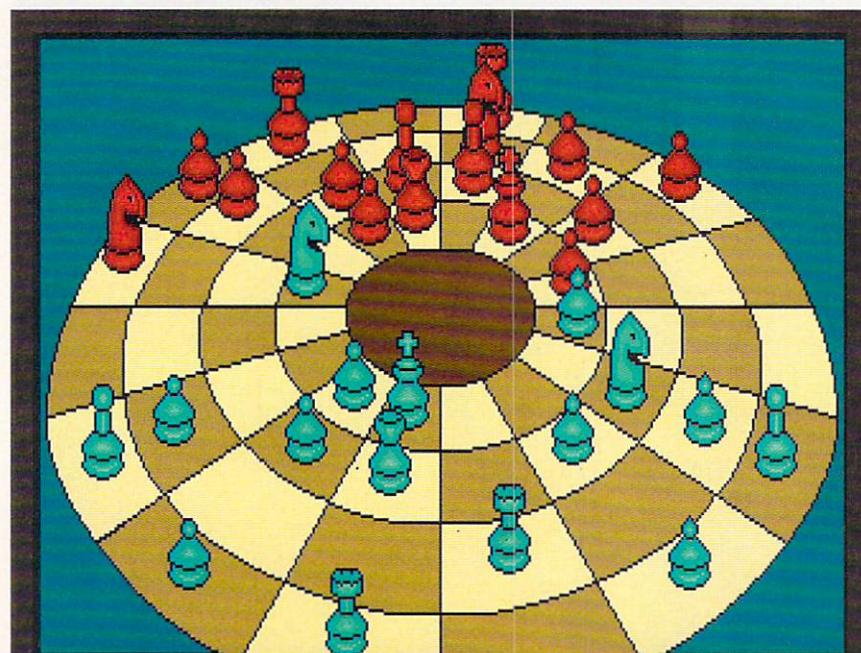


FALCON



Spectrum HoloByte

2061 Challenger Drive
Alameda, CA 94501
415-522-3584



DISTANT ARMIES



Eagle Tree Software
PO Box 164
Hopewell, VA 23860
804-452-0623

The simple fact of the existence of *A Playing History of Chess* is cause for rejoicing among chess players. There are ten ancestors of modern chess included, each of which is fascinating, challenging, and historically significant.

From the author of *Butcher, Distant Armies* has chess variations from the most ancient Indian version, Chaturanga, to a 1957 version designed for the Maniac I computer at Los Alamos. My favorite is a Byzantine game played on a round board.

Each game plays well, with a multitude of player options, including 3D perspective view and online help with rules and moves for every piece in every game. The color palettes can be changed to suit your taste, and both human and computer players are supported in any combination. Without spending a couple of months playing, I can't tell how good the play algorithms are, but in seven hours of play I couldn't beat the computer player at its easiest level. The only small quibble I have is that when I asked the program to suggest a move, I generally lost the piece. It's probably coincidence.

Distant Armies is an obvious labor of love. It will delight anyone with even a passing interest in chess.

- Tom Malcom

GAMES FOR YOUR AMIGA

Football fans will love this simulation of pro football "television style". The graphics are fantastic, the sound and music pleasing, and the presentation is realistic and fun (right down to the beer commercial).

Even if you ignore all the tasty video touches, this is still the best football simulation we've seen for a personal computer. You've got an entire season of football here, with all the familiar teams and players (though the names have been changed to protect the innocent). An editor even lets you modify players and teams to your liking. You and all your buddies pick which team(s) to play, and the computer plays the rest.

There are lots of joystick-controlled game-play options, with an extensive playbook and detailed control over the players. You'll have to spend some time in the practice mode to get the hang of passing and kicking in this game. Of course, if you want to just watch some football, you can always sit back and let the computer play for you!


If you're serious about football, *TV Sports Football* will give you years of realistic football action. You'll love it.

- Mark R. Brown



TV SPORTS FOOTBALL
 ★★★★★

Cinemaware
 4165 Thousand Oaks Blvd.
 Westlake Village, CA 91361
 805-495-6515



Lf Wide Receiver	↑	Rt Linebk	1st & 10
Lf Tight End	+	Rt Safety	1st Qtr
Lf Halfback	+	Md Linebk	4:51
Rt Wingback	+	Lf Safety	All-Pro 0
Rt Wide Receiver	↓	Lf Linebk	Champs 0

4TH & INCHES
 ★★★★★

Accolade
 550 S. Winchester Boulevard
 San Jose, CA 95128
 408-296-8400

Accolade has provided the casual quarterback with an excellent outlet for his football fantasies in the Amiga version of *4th & Inches*. Though this football simulation lacks the depth of *TV Sports Football*, it is correspondingly easier to play.

There are no leagues or TV effects here, and the graphics are much less detailed. You play a single game, two human players or you versus the computer. You have fewer options than with *TV Sports* -- for example, you can "audible" on a pass play and convert it to a run, but not vice versa. But you have a nice set of play options to pick from, and timing and movement are completely under your control. It feels like football, and if you don't play well it will show up on the scoreboard! My only complaint is the lack of responsiveness when using the mouse. I suggest you pick joystick control instead.

Kids and casual players will probably prefer *4th & Inches* over *TV Sports Football*. It's challenging enough to test your skill without trying your patience. Gameplay is fun, and you can even choose to play five- or ten-minute quarters if your attention span is short.

- Mark R. Brown

GAMES FOR YOUR AMIGA

Since the debut of the original *Arkanoid* for the Amiga we've seen dozens of clones, both commercial and in the public domain. But for those who have been hungering for more of the real thing, Discovery Software has some good news: *Arkanoid II: The Revenge of DOH* is coming soon! We picked up a pre-release copy at CES in Las Vegas, and it's hot. (See our show report elsewhere in this issue.)

The screens are just as tasty, the action just as frantic as the original. But there are lots of new additions, too. There are new blocks, like the silver ones that reappear soon after they've been blasted away, and the gold ones that start sliding back and forth when they're hit. There are new attributes, too. My favorite is a "shadow" mode that has a couple of shadowy re-traces following the "Vaus". They effectively act as a temporarily wider paddle -- as long as you're moving, that is!

I have yet to make it through more than the first few screens of *Arkanoid II*, and I expect even more surprises as I advance through the levels. But I'm somehow not surprised to report that I'm already hooked all over again.

- Mark R. Brown

ARKANOID II
PREVIEW

Discovery Software
163 Conduit Street
Annapolis, MD 21401
301-268-9877

ARAKANOID
REVENGE
OF
DOH
1UP
000000
2UP
000000
HISCORE
200000
TAITO
CONVERSION: PETER JOHNSON

TRANSPUTOR
★ ★ ★

CRL/Scorpion
19 Harbor Drive
Hopatcong, NJ 07849
201-663-0202

TRANSPUTOR
LIVES 07
SCORE 0030000
10 MISSILES

Obviously intended as competition for *Arkanoid*, *Transputor* falls far short of its predecessor. It has all the potential to be a great game, but has the serious flaw of not providing mouse control.

The board in this case is rendered in a perspective view, which gives an interesting twist to the action. Not only are the blocks laid out in a horizontal pattern, but the perspective also permits stacking them. It's especially fun to knock out the lowest one and see the ones stacked above it drop. The expected array of attributes is also present, with a couple of types I haven't encountered before - my favorite is the little bomb that takes out the whole row.

The whole problem with *Transputor* relates to speed. The game's response is torpid at best. I found keyboard control slightly better than using the joystick, but the mouse would have been much better and probably would have provided a little quicker reaction on the screen. As it is, the lag time is just enough to spoil the feel.

If you've never played *Arkanoid* or any of its clones, you'll probably enjoy *Transputor*. But if you have played *Arkanoid*, you're in for a letdown.

- Tom Malcom

GAMES FOR YOUR AMIGA

With its origins in *Zaxxon*, this game comes so close to being a hit that it's painful. Unfortunately, there are several things wrong that take much of the potential enjoyment out of it.

The screens are a pleasure to look at, with lots and lots of animated alien creatures and craft flying around. The problem is that the response is just too lethargic. I found myself constantly hitting the firebutton without result, and there are just too many objects coming at you for such slowness in either movement or firing. A stately pace works fine for adventures, but not for arcade games.

I'm not wild about games that insist I swap my controllers around, either. If you want to use a joystick instead of the mouse in single player mode (two players are simultaneously supported), you have to unplug the mouse. It seems to me that simply changing sides in single player mode should be an option.

The only documentation is an audio cassette, and it's not much help in figuring out what's going on.

Black Shadow is one of those titles that seems at first to have everything going for it, but it somehow fails to come together into a playable game.

- Tom Malcom

BLACK SHADOW
★ ★ ★

CRL/Scorpion
19 Harbor Drive
Hopatcong, NJ 07849
201-663-0202

THEXDER
★ ★ ★ ★ +

Sierra On-Line
PO Box 485
Coarsegold, CA 93614
209-683-6858

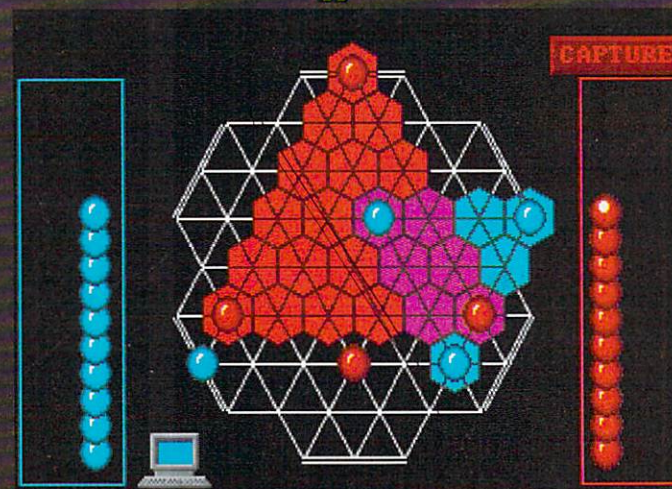
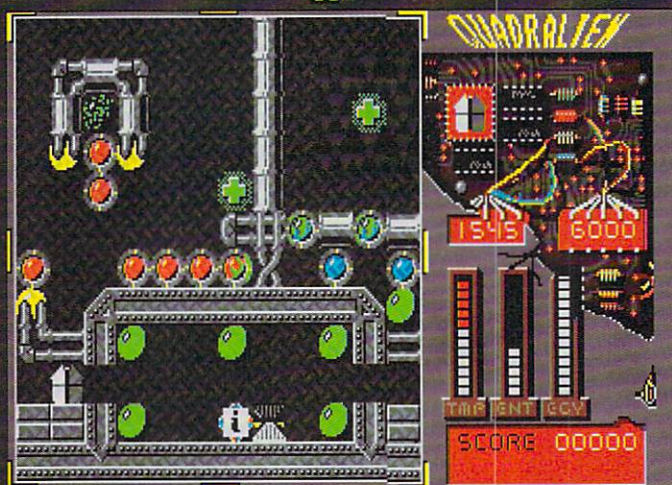
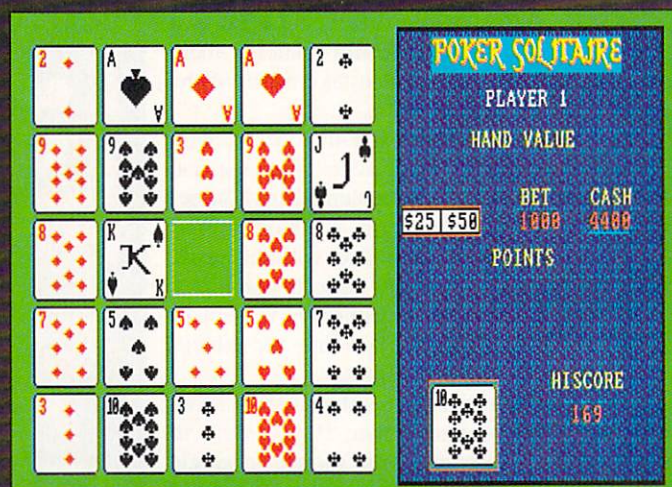
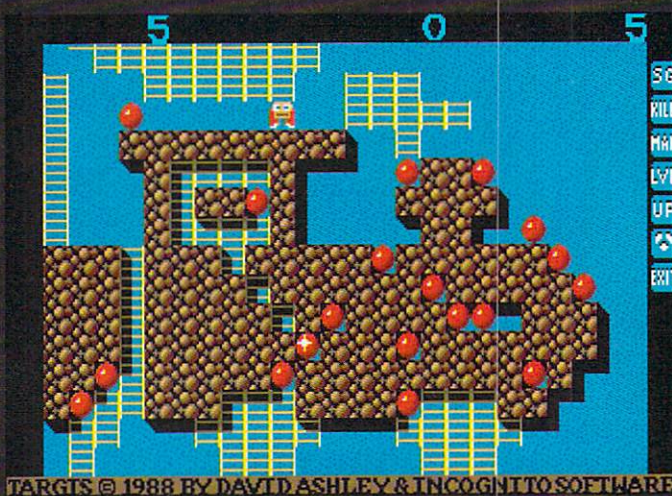
As if it's not bad enough that the Japanese are taking over our economy, now they're going to take up all our spare time as well. *Thexder* is an insanely addictive, fast-paced, and fiendishly difficult Japanese import. It's also more fun than anything I've played in a while. As in most killer arcade games, the object is simple: guide Thexder, a Transformer-type character, through a maze without letting any of the bad guys touch you. If they do touch you before you can blast them, they deplete your energy and you die. You do, however, have some advantages, like being able to transform yourself into a fighter jet. You also have shields at your disposal, but it's possible to survive without using them and you'll get more points if you don't. Strategy is very important. The poster-sized documentation even gives you some hints for staying alive a bit longer.

The music is very listenable, and in stereo, but I think the graphics could be better. The objects are a little on the flat side, with little shading or modeling, and the backgrounds could use more detail as well. Still, it's a nice-looking game.

Overall, *Thexder* is an entertainment you'll keep on your top shelf for a long time to come.

- Tom Malcom

GAMES FOR YOUR AMIGA



TARGIS

Incognito

34518 Warren

Westland, MI 48158

313-255-5387



Targis is a member of the *Lode Runner* family. It's a faithful adaptation, even including a construction mode so you can roll your own screens. The sound is adequate and alterable, but the graphics are pretty cheesy. Strangely, everything on-screen looks kind of squashed. It plays as well or better than its progenitor, but seems dated somehow. *Lode Runner* fans and classic game collectors will enjoy it immensely, but others may be disappointed.

- AF

POKER SOLITAIRE

Ethos

3617 Lawson Boulevard

Delray Beach, FL 33445

407-798-9444

PREVIEW

I once had a particularly boring job that mostly involved sitting around waiting for something to happen. I played a lot of solitaire, including a version that involved laying out cards in a 5x5 grid to make poker hands. ETHOS' computerized *Poker Solitaire* is simple, but I've been playing the beta version for hours; only the fact that I want to lock up and go home has pulled me away from it. There's a two player mode, optional gambling, and voice that announces and totals your scores.

- MB

QUADRALIEN

Logotron/Spinnaker

One Kendall Square

Cambridge, MA 02139

617-494-1200



One of the stranger games to come down the bitstream, *Quadralien* is sort of an arcade game. You guide droids around various rooms blasting objects, absorbing radiation, cooling pile cores, and such in an attempt to save an orbiting power station from the evil Quadraliens. There's little animation, though the screens are pretty. Difficult and confusing to get into, better documentation and a demo mode would make it much better.

- TM

SPACE STATION OBLIVION

Epyx

600 Galveston Drive

Redwood City, CA 94063

415-366-0606



There are a thousand ways to die on *Mitral*, and I think I've died them all. *Mitral* is your home planet's moon and it's going to explode in four hours. It's your job to drill shafts to relieve gas pressure and save the world. The scenario is familiar, and nicely implemented. While the graphics are reminiscent of *Starglider II*, the game has an interesting other-worldly feel to it, and that feel is what made me keep playing; it is very effective in getting the player involved.

- TM

TETRIS

Spectrum Holobyte

2061 Challenger Drive

Alameda, CA 94501

415-522-3584



There's so little to this Russian-born game that I keep wondering why I play it so much. It's not so much a game as a puzzle. Seven differently shaped pieces drop in random order from the top of the screen, and it's up to you to turn them and move them around so they fit together. If you can manage to get a solid row across the board, the row is removed. If the play area fills to the top, you lose. It couldn't be simpler. Unlike the C64 version, Amiga *Tetris* has all the bells and whistles of the MS/DOS original. Very addictive.

- TM

TRIANGO

California Dreams

780 Montague Expy. #403

San Jose, CA 95131

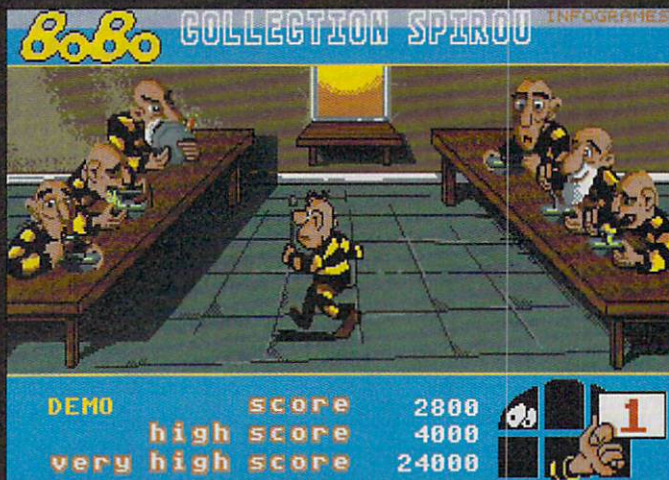
408-435-1445



I really like this game. It's a derivative of the Chinese game *Go*, in which you place stones and capture territory occupied by your opponents. The Amiga version is little different from the C64 version (reviewed last issue). The graphics are a little tastier, and there's a nifty *Wargames*-type voice that announces things at certain times, but the gameplay is unchanged from the C64 version. You can play against the computer, or play against 1-3 other humans. If you like mind games, you'll love *Triango*.

- MB

GAMES FOR YOUR AMIGA



BOBO

Terrific/Antic

544 2nd Street

San Francisco, CA 94107

415-957-0886



Based on a French comic strip, Bobo is a cartoon convict who's constantly trying to escape from prison. The game is made up of six cartoony arcade sequences: feeding prisoners, peeling potatoes, mopping floors, bouncing prisoners on a trampoline, jumping around on power lines, and stopping Bobo's cellmates from snoring. The game is cute and will appeal to kids, but the sequences never vary, so there's not much depth. And I have a problem with the fact that, though the game is copy protected, it demands to write to the disk. - TM

STREET CAT

US Gold/Epyx

600 Galveston Drive

Redwood City, CA 94063

415-366-0606



I am still not sure what audience this game is aimed at. It has elements that will please some and annoy others. You're a streetwise cat, involved in a series of athletic-type events (like leaping over walls) as you try to make your way across a city. The events are probably too difficult for small children, though they'll like the cute graphics. The main thing I don't like is the cheesy little City interlude where you must find your way to your motorcycle. The overall effect is something like an interactive Saturday morning cartoon. - TM

DREAM ZONE

Baudville

5380 52nd Street SE

Grand Rapids, MI 49508

616-698-0888



You are plagued by awful nightmares. Life has lost all color (literally). To kill the beasts that haunt your sleep you must enter the Dream Zone. This animated adventure features colorful Saturday Morning Cartoon-like characters, a passable story line, and stereo sound. *DZ's* graphics are nicely done with flourishes of color cycle animation. Gameplay is a little on the slow side since it takes a while to bring up the graphics. A nice adventure for beginners and even more experienced gamers. - JKC

WARLOCK

Three Sixty Pacific

2105 S. Bascom Avenue

Campbell, CA 95008

408-879-9144



Warlock is an enchanting animated action adventure. Your mission is to recapture the Karna Jewel. Armed only with your scepter, you must furiously blast your way through twenty levels of delightfully detailed ghosties and goblins. To recapture the jewel you must collect eight different magical objects and keep your eye on your Vitality and Power levels. This is a lot harder than it sounds. The sound effects are great. Try not to duck when the lightning crashes and the thunder rumbles. - JKC

SWORD OF SODAN

Discovery Software

163 Conduit Street

Annapolis, MD 21401

301-268-9877



Sword of Sodan is a lavish 3-disk arcade adventure. The graphics, especially the large-scale characters, are top of the line, and the swirling fade-ins are the best I've seen on any game. There's nothing new in the plotline - it's the standard fantasy hero or heroine (cheers to Discovery for including both) battling the forces of evil scenario. It plays very well, though it's bloodier than I would like. I wish there were a save feature, but there's plenty here to keep you coming back for more. - TM

SORCERER LORD

PSS/EA

1820 Gateway Drive

San Mateo, CA 94404

415-571-7171



Sorcerer Lord is a fair rendition of a strategic fantasy wargame. As the Sorcerer Lord you must raise an army and learn magic spells to defend Galanor and halt the invading Shadowlord who desires to regain the power of the Rune Rings. Your campaign is not any easy one and it is made slightly more difficult by MS/DOS conversion-itis. Why have a mouse and menu system if you can't use it? Three levels of expertise are included. An average wargame with a fantasy twist. - JKC

READER MAIL



... continued from page 8

QLink Mail From: Goya Bean

I picked up a copy of your latest all-games issue and I must say that I have never seen a magazine so well produced. Seeing an issue like this has me strongly considering an upgrade to an Amiga. My brother wants me to go MS/DOS. I say: "No way, Jose!" (His name really is Jose!) The nicest thing about this issue is the fact that those readers who thought that you guys were becoming an all-Amiga mag were put to shame. In games, the C64 shone brighter than the Amiga. Keep up the good work!

It's true -- so far at least, there are just about the same number of new games being introduced for the C64 as for the Amiga, and it looks like it'll keep going that way. - Mark & Benn

QLink Mail From: Jokerman

Your magazine does something to me no other magazine does. I can't explain it. I usually read the whole issue in the store before I even make it to the counter to buy the blasted thing. So, I am wasting my money buying a magazine I already read! It has been over 4 weeks since the last issue and I am going crazy! I keep calling the newsstand asking if the new INFO is in. Well, this was meant to be a compliment. Only INFO quenches my thirst for the latest news on my favorite computers. P.S. Outside of INFO, I most enjoy Arlan Levitan's column in Compute!.

Thanks for supplying this issue's obligatory "INFO Is Great!" letter. We agree with your opinion of Arlan Levitan. He's a stitch. - Mark & Benn

QLink Mail From: BC Puckett

I sure hope I see an apology to Mr. Jerry Pournelle in an upcoming issue of your magazine. He has been giving the Amiga nothing but good press lately. I don't understand why you have such a dim view of Jerry. He is a fine writer who just happens to spend a LOT of time with computers. In his column in *Byte* he writes about the computers he uses. I find his descriptions of the nightmares he encounters entertaining. Much more entertaining, in fact, than reading your printed chest thumpings. When you print information, you are good, but when you brag I tend to put your magazine down.

You can actually bring yourself to put down The Greatest Magazine On The Planet?!! I can't believe it!!

- Mark & Benn

REAL WORLD



WEIRD FACTS

70% of all human knowledge is mundane and tiresome, being mostly concerned with where the car keys are and who said what to whom at last night's bridge party. About 5% is useful knowledge of one sort or another, ranging from how to change a flat tire to how to build a bridge that won't fall down. Yet another 5% of our knowledge is the type legitimized by educators, and is of little practical use at all except for earning diplomas and impressing snobby people at cocktail parties. But about 20% of what we know falls into that wonderful and delightful category we call "trivia".

There are hundreds of books and boardgames which collect and catalog "street" trivia. This is the common sort of trivia which tells you that Sergeant Preston's dog was named Yukon King, and the Green Hornet was the grand-nephew of the Lone Ranger. But there is a deeper level of trivia, one that requires extensive research into historical records, scientific analysis of everyday objects, or meticulous record-keeping. This "intellectual trivia" focuses on intriguing questions like "Why do we have sinuses?", "What's the secret formula for Coca-Cola?", and "How do you swear in Italian?" The answers to these questions and many more can be had in the books devoted to the new Science of Serious Trivia.

William Poundstone (author of *The Recursive Universe*, the definitive book on the computer game of Life) has written two fascinating books called *Big Secrets* and *Bigger Secrets* (William Morrow & Co., Quill Press) which contain everything from the Coke and Kentucky Fried Chicken recipes to what they do at those secret meetings in the Masonic Temple. Both books are well-researched and make fascinating reading.

The Straight Dope and its sequel *More of the Straight Dope* (Ballantine Books) are compilations of Cecil Adams' newspaper columns, in which he answers readers' questions on everything under the sun. He often dissolves myths in the process (as when he reveals that Walt Disney did not have his body cryogenically preserved). He is not afraid to handle... er, delicate questions concerning anatomy and behaviour, either. Incredible information, and wittily presented.

Rumors and *More Rumors* (Viking/Penguin) by H. Morgan examine the legends of our day. The author has done extensive research into the stories and legends of modern urban America, and reports his findings on such topics as alligators in the sewers of New York and the infamous "back seat knife murderer". You'd be surprised to find which plausible-sounding stories have no basis in fact, and which seeming whoppers are solidly grounded in truth.

But this list only scratches the surface. If you have other favorites, please let us know about them.



Discovery has done a marvelous job of translating *Zoom!* to the C64. The graphics are fine, the sound is superb, the animation is smooth, and the gameplay is, if anything, even better than it was in the original Amiga version.

This game has the "look and feel" of a coin-op arcade videogame. The screen alternately displays an animated title screen, the vanity board, and a graphic point-value table while waiting for you to play, all to the strains of a catchy theme tune. It's just as though it had to seduce you into dropping in a quarter.

There are 50 levels to *Zoom!*, and you can pick your choice of any of the first 20 to start on. It supports two players in an alternating or simultaneous head-to-head competition mode.

The object is simple: outline and color in areas on the grid before you're caught by any of the various baddies chasing you. Joystick response is excellent, and Discovery has made it a bit easier to get into playing this time -- it's a little harder to get killed. Play is accompanied by a set of very listenable sound effects.

If you're into true coin-op arcade feel, *Zoom!* is one of the best C64 games you can play.

- Mark R. Brown



24 HISCORE
010000

ZOOM!
★★★★★

Discovery Software
163 Conduit Street
Annapolis, MD 21401
301-268-9877



SCORE: 000000 TOP: 001900 LIVES: 19

ARCADE GAME CONSTRUCTION KIT
★★★★★

Broderbund
17 Paul Drive
San Rafael, CA 94903
800-527-6263

I have played with the game construction kits that came before this one, but they were all geared toward programmers. This one really lets your average Joe put together a real videogame. The joystick, pointer, and menu interface make it a snap. The sprite editor, sound editor, and screen editor make producing the graphics and sound easy enough for anyone to do. Even the documentation is excellent. The gameplay characteristics are easily set by making selections from a variety of requester and slider settings. *AGCS* calls your characters "actors", and you can direct up to seven of them in any of a multitude of pre-set ways. You can tie actions to other actions, such as only letting a dragon come on-screen after you've taken his treasure chest. It's a blast!

You can create games with up to 50 screens (!) to play with *AGCS*, or up to 15-screen stand-alone games that you can share with friends. You can probably put together almost any shoot-em-up, ladder, or maze game you can think up. The seven games included are of the best type-in magazine quality, and are by themselves worth the price of this package. This is simply one of the finest pieces of C64 software ever.

- Mark R. Brown

Some fine arcade action is to be found in *Alien Syndrome*. The alien-blasting plot is timeworn, but the implementation is first rate.

Your mission is to rescue the hostages the aliens have taken. The aliens, which look like fat grub worms, can either be killed or avoided; if they touch you, you die. You start with a simple rifle, but more sophisticated and effective weapons can be picked up along the way. I tend to use fireballs and flamethrowers a lot. Online maps are provided to help you find your way - a helpful touch. The game scrolls smoothly and it's very fast. (I wish my reflexes were quick enough to keep up with it.)

After rescuing the hostages, or at least most of them, from a screen, you must then do battle with a Super Alien in order to move on to the next level. If there's a weakness to the game, it's here. It's difficult enough to get past the Super Alien to begin with, but after killing it, it mutates and you have to kill the thing again. Enough is enough.

If you're looking for some hot action, *Alien Syndrome* will provide it. Just be prepared to devote a lot of practice to it if you want to win.

- Arby Fuller



ALIEN SYNDROME



Sega/Mindscape
3444 Dundee Road
Northbrook, IL 60062
312-480-7667



JETBOYS



Avantage/Accolade
550 S. Winchester Boulevard
San Jose, CA 95128
408-296-1700

Killer arcade action makes this a must-have for any alien-blasting aficionado. Very similar to Psygnosis' *Menace* on the Amiga, *Jetboys* will keep you glued to your joystick until you're too sore to move.

Wave after wave of alien creatures come at you in undulating patterns, and it's your task to blast them into the electronic abyss. The job is extremely difficult and it will take a great deal of practice to get through even the first level. There are four levels in all, each harder than the last. If you're lucky enough to get to the end of a level, there's a Megabeast that must be destroyed. Sheesh! Hand me that sweatband.

The graphics are very good, and the animation is dizzyingly fast. *Jetboys* is also lavishly detailed; most of the alien creatures are animated in some way or another. If the game has a weak spot at all, it's that it's too easy to get killed off in the early stages. It takes a lot of practice to survive.

I have a favor to ask -- would someone please come pry my fingers off the joystick in a couple of weeks? I'll probably need some food and water about then.

- Tom Malcom

GAMES FOR YOUR C64

Don't let the simplified display fool you. Under its uncluttered surface *F14 Tomcat* is a feisty jet fighter simulation, well-equipped with options and techno-goodies. Right out of the chute, you will be pleasantly surprised with the speed of *F-14* (this seems to have been achieved mostly by opting to use animated sprites instead of solid-modelled objects and terrain). You can head directly into combat missions, or go through flight school (where you will be flying the less glamorous T-2 Buckeye, complete with low-tech instrument panel etc.). During training, you follow an instructor's plane, and perform various maneuvers (an instant replay option lets you review your attempt, and even graphically replays what your joystick did.). If you are successful in training, you go on to fly your new jet in an assortment of combat missions. Here the simulation gets very good, with multi-range, multi-function Tactical Information Display, great real-time HUD displays, choice of 3 missile types and cannon, Data Detail Display, and a full-screen overview map which can be brought up to show you the big picture in real-time. While the sound is nothing to write home about, the total effect is quite good. A very playable game.

- Benn Dunnington



F-18 *Hornet* is one of those products that looks and sounds good on the packaging, but fails to follow thru when actually called up into the bit-stream. Part flight-simulator, part arcade game, *F-18 Hornet* only modestly succeeds at the latter, and solidly flops at the former. As an arcade-style game, *F-18* plays something like *Zaxxon*, but with a cockpit head-on view. 10 missions each have you essentially fly straight ahead, past specific targets and obstacles, then touch down at a landing strip at the end before running out of fuel. You will not need the compass on the control panel, because you cannot turn or bank your plane (except for an about face on the far landing strip in order to return home). Your movement is restricted to flat vertical (the horizon never moves), and a very limited amount of left/right "side slip" within a narrow corridor. Your only armament consists of twenty missiles which are used for the difficult task of hitting air and ground targets. Depending on your definition, *F-18 Hornet* does use some crude 3D solid modeled graphics, but this is small compensation for the unresponsive controls and the overall limitations of this sincere but uninspired attempt.

- Benn Dunnington


GAMES FOR YOUR C64

I have a suspicion that this game started out as joke at a beer bash and then snowballed into one of the funniest entertainments since pterodactyls died out.

Despite the fact that many of the jokes are groaners, everything about the game is hysterical, from the title screens to character selection, to the events themselves. (Be sure to read the character descriptions carefully.) There are six events: Mate Toss (is this sexist, or what?), Clubbing (and we don't mean night clubbing), Dino Vault, Dinosaur Race, Firemaking, and the Sabertooth Tiger Race (you're lunch if you lose). Each event has its charms, and there are so many funny touches in each that it will take you several sessions to catch them all.

The graphics and animation are extremely good, with much the same flavor, though not the same style, as the classic Warner Brothers cartoons. Play is adequate and not overly difficult, with up to six players supported. But that's not the reason for playing this game. Boot it up at your next party and you won't have to worry about entertaining your guests.


- Tom Malcom



GLUNK
20 FEET5

CAVEMAN UGH-LYMPICS
☆☆☆☆+

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
415-571-7171



SCORE : 0 : TIME : 12

720°
☆☆☆☆

Mindscape
3444 Dundee Road
Northbrook, IL 60062
312-480-7667

Having been born a week or so before the invention of the skateboard, it wasn't among my childhood pursuits. 720°, though, has given me an appreciation of the sport, as well as making me glad I missed all those broken bones.

The game consists of four large, smoothly scrolling playfields (parks), each with a different theme. Joystick movements let you perform all sorts of moves and stunts for which you get points. You can also play using keyboard control, but I found that method awkward.

The graphics are quite good, and I particularly like the small touches like the skateboarder pushing off with one foot. It's little things like that which give a game its character, and this one has lots of it. The music, however, is monotonous. I'd rather turn down the volume and put on a Jan & Dean album while I play. Like, rad, man.

- Tom Malcom

GAMES FOR YOUR C64

Those of us who grew up B.C. (Before Computers) used to have to get our arcade thrills playing pinball. Now we have *Night Mission Pinball* to bring back those memories of smoky bowling alleys (and worse) where we would blow a whole week's allowance on those little silver balls. *Night Mission* is a re-released and enhanced version of the C64 hit of 1983. It doesn't have any of the modern conveniences we've come to expect, like a fast loader or title screen, but the action more than makes up for those omissions. The physics are superb, and alterable by the player. Everything from the gravity to the resiliency of the bumpers to the trails the ball leaves can be changed.

About the only thing wrong is the screen colors and we'll put up with that minor annoyance. There's only the one table, but it's enough to keep you playing for hours (and hours and hours and hours). Gee, I hope my mom doesn't find out I'm playing pinball again - she'll ground me for a month.

- Tom Malcom

NIGHT MISSION PINBALL
★★★★

Sublogic
713 Edgebrook Drive
Champaign, IL 61820
217-359-8482

AUSSIE JOKER POKER ★

Joker/Mindscape
3444 Dundee Road
Northbrook, IL 60062
312-480-7667

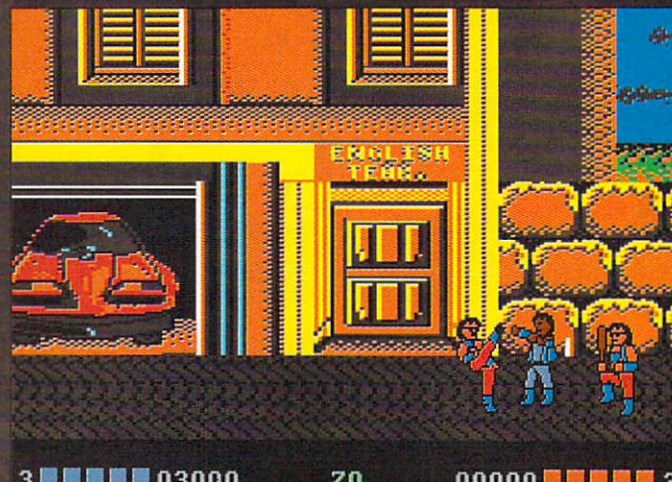
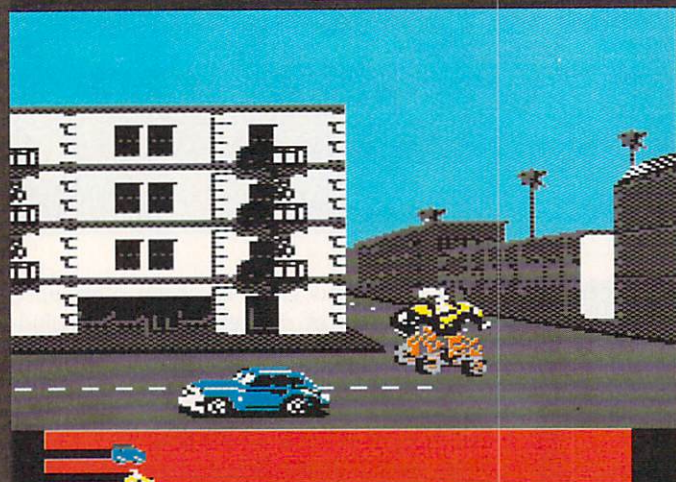
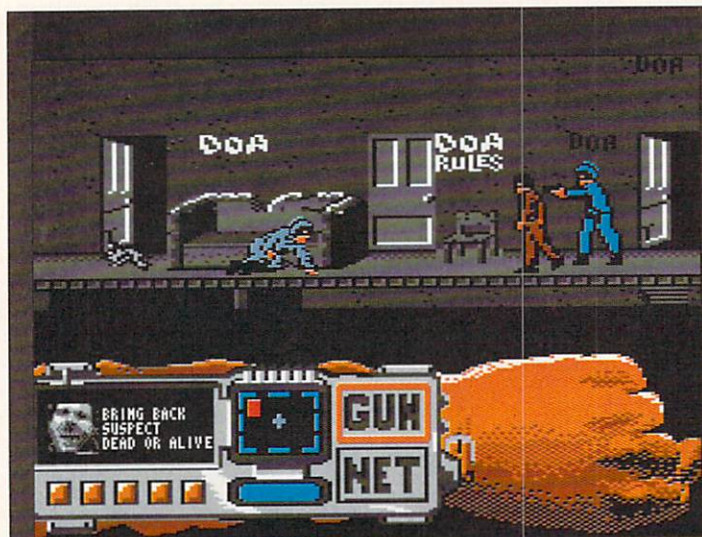
Though this game has been surrounded by a lot of marketing hoopla (including full-page ads in *INFO*), it's a prime example of placing marketing before substance. We haven't seen such an amateurish programming effort in a long time.

User input is awful. When prompted to input numbers, you can type in anything; you can even clear the screen! The C64 version of this game seems to be particularly bad -- the quick reference card lists an exception to almost every command which makes playing on the C64 less versatile, more awkward, or at least different than playing *Joker Poker* on any other computer.

The graphics and sound are primitive. The cards are poorly rendered in a style that looks like the C64's built-in keyboard graphics. Sound is limited to a few annoying beeps and clangs.

Though this looks like a simulation of a video poker machine, it's not. It's a multi-player game that's a cross between poker and blackjack, and I found it simple-minded and boring. There are no significant variations available, and there isn't even a computer opponent. Though the box says *Aussie Joker Poker* supports up to 90 players, I think you'll have trouble scraping up two people to play this turkey.

- Mark R. Brown



TECHNOCOP

US Gold/Epyx

600 Galveston Drive
Redwood City, CA 94063
415-366-0606



I like the play of this game better on the 64 than I do the Amiga. While the graphics and sound aren't as good, disposing of the bad guys is considerably easier. The theme is pure Miami Vice: drive a fast car to a crime scene and kill or capture the baddies. The main problem I have is deciphering the radar directions inside the buildings. The game doesn't have a lot of depth, but it will give you some enjoyable, if violent, play time.

- TM

PREDATOR

Activision

3885 Bohannon Drive
Menlo Park, CA 94025
415-329-0800



This game falls into the category of "splatter-ware". It's based on Arnold Schwarzenegger's movie of the same name, and has you running through the jungle trying to kill an alien creature that kills humans for sport. The game's main features are blood, violence, blood, killing, and blood. Movement takes some practice; getting Arnie to go exactly where you want isn't always easy. The game is about as good as the movie - entertaining while you're watching, forgettable after.

- TM

WHO FRAMED ROGER RABBIT?

Buena Vista

500 S. Buena Vista Street
Burbank, CA 91505
818-569-7397



Roger Rabbit has everything going for it except the gameplay. The graphics are first-rate, the music delightful, and the animation a joy to watch. The problem is that the game sequences are unimaginative. Racing Benny the car across town is nothing new, and running around the Ink and Paint club is an exercise in frustration. I expected better and was sorely disappointed, even though the game is worth a look just for the graphics and music.

- TM

FIREZONE

PSS/EA

1820 Gateway Drive
San Mateo, CA 94404
415-571-7171



Wargames come and wargames go, and *Firezone* will be no memorable than most of the rest, but it's a pleasant enough diversion to burn up a few afternoons. It's the future, and Grav tanks fight ground wars with beam weapons and shields. Computer and human players can play in any combination, and when you get tired of the six built-in scenarios, you can build your own. *Firezone* is not much for graphics or sound, as is typical of the genre, but if you're into wargaming, you won't be disappointed.

- MB

IKARI WARRIORS

Data East

470 Needles Drive
San Jose, CA 95112
408-286-7074



This is another in Data East's series of generic, militaristic shoot-'em-ups. It's adapted from the arcade game, but there's nothing to distinguish it from a hundred others of its type. The graphics, sound, and animation are strictly low-end and barely acceptable. The action and response are mediocre. The plot has you rescuing POWs from behind enemy lines. Though the enemy isn't specified, there's a ninja theme. Again. Yawn.

- TM

DOUBLE DRAGON

Arcadia/EA

1820 Gateway Drive
San Mateo, CA 94404
415-571-7171



Most martial-arts games look and play pretty much alike, but this coin-op arcade conversion has a couple of extras that make it a bit more appealing. The graphics and animation are top-notch, the title music and sound effects are fine, and play is quick and responsive. It's about the first martial arts epic I've played where just moving the joystick in a circle with the firebutton down wouldn't knock all your opponents silly; you have to really work to play this game! My only complaint is the long disk re-load if you lose. Good action, and well-presented.

- MB



GeoCALC

My first spreadsheet was Microsoft's *Multiplan* from HESware. A programming marvel of its time, *Multiplan* was a complete port of the original IBM PC version (plus Commodore color!) It was powerful and it was versatile. But it wasn't fun. I was left with the impression that spreadsheets by definition could not be any fun.

I was wrong.

GeoCALC from Berkeley Softworks is fun, at least to a confirmed mouse-ophile like myself. I examine the 128 version here, which runs in the 80-column mode only. There is also a version for GEOS 64 users, but it doesn't run under GEOS 128.

GeoCALC makes spreadsheet work akin to painting with numbers. It offers a moderately large 256 rows by 112 column worksheet matrix and seems powerful enough to handle most small to medium sized spreadsheet chores. Both relative and absolute cell address referencing are supported; and cells can be "named" and used as variables in the formulas for other cells. GeoCALC sports 20-odd built-in trigonometric, statistical and business math functions which are accurate from 9 to 12 digits each.

The GeoCALC manual is typical of Berkeley SoftWorks: indexed, ring-bound, and profusely illustrated with screen shots from GeoCALC in action. There is even a glossary of spreadsheet related terms and explanations of GeoCALC's error codes.

Ironically, my biggest beef with GeoCALC is its window incapacity. By nature, spreadsheets outgrow even 80 column screens in a hurry, making windows extremely useful. And windows should be second nature to GEOS. GeoCALC only offers two horizontally oriented windows and that without synchronized scrolling. Given that working with numbers is intuitively columnar,

Year	C-64/128 (%)	Amiga (%)
1986	90	10
1987	75	25
1988	65	35
1989 (est.)	55	45

★ ★ ★ + GeoCALC \$69.95
★ ★ ★ ★ GeoCHART \$29.95
 Berkeley Softworks, 2150 Shattuck Ave., Berkeley CA 94704 415-644-0883

even two vertically oriented windows would be an improvement. Three with a sync scroll function would probably earn GeoCALC another star.

Other spreadsheet and/or GEOS features which might have been included but aren't are "sideways" printing support, more than one sample spreadsheet on disk (with or without explanations in the manual) and better font support.

GeoCHART

GeoCALC also doesn't do graphs, which is why BSW made GeoChart. This nifty utility is designed to turn text scraps from GeoCALC, GeoWrite, GeoFile or the upgraded version of the Desktop NotePad included with GeoChart into photo scrap sized graphs and charts for use in GeoWrite, Geopaint or GeoPublish documents.

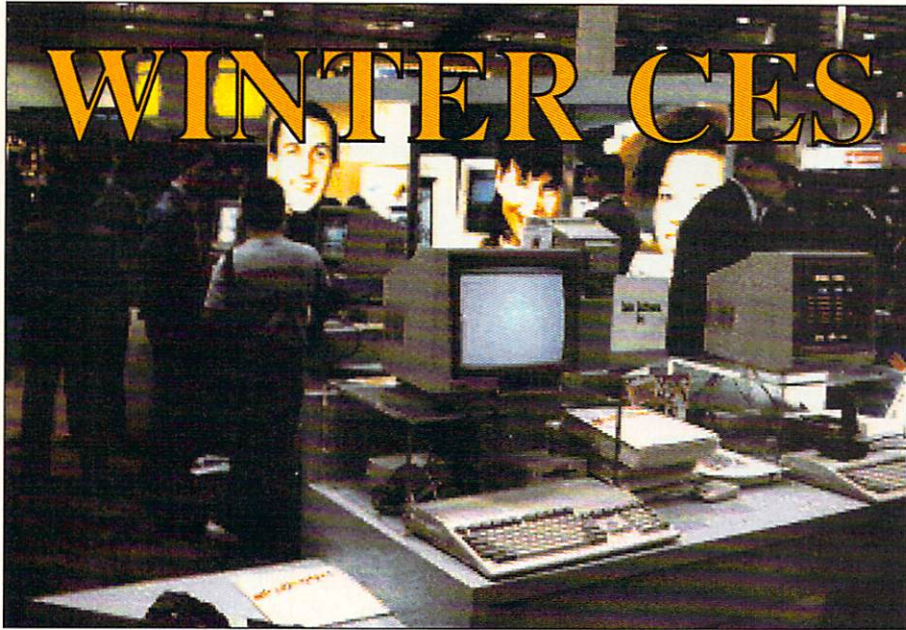
Chart types include horizontal and

vertical bar graphs, pie charts, area graphs, point and line graphs. You can also create scatter graphs and something called a unibar graph which is like a rectangular pie chart. The graphs themselves are appealing, though there is little here to challenge the Macintosh stuff you see on TV commercials. But you can pop these charts into GeoPaint and enhance at will.

The user interface for reading data from scraps is a little weird and almost impossible to follow from the manual (otherwise nicely done) but a few hands-on experiments with different data should work out the willies. I recommend using the NotePad, which can be called from within GeoChart.

GeoChart is probably overkill for enhancing printouts of the household budget but it is an excellent timesaving tool for Geo-publishers of newsletters, school reports and small business documents. ★

Show Report



The Winter Consumer Electronics Show is among the biggest trade shows in the world, so large that it fills to capacity a city geared to tourism and conventions -- Las Vegas, Nevada. For the run of the show the hotel rooms, restaurants, showrooms, and casinos of Vegas are overrun with electronics dealers, distributors, manufacturers, marketing teams, and trade journalists like me and Benn.

There weren't any great parties at this show (at least not any that we were invited to), but Las Vegas itself is a party. Anything more would be redundant. Though CES supplies Vegas with a captive audience, you'd never know it by the way they treat showgoers. The lights were bright, the shows were fantastic, the dealers were patient and friendly, and a good time was had by all.

GENERIC STUFF

CES is spread all over town. There's something happening at almost every hotel, though the main exhibits are at the Las Vegas Convention Center next to the Hilton. Computers are a small part of the electronics industry, and the main talk of this show centered around three non-computer topics: (1) DAT [Digital Audio Tape] was still a matter of some concern, with everyone uncertain as to whether this flawless form of music reproduction will be allowed on the streets without some form of copy protection to appease the record companies. (2) HDTV [High Definition TV] is rolling in the R&D labs, and TV manufacturers are petitioning the FCC and Congress to set standards for higher-resolution TV broadcasts. (3) The electronics industry has established a new standard for home security and control called CEBus which will allow different manufacturers to build phones, thermostats, microwave ovens, and other home appliances which can communicate with each other. It seems like the

future gets one notch closer with every one of these shows.

WEST HALL

One of the two items of good news for Commodorians stood right in our way as we entered the computer exhibit area -- a nicely appointed booth occupied by Commodore, in the best spot in the house. Though they were showing no new products at CES, it was heartening to see them exhibiting at their first CES in almost three years. And Atari was conspicuously absent.

Nintendo was there in full force, however. "Nintendo City" occupied almost half the building. It was plain that Nintendo intends to remain the big player in the videogame market -- most major game companies had exhibit space in the huge Nintendo area. Rival SEGA was exhibiting next door, but with less than 1/4 the floor space, they didn't put on near as good a show. The only bit of fuzz in Nintendo's coffee was news of Tengen's release of Nintendo format cartridges containing their own version of Nintendo's proprietary cartridge chip. Tengen also announced the filing of an antitrust suit against Nintendo, aimed at breaking Nintendo's "chip licensing" monopoly in the manufacture of game cartridges for the Nintendo game system.

Down the right wall of West Hall was one thin row of booths devoted to neon radios or satellite receivers or something -- I don't know, I didn't really pay any attention. The rest of the place was jammed with booths belonging to the purveyors of game software.

NEW GAMES

The second item of good news for Commodore owners was that almost everyone who publishes computer games was offering versions for the Amiga. All were overwhelmingly enthusiastic about the outlook for Amiga games. Most

Show Report

... continued

were also dropping support for the Atari ST.

Though Summer CES in Chicago, which takes place much closer to the Christmas buying season (June), tends to hog the majority of new game announcements, this show saw a bunch of new titles. Without mentioning too many things we've seen announced before, here's what Winter CES held forth for C64 and Amiga gameplayers:

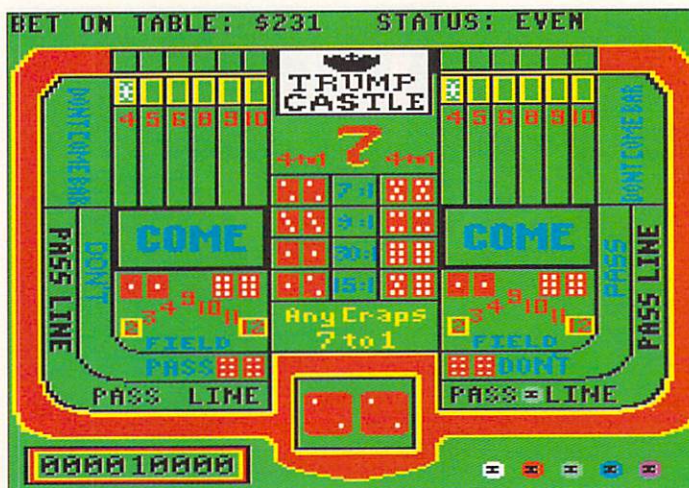
Just to the left of Commodore's booth was *Soft Kat's*, with a half-dozen or so occupants. In one wing, *Sharedata* [602-961-4022] was showing new low-priced licenses of TV game shows for the C64, including *Wipeout*, *Jeopardy!: Junior Edition*, *Jeopardy!: Educational Series*, and *Classic Concentration: 2nd Edition*.

Across the aisle, *Intracorp* [800-INTRACO] unveiled *Search for the Titanic* and *The Ultimate Casino Gambling Simulation (Trump Castle)* in both C64 and Amiga formats.

Two doors down, *Hi Tech Expressions* [212-941-1224] had several new C64 titles, including two series of educational titles based on *Sesame Street* and Jim Henson's *Muppet* characters. They were also game-show crazy, with C64 versions of *Win, Lose, or Draw*, *Fun House*, and MTV's *Remote Control*.

On the corner, it looked like *Broderbund* [415-492-3200] was committing more heavily to the C64 and Amiga markets. They've started distributing *Maxis'* titles for the Amiga, including *Sim City* (previously announced as *Micropolis*). A C64 version is coming soon. Under an agreement with Japanese software publisher *Kyodai*, they're adding *Hydlide* and *Psychic War* for the C64. They're also distributing *Origin's* titles now, with *Tangled Tales* and *Beyond 2400 A.D.* coming for the C64, and *Times of Lore* in the wings for the Amiga. They'll also be bundling the *Ultima Trilogy* in a C64 package.

Epyx [415-368-3200] had a bigger



*Intracorp's
Ultimate
Casino
Gambling
Simulation
(Trump
Castle)*

booth than anyone but Nintendo and SEGA, which was appropriate for a company showing a new stand-alone videogame machine. It made its debut behind closed doors before a Select Few (not the press). The machine was designed by a group led by some of the original members of the Amiga design team, including R.J. Mical. Those who saw the machine demoed were suitably impressed; one told INFO, "It's nothing at all like I expected it to be." On the show floor, Epyx was showing over a dozen new titles, all of them slated to be available for both the C64 and the Amiga. In the queue: *Curse Buster*, *Trials of Honor*, *Axe of Rage*, *Undersea Commando*, *Skate Wars*, and *Devon Aire* in "The Hidden Diamond Caper". From their affiliate *Ubi Soft* come *Iron Lord*, *Final Command*, *BAT*, *SkateBall*, *Puffy's Saga*, *Zombi*, and *Night Hunter* in C64 and Amiga formats.

Right across the aisle from "Nintendo City" was the *TenGen* booth [408-435-2650] with some tasty C64 and Amiga translations of Atari coin-op arcade classics. *Blasteroids*, *Rolling Thunder*, *RBI Baseball*, *Pac-Mania*, and *Road Blasters* are all due sometime in April.

In a meeting room against the wall behind the Nintendo booth, *Mindscape* [312-480-7667] announced *Deja Vu II*:

Lost in Las Vegas and *Balance of Power: 1990 Edition* for the Amiga, and told us that *The Colony*, a sharp-looking MS/DOS 3D adventure, would be translated, too. Coming in both Amiga and C64 formats are *Combat Course*, *Hostage*, *After Burner*, *Shinobi*, *Action Fighter*, and *Sgt. Slaughter's Mat Wars*. *International Team Sports* and *Aussie Games* will be coming for C64 only. *Mindscape* also announced they'll be publishing SSI's backlist under their budget-priced *Thunder Mountain* label; included are classics like *Fortress*, *Battalion Commander*, *Nam*, and *Geopolitique 1990*.

In *Data East's* [408-286-7074] room next door, they were talking about a new deal with Scott Orr, founder of *Gamestar*, which will have him developing a line of sports software for multiple computers, including the C64 and the Amiga. Three new titles are coming soon in C64 and Amiga formats: *Robocop*, *Bad Dudes*, and *Guerilla War*. An Amiga version of *Platoon* is also in the works, and *Heavy Barrel* is coming for the C64 only.

Taking a break from new game titles for a moment, we found out that *Beeshu* [201-968-6868] has not been idle. They've got a new wireless version of the *Ultimate Superstick* joystick that handles great. Their new *Zoomer* yoke

Show Report

will be a real boon to flight simulator fans, with a wireless version under development.

Taito [604-984-3344] had a very nice booth with a cute little radio-controlled robot, and were showing C64 and Amiga versions of **Operation Wolf**.

Titus [818-709-3692] announced four new Amiga titles. Only **F40 Pursuit Simulator** bears any resemblance to their previous titles. **Knight Force**, **Galactic Conqueror**, and **Titan** have a totally new look for Titus.

Elite, a German company with many of its titles already licensed to American distributors, was testing the U.S. market with a CES booth of its own. They were talking to potential distributors about many European C64 and Amiga arcade titles we had not yet seen, such as **Beyond the Ice Palace**, **Buggy Boy**, **Fists 'n Throttles**, **Overlander**, and a license of the James Bond movie **Live and Let Die**.

Discovery Software [301-268-9877] was drawing lots of attention with C64 **Zoom!** and **Arkanoid II: Revenge of DOH** for the Amiga. Their press release also mentions an **Arkanoid Construction Set** for the Macintosh, which we can only hope they'll have the good sense to do for the Amiga, too.

Way at the back of the hall, *Mediagenic* [415-329-0800] held court in a meeting room full of its affiliated labels. Under their own *Activision* label, they have **Last Ninja 2** coming for C64. *MicroIllusions* [818-360-3715] has acquired the rights to **Dondra: A New Beginning** for the C64, and announced a strange-sounding new arcade game for the Amiga called **Dr. Plummet's House of Flux**. Their *Hanna-Barbera* cartoon titles are due Any Day Now, with **The Jetsons** for the Amiga and **Johnny Quest** and **The Flintstones** coming for the C64. *Rainbird* [415-322-0412] showed **Elite** for the Amiga, and announced **Savage** for C64/Amiga. *New World Computing* [818-785-0401] is releasing **Might and Magic II: Gates**



*Amiga
Pac-Mania,
coming soon
from TenGen.*

to **Another World** for C64 only. *Interplay* [714-545-9001] is coming out with **Neuromancer** for the Amiga.

Konami [312-595-1443] has nine new titles slated for 1989 release in both C64 and Amiga versions. **Ajax**, **Adventures of Bayou Billy**, **Blades of Steel**, **Castlevania**, **Double Dribble**, **Jackal**, **Life Force**, **Metal Gear**, and **Teenage Mutant Ninja Turtles** ought to keep some joysticks busy for a while.

SUITE STUFF

As usual, several companies chose to display their wares in various hotel suites around town. At theirs, *Sierra* [209-683-4468] handed us a copy of **Thexder** for the Amiga, and told us that **Silpheed**, **Hoyle's Book of Cards**, **The Plantation Murders**, **Code Name: Ice Man**, and **King Arthur** are all planned in Amiga format.

Electronic Arts [415-571-7171] has **Earl Weaver's Commissioner's Disk**, **DeluxePaint III**, **MLBPA Team & Player Stats**, and **Zany Golf** all coming for the Amiga, and **Project Firestart** for the C64. Affiliated Label announcements shape up like this: from *First Byte*, **Dinosaur Discovery Kit** and **The Puzzle Storybook** for Amiga; **Magic Candle** for the C64 from *Miles Computing*; **Life and Death** and **Fidelity**

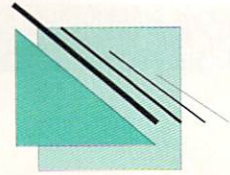
Chessmaster 2100 for the Amiga from *The Software Toolworks*; *SSI* is introducing **Battles of Napoleon**, **Demon's Winter**, **Heroes of the Lance**, and **Hillsfar** for C64, and will release an Amiga version of **Pool of Radiance**; **Risk** and **Clue: Master Detective** will be coming for Amiga from *Virgin Games!* *Leisure Genius*, with a C64 version of **Clue** planned; *Arcadia* has **Artura** for C64/Amiga and **Pub Games** for Amiga only; *Mastertronic* will intro three C64 titles -- **Raw Recruit**, **Skate Crazy**, and **California Pro Golf**; and *Melbourne House* plans C64/Amiga versions of **War in Middle Earth**, **Magic Johnson's Basketball**, and **World Trophy Soccer**.

IMPRESSIONS

From where I sit, I count over 180 game announcements for the C64 and Amiga, plus many more that were announced previously but still haven't reached the store shelves. (See the *Coming Soon* list in this issue's *New Products* section, as well as the game reviews, for even more C64 and Amiga game titles.) If the Games Boom is about to peak, there was certainly no sign of it at the Consumer Electronics Show!

- Mark R. Brown

INFO UPDATE



THE GOOD NEWS

This was so good we had to lead off with it: **Progressive Peripherals** has actually lowered the price on their *Pro-RAM 2000* memory expansion board. With 2 MB, the cost has fallen from \$879.95 to \$799.95. Let's hope this is the start of a trend.

THE BAD NEWS

The phone weasels are at it again. **Telenet/PC Pursuit** has raised its prices. The new charges are a \$30/month fixed fee, which will entitle you to 30 (it used to be unlimited) hours of non-prime time usage. If you go over the limit, it will cost you \$4.50 per hour. However, all cities now support 300, 1200, and 2400 baud, and more rotaries have been added to handle more callers.

MOVING ON

Questbusters, every adventurer's best friend, is now at PO Box 32698, Tucson, AZ 85751. Street address is 9131 E. Speedway, #100, Tucson, AZ 85710. 602-296-9115.

Eurosoft has moved to 70 Woodfin Place, Suite 400, Asheville, NC 28801. 704-255-7590. FAX 704-255-7599.

Betty Chamberlain of **Central Coast Software** let us know that they're moving to 424 Vista Ave., Golden CO 80401. The new phone is 303-526-1030 voice, 303-526-0520 FAX.

VERSIONS

Charlie Heath of **Microsmiths** told us that version 1.3 of the *ARP Library* will be released in February. *Blitzdisk* (now compatible with the Fast File system) is up to version 1.2. Registered owners will receive the update automatically. *TxE Plus* will be out in February at version 2.02.

WShell, from **William S. Hawes**, is at version 1.05 and fully compatible with WB1.3.

Antic is in the process of releasing their *Design* series of prefab 3D objects in *Turbo Silver* format. The disks are already available in *Sculpt* and *Videoscape* formats.

Lake Forest Logic's Disk Mechanic is up to version 2.4. Registered owners will be contacted for the free upgrade. It's also available for downloading (registered owners only) on LFL's support BBS, 312-680-0590.

InterActive Softworks' Calligrapher is at version 1.05. Registered owners of the font design package can upgrade for \$29.95.

Investor's Advantage, from **Software Advantage**, is at 2.0. If you bought the program after May 1, 1988, the upgrade is free. If you bought it before that date, upgrading will cost \$25.

Free Spirit Software's Ultra DOS Utilities is at version 1.3, for compatibility with Workbench 1.3. Registered owners can upgrade for \$10.

Byte By Byte is offering incentives for upgrading to *Sculpt-Animate 4D*. They're offering premiums (freebie software, and even cash) to those who convince a friend to upgrade. Contact the company for details.

Inovatronics has released version 2.5 of *PowerWindows*. Upgrades are free when you send in your original disk.

Marla Svoboda, who may or may not be the Party Queen of the Amiga, sent along a copy of **NewTek's Digi-View** upgrade, *Digi-View Gold*.

Electronic Arts' Deluxe Print has been upgraded and released as *Deluxe Print II*. Retail is \$79.95.

Tomas Rokicki of **Radical Eye Software** let us know he went bug-swatting and upgrading in *AmigaTEX V.1.9*. Each upgrade disk is \$10, and the updated manual is also \$10 (registered owners only, please). Radical Eye also has a new phone number: 415-32-AMIGA.

FIFTY LASHES DEPARTMENT

In #24, we goofed the address for the publisher of *Fancy 3D Fonts*. The address we gave was for Access Software, not **Access Technologies**. The correct address is PO Box 202197, Austin, TX 78720. 512-343-9564.

The address listed on the review of **Interplay's Neuromancer** in #24 should have been 1575 Corporate Dr., Costa Mesa, CA 92626. The phone number is 714-549-2411.

We typo-ed **Commodore's** phone number in #24. It's really 215-431-9100.

Also in the last issue, the source listed for *Forms In Flight II* was incorrect. It is available from **Centaur Software**, 14040 Tahiti Way, Ste 528, Marina Del Ray CA 90292.

Amigo Business Computers wrote to tell us we goofed the price on *KickWork*. The upgrade is \$14.95, *KickWork* itself is \$34.95.

Daniel Wolf of *MegageM* wrote to let us know that he had typo-ed the price of *LuCypher Level 2* in his press release. It's really \$199.95. Also, what we referred to as 16- and 255-character keys should have said 16- and 255-digit (as in decimal) keys.

BIG BOOBOO

In #24, we mis-spoke badly when relaying the specs on Dale Luck's implementation of the *X11* windowing system for the Amiga. The release from **GfxBase** does not require UNIX to operate; it runs under AmigaDOS. In fact, that's one of its main selling points. Sorry, Dale.

NAME CHANGE

ASDG has changed the name of their *SpectraScan* color scanners to *Professional ScanLab*.



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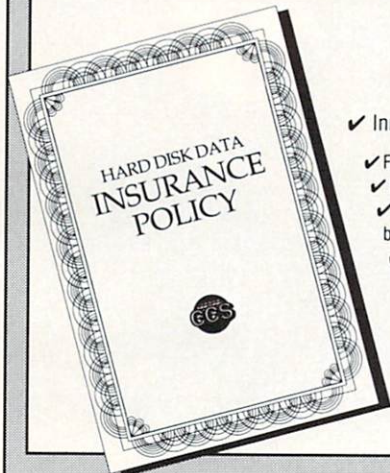
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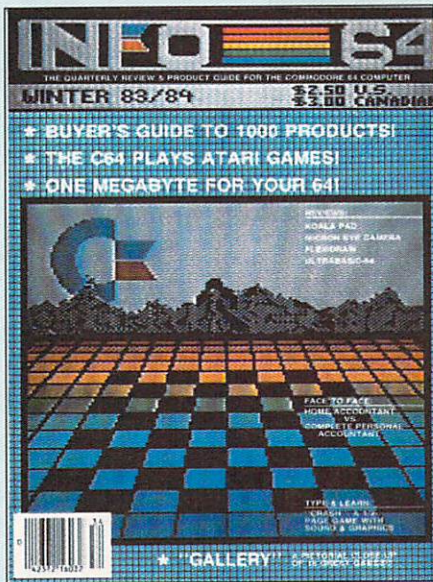
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#1 INFO 64, Fall 1983
Premiere issue! Review and product guide. Reviews: games, Flexfile 2.1, Sorcerer's Apprentice.

#2 INFO 64, Winter 1983/84
Buyer's Guide to 1000 C64 product listings. Koala pad, Flexidraw, UltraBASIC-64, Home Accountant vs. C.P.A.

#3 INFO 64, Spring 1984
Product Round-up: 1000 product listings for C64. Superbase 64, Commodore LOGO, C64 Forth, Model Diet, Computer Mechanic.

#6 INFO 64 Spring 1985
Color Gallery! C64 hard drives. Intro to Assembly Language, COMAL 2.01
Software reviews: The Print Shop, C/PM. More mini-reviews.

#9 INFO Dec/Jan 1985/86
Expanded C64/128, Amiga color gallery. Guide to C128 software. Network Wars. 1571 Disk Drive Survival Guide.

#10 INFO May/June 1986
Monitor Roundup! C64 word processors, Multiplan for C64/C128, Amiga BASIC. News, reviews, tips and tricks.

#11 INFO Aug/Sept 1986
Product Roundup issue: over 1500 hardware and software product listings for C64, C128 and Amiga.

#12 INFO Nov/Dec 1986
Graphics report: C64/128 and Amiga painting, drawing, CAD, drafting video animation, tools and utilities. Idea-processors reviewed. Network Wars, 8 bit business software.

#13 INFO Jan/Feb 1987
Games issue: gallery reviews of Amiga, C64/C128 games. C64/C128 business and application software reviewed, part I. telecom networking. Amiga Music.

#14 INFO Spring/Summer 1987
PRODUCT ROUNDUP! Over 2000 hardware and software products listed for the C64, C128 and Amiga computers. First look at the A500 & A2000 systems.

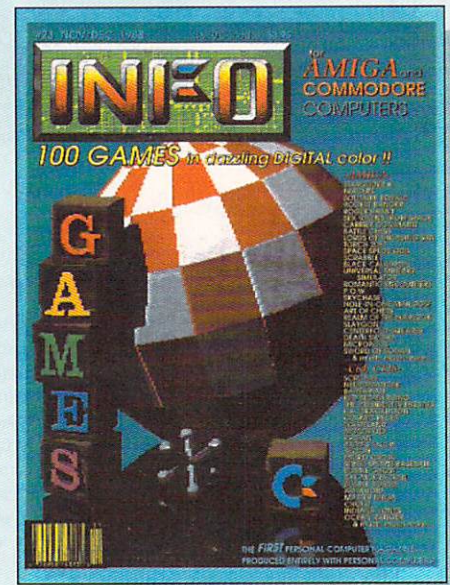
#15 INFO July/Aug 1987
History of INFO, part I. Survival Guide: how to get started in Commodore Amiga computing. 1st C.H.U.M.P. Magazine, introducing the Midnite Software Gazette. Interview with game-programmer Anne Westfall. *COMPUTE!* exposed!

#16 INFO Sept/Oct 1987
History of INFO, conclusion. Graphics Renaissance for Amiga and C64/128! GEOS Update, C128 BASIC compilers, Hands on Amiga Hardware, Amiga Multi-tasking,

#17 INFO Nov/Dec 1987
Annual GAMES issue! 39 new games reviewed for 8 & 16 bit. GEOS Update, part II, C128 ROM upgrades, 16/32 bit comparison. 8 & 16 bit hardware and software reviews.

#18 INFO Jan/Feb 1988
Desktop Publishing! Amiga word processors, part I. Show reports! Virus diagnosed, Best of Public Domain. Amiga, C64/C128 reviews!

#19 INFO Mar/Apr 1988
More Desktop Publishing! Leo Schwab interview, hard drives for 8 bits, Amiga word processors, part II. Arkanoid secrets revealed! GEOS Update, part IV.



#20 INFO May/June 1988
Desktop Video! INFO visit to NewTek, AmigaDos 1.2 Bugs. Reviews for all! Article by demo-master Joel Hagen.

#21 INFO Jul/Aug 1988
Jay Miner interview, Mort Kvelson's "Easing The Upgrade Path", Annual C.H.U.M.P. Lampoon section. Over 40 8 & 16 bit software reviews. Virus prevention.

#22 INFO Sep/Oct 1988
Fifth Anniversary issue! Digitizing made easy. Mac VS. Amiga. Over 50 reviews for C64, C128, and Amiga computers. INFOMania Game Tips! BRYCE debut!

#23 INFO Nov/Dec 1988
ANNUAL GAMES ISSUE! OVER 100 GAMES IN COLOR!!

#24 INFO Jan/Feb 1989
Amiga 3D Graphics Round up. Interview with Reichart Von Wolfsheild. Over 30 games reviewed. Extensive News, New Products & Show Reports.

#25 INFO Mar/Apr 1989
Amiga Animation. Interview with Rodney Chang. Over 30 games reviewed. CES Show Report. C128 T.H.I.S. GeoCalc 128. Amiga Lightpen, Dr.Term Pro, AC/BASIC.

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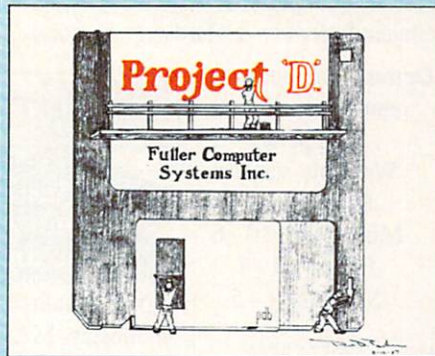
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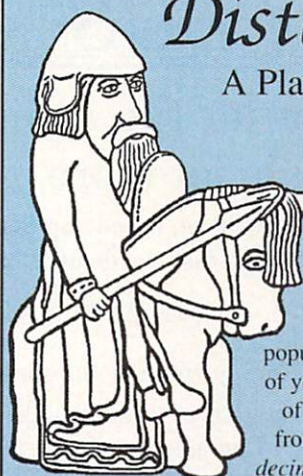
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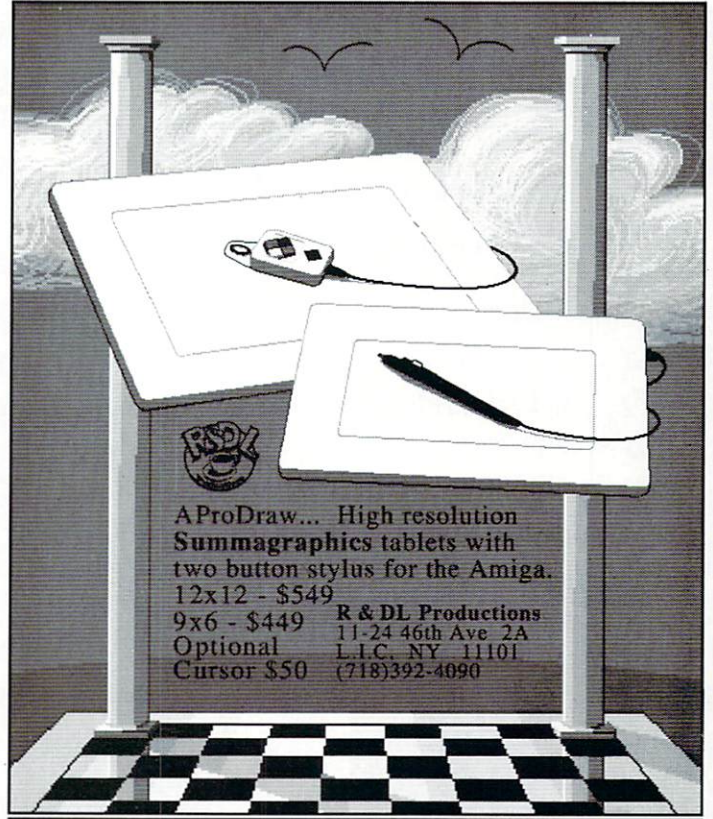
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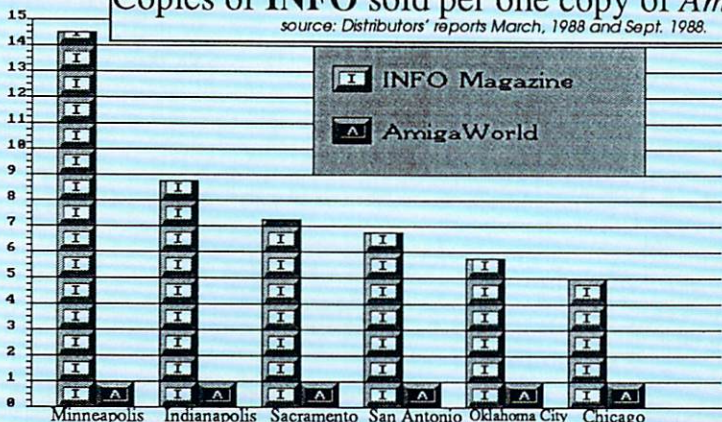
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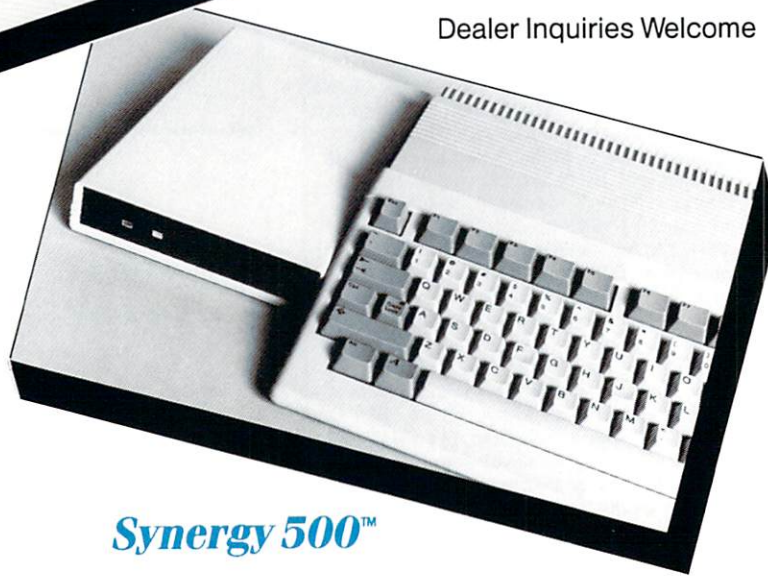
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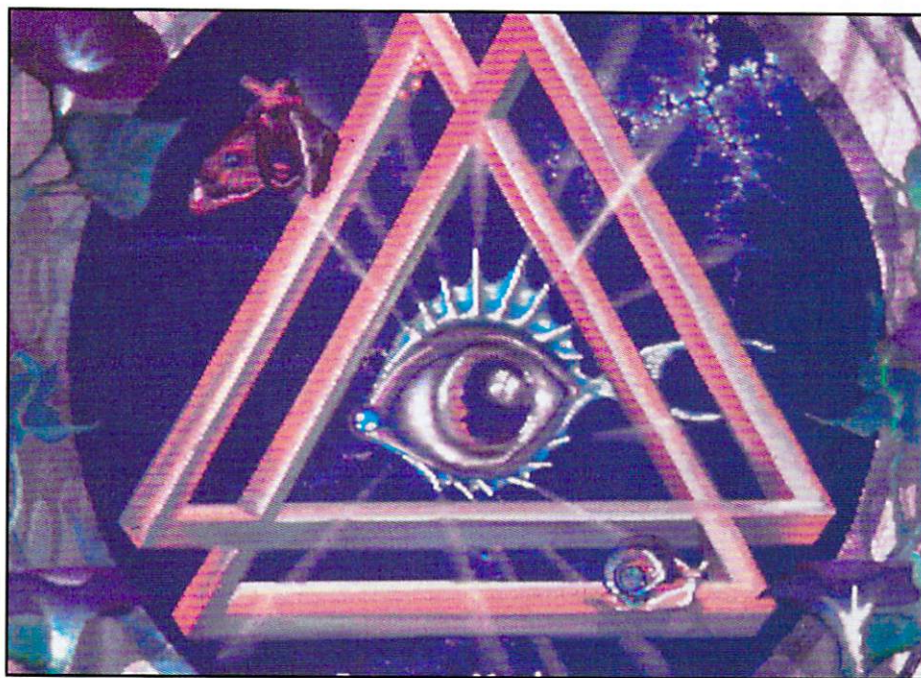
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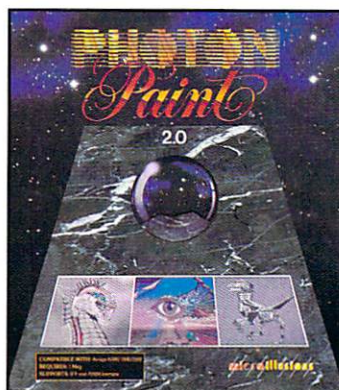
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