

# AMIGA

## COMPUTING

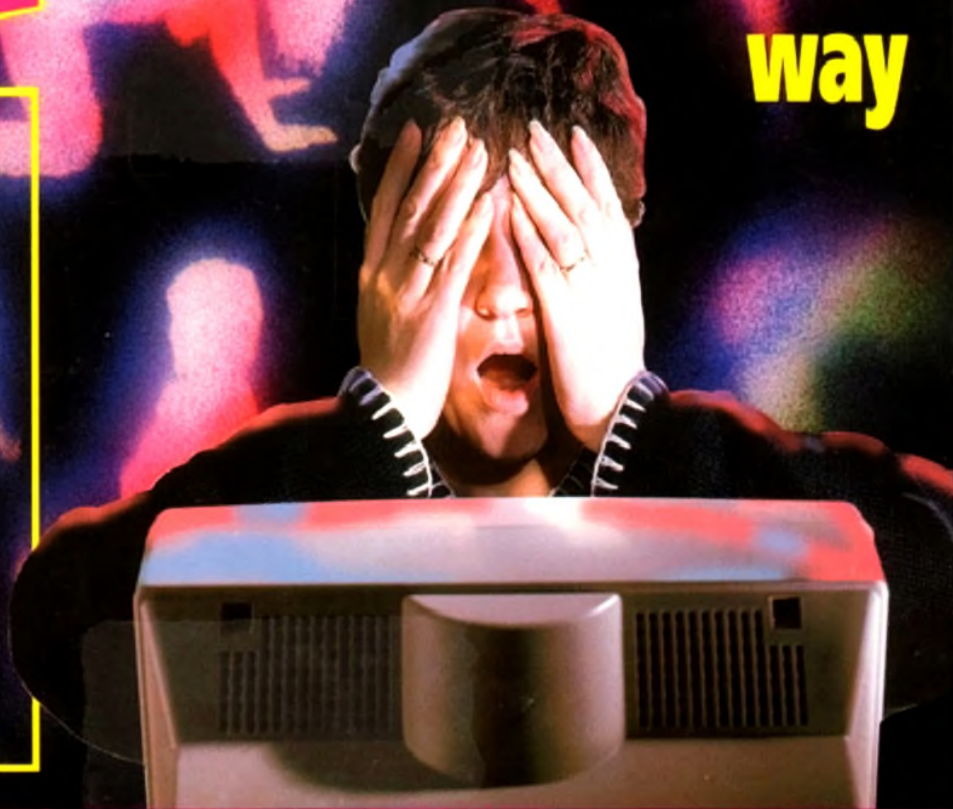
# The PORN BROKERS

### **SUPERB!**

Professional 3D graph plotting program with ProDraw and PostScript support

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March 1994

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Humanoids • Emplant • BJC-600 • Monitors  
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## Amiga CD32 FREE OSCAR, DIGGERS, WING COMMANDER AND DANGEROUS STREETS PLUS INDI EXCLUSIVE FREE LEMMINGS

If you are considering a console why compromise. The new Amiga CD32 is leading edge technology. It's faster with more colours and has superior graphics to any other console on the market. As if that's not enough it's also cheaper and with the promise of full motion video next year it's today's hot product

SAVE  
£24

£275.00

NEW LOW PRICE

## Amiga CD32 FREE OSCAR, DIGGERS, WING COMMANDER AND DANGEROUS STREETS PLUS INDI EXCLUSIVE FREE LEMMINGS



This is the news that all Commodore enthusiasts have been waiting for the new Microbotics SX1 Expansion module arrives January 1994. The Amiga CD32 is no longer just the best 32 bit CD console around, it is now a fully expandable computer. Add a keyboard and printer and increase the memory to 8 Mb, connect to another Amiga, the choice is yours. The microbotics SX1 is an internal expansion device that simply connects to your Amiga CD32 via the FMV port, the FMV module then plugs into the SX1. Connection could not be simpler.

**KEYBOARD OPTION** Add a key board by simply plugging into the SX1 and turn your CD32 into a real computer

**PRINTER OPTION** Now that you have a real computer, why not add a Panasonic Printer and enjoy serious graphics and Word Processing

**EXTERNAL FLOPPY DRIVE OPTION** Add a Zappo Floppy Drive and have access to the thousands of low cost Amiga titles.

**MEMORY EXPANSION MODULE** Increase the memory up to 8Mb by the simple addition of Industry standard 32-bit Simms

### New CD32 Owners

### New Amiga CD32 Pack

- 1) Amiga CD32+ 4 games + Lemmings
- 2) Zappo Drive
- 3) Keyboard
- 4) SX1 Expansion Module

Normal Price

Launch Price

£299.99

£275.00

£49.99

£48.99

£45.99

£45.99

£139.99

£99

£535.99

£468.98

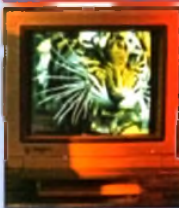
SAVE  
£66

Can now enjoy all of the advantages of real computing by adding a keyboard and other standard peripherals. Add a floppy drive and enjoy access to thousands of low cost Amiga titles. Add a printer and move into graphics and word processing. The expansion possibilities are as flexible as if you owned an Amiga 1200  
**SEPARATE PRICES**  
SX1 CD32 Expansion Module £139.99  
CD32 Keyboard £45.99  
Zappo Drive sale price £48.99

### Amiga CD32 Software Titles

Dangerous Streets	£19.99
Deepcore	£16.99
Sensible Soccer	£17.99
Mean Arenas	£19.99
Nigel Mansell World Championships	£19.99
Morph	£19.99
Overkill / Lunar	£19.99
Pinball	£21.99
Pirates Gold	£19.99
Zool	£19.99
Alfred Chicken	£16.49
Castles 2	£19.99
Chambers of Shaolin	£17.99
Liberation	£22.99

### Commodore 1942 Dual Sync Monitor



This new monitor has been specially designed for the New Amiga 1200 and 4000 computers in order for you to enjoy their fantastic graphics to the full. The 1942 Monitor features built in stereo speakers.

£347.99

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The superb Sharp 14" Monitor / TV provides a real alternative to a Commodore Monitor with full function remote control 39 channel electronic auto search tuning, digital on screen display and 1.5 watt Mp3 audio output. All you need to know is the low low price. The Sharp Monitor / TV is the product for you complete with scart socket and connectivity cable and including 12 months Warranty. £169.99

£169.99

### 2 Mb Smartcard

The original and still the only fully PCMCIA compatible memory card for the A600 and A1200. Comes with lifetime guarantee. Beware of cheap imitations.

INDI PRICE £99.99

### 4 Mb Smartcard

Same as above but maximum 4Mb.  
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### Commodore 1084 Stereo Monitor



The Commodore 1084 Stereo Monitor. Compatible with all Amiga products. Featuring:  
• Stereo Sound  
• High resolution display  
• Ergonomic Design  
• Full Amiga Connectivity Pack.

£189.99

### Zappo External Floppy Drive



You've seen all the reviews on this popular and affordable second Amiga drive. "Compatible with all Amigas Quality 9 out of 10." Exceptional value for money. Amiga Computing

£48.99

### New Low Price IDE Internal Hard Drives

Indi can now offer top quality 2.5" Internal Hard Drives for the Amiga 600 and 1200 at unbeatable prices. All drives come complete with cable and installation software.

80Mb 2.5"	Internal HD's	£189.99
120Mb 2.5"	Internal HD's	£200.99
170Mb 2.5"	Internal HD's	£239.99

### Zappo 601

Trapdoor upgrade for the Amiga 600. 1Mb with RTC.  
INDI PRICE £49.99

### Zappo 601 NC

As above only 512K, no clock  
INDI PRICE £29.99





# Panasonic

We researched the colour printer market in great depth to find a colour printer good enough to cope with Amiga's powerful output, yet at an affordable price. We found the perfect printer in the KXP 2123 Quiet Printer. We then considered that if you were going to buy a colour printer you would probably need a quality word processing package to use with it. We have found that too with Wordworth yet at a retail price of £129.99 we thought that might be a little expensive on top of your printer purchase! So together with Panasonic we decided to give a copy of Wordworth free with every Panasonic Printer. Of course you might be the fortunate owner of a Desktop Dynamite Pack or maybe the idea of word processing isn't for you. Once again Indi have the solution with the alternative of two great games. How's that for added value!

## Panasonic KX - P2123



The new high performance Panasonic KX-P2123 24 pin, Quiet colour printer offers leading edge quiet printing technology at an affordable price.

- Fast Printing Speeds** 192 CPS draft, 64 CPS LQ and 32 SLQ.
- Colour Printing** 7 Colour palette (blue, red, green, yellow, violet, magenta, black)
- Quiet printing** Super quiet 43.5-46 dBA sound level (most matrix printers are typically in excess of 60dBA)
- 7 Resident Fonts** Over 152,000 type styles using Super LQ, Courier Prestige, Bold PS Roman, Script and San Serif fonts.
- 24 Pin Diamond Printhead** High performance and high quality output, for total peace of mind
- 1 year Warranty**

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- FREE**
- DUSTCOVER
  - COLOUR RIBBON
  - BLACK RIBBON
  - INDI SOFTWARE OPTION

## FREE WORD PROCESSING OPTION

**WORDWORTH AGA COMPLETELY FREE!**  
WITH PANASONIC QUIET PRINTERS. The writer's choice. The ultimate word processor for AMIGA Computers. WORDWORTH is undoubtedly the ultimate word/document processor for the full range of AMIGA Computers. The graphical nature of WORDWORTH makes producing documents faster and easier, with the enhanced printing fonts (including full Panasonic KX-P2123 colour printing support). Collins Spellchecker and thesaurus, no other Word processor comes close "Without doubt this is one of the best document processors for the Amiga Today (Amiga Format) NORMAL RRP £129.99 inc VAT"

## INDI SOFTWARE OPTION FREE GAMES OPTION

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**New Game**  
You may choose from many different roles from explorer to assassin, from stockbroker to trader. Battle with pirates across a galaxy of different worlds, trade or smuggle goods or become a pirate yourself. The goals to aim for are endless, the game is completely open ended.



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- CU AMIGA 97%

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**New Game**  
An exciting program from the first film simulation. Vastly different to the console version with vivid scenes straight from the hit movie. Batman has returned in style.

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## Panasonic KX - P4400

### NEW Ultra - Compact LED Page Printer

Announcing the Panasonic KX - P 4400 LED Page printer, the printer that fits virtually anywhere. Ultra small foot print (12.7cm X 38.1cm ex trays) and under 6.5 kg, this printer travels with you.

- 4 pages per minute of crisp, 300 dpi laser quality output.
- 100 sheet, multi purpose paper tray (A4, letter, legal and executive)
- 28 internal bitmapped fonts
- HP laserjet series IIP
- 1 Mb Ram expandible to 5 Mb
- 1600 copies per toner.
- 1 Year On Site Warranty

**SAVE**  
~~£87~~  
~~£87~~

**£499.99**



## Panasonic KX - P2023



- Quiet printing** 46.5 dBA standard mode, 43.5 dBA super quiet mode
- On screen set up disk** -including printer driver for Windows 3.1
- Fast Printing Speeds** 192 CPS draft, 64 CPS LQ
- 4 Resident Fonts** Courier, Prestige, Bold PS and Script
- 2 Paper Paths** Top and Rear
- 1 year Warranty** for total peace of mind

Recently reviewed by Amiga Format "A fine 24-pin dot matrix printer at a reasonable price. Buy from INDI AND SAVE OVER £45"  
Buy this superb printer for just £169.99 AND whilst stocks last we'll send you a voucher for a free auto cut sheetfeeder WORTH A FURTHER £89.

~~£219.00~~  
**£169.99**

**FREE SHEETFEEDER**

## Printer Accessories

- 1) Panasonic Automatic Sheetfeeder**  
Automatic sheetfeeder for KXP 2123 holds 80 A4 sheets  
**INDI PRICE £89.99**
- 2) Printer Dust Cover**  
Specially tailored quality dust cover for the Panasonic KX-2123 printer  
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- 3) Printer Stand**  
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2000 sheets 1 part listing paper  
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- 6) Parallel Printer Cable**  
To be used when connecting Amiga to Panasonic printers  
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- 7) Panasonic Colour Ribbon**  
Colour ribbon for KX-P2123  
**INDI PRICE £12.99**
- 8) Panasonic Black Ribbon**  
Black ribbon for KX-P2123  
**INDI PRICE £6.99**

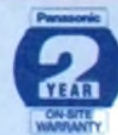
**Save £30 on Ribbons**

### ACCESSORY PACKS

- Pack 1**  
**Panasonic Colour Ribbon Pack**  
Contains 6 colour ribbons for the KXP 2123  
RRP £119.99  
**INDI PRICE £69.99 Save £50**
- Pack 2**  
**Panasonic Deluxe Accessory Pack**  
Contains automatic sheetfeeder, 2 black ribbons, 2 colour ribbons, 1 dust cover, 2 piece printer stand RRP £169.99  
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- Pack 3**  
**Panasonic Ribbon Pack**  
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- Optional 2nd input bin (total printer capacity 2x200 sheets)
- Low running costs
- Parallel interface
- Optional memory expansion to 4.5 Mb (0.5 Mb as standard)
- HP laserjet II emulation



- Satinprint (optimum resolution technology)
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- HP laserjet III emulation, PCL 5
- 8 scalable fonts, 28 bitmap fonts
- Optional 2nd input bin (total printer capacity 2X 200 sheets)
- Optional memory expansion to 5Mb (1Mb as standard)

**New Low Prices!**

**£499.99**



**New Low Prices!**

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for enquiring  
minds

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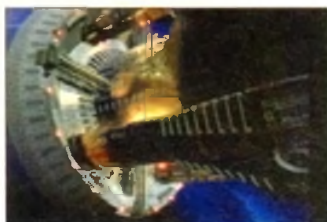
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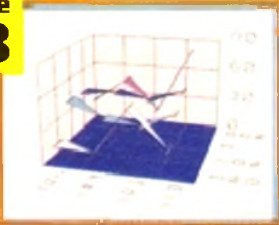
Next issue on sale 10th MARCH



# The COVERDISK

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Create 26 types of 2D and 3D graphs, then output them as IFF, EPS, Aegis Draw, or Geo 3D files for use in any other package



## SuperDuper 3.0 (WB2/3 only)

The fastest disk copier in the business now with a new interface and improved performance

## Icon Editor v4 (WB2/3 only)

16-colour icons for Workbench screens are now easier than ever

## FastJPEG (ECS and AGA only)

View the most popular compressed image format on any ECS or AGA Amiga

## DocDump

Output those long text files four to a page or as complete A5 booklets, all at the touch of a button



## DataTypes

(WB3 only)  
New MacPaint, PCX, BMP, and Windows icon datatypes for MultiView

# COVER STORY

Has recent media attention exposed the evils of computer porn or simply forced it further underground. AC investigates just how easy it is to access the very worst type of material imaginable?

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# Subscriptions

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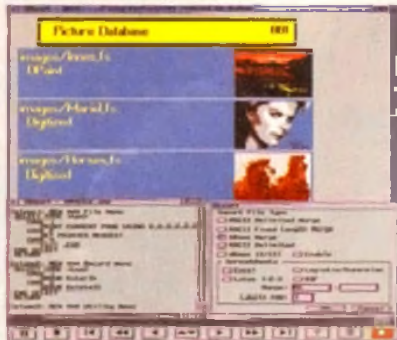
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# New Software for a New Year

## Business Applications



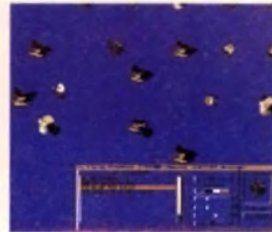
We are pleased to announce that HiSoft is now the authorised UK contact point for Oxi's SBase 4 Amiga products (formerly known as Superbase). We have stock of both SBase Personal 4.1g and SBase Professional 4.1g and offer full technical support for these programs with our Silver and Gold support options. We can also offer upgrades from earlier versions - please call or fax for details of upgrades and technical support.

Both SBase Personal and Professional are full-featured, fully relational and powerful databases with pull-down menus, multiple windows and full access to your Amiga's multi-tasking environment and they are now compatible with AmigaDOS 3.0 and the AGA chip set.

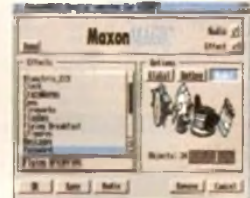
SBase Professional includes a powerful database management language and supports AREXX. Please call for our datasheets on these superb products.

## SBase 4 Professional Personal

## Utilities



## Maxon Magic

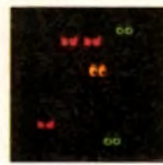


This is the utility that you simply must own! Maxon Magic is a fantastic combination of 15 different screen savers, a system event sound player and many amusing sampled sounds that will not only be incredibly useful but will give you and your friends endless enjoyment as well.

The Maxon Magic screen saver works in all modes, even with graphic cards, and offers you a choice of 15 different amusing and entertaining modules such as *Aquarium*, *Flying Breakfast*, *Fireworks*, *Crazy Worms*, *Messages*, *Clock* etc. As if that isn't enough value for money, Maxon Magic also lets you assign sounds to most system events including Window/Screen open & close events, Alerts, Keys, Mouse clicks, Requesters and more. Choose from the many sounds provided or simply use your own sampled IFFs!

With Maxon Magic your Amiga will never look or sound the same again!

the 'eyes' screen saver module in action



## Video/Music

### VIDEOMASTER



The best-value real-time video digitiser you can buy! VideoMaster gives you the ability to record real-time monochrome video with sound at 25 frames per second as well as quality full-screen stills from your camcorder or video recorder. VideoMaster RGB includes our new colour splitter, ColourMaster, and produces amazing quality colour stills.

VideoMaster AGA works on the A1200 and A600, connects via the PCMCIA slot for extra speed and freedom to use other peripherals, allows high quality stereo sound and supports HAM6 and HAM8 up to 640 x 512 resolution for stills.



ColourMaster is a new electronic colour splitter which works in conjunction with VideoMaster for stunning colour stills.

### Clarity



Clarity16 is our premier sound sampler allowing rates up to 32KHz in 16 bit stereo and up to 48KHz in 16 bit mono on an A500; accelerated machines can handle faster sampling rates. The software provides extensive features including full edit control, a MIDI keyboard emulator, a sample sequencer, many special effects and FFT analysis. Version 1.5 has an up-to-date Workbench 3 look, in its own window and is fully compatible with faster Amigas.



Megaloud is the new 8-bit, stereo, direct-to-disk sampler package; the software is packed full of easy-to-use editing features, special effects and extras such as the ability to print waveforms and sample information.

The package allows sampling up to 84KHz mono and 56KHz stereo to memory and up to 21KHz stereo to hard disk on an A1200. Supplied with a hardware volume control and an extensive 144-page manual, Megaloud is impressive value at only £34.95.

## Programming



### SAS/C 6.5

The standard C compiler for AmigaDOS gets a major upgrade for 1994; now the SAS/C Development System (version 6.5) supports translation of C++ files with Streams and Complex libraries allowing you to write Object Oriented code.

The C++ translator is compatible with CFRONT Version 2.1 from AT&T. There's an improved peephole optimiser, more efficient stack extension and structure return code generation.

There are many other improvements including an enhanced instruction scheduler for the 68040 CPU and the 68882 maths coprocessor, an improved profiler, a friendlier interface to grep, support for C++ within CodeProbe and more. Workbench 3.1 include files are supplied. Upgrades start from £59.95 - please call for pricing information.

## Prices

Clarity16 new price	£129.95
Megaloud	£34.95
VideoMaster A500	£69.95
VideoMaster AGA	£79.95
VideoMaster RGB	£129.95
ColourMaster	£69.95
SAS/C 6.5	£329.00
SBase Personal	£129.00
SBase Professional	£249.00
Maxon Magic	£29.95

All products on this page are either available now or by the end of January '94 - please call to confirm availability.

## HiSoft High Quality Software

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# NEWS

by John Butters

## CD32 assault continues

THE CD32 assault has continued recently with Commodore launching the revolutionary console in the United States and finally announcing availability of the full motion video module.

Industry experts believe that in order to enjoy long-term success the player must take off in the US, a market which Commodore have so far failed to crack.

But its launch at the Las Vegas Consumer Electronics Show was a low key affair. Software houses gave it their support in small meeting room containing half a dozen machines.

Around 100 games titles were promised by the time it goes on sale there in the next few weeks. It will cost \$399 and be packed with Pinball Fantasies and Sleepwalker.

Back in Britain, the full motion video is now on sale and Commodore claim it can transform the console into the world's best home entertainment package.

When fitted, the £199 device enables up to 74 minutes of movies and music videos to be played from a compact disc.



Las Vegas: Massive Consumer Electronic Show used for US CD32 launch

The module is based on Mpeg1 technology called Video CD - a standard agreed between industry giants Commodore, Philips, Sony, JVC, Matsushita and Paramount Home Video.

Video discs have already started to appear, many of them from Philips using a slightly different format called Video CD-i, but compatible with the Amiga system. They cost from £15.99 each, and among the first 50 films are hits *Top Gun*, *Naked Gun 2 1/2*, *Patriot Games* and *Wayne's World*.

First music discs, meanwhile, include Andrew Lloyd Webber's Premier Collection, Brian Adams's Waking up the Neighbours and Inxs's Live Baby Live.

Commodore boss David Pleasance said: "Amiga CD32 cannot be matched as a games machine. Now it can offer movies and music video too."

"It really is the first machine on the market to offer all forms of electronic entertainment in one box."

### Films available on a CD32 near you...

Fatal Attraction  
Ghost  
Hunt for Red October  
Indecent Proposal  
Indiana Jones and the Temple of Doom  
Naked Gun 2 1/2

Patriot Games  
Raiders of the Lost Ark  
Star Trek  
Star Trek VI  
Top Gun  
The Untouchables  
Wayne's World

## Holograms to cut CD piracy

A MEASURE aimed at cutting illegal copying of compact discs has been announced as figures from the International Federation of the Phonographic Industry show CD piracy is on the up.

According to the IFPI, the number of pirated discs printed or imported into Britain during 1992 was 700,000. In the year before there were hardly any.

Now with the computer games industry eager to move to this "piracy free" media, there are worries that it won't be long before it too becomes noticeably affected by illegal copying.

At least one company has announced details of a counter measure which aims to identify discs as authentic. By printing holograms in colour on CDs, Sussex-

based Disctronics say they have made it virtually impossible to copy discs without expensive equipment.

Although copied discs would still work, customers would be able to identify genuine products and avoid buying sub-standard imitations.

Disctronics say the security adds very little cost to the software development.

"We feel this must be a good, simple and low-cost step towards security," said the company's chief executive David Mackie.

"We believe it is the responsibility of the company to provide security features which allow customers to know they are buying the real thing."

## Graphics zoom along with Warp

ZORRO-based Amiga owners will soon be able to transform their machines into some of the world's fastest and most advanced computer systems.

Warp uses high-performance parallel Risc processors to deliver super-computer power to people running ray-tracing and other high-end graphics applications.

It consists of a base board containing a single processor and the transputer-based system has slots for two extra processors.

A network connector allows external boxes to be fitted and further processors to be added, and has support for SCSI-II controllers and DSP display modules.

### INCREDIBLE

Each chip adds 30 million instructions per second to the computer's speed, with 40 modules carrying out an incredible 1,200mips. An unexpanded A4000 operates at about 18mips.

A software driver makes the system compatible with Amiga software including Real 3D, Vista Warp, Imagine, Art Department Professional and Aladdin 4D.

But it needs to be switched off to ensure the computer is compatible with other programs.

Warp will be sold in Britain from April through London-based SatLink (071-371 7471). Prices are expected to be around £1,330 for the base board and £800 for each module.

Towards the end of the year, an even faster version of the product based on the T9000 processor will increase the computer's speed in steps of 200mips.



# Ladbroke Computing



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Ladbroke Computing International are one of the longest established home computer dealers in the U.K. We have developed an extensive customer service policy which involves testing of all hardware prior to despatch to ensure that goods arrive in working order, offering free advice and support over the phone and keeping customers informed. Although our prices are not always the cheapest we do endeavour to offer consistently good service and backup.

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## GVP II Hard Drives



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### SPECIAL OFFER

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- 16MHz 286 PC Emulator
  - Norton rating 15
  - Plugs into GVP II HD
- GVP PC-286 Emulator £89.00

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- Ergonomic design
- 320 dpi resolution
- Easy to use
- Microswitch buttons

ONLY £29.99

## GVP Genlock

- Video processor provides real time software control of brightness, contrast, saturation, hue, sharpness, filtering, gain etc.
  - Audio processor with two audio inputs, software switchable or mixable, with software control of Volume, Bass and Treble effects.
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Fully external, doesn't affect warranty

170Mb Overdrive £349.99  
Phone for higher capacities.

## Amiga Packs

- Amiga A600 Lemmings Pack £184.99  
Includes A600 with 1Mb RAM, Lemmings
- A1200 Race & Chase £289.99  
Includes A1200 with 2Mb RAM, Trolls and Nigel Mansell
- A1200 Desktop Dynamite £339.99  
Includes A1200 with 2Mb RAM, Digita Wordworth, Digita print manager, Deluxe Paint IV, Dennis, Oscar
- Amiga CD32 £289.99  
2Mb RAM. Dual Speed CD ROM. Multi session, plays music CD's, 256000 colours on screen, includes 2 games Oscar and Diggers.
- Amiga 4000 030 £999.00  
Includes A4000, 030 processor, 2Mb Chip RAM, 80Mb Hard drive.



## Eclipse Mouse

- 290dpi resolution
- 2 Microswitched buttons
- Opto/Mechanical mechanism
- Switchable between Amiga/ST
- Direct Mouse Replacement

Eclipse Mouse  
£11.99

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  - Double sided, Double density
  - Through port
- Cumana CAX 354 £54.99  
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A500 512K upgrade

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A600 1Mb no clock

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Plugs straight into A600 trap door compatible with A600, A600HD

## A1230 Accelerator

- 40MHz 68030 accelerator
  - Makes your Amiga 1200 run over 7 times quicker.
  - Allows up to 32Mb RAM
  - Optional FPU
- A1230/0Mb/No FPU £289.00  
A1230/4Mb/No FPU £429.00  
A1230/4Mb/68882 FPU £529.00

## Monitors



- Samsung C13352X £179.99  
14" SCART input TV with remote control and on screen display (requires SCART cable for high quality display)
- Commodore 1085S £189.99  
Commodore Colour Stereo Monitor including cable
- Microvitech 1440 £399.99  
The Microvitec 1440 is a multisync monitor compatible with the A1200. Includes setup memory for different resolutions.
- Colour SVGA Monitor £229.99  
High quality Colour SVGA Monitor .28 dot pitch.
- A1200 VGA adaptor £14.99  
Falcon VGA Adaptor £9.99  
Philips SCART to Amiga £9.99  
8833 MKII to Amiga £9.99

## Falcon 030

- 16MHz 32 bit 68030 Central Processor, 16MHz Blitter, 32MHz 56001 Digital Signal Processor
  - 1.44Mb 3.5" Floppy, up to 14Mb RAM. Displays 65536 colours from 262144 palette
  - 8 Channel, 16 bit, high quality Stereo sound sampling
- FALCON 1Mb No HD £499.00  
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FALCON 4Mb 127Mb HD £899.00  
FALCON 4Mb 209Mb HD £999.00  
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## Repair Services

Our Service department can repair Amiga's in minimum time at competitive rates. We can arrange for courier pickup and return delivery of your machine to ensure it's safety. We even have a same day service which will ensure your machine is given priority and subject to fault, completed the same day. We offer a Quotation service for £15 for which we will examine your machine and report back with an exact price for repair. If you do not wish to go ahead with the repairs then just pay the £15. However if you do go ahead then the charge is included in the minimum charge. Please note: The minimum charge covers labour, parts are extra.

- Quotation service £15.00  
Min repair charge £35.25  
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## Printers



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- Built in 55 sheet feeder
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- Starjet SJ48 Bubblejet £210.00  
Star SJ144 £459.00
- Thermal max transfer colour printer
  - 144 element head
  - Glossy colour output
  - 360 dpi resolution

Citizen  
Citizen Swift 240 Colour £270.00  
Citizen Project £209.00

Hewlett Packard  
HP Deskjet 510 £309.00  
HP Deskjet 500 Colour £389.00  
HP Deskjet 310 £239.99

Lasers  
Ricoh LP1200 £699.00

Add £3 for Centronics cable and £7 for next working day courier delivery.

High Quality Version Available on AMIGALAND.COM



## Phone help

A **NEW** consultancy service has been set up by Videoworld Multimedia (041-661 1151) catering for people who need technical support for Amiga software and hardware.

Services offered include telephone help, scanning/frame grabbing, professional colour printing from IFF files and public domain distribution.

The helpline is available between 7pm and 9pm and provides advice on **Workbench**, graphics, video, desktop publishing and other productivity software.

Customers need to pay an annual registration fee of £15, which gives unlimited access to the helpline - which costs an extra 48p per minute (peak) and 36p per minute (off peak).

## Accessing CD

CD-ROM drives which fit into the 5.25in bay of the top-end Amigas are now available to enable owners of the computers to read CDTV, CD32, PC and Macintosh compact discs.

Three versions are available, each aimed at users who want to access a wide range of clip art and public domain files.

Leeds-based First Computer Centre (0532 319444) expect the £219.99 Toshiba XM4101 to be the most popular. It has a 300 millisecond access time and 317k per second data transfer.

A driver is supplied to allow the compact discs to be used with A1500, A2000, A3000 and A4000 machines, although none of the drives allows CD32 software to be run.

Prices depend on specification, with each drive offering different access times and transfer rates. The XM4101, however, is the cheapest at £219.

A SCSI interface is also needed, with First Computer Centre supplying a device for £122.

## Speeding up

GREAT Valley Products have announced details of their fastest accelerator yet, the A4000 GForce 040.

It uses a 68040 processor running at 40MHz, and can be fitted with up to 128Mb of 32-bit Fast RAM.

An expansion socket provides signals for a SCSI-II fast module that gives data transfer rates up to 10Mb per second when used with high performance hard drives.

The board fits into A3000/T and A4000/T computers, and is due for imminent release. British distributor Silica Systems (081-309 1111) say the price remains to be fixed.

## First time troubles cut

FIRST time printer buyers are targeted for Citizen's new ABC 24-pin dot matrix machine which, claim the manufacturer, is the easiest-to-use machine on the market.

Billed as a true plug and play printer, Citizen say that newcomers will be able to install and use it within five minutes of opening the box.

The £222 ABC avoids complicated control panels and set-up procedures, and is configured for use with the Amiga by EasyStart software packaged with the machine.

EasyStart provides users with a step-by-step on-screen graphical guide to installation, walking them through the complete process of setting up the printer and preparing it for use.

It has been designed for use in the home and small office, where Citizen believe that many potential customers find computers and printers intimidating.

"Our mission was to develop a printer that really is as easy as ABC," said Citizen's group product manager, Andy Martin.

"We conceived EasyStart as an interactive, graphical tutorial that guides you through connection, set-up and paper loading.

"Above all, we wanted to make the Citizen ABC amazingly friendly and fun to use."

Other features include a print speed of 160 characters per second in draft mode and 53cps at 10 characters per inch. Memory is 8k and it has a resolution of 360 dots per inch.

Optional extras are a colour kit, push tractor feed and 128k memory.



ABC: Software makes printing easy

## Cheeky ad targets Sega

COMMODORE would have had difficulty finding a cheekier position to place their Sega-knocking CD32 advertisement over Christmas.

The aggressive "To be this good will take Sega ages" ad appeared next to Sega's office on Cromwell Road, London throughout the festive period.



CD32: Ad strikes close to target

## Upgrades boom follows deal

AN AGREEMENT just signed between Power Computing and US-based DKB Software is promised to bring more upgrades to Amiga owners in Britain.

The first is a SCSI-II card which enables A3000 and A4000 owners to connect up to seven extra devices to their computer.

Once plugged into the machine's Zorro III expansion slot, the DKB4091 allows peripherals such as hard drives, CD-ROM drives, tape back up units, image scanner and printers to be used.

Its makers claim the £399 card provides the maximum transfer speed for data intensive multimedia applications, and it has a slot to enable a 3.5in hard drive to be fitted on the board. Other upgrades include a board which expands the A1200's memory up to 8Mb. It has two sockets and prices start at £169.95 for a 2Mb version with a maths co-processor.

And for people wanting to increase the memory of high-end Amigas, the firm will soon be selling a board which gives A3000s and A4000s a massive 128Mb of RAM. Within the next few weeks a 68030 accelerator will be launched for the A1200. It will also allow up to 128Mb of extra memory to be added.

Bedford-based Power Computing can be telephoned on 0234 843388.

## Revolutionary painting package nears

A REVOLUTIONARY method of painting is set to appear on the Amiga with the release of a new high-end package aimed at broadcasters and other graphics professionals.

The as yet unnamed program breaks away from normal ways of painting on the Commodore computer, instead using multiple layers of "glass".

Previously this kind of application cost around £100,000, but the new package just needs an Amiga fitted with a 32-bit graphics board.

Exact details remain sketchy, but its British distributor says the program will be capable of building images from several elements or as a rough.

Some television adverts are already made in this way, with up to 50 layers of video producing effects that look realistic to the eye.

"After seven years without anybody improving on Deluxe Paint we have a new idea on how painting should be produced - it's revolutionary," said Amiga Centre Scotland boss Martin Lowe.

It is expected to be available from ACS within the next couple of months. Its price remains to be fixed.

## CompuServe slash connect costs

ONLINE information giant CompuServe have slashed connect charges for hourly-priced services by around 40 per cent.

The US-based firm says the cuts have been made possible because advanced technology has resulted in lower operating costs.

"We are pleased to pass these savings on to our members in the form of substantially lower connect rates," said Barry F Berkov, CompuServe's executive vice president.

"We have the financial strength and stability to allow us to reduce our rates while continuing to offer the most extensive range of services in the industry."

Areas affected by the savings include interactive forums, premium travel services, financial services, reference databases and entertainment.

Someone accessing the services using a 1,200 or 2,400 baud modem now pays about £3.30 an hour compared to the old rate of £5.50. Other baud rates see similar cuts.



## Dance record due for Amiga

MUSICIANS from around the world have joined forces to produce a collection of dance and techno tunes for a record due at the end of May.

Between 15 and 20 tracks are expected to be included on the Amiga Experiment compact disc, all of them generated using the Commodore machine.

The project started last autumn when Newcastle-Upon-Tyne man John Atkinson and local Time Stretch recording studio saw an Amiga demo.

"Seeing the Space Ball rave demo we became impressed by the Amiga's amazing sound capabilities," John Atkinson told *Amiga Computing*.

An advert was placed in the computer press asking for musicians to contact him and from the 66 people who responded 11 were picked to be involved with the record.

The collection will be compiled on an A500P using tracker program OctaMed which, with its Midi ability, Atkinson considers to be the best software for the group's needs.

It is planned to cost £6.50 and will be sold by mail order and through public domain libraries.



Musik: Engineer Rob Meeb (left) and John Atkinson mix 16 tracks to DAT master

### Complaints over computer use

DESPITE the increased sales of computers over recent years, only one in five Britons find them easy to operate and millions more have other complaints about their use.

That's the finding of a Gallup survey, which also shows people think computers have made business unnecessarily complicated.

Only one in 20 of the 1,000 people questioned believed computers helped running a home or family, with a large number of them saying they will never buy a machine.

The survey also showed concerns about the price of computers, that children spend too much time playing games, and over the spread of computer pornography.

On a more positive note, half of Britons consider computers a must in today's society and nearly as many people think they have made business more sophisticated.

## Driving quality improves

THE EXTERNAL Overdrive hard disk for the A1200 has been improved with a new controller and higher quality casing and power supply.

It is available with either 250Mb or 340Mb of storage capacity and has an average data transfer rate of 1.5Mb per second and a maximum of 2.5Mb per second.

Dealer Special Reserve (0279 600205) say early reliability problems have now been overcome.

"The new hard drives have been fully tested and found to be reliable, capable and fast," a spokesperson explained. "They are substantially faster than 2.5in internal hard drives."

Prices are around £299 for a 250Mb model and £379 for 340Mb capacity.



Overdrive: Improvements and better reliability

## Survey to report on security breaches

THE Government are carrying out a national survey to find the extent of computer security breaches experienced by British firms.

It will find the costs of violations to companies, identify major causes, give evidence about the level of computer misuse and give an indication of user-awareness of security issues.

Ten thousand firms are taking part in the survey and its results are expected early this year.

The last study in 1991 found that more than half of business had suffered from security problems at an estimated total cost of £1.1 billion a year.



Modems: Survey to find user awareness of security issues

## DIARY DATES

April 10-12, 1994

European Computer Trade Show  
Venue: Business Design Centre, London  
Organiser: Blenheim On-line (081-742 2828)

Europe's largest trade show for the computer and video games industry.

April 16, 1994

Spring All Micro Show  
Venue: Bingley Hall, Staffs  
Organiser: Sharwood Services (0473 272002)

Last autumn's show contained 70 exhibitors - some with Amiga software and hardware.

April 22 to 24, 1994

MEMS '94  
Venue: Wembley Conference Centre, London  
Organiser: Westminster Exhibitions (0222 512128)

Britain's leading Midi and electronic music show, with many household name firms attending.

September 20-25, 1994

Live '94  
Venue: Earls Court  
Organiser: News International (071-782 6893)

Commodore have already pledged their support for this large consumer electronics show.

October 6-9, 1994

BBC Big Bash  
Venue: NEC, Birmingham  
Organiser: Haymarket Exhibitions  
Future World area of this big show will contain the latest computer games and virtual reality.

October 26-30, 1994

Future Entertainment Show  
Venue: Earls Court II  
Organiser: Future Exhibitions (0225 442244)

The biggest public show of computer and video games players and a chance to see Christmas releases.

## Overseas

March 16-23, 1994

CeBIT 94  
Venue: Hanover, Germany  
Organiser: Deutsche Messe (010 49 511 890)

Europe's premier information technology show often used by Commodore for the launch of new hardware.





# MediaPoint™

## multimedia magic for the Amiga®

MediaPoint is the state-of-the-art in interactive presentation software. No other software package on the Amiga has this many features in the standard package. Some of the highlights:

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### MediaPoint is easy to use:

- Cut, copy, paste and undo for all page and script editor functions.
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- Antialiasing per character color, not to just one color.
- Frame-oriented page editor with solid, pattern and transparent frames. Over 50 frame transitions.
- Duplicate, centre, align, lock and group move functions for frames.

### MediaPoint means good looking, fast graphics:

- Import any Amiga graphics file including 24 bits.
- Scale and remap to any (AGA) graphics mode.
- Save page layout including text and graphics for use in other scripts.
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### MediaPoint is modular:

- Xapp™ modules for GVP's IV-24, Studio 16 cards, MIDI, CDTV, LaserDisc players, VCRs, still video players. Coming soon: Video Toaster xapp.

### MediaPoint is complete:

- Standard bundled languages: English, French, German and Dutch.
- Free runtime player.
- No hardware key protection.



Commodore Info Main Menu  
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Hi Quality Version Available on AMIGALAND.COM



**W**hen Commodore previewed CD32 at North American World of Amiga shows, they hinted that the major US unveiling would be held at the Winter Consumer Electronics Show in Las Vegas, Nevada.

Commodore did have a tasteful booth, but unlike the 3DO, CD-i, and Sega booths —which were smack dab in the middle of the floor with literally thousands of people passing them each hour—Commodore chose to exhibit in a room upstairs away from the hustle and bustle.

So while CD32 was there to see, and looking competitive compared to 3DO and blowing CD-i right out of the water, only about a dozen people were in the room to see it each time I walked by.

That's been Commodore's problem in the US for years now. Instead of putting their all into getting the attention of the masses, Commodore have relied on getting the word out to a small group who actively seek them out and hoping those folks will tell their friends.

Commodore did stage a press conference, and that played to a packed house. They started the conference by mentioning that the company had annual sales of \$600 million (a few years ago it was \$1 billion), and that there have now been more than five million Amigas sold.

Commodore now feel that their US market is in video workstations, while the

Denny Atkin on Commodore's cautious CD32 unveiling at the CES, and the rest of the news from across the water

# Low-key US launch for CD32



European market is more consumer-oriented.

In their bid to become a player in the US consumer market again, the company announced plans to release CD32 here in March. However, the company doesn't have the resources to mount a major national advertising campaign in a country this large, so they're looking to use some innovative techniques to get the word out.

These will include a CD32 Club and an attempt to get CD32 units and titles into rental outlets such as video stores.

Commodore said they had sold over

100,000 CD32 units as of the January show, and said they hope to be able to sell 300,000 to 500,000 CD32 units in the US in 1994.

Although many question their ability to sell that many units without a major advertising campaign, Amiga users here are hopeful that it will happen.

Recent visitors to Commodore's West Chester offices describe it as "a ghost town", and the entire software development crew is down to fewer than ten people now.

Commodore could certainly use the cash generated by a successful CD32 product to get its stagnant Amiga development back on

track. In Amiga computer-related news, Lew Eggebrecht said that the CD32-compatible CD-ROM add-ons for the A1200 and A4000 were still in the works and he hoped they'd be available soon.

In an interesting side-note, he mentioned that Commodore had even considered the feasibility of creating CD32 add-ons for the PC and Macintosh, but at the moment no such products were planned.

When asked whether Commodore would release any new Amiga computers this year, Eggebrecht said yes, but declined to elaborate.

## ADPro gets better

Although the version number has only been bumped a little bit — to v2.5 — ASDG refer to the new release of Art Department Professional as "the most significant upgrade in its history".

Many long-time ADPro users will consider the user interface to be the upgrade's biggest improvement.

"We surveyed our customers and found that some preferred a list-oriented graphical user interface (GUI) for speed, while others preferred a button-oriented GUI for ease-of-use. We implemented both and allowed them to be intermixed configurably."

ADPro 2.5 adds RTG (retargetable graphics) technology, so the new user interface can now be displayed directly on the screens created by third-party display boards such as the Picasso, EGS, Retina, and Video Toaster. ADPro can now render its images in a window on the same screen as its user interface.

ASDG have added CDXL, FLC, and FLI animation formats; Digital Broadcasting JStream; and ICO file format loaders and savers, as well as support for direct reading and writing of Workbench icon files.

If you own the Professional Conversion Pack, you'll also get support for SGI, Alias, and Wavefront files — professional stuff indeed!

The Fargo Primera colour printer — an impressive device that creates absolutely beautiful high-resolution colour output for about \$1000 — is now supported by ADPro in its dye sublimation mode. I've seen dye sublimation output from the Primera and it easily rivals photographic or typeset output.

An improved version of the FRED batch program and over 100 included ARexx files provide a wealth of full-motion special effects possibilities. ARexx programs can now be integrated into ADPro's customisable user interface.

Professional video and film users of ADPro will appreciate the new CineMorph utility (no relation to the GVP morphing program) which can convert streams of images between 24 frame-per-second film style and 60 field-per-second video-style time bases.

All of this is supported by much-improved documentation that now includes nine tutorials, more illustrations, and an expanded ARexx section.

The retail price of the program remains at \$295, and current ADPro owners can upgrade for \$45 plus shipping. ASDG have started accepting credit cards, so Visa, Mastercard, and American Express users in a rush for their upgrade can order it via phone now.

For more information, call 010 608 273 6585, or write to ASDG at 925 Stewart Street, Madison, Wisconsin 53713.

## Microbotics sold

Microbotics, one of the oldest Amiga hardware developers, have been bought by Paravision, a company with a video and connectivity hardware background. Paravision say they will continue to support and develop the current Microbotics product line, and will develop new products with a particular emphasis on A1200 and A4000 products.

Microbotics recently announced the Modem 19, a high-speed 19,200 bps modem available in both external and internal models for the Amiga.

Paravision's announcement of the purchase said that they have retained the former Microbotics management, technical, and engineering staff. The announcement also indicated that the team, in addition to developing Amiga products, will also be working on products for PC systems running Windows.

Although Paravision are based in North Ridge, California, the company will continue to handle customer service from the former Microbotics location in Texas.

For more information, contact Paravision, 1251 American Parkway, Richardson, Texas 75081, or call 010 214 644 0043.

## Turn back the clock

Did you move up to your Amiga from a Commodore 64? Do you miss those casual old days of waiting for software to load off a 1541 disk drive? If so, Questronix's The A64 Package v3 will let you re-experience those days of eight-bit glory.

Although previous versions of A64 were shareware, this improved product is a commercial program. The package includes a small box that lets you attach C64 serial peripherals (disk drives and printers) as well as a thorough 104-page manual.

The new version adds compatibility with all Amiga models (although AGA users will have to turn off mode promotion), much better speed and C64 compatibility, new SID sound emulation that sounds just like the real thing, and fast-loader support.

There's also GEOS compatibility for

68000-based Amigas. The emulated C64 can appear to have a REU (RAM Expansion Unit) from 128k to 2Mb attached.

If you have a lot of C64 data files sitting around on 5.25in disks, the A64Tools conversion utility's file-transfer capabilities alone will make the product worth the purchase price.

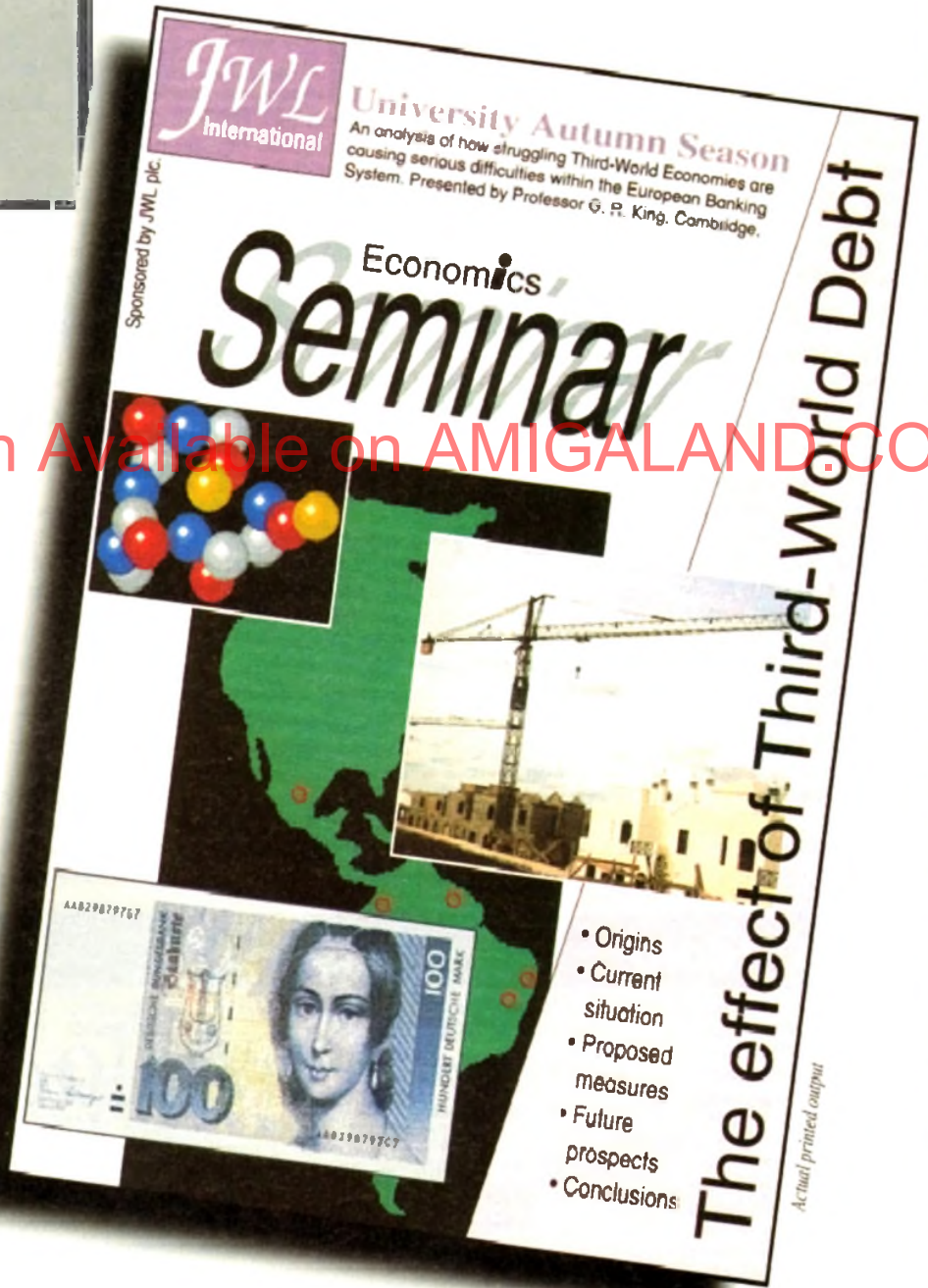
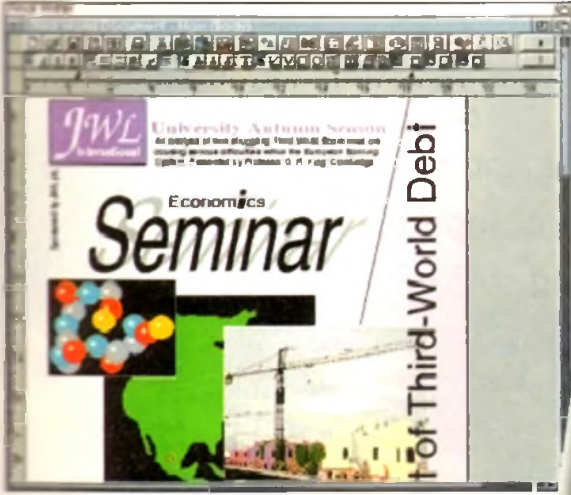
Other features include a utility to convert C64 programs into fast 68000 machine code and a full-featured C64 machine-language monitor.

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## ...or Can You?





**E**thics and technology are two subjects which, though seemingly disparate, have been inextricably linked since the invention of the machine gun and bolt action rifle brought man the power to kill dozens of his fellow men in the course of a few minutes without ever seeing their faces.

Since then, moral arguments have raged with increasing vehemence over the use of technology. At first in warfare, when Arthur "Bomber" Harris found contempt was his only reward for the near destruction of Nazi Germany's transport and industrial bases at the cost of 55,000 RAF aircrew and hundreds of thousands of German civilians, and more recently in medical science.

The widespread application of techniques developed through genetic research reaffirm that man has never failed to use any of the new technologies he has developed, be they weapons designed to kill tens of thousands of civilians in a single sun-hot flash, or methods by which the stuff of life itself is engineered and altered.

Debates, of course, rage on in the medical and other communities concerning ethical problems, but these debates are usually sidelined by the pace at which industry takes advantage of the opportunity for new profit. Only a few decades after the first serious doubts were raised about genetic engineering, commercial applications for the research carried out since Frick and Watson's DNA work are appearing every year.

In the computer industry we face a similar challenge when we look forward to the application of powerful new processors. Virtual reality, viruses, and artificial intelligence spring to mind as three areas in need of more sober debate.

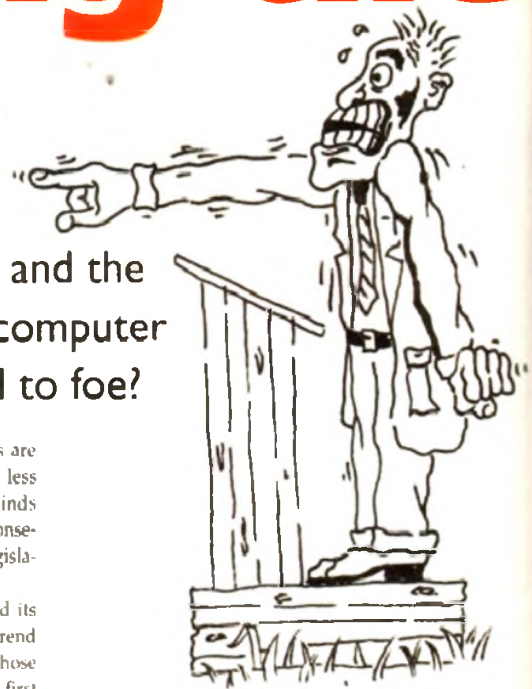
For example, can it be long before a research engineer working on one of the advanced neural network programmes presently being funded in Japan and the USA is confronted by a computer which requests not to be turned off? If a computer could make such a plea of its own volition, we would be faced with a situation in which we had created a slave race of intelligent creatures for whom we were morally responsible. This moment of decision might be before the end of the century.

Simply turning off a machine which had become self-aware would be tantamount to murder.

In more daily practical terms, can we ignore the promise - or threat, if you like - that virtual reality will change the way in which we perceive our environment and lead to new "unreal" experiences? Since the evolution of the human race, the mainstay of our connection with the world we live in has been our senses, and if we are now to trick those senses into believing that the world has changed, shouldn't we be looking at the possible medical and social effects?

Technologies of all kinds, high among them the computer boom, are forging well ahead of the ordinary per-

# Losing the race



Could human rashness and the drive for progress turn computer technology from friend to foe?

son's ability to assimilate them. Panaceas of all kinds are being promised by scientists who, despite enjoying a less than earned public respect, have nothing in their minds than the next discovery, and for whom the possible consequences of their research is a matter for government legislation rather than personal circumspection.

The scientific community has effectively abrogated its responsibility for the developments it creates. This trend can be traced at least to the half-hearted protests of those involved in the Manhattan Project which produced the first atomic bomb and can be brought down today to those involved in genetic research, who raise both the real problems (as practical advances) and a host of ephemeral answers in the shape of arguments which seldom carry beyond the rarified atmosphere of the scientific journal.

## SECOND CLASS

If our washing machines, videos, motorway travel, spending, and almost every other aspect of every day life are to be monitored by computer (as they have been for the last decade), if our bodies are to be made second-class constructions by the efforts of scientists seeking the cypher to the genetic code and the perfect human, and if our intellect is to be challenged by increasingly sophisticated computer brains (Kasparov only narrowly defeated his last computer opponent), can we sit back and watch?

There has been little or no debate on the real issue at stake, which is whether or not constant progress, towards which the whole of Western society has been dedicated since Copernicus, is actually desirable. While advances in so many fields threaten to take the humanity out of being human, shouldn't we be taking a step back for a breather?

Since the dawn of time, mankind has never failed to find practical applications for the knowledge our technology has made available, and it is time we recognised this fact. Advances in genetics, artificial intelligence, and other fields will find their way into the commercial marketplace or the military, and when they do we might find that our world - the one in which we all live, breath, and reproduce - has been irreversibly altered by anonymous lab technicians with respectable jobs.

If we can't control and monitor the pace of our own ingenuity, can't question the sacrosanct religion of "progress", or are unable to tie our scientists down to the inventions they release on us, with no thought for their own culpability, can we look forward to a future in which the individual has any liberty at all?

Technological progress is the most powerful religion in the West and seems set to blossom into the future as fusion power, space stations, parallel processors, and genetically engineered children come on stream. If this is the religion of the next few decades, and if serious debate on the direction we are taking is not carried out, then I for one am a heretic.

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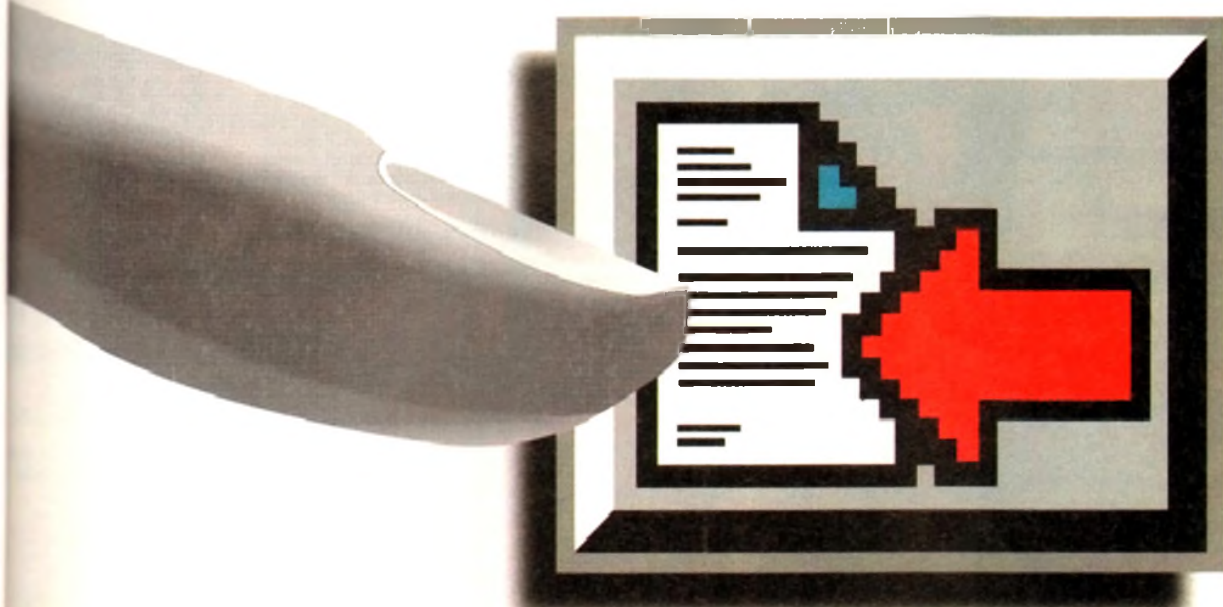
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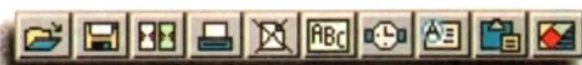
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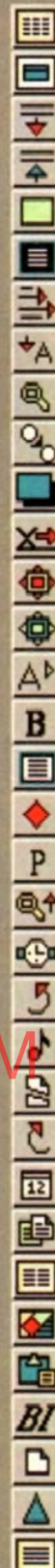
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From depicting company sales to the monthly budget, Jean Clement's JcGraph can salvage graphical sense from a numerical mess, and all in glorious 3D colour

# the DISK

Good graph programs, possibly because of their specialised nature, are hard to find on the Amiga. Spreadsheets such as Maxiplan (given away with last May's AC) have built-in graph generators capable of some of JcGraph's functions, but for professional results it is hard to beat JcGraph's flexibility and power.

Offering 13 3D graph types and 13 2D graphs, user-definable perspectives, and output in IFF, PostScript EPS, Aegis Draw, and even Geo 3D object format, JcGraph's colourful results (in IFF form at least) can be loaded into any word processor or DTP package you care to mention, and may even be rendered in 3D by Scenery Animator.

All graphs start life as an Ascii file which contains the data used by the program to render the final graphic. Using a text editor, the user inputs a list of parameters dealing with the number of columns and rows, the legend shown on each axis, and the numerical data itself. Though not as intuitive as the rest of the program, this process has the advantage that any and all data can be used with JcGraph.

Let's start by running JcGraph and loading one of the sample data files. When the program's window appears on the

# Say it with pie charts

Workbench screen, three separate windows will be visible, one for main control, one for output, and one showing a wireframe preview.

The first thing we need to do is load the data, so hold down the right mouse button and select the Open option from the Project menu.

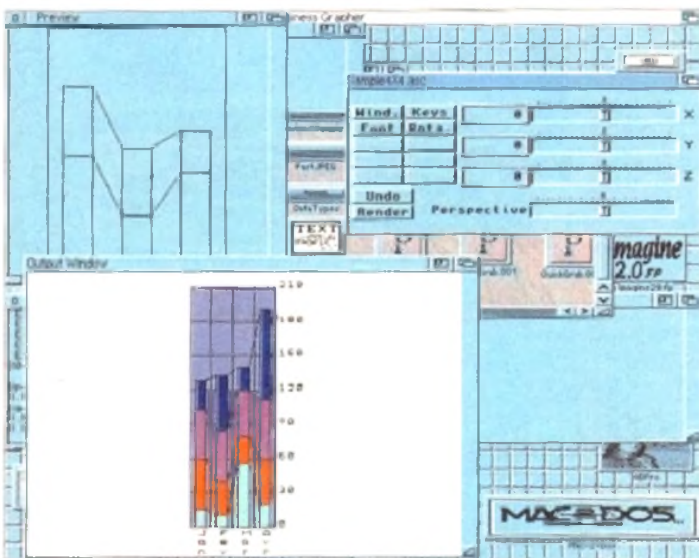
JcGraph's data files are stored in the

SampleData drawer, from which you should choose the file Sample4x4.asc. This is a set of data consisting of four rows and four columns (hence the filename) and makes for a colourful example. Next, hold the right mouse button down again and choose Load from the Graph Type menu.

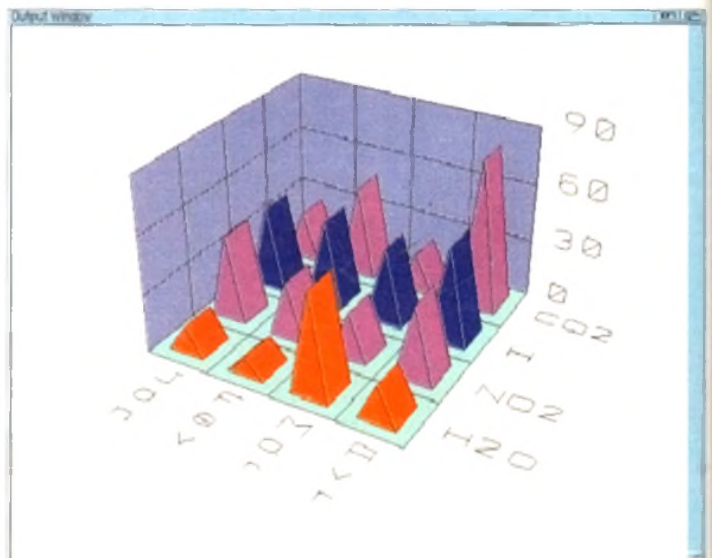
A list of 26 graph types can be found in the GraphTypes drawer, so double click

on the 3D\_DefaultType.grf file. Now we have both data and a graph type, so just click on the Render button found on JcGraph's main control panel and after a short interval a 3D graph will be drawn in the output window.

At first, the graph will look a little flat, so take a look at the four sliders on the right of the control panel. These control

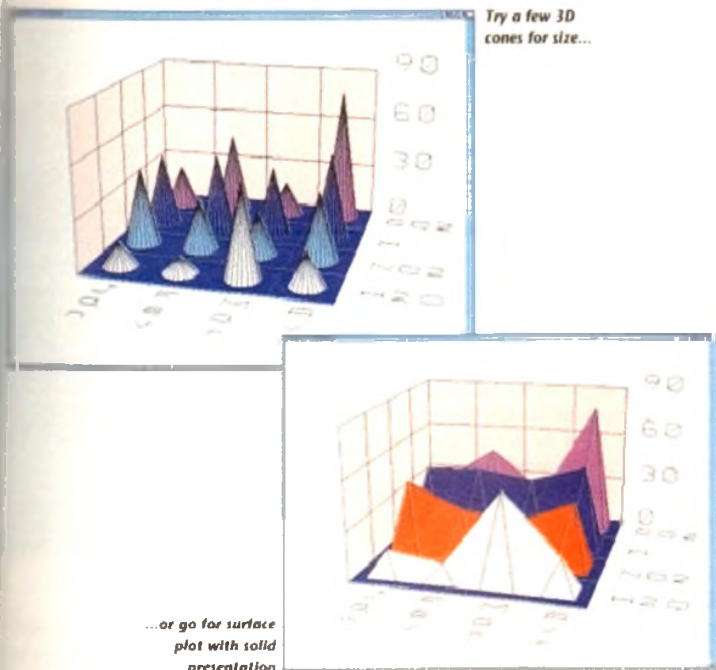


Even the simple 2D graphics can be impressive...



...but 3D adds a great deal to aid impact





the 3D orientation of the wireframe preview, and by experimenting you should be able to position the preview at a suitable angle and perspective. Now click on **Flender** again.

Notice the difference? By offering complete control over orientation, **JcGraph** gives us total control over the final appearance of the graph.

Depending on the number of colours your Workbench uses, each of the columns can be given a user-defined colour of their own, but the number of colours on offer is set by Workbench's own palette.

As the CoverDisk uses only four colours for Workbench (to save on chip RAM), it is difficult to make the most of the output while **JcGraph** is still on the disk, but installing on another disk is a breeze.

Just drag the **JcGraph** drawer icon to another Workbench disk or hard drive which has enough free space (you'll need about 360k for the drawer) and that's it.

The target disk must have the following libraries in its Libs drawer: **icon.library**

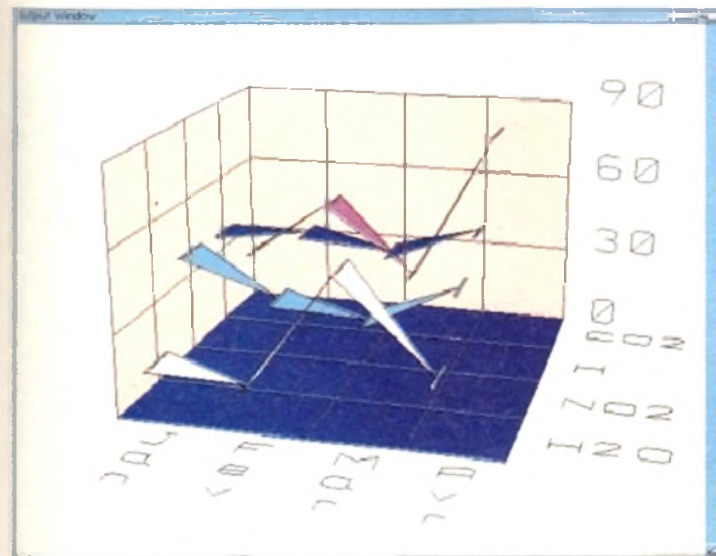
(WB1.3 and earlier), **powerpacker.library** (all machines), **iffparse.library** (all machines), and **kd\_freq.library** (WB1.3 and earlier). **Kd\_freq.library** is stored in the CoverDisk's Libs drawer and can be copied to your new disk's lib drawer quite easily.

Simply boot from the new disk or hard drive, open a CLI or Shell window, stick the CoverDisk in DFD and type:

```
CD DFD:FASTJPEG
FJPEG_ECS TEST.JPG
```

If you have only one floppy drive this will involve a bit of disk swapping, but so long as the library is copied across properly WB1.3 owners should find that **JcGraph** works perfectly from its new home. One last step is to place an **Assign** command in your startup-sequence to assign **JCGRAPH:** to the program's new drawer.

Once on a disk which use an eight-colour Workbench, the program's **Colour** and **Palette** functions come into their own. Found on the **Edit** menu, **Palette** allows the user to change Workbench colours to



Some of the more unusual graph types can look a bit spooky

## Fast JPEG

Author: Christophe Feck

The **Jpeg** standard, named after the Joint Photographic Experts Group which formulated it, is an incredibly efficient and compact way of storing huge graphics files without losing much of the original image quality.

Depending on the trade-off desired between compression and quality retention it is possible to squeeze 1Mb 24-bit files down to less than 100k then view them again at almost their original quality.

Even at half the ideal quality setting, it can be difficult to spot the difference between the original file and the compressed version except that the latter will be about a quarter of the size. Our only problem is how to view the **Jpeg** files.

As a new standard, now universally adopted, **Jpeg** isn't supported by most established Amiga art packages, but this duet of **Jpeg** viewers - one each for **ECS** and **AGA** Amigas - will decompress the files and display them as **HAM** or **Ham8** images depending on the machine being used.

To test the program, go to the CLI window at the bottom of your CoverDisk screen, click in it to make it active, then type:

```
CD DFD:FASTJPEG
FJPEG_ECS TEST.JPG
```

If you have an **AGA** machine, you would, of course, type **AGA** where it says **ECS** above. The sample **Jpeg** file, an example of the **Essence II** textures for **Imagine 2.0** which was originally a large 24-bit file, will appear as a **HAM** (on **ECS** machines such as the **A500 Plus** and **A600**) or **Ham8** picture (on **A1200s** and **A4000s**). And that, folks, is that. The programs use no special libraries and can be copied to a suitable utilities drawer on another floppy or hard drive by just dragging their icons across.

You will, of course, require either a steady supply of **Jpeg** images from a bulletin board or **PD** library, but just as soon as we find a decent, reliable **Jpeg** encoder in the shareware sector, we'll be including it on a later disk.

create a range of more exciting hues for the finished graph, and **Colour** enables the application of different colours to the graph's background, ground colour, and those used for each column of data.

Before **Colours** can be assigned, you must of course load some data, but this is the only restriction, and there's nothing to stop the user creating a set of very psychedelic bar charts.

All you need do before wallpapering the bedroom with these graphs is learn the simple rules governing the make-up of a data file.

To begin with, all files are created in a text editor such as Workbench's **Ed** and saved as **Ascii** files. The common format is to start the file with a line which simply says "1002" followed by a comma, a sequence which tells **JcGraph** that this is one of its data files.

Next, we must specify the number of columns, which are those values used for the **X** axis (months, years, and so on), then the number of lines, which corresponds to the number of items in the graph.

For example, if we wanted to compare sales of three products over half a year, we would enter 6 for the number of months (or columns), and 3 for the number of products (or lines) ensuring that they are separated by a comma.

On the same line we tell **JcGraph** how often we want the **Y** axis marked. If, say, our product sales are in tens of thousands, we would use the figure 10, and so on and **JcGraph** would mark the axis from 0 to the highest figure used in units of 10.

Finally on this line we have a floating

point value which enables us to use floating point values if required, but for most graphs this will be set at 0 to force integer mode.

Our first two lines so far look like this:

```
1002,
6,3,10,0,
```

Next we give **JcGraph** the sales figures, one line for each month. So, for example, if products **A** to **C** respectively sold 20,000, 25,000, and 17,000 units that month, we enter:

```
20,25,17,
```

and so on until we have covered all the months. For now, just think of a few random sales figures to give us a nice spread for the finished graph.

Finally, we have two lines, one in which we set out the markers for the **X** axis, and the other in which we name the items being recorded. In our example, these could be:

```
Jan, Feb, Mar, Apr, May, Jun,
ProdA, ProdB, ProdB,
```

If we now save this as **MyGraph.asc** and load it into **JcGraph** we can see the results for ourselves.

Full details of the rest of **JcGraph**'s capabilities, including its **ARexx** interface, can be found in the documentation which, as a matter of interest, you might not want to print out until you've taken a look at the instructions for the excellent **DocDump** program, also on this month's disk.





# Icon Editor v4

Author: Peter Kiem

Good 16-colour icon editors for the new Amigas are hard to find, but Icon Editor v4 (IEv4) is one of the best and offers enough features to satisfy even the most artistic icon designers.

With a maximum of 16 colours and the ability to create enormous icons, IEv4 is much better than the Workbench editor supplied with releases 2.04 and 3.0 and is

easier to use. Simple controls and self-explanatory menus make creating new images or adapting old ones an easy affair.

On loading, once the timed shareware notices have disappeared, the program presents the user with a large edit window through which an image can be scrolled using the standard scroll bars.

In addition, a zoom bar above the main window offers a range of magnifications up to 16 times normal size, at which point pixels are enormous and detailed editing a breeze.

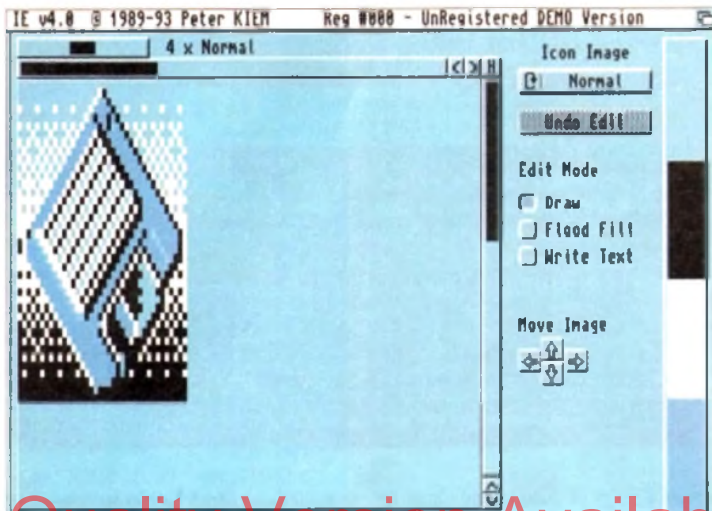
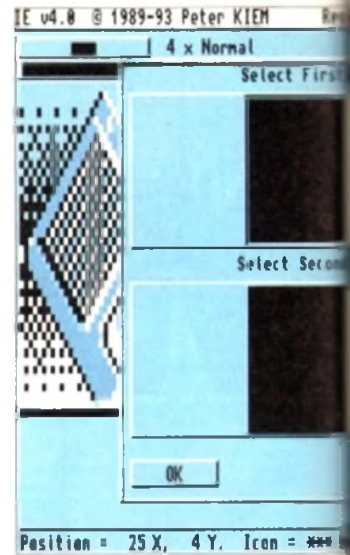
A cluster of four cursor-type arrows in the lower left of the window can be used to physically move the image in the window rather than just scrolling through it, so there are options aplenty to keep users happy.

Painting itself, as with most icon editors, is less well catered for, and only flood fill, text input, and freehand drawing are available.

However, as most of us would rather design our icons in a paint package such as DPaint, and as IEv4 has an IFF import option, these few tools suffice for touching up and finishing off an image.

Information details for the icon can be set using a large friendly requester. Here the user can decide on any default or other tool types the icon requires, set its initial screen position, and choose which of the basic file types (disk, drawer, project, and so on) it will be.

Images can be copied from the normal to the selected icon states and can be scaled up or down between one-eighth



Use the default icons to make life a little easier

and eight times their original size. In addition, the program will, automatically recolour a WB1.3 icon to suit the changed WB2.04 and later colour palette.

Even programmers are taken care of by the option to export icon information as C code, providing another dimension in flexibility. There's no output for assembler code, but as most intuition programming (for beginners at any rate) is done in C this is not a problem.

The Preview mode cleverly depicts the finished icon with all colours correct for the present Workbench settings and in the currently selected screen mode, so there's no excuse for a finished design which

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# SuperDuper 3.0

Author: Sebastiano Vigna

A brand new version of a program we distributed over a year ago. SuperDuper 3.0 is one of the fastest and most reliable disk copying programs in the shareware sector and, as it has undergone a complete rewrite to take better advantage of WB2.04 and 3.0, we thought another airing was called for.

Simply speaking, SuperDuper gets around the Workbench limitations on copying disks by using RAM buffers, stepping the heads of any second and third drives attached to your system, and several other tricks to squeeze as much speed as it can from your disk drive.

If you are fortunate enough to own a second floppy drive or even third, the speed at which SuperDuper carries out a complete disk copy will be something to watch.

By reading a disk, storing it in a buffer, and squirting to two or more extra drives at the same time, SuperDuper can make up to three copies of a floppy in less time than it takes the usual Workbench method to copy one.

The SuperDuper interface is split roughly into three areas. First there is the fuel bar used to show the progress of operations, below which is a second panel containing the program's options, and on the right there is a selection of buttons to choose source and destination drives and the method which SuperDuper will use.

Four distinct methods are on offer, and a quick examination of them will help explain how this utility works.

Disk2Disk is a straight copy from one disk to another, and to use it you must have a second floppy drive. This simplest method is the best for most single copy functions and functions more quickly than the traditional DiskCopy command. A simple copy from and to the internal drive is about 25 seconds quicker with SuperDuper.

Note that with all buffer methods, once a buffer image of a disk is created, it needn't be read again, which makes subsequent copies twice as fast.

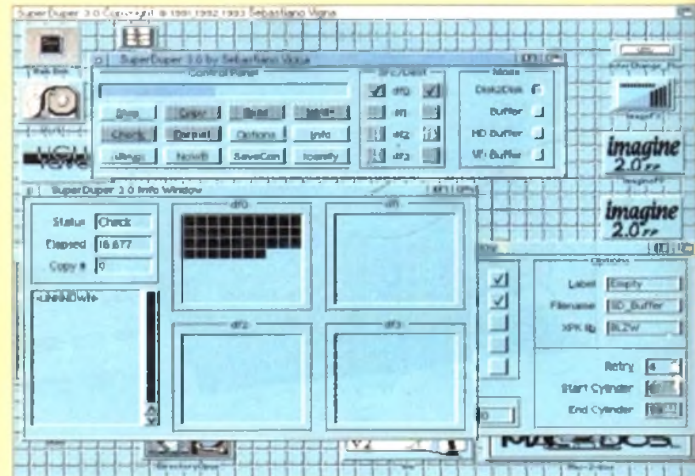
The second mode is the buffer mode, used for DF0: to DF0: copies, using which SuperDuper will create a RAM image of the disk before writing it to the second disk. If

you have a 2Mb Amiga this will take place in one pass, but other users might have to switch disks to avoid the RAM disk overflowing.

Third we have the HDBuffer method, which creates an image of the source disk on hard drive before writing it to the destination disk. This is ideal for those with hard drives but limited memory, with the bonus that the buffered disk can be kept on hard drive until another copy is required.

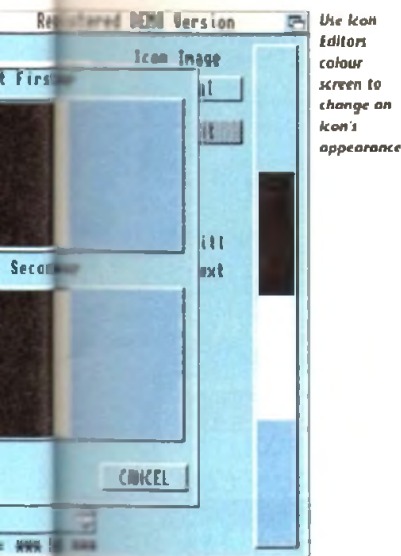
Lastly, there is the VD (or virtual device) Buffer mode which is best suited to those who use RAD, VDD, or any other recoverable virtual RAM disk.

SuperDuper will create the buffer in these virtual devices, thus ensuring that even if



SuperDuper info screen provides a graphical presentation of progress





pause, the project icon will appear in ILEV4's edit window where you can mess about with it as you please. Once all the graphical editing is over, select Edit Info from the Icon menu and take a look at the options on offer.

From top left, we can see that ILEV4 already knows that the icon is for a project, but there are no proper tool types and no default tool. For our purposes, we need to set the default tool type as IconX, the AmigaDOS command which will automatically execute the script which calls it.

To do this, simply type the following into the default tool string gadget:

```
!C:ICON!
```

This instructs the Amiga that when our project icon is double clicked, it should load IconX from the C directory of the current system disk and pass the script to it for execution. Now all we need do is close the information window by clicking on the close gadget in the top left, then select Save As from the Project menu.

When the file requester appears, find the script file you originally saved out and save the icon under the same name. ILEV4 will not overwrite the file, just save the icon with the ".info" appender to identify it as an icon. Note that this unregistered version of ILEV4 will quit out as soon as you save.

Now we can go back to Workbench and double click on our new icon to carry out whatever commands were held in the script file. A straightforward process

which is much the same for the creation of most other icons, and even if you still feel a little unsure there are plenty of hints and tips in the on-disk documentation.

## DocDump 3.6

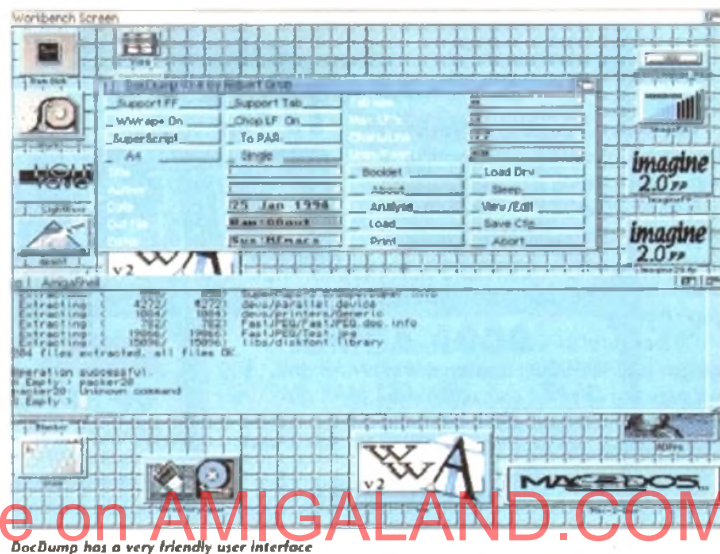
Author: Robert Grob

This is the latest version of a program which is designed to take long, unwieldy text files such as those often found on CoverDisks and shareware disk, chop them up into small pages,

and print as many pages as possible to each sheet of paper.

With the help of DocDump's booklet setting it is even possible to have the program arrange documents in the correct order on both sides of a sheet of paper so that once printed they can be cut in half and arranged as a double-sided A5 booklet complete with page numbers.

Going through this process manually using a word processor would be unbearably tedious, yet DocDump does it all in moments and without mishap, making it one of those unsung little heroes of the utility world. It does an unglamorous - but very useful - job quickly and effi-



DocDump has a very friendly user interface

doesn't fit when used for real. Let's take a quick run through setting up a project icon. Imagine you have a set of commands you'd like to be able to execute quickly but which are inappropriate to the startup-sequence, such as a set of special assign commands.

To run these from Workbench, first load your usual text editor (Ed will do) and save out the list of commands (or batch script as it will now be) to disk.

Next, load ILEV4, hold down the right mouse button, and choose Load Default from the Project menu. A list of default icons should appear from which you should choose Project. After a short

something goes wrong during a multiple copy, the image of the original disk will survive a warm reset.

Verification is carried out on all copy modes, even on the RAM disk itself, so SuperDuper is just as reliable as a normal Workbench DiskCopy. In addition, all the usual options you'd normally have to type in at Shell can be accessed by clicking on the Options button.

When this is done a second window opens containing a number of gadgets and toggle buttons using which the user can decide on whether or not to have verification on or off (for faster, but less reliable copying), which file system to use, and so on.

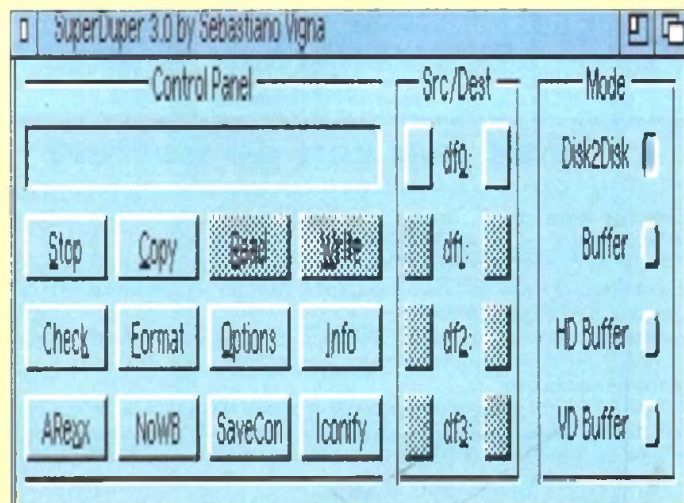
Note the string gadgets to the right, and in particular the one marked XPK Lib. The shareware and PD XPK libraries now most commonly used by crunchers and packers (including the FAST and NUKE libraries used by Disk Expander) can be found on many BBSs and in some PD libraries, and as long as you have one of these libraries you can specify that it is to be used in all buffer operations.

In other words, the presence of an XPK library on your system disk will ensure that all data buffered to the RAM disk will be crunched quickly as it is stored, then decrunched on its way to the second disk, thus making it possible for 1Mb owners to copy complete disks in RAM without any disk swapping.

It is also possible, using the string gadgets in the lower right to specify the start and end cylinder to avoid copying large tracts of empty disk, and it is an option the more expert among us will find a very useful speed boost.

Other gadgets here either speak for themselves or are described in the documentation, but note that SuperDuper automatically detects HD disks, so those lucky enough to have one (step forward all you A4000 owners) can use the program with their 1.76Mb disks.

SuperDuper's third useful window is accessed by clicking on the Info button found on the main control screen, a button which opens a window showing in graphical form the progress of all copy operations. Elapsed time, drive status, and number of copies



Full control over the copy process courtesy of SuperDuper's main screen

made are shown and constantly updated, as is a list of the disks so far copied - useful for putting an end to confusion when making a number of different backups.

From the main window it is also possible just to check a disk for errors or format it using the toggled options selected through the options screen, making SuperDuper an all-round, friendly replacement for Format and DiskCopy, the two commands used most by new users and those which provide the most problems at first.





## DataTypes

Author: Commodore-Amiga Inc.

DataTypes are a special feature of Workbench 3.0 and are used by the MultiView utility as loader modules. As soon as a new DataType is installed on your Workbench 3.0 floppy or system partition, the MultiView program will be able to view files saved in the format corresponding to the new datatype.

The directory found on this month's CoverDisk includes a set of DataTypes covering the mostly PC-oriented image formats PCX and BMP, Windows icon images, and MacPaint bitmaps.

Installing them on your system disk is easy as pie. Boot from

your normal system disk or partition, put the CoverDisk in DF0, open a Shell window and type:

```
CD DF0:DATATYPES
COPY DEVS:SYS:DEVS ALL CLONE
CD CLASSES
COPY DATATYPES SYS:CLASSES/DATATYPES ALL CLONE
AddDataTypes REFRESH
```

AmigaDOS will copy all the new files to your existing SYS: disk and when the AddDataTypes command has been issued they will be ready for use. MultiView will now recognise any file saved in the new formats, and if you already have the Jpeg and GIF DataTypes distributed on CoverDisks last year you'll be well on your way to the complete picture viewer.

Look out for new DataTypes as we find them.

# the DISK

ciently without blowing its own trumpet.

First of all, run the program which will bring up a smallish window peppered with gadgets used to set the various print parameters. There are buttons to toggle support for tabs and line feeds, choose output to one of the printer ports or a drawer on disk, set the page size, and paper type.

On the right of the screen, a set of string gadgets hold the default number of lines per page and so on for each of the standard page settings and document modes Dump, Column, and Booklet).

Dump mode is a simple squashing method to squeeze four times as much text on a single piece of paper and can be difficult to read if you have bad eyesight.

Booklet mode produces cute little A5 double sided booklets but takes a lot more time, and column mode is designed for those long documents such as source code listings, which can be printed in two columns to avoid wasting most of a sheet of paper.

At the moment, DocDump recognises

crunched text files but will not de-crunch them, so you'll find the small command Decrunch on this month's disk. Use this from the CLI to decrunch PowerPacked documents using the command:

```
DECRUNCH {FILENAME} TO {NEWNAME}
```

Where {Filename} is the path and name (for example DF0:DocDump/DocDump.doc) of the original file and {Newname} is the uncrunched file

(RAM:DocDump.doc would be fine).

Once a text file is available, use the Load button on DocDump's control screen to select it, then click on Analyse. This will open a small info screen telling us how many pages there are in the document and how many sheets of paper will be required depending on the selected print mode.

Our next job is to choose a printer driver using the Load Drv button and the subsequent file requester to open the DEVS:Printers drawer. On our CoverDisk, only the generic printer driver is included, but if you have installed DocDump to hard drive or another Workbench disk (see Installation panel) you should have a greater selection.

OK so far? So long as you're happy with the document settings, which we won't go into in great detail here, the document should appear on paper more or less perfectly.

For some documents, fiddling with the default settings is advisable, and for printing the DocDump.doc file itself there are detailed instructions at the beginning of the text file itself on which settings to use.

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Want to be famous? We are always on the look-out for quality Amiga programs for the CoverDisk. If you think you have written something good enough for others to share and enjoy, please send it in and we'll have a look.

The *Amiga Computing* CoverDisk is used by thousands of Amiga owners every month in places all over the world from New Zealand to the USA, so if your submission finds its way onto the disk, you could be famous.

Please make sure that you list ALL library and other files necessary for the program to work. Feel free to design your own icons for programs that run from Workbench, but please don't make them too big.

If you ensure your program is as compatible as possible with a wide variety of Amigas, it will also stand a better chance of publication. We are especially interested in small programs whether they be games, utilities or whatever.

We are prepared to pay our current rates for original work which has not been distributed in any other way and which has not been put in the public domain.

If you wish your program to be released as shareware or freeware we will be happy to publish it, but would, of course, be happier if we had been given it first!

Your submission MUST be accompanied by the submissions form, a copy of it, or a signed declaration to the same effect. Please supply your full name, address and phone number.

Unfortunately we cannot undertake to return disks sent to us as the volume of submissions makes this an impractical exercise.

Post your submissions WITH A COPY OF THIS FORM to:  
Colin Yarnall, Amiga Computing, CoverDisk Submissions,  
Europa House, Adlington Park, Macclesfield SK10 4NP.

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The Picasso II RTG Emulator integrates seamlessly into the Amiga operating system to give the most reliable emulation available. The new resolutions provided by the Picasso II appear in all your applications as new screen modes selectable from the standard ScreenMode requester. For any program that allows you to choose a new screen mode, you would simply choose a Picasso II screen mode as an alternative (such as Picasso:1280 x 1024). You will not have to wait for any custom programmed versions of any program that is compliant with the rules of the operating software. Such programs will be able to immediately take advantage of the Picasso II board. Programs that are written with AGA in mind will be able to immediately take advantage of the new modes available to the system.



The Picasso II is designed to take full advantage of the host computer system. The built in Blitter and high speed memory subsystem mean that you will have super fast screen updates. Switching between Picasso II mode screens is very fast and switching between Picasso II mode screens and native Amiga screens is nearly instantaneous (as fast as your monitor can re-sync). Because the Picasso II RTG board does not use Chip RAM, your Amiga will be less likely to suffer from bus contention problems normally associated with running high resolution screens and heavy DMA activity.

The Picasso II RTG emulator has been designed so that it uses no Chip RAM. All available screen modes on the Picasso II use only Fast RAM. This sophisticated design means that even a 1Mb Picasso II board can support as many high resolution 256 colour screens as will fit in the Fast RAM of your system.

The Picasso II comes with several screen modes and resolutions that are industry standard and for which all monitors are designed. These modes operate at the proper scan rates and frequencies in order to take advantage of the most popular monitors available. In some instances, where those modes may not be sufficient, you can now create your own custom screen modes with PicassoMode. You will be able to create screen modes that exactly match your monitors frequencies and resolution capabilities. Picasso II comes with Personal Paint Lite, MainActor (animation program), IFF, GIF, JPEG and MPEG Viewers and drivers for ADPro, ImageFX, ImageMaster and Real3D. Other bundles are available too.

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EMPLANT will revolutionise the way you use your Amiga! Imagine one card offering multiple emulations that ALL multi-task (after all, isn't that the way the Amiga was meant to work!)

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EMPLANT supports Hard Drives, (via on-board SCSI or AmigaDOS partitions), Hard Files, MAC 800K (via Mac drive adapter), MAC/IBM 1.44Mb, IBM 720K, EMLANT and AMAX formats. The SCSI interface supports both Amiga peripherals and the peripherals of the emulated system at transfer rates of over 1 Mb/Sec.

EMPLANT supports AppleTalk, Serial ports, Printers, Modems, Midi, etc. You may use SyQuest, Any AmigaDOS device (DHO:, RAD:, VDO: etc.), Scanners, Graphics Tablets, CD ROM etc.

Emulation speed is exceptional and compatibility is excellent. All known software runs! The emulations incorporate cross-platform file transfer.

The IBM 386/486 emulation is imminent, with Atari 800/ST/Falcon, C64/128, SNES/SEGA, Apple II (among others) all planned in the future. These will be available as low cost upgrade modules.

EMPLANT currently supports any Zorro equipped Amiga with the A1200 PCMCIA version out soon. The Mac emulation alone requires 68020/30/40 with 4Mb RAM minimum and also 256K MacII/x/cx/SE30 ROMs.

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**WAVETOOLS**

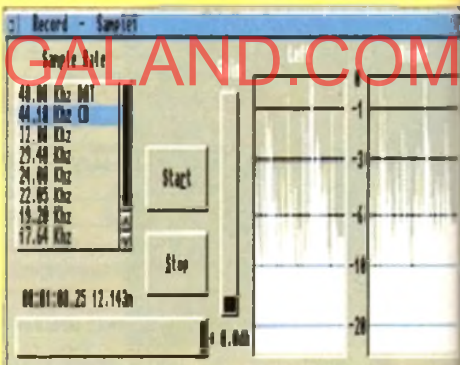
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WaveTools feature set meets the needs of the most demanding users. Multiple waveform windows may be opened simultaneously and you can cut and paste audio open files to facilitate building complex audio tracks. In addition to cut and paste WaveTools support digital mixing of unlimited numbers of tracks. Using WaveTools mixer, you can layer sound upon sound to produce rich, full audio tracks that have the quality of studio made multitrack recording. Using WaveTools extensive editing and mixing functions, you can sweeten your basic tracks with overdubs, perform ADR, and place sound effects at specified points in the soundtrack. Best of all, sim



WaveTools is processing audio in the digital domain, there is no generational loss or noise increase normally associated with outdated analogue mixers and recorders. WaveTools is able to sample data at a variety of sampling rates as low as 19KHz as well as the standard rates of 44.1KHz and 48KHz for CD and DAT compatibility. WaveTools includes a waveform editor for cut, copy, paste and mix operations on selected portions of audio waveforms. Edits can be tagged as destructive or non-destructive. WaveTools also maintains an internal time code in the format of SMPTE 24, 25 and 30 frames per second to ensure perfect synchronisation of your audio files with video and animation, if required.

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The Amiga Computing CoverDisk is designed to be as simple to use as possible. Follow these instructions and you'll be up and running in no time!

GETTING

STARTED



New readers may have difficulties using our CoverDisk, so we have included this page to help you out.

Below we explain how to copy files from one disk to another, how to copy the entire CoverDisk and how to de-archive programs. One

of the first things you must do when get your CoverDisk is make a backup copy, then put the original CoverDisk away for safe keeping. As a rule you should also do this with the majority of your software collection.

## How to make a backup

To copy the entire CoverDisk, load up your Workbench disk, then either click once on the CoverDisk icon and select Duplicate, or select Copy from the Workbench menu, or open CLI/Shell and type:

```
DISKCOPY FROM DFD: TO DFD:
```

When prompted, put your CoverDisk (the source disk) in dF0: and be ready to replace it with your blank disk (the destination disk). Follow the Amiga's on-screen prompts until the disk copy is completed.

Now put the original away in a safe place and use your backup.



## De-archiving

Occasionally we have so many programs to fit onto the CoverDisk that we have to archive them. Archiving is where we take the entire contents of a disk and compress them into one file which is much smaller, giving us space to fit more programs onto the disk.

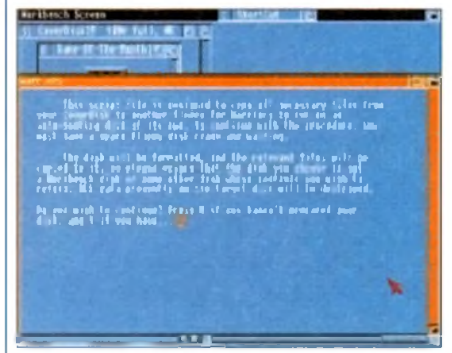
De-archiving programs which are on the CoverDisk is a very simple task. If a program has been archived then you will need a blank disk to dearchive it onto.

Say we have archived a program called FRED. You simply double click on FRED's icon, and will be asked if you have a blank disk ready to dearchive to. Type "y" or "n" accordingly.

Your computer will then copy the archived file into its memory and ask you to insert your blank disk. It will proceed to format the disk, and will then de-crunch the archived file onto your blank disk.

Once this has been done you can simply reboot your machine with the disk which contains the dearchived program on it and then use the program as instructed in the CoverDisk pages.

Note that if you have a Workbench 2 or upward machine you must boot with the CoverDisk write-enabled to perform the de-archiving process.



## Copying individual files

You might at some point want to copy a single program from a CoverDisk to your compilation, Workbench disk or even your hard drive.

To do this you'll need the COPY command. As most CoverDisk programs are stashed away in their own directories, the quickest way to copy a program is to copy the whole directory at once. Use the command:

```
COPY {directory} TO {newdisk} ALL
```

where {directory} is the full pathname of the directory you wish to copy, and {newdisk} is the name of the disk and directory into which it will be copied.

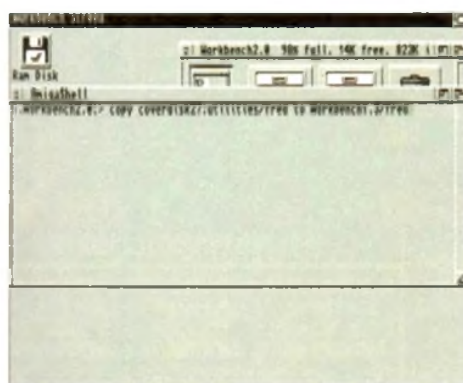
For example, if you wanted to copy a utility called FRED from CoverDisk 27's Utilities drawer to a directory called FRED on your Workbench disk, you'd type:

```
COPY COVERDISK27:UTILITIES/FRED TO WORKBENCH1.3/FRED ALL
```

Alternatively, you can click once on the FRED directory icon and drag it across to the new disk's window. This has the advantage of creating a new directory for you and copying the icon as well.

Once you have moved a particular program to where you require it you could experience some problems running the program. This is sometimes caused by the program not being able to find files which it needs to run.

A good example is the text files on the CoverDisk. These have been crunched using PowerPacker, so when you try to copy them to another disk and then try to read them you can't unless you have also copied the PowerPacker library into your LIBS drawer.



So if you have copied a program from the CoverDisk to your Work disk or hard drive make sure you also copy any other files the program requires, ie fonts, libraries, device drivers and Ccommands.



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## Workbench 3

If you have a Workbench 3 machine, don't worry - most if not all of the programs on the CoverDisk will work on your machines.

If the program is specifically designed to work with Workbench 3 then you may have to copy the program to your hard drive or Workbench disk using the process described earlier on this page.



# Free

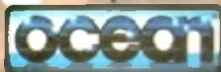
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**gordon**

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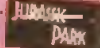
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**P**ornography has enjoyed a new surge of public outrage of late, due to its apparent transference from the realm of the dodgy, under-the-counter video peddlers to the hi-tech world of computers, modems and digital telephone lines.

Although video is and looks set to be the main outlet for dubious material of this kind for at least the foreseeable future, the fact that digital, computer-based pornographic images and sequences are being discovered much more frequently is undeniable.

The situation was brought to a head recently with the uncovering of computer-doctored images depicting children in pornographic poses; they were actually the bodies of (young) adults with pictures of children's facial features superimposed onto them to get around the law.

It is easy to work out why such material is cropping up more and more regularly — because, unlike pornographic magazines, computer porn can be duplicated with absolutely no loss of quality, so every time a copy is given to someone else, the number of copies in circulation is simultaneously increased.

**SORDID**

The tabloid press have, of course, squeezed every last drop from the sordid tale. After the epilepsy saga (computer games have since been cleared of any link with the induction of epileptic fits), our cousins in the console sector are now facing a Monopolies and Mergers Commission inquiry into game prices.

The whole porn debate is adding to what is perceived to be the computer industry's image problem in the eyes of the public, or at least in the eyes of the press who purport to reflect public opinion.

In order to engage in any meaningful discussion of the phenomena and how it can be tackled, it is necessary to have a definition of pornography. As is often the case with definitions, here is where the problems start.

We all know pornography when we see it. Anything concerning itself with explicit sex scenes involving children is deemed by virtually everyone as being highly porno-

graphic and nothing short of disgusting.

Animals don't fare much better, and three or more in a bed, as well as gay/lesbian sex scenes, are probably next in terms of outrage value.

Moving on, we have hard porn involving one man and one woman, followed by soft porn involving the same, then Penthouse-style soft porn and finally Page 3-type models wearing smiles and bikinis.

The point is that pornography can mean different things to different people. Something which a middle-aged man finds acceptable will probably be far from so when presented to a 12-year-old child.

So for the sake of our argument, let's accept two definitions of pornography. The first is that it is material valued for its erotic rather than its artistic merits. The second is the definition which the law chooses to use, which is that pornography is material deemed likely to corrupt the person viewing it.

This last point is important, because it means the Director of Public Prosecutions must decide in each individual case whether the severity of the material is likely to corrupt the individual(s) supplied with that material.

We've already established that more people are viewing computer porn. The problem is that due to the medium upon

*'...a rapid increase in the number of minors viewing this material'*

which it lives, this rapid increase in the amount of pornography around includes an even more rapid increase in the number of minors viewing the material.

And with children being the group

usually deemed most likely to be corrupted by sex-based images and sequences, we can understand why suddenly seem to have a computer pornography crisis on our hands.

The actual material does cover all bases. From PD disks put together by spotty adolescents with healthy sexual desires but an appealing way of satiating them, call things like "Girls" and usually containing nothing more offensive than Baywatch, to the legally-on-sale Lovers Guide (only sale to adults, whom it is deemed it is likely to corrupt) to highly dubious Internet boards on the continent containing images of sex with dogs and worse, the whole range has been digitised and is m

Still trading despite exposure on Roger Cook Cook Report. This is Bamse BBS's opening screen

Hi Quality Version Available on AMIGALAND.COM

**Sex Over**



These images were all downloaded from bulletin boards throughout Europe and the United States



## A chronology of pornography

1950/60s - Pornography is seen in printed form, both in "soft" legal publications and illegal, usually imported, magazines whose contents - often involving children and animals, but always some form of explicit sexual act - are defined as "hardcore" porn.

1959 - Obscene Publications Act makes it a crime to distribute such material to those it is likely to corrupt.

1960s - The emergence of cine-filmed pornography brings it to a wider audience, and for the first time moving images become a player in the field.

Mid-1970s - Advances in video technology lead to porn being

distributed on videotape. With this development, easily distributed motion pornography becomes a reality, and video porn is still perceived as the single largest problem area.

1980s - As computer technology gathers pace, porn displayable using these new machines appears. The emergence of bulletin boards (BBSs) where porn can be "downloaded" from a remote base into a home computer, makes access to it simpler than ever. Disk-based porn becomes a reality.

1990s - Continually improving graphics, file suppression techniques, disk storage capacities and other hardware improve both the methods of distribution and the quality of porn on offer.

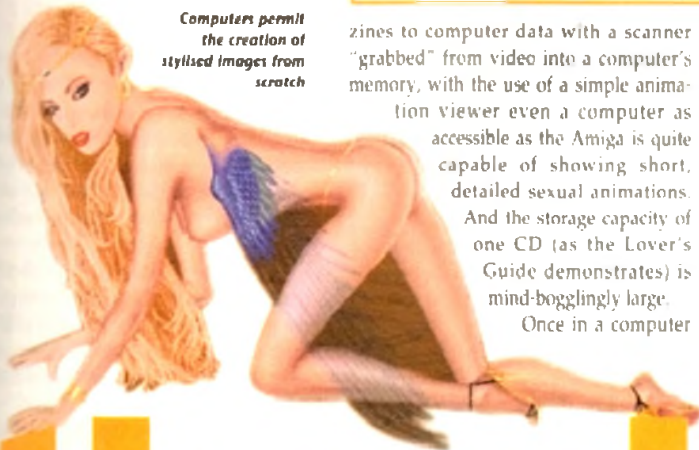
to be co...  
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ly available. It includes "interactive" soft-ware, where for instance wagging the joystick controls the speed of intercourse for the lucky couple on the screen, is available, as are old-fashioned sets of still, most photos.

But whereas most minors have in the past been exposed (usually at school) to top-shelf, softcore porn which is if not accepted, then grudgingly tolerated by adults, new, computer-based methods of distribution have led not only to more youngsters seeing porn, but to that porn being much more hardcore than ever before.

Images can be converted from maga-

Computers permit the creation of stylised images from scratch



zines to computer data with a scanner "grabbed" from video into a computer's memory, with the use of a simple animation viewer even a computer as accessible as the Amiga is quite capable of showing short, detailed sexual animations. And the storage capacity of one CD (as the Lover's Guide demonstrates) is mind-bogglingly large. Once in a computer

format, data is usually made available to users via bulletin boards, or BBSs. Basically all you need to set up a BBS is a computer, a modem, and a very, very large hard drive to store all of the pictures on. Your "customers" then simply telephone your modem, access what they require and download it into their machines via the telephone.

Equally, many BBSs have an upload facility, whereby the user can send their favourite pictures to the BBSs for other users to access.

In our investigations we discovered a

number of pornography-peddling BBSs in places as far apart as Holland, the USA and Norway. With names like Bombs BBS and Tiger BBS, they advertise within their underground network, so it is very likely that a user who has found one of these BBSs will know the numbers to access many more.

Outrageously, Banse BBS in Holland, which was exposed on investigating journalist Roger Cook's *The Cook Report* television programme, was still running at the time of writing. In the past, public domain libraries have also been the source of computer porn.

Since some well-publicised prosecutions over the last two years, the PD porn problem has seemed to die down, in Britain at least, with only the very mild, previously-mentioned "Girls"-type of disk surviving the application of the law.

To make it quite clear how sophisticated images sent along phone lines are becoming, one British police force have a 5Mb, one-minute movie in better-than-broadcast quality, pulled down a telephone line by them from the States.

This particular sequence was for the PC and would not work on the Amiga, but we all know the Amiga's abilities when compared to those of an average PC, so it must be obvious that such stuff is equally as likely to appear on the Amiga.

Another fact which does nothing to help prevent the spread of porn is the transfer-

# the phone

With computer porn the current media darling, Phil Morse investigates a trade which is increasingly making the switch from illicit videos to the computer screen



The importing of material such as this over the telephone is actually illegal, although this has never been tested in court



The doctoring of images of children should soon be illegal



ability of files across computer platforms. While the spread of, for argument's sake, piracy is limited to the computer platform the game was originally released for - a pirate copy of Lemmings for the PC is no good for your Amiga, for instance - standard picture files can be read on most modern computers, regardless of the machine they originally came from.

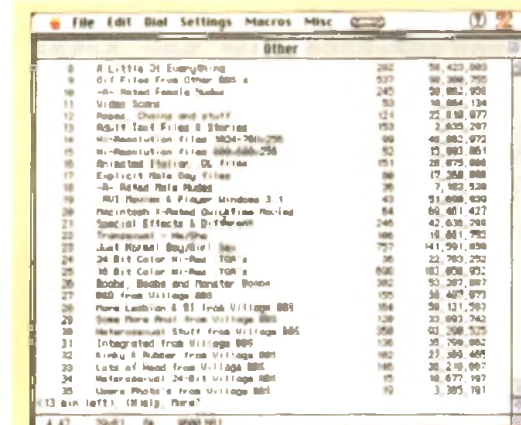
With just a modem, a phone number and a modicum of computing experience, anybody can download such porn. Children are often more computer literate than their parents nowadays, and at increasingly younger ages, which is a particular cause for concern.

And anyway, whereas in the past youngsters may have "found" magazines hidden by fathers or elder brothers, now they can "find" images stored on hard disks or CD-ROMS, such as the Lover's Guide and Virtual Valerie CD products - both of which are quite legal for adults to buy.

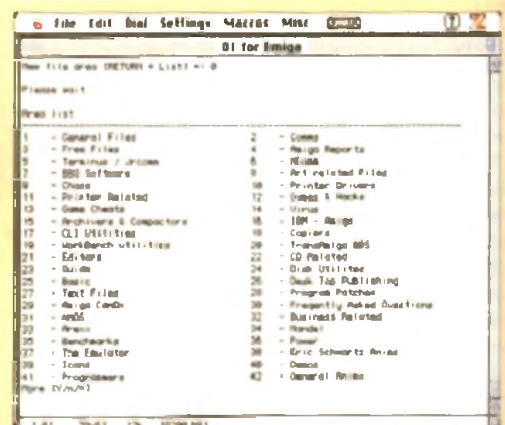
**CIRCULATION**

Once a child has got this far, it is reasonable to assume that they will manage to put the images onto a floppy disk or two to take to school for adoring friends to duplicate. Thus dozens of copies, which in turn will be copied, are put into circulation from one initial input into the system from a BBS or other source.

Not surprisingly, the police have encountered several pressing problems in attempting to counter this situation. They must have fully trained staff who are quite capable of conversing across the various



The stark difference between a hardcore BBS in America...



...and a respectable British based system

computer platforms, and have the technical knowledge necessary to do everything the porn merchants can do with their computers.

They also need investment in the equipment which will allow their trained staff to do the above, and in many cases it's investment that has to begin literally from scratch.

One thing which has changed in favour of the anti-porn lobby in the past year is the level of public awareness. Few police forces have porn far from the top of their agendas nowadays, whereas barely a year ago most forces weren't even aware of the problem, let alone equipped to do anything about it.

But even with a fully trained staff and up-to-date equipment, there are still major problems for anybody trying to regulate the transmission of such material. Until

recently, Radio Luxembourg flouted British broadcasting laws by transmitting programmes in English, to the UK, from Luxembourg, where they were set up legally. Something deemed illegal in Britain can, therefore be perfectly legal somewhere else.

The age of consent laws for females is a point in hand: while it's 18 in the States, it falls to 16 in the UK, 15 in Denmark and as low as 12 in some places.

In Bangkok it scarcely matters whether some of the shocking acts of debauchery which go on there are legal or not; the

import pornographic material from countries where it is legal into the UK, but this has never been tested in the courts, due in no small part to the problems outlined above - plus, if someone is caught with such material in the UK there are other laws which they would be prosecuted under.

Looking at the Amiga in particular, things are unfortunately getting worse. In the past, the Amiga has not been able to match the PCs and Macs of this world either graphically or in CPU speed (the overall speed of operation is slower).

Basically, the Amiga has not had enough power to handle the really realistic and complex, and thus the really potentially corrupting, pornography.

Unfortunately, with the new base-level Amiga, the A1200, equipped with more standard memory, better graphics and a faster processor, the most popular school kid's computer just grew up. The range and accessibility of pornography to Amiga-owning minors has always been greater than other computers; now the gap in the scope and quality of such porn is being considerably narrowed too.

Let's throw in the problem that BBSs have quite often got absolutely no idea as to who is accessing their systems, and can make no judgement as to whether the material they are supplying is "likely to corrupt" the viewer, and we can see that there are very large problems involved in any attempts to control this phenomena.

So what is being done? To start with, there's a considerable tightening of the law, which is going on at the time of writing and looks set to strengthen the armoury of the police against the peddlers. At the Tory conference a few

*It is technically illegal to import pornographic material*

police appear to be so slack and/or powerless to stop it that sick celluloid seems to leave the place at a phenomenal rate, bound for digitising and transmission across Europe and the USA.

And who is policing the telephone lines in and out of the UK? Well, ignoring conspiratorial theories that big brother knows everything and we're all being bugged, it seems obvious that nobody has the time or manpower to police everything that enters the UK by electronic means - we're not going to see Telephone Customs in the near future.

Certainly it's out of the jurisdiction and scope of the telephone watchdog bodies OFTEL and ICSTIS.

It is, actually, technically illegal to



This type of game is perfectly legal, although thankfully largely absent from the commercial software market



months back, John Major spoke in his infamous "back to basics" speech of a tightening of the Criminal Justice Bill, which is set to go through the House of Lords at the time of writing, to specifically outlaw the type of doctored images of children spoken of earlier.

Michael Howard outlined the government's position quite clearly at the end of November last year:

"New technology continually presents new challenges to the law. I am determined the law should keep pace with them and I will not hesitate to act whenever those who degrade children find new means of peddling this material."

He goes on: "We must send the clearest possible signal to pornographers that their activities will not be tolerated. It is vital to take tough measures at the outset if we are to succeed in stamping out this vile trade."

This tightening of legislation will, if it all becomes law, affect video pornography too, which will help the computer porn cause a little by attacking one of its main sources of material.

One law which has not been tested yet in the courts, due to the suitability of the Obscene Publications Act for this purpose in the past, is the Telecommunications Act (1984). Tucked away in Section 3, Subsection 41, it states that people who transmit obscene material commit the offence of using the telephone networks to do so. This offence should soon become punishable by up to ten months of imprisonment.

**LEGISLATION**

It could prove to be a particularly useful piece of legislation for the police, as should they come across a British BBS carrying pornographic material but material which it could be construed is acceptable for adult viewing, a prosecution could still be successfully executed on the grounds of the phone lines being used for its transmission.

While this might smell a little of Big Brother, if children are accessing pornographic BBSs, it's a welcome method of shutting those sources down and deterring them from starting up again.

Other proposed changes to the law include a beefing up of the powers granted to the police under the Obscene Publications Act; such crimes now carry the threat of arrest for those involved, and are classed as serious arrestable offences. Section 1 offences under the



Click on your choice of Quiz

Purporting to be educational, the Lover's Guide's teaching bits are half-baked and highly rudimentary - but it does have ten minutes of filmed sex!

**Who are you?**

- Are you -
- Tough / Tender-minded?
- Emotionally Stable?
- Extrovert or Introvert?

- and are you -
- A Giver or a Taker?
- Sexually Satisfied?
- Sexually Driven?

**But are you -**

• Confident - or Not?

• Sexually Attractive?

• Aware of the Differences between Men and Women?

• With the Right Partner?

• In Love?

Protection of Children Act 1978 are now also dealable with by arrest, and the wording of the relevant sections of the act has been changed in order to clarify the position and assure complete coverage of computer-generated images. These amendments too should shortly become law.

But there's more to dealing with a problem as complex and ingrained as this one than just a tightening of the law - after all, we've seen the difficulties the police have to overcome to apply laws. Although the new legislation should make things easier, other approaches are vital too.

Sgt John Ashley, of Greater Manchester Police's Obscene Publications department, acknowledges the increase in public awareness as opening a number of paths for fighting porn, or at least clearing the brambles and nettles from a few overgrown ones.

Public awareness always leads to more self-policing: it's easier to get away with something when the public at large have no clue as to what exactly it is you're getting away with. As the porn underground becomes more exposed, people will become more reluctant to engage in such activities.

Also, says Sgt Ashley, this public awareness will convince those people who know nothing about their children's computers to learn the basics, and those

*The best way to fight computer porn is to educate parents*

struggling to get to grips with the technology will at least realise that they should learn how to check for such material on their own/their children's machines.

And, by making aware the parents and educationalists who have, in the past, also been oblivious to the extent of this rapidly growing problem, the number one battle against many crimes - education - can begin to play its part too.

"The publicity in the media and public interest is increasing public awareness," says Sgt Ashley, "but it'll probably make our jobs harder - people are now aware that we are doing this work."

But whether this increased exposure of the problem is a good or bad thing is academic. The computer porn "scandal" is out, and it remains to be seen how effective the new laws will be. As Sgt Ashley says: "The best way to fight computer porn is to educate parents."



**To the future...**

As computer technology becomes more and more sophisticated, so the quality of the material available and the ease of distribution will improve.

The amazing graphical resolution of the new generation of home computers, such as the AGA Amigas, means that better-than-broadcast quality graphics are becoming a reality.

Such machines contain faster processors (it's a big leap from the A500's 68000 to the A1200's 68020 and the A4000's -030s and -040s), demand better monitors and require more memory, all of which make them far more capable of handling a large number of high quality graphical images with ease.

**CRAMMED**

As data compression techniques become more and more sophisticated, so larger and higher quality files will be crammed onto disks.

And when high density disks - which can hold twice the data of the normal-density variety currently dominant - become the norm, so the problem will become even more acute.

Modem technology has leapt forward an incredible amount in the last few years. From the initial ability to transfer what then seemed like a staggering 300 bytes a second along a phone line, nowadays it has recently become possible to buy modems which can transmit at 19,200 baud or above - an increase of 6,400 per cent!

**SECONDS**

Putting it another way, a picture which would take ten minutes to download on a 300 baud modem would take seconds on a modern model. And that's before the data compression techniques have been taken into account...

As CD-ROM technology becomes established, the ability to record full-length, film-quality pornographic sequences onto CD for viewing and manipulation by computer will also become a reality - and as with all digital media, CD-ROMs don't degrade.

Already, "movies" have appeared on the PC platform. With CD-based products like the soft porn Virtual Valerie and the Lovers' Guide appearing, the chances of similar products appearing on the underground are high, and the potential content matter of those products depressingly predictable.





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# Making



everything it does with a certain flair.

One of the prime movers behind the success of the Amiga in Hollywood is a British guy called Ron Thornton. He began using the Lightwave portion of the Video Toaster to create special effects to replace the miniature models traditionally used to bring spaceships and planets to the screen.

We spoke to Ron at his studio in California and asked him about the Amiga, *Babylon 5* and movie madness in the entertainment capital of the world.

## LEADING

Anyone who reads Amiga magazines or watches TV can't fail to be aware of the work of Ron Thornton. He was a leading special effects man and model maker in the UK on cult BBC shows like *Doctor Who*, *Blake's 7*, a number of hot sci-fi movies, *Terminator 2*, and how is the creator of the visual effects for the Emmy award winning sci-fi TV show, *Babylon 5*, soon to be aired on Channel 4.

But Ron wasn't always a special effects

**F**ew people would deny the impact of the Amiga in the world of film and video. Even in the UK where we have no Video Toasters, Amigas are still welcome in the country's editing suites as all-purpose graphics computers.

But it is in Linseltown, aka Hollywood, California, where the Amiga is really making itself known. If the Amiga was an actor, you could write a review of its career like so:

"Born in 1984, Amiga grew up in California, but it was in Europe where his appeal really kicked off. Although famous for his earlier funnier entertainments like *Zool* and *Lemmings*, he yearned to get back to the serious film making and graphic arts of his youth.

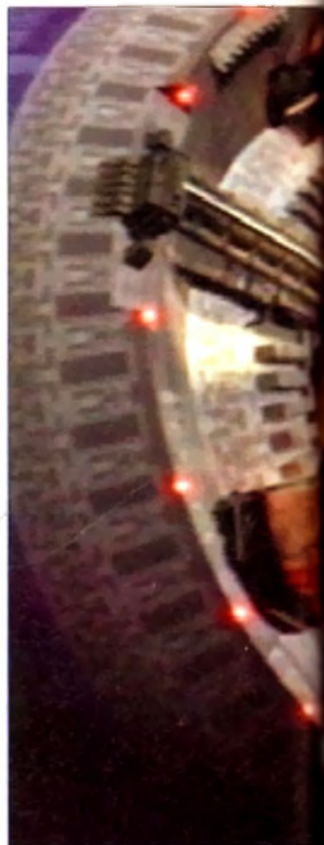
"Ray-tracing was to be a formative influence, and it was Ray in fact who gave him a part in almost every top-notch special effects film of the late 80s and early 90s. Before the century came to a close, Amiga was getting the

Oscar on a regular basis and was in Hollywood to stay..."

Admittedly the success of the Amiga in the US is based almost entirely on the Video Toaster by NewTek, but this is not to put down the Amiga at all.

A lot of the usability, the hotness of a product, is down to indefinable things like look and feel. The Amiga is a friendly machine, and

Hi Quality Version Available on AMIGALAND.COM





# gmovies

## Phil South talks to Foundation Imaging's Ron Thornton about life in Hollywood with his Amiga, and the success of Babylon 5

it does... a certain... time move... success of... wood is... lled Ron... using... the Video... effects... models tra... reshapes... studio... the Amiga... the enter... magazines... are of the... a lead... maker in... or Who... movies... ator of... and winn... to be aim... cial effect

He got his start after he quit his job as a flight dispatcher at Gatwick airport without any idea of what he was going to do. "I was just bored. I didn't have any idea what sort of job I would like to do. And then about that time I went with some friends to see the film *Alien*, which had just come out, and it hit me: Someone actually pays for people to make all the models and props and stuff?" So he resolved to get a job in the film business doing just that. He didn't actually have any professional model-making or prop-making experience, "other than the old Airfix kits as a kid kind of thing." But soon he was in the film business. Obviously it wasn't that easy. Thinking of the idea was the first step, but between that point and doing props and miniatures for films was a lot of hard work and persis-

tence. You don't end up doing miniature work on *The Addams Family* and *Terminator 2* without having some kind of track record, and turning in some quality work. He started out by reading as much as he could about the subject of special effects, and also some magazines which were out at the time which covered the topic. "Cinemagic had just come out, and there was *Starlog* which used to give a lot

better coverage in those days to techniques and effects and things. There would be close-up photographs in there of what people were doing, and I kind of got the hang of it from that.

"I bought the odd kit, typical sci-fi models just to have a look at them to see what came through the kit process. I got the Millennium Falcon kit and I started spotting all these tank parts on it, and I thought 'Aha! I can see how this all works.'"

But model making was only half the story. The secret of good models is the painting and surface detail.

"A lot of my painting techniques were taught to me by Martin Bauer and Bill Pearson, who were two incredibly talented model makers, who did everything from *Alien* to *Outland* and *Flash Gordon*. Martin Bauer used to be the chief model maker on

*Space 1999*."

After that it was just dogged persistence and making sure he turned in good work all the time. Ron went to live in California in 1985, where he still lives and works today. Foundation Imaging is based in a place called Valencia, which is about 30 miles north of Los Angeles, so they're



A few of the stunning Lightwave sequences from *Babylon 5*, and it's all Ron's doing



close enough to Hollywood but far enough away from LA. "We're between the desert and a mountain range."

Ron ended up there in the middle of nowhere in the USA after a series of BBC cutbacks. "It got to September of 1984 and I was doing various freelance work for BBC shows, and the head of the visual effects department at the BBC sent this memo that said that they couldn't do any more sub-contracting. There was no work around so I had to start working on my contacts over here in the USA."

How did he go about gathering contacts in Hollywood? The answer was simply that he wasn't actually just going over there cold and saying "giz a job" - he'd been on a tour of the main effects houses a few years before and had picked up some contacts then.

"The first job I did for Dr Who made me a small profit, and I used the proceeds to take a trip to California. I called up all the places over here that did effects and would just go and see them."

"Those people would give me the names and numbers of people at another place, and so it went on. It was great, there

**Hollywood... was were I really caught the bug**

was me with my first job and I was walking around the places where they made *Buck Rogers*, *Battlestar Galactica*, *Star Wars*... it was very, very cool. That was where I really caught the bug."

And picked up a lot of very useful names for the old Filotax, eh? It didn't hurt that Ron was working on Dr Who of course, which gave him a bit of an "in", but still you have to want something pretty badly to travel half the way around the world on spec.

So, what's Ron Thornton's idea of the best bit of computer graphics in the movies in recent years? Ron's answer is predictable enough.

"The stuff in *Jurassic Park*, without question. I find it hard to think of anything that could beat that. It's just perfect. But then for \$15 million it should be!"

Ron's very clear on what makes good computer FX and it's not a lot to do with computers. "The people who did it are film makers, not computer graphics people. They've got a great film 'eye'."

"Their compositing is just superb, their motion tracking, and just the general matching of effects to live footage is superb. I think they're an absolute shoo-in for the Oscars this year, and no mistake."

How long will it be before we can do things like *Jurassic Park* on the desktop? Can it ever be done? "It can be done now. But you've got to really work at it." What do you put into the gap vacated by the 15



▶ million spon, when it's just you, a rainy Saturday, an Amiga 2000 and a 3D program? "Hard work, basically. Yeah really. It's not so much the 3D considerations but lining up shots and matting the effects with the action. That and being very skilled at it. These people are very good at their jobs."

OK so we're not film makers here at AC, but we are big 3D fans, so we had to ask does Ron have any professional hints for would-be computer graphics special effects men of the future?

"Attention to detail. It's easy to create shapes and render them, but you have to observe the smallest details and be very critical. That and making sure that you're very good at it."

And when do you stop fiddling about with the details, and when is a model finished? "I can't say I've ever been 100 per cent happy with any models I've ever made. You have to keep looking at your models and saying to yourself how can I make this better? How can I make it more real?"

That means that you must edit and alter the model and make sure it's as perfect as it can be before you can ever say it's finished.

**EXCRUCIATING**

Making a shape and lighting it in five minutes isn't how it's done. It's this excruciating attention to detail which has earned Ron all the plaudits and critical acclaim that he has over his career in film.

"One of the best things to do as well is get go and get yourself a lot of reference material. If you're doing a sci-fi type model, either rent yourself a load of sci-fi videos, or pick up books from somewhere like Forbidden Planet, where you can look at what models really look like, see what textures are on them and try and duplicate them.

"Go and rent a bunch of videotapes of *Thunderbirds*. Don't just sit around and have fun with it, really look at it carefully because some of the model making in that show was just fantastic, and you can learn a lot about ageing and dirtying down from that."

Of all the models and effects Ron has

done over the years, what are his favourites? "Most of the models I've made I'm not particularly proud of, although the Scorpio was a nice model, and they gave me a lot of leeway in the design, detail and textures on it. And it really could stand up to an awful lot."

The Scorpio, of course, was the space ship in which *Blake's 7* did their spacefaring, after the original ship The Liberator was blown to bits in the penultimate series.

Owners of the recent *Blake's 7* videos will of course be aware that the model is very closely detailed, and can stand some quite close-up shots.

"When I compared it to some of the models over here it was actually better, which really made me feel good about it. I did put a huge amount of time into it. I think if you calculated how much I got per hour for working on that ship it would probably work out at about £2 an hour, if that. Fifty pence more like. I was working about 14 to 15 hours a day on that thing."

Ron's favourite model on the Babylon 5 show is in fact the Star Fury, the Babylon 5 fighter. "It's very different in the way that it looks. It's just this chunky, ugly looking thing, but it does have a certain beauty to it... it's sort of like Thunderbird 2, a big old ugly thing.

"It was the same sort of philosophy, I didn't want them to be graceful, just utilitarian. Built like a brick shithouse. Whereas all the aliens have all these beautiful ships.

"The animation on these ships is phenomenal. Every time a ship moves it's got to blow a thruster, so if a ship banks you've got to hit the top right and bottom left



“Quite a few ships are based on food just for the hell of it.”

thruster, so that it would be able to roll.

"Then to stop it rolling you have to do the opposite. So there are loads and loads of animation envelopes, ramping up the flame, ramping up the light, then ramping it back down again.

"There's one scene that I did for the first episode called 'Midnight on the Firing Line' and it was just to establish the Star Furies going into battle. And these ships are everywhere, tumbling end over end, some tracking another ship that's flying by, and at the same time the camera is rotating about 270 degrees, so you just get this

whole feeling of vertigo. There isn't an up or a down, and you don't know which way you're going."

With so many ships to design, doesn't Ron ever run out of ideas? Where do the ideas come from then? "Everywhere. Sometimes from vegetables, there are quite a few ships that are based on food, just for the hell of it.

"The Vorlon ships are inspired by garlic, of all things. Looking at books of deep sea creatures, you look at all of these forms and you grab something and try it. It's a lot easier to do that in a computer.

**SHORT CUTS**

"To efficiently make a space ship as a model, a miniature, you've got to take a lot of short cuts. You have to do stuff like 'kit bashing', pulling pieces of detail out of tank kits, otherwise you just spend forever making it.

"And if I wanted to do something unusual like a crustacean, I'd have to start sculpting or moulding crab shells. But in the computer realm it's quite a lot easier."

As well as modelling and the ability to make and edit shapes easily, techniques can be developed which give your objects in 3D more life and realism.

"It's not just the shape and colouring of an object. It's all in the textures. It's all in the paint job, it always is, even if you're building real model spaceships.

"When you build it you'll spray it with primer, and it'll look like shit. But when you actually start to age it and dirty it down a bit of painting, then it begins to show. And that's what separates good computer graphics from bad, 'computery'-looking graphics."

When Foundation have been doing big shots for *Babylon 5* with a large number of ships, sometimes in the hundreds, generic

textures are used to give the ships a 'real' look. But this isn't the best way to do it.

"An object can look just OK when you use a sort of generic texture on it, but the very best models are made with different textures for all the surfaces. And do a lot of labour over a paint package to make good textures.

"A good example would be grass, so what would you do in a paint package to get that texture? If you just photograph and digitise it you just get a great look. You do anything and everything for your material."

One of Ron's favourite techniques is based on a neat trick using Lightwrap whereby a custom-drawn image, like a map for example, is mapped onto the surface of the object twice, once as the diffuse map and again using the same image as a specular map.

This means that the plates in the hull not only have a different shade based on the general colouring of the ship, but some have a different specular value, affecting the way they reflect light.

This adds a lot of surface detail and action on the surface of the model when light plays across it, and makes the object look more real. Real objects don't reflect light evenly, so why should computer models?

What about the future for Foundation Imaging? "We're doing some tests for a new version of *Dan Dare*, which is looking really great. It'll be really good if it comes off." The film is in the works and as is the case with these things may or may not get made for a few years, but Foundation are easily the best choice for the spaceship effects, especially with Ron's taste in spaceships.

For example, when *Babylon 5* was being created, Ron wanted a look more like *Thunderbirds* or other Gerry Anderson shows, where the ships were colourful and new looking rather than that awful used look that *Star Wars* brought into vogue.

"The movie's being written by Terry Jones of Monty Python and there's a lot of very good people involved in it. It should be fantastic."

So where is computer imaging in movies and TV going? What are the extremes to which we can go in this field?

"You'll get a lot more visual effects. You'll get more science-fiction stuff. At the moment we're working on a project which is the nearest thing you'd get to a TV series of *Jurassic Park* but it's not the same.

"A lot of very complicated stuff that you'd never be able to get into before now becomes actually quite easy. It takes about ten minutes to do a space ship shot now, you haven't got the space ship, it only takes you about two or three hours to build one."

"And we have a lot of pre-existing textures, so when you're creating something you can call up from the library something which will look good."

● The *Babylon 5* pilot film is out on video from all good video stores, and the series begins its first run on Channel 4 some time in the second quarter of this year.



If based on food, could this be a mushroom leaving space dock?





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An example of the quality of images you can achieve with Vidi Amiga 24RT

Until now, if you wanted the ability to grab a video image in 24-bits (that's over 16 million colours, folks) you would have had to pay a princely sum for the privilege.

Enter Rombo, one of the pioneers of audio and video digitising products, and their Vidi Amiga 24RT (hereafter referred to as VA24).

For a reasonable £299, you can now experience the higher image quality which 24-bits gives you, with the added bonus of being able to do away with having to pause your video in order to get a stable image.

As well as the impressive hardware contained in the surprisingly small cartridge, VA24 also includes pretty neat editing software featuring a collection of powerful image processing tools.

The cartridge itself includes two RCA-type video inputs and an S-Video input. The advantages of these multiple inputs is that you can attach say, two VCRs in the RCA inputs and a camcorder in the S-Video input.

You can then simply and conveniently select the video source you want to grab from within the VA24 software by simply clicking on a button.

VA24 automatically detects the type of video signal it is receiving (PAL, NTSC or SECAM) and adapts accordingly.

As hinted at earlier, because of the speed with which VA24 can grab an image, there is no need to pause your video or have your video camera absolutely still.

Such speed is achieved through the combination of two very fast analogue to digital converters and 1Mb of onboard memory



The Carousel mode allows a selection of images to be edited or animated with ease. Any images in memory are shown as eighth sized pages.

within the cartridge.

The two converters read the analogue video signal, converting it to the digital form required by the 1Mb memory, into which it is subsequently stored.

The only time-consuming part occurs once VA24 has "read" the video image. The image data then has to be transferred to the Amiga's RAM.

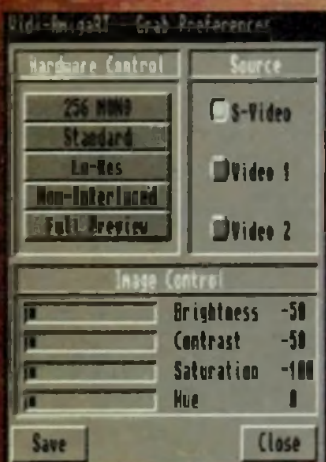
The VA24 cartridge is connected to the Amiga through its parallel port. This port is only capable of a data transfer rate of approximately 200k per second. Once transferred, the pictures also have to be mixed to create the final full colour image.

So depending on the number of colours and the resolution of the image you've grabbed, this transfer and mixing process can take a little time. From clicking on the

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Darren Evans gets to grips with Vidi Amiga 24RT, the latest 24-bit real-time video digitiser from Rombo

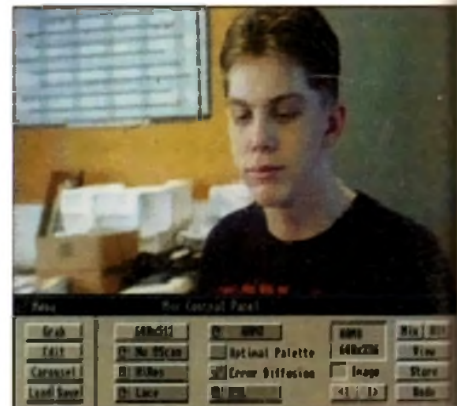
# Smashing



Grab preferences allow you to select which video source socket to use as well as the screen mode to grab in



Once in the grabbing mode, a 16 or 256 grey level preview image shows the incoming video signal. To grab, simply click on the Grab button



When a greyscale image has been stored in memory, you can then mix it to a selection of screen modes to produce a full colour image



# Processing images

The Vidi Amiga 24RT software has an impressive array of image processing functions which can be used to improve or completely change the image in memory. Below are a few examples of what they can do.



The Editor menu provides some pretty impressive and useful array of image processing controls to manipulating your image

grab button to the final displayed image, a 640 x 512 Ham8 image took approximately 12 seconds on an A1200 with 4Mb RAM upgrade.

The modes supported by VA24 range from 320 x 200 to 1,280 x 512 (1,472 x 576 in overscan) in colours from two to Ham8.

The screen modes available are obviously dependant on the type of Amiga you have. VA24 works on all Amigas barring the A500, therefore only screen modes such as hi-res Ham8 are available on AGA machines such as the A1200. Also, the manual states that at least 2Mb is required. Ideally, you will need an additional Fast RAM upgrade of at least 2Mb or more to get the most from VA24.

VA24 will also automatically default to 16 grey level grabbing on a non-AGA machine. Having grabbed and mixed your image to your chosen screen mode, you can then save the file by simply clicking on the save button.

Before you do that however, you also have some pretty good image processing and editing features at your fingertips. Clicking on the Edit button will take you to the VA24 editor. There are 24 image processing functions including emboss, sharpen, and they can be used to improve or com-

pletely change the image. Some of them do require a lot of memory though, especially when processing hi-res or super hi-res images. You can also cut and paste sections of an image one from area or image to another.

Some of the image processing functions are single operations, whereas other, more complicated ones require you to first enter some parameters. They also differ in the amount of time required to process.

Animation of a number of frames can be achieved through the use of the Carousel editor. Here, you can load a number of images into memory and then select and edit a range of specified frames.

You can also save out a range of frames as an ANIM file. You can also click on the Play button to see the frames which have been selected play as an animation.

The main portion of the screen is a display showing up to 12 eighth-size images which are in memory. Selecting a single or range of these images is done by simply clicking on the appropriate box. Each box is also numbered.

There are also editing buttons for deleting, moving and clearing specified frames.

Overall, the VA24 software works very well. It has lots of features and functions

which allow total and easy control over the hardware in the cartridge.

Unlike other digitisers, there are also no external image controls, such as brightness, colour and contrast, on the cartridge. All these are available within the software.

The quality of images you can get from VA24 is very good indeed. However, something to be aware of if you are intending to go out and buy VA24 is the type of video connections the video source you intend to use has.

VA24 goes some way to solve the problem by providing both a dual RCA composite video inputs as well as the S-Video socket, which gives a much higher quality image with no problems of colour saturation and bleeding.

These two types should allow you to connect the majority of cameras or VCRs without the need for extra cables. The VA24 package even includes a composite and S-Video cable so you can get up and running straight away.

However, they are a little too short for my liking and you may wish to buy longer cables for your needs.

The only time you will need to buy extra cables is if your video source uses BNC or other video connectors. Rombo can help you out buy supplying you with the necessary cable at extra cost, or you can just pop down to the local hi-fi/video store and ask for one there.

Besides being great fun to use, VA24 can be put to some useful functions. For instance, if you like to dabble in desktop publishing, you can use VA24 as a very good alternative to a scanner.

All you require is a tripod and some decent lights and you have a much more versatile method of importing your own images into your DTP documents, be they mono or full colour.

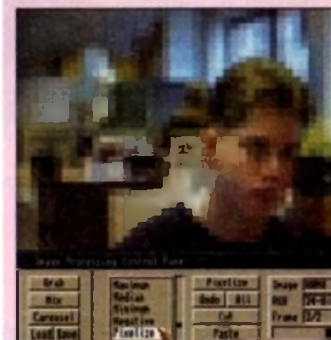
VA24 is easy to use, easy to set up and with a reasonable price tag of £299, a very good buy.



Emboss does exactly that, making the image look as though it has been carved out of a surface



Negative can be useful if you digitise a colour negative photograph slide, thereby normalising the image



Pixelate is useful for making the image look as though it was grabbed on a Sinclair Spectrum



Flip Y simply turns the whole image upside down. As you would expect, there is also a Flip X to turn it over in the opposite direction

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# Image grabber



One problem with the Vidi Amiga 24RT is that with the cartridge plugged in, the serial port is obscured. Not a disaster, but a problem all the same

SYSTEM ESSENTIALS  
RED - Essential VELLOW - Recommended

2 Mb  
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## The bottom line

Product: Vidi Amiga 24 RT  
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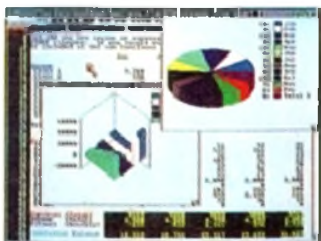
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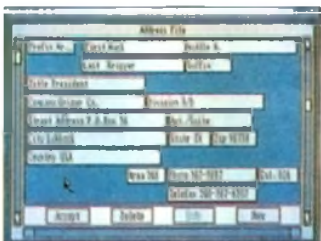


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- B820 PETERS QUEST a 20 level cute platform game, very addictive
- B880 TETRIS Tetris game with 5fx from Lemmings. Great fun.
- B895 DOMINOES You know what this is surely?
- B900 GRAY SLAYER Hack'n'Slash
- B887 BUNNY BLAST Shoot as many little bunnies as you can. Sick!
- B902 GOBLER Pacman clone.
- B903 CHAINSAW DEATH Mazes.
- B940 WIZARD WORLD Very cute but difficult platform game.
- B952 OAMEBOY TETRIS Brill. A ripoff of the Gameboy tetris.
- B955 TOP SECRET 2 player platform romp, great fun to play.
- B966 SPACE TRAX 2 player space shoot 'em up.
- B967 TECINO BAHN Race the ball across a checkered floor.
- B968 HILL J. ZONE 1.5a paced horizontal shoot 'em up, great graphics.
- B973 CYBERNETIX Fast Defender clone, enhanced AMIGA version.
- B990 BOUNCE & BLAST Cute platform game, shoot 'em up.
- B994 SOCCER CARDS Management.
- C001 DONKEY KONG Old Atari classic game.
- C515 GIDDY Presibly the best platform game available on PD.
- C513-2 18th HOLE GOLF The first PD golf game, pretty good.
- C530 FIREFLY Vertical shoot 'em up.
- C537 SPACE INVASION Brill new Space Invaders clone. Great stuff.
- C082 GALAGA '92 Up to date version of Galaga from the arcades.
- C120 'ROSS OVER Puzzle game.
- C169 ROMH JACKY Bomb jack?
- C174 OBLIVION Defender clone.
- C177 OTHELLO.
- C206 MORIA 5.4 Brilliant RPG.
- C267 GIGAR TETRIS Polished version of tetris for megachip + Amiga.
- C301 STAFF BALL Super isoball management game.
- C322 TOP OF THE LEAGUE See above.
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- C453 MEGABALL 2.1 Latest version of that classic game "Break-Out".
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It seems that businesses all over the world invest in the Amiga to perform one function or another and the football industry is no different, as Adam Phillips finds out

# Amiga-1

# Competition-0



The shield spins in 3D rendered animation using the Superbowl software

Video walls, for those of us in the dark, are those massive screens that dominate large pop concerts and the like. The footballing industry has now decided to jump on to the good idea bandwagon, with Wolverhampton Wanderers FC investing in two Expandaview screens for their Molineux Stadium which are the largest permanent outdoor "video wall" installations in Europe.

Each is virtually the size of a double decker bus, with the intention being that they will offer the most comprehensive entertainment available at any outdoor stadium.

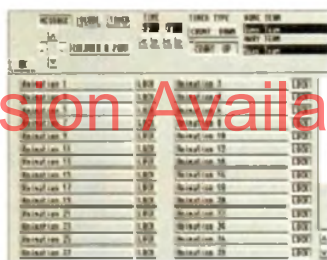
These are bold claims indeed, so with cynicism well in hand, I travelled down to the home of the Wanderers to find out if seeing really was believing...

The first thing that hits you is the sheer scale of the first Expandaview video wall. It's nearly 30 foot in height and width, with the second one - construction of which started in February - being constructed to the same dimensions.

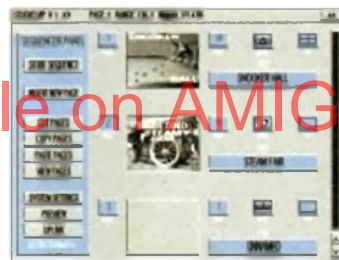
Designed and manufactured by CD Interactive, specialists in multimedia products, the walls are constructed from 256 individual 21in monitors into a 16 x 16 frame with a single input lead and increased power cables for the sheer energy needed to run it.

Each of these monitors can be individually removed, replaced (useful for when a single screen goes on the blink) or arranged in a variety of combinations from thin horizontal strips to vertical displays, designed to suit your exact requirements.

What actually appears on the screen is displayed created by an Amiga 4000 and Amiga 1200 connected to each other by their



Superbowl allows the user to select an animation from a library of 40 sequences



Wolverhampton Wanderers FC are able to construct and play different promos through the use of Studio VIP

respective serial ports. Using software developed by Amiga-specialising company Optonica Ltd, the two machines are the electronic heart of the video wall.

As Lee Gibson of Optonica is happy to point out: "The Amiga is very geared towards the video environment... with fast, colour graphics and video-compatible signals."

The software comprises of two programs, Studio VIP and Superbowl. Studio VIP is a full-blown production and sequencing pro-

duction system. With it, and a rostrum camera, the club can put together their own sequences for local advertisers and other events.

During the football matches themselves, Superbowl is brought in to play. Designed specifically for sporting events, especially football, it includes the ability to produce scoreboards, scrolling messages, screen clocks, countdowns, stat attacks (statistics) and results from other games during half time. One of the package's strongest fea-

tures is the set of 40 different animations that can be used at the touch of a key so when a goal is scored, a colourful, smooth anim plays instead of the old hat "Goal" flashing on and off in bold lettering.

The process of running the video wall starts before a single ball has even been kicked. The A4000, using Studio VIP, produces adverts and match details as the crowd arrives. Once the game is underway, the A4000 flicks over to generate the real-time video images that are being pumped onto the screen at the other end.

The actual images are provided either by two VCRs, containing relevant footage such as Studio VIP sequences, or the six ground-level cameras placed at various points in the stadium for live coverage. There is also a direct feed from the TV gantry for linking up with television cameras.

In the meantime, the A1200 runs the Superbowl software for the animations and other graphics effects. On top of all this, the PA system can be used by the Amigas too, offering the club a chance to present a full audio-visual experience to its fans.

This all adds up to an impressive piece of modern technology that, at the end of the day, is intended to get more bums on seats and give audiences an experience that'll leave them wanting to come back for more. From where I'm sitting in the terraces, it looks like it'll work as well.



The graphics may look like they're out of the quiz show Catchphrase, but according to research, they're the most effective for fan participation. In this example, a player has to be treated due to injury

**Contacts**

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0455 558282  
John Palmer, CD Interactive Ltd  
0923 212731



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## Games

1538 Act of War	Strategic game
1212 AGA Chess	The best req 4MB
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1155 Antep	
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1501 Arcade Classics 2	Various
941 Atic Atac	Like the Old Specky
1251 Backgammon	The board game
1154 Battle of Britain & War	
1252 Battlecraze II	Stunning Simulation
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1052 Beasi	
1541 BlackJack Lab	Great card game
1500 Boulderdash	Dodge them bricks
954 Cuedo	Yes that's right
1539 Coindrop	Fruit Machine sim
1254 Crazy Sue II	Brill Platform
1056 Crossword Creator	Great Fun
942 D-Tris	Tetris clone, great like rest
1576 Deluxe Pacman	Best Pacman
1253 Desert Storm	
1188 Downhill Challenge	Skiing
1131 E-Type II	Great Shootem up
1092 Escape v3	Platform Type Game
1536 Extreme Violence	Violent
1577 Fighting Warriors	S/Fight
1153 Flag Catcher	Great Game + Anim
1175 Full House	Card Game + V Fun
1503 Grand Prix Manager	Race Cars
1150 Hallzena	Brill Shootem-up
920 Hollywood Trivia	Questions!
955 International Cricket	
1296 Intruder Alert	Shootem-up
1172 Leadings	Like Lemmings
1578 Mad Bomber	Mad Game
157 Mashie Nilliek Goll	Golf
957 Maths Adventure	Education
180 Magaba	Fantastic
1106 Mental Image Games 1	
1107 Mental Image Games 2	
915 Missile Command	Old Favourite
1570 Mario v5.4	Adventure Game
1295 Nastrova Game Cheats	
1297 Numerix	Like Scrabble but numbers
1152 Numpy & Alien Invaders	
1250 Peter's Quest	Adventure
1255 Pipe	Like the classic
956 Pipeline	Again
1190 Puggles	Enjoyable Platform Game
1055 Quadrix	Puzzle game
1057 Questionart	
917 Rollerpede Invaders	
1205 Sanity	Blow up tanks, 2 player
934 Scrabble	The original
1151 Serene III	Shootem-up
1526 Smurf Hunt	Smurfs
1540 Soccer Cards	Football Man
908 Star Trek, 2 Disks	The best
1508 Super Space Invaders	
1050 Survivor	Strategy
909 Tanx	Blow up tanks, 2 player
948 Tetran	Tetris Clone, best
922 The Simpsons	With Bart
926 Think Twice	Mastermind
951 Total War	War Game
1177 Turbo Thrust	Classic
931 Wacko Jr Wanderland	
925 Wizzy's Quest	Platform
1187 XFI & Hball	Blackout
919 Zeus	Great Puzzle Game

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1507 Division	Aids Kids with Division
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1287 Faworks Alphabet	For kids
1531 Fractions	Aids Kids with Fractions
1509 GCSE Maths	Maths Tutor
101 Fantasy Book of Spells	Great
1104 Fantasy for Herwilda	Great
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937 Maths Adventure	Adventure in Maths
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1537 Maths Reflex Test	Test Your IQ
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1581 Pat 3	Game for Kids
1160 Simon & Space Maths	2 games for kids
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1164 Link Office	W/P, DBase in one
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1547 Host AGA II Magademo	The Sequel
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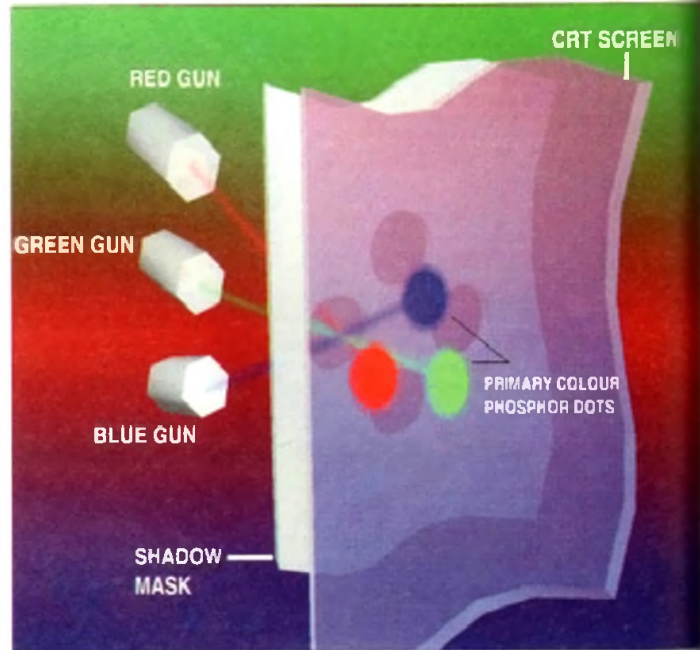
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This early design of cathode ray tube shows a Maltese cross working as the anode, projecting its image onto the screen



This illustration shows how the electron guns for each colour are aimed at their particular colour component of each phosphor triad. Note the Shadowmask screen to allow a degree of accuracy

**M**ost Amiga users who look at peripherals and make a wish list of those they'd like to add to their system will put an RGB monitor at or near the top of the list, and those with either extravagant wishes or large budgets will include a multisync.

The importance of a monitor for all types of productivity work – if only to avoid eye strain – is easily understood, but most of us assume blank looks when someone starts talking about bandwidths, raster scans, and refresh rates.

Whether we like it or not, this seemingly simple peripheral with its straightforward function has a complexity to match its importance, and as the Amiga has more screen modes than most machines, confusion is easily sown.

However, the technology of the monitor is more simple than we have made it, and can be traced back over a century.

At the heart of the monitor lies the CRT (Cathode Ray Tube). This device consists of a sealed glass chamber, containing a vacuum. In 1870, Sir William Crookes investigated electrical discharges down



CRTs? Cathode ray tubes to you, and if you didn't know that, read on as Wilf Rees reveals the secret world of the monitor

# The ABC

highly evacuated tubes (called Crookes tubes).

This electrical discharge was named the cathode ray, as it was emitted from the cathode. In actual fact, it is a stream of electrons being accelerated to a third of the speed of light. This research later gave way to the development of the cathode ray tube.

Early cathode ray tubes were able to produce an image of a

Maltese cross on the screen, as this served as an anode. The electrons would be accelerated due to the massive electrical potential difference, which is about 30,000 volts.

They would strike the screen, which was covered in a layer of phosphor, and have their kinetic energy converted into visible light. Naturally, particles as light as electrons would be deflected and the beam would dissipate if they collided

with much more massive air molecules. Air evacuation inside the CRT is required.

It was later discovered that magnets affected the flow of electrons (if you've ever placed a magnet over a TV screen you will know, but do not try this!) By an arrangement of electromagnets it is possible to deflect the electrons in the incident beam in a convergent manner, so that it can be focused to a point.

## PHOSPHOR

The entire beam can be shifted by an arrangement of X and Y plates, which deflect the beam in their axes respectively. The ability to create a point on a phosphor screen that could be moved gave way to the invention of the cathode ray oscilloscope.

The strength of the magnetic field on the X and Y plates is proportional to the total deflection. Using this apparatus it is possible to display a graphical representation of a waveform, with the X plate set to a pre-defined frequency of deflection. Considering it is possible to vary



## Commodore 1940/1942

Designed with the A1200 and A4000 range in mind, the 1940 and 1942 monitors are in fact tri-sync monitors. In appearance, they are very similar to the 1084st monitor and have the bonus of having a stereo amplifier, which is an improvement on the 1084st.

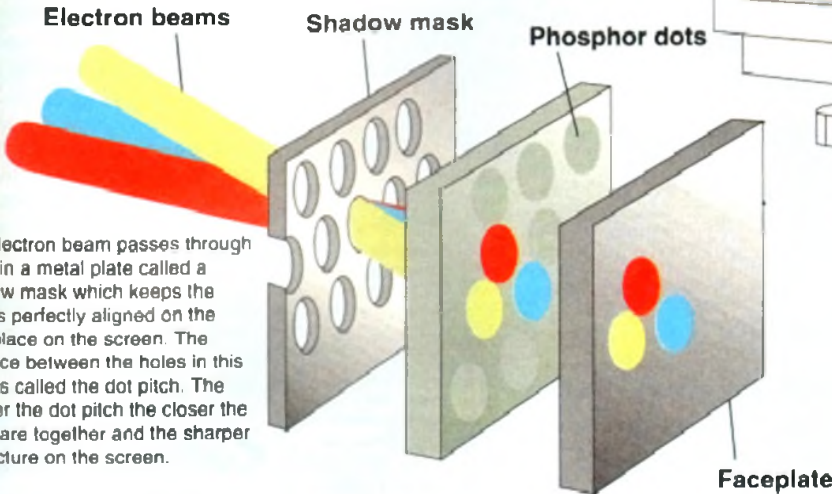
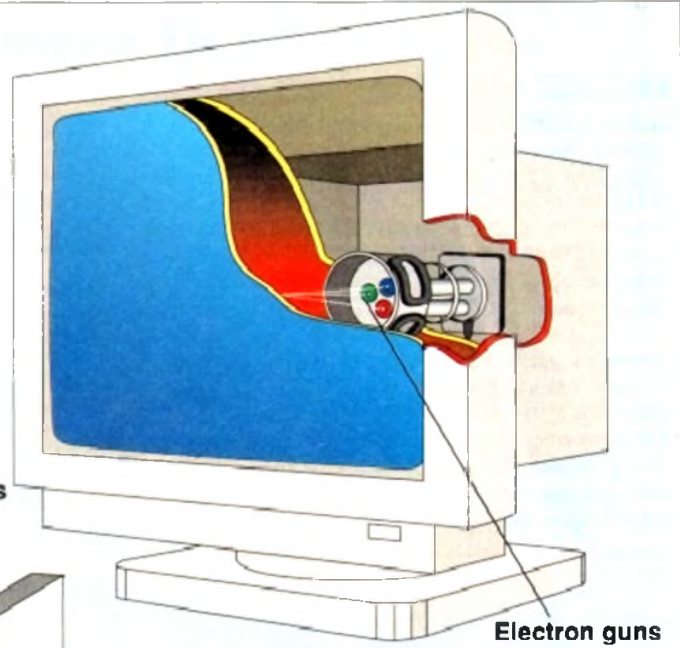
Both 1940 and 1942 are identical with the exception of the 1940 having a dot pitch of 0.39mm and the 1942, 0.28mm. Picture quality on the 1940 is little better than the 1084st, and on the 1942 model, it is excellent. All the controls are at the front of this monitor, which makes it easier to operate. Both monitors function suitably with the AGA chipset.



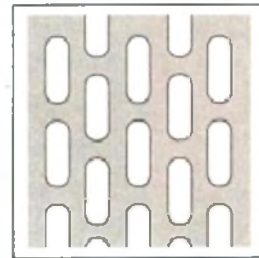
## The RGB colour monitor

The monitor works in a similar way to a television in that the image is formed by a beam of electrons which strike a phosphorescent screen which then emits visible light. In a colour monitor beams are fired from three electron guns, one for each of the primary colours. Any desired colour can be displayed by combinations of these colours, varying the intensity of the electron beams enables the desired hues to be achieved.

To form a picture on the screen a dot scans rapidly across the screen in a series of lines called a raster, the dot varies in intensity and colour as it moves, building up the picture. The phosphor on the screen continues to glow briefly after the dot has left it, a phenomenon called persistence, which fools the human eye into seeing a complete picture on the screen rather than just a moving dot. Once the dot has reached the bottom of the screen it flashes back to the top and starts scanning across again. The dot scans across the whole screen about 60 times a second.



The electron beam passes through holes in a metal plate called a shadow mask which keeps the beams perfectly aligned on the right place on the screen. The distance between the holes in this plate is called the dot pitch. The smaller the dot pitch the closer the holes are together and the sharper the picture on the screen.



Monitors based on the Sony Trinitron cathode ray tube have shadow masks in which the holes are arranged as parallel slots. This gives a better image.

Hi Quality Version Available on [AMIGALAND.COM](http://AMIGALAND.COM)

# of CRTs

## Setting up your monitor

Since there is no advantage in using a multiscan monitor with Workbenches earlier than v2.0 (unless you own a flicker fixer) this section will be covering 2 x and upwards.

### Workbench 2.04

With this version of Workbench, you will find a drawer on your extras disk called "MonitorStore" containing files to control various types of monitors.

Among these you will find multiscan, A2024, NTSC and PAL. For users of multisync monitors, you will need to drag the Multiscan and PAL icons over to the monitors drawer of your workbench disk.

### Workbench 2.1+3.0

Simply drag the appropriate monitor icons, perhaps DBLPAL, Multiscan, Super72 (or whatever you want) from the monitors drawer on the storage disk to the devs:monitors drawer on your Workbench disk (or hard disk)

intensity of the beam at any point, this means that it was feasible to re-produce a picture, by moving the beam across the screen, going down one line on each pass, altering the intensity at various points to create dark and light areas.

If this process was performed fast enough, a still picture would be possible. The human eye compensates for the

stages in-between, and in addition, a factor called phosphor decay determines the length of time the phosphor in any area will continue to emit light after an area is struck by the electron beam.

There are many variables to the way a picture is created - for instance, the frequency at which the horizontal beam crosses the screen, or makes a scan line,

is called the scan rate. The number of scan lines down a screen determines the vertical refresh rate, which like horizontal rate, is measured as a frequency, in Hertz or Hz.

There are two main ways which the electron beam can write a picture on a computer-based display. The first of these is standard vector scanning. This involves swinging the electron beam continuously from left to right while shifting vertically, one step at a time in synchronisation with the horizontal movement.

### VECTOR

The other method is called interlaced vector scanning. This is used for older monitors to enable high resolutions, as the input signal CPUs cannot handle higher rates of video information.

Effectively, this method halves the frame rate, reducing CPU usage. It involves scanning every second scanline in two passes, one odd set and one even.

## Configuring screen settings

Setting up of your screen modes is done through the ScreenMode preferences. Within it is possible to select the desired monitor and resolution from the display mode list.

The number of colours is also selectable with a slider bar. The mode properties are displayed in the window to the right, with information regarding horizontal and vertical frequency. Using this information you can determine whether you monitor will support the displayed mode. If you wish to have a Workbench screen that is bigger than the visible size, stated in the mode properties window, you may wish to use autoscroll, which allow the user to scroll around the screen using the mouse.

Overscan may be configured using the overscan preferences, depending whether the screen mode supports it. To alter overscan, you will need to use a combination of the Amiga's own adjustment and your monitor's screen sizing and positioning to achieve the best results. Although higher resolution screens with more colours can be quite nice, they use up more chip memory and can slow down the machine. Happy viewing!



## Types of monitor

**PAL monitors** These monitors are capable of producing pictures from standard PAL signals, which for an Amiga output is 512 scan lines, with a horizontal frequency (or rate) of 15.625kHz. This produces 640 pixels across by 512 down. These monitors usually are capable of reproducing pictures from composite video sources.

**multiscan/multisyncs** Multiscan monitors (often known as multisyncs, a trademark of NEC) are able to work with many different horizontal and vertical refresh rates, as they will scan within their frequency limits until they manage to lock on to a signal.

Most Multiscan monitors can easily be used with Amigas. Some more modern multiscan monitors incorporate DMS (Digital Memory Sizing) which automatically resizes the screen to cope with extended video features such as overscan etc.

Without this feature, it is necessary to adjust the picture sizing and position with the controls available. Multiscan monitors are generally the most expensive of all types of monitors.

You should expect to pay more for DMS. When buying a multisync monitor, make sure it is able to scan down to horizontal frequencies of at least 15kHz, for the Amiga's PAL and NTSC modes.

**dual/tri/quadsyncs** These monitors are similar to multiscan monitors with the exception that they work with two, three or four preset frequencies, depending on the model. They are normally cheaper than multisyncs. Quad and trisyncs are often badged as multisyncs, so be careful what you buy.

**TV monitors** Although these are really a type of monitor, they normally have the same capabilities as a PAL monitor with the exception of not having any controls to adjust the size and position of the picture. Although the quality is not normally as good as a PAL monitor, it is compensated by the bonus of doubling-up as a TV set.

This method is sufficient to give an illusion of a continuous picture. Interlacing is always used on television signals. White light can be made up of three primary colours, red green and blue, often referred to as RGB. Any values of red, green and blue can be combined to produce a specific colour.

Unlike mono monitors which have only one electron gun, colour monitors have three, one for each primary colour. The effect of colour is created by different coloured Phosphor dots placed on the screen, which emit light to their particular colour when bombarded with electrons.

The phosphors are arranged as a large number of triads, with each triad containing three different dots or stripes of phosphor. The idea is that one gun only shoots electrons at the red phosphor, while the other two fire at their respective coloured dots. To prevent a gun firing at the

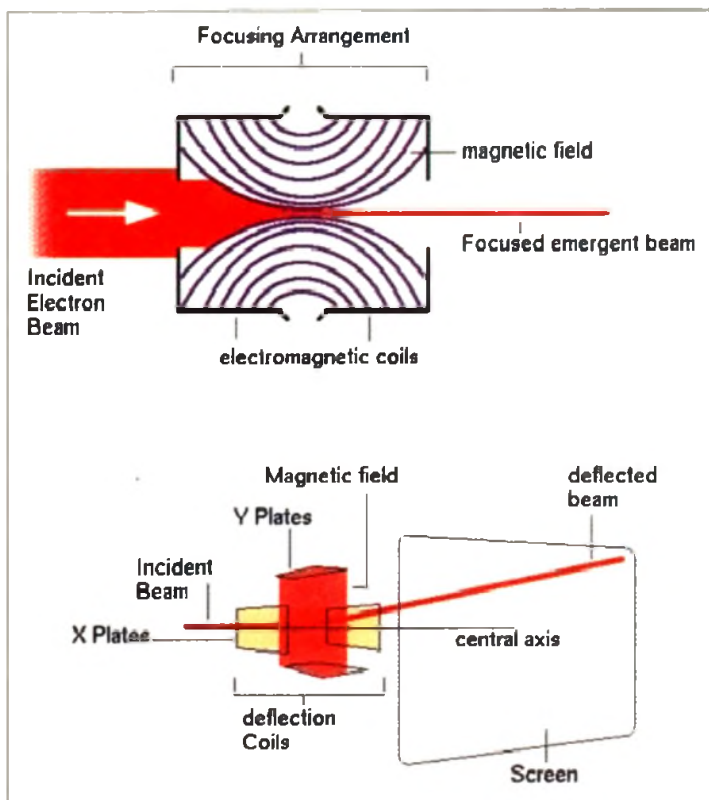


The Amiga ScreenMode prefs for WB 2.04 allow you to select between a large list of available screen modes. The multiscan prefs setting allows you to alter the amount a screen mode will overscan by.

wrong dot, a metal grill called the shadowmask is placed inside the tube just in front of the screen. The perforation and positioning of the shadow mask have to be done with great accuracy.

As explained earlier, the screen image is made up of triads of three colours, that appear as small dots (or pixels) on a picture. Basically, the smaller the pixels, the higher the resolution.

Colour monitors have vastly inferior resolution to mono monitors, due to the fact there is no need for a shadowmask, so resolution is not defined by grating size of the shadowmask. The circuitry inside the monitor also determines the resolution obtainable. Faster monitor CPUs can handle higher rates of information therefore allowing greater resolutions. You will generally find that the higher resolution a monitor is capable of, the higher the price.



This diagram show the general layout of a cathode ray tube similar to that usually found inside an oscilloscope

## Jargon buster

**composite video** A signal for picture transfer often used by video players and cameras. Commodore 1084s and Philips CM8833 monitors all allow the input.

**RGB** An abbreviation for red, green and blue, the primary colours of light. Colour TV and monitor pictures are made up from these components.

**PAL** The television standard for the UK and Amiga computers. This is based upon a horizontal frequency of 15.625kHz and a vertical refresh rate of 50Hz.

**NTSC** Stands for North American Television Standards Council. The television standard of America, which differs from PAL with a vertical refresh rate of 60Hz.

**AGA** Advanced Graphics Architecture. The new chipset from Commodore which handles graphics and screen modes.

## Commodore 1084st

This PAL monitor has undergone many design alterations since its release, although it is not suitable for use with the A1200 and A4000's extended screen modes.

It provides a good picture, with a dot pitch of 0.41mm, although the colours displayed seem very slightly muted. The five watts per channel stereo amplifier provides reasonable sound, although at full volume is prone to distortion.

## Microvitec 1440 multisync

This monitor is in fact a true multisync, meaning that it does not have any predetermined frequencies from which to scan. The 1440 can cope with horizontal frequencies from 15 to 40kHz which covers all of the Amigas AGA outputs.

A dot pitch of 0.29mm means that the picture is crisp and very little colour saturation occurs. DMS is included with this monitor, which is very useful for Amiga output when overscan is needed.

This means that there is no need to resize the screen because the picture exceeds the physical dimension of the monitor. The monitor will remember your settings for each screen mode and activates the appropriate preference settings accordingly.

## Example prices

Commodore 1084st	£199.99
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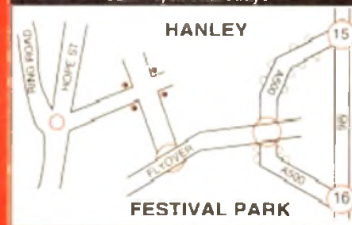
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# A1200 to live in a CD vacuum?

*Star Letter*

As one of the first people to buy an A1200 almost a year ago, I find I am still waiting for the promised CD-ROM add-on drive to give my machine the same capabilities as the CD32 console.

Can you give Commodore a kick up the backside on behalf of all the users, such as myself, who put their faith in this sick and, seemingly, terminally ill company?

Like many others, I was foolish enough to believe the hype put out by various software companies concerning the release dates of A1200 and CD32-only titles which would take advantage of my Amiga's superior power, but apart from the efforts of a few stalwarts of the Amiga scene, I have been let down. Why haven't they (the get-rich-quick software houses) delivered the goods?

I now find that the AAA chip set is on the horizon, and due for release later this year. Does that mean that my A1200 will go the same way as the A500, A500 Plus, and A600? I need to know now before the second-hand value of my machine drops too much.

Callum Hastings, Dumbarton

*Oh dear, how many letters such as this will we receive? The A1200 is the standard Amiga these days, and will continue to be for a long time to come.*

*Commodore have dropped all PC production to concentrate on the Amiga, and the A1200 in particular has sold very well this Christmas.*

*Software companies have indeed been slower to react to the A1200 than the we were originally led to believe, and their tardiness in keeping to release schedules is a constant source of concern. However, the situation is changing rapidly.*

*The latest releases to reach the AC office, Jurassic Park and Labyrinth among them, are at least the equal of PC CD-ROM games and much better than anything the Mega CD can boast. Take a look at our review if you doubt this, and sit back for a treat in 1994.*

*Many of us have gone ga-ga over the possibilities of the CD medium and the stored CD-quality sound it offers, but it's not until you actually play one of the new CD32 releases that you realise just how much better the gaming experience can be when you have 600Mb of storage space.*

*On a less bright note, the CD32-compatible drive for the A1200 is being held up because Commodore can't get the price much below £300 and because the company is concentrating most of its efforts on making and selling Amigas and CD32s. Whether the device will appear at all this year depends entirely on Commodore and the demands of A1200 owners.*

## Good service

I have read and heard on several occasions the bother Amiga users have experienced when contacting Commodore for assistance when gremlins attack their machines, and I always hoped I'd never have to contact them myself. My A1200 is six months old now and I was experiencing difficulties with error messages from the floppy drive no matter what type of disk I used.

With trepidation I rang up Commodore only to be asked if I was a dealer. I said no but requested assistance under warranty and explained politely that there was no point in talking to a dealer who would simply ring Commodore as I was doing.

I left my name and address and was told I would be contacted, though they couldn't give me an exact date. I also requested a new Workbench 3.0 floppy.

That call was made on November 1 and I thought I'd give them until January when a reasonable amount of time had passed. On December 6 a Wang engineer called and immediately set about replacing the internal drive. Not only did

he change the drive, but proceeded to open a brand new ROM board and replace my old one. Next day my replacement Workbench disk arrived.

I am personally more than happy with my service from Commodore. Nothing was too much trouble for the engineer from Glasgow.

I found Commodore quite easy to deal with and I hope you can print this letter so other readers can see that there is light at the end of the tunnel.

M Diamond, Edinburgh

*To every coin there are two sides, and it looks as if yours landed heads up. Commodore realised early in the A1200's life that speed and quality of service was attracting continued criticism from users and the Amiga press, and efforts were made to rectify the problem.*

*The result, as you have witnessed, is that after sales service is now much improved. Just goes to show what a concerted campaign of good ol' British whinging can achieve.*

Ezra Surf's Postbag

ESp

## Not a bundle of fun

I am seriously pissed off, having been very effectively ripped off by a combination of Commodore and high street retailers. The reason? Well, it's a long story, but here goes.

I recently decided to sell my trusty A500 Plus and use the money with a bit extra to upgrade as cheaply as possible to a brand spanking new A1200. Now, I have been a loyal Amigan since 1989, starting with the bog standard A500, and during this time have built up a reasonable collection of my favourite software.

I have grown accustomed to the likes of DPaint 4, Final Copy, Directory Opus, and I would grudgingly confess to enjoying the occasional game. I decided to keep this software to use with my new Amiga, so in short I wanted an A1200 *without* software.

I didn't want or need Desktop Dynamite, Fast and Furious, Race and Chase, or any other sort of bundle. Ever tried to buy a bare Amiga in the high street? No chance. It's a bundle or nothing.

After touring round all the likely stores in the area I came to the conclusion that my chances of obtaining a standalone A1200 were very slim to say the least.

I eventually had to settle for the Fast and Furious pack, complete with AGA versions of dodgy games like Trolls and Nigel Mansell, and at a price of nearly £50 more than the advertised price of an A1200.

Mail order might have got me a better deal, but it was close to Christmas and I get nervous when I send large wads of cash before receiving the goods.

My bundled games are, as expected, £50 worth of utter crap, destined to spend the rest of their days in some dark drawer, but it has to be said that the A1200 is absolutely superb. It's everything, and more, that I expected.

So, all you high street stores out there, please keep a stock of standalone A1200s for people like myself who are upgrading from another Amiga.

Ken Fidoe, Willenhall

*Commodore have always bundled the Amiga with games and some productivity software as a way of competing in our high streets against*

## Amiga saboteur

Can Amigas be made to simulate the cry of a female fox? If so, could I lure the local fox population into the fastness of my back garden before hunting season starts and they're ripped to pieces by slavering mongrels, not to mention the fox hounds?

The nature-friendly among us want to know!

Joe "the sab", Surrey

*Hmm - you'd certainly be safer using such methods than jumping in front of galloping horses, but it is unlikely that a fox would be fooled for long by an Amiga sound sample.*

*Perhaps if you bought a (fake, of course) fur stole and wrapped your Amiga in it the illusion might last a little longer, though I doubt if it would work for the entire hunting season.*

*other systems, such as Mega CD, which are sold with their own software.*

*It is this sort of aggressive marketing which ensures success against the many rival consoles and PC systems, and without it A1200 sales would have been hit hard during Commodore's most important Christmas for many years.*

*Commodore's current financial situation can only be reversed by high volume sales of the A4000, A1200, and CD32, mostly the latter two, and only by bundling popular games and productivity software can such sales be assured.*

*High street stores, on the other hand, can*



## Lost cause

Commodore lost a life-long Amiga user yesterday, someone who has owned a Vic 20, Commodore 64, A500, and A1200, but who will no longer tolerate the conditions of the Amiga games market. I sold my A1200 when I realised that even the latest epic, Jurassic Park won't install on my hard drive.

Why is it that Amiga owners are judged to be inherently more avaricious and dishonest than their PC-owning friends? This can be the only rationale behind a game which is HD installable on the PC but not on the Amiga.

Is the software industry staffed entirely by morons with no thought in their heads other than the collection and retention of profit, with scant regard for the wishes or service of their customers? I'm beginning to think so.

Anyway, they can stuff their archaic floppy-only games with crunching copy protection which doesn't work, slow access, and crap music.

I'm buying either a CD-ROM based PC or a CD32 for my future gaming, and the floppy-based mainstream Amiga software houses can stick their second rate, unfriendly products where the sun definitely does not shine.

*End-of-my-tether. Clitheroe*

Your frustration as a hard drive owner (or ex-owner, as it appears) are shared by thousands of Amiga gamers and everyone in the AC offices, where the arrival of a floppy-only game of the sort which cries out for a hard drive elicits howls of anger, especially with the game reviewers who are forced to undergo the torture of multiple disk swapping.

Software houses should by now have realised that any game other than simple single floppy, quick loading shoot-'em-ups must be hard drive installable, and if they are not then they are immediately compromised in terms of playability.

Amiga 1200 owners, a growing number of whom have internal IDE HDs, should simply refuse to buy non-installable games until the software houses are forced by commercial pressures to change their stance.

Only if Amiga owners, like PC game players, make it clear that floppy-based games are unpopular will anything change for the better.

only sell what Commodore supply, and the emphasis this Christmas has been on bundles.

Standalone Amigas should, though, be available, and if anyone else is having difficulty finding one, I suggest you call ZCL on 0543 414817 or SDL on 081-309 1111. These two large Commodore distributors have every model in stock, and if they can't sell you a bare A1200 then no-one else can.

## Blank cheque

I've had an idea which might help sort out the problems with mail order, and would certainly make more people use mail order when buying expensive equipment.

At the moment, sending a cheque or phoning with your credit card number in no way guarantees delivery of the goods on time or at all, and the money can often be gone from your bank account weeks or months before the kit is delivered, if it ever is.

My scheme would involve a private company, under government watchdogs, which would act as a central mail order clearing house, taking orders

from customers using an 0800 number, passing them on to the companies which use its services, then arranging the delivery and payment so that both customer and salesman get what they want on time.

By charging a small percentage to cover running costs and make a tidy profit, this sort of service would encourage the more cynical or nervous of us to use mail order, and those who wanted to go for the cheaper prices of the smaller outfits at the risk of late or non-delivery could still have the opportunity to take their chances and save a little more cash.

*Ian Belmont, Carlisle*

Your idea sounds like a good one, but the company you envisage would have to offer the mail order companies some sort of advantage over traditional direct selling.

If the rise in consumer confidence did not result in enough sales through your clearing house the mail order outfits would return to their usual methods and the clearing house would go bust.

Only if there is a potential market of people who are normally put off mail order by the risks involved would the scheme succeed, and that's a matter for careful commercial market research.

If the market exists, however, someone somewhere could make a nice little earning from this middle man-cum-policeman role.

## Strong market

A friend of mine who has just bought an Amiga recently saw to her alarm a discussion in one of the Amiga magazines of Commodore's troubles and of the threat to the Amiga market. She now feels she may have spent £300 on a dying machine and I have to reassure her.

What can I tell her?

*Peter Stepley, Warrington*

Just tell your friend to take a trip down to WH Smiths one Saturday and observe the crowds of people at the magazine racks

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perusing the wide range of Amiga magazines on offer.

Every month, over 400,000 Amiga magazines are sold, which points to an active Amiga audience of at least half a million and more like the full million.

Taken with the rising sales of Amigas and Amiga magazines, this points to a healthy market which, though it no longer enjoys the position of being the unchallenged king of the games world, is surviving quite nicely amid intense competition.

We could talk all day about the relative technological merits of the Amiga, but the simple fact is that hundreds of thousands of users are still making the Amiga their number one choice, and this should be enough, without invoking Occam's razor, to combat worries that the Amiga is going downhill.

The software industry, though considerably less practised than Gallup or Mori in the business of prediction, have made gloomy noises about the Amiga in recent months, but we only have to cast our minds back to the 92 general

## A4000 v 486

I would just like to make a point about the price of the A4000/030, as I am currently considering whether or not to purchase one of these fine machines or go for a PC.

I own an A500 at the moment which is a bit temperamental and I don't know if it will crash before I after I have saved this letter to disk, so I think it's time to upgrade.

The best price I have seen for the A4000/030 is £1,099 with 1Mb each of chip and fast RAM, and a 340Mb hard drive, but no monitor.

For the same price I could go for a 486 25MHz with 4Mb RAM, 16-bit Soundblaster card, CD-ROM, 120Mb hard drive, and SVGA colour monitor.

I think that Commodore should include a monitor with their A4000/030 at the same price and I'm sure I would do better.

*Paul Roberts, Cleethorpe*

The only reply I can give is "ditto".

election to put such predictions in the perspective.

If the experts of decades of polling and market research can fail so miserably to predict the results of such an important event, can we expect the toy business to achieve a better strike rate?

## Messy printer

Of late, my BJ10 bubblejet printer has started to fudge the detail on anything it print out, and though barely noticeable at first, the downturn in quality has become pronounced.

Is there a software setting which would restore my output to its former glory, or is this, as I fear, a hardware fault?

*Jenny Spencer, Stoke-on-Trent*

You could have a problem with print density which should be set to the highest dpi setting and can be controlled using prefs or the Faust's excellent CanonStudio program.

This, however, is a very slim hope, and sounds as if you have problems with the print head itself. If no amount of software fiddling makes a difference, contact your local Commodore dealer for advice and repairs.

## Indi solution

Here's the solution to Bill Mackintosh's problem running games such as Indiana Jones on larger hard drives. I have an A1200 with a 170Mb Western Digital and the game wouldn't work on my hard drive in the same way Bill was finding problems.

The problem, I discovered, was that the Amiga often writes files to disk too quickly, including large graphics and anim files, leaving the file corrupt. I finally got Indi to work by copying the files from all 11 disks to my HD using Directory Opus.

To solve the speed problem, use a program called GVP Expert Prep or a similar hard drive set-up program to change the Max Transfer parameter until it reads 0x00001fff (decimal 8192) for all your partitions. This will slow transfer down so that files over 300k in size will be written to disk correctly.

After changing the transfer rate, save the rigid disk block

(which won't require formatting the HD), then just re-boot the Amiga. The above method doesn't slow down the seek or reading speed of the drive, just the writing rate.

*Jay Dave, Preston*

Thanks for the tip, Jay. Users out there who don't have access to GVP's excellent (but commercial) prepping software should be able to find ample PD SCSI editors and HD toolbox programs to make the job possible.

Keep in mind, though, that a full backup of data on your partitions should be made before messing around with hard drives in this way. If a mistake or a calamity leads to the corruption of a partition, you will then at least have a fall-back rather than a good excuse for throwing yourself out the window.



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## Scan rates

I have recently encountered a problem which I am sure is shared by many other Amiga owners in that I have installed a Picasso II retargetable graphics board and I am now seeking a suitable monitor.

The Picasso's screen modes range between 36kHz and 63kHz, and the IDEK MF-5315, which scans between 30 and 80kHz seems suitable. The problem is that many Amiga program screens insist on using the 15kHz PAL and NTSC screen modes and cannot be altered, even using Picasso's Change Screen software, an example of which is ADPro's main control screen.

It would therefore seem that I require a monitor to scan between 30 and 63kHz, which is asking quite a lot considering that the only monitors which can scan down to 15kHz usually can't scan above 40kHz.

I could of course split the Amiga's RGB signal between the IDEK and my existing TV but I don't want to be sending incorrect frequencies to one of them.

Would it be worth purchasing a scan-doubler to change all 15kHz modes to 30kHz? If so, can you please recommend one and explain the basic workings?

Brett Buckley, Huddersfield

You seem to be a little confused about how the Picasso card itself works. Like most cards of its kind it has a built in "scan-doubler" (de-interlacer, or flicker fixer to the rest of us) which is software controlled from Workbench.

This means that Picasso will re-target any 15kHz screens opened from Workbench which use the Amiga's display database.

All or most productivity software, including ADPro, can be made to re-target to Picasso's higher frequency display, though they will retain their original pixel resolution.

Commercial games software which takes over the system and a few productivity packages such as Calligari will not work with RTG cards, and for most of these, certainly all the games, a 15kHz display device will be needed.

If you still think you need a 15kHz monitor, try IDEK again. The current range of monitors has been augmented by special "low scan" models which cover the usual high frequencies but also have a setting for the PAL 15kHz mode. They are more expensive, of course, but you get what you pay for.

Lightning never strikes twice... unless it's in the Amiga's premier technical letters page, that is



# ACAS

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## Deep-fried chips

About eight or nine weeks ago, my Amiga 500 stopped working after having trouble with my Star-NX-2420 printer. I took it to the local (300km away) dealer who diagnosed the problem as a destroyed CIA chip and replaced both.

Upon returning home, I fired up my system and saw the familiar Workbench screen once more. It did not take long for the printer, after a little cable switching - with the power off, of course - to once again fry the CIA.

The dealer again replaced my CIA chip, but only the one directly in line with the parallel port. This worked, and aside from a fried printer (it is 120V and was plugged into 220V), the rest of the system worked.

However, I discovered that disks and programs were not loading properly. In fact, if I double clicked on one, it was a toss-up whether it loaded or not. In the latter case the system would freeze, warranting a reboot.

What is wrong with my system? I suspect that the other CIA chip is on its way out. Am I right?

John Gibbs, Yanbu al-Sinayah, Saudi Arabia

It certainly sounds as if the dealer should have replaced both CIA chips the second time round, especially if you have been plugging mismatched peripherals into your Amiga.

Plugging an electrical device into the wrong type of power outlet will damage both the peripheral itself and anything it is connected to through overloads, voltage spikes, and so on, and this sounds like the most likely cause of your I/O

problems. The best course of action would be to have your dealer give the Amiga a complete once-over to check that more elements of the system have not been damaged by your mistake in connecting a printer with the wrong power rating.

## Disk samples

I have started to experiment with music on my Amiga and have bought a DSS 8-bit sound sampler and a Midi interface to connect to my Yamaha keyboard. Now, however, I've started on a tune which demands long samples and I don't have the memory to play them back.

Would it be cheaper to buy extra memory or go for a hard drive? I've heard of PD direct-to-disk sampling software, but

is it any good and would I need a fast hard drive?

G Masterton, Farnborough

Sampling direct to hard disk does not require an overly fast hard drive and any ordinary IDE or SCSI device should have a data transfer rate sufficient for the job. In cases where lower sample quality is acceptable (no more than about 14kHz), a floppy disk can be used to play back fairly large samples, and these are much slower than HDs.

For CD quality sound (44kHz) you will need about 11Mb for one minute of stereo, so a 40Mb hard drive should be enough for basic use, though if you wish to store lots of samples a 100Mb+ hard drive would be better.

Public domain and shareware direct-to-disk sampling programs are available, and many of them do a fine job, but don't expect the sort of features your GVP software offers.

The majority of PD sampling programs of this kind are designed for the basic job of sampling and if you don't have wads of memory you might find editing the samples a tad difficult.

One of the commercial virtual memory packages, such as GigaMem which uses hard drive space as if it were RAM, would be a good idea in this case, but you'll need a chip with a memory management unit (MMU), which is not present in chips with the EC designation.

The 68EC020, fitted in all A1200s, was originally designed to be used as a cheap embedded controller (hence EC) for domestic appliances and doesn't have an MMU. Nor does the 68EC030 used in the A4000/030, so make sure before looking at virtual memory options that you have the appropriate hardware.

## Bitmap success

Two days after writing you a letter asking for advice on how to solve the problem of the message "unable to read

## S-Xpress

I've just completed making my first auto-booting disk and I'm feeling proud of myself, but I'm still unclear about exactly what all the directories do, especially S and L. I know that the startup-sequence goes in S, but what else can it be used for and what goes in the L directory? Please help, because I can feel confusion creeping back in.

Dave Fairlie, Dudley

The S directory is used mainly to store script files (of which startup-sequence is the best example), which means it is often where ARExx macros are stored, and where user-startup scripts, and special startup scripts for various programs can be located. Apart from the odd alteration to startup-sequence, most users need never look in the S directory.

Your L directory is where device handlers are stored. These files are complementary to the devices found in the Devs drawer and a bare Workbench disk will usually contain at least the Ram-Handler, which provides the RAM disk, and the Port-Handler, which controls the way in which the serial and parallel ports are accessed.

Again, the L directory is one which should need little in the way of intervention from the user, though it is also where, in pre-WB2 machines, the disk-validator file is stored, and so is also where the Saddam virus will lurk when he first infects your machine.



bitmap" I have managed to solve the problem by using RDPprep to re-format the whole disk (yikes! - Ed).

However, I'd still like to know what a bitmap reading error is and its likely causes, so perhaps you could still reply to those questions. My other query about whether the whirring noise of a hard disk is common to all drives stands, though, as this noise is driving me up the wall.

*Stephen Solar, Baguley*

**A** The whirring noise you can hear with all hard drives is the sound of the disk continually rotating. As hard drives spin much faster than floppies it is necessary to keep them spinning rather than wait each time you access the drive for it to reach operational speed.

Floppy users can initially be shocked by the noise made by hard drives, partly because they are the only constantly moving parts in a system unless it also has a cooling fan.

A bitmap, in hard drive terms, is a digital picture drawn by the Amiga on the hard drive's root block. This picture holds the locations of all files on the drive and if it is corrupted you will receive error messages relating either to the fact that it cannot be read or that the drive is "unvalidated".

Bitmap errors are about the least dangerous of hard drive problems and shouldn't cause complete re-formats so long as you have access to one of the disk repair programs on offer.

Quarterback Tools, given away on a recent CoverDisk, has a few problems with the A1200's IDE drive, but Quarterback Tools Deluxe does not and should sort out the problem in less traumatic fashion if it ever appears again.

## Tool types

**Q** The use of so-called "tool types" in icons has been a source of confusion for me since I bought my A500 Plus, and I still

don't know exactly what they do. For example, many of my program icons have tool types for font directories, and something called CX\_Popup being either yes or no. What's it all about, eh?

*Roger Pennington, Cardiff*

**A** Tool types are the same as the parameters you might type in to accompany a CLI command and they offer the user a chance to change the way a program loads up and automatically pass instructions to it as it loads.

Those tool types which refer to a drawer on your hard drive usually tell the program where to look for its data files and so on, and the CX\_Popup tool type tells the Amiga whether a program's interface should appear when it is loaded.

Only commodities, designed to run at boot-up in the background usually use CX\_Popup tool types, but authors are

free to use a list of standard tool types (for consistency's sake) or use as many of their own as they feel necessary.

Full details on a program's tool types can usually be found in the accompanying documentation and should be looked upon as useful and flexible allies rather than foes.

If a program opens in interface, for example, and you can see no way to change this through the program's menus, checking the icon's tool types can sometimes reveal tool types such as LACE=YES which can be changed to alter the default screen mode.

## CD for all

**Q** In the eyes of A2000 owners, such as myself, the CD-ROM boom seems far away, but I have recently been given hope by the appearance on my favourite bulletin board of a CD-ROM filesystem for all

## Bad lists

**Q** I've noticed a bit of a debate on the subject of program listings in the magazine, and I'd like to add my tuppence worth. I hate the buggers.

How many times, when I owned a Spectrum, did I blindly type in a list of incomprehensible gibberish, only to find that some unknown cock-up in line 23 caused the program to crash? Dozens.

How many times did I throw a Spectrum against the wall in frustration when I realised after half an hour that the tiny typetace was responsible for me thinking a colon was a semi-colon, a comma a full stop, and so on? Dozens.

How soon would I like to refresh my memory and re-experience this pain inflicted here? Never. And that's my tuppence worth on the subject of listings.

If you have to have program listings please supply them on disk. That way some poor fool wants to type them in, he can print them out and do it the hard way while the rest of us read through them on our monitor screens.

*Graham Kelly, Southampton*

**A** OK, that's another addition to the Great Listings Debate. So far we've had beginners' support, old lags (who suffered the same hell as Mr Kelly) in staunch resistance to the idea, and a major of waverers.

The jury is still out, folks, so those pens a-scribbling.

Amigas. If I install this filesystem, can I access CD software? If so, will I need a special interface or some sort of extra hardware to make CD-ROMs work on my ECS-equipped machine?

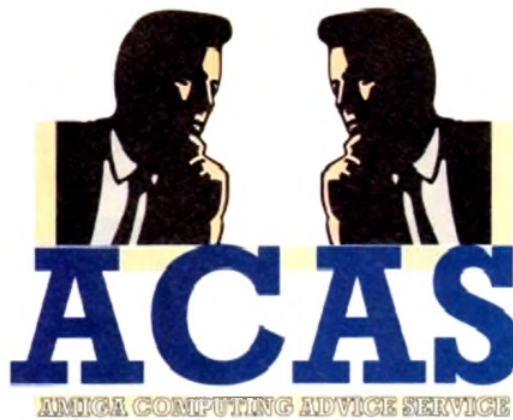
*H Troughton, Ipswich*

**A** The filesystem to which you refer is designed to mount SCSI controlled CD-ROM drive as if it were another Amiga device such as a floppy or hard drive and should give your system access to most non-program CD-ROMs which comply to the ISO 9660 standard.

With the help of a SCSI interface card and a cheap CD-ROM from a dealer you should be able to access a CD-ROM of clip art, text files, graphics, though you won't, of course be able to play PC games.

You should also have access to various Amiga CD-ROMs such as the CDPD collection from Almathe Systems, but I am unsure about the possibility of playing bootable CD-ROM game disks.

Download the archive and check the documentation for yourself if you want full details, but always be aware that this is not a CDTV or CD32 "emulator", but simply a filesystem by which some CDs can be read from.



*You got problems too? Then drop a line to Amiga Computing Advice Service, Europa House, Adlington Park, Macclesfield SK10 4NP and we'll move heaven and earth to help in these columns. But sorry, we cannot reply personally, so save those SAEs.*

## Gadget trouble

**Q** I have a problem with the palette editor in the Prefs drawer of my new A1200. Although it allowed me to customise my Workbench colours originally, if I now select it I get an advisory error "requires colourwheel gadget v39".

Using SID shows me that the gadget is indeed present in my SYS:Classes/Gadgets drawer, but if I select to run this through SID I get "file not executable return code 10". Selecting Multiview also shows me that the gadget is there but if I try to open any file I am told that it is an unknown datatype. Is this a separate problem?

If I boot from my copy of the Workbench 3.0 disk the editor selects as advertised. What can I do and can you give me more information on return codes? Incidentally, why does SID tell me that my 85Mb drive is only an 83.5Mb drive?

*Mike Phillips, Naples, Italy*

**A** It sounds as though you have a systemic problem, as both the datatypes and gadgets are failing to function properly. These are not executable files,

so don't worry about the SID error message. As long as you have v39.6 of Workbench (the version supplied with every A1200), you should have no problems.

First thing to try is re-installing your Workbench software to ensure that all the correct libraries and files are present, then get a modern virus checker and give all your disks a good going over.

It is sometimes a first indication of a viral infection when software doesn't function as expected, and a general virus sweep is a good idea from time to time anyway. If your Palette program still doesn't work you should lay your hands on a completely fresh WB3 disk and re-install with that.

Many users buying A1200s from local dealers who had installed Workbench in the back room of the shop later found out that installation, consisting of dragging all visible icons to the system partition, had only been partially completed, and this could be the case with your drive.



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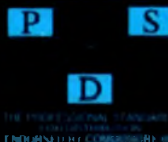
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They said it couldn't be done, but Utilities Unlimited's Emplant card brought colour Macintosh emulation to the Amiga in late 1992. Because Amiga users were so amazed to be able to run top-of-the-line Macintosh products such as Adobe Photoshop and Quark XPress on their computers, they were willing to overlook Emplant's initial quirks and limitations.

Emplant's developer, Jim Drew, surfed the on-line networks providing support for the device and taking in suggestions and complaints.

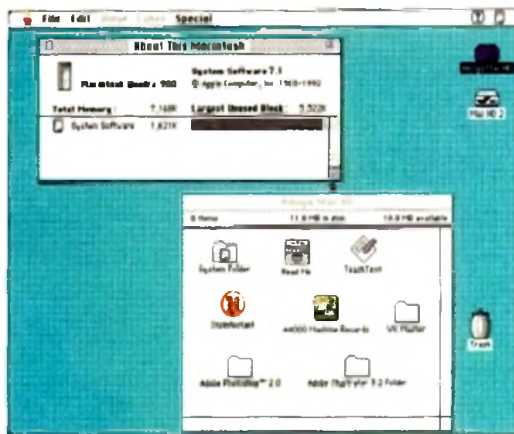
Drew promised not only to enhance and improve the Macintosh emulation, but also to eventually release emulation modules for devices ranging from the Apple and IBM-PC to the Super Nintendo and Sega Genesis.

More than a year later, has Emplant II delivered on its promises? Well, the answers are for the most part "yes", with an occasional "not yet, but we're working hard on it".

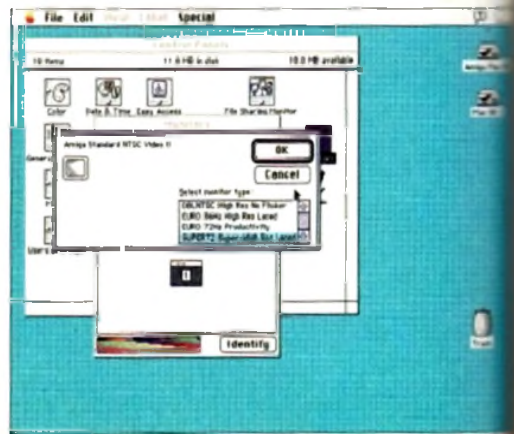
Emplant's Macintosh emulation has matured to the point where an a properly equipped Amiga can indeed be a "better Mac than a Mac". The promised additional emulation modules have yet to surface as of press time, however.

But UU's Drew assured me at press time that new emulation modules are just around the corner, and sent me a beta version of the Emplant Apple II emulator as proof.

Emplant is a Zorro II expansion card that fits in the Amiga 1500, 2000, 3000, and 4000. It's available in four configurations: The Basic Emplant, which simply includes the ROM sockets and chips needed to support Emplant's various emulation modules; the Deluxe Emplant, which adds two Appletalk-compatible RS-422 serial ports and a SCSI interface; and models with just SCSI or just serial support. All of the models can be expanded to the Deluxe speci-



With an A4000, Emplant can emulate the expensive Quadra model



Choosing Amiga screen models from the Macintosh desktop

fication. Emplant currently ships with Macintosh emulation software, at v3.8 as of this writing. Apple II emulation is just around the corner, and may be available by the time you read this. And UU are hard at work on IBM 486 emulation for release later this year.

DEVELOPMENT

Sega Genesis and Super Nintendo emulation modules are under development by a European company and will be available separately.

UU have also greatly optimised the speed of the emulation. A 68040-equipped Amiga will perform very similarly to a real Macintosh equipped with the same-speed processor.

The Speedometer benchmark shows the A4000/040 is similar to the Mac Quadra

700 in almost all benchmarks except for video. However, remember that while the machine is matching an equivalent Macintosh in speed ratings, it's running Amiga software at the same time!

Hard drive speed is now about five times faster than in the original emulation, and is close to what you'll get from a

real Mac.

Video is another area that has seen great improvement. The early versions of Emplant constantly reminded you that you weren't using a real Macintosh because screen updates were relatively slow when running in colour modes.

Now the emulation manages about

Macintosh emulation on the Amiga is becoming cheaper, more powerful and more popular. Denny Atkin looks at Emplant II, the latest upgrade of Utilities Unlimited's acclaimed emulator

Impressive

In speed tests, Emplant performs impressively

Running Adobe Illustrator is a breeze for Emplant

Putting on your Mac

Early versions of Emplant required a minimum 68030 microprocessor for Macintosh emulation. Recent releases no longer require an MMU, so they'll work on a 68EC030 microprocessor, making the product usable on the A4000/030.

You'll want at least 4Mb of Fast RAM for Macintosh emulation, but more is preferable. And a hard drive is a must on the Macintosh, so it's a must here as well.

For Mac emulation, you'll also need the Macintosh operating system. This includes a 256k Macintosh ROM chip from a Mac IIx or IIfx, and the Macintosh System 7.1 operating system disks. You can purchase a ROM chip from a number of electronics suppliers, or if you own a proper Macintosh you can use the ROMINFO program to copy the ROMs to a disk file without removing them from your machine.

The newest release of the Macintosh emulation software is "32-bit clean". This means it emulates the newest Macintosh models without allowing you to address more than 8Mb of RAM on the Macintosh side.

Indeed, until 32-bit clean support was added, you were hard-pressed to get Emplant to boot with more than 4Mb available for the Mac emul-



## Apple Who?

Although the IBM 486 emulation is still a few months away, Utilities Unlimited are ready to unleash a second emulation – of the classic Apple II computer.

This isn't as strange as it sounds, as over here in the States the Apple II was the computer of choice for school systems throughout the 1980s (it was our equivalent of the Beeb).

Many schools still use these machines, so an emulator will allow young students to practice with their Apple educational programs at home on the Amiga. I tested a nearly final beta version of the Apple II emulation and was quite impressed. You'll need access to an original Apple II machine to dump its ROMs to the Amiga: from there, it's easier to use than a real Apple.

Because there's no easy way to read Apple disks on an Amiga, though, you'll need to transfer the files you want to use via modem. The emulation will load Apple disk image files (similar to DMS archives on the Amiga) and boot them just like a real floppy. You can find plenty of files to try out on Apple BBS sys-

tems. The emulation is quite speedy, providing full Apple II performance even on a stock A1200. That's the most impressive thing, since previous Amiga emulation modules of 6502-based computers have been poky slow.

Although Apple graphics are quite nasty to look at, the emulator does give you a way to run some classics such as Galaxian and Wizardry on your Amiga. Still, this emulation will likely be of interest primarily to Amigans who started out as Apple users, or whose kids use Apples at school.

The emulation not only multitasks with Amiga software, but with the Mac emulation as well – memory permitting, you can run one instance of each Emplant emulation simultaneously with all the others.

Since UU now have a working emulator of a 6502-based computer, C64/128 and Atari 400/800 emulation modules are planned too, UU plan to make all of these available free of charge.

you can expect graphics just as fast as those of a real Macintosh. If you don't need 24-bit colour, though, you're likely to find that the AGA graphics are quite usable; using the Super72 mode you can run the emulation in 832 x 624 resolution in 256 colours.

### SOUND

Emplant is no longer mute – the latest releases support full stereo Macintosh sound, and do a good job of it. Sounds play smoothly from Macintosh games such as SimCity 2000.

There are a number of options for disk storage. The easiest way to get up and running is to buy an Emplant with the SCSI interface and simply plug a

*The latest releases support full stereo Macintosh sound, and do a good job of it, too*

Macintosh SCSI drive into the back of the card. Mac SCSI drives generally come with the System 7 software already installed, so it's a simple matter of plug-and-go.

With Amiga drives you have three options: You can format an entire drive as a Macintosh drive, choose a partition and format it for the Mac, or use the Hardfile support.

Hardfile support is similar to the virtual drives used by Commodore's Bridgeboard – a large file is created on an Amiga hard drive partition that looks to the Macintosh like a hard drive.

This isn't as fast as dedicating a real partition to the Macintosh emulation, but it has the advantage of being easy to set up and it can be backed up with a standard Amiga hard drive backup program.

Emplant's SCSI adaptor fully emulates a real Macintosh SCSI port, so you can attach nearly any Mac SCSI expansion device there. I've run both a Bernoulli removable hard disk and an Apple CD300 double-spin CD-ROM drive on the port with no problems, even running Macintosh CD-ROM games.

Putting a CD-ROM on the Emplant's SCSI port has the added advantage of allowing you to use the drive on both the Amiga and Mac sides of the computer.

Floppy support is a bit more problematic. When Emplant first shipped, UU offered a device called Sybil that allowed the Amiga to read 800k Macintosh format disks. However, the device never would reliably write Mac disks (Macintosh 800k

most of the update speed of a real Mac when running in 256 colours on an AGA machine, or 16 colours on an ECS Amiga.

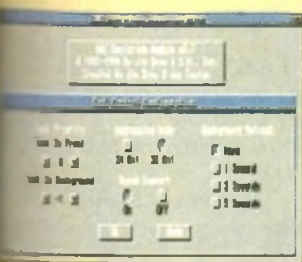
This isn't perfect, but is plenty fast enough for games such as Falcon MC and Quake. If you're serious about Macintosh emulation, though, and you want to use high-powered Macintosh image-editing software such as Photoshop, you'll want to invest in a graphics card for your Amiga.

Emplant now supports the Retina, Turbo II, Rainbow III, Merlin, Piccolo, Spectrum, and Visiona boards. Depending on the board, Emplant supports 24-bit colour and resolutions up to 1,600 x 1,200.

With a fast board like the Rainbow

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# Emplant



And because the Macintosh System 7 operating system is so large, a 4Mb Macintosh is about as cramped as a 1Mb Amiga – it's usable, but don't plan on running high-powered image-processing programs or on multitasking much.

With 32-bit clean support, I'm now able to emulate a 9Mb Macintosh on my 12Mb Amiga 4000 – far more useful for productivity work. Memory isn't shared with the Amiga side of

the emulator.

If you want to make more memory available to the Amiga side, you'll need to shut down the emulation, change the allocation, and then restart it.

The 32-bit clean emulation means that Emplant no longer requires a memory-management unit, so it's now compatible with the 68030 processors found in some GVP accelerators and in the A4000/030.

However, if possible you'll want to run the emulation on an MMU-equipped machine, as Amigans without one will have much slower updates under the Macintosh emulation.



A succession of setup screens aid the user in configuring the emulator

## The shape of things to come

As this article was going to press, UU were hard at work on a major revision, Emplant 4.0, which should be available by the time you read this.

Utilities Unlimited's Jim Drew let me in on what was coming up in this revision; if all of these features don't make it into 4.0, they'll be in releases that follow soon after.

After this wish-list is implemented, Drew will put aside the Mac emulation module and dive into finishing the IBM 486 emulation.

First and foremost on the upgrade list is support for using the Amiga's serial and parallel ports from the Macintosh side. The emulation will be able to pass data transparently back and forth to either port.

The exciting thing, though, will be a new Chooser extension that will let you print directly from your Macintosh applications to a Preferences printer driver – no more hunting down a Macintosh-side driver for the printer of your choice!

The current file-transfer mechanism will be replaced by a new MultiFS filesystem driver. Similar to CrossDOS in concept, this driver will allow both the Amiga and Mac sides to access any supported file format, so you could, for instance, write data to a Macintosh high-density disk from an Amiga program.

### CONVERTING

This driver will feature plug-in translation modules for converting between popular Amiga and Macintosh file formats – everything from converting plain ASCII text to translating various graphics formats as they're copied.

Support for virtual memory is on the wish list, as is support for multiple monitors. With this capability, you could, for instance, display a 24-bit Macintosh picture on your Picasso board full-screen while keeping all your toolboxes and menus on a faster 16-colour Amiga screen.

Finally, there's the long-awaited PCMCIA Emplant for the Amiga 1200. This will be a small box that has all the features of the Zorro II card – dual serial and SCSI options included – except it won't have ROM sockets.

A parallel port ROM reader will be available for transferring your Mac ROMs to the A1200 if you need it. It will sell for the same price as the original Emplant.

Many A1200 owners will be happy just to have a PCMCIA SCSI option, never mind the bonus of the emulation. Although the PCMCIA Emplant will function with a stock A1200, you'll be happier with the performance of the Mac emulation if you add an accelerator board.

The design of this board has been completed, but UU has been unable to procure enough PCMCIA connectors to go into production due to industry shortages. The company hopes to have it available this Spring.



disk drives actually vary their speed as they spin, so standard Amiga disk drives can't read disks created by them).

Sybil is no longer available, so currently the only options for reading 800k disks are to connect an A-Max or Mac-2-DOS cartridge and a real Mac disk drive.

**NIBBLE**

However, UU soon plan to release a small board that will plug into the back of an Amiga disk drive that will not only allow Emplant to read and write 800k Mac disks, but will also function as a nibble copier.

Emplant will directly read disks created by the A-Max and Spectre Mac emulators, though, so if you're upgrading from one of those emulators you're in luck.

On a happier note, Emplant will directly read and write Macintosh 1.44Mb high-density disks if you have a high-density disk drive on your Amiga; it currently has trouble writing to disks if you're in 256-colour mode, but Drew said this problem should be cured before this article sees print.

Since all current Macs include high-



From speed tests in which the system is stretched to its limits

density disk drives, more and more Mac software is coming on these disks.

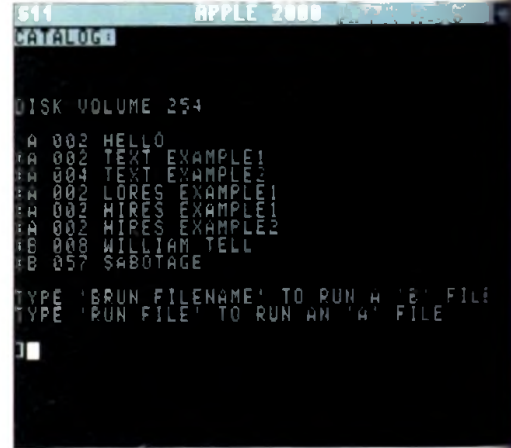
The two RS-422 serial ports will allow you to attach a modem, printer, or AppleTalk network. These work very well, except that some A4000 users with early-revision Buster chips in their systems may find problems with the AppleTalk support.

If you plan to hook an A4000/Emplant combo into a Mac network, it might be a

good idea to have your local service centre update your A4000's Buster chip to the latest revision.

Transferring files between the Macintosh and Amiga sides of your computer is now possible thanks to the recently added file copy functions. You can use a file requester to move any file between the Amiga and Macintosh sides of things.

Translation is presently limited to the



... to the most basic Mac software

automatic recognition of MacBinary downloaded files, but a future update promises to add sophisticated file conversion capabilities, such as the ability to convert Amiga Anim8-format animations to QuickTime format as they're copied.



**How compatible is it?**

So how well does Emplant perform as a Macintosh? Very. As mentioned earlier, processing performance is very similar to a real Macintosh running the same processor, but with the added benefit of being able to run Amiga software at the same time.

Compatibility is superb. I tested a dozen major productivity applications – such as Photoshop, Quark XPress, Fractal Design Painter, and Quicken – and they all worked without a hitch. The only problem I had was an occasional crash with Microsoft Word, which UU are looking into. Word is notoriously flaky, even on some real Macs.

A testament to the emulator's compatibility is its ability to run games flawlessly. I ran Falcon MC, Star Trek: 25th Anniversary, SimCity 2000, Spectre Supreme, and Maelstrom (the best Asteroids game ever designed for a computer) on my Emplant system without a hitch.

Even though 256-colour AGA video only rates about 0.62 the speed of a real Macintosh II on the Speedometer benchmark, the system provided smooth performance for all these games.

Note that some older Macintosh programs may have problems when running in 32-bit clean mode or with the 68040 copyback caches active.

This isn't endemic to Emplant, but is simply a problem with poorly written Mac software that owners of real Macs face as well – its similar to the situation Amiga programs that won't work right on the A1200 or A4000. Such problems can be worked around by turning off the caches or 32-bit support, just like with a real Macintosh.

Utilities Unlimited have been very good about fixing any problems with the emulation when users report a program that doesn't work properly – the company have even



If Emplant can run Mac games, what can't it do?

expressed plans to patch some popular but buggy Mac software to run properly in 32-bit clean mode.

Macintosh applications co-exist peacefully with Amiga programs nowadays; early versions of Emplant would sometimes crash when you tried to use comms software while running the Mac emulation, but like most of the other teething pains that problem has been cured.

Having a Mac and Amiga in the same box is very advantageous. For instance, you could take a 24-bit TIFF graphics file, touch it up in Adobe Photoshop on the Mac side, then use the file transfer mechanism to move it over to the Amiga side for further processing with Art Department Professional.

The final result could then be moved back to the Mac

and inserted into a desktop publishing program. The Macintosh is a much more expensive machine to equip for the work than the Amiga. With Emplant, you can use Mac software to touch up video images, then move them to the Amiga side for output – the best of both worlds.

Emplant's add-on ports are useful not only for the Mac emulation, but on the Amiga side as well. The package includes empscsi.device and empser.device which let you utilise the SCSI and serial ports under AmigaDOS.

The SCSI support is a real boon for A4000 owners, allowing them to easily connect CD-ROM drives or move SCSI hard drives over from older Amiga systems. The controller isn't as fast as the hot Zorro III SCSI-II boards, but then again for the price of one of those you can buy an Emplant complete with Mac ROMs.

Setting up a SCSI device on the Amiga side isn't an easy operation, though. The current empscsi device doesn't support auto-boot or auto-mounting, so you'll need to use something like the freely distributable SCSImounter program to make AmigaDOS recognise the drive; it can be partitioned and formatted using HDToolBox.

Since the board doesn't auto-boot on the Amiga side (the Mac side does), it works best as an add-on controller for systems like the A4000. Auto-boot capability may come later – the Emplant board has provisions for a small battery-backed block of RAM that can hold auto-boot hard drive code.

The serial ports are fully functional with any Amiga comms software that allows you to specify a replacement for serial.device. If you need a couple of extra ports for use with a bulletin board system or for basic serial networking, Emplant will do the job.



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Shock, horror surprise - this kid can do it all...

**E**ven after several years in the business I'm still amazed by the occasional release which sets new standards for creativity and artist opportunity.

With the arrival of Humanoid's I'm once again reassured that there is indeed more to the Amiga than just profit, play and occasional productivity.

As you can see, Humanoid is yet another add-on to the Amiga's ever growing ray tracing repertoire - which in this case provides an entire family of beautifully sculpted figures for both Lightwave and Imagine.

Now before knuckling down to the review I'd like to explain why I'm so impressed with what appears to be just another collection of 3D objects. Firstly there's the obvious quality of the figures and second hand and facial gestures.

However modelling skill is only the beginning as each model has been designed to animate effortlessly between the various facial, hand and body poses.

As is seen at its best courtesy of the various running and walking scenes which come as part of the collection. The attention to detail and overall quality are quite simply breathtaking.

Alas due to the limitations of print, it's hard to appreciate just how good these figures really are. Even these impressive stills pale in comparison when you see them, running, walking, speaking and dare I say even acting...

After such a glowing introduction you may be wondering exactly what makes the Humanoid collection so human. Basically the key to the system is the ability of both Lightwave and Imagine to build hierarchical forms and morph between them. Thanks to the power of both techniques Tim Wilson has at last banished that ubiquitous mechanical feel that so often dogs 3D modelling.

Thanks to the hierarchical design, basic body parts can be appended together and subsequently animated via key frames to produce basic articulation for running, walking, bending and so on.

However what about expression and even speech? Hierarchical techniques are useless

# Digital sculpture

Get ready to be amazed as Paul Austin explores Humanoid, the next generation in 3D modelling

and as a consequence it's here where morphing really comes into its own.

Thanks to a mixture of careful design and consummate modelling skill, Tim has created a whole series of expressions and phonemes for each model which courtesy of their identical points can be morphed during animation.

As a result, making a model speak is simply a matter of morphing from one phoneme head to the next - at which point the model will mouth the phonetic elements which make up the words you require. Tim has even included a section in the excellent 50-page manual diagramming which phonemes to use for specific letters and sounds.

The same applies to emotions, depending on your needs your character could be angry, sad, happy or whatever. All you need do is tell the software at which point, and how quickly, to morph between the various emotional states.

Using the same principles, hands can be animated between a variety of positions enabling your characters to point at an

object, pick it up, shake hands, wave, grasp something, grip it tightly and even form a fist and destroy it.

As if that wasn't enough, Tim has also added the finishing touch by ensuring that the figures are all made up of the same number of points and polygons. As a result it's just as easy to morph between the man, woman and child as it is to alter facial expressions.

This attention to detail is even more impressive when you consider that all the figures are hand built and not simply sucked into the machine via a 3D digitiser.

Basically Tim Wilson's new collection is spectacular. If and when 3D art receives the artistic credit it so richly deserves Tim Wilson's creations will no doubt be considered classics.

If you can afford it and have the necessary 10.5Mb and 18.7Mb of hard disk space for the Lightwave or Imagine versions respectively, plus the recommended 030 or 040 CPU it's an investment you'll never regret.

Unfortunately Crestline do not yet have a European distributor so I'm afraid you'll have to entrust a postal order to the US mail. However keep a close eye on the news pages as I'm certain some entrepreneurial type will soon add it to their portfolio.



Quite simply the best three dimensional models on the market

## Registration special

Although the Complete collection of models include a man, a strong man and a woman all with their own heads, hands and motion paths, you also receive a child.

However if you want your new family to experience parenthood you must first send off your registration card in order to receive the sprög. Although a blatant attempt to generate an accessible user base, there are other advantages.

Leaving this obvious marketing ploy aside, registration will ensure up-to-the-minute information on new products. For example Crestline plan to release a new collection of seamless human figures and animal models later this year which will take advantage of bones and skeletal morphing within Imagine 3.0.

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- Built in protection against bootblock viruses.
- Autoboot feature with all Kickstarts.
- Compatible with the KCS Power PC Board.
- Works with all Amigas running Kickstart 1.2 or higher.
- Includes hard drive backup software.
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- Whisper quiet NEC mechanisms.
- Hardware compatible with Blitz, Synchro Express, Cyclone and Cyclone T2.
- Developed in the Netherlands by Kolff Computer Supplies, producers of the acclaimed KCS Power PC Board.



*"It is the most important and singularly useful product I have seen since Amiga Shopper began."* Amiga Shopper - January 1994

### Comparison by Feature

Features	Competitor	KCS HD <sup>2</sup>
Kickstart	2.04+	1.2 or better
Double-density	880K formatted	better than 2Mb
High Density	1.76Mb formatted	better than 4Mb
<b>Filing Systems</b>		
FFS	Workbench 2.04+	Yes - all Amigas
International	Workbench 2.1+	Yes - all Amigas
PC 720K	Workbench 2.1+	Yes - all Amigas
PC 1.44M	Workbench 2.1+	Yes - all Amigas
DCFS	Workbench 3.0	Yes - all Amigas
<b>Software</b>		
HD backup	At extra cost	Yes. Software inc
Track Display	No	Yes
FastCopy	No	Yes
<b>Copier Hardware</b>		
Synchro Express	At extra cost	Internal emulation
Blitz	At extra cost	Internal emulation
Cyclone	At extra cost	Internal emulation
Clone T2	At extra cost	Internal emulation

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Available from all good stockists or direct from Bitcon Devices Limited. KCS HD<sup>2</sup> is just a short telephone call away.

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The famous KCS Power PC Emulator is still available for the A500 (Kickstart 1.3) and big box models with adaptor. This remarkable hardware turns your machine into an 11MHz IBM PC clone with colour VGA and 1.44Mb disk possibility. To qualify for this limited offer call Bitcon now!

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# Forever blowing bubbles

**S**ince that cheeky little upstart the BJ10 started the ball rolling by knocking spots off dot matrix printers only a couple of years ago, the bubblejet and inkjet market has grown enormously thanks to lower prices and the undoubted advantages offered by this type of printer.

At the expense of general flexibility, bubblejets offer sharp, near-laser quality output which greatly improves upon the results of even dot matrix, and though suffering in terms of speed and print costs they have grabbed a bigger and bigger slice of the printer pie.

In common with the rest of the Canon range, the BJC-600 is a compact unit with a sleek appearance and a control panel which has deliberately been kept as simple

Canon's bubblejet range of printers seems to go on and on. Now Stevie Kennedy tries out the latest colour addition, the BJC-600

as possible. This gives the impression that few functions are available, partly true, but also helps avoid the intimidating appearance of those multi-button front panels lit up like Christmas trees you find on so many printers.

A single set of ink cartridges and a pack of 25 sheets of A4 plain paper constitute the starter pack for this unit, and there are no

less than three manuals; a quick start guide, a guide to using colour in documents, and the user manual itself.

The latter is a 118-page booklet which contains sound basic advice on using the printer, but which doesn't go into the same depth as many manuals. Reference sections on commands, character sets, and so on might not be of interest to most home users, but they can be important to professional owners.

No printer driver software is supplied for the Amiga (though the PC disks bundled with the printer can at least be reformatted), a fact which is offset by Wolf Faust's shareware CanonPrefs program.

## PREFERENCES

This excellent preferences editor has a CanonBJ-EC driver specifically for the more expensive Canon colour models and offers the user a range of dithering patterns.

When printing using this software instead of the standard Workbench EpsonQ driver, results - particularly colour graphics - are noticeably better, and all new Canon owners are advised to phone their local BBS or shareware library before wasting any ink on Workbench drivers.

Plain paper can be used, normal 80gms photocopy paper sufficing for most jobs, but a lighter paper which holds less ink is better for graphics.

When a large colour image is produced, so much ink can be used that the page starts to roll up and mucky fingers are the order of the day until everything dries.

Graphics using anything between 16 and 256 colours are printed in very high quality,

the Canon's dithering coping well with the demands of creating the extra tones from its four ink wells.

However, when 24-bit or HAM images are attempted, output can often be dark and smudgy, and these more colourful graphics are best left to thermal transfer units such as the Primera.

For all types of business presentations, logos and letterheads, the Canon is ideal, and for colour clip art is best of all. In particular, the output from the better word processors such as Wordworth and Final Writer can be superb, mixing crisp colour graphics with clear text at the full 360dpi.

Fewer features present themselves to the user from the front panel than you might expect from a printer in this price range, but the instructions for automatic head cleaning and selecting one of the seven built-in fonts are clearly given on the underside of the flip-up covering panel, making this one very simple little beast to use.

Though there are no macro settings for the user's favourite print set-ups, an easy configure mode can be used to switch between 14 different print standards, from mono on plain paper to full colour on coated paper or acetate transparency.

In addition, colour registration is easily tested and reset if the printer starts to blur the detail on colour output.

For those in need of quality presentation at a reasonable price, this latest Canon release is one of the better options, and worth a long hard look.



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The BJC-600 excels at colour graphics and clip art in up to 256 colours, but the limitations of bubblejet technology begin to show as Ham and 24-bit piccies are printed. Not bad, though, eh? Fancy a Cox's Pippin?

## Media costs

One of the abiding concerns with most bubblejet and inkjet printers is that of media costs, or the price you pay for each sheet of paper printed. Depending on the cost of replacement ink cartridges and other consumables, running costs can vary sharply, and a printer which on the face of it looks a bargain could have high overheads.

The Canon's ink cartridges will stretch to about 200 pages of pure text, a figure which would come down to less than 100 pages if decent sized colour graphics were used - a figure which is on a par with the competition.

Official Canon refill cartridges for all four ink wells would cost about £34, working out at 17p per copy at best, and up to 40p per copy in heavy use. Using a refill system such as that featured in this month's Shop Window section, however, costs can now be reduced by two-thirds.

## The bottom line

Ease of use 9  
Implementation 8  
Value for money 8  
Overall 8

Supplier: First Computer Centre  
Phone: 0532 319444  
Price: £575







**GAMES**

- 001 MICHAEL BASKET - very addictive
- 002 STAR TREK (2 disks) Game
- 003 GEAR OF GOON Adventure
- 004 HOLY BIBLE, 1st and 2nd advent
- 005 GARDEN FLEECES Test your adventure
- 006 SUPER GAMES 4-mp. Pool, Chess etc.
- 007 SUPER TUNNINGS Strip dragging excellent
- 008 WIZARDS QUEST 7 Backgammon etc.
- 009 WIZARDS QUEST 8 Arcade puzzle, good graphics
- 010 RETURN TO EARTH 1st and 2nd
- 011 AMBASSADOR 5/10 & 1/10 SHAM an etc.
- 012 BASH School an etc.
- 013 ESCAPE FROM JOHN Space Arcade
- 014 HUNTER HUNTER Tactics, ok to see
- 015 BATTLEFORCE Fantasy and strategy game
- 016 CHAMBER CAVE 3/4mp. Master type
- 017 WINGPITCH RPO Real playing game
- 018 SUPERPLAYER Arcade adventure
- 019 BOMB EATERS Shoot an etc.
- 020 STAR TREK 2 (2 disks) Arcade adventure
- 021 THE POMP GUNNER Arcade shoot an etc.
- 022 NIGHT MACHINE 1/2 Leisure
- 023 DEFENDER (2 disks) RPG
- 024 BUBBLE LANCE 2 Submarine Simulation
- 025 IN DEMONS Carls
- 026 WARRIOR 2 World War 2 S.E.U.
- 027 WEIRD THE MEGALITH Platform
- 028 TREASURE HUNT (6-4 yrs)
- 029 GREAT LIST GAMES V1 0
- 030 BRACED FOR IN WINDY ISLAND Good for kids
- 031 PHANTOM Joust Good graphics
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- 033 TRIL-7 Space an etc.
- 034 THE GAME PAW 3ies
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- 036 PUP UP A PHIZZLE (2 disks) Japanese
- 037 CHAMBER DEATH 4/5mp. Action type
- 038 CAN YOU PICTURE IT? (2 disks) Japanese
- 039 CRICKETS etc. Excellent for kids
- 040 UNDISCOVERY 2nd the super hero
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- 042 BLACKACE Card game
- 043 PETER'S QUEST Arcade - Rescue the Monster
- 044 KING PAINT Colouring book
- 045 GAMAN GAMES 10 games
- 046 WUMPER Very playable for kids
- 047 NO LOOLY S.E.U. Good graphics
- 048 STAR TREK THE NEXT GENERATION
- 049 NO MANS LAND (thriller) S.E.U.
- 050 OCEANODYSSEY Land
- 051 DRAGON TILES (Great first game)
- 052 BOARD GAMES
- 053 ART ATTEM 5/4 game
- 054 BARTY SHAMON Scrolling S.E.U.
- 055 POP! HERO! Space Shooter S.E.U.
- 056 HANNEY Fishing
- 057 WUSH HOUR 1/2mp. - Get across the road
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- 063 1/4-TYPE WAR An etc type
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- 065 BATTLE WORM WYV S.E.U.
- 066 PUZZLES 0 bet 5/11
- 067 SQUAD 3 Revenge Well done
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- 069 GAMES COMPILED 1 6 games
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- 076 E-TYPE Arcade S.E.U.
- 077 DIMENSIONS OF MADNESS Hackney
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- 079 BACK TO THE TOWN Shoot the light post
- 080 ETHOS Test adv - pics
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- 082 CHALLENGER Test - 5 days
- 083 CATALON 3/4mp. Action - very well done
- 084 KINGDOM AT WAR War games
- 085 400 WAYS TO POOP S.E.U. Fantastic
- 086 DODDY 2/3mp. Meta type platform
- 087 PICK OUT Part 4 V. good
- 088 SHOOT FOR US Space
- 089 SOLID QUAD 4/5mp. - Racing - Fab!
- 090 STRIKE BALL Baseball 0/11
- 091 ARCADE MARCH Slider
- 092 CRAZY DUE Platform 1/3 etc
- 093 MERRY IN PANIC Music Meta type
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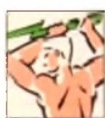
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# Books with buttons

At last, the secrets of the AmigaGuide are about to be let loose. Steve White delves deep into a text creator that could change ReadMe docs forever!

While perusing programs on past and present CoverDisks, you can't have failed to notice that with every program there is invariably an attached text document telling you how to use it.

These text documents have been with the Amiga since the dawn of software and have affectionately become known as ReadMe docs.

The ReadMe doc is still used now and is simply a text file that the programmer has written in order to explain his or her software without the need for a complex manual. The docs are loaded into some kind of text viewer such as More, PPMore or MuchMore.

Unfortunately, these text viewers often allow only forward and backward scrolling with no cross-referencing abilities and no menu in which to select a specific topic. However, with the release of Workbench 3.0 all this has changed and maybe, at last, the ReadMe doc will become a thing of the past.

The core to this change is a program called MultiView that resides in the Utilities drawer of Workbench 3.0. MultiView is a universal application that allows the user to read IFF text files, view mapped picture files, play IFF sound files and read AmigaGuides.

In order to understand these file formats MultiView relies on DataTypes which describe the format of the specific file. They are found in the Devs:DataTypes drawer.

Providing you have the appropriate datatype, running the above files through MultiView shouldn't be a problem. However, the most powerful part of MultiView is the AmigaGuide and it is this that I will be explaining in detail.

## ESSENTIALS

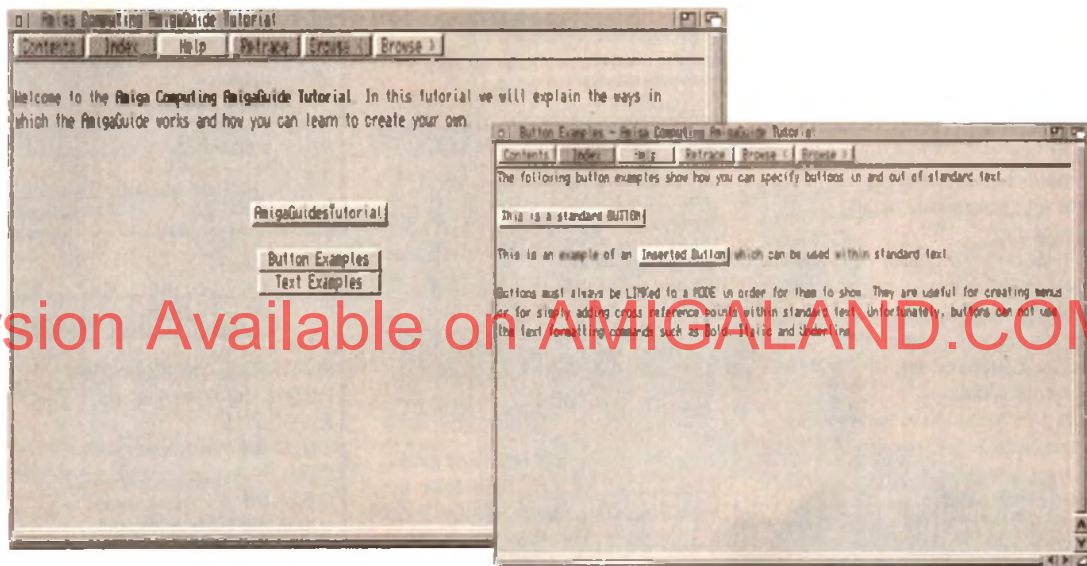
In order to follow this tutorial you will need certain files on your Workbench disk. You will need Multiview, the AmigaGuide.guide DataType in your Devs:DataTypes drawer, AmigaGuide.library in the LIBS: directory, datatypes.library in the LIBS: directory, and some kind of text editor such as Ed, AZ or Word. With these files you will be able to follow the tutorial with no problems. For convenience, I will be using Ed.

An AmigaGuide is very similar to a ReadMe doc in many respects but provides some crucial improvements. Instead of simply scrolling backwards and forwards you can now click on buttons in order to go straight to certain topics, use buttons to add cross-referencing points and format text as you would with a professional word processor.

The AmigaGuide.guide DataType also includes a useful menu for controlling your AmigaGuide much like that of a database.

To become fully proficient at writing AmigaGuides you will need to learn the language. Don't worry, it isn't difficult at all.

In order to create an AmigaGuide you must first load up your text editor, in our



case Ed. Open the Shell and type the following, pressing Return at the end:

```
ed ran:OurGuide
```

This will create a text file in RAM called OurGuide. You will be presented with the editing window for input and are now ready to create your first AmigaGuide...

An AmigaGuide is broken into pages, called Nodes. You can assign a button to a Node and when you click on it it will jump to that page. Each Node (page) can have as much text on it as required, and you can scroll through the text using the horizontal and vertical scroll bars of MultiView.

A page begins with the Node command and ends with the EndNode command, your text being written in between the two. We will examine these two commands in greater detail later on.

The first thing we have to do is tell MultiView what kind of DataType this is. We do this by typing the following line:

```
@DATABASE amigaguide.guide
```

The @ symbol is used to tell MultiView that the following text is a command, in this case DATABASE. This informs

MultiView that the file is a database and that it should load the AmigaGuide.guide DataType in the Devs:DataTypes drawer. Because of this, MultiView now knows how to run the file when we load it.

The next command is REM or REMARK and these can be entered anywhere and are simply used as reference pointers for you, the programmer. They are ignored when the AmigaGuide is executed. Type in the following command using your own name:

```
@REM Amiga Computing AmigaGuide -  
by Stephen White
```

WORDWRAP is the next command that we need to type in. You don't necessarily need this command but it makes life easier when writing the AmigaGuide. What it effectively does is wordwrap any text that floods over the MultiView screen dimensions much like a word processor does.

When writing your text in Ed you will notice that you can continue writing past the right margin. The Wordwrap command pushes 'overhanging' text onto the next line. So, type in the following to finish the setting up procedure of your AmigaGuide:

### WORDWRAP

We mentioned Nodes earlier and said that they indicate specific pages of text. In order for MultiView to successfully run the AmigaGuide we need to create a menu Node called MAIN which MultiView then looks for and runs as a contents page. You can then call subsequent Nodes by any name. You must not have spaces in a Node name. Type in the following:

```
@NODE MAIN "My First AmigaGuide - Intro"
```

This line creates a Node called MAIN (the contents page) and titles the window "My First AmigaGuide - Intro". MultiView displays all AmigaGuides in a window. We can now learn about and create a couple of buttons and some text.

Text can be entered anywhere and requires no command statement. Anything not preceded with a @ is understood by MultiView to be text. To add some text type in the following:

```
This is the first AmigaGuide which I have  
written with the help of the Amiga  
Computing AmigaGuide Tutorial. Never again  
will I use a ReadMe doc.
```







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  - D365... Optimum Pressure
  - D366... Mind Riot
  - D367... In The Car Demos
  - D368... Dynamic Illusions
  - D369... Piece Of Mind
  - D370... 3D Demo 2
  - D371... Lethal Gun
  - D376... World of Commadore
  - D377... Clamshell Demo
  - D380... Hoener Demos
  - D381... The Trip
  - D382/37... Project Techno 1(2)
  - D384... Introspect
  - D386... Mindwar (AGA)
  - D387... Pana Rho (AGA)
  - D388... Hysteria
  - D393-5... Grapevine 1(5)
  - D396-401... Grapevine 1(6)
  - D399-401... Grapevine 1(7)
  - D402... In The Kitchen

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- U1... Guisic Music Creator
  - U2... The Common Desk
  - U32... Modern Tools
  - U34... Red Devilz Util 1
  - U35... Soundcracker Special
  - U38... Pain, Music, Media
  - U39... Card Designer
  - U41... Red Devils Util 4
  - U43... Future Composer
  - U44... Kefrons Makebook
  - U45... PE Giant Util 1(8)
  - U47... Label Designer
  - U49... Ultimate Icon Disk
  - U51... Power Comp Util
  - U51... Jazzy Bench
  - U55... Avicall
  - U57... Quickbench
  - U59... Font Designer
  - U60... D Paint Fonts 1
  - U61... D-Paint Fonts 2
  - U62... Home Utilities
  - U63... Direct Anim Creator
  - U64... Crossword Designer
  - U66... CL Help 4 Others
  - U67... S/Tracker Mega
  - U68... Ultimate Boss 1
  - U69... Ultimate Boss 2
  - U73... Powerlog
  - U74... Mc-Cad
  - U75... Journal Home Acc's
  - U76... Electrical
  - U78... Ann Base
  - U81... Biosbench V2.0
  - U82... Slideshow Maker
  - U83... Catalog Workshop 1
  - U84... Catalog Workshop 2
  - U87... Hard Disk Util
  - U89-94... Amateur Radio (h)
  - U95... C-Flight 4 Others
  - U96... GFK Util 1
  - U98... Ham Lab
  - U101... Sid V2.0
  - U108... A-Genie
  - U113... Mail Utilities
  - U110/119... Video Util (2)
  - U122... GFK Util 2
  - U133/134... North C (2)
  - U136... Squid Squid (demo)
  - U138... Cross Square V1.0
  - U139... Terminalist V1.0
  - U140... Squid 1 (2.04 only)
  - U141... Squid 2 (2.04 only)
  - U142... Text Plus 3
  - U144... Demos Samples 1
  - U145... Digital Intro Design
  - U146... Vix Clip Art
  - U147... Spectrum Analyser
  - U148... Spectrum Analyser
  - U149... Spectrum Analyser
  - U150... Spectrum Analyser
  - U151... Amiga WIP
  - U152... Amiga WIP
  - U153... Amiga WIP
  - U154... Amiga WIP
  - U155... PD Util Discs Disk
  - U156... QMS Bench v1.04
  - U160... Rim Database
  - U166... Demos's Back Disk
  - U167... Demolisher Util
  - U168... Home Business 3
  - U172... Squark 1(1.3m)
  - U176... GFK Util 3
  - U177... Star Charts
  - U179/180... Jazzy (2)
  - U181... Celtic Demo Demo
  - U186-206... Track Into 10-M
  - U207... Jean Collection 1
  - U208... Dive Among Pyres 1
  - U211... Chemistries
  - U212... Animated Pointers
  - U213... Dev's Top Publisher
  - U215... Money Set 2
  - U216... Master V-Killer 2.2
  - U218... Data Base Wizard
  - U223... Pen Pm Data Base
  - U224... Q-Base Data Base
  - U226... Games Solutions 1
  - U231... D-Paint Fonts 1
  - U235... Ami Cash V1
  - U236... Jeannina
  - U241... Jean Felix
  - U242... Cytosystems 2.11
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  - U313... Piv Addressing
  - U314... Power Wizard Jr
  - U319... Lister V2.1
  - U320... Gopher Designer
  - U327... Bezier Surf
  - U329... Mouse Engine V3.4
  - U330... Stylus
  - U331... Sea Pro
  - U332... Super Jew V2.4

- ### GAMES
- G1... Return To Earth
  - G2... Games Group 5
  - G3... Dizzy Lazy
  - G4... Scum Hunters
  - G5... Parachute Jump
  - G6... Frankie Freddie
  - G8... Tenthits
  - G9... Pseudo Cop
  - G10... Drop
  - G11... Bug Bath
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  - G14... Escape From Jovi
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  - G17... Megaball
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  - G20... Battlezone
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  - G27... The Tennis Game
  - G28... Flantheber
  - G29... Back Rogers
  - G30... Gopdayder
  - G31... Tiles
  - G32... Mega Comp 1
  - G33-34... Star Trek 1(2)
  - G35-37... Star Trek 2(3)
  - G38-39... Mechforce 1(2)
  - G40... Klondike
  - G42... Car
  - G43... Games Comp 2
  - G44... S.E.U.C.K. Games
  - G45... Spas Games Comp
  - G46... Games Comp 3
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  - G99... Holy Grail Adventure
  - G100... Amos Countdown
  - G101... Classic Comp 1
  - G102... Card Games 2
  - G103... Super Skinda (Chall)
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  - G106... Computer Conflict 2
  - G107... Mission X Raid 2
  - G108... NFL Game
  - G110... Trucks 4 The Turn
  - G111... Marble Slide
  - G112... Games Comp 10
  - G113... Black Jack Lab
  - G114... Dungen H Madness
  - G115... Amiga Columns
  - G116... Robocro In Iraq
  - G117... Mutant Control
  - G120-122... Warlock 1(3)
  - G124... Bart Simpson
  - G126... Art Ace 2
  - G127... Breakout Com Kit
  - G128... Pipeline
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  - G161... E-Type
  - G162... Tron 1
  - G163... Sea Lance
  - G164... Dirty Diamonds

- ### SLIDES
- S1... Ham Pies Show 1
  - S4... Madrasa Slides
  - S5... Madrasa Slides
  - S6... Party Disk
  - S9... Impassioned Collection
  - S9... Impassioned Slides
  - S10-11... Channel 42 (2)
  - S12... Bruce Lee Slides
  - S14... Adams Family
  - S15... Vix Mag Slides
  - S17... Darklands Jazzy
  - S18... Dr Who Demos
  - S20... Nasa Slides
  - S22-24... WWF Slides
  - S27... Demos Slides
  - S28... Total Recall
  - S29... Joe's Slides
  - S30... Ham Pies Show 2
  - S32... Neighbours Slides
  - S33... Roger Dean slides
  - S34... Ince Maiden Slides
  - S35... Tobias Reeves (2)
  - S38... Harker case 2
  - S39... Lanes Slides
  - S40... Frayson Devine 2
  - S41... Frayson Devine 1
  - S42... Gration Game Slides
  - S44... Chryseum Slippers
  - S44... Chris For Dawn
  - S45... Forgotten Realms 1(2)
  - S47... Kick Off 3 Slides
  - S48... HD Slide Show
  - S49-52... Terminator (4)
  - S53... Robocro 2 Slides
  - S54... Truckmaster Slides
  - S55... Frayson Reims 2
  - S56... Garfield Slides
  - S57... Panfender Slides
  - S58... Hellraiser Slides
  - S59... Night Breed Slides
  - S60... Raycasting
  - S61... Horror Slides
  - S70... Muscle Mania
  - S71... Creative Comforts
  - S72... The Wonder Years
  - S73... Watership Down
  - S75... Ferran 3M Pies
  - S76... Hellraiser Cardset
  - S77... Cher Slides

- ### ANIMS
- A1... Probe Sequence
  - A2... Ghoul Pool
  - A4... Joggler e' Magicus 1
  - A4... Gymnast Demo
  - A5... Fractal Flight
  - A6... Basketball Demo
  - A8... Walker Demo
  - A9... Magicus 2
  - A10... Page In Space
  - A11... Lunar Teenager
  - A13... Juggler Demo
  - A18... Cool Congar
  - A17... Mono Cycle Anim
  - A18... Mocha Anim
  - A20... Mayhem On Wheels
  - A21... Juliette 2
  - A22... Simtheek Anim
  - A23... T-Pot Anim
  - A27... Planet Manouvre
  - A29... E.P.Pose Leaves Deck
  - A30... Scawway 2 Anim
  - A31... Star Trek Anim
  - A32... Fraxion revenge
  - A34... Madama Anim
  - A35... Stealthy Anim 2
  - A36... Readers Of The Lark
  - A37... Bugs Bunny Anim
  - A38... Iraq V's UK Anim
  - A39... Mike Tyson anim
  - A42... Walker 2
  - A43... Light Cycle (2)
  - A47... Exploding Head
  - A48... Light Cut Chase
  - A49... Top Gun Demo
  - A50... Animators Demos
  - A51... 5 Ways To Kill a Meic
  - A52... Another 5 Ways
  - A53... Batman The movie
  - A54... 3D SpaceShip
  - A55... Mi Pstato Head
  - A59... Lion Head Flight
  - A63... A.J. P. Swicker
  - A64... J.P. P. Swicker
  - A66... Rocky Wack Anim
  - A67... Adventures Of Chuck
  - A70-71... Mac Overdrive 1(2)
  - A74... Spacebus Anim
  - A74... Ghoulbusters 4 Horror
  - A76... Alarm Anim
  - A77... Flight Anim
  - A78... Piano Anim
  - A79... Duet Anim
  - A80... Bad Bird Anim
  - A81... Holiday Anim
  - A82... Filter The Fish
  - A83... Miners Anim
  - A84... Rocket Wack Anim
  - A90-93... The Movies 2 (4)
  - A94... My Tin Toy
  - A99... T-Pot 2 Anim
  - A99... Terminator 3
  - A100... Dolphin Dreams
  - A101/102... Thunderbirds (2)
  - A101... History of Arm
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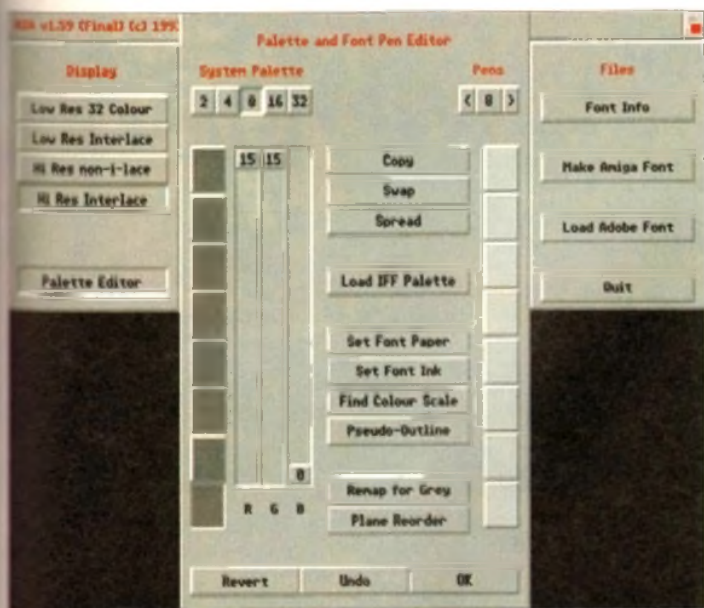
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A2A's impressive palette control in action

# Trading places

Although a long time coming, the Amiga has at last found a reliable and friendly method of converting Adobe Type 1 fonts into colour, anti-aliased Amiga Disfonts – otherwise known as ColorFonts.

For those not involved in Amiga art, presentation or titling such a prospect will hardly generate unbridled excitement. However for those who fit the bill such a development is well worth the wait.

OK, lets assume you're still not convinced – after all there's a lot of reasonable quality bitmapped fonts already out there which will do a respectable job for various videographic endeavours.

However for the pro and semi-pro, productions respectable simply isn't good enough. Clients quite rightly expect the best and that's exactly what A2A offers.

Before moving on to the conversion process, it's perhaps worth clarifying why A2A conversion is so important. Basically, PostScript fonts are fine for DTP but for anything else they're next to useless as the vast majority of software simply doesn't support them.

Even notables such as Scala, Broadcast Title II, TVPaint and DPaint – to name but a few – will have nothing to do with Adobe fonts directly. And if such fonts are converted by normal means their silky smooth appeal is invariably destroyed by the lack of anti-aliasing.

According to the manual, approximately 25 per cent of PD Adobe Type 1's won't convert properly, as they don't adhere to the Adobe standard – but after extensive testing of PC, Mac and Amiga fonts I didn't encounter a single failure...

If you're concerned about font availability, turn to the PD section and you'll dis-

cover massive selection to suit every conceivable taste. However if you simply can't wait there's no need for panic, as two extra disks containing 52 Adobe Type 1's ship with A2A.

Assuming you've loaded a font, you'll be confronted with the program's split screen interface which consists of three preview windows showing the anti-aliased, Amiga and cached examples of the font. The upper half holds the main control panel.

Working from left to right, the upper panel is split into four sections with the first concentrating on display and palette controls in addition to four resolutions ranging from lo-res 32 colour, lo-res interlace, hi-res non-interlace and finally hi-res laced – each of which can be toggled between at any time.

## SMOOTH EDGES

When it comes to palette control you're provided with a pop-up requester full of colour wells, copy, paste and spread options alongside a variety of tools designed to simplify colour control. It's even possible to load palettes from existing graphics to further enhance anti-aliasing.

It's here where you can also specify the number of colours to be used. However it's worth stressing that the fonts generated are basically single colour creations which use the additional colours to generate smooth anti-aliased edges. In short you can forget

any aspirations towards wacky gradient fills or bizarre patterns – that ain't the way it works.

In the next section, font styling is handled via point size, aspect, italics, filtering and contrast controls. Point size provides overall scaling of the font from 1 to 250 per cent. Although the feature does a perfect job of scaling any font, it's the only area in which the program falls down slightly.

Rather than adjusting the scale to a specific point size, the font is scaled as a percentage, and as a result scaling isn't point accurate. So for example, scaling up to 150 won't necessarily produce a font of 150 points – which obviously could cause problems later on in the production.

Next up comes aspect, which in simple terms means you can squash or stretch in the horizontal plain. Following that comes the italic option allowing angles in either the positive or negative up to 45 degrees.

Following this are the essential filtering options – otherwise known as anti-aliasing – which take the form of five different filters, each of which applies a different style and degree of anti-aliasing to the font.

Finally we come to contrast, which again is used to improve the anti-aliasing. Like all the other options, contrast shares in the benefits of the program's excellent interface which uses arrow gadgets for minor adjustment or pop-up mini requesters for larger

slider driven alterations – and if that's not enough, you can even type in you alterations. In the next section you can toggle through the entire character set in addition to altering the position of the font in the preview windows below.

Lastly you can specify whether to send a single character or the entire set into a memory cache; not an essential feature on faster machines but ideal for improved editing and font processing on slower Amigas.

In the last section you're given the essential loading and font generation options along with assorted font information. Basically that's about it. The actual output process is very simple with the only user input being the font name and target directory. Prior to output it's also possible to specify that bold, italic, underlined and reverse flags which are used as part of the font definition, thereby enabling certain applications to generate the aforementioned variations.

However this function won't work for every package, as most programs have an individual approach to fonts. For example DPaint won't recognise any of the aforementioned flags, although the basic font you generate works perfectly.

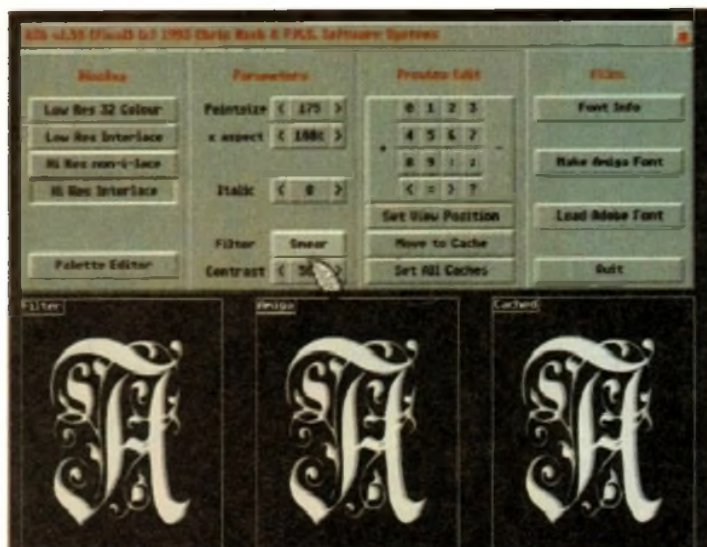
## The bottom line

I'm impressed – the program performs beautifully, the end results are excellent and the interface personifies the very best of Amiga software design. For the pro it's worth every penny and at just £50 it's well within reach of the hobbyist. A great product which I'd recommend to any serious Amiga fan.

Better still, Alternative are now offering a combination of A2A and Scroller II – their own A2A friendly video titler – for a special bargain price of £100. Great news for any videographic newcomer who wants quality output at an affordable price.

Supplier: Alternative Image  
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Paul Austin explores A2A, the very latest in font conversion from Alternative Image



A quality interface combined with excellent end results





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# MIGA Update

For quite some time ADPro and ImageFX have been battling it out for the image processing top spot. Now thanks to the release of ImageFX v1.50, the war enters another phase thanks to whole host of improvements and add-ons.

Have GVP finally weakened ADPro's stranglehold on the market? Only time will tell, but rest assured that the battle in the hobbyist market has never been more closely fought.

One of the most notable new features in the program's ability to record macros into its built-in command line or shell window. Once recorded, macros can be saved and activated whenever necessary from either the aforementioned shell or the IMP - ImageFX's very own multi-tasking utility.

Next comes improved palette control and a whole host of additional support for third-party display devices plus special Amiga modes including AGA and the program's new Super Amiga modes which I'll explain later. Third-party display options now include IV-24, Video Toaster, Firecracker, Retina, Real Vision, EGS and DCTV. Yet another



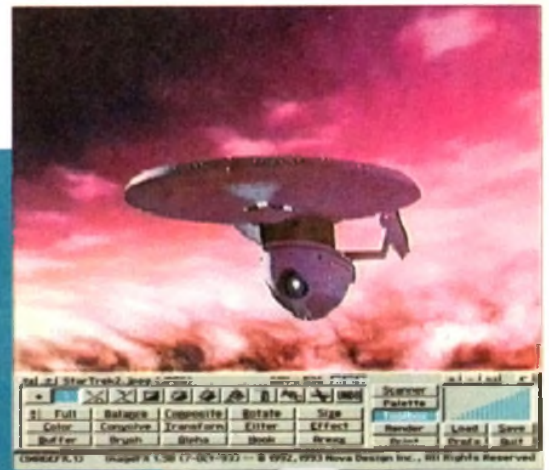
Now any scanner in the Epson range can be used by Image FX

aid to improved productivity is the program's ability to use multiple assigns within the ImageFX/Workbench environment. As a result you can now run user-defined versions from various directories.

Basically, this means that each time a

version boots it can have its own default preset for a specific operation such as scanning, frame grabbing, video production or whatever.

Pandering to professionals is also high on the agenda with pressure-sensitive support for assorted drawing tools such



VLab support now as standard in version 1.50

as freehand and airbrush. However quite why a pro user would be painting within ImageFX as opposed to TVPaint, EGS or whatever else remains a mystery...

The program's preferences requester has seen some fairly major changes with a variety of new preview modes, a new quantise option - used from palette generation - plus a much improved virtual memory set-up procedure which is now simpler and more reliable.

Another important new feature is multi-level undo which enables you to back-track over an entire sequence of edits if disaster strikes - and of course,

Hi Quality Version Available on [AMIGALAND.COM](http://AMIGALAND.COM)

# Raw processing power!

Paul Austin looks at upgrades for ImageFX v1.50 and Clarity 16, both of which push the Amiga's processing capabilities to the limits...

## Clarity 16

Over the last year Clarity's software has evolved quite considerably - although the hardware itself has remained the same. As a result it's high time for a second look at this impressive and cheap introduction to 16-bit sampling.

Although a true 16-bit sampler, Clarity isn't a direct-to-disk system. This facility was promised as a potential upgrade when the product was first released but like many potential hardware add-ons it failed to appear.

Still even without a D2D option, Clarity remains a useful recording tool capable of limited Midi applications in addition to a dump and fetch facility for various sampling keyboards.

In fact the lack of the promised improvements to the hardware is Clarity's only real drawback. After all, how many 16-bit samplers retail for just £99? Not many...

However this doesn't excuse the hyperbole and subsequent disappointment that surrounded Clarity's initial release. During this period the product's creators made a lot of noise about various add-ons and improvements -

none of which have materialised.

Everything from DSP support to software-based drum sequencing was just around the corner, even SMPTE time-code was on the cards alongside the aforementioned D2D recording.

As a result, many a muso invested hoping that their commitment would be mirrored by Clarity's creators. Unfortunately hardware revisions never materialised.

## ATTENTION

However the software has seen a lot of attention with the latest incarnation - v1.5 - boasting an all-new Workbench 2.0 look which now thankfully opens on its own screen, thereby avoiding the horrible clutter synonymous with its predecessors.

Another major change lurks within the Fast Amiga box. The old style box with delay values has been replaced with a simpler tick system which provides much more flexibility and control over the whole Amiga range.

All of the program's horizontal sliders, such as those in the Real-time Effects window, now have a numeric value enabling much more accurate recreation of previous set-

tings. The sample info requester is the most fundamentally changed: certain features have been repositioned to give a more logical grouping of icons. All of the Loop features have been put in their own box, and the Seek Zero feature has gone completely - in favour of various new loop editing options.

Generally the program looks much slicker, the only problem being that the manual pictures are now horribly out of date. The manual is currently being revised and should be available in its updated form by the time you read this article.

Normalise no longer produces clicks and is now a very effective way of maximising the volume of a sample. Recording is now exact (previously it left some space at the end of the sample).

One Amiga channel had a nasty habit of crackle during Amiga playback during real-time effects and scope use - this has been fixed. All scopes should now work on most Amigas, even fast ones and needles are now always in evidence on the VU-style meters.

Kill Samples has been added to the Project menu. It



undo can still be disabled entirely when necessary.

On the user-friendly side an option to disable verify requesters has been added - no more "do you really want to..." messages - but better still GVP have finally added an aspect lock which stops the program stretching the image to fill the preview. So what you see is what your image actually looks like...

ImageFX will now automatically default to AGA when running on Workbench3.0 machines, but in addition the aforementioned Super Amiga modes can also play a part.

### THIRD-PARTY

Now any mode listed in the Amiga's display database can be used as a default preview mode, but better still third-party display devices can also be used as part of the preview repertoire. As a result DCTV and OpalVision can be used for previews in addition to the IV-24, Firecracker and HAM-E.

Frame grabbing and digitising have also seen some attention with support

for the entire Epson range of scanners in addition to the VLab digitiser. As you'd expect, the program's scan control options have been enhanced to take advantage of the additional features offered from the new hardware.

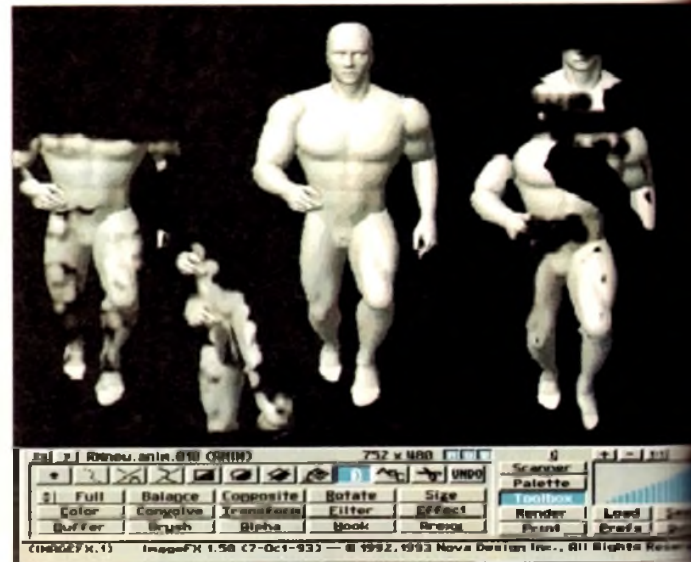
Moving on to creativity GVP assures that almost all the drawing tools have been either enhanced or improved in some way. As a result for now we'll concentrate on the newcomers.

As mentioned earlier, the palette has been improved with six new draw palettes each holding up to 256 colours each, but alas one aspect of painting within ImageFX hasn't changed, namely the actual application of colour.

Like its predecessor, the new program still insists on applying the brush stroke first followed the colour later after the operation is complete. As a result ImageFX still remains very much a second choice as a painting environment.

Until GVP realise that serious artists require real-time feedback, ImageFX will always be primarily an image processor with a paint package tacked on as an afterthought.

To be fair, the program's painting



Magical cut and paste with the new pantograph tool

abilities do provide some very useful image processing options within existing artwork. For example it's ideal for adding special effects at particular points or within ranged/stencilled areas of the image.

A perfect example of processing combined with painting power is the program's new pantograph tool which enables an area of the image to be selected and then duplicated elsewhere on the screen.

Generally speaking, most features have seen at least minor improvement as indeed have the program's I/O options which now boast more control and variety with support for FAXX, IMG8 and Sculpt along with much improved JPEG handling plus MacBinary TIFFs, GIFs, JPegs and Targas. Animation also scores

well with support for loading and saving both Anim5 and Anim7 in addition to FLI and FLC PC formats - most commonly used by AutoDeck on the PC.

Another innovation is the arrival of Magic buffers which if adopted by other programs will enable various programs to share the same image data held within memory - in a similar manner to HotLink. Only time will tell if Magic buffers will succeed where others such as systems have failed.

Finally the program's printing options have also seen some much needed attention with improved printing from both prefs and as PostScript. And of course with new features comes a huge amount of additional ARexx commands.

For the existing user base I'd say upgrading is a must as many of the problems associated with v1.03 are now gone for good to be replaced by an impressive range of new and improved features.

For more details contact Nova Systems on 081-309 1111.

### Good news for Yamaha owners

Due to certain compatibility problems with the Yamaha SY99 keyboard, a couple of new options have been added to the sample dump/fetch facility.

Ordinarily when receiving sample data from a keyboard under the Midi standard protocol, the individual data packets are acknowledged by the receiving machine. This allows for packets to be re-transmitted in case of error.

However, Yamaha have decided to ignore this and just pump out sample data in a continuous stream. This means that acknowledging the header and packets is not only redundant but also possibly damaging in terms of the software's ability to pick up all of the incoming data.

As a result SY99 users can now set this option to Off, whereas most users should leave it on.

Because the SY99 has no facility for recovering packets received with a checksum error, it can appear to drop packets from time to time when receiving long 16-bit samples. This means that although the Amiga has finished transmitting, the SY99's display will still show it waiting for one or two packets, and pressing Exit leaves a click at the end of the sample.

If this happens, you can now set this option to On and Clarity will transmit one initial blank packet before the sample data and then five extra blank packets at the end.

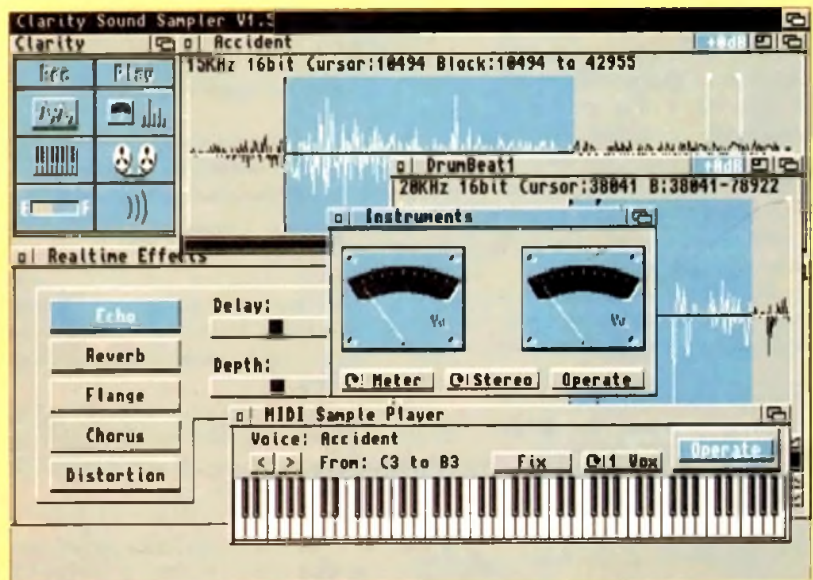
clears out all of the samples currently in memory - subject to confirmation. Another new addition is the Tidy windows facility which resizes and stacks all open sample windows in the top left corner of the screen, while Panel to Front brings the control panel to the fore when obscured by others.

Assorted keyboard short-cuts have also been added: Amiga-I brings up a sample's Info dialogue, block looping can be activated with Amiga-T while Clarity/Amiga output can be toggled via Amiga-1 and Amiga-2 keys respectively.

Finally the Save file formats function have been extended to include three and five-voice 8SVX files. Previously only one voice was supported. As you can see the software has come a long from its initial release and now ranks alongside the Amiga's best recording and editing systems.

In short, Clarity is perhaps the perfect budget buy for anyone with a sampling keyboard who wants to expand their horizons at the minimum expense.

For more details contact HiSoft on 0525 718181.



Yet another HiSoft for Clarity... also there's still sign of hardware add-ons





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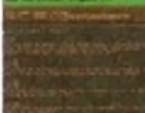
**CLE081 PAINT PASTE & DRAW** This is a stunning drawing/colouring book, containing lots of background pictures, brushes to paste on, and a editor to design your own. You can even add your own artwork to the picture. A superbly presented program, this one is a must for young children! 1 disk 3.50.

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**CLU03 TYPING TUTOR** A program here now for all you budding office clerks, learning to type can be a real pain, lessons cost a fortune, but not when you have an Amiga! This program will take you step by step through a full typing course, showing you to place your fingers and lots more. Before long you'll be able to type as fast as I can! Price £3.50.

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**CLE15 FAST PREY** By Keith Klutworthy, this program is a quiet action title, the very thing for the budding head hunter! Will play the scales through the Amiga's sound chip with adjustment of speed for every level of skill required! There are many exercises in many cases so you too can become the next rock legend! Supplied on one disk priced 3.50.



**CLG02 SPARK STOCKING FILLERS** by Lon Tucker, 3 super seasonal games for all the family! Christmas is a festive version of thengamez with six picture puzzles to sort out! Christmas pairs is a traditional 'pairs' game & Santa's sleigh ride is a sideways scroller where you have to deliver presents down chimneys! 1 disk 3.50.

**CLE026 PREHISTORIC FUN PACK** This is a superb title containing four fun dinosaur games, Dinosaur's life puzzle game, Dinosaur is a 16meg memory game, Snake & caves is the old favourite snakes & ladders, and Eggcellent is a fun egg collecting game! Will keep the kids amused for ages! 1 disk 3.50.



**CLG030 CAPTAIN K** This is an excellent platform game. The object of the game is to collect all the items scattered around each level & kill all the monsters. For this purpose you have an unlimited supply of bombs, which when thrown, bounce for a short time before exploding, killing any monsters nearby! 1 disk 3.50.

**CLE035 TOTAL CONCEPTS SOLAR SYSTEM 2** In this sequel to our most popular title, Chris Hill brings you the very latest of the Solar System! All the very latest planetary missions are covered & if you thought the images in TC1 Solar System were good wait until you see these 40+ images! This is a must if you have TC1 Solar System. Supplied on 3 disks only 4.99.



**CLG041 F1 RACER** This is a very professional game, 3d graphics in a Formula one type view seen from the driver's seat. Speed is subject to the speed of your machine (it really comes on an Amiga with super graphics & sound! Very impressive game! 1 disk 3.50.

**CLE044 TOTAL CONCEPTS DINOSAURS** In the latest TC1 title, Chris Hill takes a look at the world of dinosaurs. It includes the new superstar of the dino world Velociraptor. If you are at all interested in Dinosaurs this is a must to complete your Dinosaur library! Over 30 images supplied on 3 disks only 4.99.



**CLG042 CRYSTAL SKULL** This was written as a platform game, but has never been released. It is a 3d side on platform game, with a unique type game, space battles by, for them, investigate any one of 4 pyramids with its ghosts & goblins. This will keep your interest for ages! 1 disk 3.50.

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G013. THE REVENGE - Play ED 209 from Robocop in this violent shoot em up.  
G015. MEGABALL - A game that has received excellent reviews.  
G016. SIMPSONS - Televisions wacky family brought to life in this shoot em up construction site game.  
G020. LAME ST-PORTS - A space invaders type game, the object being to defeat Alan.  
G021. MASTER OF THE TOWN - The aim of this game is to cause as much damage as possible.  
G025. DRAGONS CAVE - A dungeon master style puzzle game.  
G026. DOWN HILL CHALLENGE - Good tile simulator.  
G028. PIPELINE - Casual game but too fast on A1200/A4000 due to superior processor.  
G039. SMURFHUNT - Plenty of gun power in this shoot em up.  
G040. PARADOX - Funny puzzle game.  
G043. WIBBLE WORLD GIDDY - A superb platform game. This is one of the best public domain games ever.  
G047. SUPER PAKKAI - If you like Pak games, then get this!! The best version to date.  
G048. NEIGHBOURS - (2 disks) An excellent graphic adventure, probably the best ever in PD.  
G049. FIGHTING WARRIORS - Budget version of Streetfighter 2 with good graphics.  
G050. BOMBS JACKY - The spectrum classic with vastly improved graphics and sound.  
G055. TEXAS CHAINSAW MASSACRE - Inspired by a true story.  
G060. 11 HOLE GOLF - The best ever public domain golf game. Great on 2 disks.  
G067. SPACE INVADERS 2 - A revised version of the classic game.  
G069. AMOS CRICKET - A good cricket simulator written in Amos.  
G060. TRON 2 - If you liked the original, then you can't miss this update. Faster and improved presentation.  
G061. ESCAPE - The aim of this excellent game is to run over tiles pushing specific ones down to open gates which allow you to reach the exit. Do it within a time limit to progress.  
G062. DR MARIO - Similar to a NES game of similar name but better graphics.  
G063. ASSAULT - This average game involves you shooting all the characters that pop up in the windows.  
G064. DEATH BINGERS IN SPACE - A Xenon style shoot em up.  
G065. ZOMBIE APOCALYPSE - Good fun with lots of blood and guts.  
G066. STARIANS - Bizarre platform game.  
G067. SUPER SKODA CHALLENGE - A good game for up to four players with track editor etc.  
G068. PREMIER PICKS - Very unique football management game, very well presented.  
G069. BILLY BURGLAR - Dodge lights to escape from prison.  
G070. AMIGABOY - The n game. Tally is widely regarded as the best on the Gameboy. It has now been perfectly converted with exact visual representation.  
G071. ACT OF WAR - A game of similar style to the original.  
G072. ADAMS FAMILY QUIZ - How much do you know?  
G073. PARACHUTE Joust - Guide the skydiver to the ground.  
G074. CAPD SHARP - Various card games.  
G075. JEWEL - A brilliant game.  
G076. TOP SECRET - Sorry, can't tell you!!  
G077. JELLY QUEST - The game by David McGurn was described by Amiga Magazine as "It's a superior brand of PD puzzle game and its looks can only be described as 'dead lush' if it went on to receive a 4 out of 5 star rating".  
G078. VENUS INVADERS - Excellent new version of space invaders.  
G079. THE RIGHT WAY - A great learning clone.  
G080. SUPER PRIX - A first-3rd view racing game.  
G081. PATIENCE - The best public domain version of this card game.

**UTILITIES**

U001. THE ULTIMATE BACKUP DISK - All the very best public domain copiers including DCopy, Tetracopy and XCopy.  
U013. BUSINESS CARD MAKER - A utility that can give professional results for use with any printer.  
U021. SYSTEM X - A telephone directory on disk. It even dates the numbers!!  
U128. 800 BUSINESS LETTERS - Over 800 letters of basic format ready for quick and simple modification in any word processor.  
U139. PRINTER DRIVERS DISK - An excellent selection of drivers to get your printer working perfectly.  
U140. LABEL MAKER - Excellent utility allowing you to make your own disk labels. We have added several fonts to give you more design options.  
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U167. WINDOWBENCH - A replacement for Workbench V1.3 in the style of Microsoft Windows.  
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U212. AIBB V5 - A good diagnostic program.  
U213. SYS INFO V3.11 - A disk that will let you know the technical status of your machine.  
U214. ENGINEERS KIT - A diagnostic disk, specially suited for engineers etc.  
U215. DISK REPAIRERS - Will allow you to try and make all your unusable disks work again.  
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U228. COLOURED ICONS - Transfer your disks into colourful, well presented works of art with this fabulous utility.  
U229. KIDS PAINT - An art package simplified for the younger amiga owners.  
U230. STAR VIEW - This program is designed to show graphically the positions of the stars and planets from any part of the earth.  
U231. AQUARIUM - Turns your screen into an eye catching fish tank.  
U232. OCTAMER V2 - Latest version of the famous music package.  
U233. NUMPAD FOR A800 - A program that makes the A800 think its got a numeric keypad.  
U234. ADDRESS PRINT V3.1 - Very useful if you make regular postal correspondence.  
U235. IFF BOOT - Displays a picture whilst your hard disk boots up.  
U237. PAY ADVICE ANALYSER - A very useful program for keeping track of pay tax and national insurance.  
U238. CANNON PRINT STUDIO - A Cannon printer? This disk is essential for brilliant results.  
U239. FANCY PRINTING DISK - Contains Banner Graph Paper V1.2 and Disk Print V3.8.  
U240. BBS&SER - An easy to use versatile yet fully featured database. Greatly enhanced successor to bBase!  
U241. ADM V1.01 - Flexible address database with loads of great features.  
U242. LITTLE TRAVELLER V1.1 - This utility shows a world map and allows you to select any country for travel information. It then zooms in giving a close-up map with more information.  
U243. BANNER MAKER - Creates spectacular printed banners.  
U245. PROTECTION - Keep unwanted users from playing with your Amiga.  
U246. PARBENCH - Link up two Amigas and communicate with each other.  
U248. TEXTENGINE V4.1 - Sent direct from author Nicholas Harvey, this excellent program has all known bugs fixed. Has 36 000 word spell checker.

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E004. WORLD WAR 2 - Good history aid.  
E008. WORLD GEOGRAPHY - Very useful utility.  
E007. KIDS DISK 1 - Excellent reading utility.  
E008. LEARN AND PLAY 1 - For younger amiga users, very popular.  
E009. LEARN AND PLAY 2 - See above usually ordered as a 2 disk set.  
E010. GCSE MATHS - Good, written by a teacher of the subject.  
E011. LANGUAGE TUTOR - French, Spanish, German and Italian.  
E012. AMIGAWORLD - This piece of educational software contains details on every country.

**DEMOS**

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D019. SIMPSONS SLIDESHOW - Pictures of televisions wacky family.  
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D025. SAM FOX - Slideshow.  
D035. RUDE NOISES - Hilarious samples.  
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D138. WAR SIMULATOR - Samples that could get you a day off school or work. Sounds of sickness and war. Try it. Don't be phoned!!  
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D199. STRIP SLOT MACHINE

**VIDEO ART**

V026. TV GRAFFIX - Loads of backdrops etc. for use with genlock. Also fonts for Dpaint. (2 disks).  
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V171. HARLEQUIN FONTS 1 - Loads of excellent Hi-Res fonts.  
V172. HARLEQUIN FONTS 2 - More of the above.

**VIRUS KILLER**

V001. SUPERKILLERS - Highly recommended as it could save you £££. Essential for hard disk owners. With no virus protection you are putting your entire software collection at risk. Regular updates to keep in touch with all virus activity. Separate versions for AGA machines.  
At our disk are virus free.

**MUSIC**

M001. MUSIC MODULES - A massive 10 disk collection of good quality music modules. All of soundtracker file type for use with RSI Demo maker, Notepayer and many other applications.

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A024. FIT CHICKS - A collection of grrly pictures for the A1200 only. (2 disks).  
A025. FREAKS BODY SHOP - A small selection of grrly pictures.  
A030. FERRARI PICTURES - Pictures of a new model from the worlds most exotic car maker. Good 256 colour pictures.  
A036. NIGHTBREAD - Many pictures drawn in 256 colours. (2 disks).  
A042 - AGA TETRIS - Controlled with the cursor keys, the excellent conversion of probably the most addictive game ever, now available with 256 colour graphics.  
G082 - AGA CHESS - An excellent game but you will need 4mb of ram to get it to work!!  
U001 - ULTIMATE BACKUP DISK - This compilation includes DCopy V3.0 which is probably the only copier that works successfully on the A1200/A4000.  
U123 - WORKBENCH HACKS - Many useless special effects for workbench V3.0.  
U118 - MORE WORKBENCH HACKS - Guess what?  
U255 - WB V3.0 INSTALL - If you need to install your hard disk then you need it!!  
U256 - A1200 DEGRADERS - An essential purchase for AGA owners. Includes Fake Fast Mem, The Degradar, Diskstart, Kai AGA V2 and Helpful hints.  
U257 - VIEWTEK V1.03 - An essential purchase allowing you to display AGA graphics.  
U258 - HOMEN - This utility allows you AGA machine to use your hard disk as virtual memory. If you've got a 16MB hard disk then you can't have 80MB ram. Requires FMU, MMU etc.  
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Hi Qu... AMIGA AND COM



So, techno-fear has given way to a strong curiosity to find out what else this powerhouse can do for you. But on investigating the sea of Amiga applications, you find that the prices of utilities and games seem to only make them affordable once a month, or even once a year when Mr and Mrs Santa Claus are feeling exceedingly generous.

The only other alternatives are to start programming yourself or, more easily, take a look at the public sector for utilities and other assorted oddities that may come in useful and, at the cheaper price, are probably more tempting than delving into the complex world of coding software - for the time being.

After checking out the regular Public Sector feature, you spot a couple that show promise and order them. In a few days, they arrive on your doormat.

Booting them up, you realise that there isn't a hard disk install option. A few clicks of the mouse button later, the screen doesn't provide any helpful information - it seems that you are doomed to floppy disk as far as the PD is concerned, unless...

### INSTALLERS

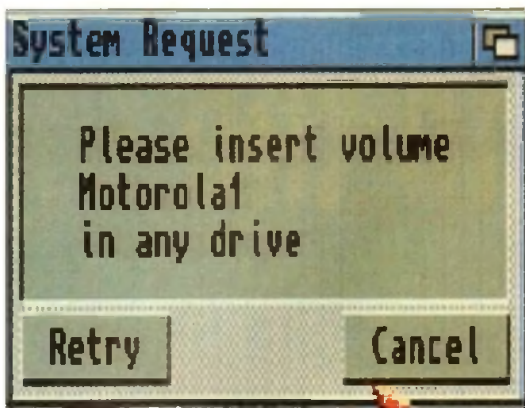
Many programs, whether commercial or public domain, don't usually have hard disk installers for the software. This is down to either sheer laziness on the part of the programmers, or the more legitimate reason that making a product hard drive installable tempts the grubby hands of pirates to download every game they can get their hands on into their hard drive for illegal distribution.

Fortunately, there is a way to transfer information off a floppy onto the hard drive for personal use. First of all, make sure that the desired floppy is inserted in the drive, then go over to your DH0 icon and open the hard drive.

Simply drag the floppy icon and place it in the DH0 window. The lights on the computer representing both hard and floppy drives will flash on and off for a while until copying has finished and all information has been copied and transferred.

Once done, eject the floppy and open the drawer that has appeared in the hard drive window. Inside, you should find the contents of the copied disk. Try double clicking on the program's boot icon to see if it will load. Nine times out of ten, a window will pop up telling you that there is no disk in DF0 (the disk drive).

Now reset the computer and you'll probably find (unless you're extremely lucky)



A drawer will appear in the hard drive window with the floppy's contents

Without the correct Assign command, the computer becomes a tad confused

# Assigning your files away



Adam Phillips delves into the more intricate workings of that plastic, chip-ridden hulk, the Amiga 1200

that same problem still exists. This is simply down to the fact that the startup part of the program is telling computer that it will find the rest of the information in the floppy drive so therefore bypassing the hard disk altogether.

This can be overcome in most cases by the use of the assign option. This is a typed-in command used in the Shell system (the icon is usually found under

the DH0 symbol).

In simple terms, assigning files and the like is like a diversion on the road - it tells the computer to take a different route as specified by you, the user.

Select the Shell icon and a window will open; type in:

```
ed s:user-startup
```

The ed stands for edit as in changing the current set-up, s stands for the directory that you wish to alter - the computer will always hunt out this particular directory whenever trying to boot a program up.

The colon is important for defining each partition - each "wall" between different directories, drawers and files so that the computer can recognise they are separate.

User-startup is the actual area in which you want to make the changes - anything in here is not automatically booted by the computer on switching on but requires the user to select and tell the computer to boot it in.

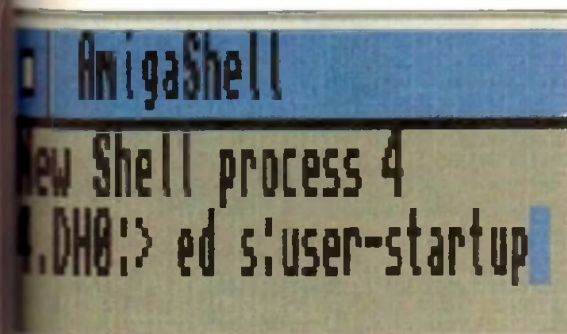
On pressing Return, you'll be presented with another window representing the user-startup. Simply find a clear line and type in:

```
Assign (THE NAME OF THE FLOPPY DISK):(SPACE)
(THE DIRECTORY NAME WHERE THE DRAWER IS):(NAME OF DRAWER) .
```

This simple command tells the computer that the floppy disk info that program needs can be found in a specified directory in a certain drawer on the hard drive. For example - Assign Funky Fun: DH0: Funky Fun.

Once this is done, press on the box gadget in the top left-hand corner and you will be asked by the computer if you wish to save the changes you have made. Hit the Y key, then reset the machine and have a go at loading your program from the hard disk.

Unfortunately, this process doesn't always work but don't worry. I'll be back next month to take you a stage further along that twisty, windy road of Amiga Shell commands and libraries...



The Shell box where the editor can be called up and the Assign command typed in



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This superb book includes coverage of the A1200 and A600, Workbench familiarity, preferences, utilities, beginners AmigaDOS, programming, fonts, printers, graphics, music and sound, public domain, viruses, upgrading, comms, desktop video, multimedia and much, much more.



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**Premier Manager 2**

This is the latest football management sim from Gremlin. Following on from its predecessor, Premier Manager 2 takes the whole football management scenario one stage further, and although more complex than the first version, loses none of the addictive appeal which made it the success it was.



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There's quite a selection of titles this month, from games and music demos to handy utilities and superb animations.

Amiga PD seems to be maintaining its excellent standard by producing useful and entertaining products. Keep sending in the software – the more variety and diversity



# PUBLIC SECTOR

## Now That's What I Call Games Volumes 1&2

Produced by: Multi Media Machine

Available from: Most computer retailers  
£19.99 each

The Amiga CD32 – the saviour of Commodore, or so they would lead us to believe. Like Atari, the once big boys have suffered cruelly at the invasion of the consoles and at the hands of the software pirates. Kids are interested in games and don't really care much where they get them from.

Enter the Mega Drives and Super Nintendos of this world and you have a revolution of buyers on your hands with the majority opting for a single purpose machine to hammer away at a joystick.

Then, with a huge burst of inspiration and surprise, Commodore released the CD32, an A1200 with a CD-ROM drive and no keyboard.

Backed up with promises of dozens of titles available by the time Christmas rolled around and an anticipation whipped up by the Amiga mags (includ-

ing this one), things looked set to be a startling success.

Well, as usual, the ideal promises and hopes have fallen to the wayside to reveal a much more realistic and therefore unfortunate situation.

While there have been a dozen or so releases, nearly every one has been a direct port over from existing software found, in some cases, on your trusty A500.

And while the games themselves may well be good in many respects, they are not the flagship products like Sonic, Mario and Starwing that the CD32 needs to help it make a real impact on the market.

Even the likes of the excellent Liberation from games maestro Tony Crowther lacks the instant "buy me now!" appeal that has sold so many consoles in the last couple of years.

With the likes of the 3DO and Jaguar getting ever closer to the shores of

## As the air warms and the frost thaws, Adam Phillips peruses the latest PD releases with a spring-time passion

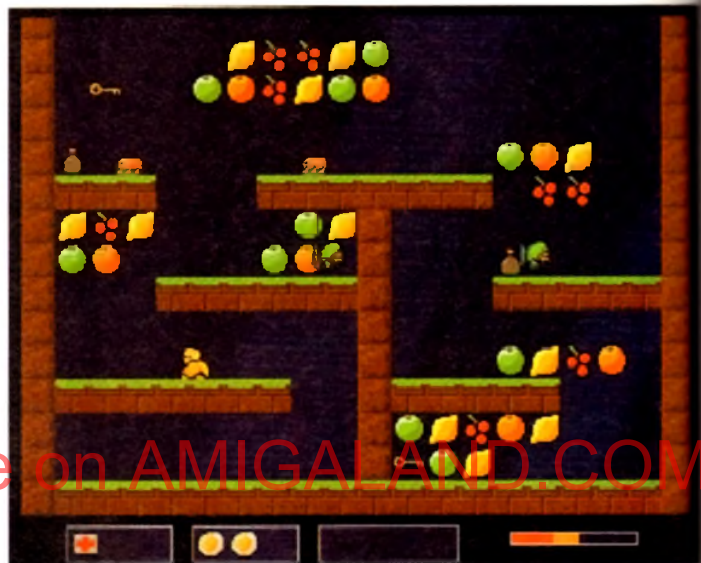
Blighty, Commodore needed to get its foot in the metaphorical door, grab a fair size of the game playing public this Christmas and reap the benefits. Unfortunately, from where I'm sitting, they've missed their golden opportunity.

Surprisingly, one of the last places you'd expect to find public domain and shareware programs is on a CD, but it's now possible to lay your hands on over 200 different titles (perhaps Commodore commis-

sioned this to reach their software targets). Each volume contains 100 programs, and the first disk has a selection of demo animations.

Obviously with such a huge library on offer, you're bound to find a few titles that you'll enjoy playing (such as Bomb Jack reviewed in these pages a few months back) and if you're a PDophile, this could satisfy your desires greatly.

On the down side, what's the point



Grab the keys and move to the next screen without being annihilated by the bugs

## Mean CD Machine

Programmed by: Craig Collins

Available from: 17 Bit Software  
Disk No. 2872



The Amiga is regarded by amateurs and professionals alike as an excellent machine for computer animation, effects and other film and video oriented jobs.

Animation is a big favourite of the people in the office – the editor and associate editor regularly hammer out short sequences on Imagine 2.9.

Imagine, if you will, my delight when this little beauty inconspicuously fell out of an envelope and straight into my disk drive and turned out to be so good.

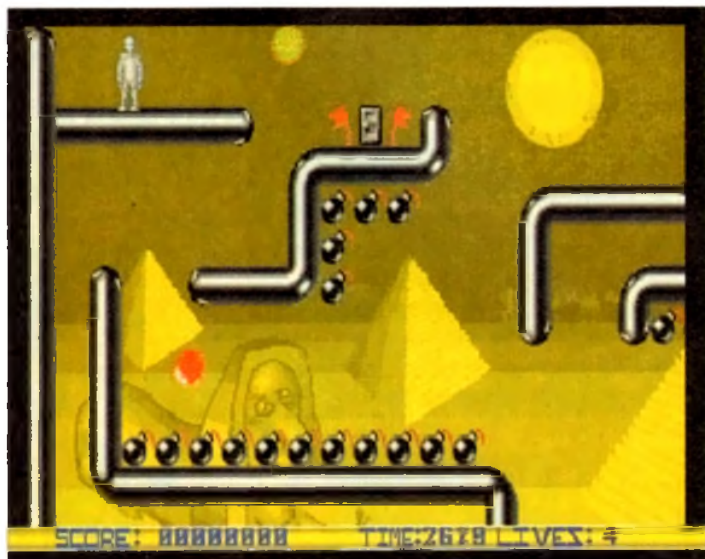
The lengthy black and white anim tells the story of the CD wars where the Mega CD, CD-I and CD32 meet head to head as ray-traced cars in race with a human deity overlooking the affairs.

After comparing each others capabilities, this being decides the fate of each competitor and surprise, surprise, the CD32 comes out on top leaving the others as they morph into gravestones on the track to hell.

This may sound a little bizarre and tacky, but compared to the cruddy advert on television at the moment which boasts a large robot blowing up while playing Microcosm "cos it canna handle captan", this animation is a work of commercial art with well used, not overtly elaborate and, dare I say it, pretty well directed.

Included are various controls for speeding up and slowing down as well as pausing the action. On the downside, it eats up a fair size amount of memory – 1Mb of chip RAM and at least 3Mb of fast RAM.

If you have the facilities then Mean CD Machines is well worth snapping up and enjoyed in its full raytraced and morphed glory. Impressive and talented stuff.



A collection of 16-bit PD games on your latest 32 bit CD ROM mega console – why?



selling out this kind of money for "the ultimate games machine" only to be given something that seems to be nothing more than "let's try and keep them happy" marketing move? I wanted to get my teeth in to something with some real 32-bit games playing meat.

Also, half of the progs on offer can only be played with a mouse or keyboard meaning that the average punter is going to have to shovel out more money.

One of the most annoying features of the packs is the need to reset the machine every time if starting on a new game or, more frustratingly, after a short animation.

Now That's What I Call Games series maybe a nice budget idea for computers but for £19.99, I'd advise saving up your pennies instead and buying Liberation that begins to show what the CD32 is capable of. Plus it's guaranteed to keep the midnight oil burning into the wee hours and beyond for a lot longer than NTWICC is.

## Quackers

Programmed by: M.Pratt

Available from: Michael Pratt

Unusual, another set of particularly loathsome aliens have landed on a peaceful planet somewhere in the universe and have corrupted and possessed various inhabitants including King Duck and his Cats.

It's your job as the heroic duck figure to move through 20 levels split between four worlds including Brick City,



Play a classic card game with this slightly saucy version from the shores of the Netherlands

Christmas Land and Duck Land. By moving across platforms, collecting fruit and other goods, the object of each screen is to grab all the keys and make for the exit without being killed, maimed or the time running out.

Part of your lethal arsenal of weapons are fried eggs that seem to have a diverse effect on the foe. On completing each world, it's onto killing the end of level baddie which in this case, is very easy indeed and looks like a post box.

The game works relatively well but lacks the polish to make it noteworthy. There is no animation on the main sprite and it has a tendency to stutter across the screen instead of moving smoothly and seductively.

Quackers is by no means a bad game, requiring skill and precise timing in some places but it just looks like an idea that

could have been exploited more and worked much better - perhaps by including a two player option to make it even more like Team 17's excellent Qwak.

## Klondike Deluxe AGA

Programmed by: Remy Nusteling and Koos Roodbol

Available from: Exclusive PD

This traditional card game, like many others, has now reached the chips of your local computer courtesy of the PD scene. On looking at the pictures, you may think that this is another venture into the smutty underworld of pornography.

Well, perhaps strictly it is - scantily clad women in suggestive positions - but on closer inspection the images are a hark back to the titillation days of the 50s put together with an absorbing game, providing harmless fun for the average male player (like Biff, our Gamer editor, who says he can't stop) when compared to the hardcore, explicit nature of the material accessible to most children with a computer and disk drive from the more seedy PD libraries and bulletin boards.

The game itself is an addictive and challenging title of strategy, logic and the vital ingredient, luck, where the player must put all the cards in the relevant suits whilst not trapping yourself in a no-win situation - very similar to Patience.

The presentation is of a high standard, whether or not you agree with the material on display. - solid AGA renditions of the cards are polished and professional, the only problem being a certain glitch running across the card faces once in a while.

If you're a cards fan and own either an Amiga 1200 or 4000, this is a cheap computerised version of a classic solo game.

## Footy

Programmed by: Andy Mac

Available from: Virus Free PD

For those of us with a dream of winning the pools one day then Footy could help us take a step closer to making fiction become a reality. A dedicated database, this

ARSENAL	ASTON VILLA
BLACKBURN ROVERS	CHELSEA
COVENTRY	EVERTON
IPSWICH	LEEDS UTD
LIVERPOOL	MANCHESTER CITY
MANCHESTER UTD	CHARGE DIVISION
MURKICH	NEWCASTLE UTD
QUEEN'S PARK RANGERS	OLDBRAW
SHEFFIELD WEDNESDAY	SHEFFIELD UTD
SHINDON	SOUTHAMPTON
WEST HAM UTD	TOTTENHAM HOTSPURS
	WIMBLEDON

Punch in your statistics and cross your fingers to hope for an accurate prediction...

mouse-driven, user friendly program allows you to keep track of what's happening in the football league.

The user is able to enter all current information about any team. By tapping in a mass of details including home wins/draws/ losses, goals scored and conceded as well as away info, a full picture can be drawn up for the avid footy fan.

Also included is a forecast routine which attempts to tell you who'll draw in that vital next match. Be warned though; in the author's own words: "Obviously, it is not entirely accurate or I would not be sitting here writing..."

Footy receives the public sector seal of approval because if it does give you a better chance of winning then it has to be recommended.

## The Ultimate Icon Editor

Programmed by: John Scheib

Available from: Virus Free PD  
Disk No 393

Last month's excellent Magic Workbench offered a large selection of different features for your Amiga from various backdrops to programs to alter the squeaks and

## Calling all PD libraries...

...and individuals with anything remotely worth my while having a peek at. If you want something released as PD, or you're a library with stacks of hot new stuff that you haven't seen reviewed in these pages yet, why not drop me a line with a copy, full documentation and everything clearly labelled? I promise I'll at least look at your work.

From music to education, business to utilities - anything you feel deserved your shoving onto a floppy disk, lemme at it and I'll do the rest. Address?

Adam Phillips, PD submissions,  
Amiga Computing  
Europa House, Adlington Park,  
Macclesfield SK10 4NP



The Mega CD has already bitten the dust. Viewing the CD32 and CDI to compare statistics as the camera looks on...



Due to the CD32's superior features, turbine objects morph from the back of the car in excellent computer rendering



The supreme being slowly twists its hand and clenches its fist, deciding the fate of the loser...



The CD32 car literally flies down the track as a gravestone of the CDI motor spins on the track below



That gravestone in full 3D rendered glory



The CD32 motor glides over the finishing line, hands are raised and the CDI is proclaimed winner





Either choose icons from the vast selection on offer or create your own with the Icon editor

squawks made by your machine. Its only limiting omission, while providing the user with some very tasteful icons, was the lack of a large library of both images for icons and differing sound samples.

The former has been seen to now with the release of the Ultimate Icon Editor which has both a collection of dozens of icons for use as drawers, files and any other opportunity you can think of, and a drawing package for the design of your own miniature works of art.

The pictures provided range from basic disk symbols that simply invert colours when clicked on to various symbols that change when activated.

The standard of these pictures are not up to the plushness of the small amount offered by the Magic Workbench but is high enough to be attractive and effective.

It's a worthwhile purchase with useful facilities to make even the most ugly of screens start to show its true colours.

## Address Print

Programmed by:  
**Paul Lathwell**

Available from: Paul Lathwell

Address Print is a useful program for labelling packages and other postal items. By using the simple and easy to use point'n'click interface, the user is able to create a single or an entire database of address labels to be used at home or work. On offer are an extensive list of controls for precision printing such as label pitch, style, colour of writing, left margin size and a draft or near letter quality selector.

The package also includes a Doc Dump, a printing utility, that reduces the amount of paper required to print an Ascii file on a Epson 9-pin printer.

This is a useful and worthwhile product that could come in very handy for home users and small business owners alike.



Create your address labels with this handy little utility

## Making Trax Volume One

Produced by: P.A.L.E.  
Available from: Paul Lavin



For those music hungry PD goes out there, this months offering from newcomer, Paul Lavin, has four tracks featuring Jean Michel Jarre-isque melodies, rave songs using samples from Yello and one called "Oy you! Shut your mouth and look at my wad", which is accompanied with a revealing image with pound and dollar signs emblazoned across it.

Also included are various rough-around-the-edges digitised pictures used as backdrops painted by every pre-pubescent's dream artist, Boris Vallejo which depict women in various states of undress astride large dragons.

The samples are clear and crisp making this well worth checking out if the music is up your street.



Turn on, tune in and drop out...

## Lay your hands on me

Exclusive PD, 7 Beresford Close  
Waterlooville PO7 5UN  
Tel: 0705 642409

17 Bit Software, 1st Floor Offices  
2/8 Market Street, Wakefield  
WF1 1DH  
Tel: 0924 366982

Paul Lathwell, 3 Sweetbriar Close  
Gadebridge, Hemel Hempstead HP1 3PA

Tigersoft, 94 Mure Ave  
Kilmarnock KA3 1TT

Paul Lavin, 59 Sealand Avenue  
Sealand, Deeside CH5 2HN £1.40 incl p&p

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# GAMER



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CD32 ROUND-UP ● ALL THE LATEST NEWS FROM THE WORLD OF AMIGA GAMES**



**Baby, you can build my car!**



Impressions Software, the people who brought you Air Bucks, are pleased to announce the imminent release of the ultimate automobile simulation, entitled Detroit. You can design and build the car of your dreams, take on a workforce, mass produce them and try to make your fortune in true Henry Ford style.

Detroit begins in 1908 and runs through to 2008. You can invest in research and technology, decide which car systems to invest in, and then at any stage design a new car using the technology available to you at that time.

Using simple and intuitive mouse-clicks, you can select which of each sys-



tem you want for your car and then see it appear on the prototype in front of you. You even get to choose what goes inside the car and what it looks like!

As managing director of the car company, you must decide how many factories or assembly lines to allocate to producing the model of car, and how to market it in each territory.

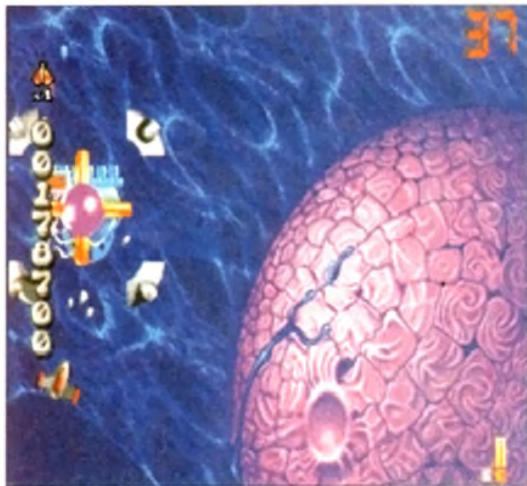
The program will enable you to choose from magazines, billboards, sponsorships, radio, television and other media to promote your range of cars.

The simulation features many possible types of vehicles, including sports cars, sedans, wagons and even trucks. Impressions boast several other features such as unrivalled flexibility in how to play the game and most important of all the fact that it is amazingly playable!

The company, famous for its excellent strategy games, say that Detroit is the biggest and best Impressions product yet. The game should be on the shop shelves sometime in February.

# Gamer GLOBE

**More meaningful pieces of news about great and really quite impressive software products to arrive on the Amiga in the forthcoming months... oh yes!**



## Super Stardust hits the A1200

Bloodhouse are currently working on a spectacular A1200 version of their highly acclaimed shoot-'em-up, Stardust. The game which received 92 per cent and a coveted Gamer Gold award back in our Christmas issue is a shamelessly brilliant interpretation of the old Asteroids arcade game.

Bloodhouse are apparently out to prove just what the A1200 can do! It's due for release in May and will feature new enhanced 256-colour graphics, ray-traced backgrounds and enemies, stereo sound, spectacular parallax scrolling 3D tunnels and will be hard disk installable.

The boys from Helsinki also have a few more tricks up their sleeves for Super Stardust. They're keeping a bit quiet about it so far, but A1200 owners can expect startling new levels to clear, horrible new enemies to tackle and few more sur-

prises which we're not going to be told until nearer the release. CD32 owners don't have to despair because also coming in May is a version of Super Stardust which includes a new CD-level soundtrack, effects and out-of-this-world graphics! Expect screenshots and information as we get it!

## Gremlin sequel bonanza

The next product from top software house Gremlin will be the sequel to Utopia entitled K240. You play the role of an independent who has recently established a pioneering colony at K240, an asteroid high in mineral deposits. However, as you expand your operation, a strange phenomenon starts to occur.

At first you dismiss the loss of your scout craft as an accident. Only when a similar ship begins to probe your craft do you realise you're not alone! As the commander of your ore extraction colony you have several objectives, all of which must be carefully managed if you are to be successful.

First and foremost is to explore, enlarge your colony and expand your mining operations, so you can extract more ore and sell it to the Empire. Utopia 2 will feature six different alien life-forms to fight against and each will utilise their own policies and attack strategies.

The game will feature sophisticated digitised speech and atmospheric sound effects. A superb cinematic opening sequence will set the scene for your asteroid strategy adventure.

Having played a rough demo of K240, we can report that it is looking really good. Strategy and Utopia 1 fans should look out for it when it hits the shop shelves in March. A preview of Gremlin's K240 is in the next issue of Gamer.

Next month we will also be taking a look at Gremlin's Hero Quest 2. Subtitled the Legacy of Sorasil, Hero Quest 2 will be the first in the new Hero Quest Masters series.

Choose a party of intrepid adventurers from eight would-be heroes. A paladin, a



**K240: Gremlin's futuristic sequel to one of the best ever strategy games on the Amiga**



**The ship construction yard, just one of the features of the K240**





## Overload!

Dark Horse International is about to launch *Max Overload*, a fun-filled comic combining game heroes, humour and stunning full-colour artwork, and featuring stars from the Amiga games world including the Lemmings and Chuck Rock.

Gamers who have had trouble keeping the suicidal green-haired Lemmings alive in the Psygnosis classic will enjoy the chance to sit back and let them look after themselves for a change. The rampaging rodents are brought to life in a series of manic misadventures by writer Dick Hansom and illustrator Graham Manley.

Core Design's best-selling caveman Chuck Rock also finds himself making the transition from pixel to page as his beer-swilling and pizza-guzzling antics are brought to life by artist David Lytleton and writer Celn Ridout.

Dark Horse International have been publishing comics in the UK since May 1992. Their parent company, Dark Horse Comics, were formed in 1987 and are now among the leading independent comic publishers in the US. Previous Dark Horse Comics have included *Aliens*, *Star Wars*, *Predator*, *Robocop*, *Sin City* and *Give Me Liberty*.

The first issue of *Max Overload* containing 64 pages of full-colour gaming mayhem goes on sale on February 15, priced £1.95.



Hi Quality Version Available on AMIGALAND.COM



The happy band of adventurers head off on their quest



You can choose from eight characters in *Gremlin's* forthcoming sequel

fighter, a cleric, a mystic, a mage, a barbarian, an adventurer and a ranger are all in there, complete with their specialist skills to return the land - which is in turmoil, by the way - back to a peaceful state.

Presented in an atmospheric 3D isometric viewpoint, *Legacy of Sorasi* features some stunning graphics, eerie sound effects and chilling in-game tunes. It's all icon-driven, easy to learn and features endless hours of solid gameplay. Avid adventurers will have to wait until March to get their hands on *Gremlin's* adventure sequel.

# INNARDS

Are you looking at me? Are you looking at me? Well, stop it and look at the games stuff we've got for you this month!

## REVIEWS ● REVIEWS ● REVIEWS

**Star Trek** ..... 109

*Simon Clays boldly goes where everyone has been before, but beware of his dodgy gags about toilets and Klingons!*

**Jurassic Park** ..... 110

*Ocean's biggest film licence ever hits the small screen. Is it a Jurassic classic or a pre-historic monster?*

**Fantastic Dizzy** ..... 112

*The return of the egg with attitude. Codemaster's fry up yet another helping of yolk-filled platform fun*

**Cool Spot** ..... 114

*He's cool! He's spotty! He's Cool Spot! Get out your shades and your Biactol and take a look at Virgin's hip and happening platformer*

**Pirate's Gold** ..... 115

*Yo ho ho me hearties, 15 men on a dead man's chest and more cliched pirate sayings in MicroProse's CD32 action/adventure, set on the seven seas*

**Skidmarks** ..... 116

*We're only a few weeks into 1994 and already we think that we may have found racing game of the year! Oh and there's only one cheap gag in the whole review*

**F1** ..... 118

*Domark take to the track and rev up their engines in this multi-player, err Formula-One-'em-up. Brmm Brmm!*

**The Labyrinth of Time** ..... 120

*Electronic Arts' amazing CD32 adventure arrives and it's hotter than the centre of Mount Etna*

**Tornado** ..... 122

*Grab your helmet, zip up your flight suit, grapple with your yoke and take to the sky in Digital Integration's latest flight simulator*

**Campaign 2** ..... 125

*Empire return with the sequel to one the greatest war simulators ever. Simon Clays gets tanked up... again!*



Tornado

## REGULARS ● REGULARS ● REGULARS

**CD Round-up** ..... 126

*Hold steady your joypad and skip along to the page where the latest bundle of releases for the CD32 are reviewed*

**Cheap Seats** ..... 127

*More bargain budgets for all those strooge-like gamers who can't be bothered to kick-start the British economy*

**Cheat Mode: The Addams Family** ..... 128

*They're ooky, spooky, hilarious and, err I've forgotten the last bit, but a full set of hints on how to complete Ocean's platformer is showing in 21 pages time!*



**W**hen Star Trek beamed itself aboard the Gamer shuttle craft I undertook a solemn oath, along with other red jerseys among us, not to indulge in any Trekkie-type rhetoric.

But, not five words into the opening stanza and look, Star Trek-type utterances are splattered across the page like so many Klingons after a run in with James T Kirk.

The point is dear reader, that love it or hate it, Star Trek is one of the most infamous programmes ever to grace the tube of a TV set.

To celebrate this much maligned fact and to say happy 25th birthday to all the crew, Interplay have released Star Trek The 25th Anniversary.

While not the most imaginative title to be dreamed up by the marketing departments, it's very direct and leaves you in no doubt at all what it's on about.

The first and probably most important thing to say is that all the stories and missions in Star Trek feature the crew in their prime back in the heady 60s.

Most folk quite enjoy the special effects that technology has heralded and agree the all-new Enterprise is kitted out with far better equipment and decorated far more tastefully, but 25 years in space have left the crew a tad haggard and worn.

No amount of techno wizardry or plenitude of surgical trusses can reduce the pounce poor Scotty has developed, or the look in his eye that says that death is but a dilithium crystal away for the chief engineer.

Sulu has completely lost his ninja skills and no longer strips to the waist after turning psychotic at the Enterprise parties. McCoy pawned his medical kit because the bugs under his eyes are so huge he can keep his tricorder in them. Uhura is

now a Grandmother and can't hear a thing that crackled across the radio waves of space, while Soviet representative for the federation Chekov has a speech impediment so severe that can't tell his "yessels" from his "yodka".

Even the big cheese himself, James T, has had severe problems, and during a freak transporter accident had his hair replaced by a strip of shag pile carpet.

As for poor Spock, the pioneer of the combed forward hairdo, he's developed a personality, took on a day job on Mission Impossible, saved up his money and bought himself a set of paranoid sexual characteristics and now ages at the same rate as a human.

**WHIZZING**

Star Trek begins in much the same manner as the TV show, with the Enterprise whizzing past you, while the music we're all accustomed to bounces merrily along. Then, to make things even more akin to Gene Roddenberry's creation, you get the title of the episode, or mission.

Once on the bridge of the Enterprise, the game unfolds and control of the main characters becomes yours. On the bridge each of these characters has specific tasks to perform. Each of these corresponds to the role the character took on in the show itself.

For example, Sulu is responsible for taking the Enterprise in and out of orbit, whereas his counterpart Ensign Chekov controls the navigation and the weapons system.

However, when it comes to control of the aforementioned systems it's you who guides them and fires those lethal phasers and photon torpedoes.

The ship itself has all the systems that you'd expect of the Enterprise for you to take care of,

# STAR

## The 25th Anniversary

Take it to

### Lieutenant Commander Scott

The ultimate grease monkey. Whether it be the precious dilithium crystals (of which there seems to be only a handful in the universe) or a flat tyre, Scottie's your man.

Is afflicted with the worst Scottish accent ever and is obviously a fake unless he hails from some minute island in the North Sea that doesn't have a Scottish accent.

### Lieutenant Sulu

Sulu is the model officer and perfect helmsman. That is until he starts fantasising about Bruce Lee movies. Then he strips off to the waist, starts bitching at the other crew members and eventually picks a fight.

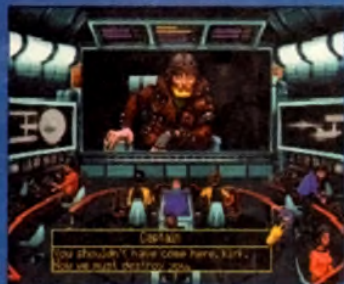
It's commonly believed that he's jealous of the captain, because the girl with the clipboard who gets Jim to sign her autograph book every episode never asks him.



There's Klingons on the starboard bow. Blimey, I've got some on the seat of me pants now as well



This is the map Chekov uses to guide the Enterprise to mysterious planets. Personally I'd have bought an A to Z



So, Mr Space Pirate, you have two minutes on your specialist subject: Being outwitted by a bloke in a yellow jersey and a corset



### Lieutenant Commander McCoy

McCoy is the ship's senior surgeon and a dab hand at fixing people up by waving that torch-shaped thing over them. This is a good thing as he has a severe drink problem and the only correct diagnoses he ever gives is that of death. Involved in a love triangle with that blonde nurse who sinks around the medical bay, and Spock.

### Captain Kirk

Wears a nice tight yellow jumper which means that he stands no chance of getting killed and is the captain of the ship. Possesses some real hard stares and dips his trousers in pheromone which means that he gets the alien dolly bird every week.



# TREK

It's time to coin as many clichés as is humanly possible and boldly go where no reviewer has gone before

to the bridge

## Ensign Pavel Chekov

Chekov is the ship's communication officer and this says a lot for the efficiency of the ship due to the severity of his speech impediment which renders him impossible to understand.

Subsequently, this has made it extremely hard for him to keep his grubby Russian mitts off the totty for five years. Loves beaming down to those planets which are a reflection of some stage of earth's development in case it turns out to be the Parisian whorehouse episode (you know, the one Spock couldn't see the logic in).

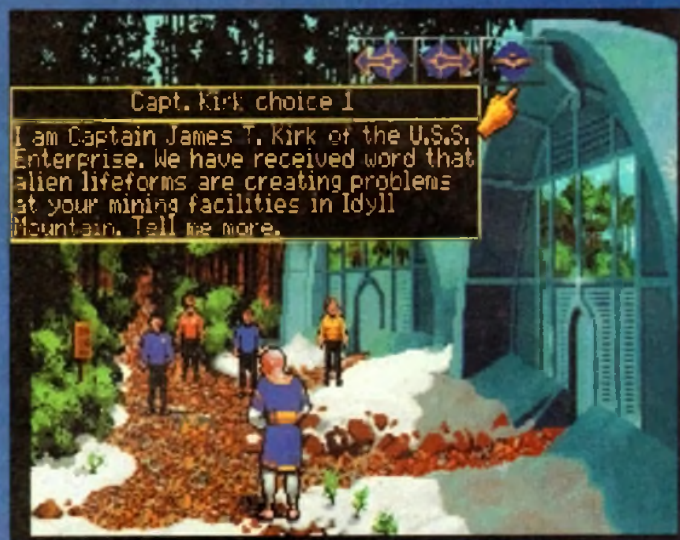
## Commander Spock

Mr Logic himself is half Vulcan and half eunuch. Before becoming the brainiest man in the universe, Spock worked in a massage parlour but had to leave after rendering most of the customers unconscious. Once did a mind meld with John Major and after finding there was nothing there donated his sense of humour to him.



## Lieutenant Uhura

She is a native of Africa and her name means freedom. She got the job of receptionist from an agency in Cambodia and has since been taken on full time. Has a great singing voice and delights in reciting Shirley Bassey's Bond themes in the ship's recreation area, while Spock fiddles with his tyre.



Having beamed down to a dubious area of Manchester, Jim makes small talk with a transvestite

and these are all displayed on the bridge display.

It's the pessimistic Scotty who takes control of the shields and power, and when the ship's engines get stressed he'll gleefully scream "the engines canna take it cap'n!" in a Scotch Canadian accent.

Principally, you take on the role of Kirk who orders the other crew members to perform tasks on his behalf. For instance, if an object requires looking at, then via your instruction, Kirk will instruct the relevant crew member carry out your command.

As far as the missions are concerned, there are eight of them in total. They blend a combination of control of the Enterprise to a planet or a hostile region of space with beaming down a crew to the surface to investigate a mystery.

Using the trusty mouse for control, Star Trek styles its play in much the same way as Monkey Island. This point and click system of movement is used in combination with a set of action icons.

A click on the right mouse button brings up a torso and head display. Moving your mouse onto this display enlarges various parts of the figure. This signifies which function can be utilised.

For instance, moving the mouse to the head magnifies an eye icon. One click of your mouse and you are in a view mode and means that objects can be viewed and a text explanation of what you are seeing is displayed.

As Jim, your prime directive is not to destroy everything in sight, but to liaise with diplomacy by communicating. Talking is handled in much the same way as Monkey Island, with you given various options of what to say to a said character.

Again, like so many things in Star Trek, its graphical look is very much in the same vein as titles like Monkey Island. Obviously this isn't a bad thing and the game's design is effective.

In the sound department, Star Trek is authentic enough and all the clikky noises and whoops that occur during the show have been sampled and used.

Star Trek has a lot of plus points to it. The missions require you to use at least a touch of your grey matter, and they're engaging and fun because of the TV show style of representation Interplay have opted for.

On the downside, I found that some of the animated sequences were very jerky and quite

embarrassing to watch. One example is a digitised animation of the Enterprise orbiting a planet. This is so jerky the first time I witnessed it I was going to ask Scotty to stop at the next services and have a look under the bonnet.

The other main gripe is the control system. Something that is a very user friendly and easy to become familiar with is ruined by the terrible display and sluggish way in which your mouse pointer stutters around the screen.

While we're on this destruction of the Enterprise and her beloved crew, I might as well mention the fact that the game comes on eight disks. This having been said, it's a big game, and "you canna change the laws of physics". So, you're going to need a black hole full of patience or a hard drive to enjoy playing Star Trek.

On the whole though, Star Trek is an enjoyable graphic adventure that most folk will take to, and a definite must for the myriad of Trekkers in red jerseys out there.

SIMON CLAYS

<b>VISION</b>	GGGGGGGG●●●●
<b>AUDIO</b>	GGGGGGGG●●●●
<b>DIFFICULTY</b>	GGGGGGGGGG●●
<b>LASTABILITY</b>	GGGGGGGG●●●●
Film, books, jerseys even Mr Spock eats. so why not a computer game? Star Trek is a great opportunity to slip into Jim's coset and play the captain of the most famous spaceship ever to grace the space lanes.	<b>80%</b>
Publisher >	Interplay
Developer >	In house
Disks >	8
Price >	\$34.99
HD install >	Yes
Size >	2 meg





The start of the Jurassic adventure and the Doctor finds himself all alone. Awww



Dotted around the park are motion sensors with terminals attached. You can use them to gather information and look at the map of the paddock

The biggest movie of all-time and I didn't see it, but I did watch the dreaded hype machine roll into action. I may have missed the film, but I can tell you the storyline, who played who and what dinosaurs were in it. It's all thanks to the mass media who went "dino" crazy for a month last year.

While everyone was enthusing about how good the film was, Ocean, leading software house for film licences, were carefully planning their Jurassic attack. Ocean's Manchester offices were constantly bustling with workers morning, noon and night trying to finish Jurassic Park.

By the time they had eventually completed their task, the Dino fever had calmed down, but along come Ocean with the game that every kid wanted and probably got for Christmas.

For those not familiar with Jurassic Park, here's a quick run-down of the plot. Thanks to

astounding bio-technical advances, a group of scientists have brought back to life the most awesome creatures ever to walk the face of the earth.

These beasts are not just for scientists though, because multi-millionaire John Hammond has decided to turn the most incredible animal pre-

serve of all-time into a theme park.

As Dr Alan Grant, a world-renowned palaeontologist, you have been invited to examine the cloned dinosaurs. The creatures are monitored and controlled by a huge super-computer and you have been assured that you can explore the island and see these breathtaking dinosaurs

in complete safety.

But something has gone terribly wrong, like always does. Jurassic Park's computer programmer, Dennis Nedry, has sabotaged the security systems. Electrified fences and motion sensors are down and hundreds of fearsome prehistoric predators have escaped their pens and per-

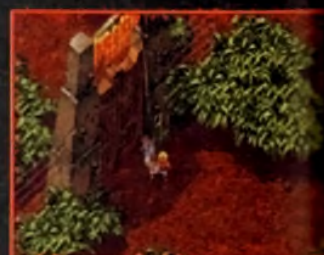
# JURASSIC



Dr Alan stumbles upon one of the kids, now all you have to do is find the other one and get the hell out of the park!



An ideal opportunity for a bit of toilet humour! It's quite dirty. Shame there isn't any Toilet Ducklasaur about!



Well, it's certainly not EuroDisney, although from what I can gather EuroDisney is far more horrifying!



It's Laura Dern and Dickie Attenborough. They don't look too well though!



New that's scary! You fall foul to yet another raptor attack



locks to roam free on the island.

Raptors, spitters and even the feared tyrannosaurus rex have overrun the fortified visitors centre. As Dr Alan Grant you'll need to accomplish a number of increasingly difficult tasks before you're free to attempt the toughest one of all by getting yourself safely off the island.

You begin the game stranded in the tyrannosaurus paddock of Jurassic Park. Nearby, somewhere, are John Hammond's grandchildren, Tim and Lex. You must roam around the park to find them, and once found you must take them through various dinosaur paddocks to the visitors' centre.

**RAMPANT**

With hundreds of fearsome dinosaurs running rampant around the park, Dr Alan Grant must protect himself with various weapons. You start armed only with a tazer. This basic weapon throws out a bolt of electricity which will destroy some smaller dinosaurs and stun others. You'll find other weapons dotted around the park.

As well as weapons, there are pick-ups which can be found inside or outside of buildings. You will need these items to complete your objectives and get out of Jurassic Park. Some of the more common pick-ups are ammunition and first-aid kits.

Throughout the park are electronic motion sensors. These are used to keep track of the dinosaurs via the computer. Connected to the motion sensors are terminals which can be used to call up information. You will also need the terminals to control park functions, like opening gates and doors.

Most of Ocean's film licences tend to revolve around a multi-level format incorporating differ-

**Everybody walk the dinosaur**



**Compsognathus**

Alternatively known as Compies, these small carnivores will attack in packs, weighing you down by their sheer numbers. The compys will also bite, their venom weakens and will eventually paralyse you.



**Gallimimus**

These mild herbivores will not attack you, but are very easily disturbed and are quick to stampede. They can run extremely fast and will run into you unless you get out of the way.



**Velociraptor**

Entitled raptor for short this beast stands six feet tall the most vicious dinosaur that ever lived. They hunt in packs and will attack just for the sport of it. They can figure out where you are, how to get to you and even split up to head you off.



**Dilephosaurus**

Also known as the spitter, this four-foot high kangaroo-like animal seems playful and friendly. When your guard is down, a brilliantly coloured crest fans out over its head and then tries to spit a venomous projectile at you with speed and accuracy which can blind and paralyse.



**Triceratops**

The triceratops is nearly the size of an elephant. It is built low down to the ground with huge stumpy legs and a massive head with three horns, the longest protruding from the middle of its face. They are very easily startled and will charge you.



**Tyrannosaurus rex**

The T-Rex is the most famous predator in history and is the classic blood-thirsty carnivore. Standing 18 feet tall with a head five feet long, the tyrannosaurus has huge and powerful jaw which can swallow a man whole. They are capable of eating a ton of food at one time.

**JURASSIC PARK**

**The biggest movie of all-time reaches the small screen, but is it a Jurassic classic or a monster flop?**

ent gaming elements and Jurassic Park is no different.

There are two different sections to Ocean's dinosaur-em-up. The first is viewed from above and involves a lot of running around while trying to find John Hammond's grandchildren.

The second is a 3D maze affair done very much in the style of Wolfenstein on the PC. The

3D bit is actually inside the visitors centre and you're slowly being hunted down by deadly raptors. The second section is much more atmospheric than the first thanks to the brilliant soundtrack.

The graphics are dark and moody in this section and it really generates a spooky feeling within you. In fact, Amiga Computing staffer Adam Phillips was so scared when he played it

that when a raptor jumped out of the dark at him accompanied by an orchestral stab from hell, he literally jumped out of his seat. OK, so he got ridiculed for the best part of a week, but it just goes to prove that Jurassic Park is very scary indeed.

The first section contains some quite luscious graphics. They're highly detailed and very colourful. The dinosaurs and some of the backdrops are worth a second look. Your first go at Jurassic Park will probably be very exciting and highly enjoyable, but as time progresses the more tedious the run around section will become.

Most of the dinosaurs except the really large ones are easy to kill, but they have a tendency to keep re-appearing and just annoy you more than anything else. Luckily once you've completed a section you are given a code which can be typed in at a later date.

The adventure comes on four disks and is not hard drive installable, so you'll spend quite a bit of time swapping disks. As an example when you go to use one of the terminals you have to swap disks and this becomes very annoying indeed. Jurassic Park contains some really great

graphics and looks like one of the best film licence tie-ins to ever grace the computer screen, but unfortunately is let down by some really bad playability. This makes the game boring in parts and gamers are easily going to lose interest with it which is a crying shame because, it could've been a classic.

**JONATHAN MADDOCK**



I thought I saw a stegosaurus. I did, I did, I did see a stegosaurus



If there is one thing you must learn and that is that you must never insult a triceratops



Game over! Just one mistake and you've become more extinct than the dinosaurs

<b>VISION</b>	○○○○○○○○○○
<b>AUDIO</b>	○○○○○○○○○○
<b>DIFFICULTY</b>	○○○○○○○○○○
<b>LASTABILITY</b>	○○○○○○○○○○
Scores highly on the technical front especially the 3D maze section, but it is unfortunately let down by the low standard of playability.	<b>72%</b>
Publisher > Ocean Developer > In-house Disks > 4 Price > \$25.99 HD Install > Yes Size > 1 meg	



# FANTASTIC DIZZY

"Roll up, roll up. It's the 'egg'citing, 'egg'splosive, 'egg'stravaganza- the return of Dizzy and this time he's 'Fantastic'- allegedly. Tina 'corny jokes' Hackett takes a scrambled look at this egg-type platformer from Codemasters



1001 Knights or is it days? Effects time changes days into nights and nights into days

**F**antastic Dizzy is a puzzler/platformer whose main character is an egg (as if you didn't already know). OK, so there is nothing wrong with the concept of having a game based around eggs. I mean why not? There have been Alien Ant-looking things, Spots, Blobs, and all forms of cutesy critters from dogs to Hedgehogs. But Eggs?

However, five minutes into the game an awful realisation hit me - I'm actually enjoying this sickeningly cute stuff. The graphics are colourful and detailed, the sprites humorous (although not highly imaginative) and there are loads of different areas to explore.

This I can cope with but what storyline can there possibly be behind one egg? Well, apparently Daisy (Dizzy's girlfriend, who is also an egg) has been kidnapped by the Wizard Zak who has also cast a magic spell on Dizzy's friends. Life's tough for an egg.

And what an original plot that one is, not unlike any other plot for a platformer whatsoever. Hmmm. Oh well, dodgy plot aside the game is actually quite good.

There are some great puzzle elements involved. Dizzy can carry up to three objects at one time and each one will help you in some



Dizzy proves he's a good egg collect the plank of wood and use it to cross the spikes

and along with only having three lives, the fact that Dizzy is not the most agile of characters and cannot get past all the baddies will drive you up the wall.

And this is not to mention the sub-games such as the mine-carts where you have to travel along rail tracks avoiding the green monster creations and the buffers at the end of the tracks, which all combine to make it increasingly difficult to keep your Tourette's Syndrome-type outbursts to yourself.

The stunning backdrops should compensate in some way though and the many colours involved make the game very pleasing to the eye. But what an earth are those huge black borders down the side for? And the layout of the screens, with some of the scenery in the foreground, proves irritating after a while especially when



You can't beat a bit of bully but for Dizzy it's no yolk

way, for instance you need to collect the plank of wood to help you cross the spikes or pick up various keys for the elevators.

"What's so difficult about this?" I hear you cry. Well, because you can only carry up to three objects you need to work out which ones you'll need to get you around an area.

This is where it becomes extremely frustrating



"Diamonds are a girl's best friend," and Dizzy's by the looks of things



"I'm so Dizzy my head is spinning, like a whirlpool it never ends."

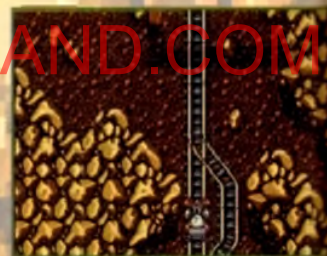
you stumble across some baddy hidden behind a tree.

Another flaw which becomes intensely annoying is the long pause in between screens, especially when jumping from one level to another as the screen flickers if you can't quite make the jump.

The music used also leaves a great deal to be desired and had me reaching for the volume switch in no time at all.

And the worst part of all this? Well, the game play is actually good fun, frustrating as anything but fun. Get me a straight jacket and send me home for the mentally bewildered.

TINA HACKETT



Dizzy gets smashed in the mine-carts with a strange green creature

<b>VISION</b>	GGGGGGGG●●●●
<b>AUDIO</b>	GGGGG●●●●●●●●
<b>DIFFICULTY</b>	GGGGGGG●●●●●●●●
<b>LASTABILITY</b>	GGGGGGGG●●●●●●●●
A good platformer with some interesting puzzle elements which should keep you amused for a fair while. (If you don't end up smashing your joystick in frustration first!)	<b>80%</b>
Publisher > Codemasters Developer > In house Disks > 2 Price > £25.99 HD Install > No Size > 1/2 meg	



# GENESIA



**Genesis - a game  
of creation  
and power for  
1 to 3 players.**

The owner of a small land, you must expand and develop your population to become the most significant in the world of Genesis. In 5 worlds, each requiring unique strategies, you must manage everything, from food and water to employment and taxes.

Will you conquer the lands of your 2 opponents, or form an alliance with them in an attempt to recover the seven missing jewels?

Only with a strong economy, powerful army and new technology will you fulfil your ambitions.



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90% - TILT

90% - JOYSTICK/MEGASTAR

89% - GENERATION 4

**AVAILABLE FOR:  
PC & 100%  
COMPATIBLES,  
AMIGA**







A helpful mode of transport I think you'll agree. A sneaky way to get lots of Strepils, err I mean tokens



Hurrah, and your chum. Looks a bit crabby though. Oh no, my captians certainly don't get any letters

Platformers come and go without so much as a second glance from the games-playing public. So why should Cool Spot be any different? What's going to make this release stand out from countless others? Have faith, believe me - this is different.

First I saw the console version, and gob-smocked by it I was too! I awaited the Amiga release with baited breath. I screamed, cried, sulked and blackmailed my way to reviewing it. I mean, a girl's got to do what a girl's got to do. And boy, it was worth the effort.

Smoother than the guy's chin off the Gillette adverts, faster than a Ferrari, and more playable than your little cousin's Scalextric, Cool Spot is quite something.

OK, so the game is based around a small, red dot, but hey, who cares? Certainly not me, unless

# COOL SPOT



Spot messes with the big cheeses. Watch out for those traps though, they can either propel you to new heights or.... splat!

most co-ordinated gamesplayer. The exceptionally wonderful graphics and brilliant sound effects will ensure that you don't become bored, too. The funky/jazz/reggae music will cater for all tastes and is well above some of the usual platform dross.

Nice touches, such as the way Cool Spot yawns when left standing, or wipes his sunglasses, show the huge amount of attention to detail that has been lavished on this release.

Mr Cool is definitely the spot with the least platformer addicts everywhere will turn it on and want to have its babies.



Captain Bird's Eye says "sniff my codpiece" in the docks level

and especially when playability is this darn good and the little character so well animated.

He lolls along, huge trainers and all, arms swinging at his sides looking as if he hasn't a care in the world, not looking even slightly perturbed that all his friends have been kidnapped and locked in cages, and that he must rescue them.

He must collect a certain number of red tokens which can be found around the level, before he can locate and

Virgin have taken the most undesirable of undesirables - namely a facial blemish - and turned it into a computer game. Tina Hackett goes dotty over Cool Spot

then blast open the cage containing one of his chums, thus rescuing him.

Other objects can be found and will help Cool Spot considerably such as super-cool counters worth seven normal tokens, or one-ups usually hidden behind parts of the scenery.

The scenery itself can also help. Cool Spot can get around by means of floating balloons, blobby bubbles and bouncy bubbles. Parts of scenery can also be moved by pushing against them.

Cool Spot is armed with fizzy drinks bombs which he must fire at the various enemies he will encounter throughout the many levels. Cool Spot must make his way through beaches, where he must avoid nipping crustaceans,



I was going to do a pretty 'boxout' to show all the collectibles - but hey! - no need when this sums up what you need to

cupboard shelves, manic mice who throw cheese at him, and piers infested with dive-bombing bees - to name but a few.

The gameplay, although not all that varied, remains challenging for a fair while, especially with three levels of difficulty to choose from. The platforms you need to jump from will tax even the

Riding on the crest of a wave complete with groovy wipe-out toon

TINA HACKETT

<b>VISION</b>	GGGGGGGGGG
<b>AUDIO</b>	GGGGGGGGGG
<b>DIFFICULTY</b>	GGGGGGGGGG
<b>LASTABILITY</b>	GGGGGGGGGG
Cool Spot has been well animated, is graphically brilliant and plenty of amusing touches have been added to make this an exceptional platformer. Buy it or be a blackhead forever!	<b>86%</b>
<b>Publisher</b> > Publisher: Virgin	
<b>Developer</b> > In house	
<b>Disks</b> > 3	
<b>Price</b> > \$29.99	
<b>HD Install</b> > No	
<b>Size</b> > 1/2 meg	



# PIRATES GOLD

CD32 game

**"Yo, ho, ho and a bottle of rum",  
"on a dead man's chest", and other  
piracy-type conversational titbits - it's  
time for some treasure that's been  
rediscovered on your CD32**

**A**h, what a romantic notion. To sail the seven seas, to explore uncharted waters, and most of all to seek your fortune by finding hidden treasure.

If only life fighting it out on the Spanish Main had been like it seems in Errol Flynn movies. Smart tunic, nice shiny boots, a big sword and a pretty princess with a penchant for pirates.

You meet her in Scene Two when your sloop overruns her fathers bullion boat. You ransack the vessel and afterwards she demands you be well hung. Scuffling, you replace your trusty blade in its scabbard.

Having raped and pillaged your way around her fathers boat, you and the crew take her leave while singing a pirate-like ditty, confident in the knowledge that she's fallen in love with your nonchalant, happy-go-lucky attitude.

Unfortunately, the reality of the situation was that in the first place you'd have been pressed-ganged into joining the band of miserable deck rats.

No smart tunic, no shiny boots. Just a dirty hemp sack shirt, gangrenous beard and a green rag that follows you around everywhere.

Given these parameters for your apparel and general look, it comes as no surprise that there's more chance of the beautiful senorita running off with Captain Pugwash than your good self.

Given the reality of the situation it's a good job for the imagination of Hollywood and computer software programmers.

Although Pirates takes most of its romantic element from Hollywood, large chunks of the scenarios are lifted directly from the annals of history.

For instance, you can choose to unbuckle your swash over a period of some 150 years, taking on the mantle of a Brit or a number of now EC members who we English weren't very friendly with at the time.

If becoming a Spanish pirate, or a French adventurer isn't enough to satiate your desire for



Hey, pal. You and me against the world, eh?



Row, row, row your boats merrily down the stream, huh, what a ship captain!

feed, grog and plundering; morale must be kept at a level which keeps them subdued. Failure to maintain your boys results in a mutiny, which ultimately means you ending up in a rowing boat in just your pants with your tricorn showing.

Keeping everybody on board smiling means landing at friendly ports to stock up on food, booze and debauchery. It also serves as a fine opportunity to charm the town's gentry and perhaps find yourself a gossiping wife who may reveal the location of daddy's assets.

All of the sailing and fighting is displayed using an overhead view. You control your ship's direction and can increase and decrease your speed using your masts and sails.

The outcome of a battle can depend on many different things; for instance, if the wind is light then you can get caught and stand a good chance of catching a broadside.

However, if everything is favourable the basic objective is to render the enemy immobile and then maraud with your greasy boarding party.

Once you've boarded, the play alters to a sword fight between you and the opposing captain, the winner taking the spoils.

This updated version of MicroProse's earlier release doesn't differ too greatly apart from a really neat ray traced animated intro and a proper Cornish pirate-type jig soundtrack.

Although there don't seem to be too many radical changes from the original Pirates, the

plundering friendly, defenceless traders, then you can don the garb of a famous explorer or one of the more infamous rogues to sail the high seas.

Having pondered over whether to play Captain Morgan or Francis Drake, you have the opportunity to make a few other choices that have a direct bearing on your future.

For example, you can adjust the difficulty level and more importantly select your special ability. This range of skills varies from expertise with a sword through to charm with officials and more importantly, the ladies.

Once you've deliberated over your options, it's time to cast off and head out into the blue and briny. The basic aim is to journey around various areas of the Caribbean strengthening your ship, bolstering your band of jolly Jack tars and seeking your fortune.

There are various ways to achieve this most roguish of tasks, each of which revolve around piracy on the high seas: You could choose to work for the governor of a particular island, following orders and reaping the rewards that being in his employ bring.

Alternatively, you can follow your own instinct and take to the briny in search of untold treasures and wreck havoc in the shipping lanes of the traders, purely for your own benefit.

However, a life on the ocean waves is also fraught with danger for pirates. For one, there are quite a few other pirate-type people knocking around the sea lanes who've been at it far longer than you will have been (you can generally assume that by the fact that they can do a better "Ha ha Jim lad" than you).

Also your crew need their

**On guard! This is the bit where you truly unbuckle your swash and swing your short swords about**



After you've been sailing around for weeks on end, it's nice to do a bit of shopping

whole game seems to benefit from both the slick accessing of a CD, and the atmospheric advantages this media grants you.

On the whole Pirates is a more-than-playable foray into the folly of days of old, when men were men and parrots were either quiet or stuffed.

Even though most of the game has been ported (sailing type joke, no?) over from the Amiga 500, Pirates is still well worth your pieces of eight.

SIMON CLAYS

<b>VISION</b>	○○○○○○○○○●●●
<b>AUDIO</b>	○○○○○○○○○●●●
<b>DIFFICULTY</b>	○○○○○○○○○●●●
<b>STABILITY</b>	○○○○○○○○○●●●
Shiver me timbers. MicroProse have freshened up Pirates for a new genre and tweaked it quite nicely. If the idea of sailing around on a large plank of wood with a band of moustachioed blokes in search of buried treasure shoots your cannon, then this is definitely the one for you.	<b>80%</b>
Publisher ▶ MicroProse	
Developer ▶ In house	
Price ▶ \$29.99	



# SKIDMARKS

Burn rubber, slam down the accelerator, and skid like you've never skidded before in Acid Software's amazing little racer

**Y**et another car racing game, but hey it's got a comedy title and it's one of the most playable and addictive little numbers I've ever laid my hands on.

I don't know about you, but I absolutely love racing games. They bring out my competitive human spirit which is a bit of a dangerous thing to do. I unfortunately turn into a dribbling psychopath who will take on everyone in the whole world and try and beat them into submission.

The only slight problem is that if I lose I get these really bad feelings of intense hate and have to go and lie down in a darkened room until I'm calm once more. Call it bad sportsmanship, but I can't help myself.

This always happens when I'm playing a racer. Why? I don't know, but my psychiatrist told me to keep taking the pills and stay well away from them. Then out of the blue, Skidmarks happened (oh dear).

My whole attitude changed literally overnight and it's all thanks to those wonderful people at Acid Software who have created the cure to my problem.

If I win I'm happy, but now if I lose I'm still



Those skidmarks are building up, better wash those pants! Cheap gag I know, but it's the only one on the whole page

happy and it's all because Skidmarks is so much fun. I can forget about my loss instantly because no sooner have I finished one game then I've started the next race-up.

There is one snag in all this, and that is that I'm completely addicted to it now and I'm having real trouble trying to turn my computer off. You're damn lucky that you've got this review to read, and it's only because I left Skidmarks at home and wasn't able to play it in the office.

Skidmarks, if you haven't guessed from the screenshots on the page, is a four-way scrolling isometric race-'em-up from hell. To come up with new ideas for a racer must be incredibly difficult, but Acid software have created a little beaut of a game that really does shine against its competitors. Overdrive by Team 17 is perhaps the only rival that comes close to being as good as Skidmarks.

The idea behind the game isn't that original and neither is it that interesting, but

by golly it works. The objective is to race around 12 tracks against three other competitors (either human or computer-controlled) and thus try to win the race.

You receive points for the position you finish in - the higher the position the higher the points and the racer with the most points after completing the 12 tracks is the champion.

Before you start, you must select your car from four. You must decide between a Porsche, Camaro, Monster Truck or Dirt Buggy and which particular shade of paint you want your motor in. I can heartily recommend the jade or the light purple!

The number of different cars you can have will depend on the amount of memory in your computer and whether you are using the enhanced AGA cars.

The AGA cars are slightly more detailed than the bog-standard ones - as an example, the AGA cars have numbers on them. Not that useful I know, but often it's these little touches that turn good piece of software into an excellent one.

Another nice touch while we're on the subject is that when the cars go around the track they leave skidmarks behind them, and the track eventually becomes chewed up.

There are three modes of play in Skidmarks: Practice, Match race and Championship. Practice lets the individual player race the tracks without any competition. Match race is for competing in one-off races on any track, while championship lets the player or players participate in a six-track series competing for points.

As with most racing games, it's more satisfying competing against a friend rather than your computer and Skidmarks is no different. By linking up two Amigas with a standard null modem cable you can have a four-player race!

The two-player option is a bit restrictive though because the screen halves and unfortunately you see less track, but plenty of practice will put that right.

One of the best features of Skidmarks which I've failed to point out until now is the standard of the graphics. To say that they are excellent is quite an understatement.

There are 800 frames of animation for each

car, all of which have been lovingly ray-traced. The tracks are just as good and are well designed and no matter how long you play it you don't get tedious.

The graphics and sound are amazing, but what really makes Skidmarks stand out from the rest is the fact that it is so playable. With the playability being so good this in-turn makes it one of the most addictive little racers you can buy.

With more track disks on the way from Acid Software you're almost guaranteed you'll never get bored. I could go on for hours praising the game, but I really only need to say two words. Buy it.

JONATHAN MADDOCK



Coo, all I need now is 16 buses to jump over!



**GAMER GOLD**



The two-player option. Makes your view smaller, but learn the tracks through plenty of practice

<b>VISION</b>	GGGGGGGGGG
<b>AUDIO</b>	GGGGGGGGGG
<b>DIFFICULTY</b>	GGGGGGGGGG
<b>STABILITY</b>	GGGGGGGGGG
Skidmarks has gorgeous graphics, superb sound and is highly playable and unbelievably addictive. A very polished racer that totally destroys all its competitors!	<b>91%</b>
Publisher > Acid Software	
Developer > Acid Software	
Disks > 4	
Price > £25.99	
HD Install > Yes	
Size > 1 meg	



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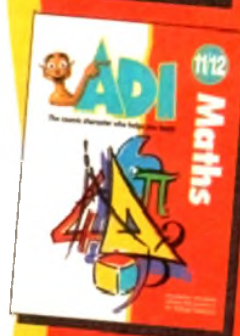
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The two-player option gives you the chance to battle it out against a friend.

It's a strange old world isn't it? How many times punters, have you had déjà vu? I'd guess probably a few times, but not as many as yours truly, who sees replicas of the same game ideas repeated several times a week.

Oddly enough, the most common clone of all is the racing game. After all it's a bog-standard platformer, at least the character can look slightly different from the last you saw.

But in the racing circuit, there's only one definitive set of tracks, one set of cars with the same markings and one set of named drivers.

As a rule, car races are the type of game I've always revelled in and enjoyed, but there does come a time when a genre becomes "tyred" and the proverbial "exhaust" becomes exhausted.

This is not to say that there hasn't been a boatload of classics along the way. You've only got to take a little look at the likes of Formula 1 Grand Prix or Vroom to appreciate what a classy racing game's driving at.

Uncannily enough, the link here is that Domark's latest offering to the games world is programmed by none other than Lankhor, the people behind Vroom.



On yer marks, get set, oh, go on then, wiggle that joystick

I don't know how many of you remember Vroom, but let me tell you it was a classic. French software house Lankhor worked wonders and probably produced the fastest Formula 1 racing game ever for the Amiga.

Well, now they're back with their second offering with the full and unadulterated approval of the motor racing sports governing body, the FIA. What this means is that the game can feature all the official tracks, drivers, constructors and advertisers.

Someone please correct me, but bar the odd name, everyone's used all of the above without the official recognition of their product, so I don't think it means that much. However, it's a nice touch I suppose, and will no doubt help F-1 to sell a tad more easily.

That said, the proof is in the pudding and it's the play and look that will determine the success of this

release. So with this in mind let's don our overalls, walk gingerly over to the pits and find out whether F-1 is a blow out on the first lap, or a model snogging, champagne-spraying winner.

Playwise everything begins in the Options menu, where you determine the type of race you want to run. You can decide to train on any of the 12 tracks that form the world championship, to familiarise yourself.

You can also select an arcade version of F-1 which puts you on the self same tracks, but asks you to overtake an increasingly larger number of cars to qualify for the next circuit. Just but by no means least is the full blown World Championship mode.

## At long last it's the green light. The ideal opportunity to take on the mantle of Mr Mansell! Blame everybody for everything including your own mistakes and generally suffer from a strange accent...

This puts you up against all the top drivers vying for points over all the world's top circuits, or allows you to choose an individual track to compete on.

Success, as usual means points for prizes, with a win giving you ten points towards the drivers' championship and the same quantity going to the con-

structors in their battle to be the best.

As usual in this style of title you can adjust the skill level to render it playable in the early stages and to give you some challenge once you've mastered the controls and courses.

Skill levels can be adjusted between the

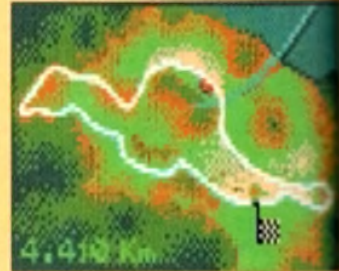
## TRACKS OF



**BRAZIL - Interlagos**  
A demanding but rewarding circuit with two top speed straights. Spend too long having tyre changes and you'll be surprised how quickly your opponents catch up



**SPAIN - Barcelona**  
A hard course with corners that appear from nowhere. An important track to keep your eye on the map



**CANADA - Montreal**  
This Grand Prix will put tremendous pressure on both your tyres and brakes. Try to remember your braking points so you're not caught out by some of the slower corners.



**SAN MARINO - Imola**  
Here's a track that will have you driving to your limit. The course is very fast, but try to remember where the chicanes are as they'll require some hectic braking.



**MONACO - Monte Carlo**  
Probably the most famous circuit in the world. Raced on the streets, you'll find qualification as important as the race since overtaking is really tricky.



**FRANCE - Castellet**  
Situated between Toulon and Marseille, Castellet has one of the most spectacular chicane sections of any motor racing circuit





Oh, I'll have a packet of crisps, a box of matches and a paper, please

resizable cars that the novice drives, right through to the hyper-sensitive, lightning fast ones of the experts. You also have the option to alter the wings of your hot rod, and much of this depends on the track on which you are competing. For example, setting your wings in a low position gives you less drag giving you a higher top speed, whereas a high setting operates in reverse and makes you stick like the brown stuff. You also have the opportunity to change your tyres, the gearbox and just about everything else conceivable. In fact, one of the only things you can't change is your underwear after you've covered it with oil ad hoarding. Once you're on the grid you can

beled to qualify or go straight into the actual race. Attempting to qualify is probably the best policy as you have a chance to improve your position on the starting grid, rather than the default position to the rear of the grid. After all the preparation work, it's finally time to test your skill and nerve in the race. Graphically, F-1 is very similar to its older brother Vroom, and has the same feel as it. This is by no means a bad thing as Vroom not only looked good, but moved at a tremendous rate of knots. If you'd like proof of the speed of F-1, just select the turbo mode and watch your car fly around the track. If you have any trouble during the



Well, at least you can't clamp my front wheel now



Here's the bit of paper that Murray Walker reads from on a Sunday afternoon



This is the options screen which is almost as interesting as Nigel Mansell

course of the race then you can enter the good old pit lane. Here you can get your mechanics to break into a sweat, changing your tyres or refuelling your sporny motor. However, time being of the utmost

importance in the high tech world of motor racing, you've no time to get yourself a nice munchy bar or glance at the overpriced tapes, it's straight back into the race.

Perhaps the best option of all is the two-player split screen game. This allows you to race against not only the other competitors, but also one of your mates.

To a large extent F-1 is very similar to its older brother Vroom with a few alterations. This said, it's a quality product and runs extremely smoothly on the Atari. In fact, I'd go as far as to say that F-1 could become the definitive arcade racer on the Amiga.

SIMON CLAYS

# OF MY TEARS



**BRITAIN - Silverstone**  
Silverstone has been recently revised because it's just too fast. Now the circuit is one of the most challenging around.



**BELGIUM - Spa**  
A popular circuit due to the precision required to hit fast lap times. However, contains a particularly dangerous first bend as the cars rush from the grid.



**PORTUGAL - Estoril**  
A circuit comprised of long sweeping bends. Overtaking isn't too difficult as long as you are prepared to leave the racing line.



**GERMANY - Hockenheim**  
A dangerous forested circuit which is mainly made up of straights. Your car should be aligned to a low downforce setting.



**ITALY - Monza**  
The most incredible part of this track is the top gear Parabolica corner which leads onto the start-finish straight.



**AUSTRALIA - Adelaide**  
A street circuit which may have you wishing you selected an auto gearbox. Setting the car is a difficult task on this course as it contains long straights and twisty sections.

**VISION**

★★★★★

**AUDIO**

★★★★★

**DIFFICULTY**

★★★★★

**LASTABILITY**

★★★★★

Nice graphics coupled with brilliant play, make Domark's F-1 a must for all lovers of a quality arcade racing

88%

Publisher > Domark  
Developer > Lankhor  
Disks > 1  
Price > \$25.99  
HD install > No  
Size > 1 meg



# THE

Another purpose-built CD32 game's about to come crashing into your shops, but only as long as you can find your way through...

# LABYRINTH OF TIME



I am a spirit now. For ages I have dreamed in the land of the dead.

Oh no, another subway beggar after 10p for a cup of tea

**N**ow, before you jump to all the wrong conclusions let me reassure you. Labyrinth has nothing to do with the film of the same name.

There's no crooning thin white duke with a pair of clip-on ears and there's no muppets with Frank Oz's arm stuffed up their rear portion.

Labyrinth of Time, to use its full title, is like nothing ever to grace the pages of this magazine before. Converted from the PC by American programmers Electronic Arts, Labyrinth is strictly for the CD32.

The main reason for this is the fact that the 3D images and locations you visit in this adventure title are all rendered using 256-colour ray tracing techniques. Before I go any further its got to be

said that the visual aspects of this piece of software are quite literally breathtaking. As far as a game goes these are the best graphics this reviewer has ever seen on an Amiga.

However, being the suspicious pessimistic type, and having seen software before that has had superb graphics but absolutely no depth or playability, judgement remained sceptical until a later point.

The story starts as you make your way home from work. This seems a very depressing point to start an adventure, but I suppose at least it doesn't start before work on a wet Monday morning.

Leaving your office, you head out on your normal route home via the subway system. You go through the normal motions and slip into

auto-pilot as you wait for your subway train.

As usual its late and when you do finally board the train you are given over to a strange sensation. No, it's not fair dodging or some sicko trying to molest you, it's something different altogether.

The next thing that you see is a stranger in very odd attire. It's at this point that you'll need to do some swotting on your Greek mythology, because among this, ancient Mayan culture and the Wild West, the story revolves.

But, mythology first, because the stranger is none other than that famous personality from Greek mythology Daedalus. Who? I hear you scream, Daedalus. Never heard of him?

Well, for those of you don't know, and I have to confess he wasn't on my Christmas card list, Daedalus is the person who constructed the maze on Crete for King Minos.

Although he's long since dead, Daedalus is a prisoner of the king and is being forced to con-



Hey man, there's a pyramid at the end of the hotel lobby. Hmm, this is unusual. I wonder if I've been spiked?

struct a new maze which intertwines through the very fabric of time - heavy stuff for kids?

Daedalus goes on to tell you that King Minos is the ruler in the land of the dead, and it was his intention to return from the dead to rule the mortals once more.

To achieve this unpleasant ambition Minos intends to use the labyrinth's power to reach the place and time in history. Unfortunately for Daedalus he is powerless to do anything to prevent the naughty King from achieving this goal.

This is where you come in. You must help Daedalus and stop the labyrinth's completion by destroying it. Well, beats the boredom and monotony of the old nine to five rut I suppose.

So, there you are in a subway train with two exits and a massive 275 plus locations to explore.

Labyrinth must be the most psychedelic game to have ever had the good fortune to see. Not only in its artistic style - but also in the mystical and surreal nature of the locations you visit.

We can only speculate on the minds of the programmers who conceived Labyrinth and would ard a shrewd guess that they are arcane remnants of the late 60s who had that little bit too much LSD and now reside in an acid canyon ward.

For example, one moment you are walking through the lobby of an old 19th Century hotel and the next you're in a medieval maze or a cinema lounge. But all this pales into insignificance when you step into the realm of the surreal maze acid flashback or what?

Labyrinth uses a point-and-click technique to explore the locations. At the bottom of the screen are a set of icons which are responsible for your actions. For instance you can examine items



In a tomb facing south



This lovely Greco dome entrance is offset by two matching effigies



In Maze Center facing north



This must be the pub I was questing for, The Bull's Head





The world's ecology breathes a sigh of relief as Ronald McDonald is decapitated

A bridge too far, but not for my colleague Biff and myself as we successfully completed it



Glancing accidentally towards the window of a bus shelter, Marvin was astonished to discover that the fractal on the wall was of more interest than the mysterious mirage of his own planet reflected in the glass

faith in Commodore and bought themselves a CD32, because this is a title which starts to truly show a little of the machine's capability.

If you own a CD32 I urge you to get down to your local computer emporium and buy this engrossing title, it'll have you grinning from ear to ear in no time.

SIMON CLAYS

open and close things and take and move things.

It's reminiscent of the very old school of adventure games which rather than using a party of clichéd adventures, use you as the principle character and display your view on the screen.

Because of the fact that Labyrinth uses you as the hero rather than a strapping band of do-gooders, there are less controls and statistics to be concerned, or rather confused about.

I have to say at this point that I found Labyrinth totally engrossing and the most involving title that I've had the good fortune to get my hands on. This surprises me to a certain extent as I never thought that this type of title could titillate me as much as it has.

One of the main reasons for this is the unusual nature of the plot and some of the bizarre locations that you have to visit. The other thing that strikes you is the fact that there is little or no violence in it at all.

In fact, thus far I've not encountered any nasties at all. This is quite refreshing as most adventures from as many naff skeletons and dumb orcs in to them as is possible.

One of Labyrinth's strengths is its story. At the beginning you know very little, but as you progress the plot develops in a very exciting but natural way. This is very cleverly manufactured and adds depth to the play.

as the titbits you uncover acts as clues to the solving of the maze.

Also, the puzzles are extremely odd but well thought out and have a nice feel of surreal common-sense about them. At this point an example would be extremely convenient, but I know it would ruin the satisfaction you'll get when you solve them for yourself - honest it's not a lame excuse to cover up for the fact that I didn't solve any.

Graphically Labyrinth is unsurpassable, it just looks the dog's conkers and it's full of nice graphical touches. One such touch within Labyrinth is the fact that you can examine objects by zooming in-close on them, revealing them in their full ray-traced glory.

Most of the haunting nature that is captured within Labyrinth is down to the sound track. It's a combination of ambient tunes and the Scotty Doo music, but it works to great effect and really helps generate that all important atmosphere that normally is missed in most games.

There are also a great deal of sound effects involved, with the music Labyrinth boasts over 25Mb, even down to the sound of a toilet flushing - don't ask.

The bottom line is that Labyrinth is a superb addition to the adventure genre. It has amazing stylised graphics and a level of depth and playability seldom found in computer games these days. It's great news for punters who've put

<b>VISION</b>	
GGGGGGGGGG	●
<b>AUDIO</b>	
GGGGGGGGGG	●
<b>DIFFICULTY</b>	
GGGGGGGGGG	●
<b>LASTABILITY</b>	
GGGGGGGGGG	●
Labyrinth has everything about it to make it a classic in the adventure games sphere. A real winner with every element a piece of computer software is supposed to have. superb in every department.	<b>94%</b>
Publisher > Electronic Arts Developer > Electronic Arts Price > £24.99	

# CD 32 game



ELECTRONIC ARTS

## GAMER GOLD



# TORNADO

She flies like a bird in the sky, she flies through the air and I wish that she was mine... That's the Tornado folks, not Maggie or the Nimble ad, honest

I think it's fair to say that around the NAATO bars of NATO forces there's one plane that has the reputation and respect of pilots and engineers alike.

The Tornado, or Panavia Tornado GR.4 Interdictor/Strike (IDS) and F.3 Air Defence Variant (ADV), is a plane with one hell of a reputation and quite a long name (we'll just refer to it as the Tornado).

If you kept abreast of the war in the Gulf, you'll be more than aware of the role that the Tornado played in the first few vital days.

The whole of the Allied strategy depended strongly on air supremacy. To achieve this task, the Tornado was charged with destroying all of the Iraqi airbases.

As history now tells us, the Tornado was as good as its word and successfully implemented a most crucial part of the Allied offensive.

The reason it succeeded so effectively and with so few losses is because of its ability to fly into enemy territory at high speeds, at such a low altitude, and to deliver its lethal payload with such devastating accuracy.

Included in Digital Integration's simulation are both of the aforementioned Tornado types. The ADV is equipped as a long-range, long-endurance two-seat interceptor. It carries a special radar equipped for air-to-air combat and a healthy stock of radar-guided missiles.

Its stable companion, the GR4, has an altogether different role, and finds itself utilised for pinpoint bombing and recon work.

The first thing you notice about DI's simulation is the size of the manual included in the packaging. Now, I'm not implying that the size of the manual improves the power of the game, in fact far from it.

But, in Tornado's case you have a very comprehensive and user friendly piece of literature, which is concise and informative.

This is indeed a good thing because the makers of F-16 Combat Pilot have come up with probably the most accurate flight simulator to appear on the Amiga.

Testimony to this is the fact that the mission



Inside the cockpit our brave pilot circles above the M25 in vain search of South Mimms services

planning system Digital Integration developed for Tornado has been authorised for service in the RAF by the Ministry of Defence.

Obviously it's not the exact same system and has been developed by a company specialising in computer software for the military. But, the rudiments and specifications of the system are uncannily similar.

Being the war correspondent for Amiga Computing, I was given the uncertain job of flying this beast. The first thing that greets you in Tornado is the options screen. Here you can choose to fly a simulator, select a training mission or fly in a combat mission.

The other thing you can elect to do is alter the preferences. Most objects and landmarks can have their detail adjusted. Unfortunately even on the A1200 to achieve any speed in play you have to play on the lowest detail level.

Before venturing into the cockpit of the real McCoy (please excuse the artistic licence), it's best to spend some time on the simulator.

You can select from 17 varying missions which should prepare you for real training flights. The real joy here is that there's no danger

of making those little mistakes and errors of judgement which inevitably change your size from a stocky six foot to a very thin two miles.

Once you're happy that you're conversant with the displays and instrumentation and the most dangerous thing you're likely to do is mount the kerb when you reverse your Tornado into the garage, it's into the air with you.

Training features a total of ten different missions for you to sink your teeth into and in all cases when you've completed them you get a nice little tick from teacher.

Although it's not imperative to complete all the training missions, each one gives you experience in aspects of the Tornado flight parameters and its different bombing techniques.

After some time rehearsing manoeuvres this pilot finally took to the air. There are three different warzones to fly over, each featuring a total of 14 missions each.

Alternatively you may feel up to the challenge of the campaign option which throws you into conflict in all three zones. Here there are a total of some 24 objectives to overcome, and because it's a real scenario the missions have to be completed sequentially.

As you meander over to the hangar in your lycra jumpsuit you can ponder over a few other options. For instance, you can examine your waypoints and determine the height, speed and target objectives necessary.

Also, you have the option to adjust the payload on board your Tornado, either to suit the mission type or yourself. Alternatively you can



A couple of wild Tornados (Latin Iraqus flattenus) are caught here relaxing on the grass, before embarking on the complicated nesting procedure

leave it all to your trusty pal the Amiga.

Another very nice touch in Tornado is the explore mode. This feature allows you to click on a waypoint and then zoom into areas of the world.

This acts in the same manner as perhaps an intelligence network, which allows you some knowledge of the installations you're out to destroy and the defence systems which protect them.

As a simulator, Tornado differs greatly to anything else you've probably flown before. In most sims you spend your time concentrating on guidance of your plane with firing of munitions coming as a second priority.

Tornado's have a very smart auto-pilot which handles most of the flight for the pilot. In fact, apart from checking waypoints, take-off and landing the pilot does little else.

This means that in DI's sim you spend much of your time as the navigator controlling your basic guidance system. A typical flight might see you instigating the take-off, and then having swept your wings back to the right angle, sitting back and enjoying the ride until you're over the target.

Once near the drop zone you click on to the bombing screen and lock on to the target. Using the target zoom facility enables you to get complete accuracy, then it's a question of watching



Oh no, it's Raymond again, and he's riding shotgun in the cockpit



"Oh, it's an absolutely raunchy view of an F-15" he said in his best Raymond Baxter voice. Now there's a bloke with a fetish for jets



"Four thousand holes in Blackburn, Lancashire..." Crickey, I thought John Lennon was spaced out when he wrote that lyric. Now I know it was just a flight of Tornados out on an afternoon's bombing practice



**Lethal weapons or Top Trumps ?**



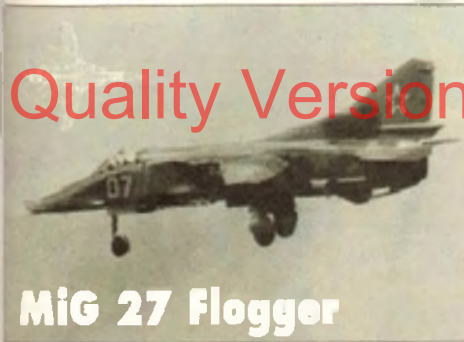
**Tornado GR4**

**Category:** Two seat all-weather multi-purpose combat aircraft  
**Origin:** UK  
**Wing span:** Fully spread: 45ft 7.5in  
 Fully swept: 28ft 2.5in  
**Length:** 54ft 10in  
**Height:** 19ft 6in  
**Weight:** 31,065lb  
**Max. weapon load:** 19,840lb  
**Max. level flight at altitude:** Mach 2.2  
**Max. level speed sea level:** Mach 1.2  
**Radius of action:** 750 nautical miles  
**G limit:** +7.5



**Tornado F3**

**Category:** Two seat all-weather air defence interceptor  
**Origin:** UK  
**Wing span:** Fully spread: 45ft 7.5in  
 Fully swept: 28ft 2.5in  
**Length:** 61ft 3in  
**Height:** 19ft 6in  
**Weight:** 31,970lb  
**Max. weapon load:** 18,740lb  
**Max. level flight at altitude:** Mach 2.2  
**Max. level speed sea level:** Mach 1.2  
**Radius of action:** 1000 nautical miles  
**G limit:** +7.5



**MiG 27 Flogger**

**Category:** Single seat ground attack aircraft  
**Origin:** CIS  
**Wing span:** Fully spread: 26ft 10in  
 Fully swept: 25ft 6in  
**Length:** 56ft 1in  
**Height:** 15ft 10in  
**Weight:** 23,590lb  
**Max. weapon load:** 9,920lb  
**Max. level flight at altitude:** Mach 1.77  
**Max. level speed sea level:** Mach 1.1  
**Radius of action:** 210 nautical miles  
**G limit:** +7



**MiG 31 Foxhound**

**Category:** Two seat all-weather interceptor  
**Origin:** CIS  
**Wing span:** 45ft 11in  
**Length:** 70ft 6.5in  
**Height:** 18ft 4in  
**Weight:** 48,115lb  
**Max. take-off weight:** 90,725lb  
**Max. level flight at altitude:** Mach 2.4  
**Max. level speed sea level:** Mach 1.1  
**Radius of action:** 1,135 nautical miles  
**G limit:** +5



**F-15 Eagle**

**Category:** single-seat air superiority fighter  
**Origin:** USA  
**Wing span:** 42ft 10in  
**Length:** 63ft 9in  
**Height:** 18ft 5.5in  
**Weight:** 31,700lb  
**Max. weapon load:** 24,500lb  
**Max. level flight at altitude:** Mach 2.5  
**Radius of action:** 685 nautical miles  
**G limit:** +7.3

**SU-27 Flanker**



**Category:** single-seat counter air-fighter  
**Origin:** CIS  
**Wing span:** 48ft 3in  
**Length:** 71ft 11.5in  
**Height:** 19ft 5.5in  
**Weight:** 49,600lb  
**Max. take-off weight:** 59,600lb  
**Max. level flight at altitude:** Mach 2.35  
**Max. level speed sea level:** Mach 1.1  
**Radius of action:** 810 nautical miles  
**G limit:** +9



**F-16C Fighting Falcon**

**Category:** single-seat multi-role fighter  
**Origin:** USA  
**Wing span:** 31ft  
**Length:** 47ft 8in  
**Height:** 16ft 5in  
**Weight:** 18,238lb  
**Max. weapon load:** 12,000lb  
**Max. level flight at altitude:** Mach 2.5  
**Radius of action:** 500 nautical miles  
**G limit:** +9



**Chinook CH-47**

**Medium transport helicopter**  
**Origin:** USA  
**Main Rotor Diameter:** 60ft  
**Length:** 98ft 11in  
**Height:** 18ft 8in  
**Max. take-off weight:** 54,000lb  
**Max. level speed sea level:** 163kts  
**Radius of action:** 100 nautical miles



**MLRS**

**Surface-to-surface battlefield missile launcher**  
**Origin:** USA  
**Length:** 12ft 11in  
**Diameter:** 8.66in  
**Weight:** 675lb  
**Range:** 20 nautical miles

Hi Quality Version Available on AMIGALAND.COM

your munitions fall to earth.

Tornado is one of the most comprehensive military simulators ever to appear on the Amiga and it boasts some really impressive features.

It's an amazingly detailed piece of software. For example, just like in the real RAF, timing is of the utmost importance. If you are delayed while in flight and fall behind schedule there's every chance that you'll crash into a fellow Allied jet or at least ruin the mission objectives.

Not only do you get a most realistic looking, accurate simulator but you also get all the other more cosmetic touches like external and chase views.

On the down side, Tornado's a little slow when it comes to screen update and probably is best suited to the high-end machines.

This apart, Tornado is a very well accomplished title and one which will please flight fans the globe over.

**SIMON CLAYS**

**VISION**

**AUDIO**

**DIFFICULTY**

**LASTABILITY**

A very accurate, accomplished, well developed, smart simulator which will take you a while to get to grips with. This is a title which will appeal more as your understanding of it does.

**81%**

**Publisher** > Digital Integration  
**Developer** > In house  
**Disks** > 4  
**Price** > £34.99  
**Install** > Yes  
**Size** > 1 meg







**M**ention the word war to me and it sends a shiver running down the back of my slightly eastward Ravoured spine. That's not to say that I'm a coward, you understand.

It's just that the thought of lying around in excruciating pain in some mud-swamped field waiting for medics to relocate my arms and legs fails to exhilarate me. What's not being a coward, that's just plain sensible.

I don't think I'm alone in this fear of bullets, missiles and other weapons that rip dirty great big holes in

you. On a personal level the idea of enlisting into our armed services never even surfaced inside this reviewer's mind.

No amount of advertising could convince me that all you did all day was absorb, jetski, paraglide, go out with the lads and meet sumptuous females.

Whatever the reasons many of us have for not enlisting in our particular country's armed services, it does not necessarily reflect a lack of interest in the history and strategy of warfare.

Fortunately, with the advent of the computer

or come bang up to date and employ the technology used in the Gulf War.

Obviously to offer 50 years of conflict the software includes all the relevant battle maps and weaponry necessary to give the realism required.

In fact over a 100 new 3D images have been implemented to give you such weapon systems as guided missiles, fixed and mobile sited rockets and homing missiles.

Another major implementation is the use of aerial forces: You now have the option of using a full range of helicopters, which adds both to the amount of playability at your disposal and the overall strategy angle of the product.

The user interface is very similar to its older brother, and involves a main playing map and a set of icons from which you control your forces and assess the strategies.

Before you endeavour to take on the might of the Egyptian army in the Six Day War or become the Israeli commandos in the Yom Kippur War,

annihilation, success or even missing the show altogether.

Once the rival factions meet you are asked if you want to play the battle automatically or manually. If you select to battle using manual control then you can click through your forces until you are riding in one of your vehicles.

Control can be as total or as partial as you wish, with the object being to locate potential targets and destroy them. Once a friendly vehicle has been destroyed then play is switched to the next one available.

However, poor deployment could mean you are either stranded miles from any friendly units or right in the thick of enemy firepower.

Campaign 2 also includes an extensive database of military hardware and equipment, all of which is at your fingertips. This information can be used to your direct advantage when involved in conflicts, especially when engaging opposition who control superior forces.

Campaign 2 is a fairly well balanced mixture



"I see a red dot and I want to point it black..."  
Does this mean I'm in for a tour of duty?

# CAMPAIGN II

**You're in the Army now, you're not behind a plough, you'll never get rich from digging a ditch, you're in the Army now. Oh, and you can be in the Navy and Air Force too.**

age we can now involve ourselves in both the action and strategy of warfare from any given period of history. As computers have become more advanced and graphically capable, so the closer to reality they have become.

So, following on from the successful Campaign 1939-1945, comes the release of Campaign 2. The most immediate change, which one notices immediately, is the fact that Campaign 2 covers all the main conflicts of the last 50 years.

This is a vast improvement on the original scenarios, as now you can play general in Vietnam

you have the opportunity to edit the map.

Here you can alter any aspect of the terrain and add or subtract other landmarks such as roads and buildings. Once all the alterations have been completed, battle can commence.

Due to such things as terrain, location and availability of forces, Campaign relies heavily on strategy. Indeed, one slight miscalculation on your part could mean the difference between



Clicking on to this screen gives you statistics from the database regarding the relevant vehicle

of 3D arcade style shooting blended with a strong strategy approach. While I enjoyed the battle simulations and enjoyed controlling the various tanks, I can see strategy purists being put off by the arcade elements.

However, if you're a fairly well balanced human being I envisage that there'll be more than enough of both interest and of visual stimulation to keep you occupied.

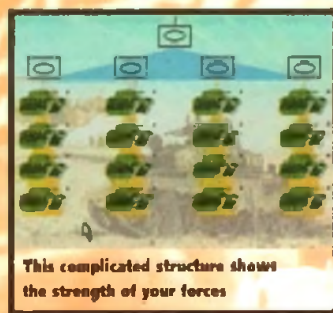
SIMON CLAYS

### The Killing Fields

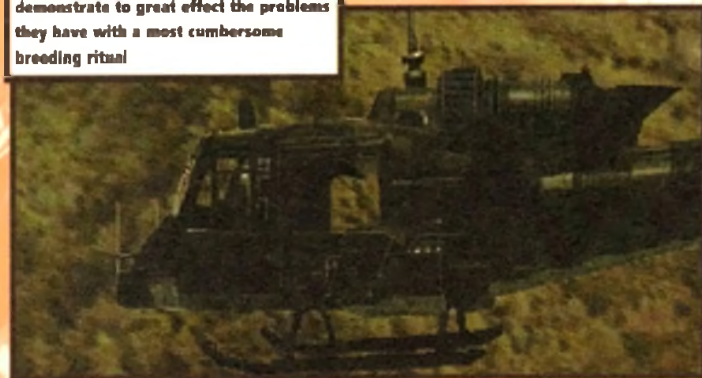
1. = Save Game
2. = Load Game
3. = Adjust Heights
4. = Map Information
5. = Grass
6. = Marsh
7. = Rivers & Lakes
8. = Forest
9. = Villages/Suburbs
10. = Towns
11. = Cities
12. = Un-metalled Roads
13. = Place Names
14. = Small Rivers
15. = Large Rivers
16. = Metalled Roads
17. = Borders
18. = Minefields
19. = Objectives
20. = Trashcan
21. = Select Map Items/Map zoom
22. = Sound
23. = Edit Forces



A male and female A113 personnel carrier demonstrate to great effect the problems they have with a most cumbersome breeding ritual



This complicated structure shows the strength of your forces



### VISION

GGGGGGGG

### AUDIO

GGGGGGGG

### DIFFICULTY

GGGGGGGG

### LASTABILITY

GGGGGGGG

A realistic blend of both action and strategy, although by the nature of the arcade action Campaign 2 can't be seen as a simulation.

# 77%

Publisher > Empire Software  
Developer > In house  
Disks > 2  
Price > \$34.99  
HD Install > Yes  
Size > 1 meg



# CD <sup>32</sup> roundup

## Arabian Nights • Buzz • £14.99

Following on from the success of Soccer Kid, Arabian Nights is an action-packed platform adventure. Yes, it's yet another cutesy platformer, and I have to hold up my hands and say that it's quite good - but more about that in a minute.

You play the part of a chief gardener's helper who is having trouble getting on with his work because he is being distracted by the beautiful princess Leila. Just as luck would have it, a passing evil demon takes a fancy to the princess and captures her.

You somehow get locked up in the palace dungeon, so not only do you have to rescue the fair princess, you also have to escape to prove your innocence. What all this boils down to is a platform, puzzle-packed platform

adventure of epic proportions.

The hero of Arabian Nights must fight against several dangers throughout the adventure including beefy guards, rapid bird attacks, spikes and acid baths.

To stop the game becoming tedious, Krisalis have implemented a huge puzzle element into the action. This sometimes involves bringing items to people, collecting money or trading items.

This puzzle factor does make Arabian Nights that little bit more satisfying than some of its competitors. But this CD version of Krisalis' platformer isn't that much different from the original.

The graphics have been enhanced and you can choose between three different levels of detail, but I couldn't really tell the difference between the choices. The sound is improved thanks to the CD technology and some of the Arabian tunes are quite catchy.

If you're a new CD32 owner and haven't got a decent platformer then I would recommend Arabian Nights to you as a must-buy, but it doesn't show off the CD32's abilities to the full.



## Alfred Chicken • Mindscape • £25.99

Here's a CD32 title that I like! OK, so it may have just been converted from the 1200 and added a few graphic enhancements and a superb soundtrack, but hell I don't care. Not all CD32 owners will like, I guess it's just a case of personal taste!

It's got a top-notch bizarre story, though! The evil Meka-Chickens have kidnapped Billy Egg and his brothers for their terrible cloning experiments.

As the world's only chicken with a bionic beak, you play the part of Alfred Chicken and are whisked off to a multitude of weird lands to pluck your friends from the clutches of the Meka-Chickens.

Cluck your way through 11 trans-dimensional (errrrr) levels facing evil and treacherous beasts such as Byron the Snail (hmm, maybe not that evil then), Mag-Mine (excuse me?) and the Taramawans (do not ask!).

Beat the Meka-Chickens, snatch the eggs back and go home and... that's about it! Alfred Chicken is a bizarre little game from Mindscape which contains a good mixture between puzzle and platform action.

The graphics are big, bright and quirky and the soundtrack is a delight to the ears. The gameplay is just about right, appealing to kids and adults alike.

Shall out a few quid for Mindscape's cluck-'em-up - it's finger lickin' good.



## John Barnes European Football • Buzz • £14.99

This is the second football game to show for a CD32, the first being Sensible Soccer. John Barnes looks, on the surface, the perfect football game. All the features you'd expect to see in a game of this type are in there.

Changeable weather conditions, scanner, match length and even the option to turn the player celebrations off are just a small handful of examples. The graphics are completely amazing and undoubtedly the best ever seen in an arcade football game.

You must do battle with the cream of European talent from eight nations to become the Champions of Europe by lifting the acclaimed European Nations Cup.

There are fully animated substitutions (where the players strip off their tracksuits) and player celebrations (where the scorer goes completely bananas and runs around the side of the pitch receiving adulation

from his adoring fans).

The celebrations are really a sight to behold because in John Barnes' the scoring of goals is extremely realistic - but this unfortunately is where the game suffers. The realism is great, but in a high scoring game it's impossible to score one!

The other teams are difficult to score against, but you soon get frustrated. I'm sure some football fans will persevere with it, but those with short-temperos should steer well clear.

John Barnes' contains some amazing graphics and a thumping CD soundtrack, but



# GAMER GOLD



# The CHEAP seats

Mad as a March hare, but in typical Cheap Seats fashion we couldn't afford one so here's our Mad as a March rabbit budget round-up from Tina

## Kings Quest 1 Kixx XL • £14.99

Being fairly young in gaming years, to me Kings Quest 1 seems very basic especially by today's standards. But I'm sure there are those of you out there who remember the good ol' days of RPGs, having to type in the commands for your hero, spending hours trying to find another word for "walk" because your computer is having one of his pedantic days and waiting an eternity for each screen to load when your character moves from one area to another.

Well, I bet some of the more nostalgic among you are now saying "hey, I remember those old classics" - and Kings Quest 1 is definitely one of them.

Whether this is a good thing or not remains to be seen. I mean how many Myth/Knight-type adventures do you really need? And when there are many other more spectacular examples of this genre clamouring for a place in your games collection, is £14.99 perhaps a little steep?

OK, so maybe you might fancy this blast from the past, so what do you get for your £14.99?

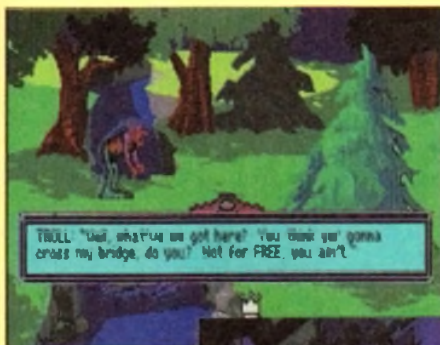
Well, certainly not an original story line, that's for sure. The King of Daventry is on his last legs, and you, as his favourite Knight Sir Graham, need to retrieve three missing treasures to restore Daventry to its former glory and be rewarded with the crown.

For your money you get some reasonable graphics, and some nice effects such as birds tweeting in the background, monsters splashing in the moat and waterfalls.

Controlling the game is relatively easy (getting your character to walk is a little strange though). Type in whatever instruction you wish your character to carry out and the computer will either let you do this or suggest that you try something else.

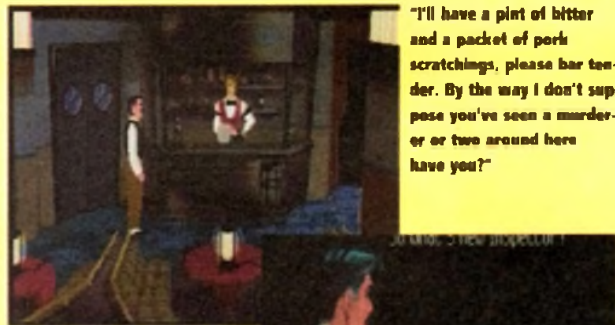
And yes, we've all done it, boredom is looming so you try a few silly commands to liven things up (OK, so you don't, I'm just a little strange like that) but in this game you actually get a response. For instance, I tried eating the butterfly and was met with some remark about them not tasting very nice. Hmm! Computer games making wise cracks I can do without.

If you're a real RPG fan then it's worth a look. The game isn't too bad, but at the moment there are far more original and impressive adventure games around, and it can't compete with today's high standards.



And I thought trolls were those cute plastic toys with pink hair and no wedding tackle, not some mercenary little devil who charges to get past his bridge

If you go down in the woods today you can be sure of a big surprise - no, it's not what's in this guy's tights but a sorcerer who's going to put a freeze spell on you



"Well Manchester City are beating Leeds 5-2, prices are down on the stock market and there's a mad psychotic on board."



## Cruise for a Corpse Kixx XL • £14.99

If you've always wanted to try your hand at being Miss Marple, Poirot, Clueso and the like then now is your chance. Personally, I've never had these warped fetishes but there's no accounting for taste and if this is your bag then Cruise for a Corpse is a must.

Right, setting-the-scene time: As Inspector Rooul Dusentier, you have been invited on a luxurious cruise, when all of a sudden your host drops dead. Coincidence, hey?

It always did seem a bit dodgy in these TV crime things that Miss Marple and company always "just so happened" to be on the scene of these terrible murders, especially when most normal people go through a whole lifetime never even witnessing the slightest criminal activity.

So, in true Agatha Christie style, you need to gather as much evidence as possible and question other characters, piecing together the events and deciding who could have possibly committed this terrible crime.

By using a simple point 'n' click system you need to interact with your environment, establishing links with the evidence you find in many of the different areas of the ship.

Each object found can be highlighted and will activate a list of possible actions, for example, you find a cupboard and can "search, examine or open drawer".

Travel around the many rooms by using the map or by guiding your character to go in the direction you wish.

So, that's basically the game. And good it is too! The superb graphics involved plus the wonderful animated story sequence at the beginning make the game visually stunning.

There have been some nice touches of humour added and the animation of the characters work well, especially when you get the chance to question them.

Sound effects are perhaps a little sparse in places but when they are used they create the atmosphere effectively.

The gameplay does, however, become extremely frustrating after a while and your going to need plenty of patience to get anywhere.

Another unnecessarily annoying feature is that actual time progresses through the game, but it seems that it only moves on whenever you pick up another clue.

Therefore different events happen through the game. Say, for instance, the Dining Room is inaccessible earlier on in the game but later on interesting clues can be picked up. A good idea - but very frustrating!

All in all, though, it's an unusual and enjoyable game. And it is hard disk installable! Bliss...





# cheat mode

# The Addams Family

It's been re-released on budget, so here are some hints and tips for Ocean's brilliant platformer courtesy of Robert Armstrong...



Gomez enters the house and gets ready to find the rest of his family

## The Graveyard

Go left and climb up the hangman's noose. Get the fez and fly up to the top left of the screen. Collect the invincibility pill and land on the right chimney.

Go down the chimney and go down to the bottom left of the screen. Walk left and you'll

enter a new room. You will come to a very high wall. To get over it you must jump onto the small wall beside it and go one pixel to the edge.

Walk through the next "wall" and jump up and to the left. To get the invincibility pill, walk through the wall to the right of it. Keep on going and you will come to a room with three extra lives.

Now jump up the chimney. Pull down on the joystick and you will enter another room. Now leave that room and jump off the roof! Walk right and go down the hole in the ground.

Go left and you'll find a bonus room. Jump up and right and collect the points. The rest of the level is easy, just remember to duck under the bats. When you reach the end go right and collect the money.

There is another level beyond this but ignore it, it's a waste of lives. Exit the level. Now you are outside



Using Gomez's fantastic flying fez you will be able to reach new heights!



Lurch tinkles the ivories as the Thing waves along in time to the music

again, only there's a lot more baddies. Make sure to avoid the nasty looking tree! Go into the house.

Go into the bottom left room. Climb the tree. To kill the bird you must jump on his head six times. To do this, hide at the end of a branch where you are safe. When the bird passes beneath you jump on her quickly and go back to where you were. Once the bird is dead leave the room.

without you losing a heart, so avoid them. Shortly before you meet the first three spiders you should see a running shoe. Go right and walk through the wall to find a bonus room.

Just beyond the spiders is a switch. To get to it jump onto the ledge beside the spikes, jump onto a flying nasty and then jump again to reach the switch. By the way, this tactic is very important; the game cannot be finished without it.

To complete the new room you must use the ramps effectively. Walk up these to increase your jumping power. You will come to a point where around a dozen flying nasties are flying over some spikes. Jump on them and when they

## Wednesday

First of all the "walking helmets" can't be killed



Gomez comes face to face with flying bug type thing in the conservatory





all dead you can fall into the secret room beneath them.

When this sub level is complete you will enter a new room. Fall down onto the spike nearest you and it becomes a block. Go left and you will find an extra life and points. Jump up and right for another power up and more points.

This level is full of spikes, so remember when there's a spike above and below you, a short hop is most effective. When this sub level is completed you will enter a graveyard. Watch for the pumpkins, they drop fire on you.

Enter the little building at the end. Wednesday is in here. Bear in mind the tactic I mentioned earlier on this level! You often have to use the bubbles the fish fire as launch pads.

There is only one very hard part to this level which consists of a number of small ledges. You must stand at the very edge of each ledge and make large jumps to succeed. It's very frustrating (I'm afraid!) To dodge the star-shaped guillotine you must pass under them when they are up.

To kill the end of level boss, dodge the skulls and use the two bricks as launch pads for your jumps. Jump when the skulls leave the screen. There is also a bonus room under where Wednesday is standing.

### Granny

Granny is in part of the top right room. When you enter the room go left. The switch is at the very top of the level. There are two bonus rooms, one is in the top right corner and other is in the top left one. Pull down on the top of the screen to enter.

There are bonuses to the right of the information box, any of the switches in this room let you get to them. To avoid the nozzles which shoot fire you must jump just after they fire.

The bouncing fireballs can be avoided by jumping when they are at their lowest point. To dodge the hopping fireballs duck under them when they are at their highest point.

The flying stars travel in circles. Walk past them just as they pass you. There are also slow moving stars and they can be dodged by walking past when they are at their furthest point from you.

Speed is important in this level, many of the moving bricks pass through lava, so you must jump on them before this happens. Always go

**Killing this bothersome egg-laying bird will reap major rewards**

as close to a platform's edge as possible to maximise your jump.

When you reach granny go to the far right-hand corner of the room. The boss passes by you three times. The first time, he can be hit, but on the other occasions he turns his spikes towards you.

You can duck most of the fireballs, but sometimes he fires a low shot which you must jump over. When he is dead you will appear on top of the oven. Walk past the level entrance and go into the deep freeze.

You must kill as many penguins as possible because otherwise they will follow you. You must use the tactic I mentioned earlier to get past some of the higher walls. The snowman at the end of the level can only be hit when he's in snowman form.

He's invincible when he becomes a snowball. Watch for the icicles; if you stand between them you will not get hurt. If you kill the snowman then you are awarded four hearts per life.

### Pugsley

Pugsley is in the top room. There are three types of very harmful nasty on this level. The ball and chains can be dodged by jumping past when they are at the furthest point away from you. The nasty who fires the disk can be killed by jumping at him when the disk has past you.

Once he is dead the disk disappears. Finally the chains of disks can be dodged by walking past when the chain has just past you. Some of these chains also appear in the Granny level.

You must also use the cannon balls as launch pads for jumps, as in the other levels. To kill the boss you must jump on the top of his head when the discs leave the screen. Be quick though, they reappear very quickly. Duck in a corner the rest of the time, so you can't be hit.

### Uncle Fester

Go into the top left room. Uncle Fester is here,

**A bit of extra money lures our hero, but will he escape that deadly spiked ball?**

but the level is quite long. The jumping nasties are easy to kill - just jump on them when they are at their lowest point.

In the case of the flying ones, kill them when they are a standard jump's distance away. The same goes for the unicycle baddies in the majority of cases, as well as for the green men, the Knights, who are unarmed, and for the men on green ducks with lances.

There are also knights in this level who throw swords. Jump on them when they turn their backs to you. The suits of armour can be dodged by walking past when the mace just passes you.

If a jump is required, then use a low-powered one, and wait until the mace is halfway through its swing. Later on you will come across Book Worms. Use the unicycle tactic on them.

The paperweights are best avoided, but if you must kill them use the unicycle tactic again, only this time be quick, because the weights move very fast. There are also spring-powered baddies, who follow you like the penguins.

Jump at them when they are at the lowest point of their hop. You will come to a room with a train in it. The track will kill you, as will the sharp cogs. To avoid them look at their positioning, you can either jump over them, or duck under them.

If you are going to jump over them then stand on the tunnel of the engine. If you want to duck, then stand on the lowest point of the train, and duck.

The witch is very hard to kill, you must jump on her when she's at the lowest point of her swoop. You also have to use Fester as a jumping point by standing on his head. When she's dead, exit the level.

### Morticia

Go into the middle room and wait for the music to stop. The wall at the right side of the room drops and you can go in the door. In the third maze room go left until you reach a door.

This leads to a money pit and two new doors. The left door leads to a bonus room and the right door leads to a new level. All the nasties here use a movement pattern that some other sprite uses elsewhere in the game.

## Addams Family finder

1. The room to the bottom right (Conservatory) contains Wednesday.
2. The room above this (Kitchen) contains Granny
3. The top room (Games room) contains Pugsley.
4. The room to the top left (Portrait Gallery) contains Fester.
5. Morticia is in the middle room (Music Room). Don't forget you have to save the others first.

The bird uses the pattern of the green flying eye in the snowman level. The green blob moves the same as the bouncing flame in the oven. The rolling rack moves the same as the snowballs in the deep freeze.

There are skulls and ball and chains too. There are also fish which can be killed by swimming over them and touching your feet on them. Be warned though because you move slowly in the water. There are flying mouse like faces as well, who move the same as the flying nasties in the garden level.

To kill the end of level boss you must dodge the hammers. Stand on the right most part of the low right ledge when you want to hide. To begin with he jumps to the right. To attack him jump onto the top of the pedestal and jump down on him.

After your first attack, he hops once on the top of the pedestal and then jumps to the left. From now on however he hops once on the pedestal, then down onto the ground in the middle and then to the right. He hops once more on the top of the pedestal, then on the middle ground and then to the left. When he's dead you've won! Enjoy the end sequence!

## Addams Family codes

1. Pugsley = V1193
2. Granny = V&Z1X
3. Wednesday = VD916
4. Fester = V19KD
5. 3 hearts per life = &1#1F
6. 4 hearts per life = ?1#KM.







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# DEMON



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# AMIGA insight

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Last time we looked at various ways of using Intuition, the Amiga's Graphic User Interface, from within ARexx. In particular we looked at REXXARPLib.library v3.0, as an excellent example of a utility that brings the machine's graphic system within reach of the user, with a minimum of fuss.

To recap: Intuition's graphics facilities cannot be accessed directly from ARexx, so instead we launch a semi-independent ARexx unit (a host) which can access these features.

This unit takes care of all the drudge work involved in opening windows, handling mouse-clicks, requesters, menus and so on. Our ARexx program then uses special commands that act on the host, in order to produce the desired results.

These commands are quite similar to their corresponding Intuition functions, so programming with a graphic library like REXXARPLib.library is not too different from "real" system programming. It is however much easier, since most of the "overhead" of details is taken care of by the host.

In fact, all the programming that we do when we handle Intuition in this way is pure ARexx. There is no "real" system programming involved. The REXXARPLib host adds an extra ARexx layer between us and the system.

This is in contrast to some libraries which allow you to make direct system calls, and are hence a little more dangerous to use. The trade-off is a small loss of flexibility and speed which should not bother most users.

Before we leave this subject I would like to dwell on a few things which may puzzle a newcomer. I assume that most of you reading this far have either already obtained a copy of REXXARPLib, or are planning to do so.

In any case it is a very worthwhile piece of software, and should be in the library drawer of all ARexx users. It should be obtainable from most PD libraries.

If you already own a book on ARexx, and you got a free disk with it, the chances are you already have it. Make sure it is v3.0, since it has more features, and earlier versions gave problems with Workbench 2.x.

I will use the "graph.rexx" example supplied as part of the distribution to illustrate. This example is good because it shows what can be done in a relatively small ARexx program, and also has lots of room for improvement.

First a comment about the line that goes "ADDRESS COMMAND runwsh..." in line 79. As you can probably guess "runwsh" is an external command, and you will not have it unless you are using Bill Hawes replacement

for the Amiga Shell, WShell. WShell is not widely used in the UK, even though it is a very good program; on the other hand it is extremely popular in the USA. Bill Hawes, of course, is the author of ARexx.

This command is used for launching the host asynchronously, and as you will have seen from last week's code it can be replaced by the following line, which does the same job.

```
ADDRESS COMMAND run rx '22'x || 'CALL
CreateHost('GRAPHHOST','GRAPHPORT')' || '22'x
```

It is essential to make this replacement if you want the program to work. In fact, if you ever have American ARexx software that appears not to work, it is always a good idea to check that "runwsh" is not being used.

I have been caught out by this a number of times. Note that in the above example, the code for the double quotation marks ('22'x) is specifically included. This preserves the quotation marks when the line is passed to AmigaDOS, and the actual command line that is used reads:

```
run rx 'CALL CreateHost('GRAPHHOST','GRAPHPORT')
```

You may already know that the last (closing) double quote

## Easier

mark is optional. You can also replace lines 80-85 (which wait for the port to appear before proceeding) with the more elegant:

```
ADDRESS COMMAND 'WaitForPort GRAPHHOST'
```

but this is by no means essential. Then, to run the graphing program simply make sure that the "graph.rexx" file is in the directory you have assigned as REXX:, or simply in your current directory or path, and type a command like the one below at the Shell:

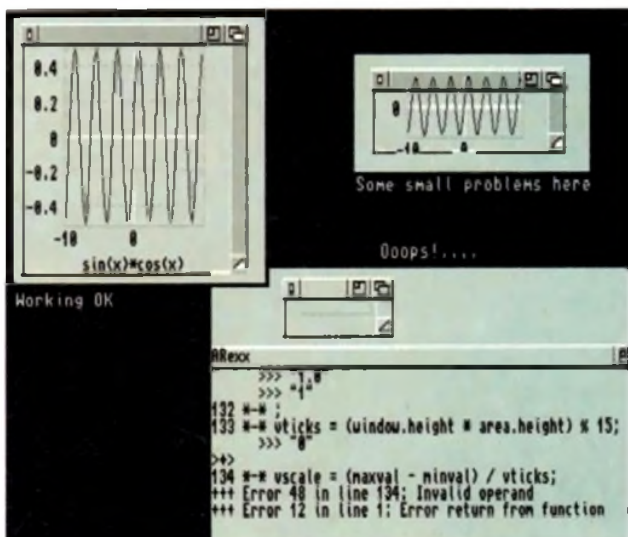
```
rx 'CALL Graph('Name',100,-5,5,'sin(x)*x')
```

Newer users will notice that since our graphing program has the suffix ".rexx" it can be called as a macro from within another program (in other words, just as if it was an ARexx function itself).

The next thing to notice (line 90), is the two IDCMP flags which have been set. This means that the window will notify our program if we try to either resize it or close it. The code between lines 273-300 (especially between lines 273-287), shows how we process the loops which wait for ARexx messages.

The functions used are found in the "rexxsupport.library". This general technique of waiting at a port for a message should be totally familiar to anyone wanting to do serious Amiga programming. We have discussed it at length a number of times already, and nearly all books on Amiga programming describe it.

If you are programming in C or Assembler, there are several other details to attend to as well, but the ARexx version is nice and simple. You will also notice



Some things to look out for...



that the formula to be plotted is entered as a string of characters within quotes. Then the program relies on AREXX's powerful INTERPRET instruction (line 59) to work out the individual point values.

This means that any function you use in your formula, must be defined in AREXX. Therefore, if you want to use trigonometric or logarithmic functions, you should make sure that you have a special maths library (e.g., REXSMATHLIB library) installed. Since this library is usually distributed together with REXSARPLIB, and is by the same author, this should be no problem.

There are two other minor problems with this program and it is instructive to look at them. They are illustrated in the accompanying diagram.

Firstly, if the window is made fairly small, then the graph draws over the top bar of the window. This problem is not due to the system, but merely to the simplistic algorithm used for the grids.

This is not too serious in a simple demo program like this; it could have been cured by setting the GIMMEZEROZERO flag, but this flag is not implemented in the library (if it was, it would have been specified in line 91 along with the other flags).

Without it the window draws in all of its area, including the top bar. As it is, the problem must be compensated from within the

program (lines 127-181). Secondly, if the window is sized down to its minimum possible size, the program crashes due to a division by zero.

On Workbench 2.0+ machines this problem is more marked, because the system "zoom" gadget automatically sends the window down to this tiny size. This could be fixed by specifying a minimum size for the graph window, but unfortunately our library has no direct way of doing this.

These problems are the trade-offs for using a user-friendly library like REXSARPLIB. If you were using more "direct" libraries, like APIG or RxGen instead, both of the above problems could be easily corrected, but it may be easier to make other mistakes, especially if you are new to this. You pay your money and you take your chances...



# graphics still

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## Creating independent executable utilities

I hope that the main article has shown how easy it can be to implement an Intuition interface to your AREXX scripts. For a relatively small investment in time your work can look really professional.

If you are creating utilities that get used by other people too, especially people less familiar with computers, you can help them avoid the CLI and use a friendlier mouse and requester interface.

In fact, for those special little hacks that just need to get done, rather than requiring attention to speed or compactness, AREXX may be better than the so-called professional languages, since it allows interactive experimentation during the design process.

This is the reason why AREXX became popular among developers in the first place, even before it was embraced and bundled by Commodore.

If you write little programs like this, it might niggle you that they still have to be launched from the Shell, especially if you are trying to stick to a Workbench environment. There are

a number of things you can do to package your scripts in a more Workbench-friendly environment.

You can write a one-line AmigaDOS script that launches the program, and attach it to an icon using the IconX utility (refer to your AmigaDOS documentation). Remember that if you are trying to lose the Shell you will also lose the ability to launch a program with parameters, and the program will have to receive all parameters while it is running.

If you do not like the inconvenience of having three separate files (the DOS script, the AREXX script and the icon file) you could use the excellent PD program, IconJ, which does the same job as IconX, but much better, and also lets you link the script and the icon into only one file!

IconX and IconJ still use a CLI window for output, but you can disable this by specifying the NIL: device instead of a particular window in the tool types.

Of course, you should only do this if your program has absolutely no text output, such as that due to the

SAY instruction. Should you decide to use NIL: for your output - unless you have taken special steps - error messages will be lost too.

If you are using a 100 per cent Intuition environment, you must make sure everything (including errors) get handled by Intuition. For a beginner it is probably much better to have the CLI window present too, just as a safety backup.

Another possible avenue is the use of the freely distributable program "ExecREXX". (As you can see there is no shortage of helpful PD AREXX programs.) This utility will package your utility into a fully executable file, just like a commercial application. This also provides a way to hide your code should you be so selfish. Of course the AREXX installation must still be present for your program to run.

Finally, serious programmers, who wish to produce commercial or company in-house material using AREXX but want a little extra edge on speed, should consider the heavyweight REXXPlus AREXX compiler from the Dineen Edwards group in the USA.

In the second part of his AREXX graphics series, Alex Gian shows how sometimes AREXX can actually be better than low-level languages







**T**he first few days of shooting are going well and apart from the occasional hiccup, you're on schedule for glorious victory. Never mind that the actors burst into hysterics during one of the film's more serious and melancholy moments or that despite constant coaching, the clapper boy keeps running in and marking the shot when the tape hasn't even rolled yet.

Yes, there's nothing quite like returning after a hard day's graft on the set and settling down into your favourite armchair and wondering when you're going to be rich and famous... to watch the rushes of the day's shoot.

Only a few glaring foreheads through lack of make-up glisten back up to you from the glowing screen and the odd moments of convulsive camera shake as the lens operator gets his or herself ready for the shot half-way through the take.

Indeed, at the rate you're going, the local premiere promised to all friends and neighbours looks as if it could be a resounding success instead of a 20-minute cringe and squirm in the discomfort of a town hall chair.

With the shot list decreasing rapidly every day, it's good to keep in mind some of the classic film mess ups that can be spotted in many movies and television programmes today.

The prime candidate is continuity. If you're planning to shoot a large scale production for your next project then it is advised that a continuity person is used to keep track of any mistakes that could happen - clothes suddenly changing from one shot to the next because in reality, there was a two-day gap between each of them and the actors forget exactly what they were wearing because they were too involved with the script.

The way to solve this logistical nightmare is an observant per-

son with notepad, pen and a Polaroid camera with plenty of film. There's nothing more accurate for practical and easy reference than a picture of the actors, location and so on.

Another problem encountered is falling behind schedule - hassles often arise from nowhere that can be related to location and other factors. Sometimes, a shot takes longer than previously planned for, or on the day you just have a better idea for shooting a scene.

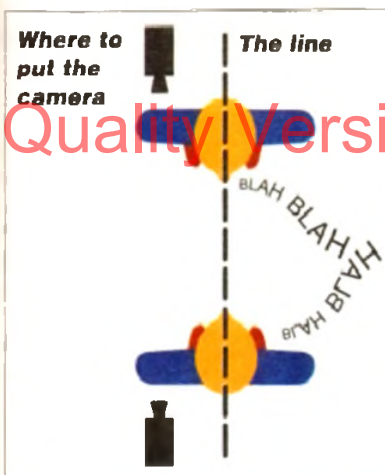
Solving this dilemma involves the PA juggling the remainder of the schedule, slicing off times from different shots and the director seeing if there are any shots that can be dropped. The process of video making is about adapting and shifting within a given situation.

There are many things to learn to avoid or to do on a shoot which are learnt by getting out there and experiencing it for yourself. Practice makes perfect...



# As time goes by...

... or what to look out for as the rest of the shoot hurtles by in the fifth instalment of Adam Phillips's vivid retelling of the video-making story



Imagine a line drawn between two people. The camera, while shooting a conversation between the two, must not cross over that line when cutting between them...



It appears that they are talking to each other because one head is on the right of frame, the other on the left as you were standing there flicking between the two...



The line has been crossed and it now appears that they are talking from the same position and direction and perhaps to another person altogether because their heads are on the same side of the frame.

## Tread carefully

As each shooting day passes, its usual human psychology for people to become tired and a little more edgy than usual. Mistakes can be made and accidents can happen through carelessness.

Your role as the director is to keep the crew and cast motivated through encouragement, organisation, keeping the pace of the shooting schedule as swift as possible and above all by letting people have fun with what they are doing.

There is little point of being a military dictator on set because it gnaws away at people's patience especially in an amateur group - until you're told where to go and put your opinion.

Apart from the mental, physical hazards must be kept to absolute minimum - a badly placed light could topple over and smash, eating unnecessarily into your already limited budget or in worst case scenarios, left by a particularly flammable object that doesn't take too kindly to being gently cooked for a few minutes. When on loca-

tion in someone else's premises, make sure that everybody treads carefully - vases and other breakables seem to beg for the accident prone elbow to shove them off the edge of the mantelpiece into oblivion.

If using Blu-Tac or other adhesive substances, don't put it on wallpaper to be ripped off half an hour later with most of a Laura Ashley design attached to it.

Some of this may sound obvious but in the excitement of a shoot, there are times when even the professionals out there treat their locations as if they were in a dog kennel and not somebody's home.

When using large lengths of cable trailing across the floor where cast and crew are in risk of tripping up, use gaffer tape to adhere the wires to the floor (remember to take it off gently).

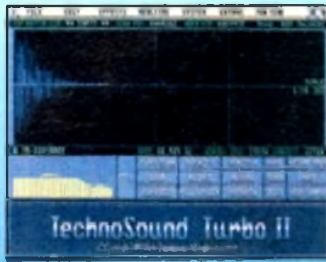
Above all, remember to remain commonsensical and don't take chances that could cause risk to either person or property.



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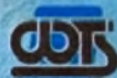
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**A** lot of new Amiga owners will have joined us over the Christmas period and there'll doubtless be quite a few Midi users looking for help within these pages.

This being so, I thought I'd kick off by telling you about a little gadget that has proved to be immensely useful in my own Midi travels. It's called the MA36 Midi Analyser and is made by a company called StudioMaster (who are probably best known for their audio mixing desks).

The MA36 is a battery powered unit which measures about 7 x 12 x 3cm, has an on/off switch and two Midi sockets (Midi-in and a Midi-thru).

As your Midi data passes through the unit the MA36 identifies the incoming messages and displays the appropriate real-time information using two sets of LED indicator lights situated on the front panel.

The indicators on the left-hand side of the display provide details of the message types being received while those on the right let you see what channels are being used.

Now Midi communications in general are relatively trouble-free, but occasionally the odd snag will arise and, particularly in the early days, it can be difficult to figure out exactly where things are going wrong.

You might inadvertently connect up some leads the wrong way round, or use a lead that is faulty (eg broken internally).

Your synth may not be sending the messages you think it is due to the way it has been programmed or your sequencer may be

one side of your Midi interface is not working.

Experienced users will know however that it is far more likely that either the lead linking the Midi interface's Midi-out connector to the synthesizer's Midi-in is faulty, or that the synth is set to a channel number which is different to the one the sequencer is transmitting its data on.

In short, your first instinct should be to check the most obvious and likely things first (including making sure that the correct Midi sockets have been used and that all connectors have been properly pushed in).

The MA36 Midi Analyser costs £32 including p&p. Details from StudioMaster on Tel: 0582-570370. Trust me - if you have more than a passing interest in Midi then this little gadget is well worth checking out. I suspect that I'll be using mine for as long as I continue working with Midi - probably forever.



# Midi magic

ignoring certain types of messages without you being aware of it. At times like this you want a quick way of seeing whether the expected Midi messages are being transmitted or received and the MA36 is an ideal tool for these types of operations. Best of all it is one of those delightful little boxes that you don't need to be a genius to use!

Supposing, for example, that you've got an Amiga sequencer program running with a Midi keyboard connected to it via a Midi interface.

As various tracks have been played you've manually switched to different synth voices during each recording believing that this should generate the required program change Midi messages which will then be stored in your sequences.

On playback the synthesizer doesn't change voices and on examining the sequences you find the program change events aren't present in the sequence data.

Is the program change data really being sent by the synth, or are the messages arriving but not being stored in the sequence? Just unplug the lead carrying the synthesizer's Midi messages to the Amiga, and plug in the MA36. Switch it on and manually change the synth's voice - you'll instantly see whether or not a program change message gets transmitted because the appropriate MA36 Midi channel number and program change lights will flash.

If the messages are being generated by the synth then it's obvious that your sequencer settings will need to be altered (perhaps the default behaviour is to filter out such program change messages).

If the messages aren't being transmitted in the first place then you'll know that it is the synth settings that have to be changed. Either way the MA36 can point you in the right direction instantaneously and needless to say that can save a lot of time and aggro because it takes the guesswork out of these types of fault-finding exercises.

As with most areas of fault finding, a bit of common sense goes a long way with Midi. If, for instance, your synthesizer seems to trigger the sequencer when recording, but on replay nothing seem to come back to the synth, then one outside possibility would be that

Paul Overaa takes a look at a reasonably priced piece of Midi diagnostic hardware that is guaranteed to help Amiga Midi users avoid unnecessary fault-finding grief

## What's it got?

- Can identify Midi channel messages and common, real-time, and sysex Midi system messages.
- Independent channel indicators provided for channel messages.
- Includes an error indicator that can signal the reception of badly formed, or poor quality, Midi messages.
- Provides active sensing and timing clock detection (useful because conventional sequencing software does not usually show whether these messages are in use or not).



StudioMaster's MA36 unit is a brilliant Midi fault-finding tool



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**T**he mail has been piling up over the last few months so I thought now would be a good time to have a quick question and answer session. Firstly many thanks to all of you who send email and letters in response to the column.

Your comments are always read and noted, although not always replied to. I try to reply to all my correspondents on email if I can, but you know how it is. Pressure of work, blah blah... Anyway, the first letter is from H Bond of York, and he's into Radio Comms.

"I would like to ask a question about Radio Comms. I have just changed from the BBC to an Amiga A2000 2Mb. Now I always buy *Amiga Computing*, but I haven't seen anything on Radio Comms. If it's possible could you give me some info on SSTV and FAX Transceiver for the Amiga? Or is the Amiga just a games computer? I hope you can help but the York area is very bad for Amiga info."

Wake up and smell the coffee, buddy. The York area bad for Amiga info? Is it cut off by moats? Is it a space flight away from your nearest newsagent? I think not. Where have you been since 1985?

The Amiga is a leading comms computer, and I use mine for comms all the time. In spite of the fact you just insulted everyone reading this page, I'll cut you a break.

I just happen to have a disk full of radio comms software from the Internet, and just because I'm an old sofie I'll send it to you. Now don't let me ever hear such nonsense talk again.

You might also seek out an old copy of *The Radio Hackers Code*

# COMMS

pulink.co.uk", and then you're in. Now you can do directories and CD around the place as if the FUNET system was your own, except that being a huge Unix box there are up to 250 other people doing the same thing at the same time with very little slowup.

You use the GET command to pull files from FUNET and pass them to CIX, then you use SEND to send them from CIX to your Amiga. The whole process is very painless and useful.

If you want to go into an Aminet sit, they have all the latest files from Fred Fish, plus all the latest graphics demos, product information and support files, everything you could wish for. Miss Chew, the world of the Internet is a big and scary place, but it is wonderful too!

● Finally for this month, LJ Sanders writes to plug his BBS:



# Treading the boards

Book by George Sisson (published by Duckworth). It's an old book, and probably out of print, but you might be able to get it from Waterstones Book Shop (branches everywhere) through their second hand Booksearch Service.

● P Chew of Somerset emailed me to ask:

"When you talk about FTP what does that mean, and how can I use it?"

FTP stands for File Transfer Protocol, and it's the way all the Unix machines on the Internet send files to each other. For example, using CIX you might log onto ftp.funet.fi, a very good Amiga FTP site in Finland.

This isn't an international call, as the lines which connect all the sites on the Internet are owned by the Information Providers and they carry the can.

All you're doing is talking to CIX like you normally would (it's very unusual to get something for nothing I think you'll agree). Once connected to FUNET you log on as "ftp" with a password of your Net email address, which in my case is "snouty@cix.com."

## Moving base

By the way, any fans of Guru-10 will tell you, one of the Amiga's most muscular BBSs is moving from its long held base in Scotland. From January 17 1994 the board will be moving to darkest Durham, and the new numbers will be:

Guru-10 (24 hours, all speeds)

Node 1 091-378 9934

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Here's wishing the sysop a pleasant and hassle-free move, and looking forward to more great stuff from this well liked bulletin board. Good news for Geordies, eh? The'll be smaller bills to dial th'Guru, ye'nah.

"The BBS I run is called Mostly Harmless, and it's a 100 per cent Amiga-only BBS. You won't find a single file for any other machine on it. The BBS is running on an 030 882 33MHz based A500 with 9Mb of RAM and 22Mb of on-line storage.

The board uses a great piece of software called Xenolink. I have been running the board since January 1993 and have 224 users. The board is also part of three larger networks, Fidonet (2:251:41.0), Amiganet (39:134:14.0) and Pafownet (213:1020:7.0) importing over 125 messages from them all.

The system is running on an US Robotics 16.8K HST Dual Standard, which will be upgraded to 28.8 VFast when CITT announces it in 1994. I give all users a generous 10:1 download to upload ratio, and I am strongly against piracy and similar things.

"Bad language is not allowed, and files containing anarchist, hacking, commercial software or pornography are also not allowed. The number of Mostly Harmless is 0705 614824."

Thanks for that. This is in answer to all the people who emailed me and said they were just getting into comms and did I know any good numbers. This is not a phrase guaranteed to make you popular on-line, and it marks you as an annoying neophyte.

Hunt around for numbers, but never ask outright as it just annoys regular users. There are plenty of lists of BBS on-line so look around in the file sections of any board. If there are any other sysops out there that wish to write in about their experiences of setting up their own BBS, I'd be interested to hear about it.

Anyone set up a BBS and packed it in for some reason? Or do you run a particularly successful one? Why do you think people like your board?

**Comms head  
Phil South  
answers your  
comms questions**

## Write stuff

Write to me Phil South, Comms Column, *Amiga Computing*, Europa House, Adlington Park, Macclesfield, SK10 4NP. Or how about dropping me some email on:

CIXsnouty@cix.computulink.co.uk  
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snouty@dircon.co.uk  
CompuServe 100102,1500







is there on the disk. Use Parent and Dir\$ to navigate around the disk.

Below is an example. It doesn't do any file loading or anything like that, but it shows you how to use windows on your Amos screen. Once you have that down you can use the DOS commands and ask for key presses, just like you would in an Amos program. Use the window commands to add another thin window on the screen for your input, filenames etc.

The trick with Amos is to keep it simple. Don't try to run before you can walk and don't try to hit machine code until you know which way is bitwise.



# Any requests?

This month Amos guru Phil South looks at DIY file requesters

In the coming months I'm going to start looking into some of the Amos mail I get via AC and talk through some of the subjects that you want to talk about. The basis of this month's and bobs is a letter I got from Thomas Jones of Darlington, County Durham.

Q "Could you please try and solve a little problem I'm having writing a program in Amos v1.35? I am trying to write a MED Module Player program but as usual I jumped straight to my code and started to write without thinking.

"Everything went fine until I tried to write a file requester. Try and try as I might I cannot write a fully working bug-free file requester. I can't or don't know how to select a file with the mouse. I can't get the computer to distinguish between a file (module) and a directory (drawer). I have been experimenting with:

```
Print Dir Next$("*.*)
```

to no avail. Is it possible to make a point and click file requester in Amos or will I have to use the lame standard file requester?"

A Well, Thomas, you've got yourself in a right old pickle there. Couldn't you have started on a less difficult problem? File requesters have been done by various people, and the best one I know of is by Len Tucker, and it's 3D too. You might get in touch with Len at Amos PD Library, and they'll sort you out. In the meantime here is my thoughts on the matter.

Doing the buttons on the requester is easy. You define the buttons using Mouse Zones and when you click on them off they go. You can store the frame and the buttons as a IFF file, but this is very memory costly, and so it would be better to draw the requester on the screen and then erase it afterwards.

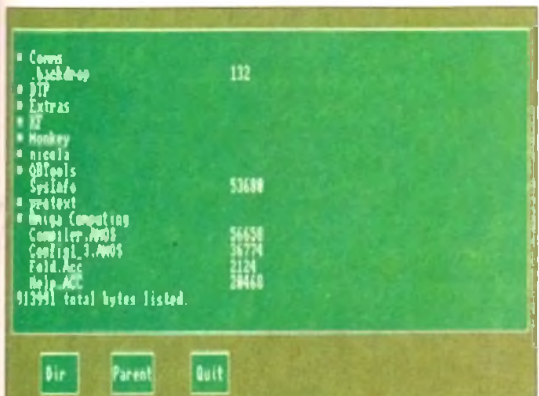
If you want to make your requester overlay the screen, you'll have to open another thin screen for it, of course.

Doing a directory and sorting it shouldn't present too many problems, just put two windows inside the requester and do all your display of files in another and input in the other.

Point and click is the hardest bit. The way to do it is to zone strips of the window and remember what is in each of those strips. Stick each filename in an array and when you point and click that value is loading into the load string. It's a bit hit and miss, and you'll have to have a large array, but there it is.

The simplest (and in code terms the smallest) way to do it is to avoid the point and click method altogether. Simply print up a list of files on the disk in a nice sorted window, then invite the user to type in the requested file.

When they do and press Return, use the Dir and Exists file commands to find it and load it. Use error checking to check if the file



Our rudimentary file requester

## Write a requester

If this has sent you off on a useful tangent, why not show me what you can do with Amos requesters. Can you select files with point and shoot? Or can you think of a better way? Send in your examples to the usual address.

```

Ren ** ACReal.Amos **
Ren ** **
Ren ** **
Screen Open 0,400,200,16,files
Reserve Zone 1
Paper 12 : CIs
Ink 11
Bar 45,170 To 90,190
Bar 130,170 To 180,190
Bar 225,170 To 270,190
Ink 2
Box 45,170 To 90,190
Box 130,170 To 180,190
Box 225,170 To 270,190
Ink 2,11
Text 52,183,"Dir"
Text 132,183,"Parent"
Text 235,183,"Quit"
Set Zone 1,45,170 To 90,190
Set Zone 2,130,170 To 180,190
Set Zone 3,225,170 To 270,190
Ink 11
Bar 10,10 To 629,160
Ink 2
Box 10,10 To 629,160
Paper 11
Wind Open 1,20,20,76,17
Dir$="Amos:"
Dir
:
MAIN:
Curs Off
If Mouse Key and Mouse Zone=1
Dir
End If
If Mouse Key and Mouse Zone=2
Parent
Print : Print "Going back to parent dir..."
Dir
End If
If Mouse Key and Mouse Zone=3 Then Goto QUIT
Goto MAIN
:
QUIT:
Print "Do you want to quit? (Y/N)";
Input NS
If NS="N"
Goto MAIN
End If
If NS="n"
Goto MAIN
End If
End
    
```

## Write stuff

If you have an Amos question, then please write to Phil South, Amos Insight, Amiga Computing, Europa House, Adlington Park, Macclesfield SK10 4NP.



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**H**ome publishing in colour has come a long way in the last year or so. Although the Amiga has a good track record for displaying colour on the screen, the technology to transfer those colours on to paper, fabric or even film has, until recently, not been affordable.

Ink-based printers are today producing a quality of output that would have been unheard of a few years ago, quality that is good enough for many applications – coloured flyers, posters and the like. But colour can be an animal to work with, and if you are not careful it can eat you alive.

The first point that needs addressing is your Amiga itself. For publishing in colour you will need lots of memory, a fast processor at the heart of your Amiga, and a large storage device.

The reason for the hard drive and memory boost is because you can forget about printing HAM graphics, or even 256-colour ones – what you need are 24-bit graphics.

Anything less than this quality of graphic and the professional output you will be searching for will be lost. Photo-realistic graphics contain thousands upon thousands of colours, and the best Amiga file format for them is 24-bit IFF-ILBM.

The catch is that 24-bit graphics do not come in anything other than large and extra large. Sizes of 1Mb and 2Mb are common, but images many times that size are frequently encountered when working with graphics that have been scanned at a resolution of 600 or perhaps 1,200 dots per inch.

So before spending all your cash on a colour printer, make sure your Amiga is capable of dealing with the images you will be wanting to print with it.

## LIMITATIONS

It is also worth remembering that colour printing is not as simple as printing in black and white. Low-end colour printers have the same limitations as mono printers when it comes to printing continuous tones.

Because these printers cannot print 16.7 million true colours, the graphic will have to have a dither applied to it so that the printer can use the three or four colours it does have to simulate the colours in the graphic.

Any graphic you print will be dithered if it contains a colour that is not an exact match for the colours in the printer, so you are never going to get the same quality of graphic on paper as you see on the screen.

You know that every pixel on the (AGA) screen can be plotted in any colour from a 16.7 million colour palette, and up to 256 different colours can be on the screen at once.

But a colour printer can print only three or four colours, so if there is (say) an orange pixel in your graphic it will have to be simulated on paper by the printer mixing dots of three or those four colours.

Another reason for the difference between screen output and what you see on paper is that the colours you look at on the screen are being shined at you (luminance) and every colour is



Colour pages certainly look great, but working with colour, from the design down to putting it on to paper, is a lot more complex and costly than doing the same in black and white

# PUBLISHING

composed from red and green and blue (RGB) components.

Colours in a printout are being reflected at you, and these are composed of cyan, magenta, yellow and (usually) black components (CMYK).

From screen to printer, the colours have to be converted from one system to the other, and this process is the bane of professional desktop publishers.

To improve the colour quality of your printouts you need to fine tune the "colour correction" – the process that attempts to produce on paper the same colours that you see on the screen.

To do this you need to buy some printer software. Studio if you want very fine control over colours, TurboPrint Professional if you're not that bothered but would like a little control.

Before buying a colour printer don't



# Coloured by experience

forget that they have a high consumables overhead. Look into the cost of the paper it requires, the inks, ribbons or toner, and all of the other costs that you may encounter in needing software to process the colour graphics you want to print.

But the most important thing you should keep in mind is that colour printing technology has not yet reached the point where photo-realistic printouts are affordable to the home user.

You can get some very good output indeed from sub-£1,000 ink-based and thermal wax printers, but if you are looking for a colour printer that can print graphics that you cannot tell apart from a colour photograph, then you need something called a "dye sublimation" printer.

Like the pixels on your screen, every pixel (dot) a high-end dye sublimation printer prints can be a true colour, not dithered I mean, from a palette of 16.7 million colours or more. Sounds perfect, yes? But before you write that cheque, make sure you have six or seven thousand pounds in your account to cover it.

Ben Pointer on how to create spectacular full-colour documents with your Amiga



Publishing in black and white is relatively problem free these days, and it doesn't cost the earth to get professional quality results



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Panasonic KX-P2123 and VideoMaster AGA

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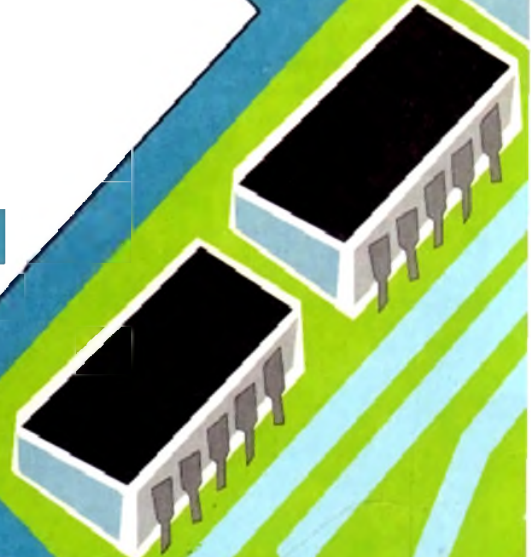
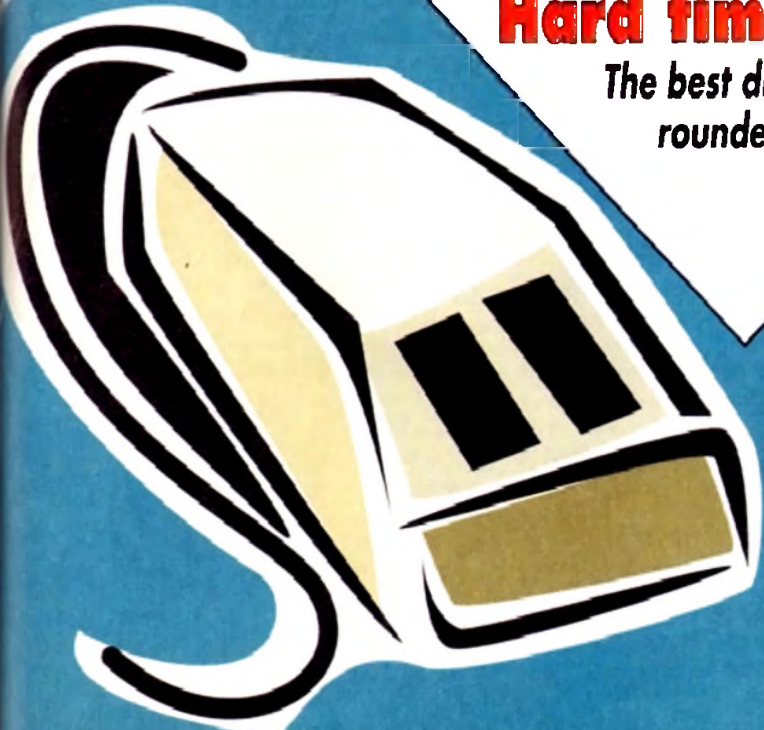
A vault of video bargains

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New free ads for readers

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The best digitisers  
rounded up



classifieds



Hi Quality Version Available on AMIGALAND.COM





Colour 24-pin dot matrix printer  
 Supplier: Indl Direct Mail  
 Phone: 0543 419999  
 Price: £209.99  
 Ribbons: 2 black and 4 colour for £70

# Making a splash

**P**anasonic's range of dot matrix printers is as extensive as anyone's these days, but the undoubted star of the lower priced models has to be the KX-P2123, a printer claimed by its distributors to be the UK's best selling colour dot matrix model.

In today's intensely competitive market, you have to offer one or two extras to come even close to that sort of claim, and the KX-P2123 has quite a few of them.

Bundled with Wordworth 2 AGA and offering a number of features some more expensive printers cannot match, the Panasonic is flexible and advanced enough to compete on at least equal terms with the increasingly popular bubblejets which, though capable of better output, can't be put to as many tasks as a dot matrix and are generally slower.

This is one of Panasonic's Quiet printers, but the noise when printing anything other than straight text with the built-in fonts (of which there are seven) is almost as noisy as any other modern dot matrix.

Fairly quiet printing can be achieved with simple documents, particularly in draft mode, but on the whole this is one feature which was a disappointment.

No other aspect of the printer's operation can be said to disappoint, however, and from easy set-up to using the extensive front panel, the user needn't sink into confusion.

An informative 200-page manual packed with easy to follow guides and more advanced information for programmers will sort out any mishaps which do arise.

The unit's width enables the user to print in the landscape orientation by simply inserting the paper side-on, and there is a bottom feed option for those using printer stands, making the

Some output from the KX-P2123



Panasonic's new colour printer can add a touch of sunshine to boring black-and-white printouts. Plus more new releases for this month reviewed by the AC team



unit more office-friendly. Panasonic's KX-PT10 sheet feeder can be fitted to further boost flexibility, the dot matrix's main weapon against its inkjet foes. In the spirit of further expansion, a 32k hardware RAM buffer can also be added, at which point it becomes possible to download fonts to the printer.

These will be used in the same way as the standard built-in fonts for maximum speed, and the option gives users the chance to fully customise their 24-pin pal.

Print speed is rated at a maximum of 240 characters per second (cps) while using the "micron" (15 characters per inch, or cpi) setting in draft mode, and 80cps in NLQ mode.

Neither of these speeds will mean much to the average user when he or she prints letter quality documents using different

fonts, but as an indication of general speed they are accurate.

The KX-P2123 isn't the fastest printer in its price band, but it is a nifty little mover all the same and when using the most than acceptable built-in fonts, a large listing or multi-page document can appear in a fairly short time.

Media costs, as with all dot matrix printers, are much lower than those of the average bubblejet or inkjet, and Panasonic's own estimates are that a black ribbon will produce three million Ascii characters in draft mode before expiring, the colour ribbons offering about a quarter of this output.

This, of course, is no measure of how the cartridge holds out when printing graphics every day, but running costs should be acceptably low in even the most ribbon-killing conditions.

A problem all dot matrix users will find with their printers is that the print area - that part of the page on which the print head can physically place a character - is necessarily limited because of the manner in which the paper is passed through the unit.

Rollers and the like have to have something to hold on to, and nothing can be printed in those areas. The result is that the KX-P2123 cannot print in the first or last 1.5in of the mar-





pin, and must skip about two-thirds of an inch at the top of the page and one inch at the bottom.

These figures are pretty standard for a 24-pin, and the small gap left at the top of a page means that headers should never be affected.

A plus point of the Panasonic is that it seems engineered well enough that automatic form feeds and paper alignment are not adversely affected as they sometimes are in cheaply built units.

Print quality itself is more or less what one expects from an affordable dot matrix these days. Clear and sharp text output is compromised by the dreaded dot matrix banding effect when printing graphics, though the latter is of little concern to those with general correspondence requirements.

Overall, for letters, reports, large documents, and a wide variety of office purposes, the KX-P2123 is a very attractively priced workhorse capable of turning its hand to a variety of tasks.

Its flexibility (it will handle carbon copies and thickish envelopes) combined with clear 24-pin output makes it a very good choice for anyone with general needs.

STEVIE KENNEDY

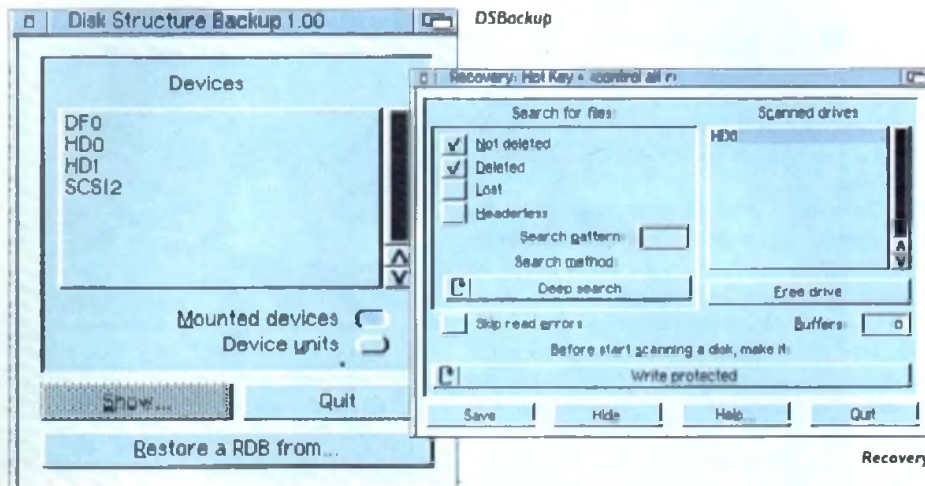
## Upper Disk Tools

Hard and floppy disk retrieval system for all Amigas (Workbench 2+)

Supplier: Wheelbarrow Software, Broad Oak, Two Tree Hill, Henley-on-Thames RG9 1RQ

Price: £19.95

Though few in number, the range of available Amiga disk recovery programs offers the user an excellent choice. Without exception, however, they all demand a certain amount of Amiga



knowledge on the part of the beginner, even if this is just an appreciation of directory tree structures. Upper Disk Tools (UDT) is designed as a budget package which can be used by more or less the most inexperienced user to retrieve lost, deleted, or headerless files on any trackdisk device such as a hard drive or floppy disk.

The more experienced will find the program every bit as useful, but because of the way UDT is programmed it is difficult not to recommend it to first time hard drive owners.

Supplied on a single disk, the package comprises two programs, Recovery and DSBackup. The former carries out all scanning and retrieval tasks while the latter has the simple job of storing and restoring a hard drive's Rigid Disk Block.

Running from CLI or Workbench, Recovery offers four main scanning options such that the user can decide to search

for files which have been deleted, or lost, or headerless, or even not deleted.

A second toggle switch jumps between the fast scan and deep scan modes and another makes it possible to lock out a drive while it is being scanned.

That's it. No funky or advanced features to confuse the user, just a straightforward, easily understood interface which so obviously does the job that the program's 50-page manual need hardly be opened.

Better still, though, is the way in which Recovery presents the files and drives it is being asked to scan. Once installed with the program's options set to the user's tastes, a drive icon with the name Recovery and the logical device name REC: pops up

## Bubblejet ink refill

Cheap ink refill for most types of bubblejet printer

Supplier: First Computer Centre

Phone: 0532 319444

Price: £8.99 per ink colour, or £26.98 (CMYK), or £6.99 (black only)

Though bubblejet and inkjet printers have become more and more popular of late, the cost of running the beasts has always been significantly higher than dot matrix printers in the same market. Replacing the original ink cartridges using the manufacturer's own brand can be an expensive affair, so step forward the re-inking brigade.

First Computer Centre's refill kit has basic common-sense in its favour and it should be a straightforward job for most users to replenish their printer's ink cartridges using this product.

Supplied in large plastic syringes, the three basic ink colours (cyan, magenta, and yellow) can be bought separately or with a black ink syringe to complete the foursome.

In this way, users of mono models can give their printers a transfusion without extra expense, and those who use a particular ink colour more than others can buy the particular colour which is running low.

Refilling the cartridges can be a messy business, and a rubber glove is supplied for the task, which entails the use of a long needle-like nozzle with which the user squirts ink into the wells in each cartridge. Four or more refills can be made from a



set of syringes, and as the official products often cost more than £30 for one refill set, running costs for your squirry friend can be reduced by two-thirds.

Users with money to burn or those who are completely mechanically disinclined will probably continue to pay over the odds for brand name cartridge replacements, but the rest of us would be mad not to consider a cheap refill.

Oh, and it's more environmentally friendly too.

STEVIE KENNEDY





▶ on Workbench and can be accessed in the same way as any other drive.

On opening the drive's window, any devices attached to the system (dh0., dh1: and so on) will be shown as drawers, and as soon as the user opens one of these windows the scan begins.

During scanning, a fuel bar indicates progress so far and time remaining, and as soon as the process is complete the drive window will display all files and drawers which fit the search criteria. All the user need do now is drag the files he or she wishes to retrieve across to another disk.

Better still, the files can be accessed using word processors, paint packages, and so on, as if they had already been retrieved so that the user can check which data is to be recovered before copying the files to another device.

In this way, the whole process of data retrieval is seamlessly integrated with normal Workbench operations with which most of us should be familiar.

If, for example, a selection of large image files has been deleted to save space, and the user later realises one or more of them is still needed, these "deleted" files can be archived from the Recovery device or backed up using a backup utility. UDT is therefore a much more flexible and friendly alternative to some of the more complex utilities on the market.

Speed is a second factor which UDT can claim in its favour. The method whereby only unallocated blocks on a hard drive are scanned – this is the most likely places for deleted files to be found – makes scanning a 120Mb partition a matter of three or four minutes.

Deep scans take longer than the fast scan mode, but for most recovery tasks the more rapid method should do the job.

When speed of operation is allied to simplicity and the ability to retrieve files using Workbench, CLI, or a directory utility such as SID, Upper Disk Tools emerges as one of the friendliest hard drive utilities ever produced. Thoroughly recommended.

STEVIE KENNEDY

## AGA VideoMaster

Updated version of this classic sound and video sampler  
Supplier:  
Phone:  
Price:

Regular readers may well recall the original VideoMaster release which brought a unique combination of real-time sequential video grabbing and sampling to the A500.

Admittedly the sequences created were only available as quarter-screen greyscales with a soundtrack which didn't exactly set new standards for Amiga sound.

However when both elements were combined the end results were pretty impressive, especially when you considered that the lowly Amiga 500 was behind the resulting ani-



A unique combination of sound and vision in VideoMaster

mation. Unfortunately due to the design of the hardware and of course the demise of the A500, VideoMaster was left out in the cold. As a consequence HiSoft have now released an PCMCIA version which slots directly into both the A600 and A1200.

In addition, AGA support has also been implemented which now boasts 64 levels of grey for full frame mono images and Ham8 for colour.

However it must be stressed that still frames are as far as it goes concerning AGA support and full frame images. When it comes to sequential grabbing, 16 colours is still the maximum on offer.

Assuming all the necessary connections are complete and a suitable VCR or camcorder is supplying the necessary footage, actually recording a sequence is very straightforward.

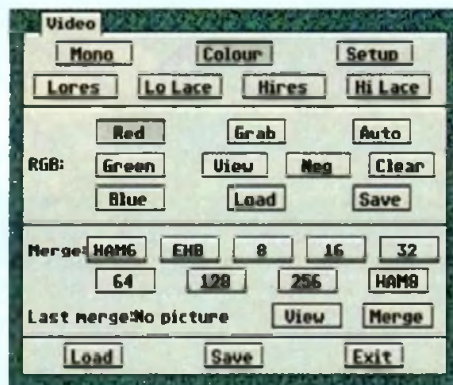
Basically you just select a sequence and hit Record, at which point images will be captured at 25 frames a second – or slower if you prefer – until either you terminate the process your RAM limit is reached.

Once safely imported you can move on to the excellent

video editing tools which offer control over numerous cut, paste and insert options. It's even possible to reverse selected sections and insert single frames or live sequences where necessary.

Assuming you're happy with the video sequence you can move on to the audio section and import a suitable soundtrack to accompany your imported video.

Fortunately provision has been made to define how much RAM should be available for audio and video respectively. As a result a little forward planning should ensure that enough space is available for both. Because each element is recorded separately, synchronisation is down to you. Like video, samples enter



Loads of options

## Amiga A1200 Beginner's Pack

A step-by-step introduction to the workings of the Amiga 1200, its Workbench and more  
Supplier: Computer Manuals Ltd, Freepost, 50 James Rd, Birmingham B11 2BA  
Tel: 021-706 6000  
Price: £39.95

The A1200 Insider Guide was regarded by many readers and critics alike as an excellent choice for the novice to learn just about everything they needed to know to get started on their recently acquired box of magic.

With a sequel published, the series has become an international best-seller and now with the release of The A1200 Beginner's Pack, it would seem that the success story will continue.

The hefty box contains the first book, the follow up





# Shop Window



Editing an animation



Beauty and the beast...

a complete repertoire of editing tools to enable correct syncing with the video sequence. In addition it's also possible to import previously recorded samples and add them into the action where necessary.

At this stage you'll be the proud owner of what is known as a clip. Assuming you have the necessary RAM and want to take your creation even further, assorted clips can be assigned to specific keys within the program's internal video sequencer.

Thanks to the aforementioned sequencer you can append various types of clip together: even still frames can be added to form even more elaborate productions. As you'd expect, this process requires clips to be loaded from disk and then assigned to their particular key.

When your masterpiece is complete it can be saved to disk and played back as a stand-alone movie. Better still the package also comes with a series of utilities, one of which enables the creation of an auto-booting disk which can then be shared with your friends or

put into the PD.

Along with the implementation of AGA support come full colour stills. However before you snap up a seemingly unbelievable bargain it must be stressed that grabbing still images isn't as straightforward as grabbing video sequences.

Firstly it's essential that you have a VCR which has a high quality pause. Back in the old days all Amiga frame grabbing relied on first pausing the video and then applying three colour gels in succession to grab the essential RGB components.

Unfortunately VideoMaster's colour imports are a throw-back to this rather archaic tradition. As a result the aforementioned red, blue and green gels come as part of the package ready to be slipped in front of the lens at the appropriate moment.

If fiddling around with sheets of coloured plastic isn't exactly your cup of tea there is an alternative in the form of a separate hardware colour splitter which removes the dreaded gels from

the equation completely.

As you've probably guessed the aforementioned splitter doesn't ship with the basic system but can be ordered direct from HiSoft. Fortunately once connected the complete system can be left connected regardless of whether you're using the splitter or just grabbing sequential greyscales. As you can see the end results can be pretty impressive and easily justifies the added investment in the extra hardware.

Basically VideoMaster is ideal for any fun-loving Amiga fan who isn't desperately concerned about the ultimate in image quality. As for colour, the results can be impressive, especially with the aid of the hardware splitter and a quality VCR.

Add all of the above to the excellent software and VideoMaster easily warrants its reasonable asking price.

PAUL AUSTIN

A1200 Next Steps, a one-hour instructional video and four disks of PD and shareware software.

Crammed onto these disks are a word processor, clip art to incorporate into your art and graphics programs, a music editor (with full instructions), a virus checker, Workbench utilities, a database, fonts and many more features useful at each step along the path to computer enlightenment.

It's recommended that you begin with the video and go from there. The 60-minute tape was produced by Australia's leading training house and apparently is a best seller with the antipodeans down in the land of Ozzie.

The show takes you through the very basics of the machine - the keyboard, what the ports are at the back and is ideal for absolute utter beginners. From there, the two presenters move onto the Workbench to show how to copy and format disks among other functions.

For those who appreciate this kind of instruction as an alternative from the written text, there's a second volume on its way in spring and we'll be sure to review it.

Whereas the video acts as an introduction, the books are the main bulk of the learning process and for the job they set out to do, these two are as good as you can get

at the moment - simple to understand, step-by-step tutorials and clear descriptions make for easy reading and understanding.

Starting with the very basics of WIMP (Windows, Icons, Menus and Pointers) and mouse, the books chart the readers route through to the intricacies of introducing Amiga DOS.

Along the way, you'll be taking a look at making music, printing documents, creating graphics, advice on which hardware you really need not just what the salesman tells you in the shop, and even video editing.

For all technophobes among you, *The A1200 Beginner's Guide* takes you by the hand and will soon have your fears replaced with an active curiosity.

At £39.95 this may seem a little steep but compared to games in the same price range, but you'll spend longer on this and there'll be a real sense of satisfaction when you come to the end of the pack and realise just how much you've managed to learn about the A1200.

Baby steps for absolute beginners and beyond - recommended.

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1082 Quick & Silver Platform (Superb)	1170 Save The Trees	1216 Sludgnarks Playable Demo
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1126 Survivor V2	1193 Intropic	1219 Chestnut V2.03
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1157 Total War (Risk)	1201 Top of the League	1223 Wordyus Deluxe (AGA) (3D)
1163 Battle Cars 2	1209 18th Hole* (2D)	1224 Excellent Card Demo

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2286 Fartasson Arms (Deccasart) (P)	2309 Japanese (Manga)	2323 Sunset Jets (Anim & Pictures)
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4161 Epoch V (1200 year calendar)	4181 World War II Hypercool	4194 Aircraft Clipart
4163 Learn & Plus Plus	4182 Crossword Creator v1.0	4196 Weapons Clipart
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5050 Girls & Roses* (Your Crazy)	5110 Dance Tumb	5117 Led Zepplin Guitar Solo's
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Tower Software prices include P&P



## DCTV

Although the A1200 and A4000 have delivered infinitely better image quality, the prospect of upgrading from an old machine isn't exactly an appealing for many of the Amiga old guard.

Aside from the obvious financial implications, many Amiga fans have invested long and hard in their existing set-ups which may well be faster, bigger and in most cases better apart from the obvious lack of AGA support.

For static art the obvious answer is a 24-bit board which will provide graphics superior that of the AGA and still save money over an entire system upgrade.

However what about animation, after all 24 bit boards aren't exactly at their best when it comes to animation, and it's here where DCTV makes its mark.

Unlike all the other 24-bit systems, DCTV does not employ the quality offered via an RGB signal, but opts for the lesser talents of a composite signal. It's here where the compromise is made with numerous swings and roundabouts building up the overall DCTV picture - excuse the pun.

On the plus side the board's composite only output is ideal for artwork destined for video. Numerous packages including VistaPro, Imagine, Real 3D and Lightwave all support the DCTV file format and will happily render an entire animation on demand.

Another huge advantage for those making their first tentative and invariably expensive steps in serious Amiga art is the file size of DCTV images. Smaller files equal smaller hard drives equals less expense.

As a rule, a DCTV image is roughly a tenth of the size of an equivalent 24-bit IFF. For those with limited means and storage this alone makes DCTV an attractive option.

On the display side the system again scores well with a maximum colour range around the four million mark. Although this may seem rather lacking in comparison to the 16.7 million of a true 24-bit display, it is still far superior to

# Video vault

## This month the spotlight falls on hardware, hard copy and a recent software re-release

that of Ham8. For example an image of 736 x 580 at worst would require 426,880 colours, assuming every pixel was a separate colour. Thank God, this never happens - if it did epilepsy would probably reach epidemic proportions.

With the combination of greatly enhanced colour and its relatively minuscule file size animation is almost inevitable. DCTV attains its amazingly small file size by emulating a hi-res 16 or eight colour image which then has a special header appended which the hardware then decodes prior to display - thereby adding the additional colour information.

This decoding process is the systems only downfall as it takes time to decode each image, as a result slowing the frame rate of the anim. This is at its most noticeable when animating with the systems four bit plane images which at best manage around 15fps. On the plus side, the alternative format of three-bit planes achieves around

20 fps which with carefully anim design can stretched up to the 25 fps of video.

Alas here lies another compromise as the missing bit plane means a drop in quality as the system works with an enhanced eight colour hi-res image producing harsher transitions within graduated regions of colour.

However even with this slight compromise DCTV animation in three bit planes is still very impressive and is widely accepted as the next best thing to still frame recording thanks to its combination of colour and anim speed.

In addition, the system comes with one of the better paint packages which includes the ability to make 24-bit frame grabs from freeze framed video in addition to built-in DCTV to Amiga conversion.

All in all, an excellent investment and ideal for anyone who wants affordable animation without a complete system upgrade.

Score: 75%

AGA: OK

Average price: £375

## Caligari 24

Although far from elderly, Caligari is well worth a mention purely because of the dramatic price reduction it's recently enjoyed. Initially the package retailed at a rather nerve-jangling £250 but thanks to increasing pressure Octree have obviously decided to take drastic action.

As a result the package now retails at just £99, which for a state-of-the-art package little more than six months old is unbelievable value.

Unlike most 3D packages, Caligari 24 is a modeller rather than a ray tracer which in practical terms means it's ideal for corporate logos, and architectural fly throughs, while lacking the photo-realistic appeal of programs like Real 3D, Imagine and Lightwave.

Basically if you're in the business of creating corporate graphics and more importantly animations, it's among the best in the business thanks to a combination of fast rendering and arguably the best spline-based animation system on the market.

Score: 85%

AGA: OK

Average price: £99

## Understanding Imagine 2

For longer than most Amiga fans care to recall Imagine 2 and Real 3D have been battling it out for the top spot as the Amiga's premier ray tracer.

Obviously with the arrival of Lightwave things have changed somewhat but imagine still remains one of the best ray tracing systems on any machine.

However although incredibly powerful, imagine has a notoriously steep learning curve which often kills an enthusiasm stone dead well before even a tenth of the program's potential is revealed.

Ah yes, but surely a little extra

time spent with the manual will solve the problem? Unfortunately not. In fact the more time spent with the manual the more likely you are to become demoralised and eventually give up all together.

With a combination of complex software and a narrative rather than an informative manual, it would appear Imagine 2 needs nothing short of Knight in shining armour to save it from the scrapheap.

Thankfully there is light at the end of the tunnel in the form of *Understanding Imagine 2*. This is

not just a good reference manual, in fact it's nothing short of the imagine 2 bible. If you've not got this classic A4 ring bound masterpiece I can guarantee you'll never discover all that Imagine can offer.

The style is friendly, the information invaluable and the overall structure is a lesson to any writing a manual - and better still you even get a couple of disks with examples and additional tutorials from the author Steve Worley.

Score: 100%

AGA: Don't be silly

Average price: £20













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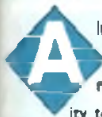
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# HARD TIMES



Although there are a healthy profusion of digitisers on the market, the following selection are pretty much the best of the modern bunch offering the ability to grab video images to any machine in the Amiga range.

How before delving into the assorted stand-alone digitisers, it's worth mentioning the alternatives, which in the case of video digitising means multimedia boards and graphics cards such as the IV24 v2, FrameMachine and of course DCTV.

Obviously the first two boards are targeted directly at the high end user base who require more than just grabbing, and have a bank balance big enough to support their aspirations.

Although both the IV24 v2 and FrameMachine offer all kinds of additional features, it must be stressed that grabbing doesn't suffer – in fact both boards offer exceptional quality, easily on a par with that of VLabY/C.

Although DCTV isn't in the same league – due to its composite rather than RGB output – it can still provide impressive results. The only limitation is that static or paused images are required in order to grab. As a result a good VCR is essential.

## Video Master/AGA

Video Master is without doubt the most unique digitiser in the round-up. In fact the program presses home the point by giving itself the title of "the integrated multimedia video & audio sampler" – otherwise known as a demo generator.

Basically this is a real fun product, which offers a unique approach to the tricky problem of importing audio and video simultaneously. It hasn't been designed to set new standards for image quality – or even sound quality – but the combination of the two as a 25fps quarter-screen greyscale is great fun and an absolute doddle to do...

In fact it's amazing how much animation can be gener-

Sit back as Hard Times explores where best to invest within the complex and competitive world of video digitising

ated on a standard machine either direct from live video or via pre-recorded footage.

Fortunately HiSoft have spotted that there's more to life than quarter screen animation and as a result they've also added a full frame grabbing option which operates in the same manner as DCTV requiring a good quality still frame pause prior to importation.

Colour also hasn't gone unnoticed and as a consequence a good old-fashioned set of colour filters come as part of the package enabling pseudo colour grabs to be generated from a colour video source.

If fiddling about with filters isn't your cup of tea, HiSoft will happily supply an electronic colour splitter to make the process

a little less arduous. As you've probably spotted from the title, AGA is supported with 64 greyscales and 256 colours plus all the usual array of standard Amiga modes including our old friend HAM.

The system also has added appeal for the hordes of A600 and A1200 owners who now have their very own version of Video Master which plugs directly into the PCMCIA slot.

Basically a great product for people who don't take their Amiga or themselves too seriously and simply want a fun product that offers a unique combination of audio, video and occasional colour.

## Vidi 12/24 RT

This one may well ring a few bells with the Amiga old guard who've seen the Rombo Vidi range evolve repeatedly over recent years. Now in its latest incarnation, Rombo have added real-time grabbing to the equation – hence the RT.

Like all the other packages AGA support has been adopted in both the 12 and 24-bit forms of the system. Like Video Master, the hardware connects to the Amiga parallel port but unlike VLabY/C, sequential grabbing is not supported.

Vidi in its various forms is strictly a single frame instantaneous colour system. However unlike the majority of the digitisers in the article Vidi does offer a reasonable collection of image processing tools in addition to basic frame grabbing.

The various tools are split into four distinct sections, namely grabbing, mixing, editing and the carousel animation system. Basically much of the software remains essentially the same as its predecessor with the odd AGA addition plus a few new processing features.

If you're after a combination of basic image processing mixed with respectable 12 or 24-bit frame grabbing, it's well worth closer inspection.

## VLabY/C & VLab

VLabY/C is arguably the best Amiga digitiser that money can buy – depending on your system. As the name suggests, the board will support both a composite and Y/C signal.

However in order to use it you need a desktop Amiga such as the A2000, 3000, 4000 with a Zorro slot free for the card itself. In addition, an 030 CPU with 3Mb of RAM is the realistic minimum for effective application – especially if you're working extensively in 24-bit.

If you can supply all of the above, VLabY/C offers easily the most powerful, flexible and expandable grabbing environment money can buy. With

some of the opposition offering equally impressive single-frame grabbing, this may seem a rather sweeping statement. However it's only when you consider expansion that all becomes clear.

Firstly, an impressive range of software and hardware supports VLab directly.

Notables include Harlequin and Retina, both of which have chosen VLab as their preferred grabber add-on. On the software side both ImageFX and ADPro support VLab, as does TVPaint.

Better still, VLabY/C also offers a unique feature which enables full-frame sequential 24-bit grabbing via its IFR



State of the art image importation from VLabY/C

option. And to be totally automated you can even add the AirLink infra red controller which will rewind and play your VCR for you.

Unfortunately both of these features are only available on the Y/C version of

VLab, however for those who don't have a desktop machine there is VLab Par which connects to the parallel port of an Amiga. This, however, isn't available in a Y/C format and as a result can't employ IFR or AirLink.





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