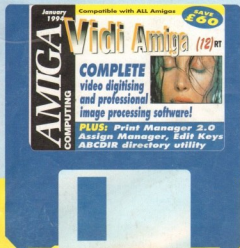
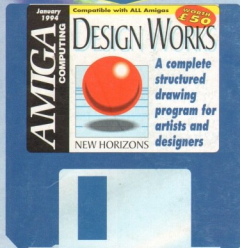


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Montage 24 • Show report  
Database round-up • Updates  
Paint package round-up *and more!*





Hi,

Some of you have doubt and my Radio 1 announcement that I'm off to the good old USA at the end of January 1994. After months of negotiations with my Bosses at the BBC I've landed the job of a lifetime as Radio 1's official West Coast correspondent. I'll be reporting live and Direct from Los Angeles and San Francisco with the odd Trip to New York thrown in for good measure. And so although I'll be living most of the year stateside I'm still going to be very much part of the Radio 1 network, and best of all I'm definitely going to keep you Indi customers updated with all the latest computer news as well as the up to the minute games releases in L.A. and the UK. So as soon as I've finished working on my sultan I'll be busy on the keyboard, reporting to everyone at Indi as usual. Keep watching this space.

Best wishes  
J.B

*Jakki Barber*

**STOP PRESS!!!**

Commandore have today announced that the best selling Amiga CD32 will now have a further two great games bundled with it making 4 in total (5" if you buy from Indi)  
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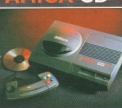
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Some advertisers are fitting 3.5" drives to Amiga 1200. The Amiga was never designed to accept 3.5" drives and fitting one totally invalidates any Commodore Warranty. Indirectly only of official 2.5" IDE drives officially accepted by Wang, ICL and Commodore.

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130Mb version - £1919	426Mb version - £2149
200Mb version - £1939	540Mb version - £2299
250Mb version - £1979	

## AMIGA A4000/030

The same specifications as it's big brother but designed around the 68030 processor. The A4000/030 comes with a Hard Drive, 1+1 RAM and WJB 3.0.

(FOR 2+2 PLEASE ADD £69)

85 Mb version - £899	340Mb version - £1099
130Mb version - £969	426Mb version - £1199
200Mb version - £999	540Mb version - £1299
250Mb version - £1039	

## AMIGA A1200

The A1200 sports many of the features of the A4000 series. Based around the 68020 processor with 2Mb of RAM and WJB 3.0 as standard. A full range of Hard Drives are also available for the A1200.

Basic A1200 - £289	120Mb H.D version - £494
40Mb H.D version - £388	170Mb H.D version - £528
60Mb H.D version - £445	200Mb H.D version - £548
85Mb H.D version - £468	256Mb H.D version - £578



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The desktop Dynamite Pack contains 5 pieces of software written specifically for the AGA chipset, which includes DpaintAGA, WordworthAGA, Oscar and other with a total street value of over £300. (PLEASE ADD £40 FOR DTD PACK)

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# DEMON



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130Mb version - £299	340Mb version - £449
200Mb version - £349	426Mb version - £549
250Mb version - £399	540Mb version - £699

## A1200 UPGRADES

### GVP SCSI/AM BOARD

This board is user fittable via the trapdoor expansion slot of the A1200. It has slots for up to 8Mb of 32bit RAM, a maths co-pro and includes a SCSI interface as standard.

0Mb / NO FPU	£179.00
4Mb RAM/33MHz FPU	£349.00
SCSI CABLE KIT	£ 59.00

### GVP A1230 BOARD

Another quality trapdoor expansion for the A1200. It features a 68030 processor as standard and has slots for a maths co-pro and up to 8Mb of 32bit RAM.

0Mb / NO FPU	£269.00
4Mb RAM/40MHz FPU	£439.00

### GVP ACCESSORIES

33MHz 68882 FPU	£ 99.00
40MHz 68882 FPU	£129.00
1Mb 32bit RAM	£ 64.00
4Mb 32bit RAM	£153.00

### DKB RAM BOARD

This budget expansion board fits via the trapdoor. It has 2x32bit SIMM sockets for up to 8Mb of memory, a 16MHz 68881 FPU, and a battery backed clock fitted as standard.

DKB with 0Mb RAM/68881	£ 99.00
DKB with 1Mb RAM/68881	£129.00
DKB with 4Mb RAM/68881	£229.00

## IDE INTERNAL HARD DRIVE KITS

These kits come complete with screws, instructions and all the software necessary to prep and configure the drive.

40Mb - £139	60Mb - £119	80Mb - £179
120Mb - £279	209Mb - £399	

## A4000 UPGRADES

### PHOTON (FOR A4000/030)

This board will transform an Amiga A4000/030 into a fully fledged 040. It features a 040 CPU module with a MMU and a built-in FPU running at 25MHz.

PHOTON UPGRADE £699

### HELLFIRE (FOR A4000/030)

This is a replacement CPU board for the A4000/030. It features a 50 MHz clock speed, a built in MMU and a 50 MHz 68882 FPU. Your 030 will only be 10% slower than an 040 during most operations.

HELLFIRE UPGRADE £299

### DKB 128

The DKB 128 is a 0 wait state memory expansion board for the A4000 series. It has slots for up to 128Mb of 32bit RAM using SIMMS of any size. It is a true ZORRO 3 card which makes for a very fast board.

DKB BOARD (BLANK) £269 (See chips for memory)

## HARD DRIVES (A1200 & A4000)

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FITTING FEE FOR A1200 £ 29.00

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1Mb SIMM	£ 39.00
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**NEXT  
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**Turn to page 22**

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## Subscriptions

Don't miss AC ever again and gain a few freebies in the process. **Page 122**





# Merry Christmas from HiSoft



Silvoo Village Scene by Gordon Chambers, typeset by Leaside Graphics, Luton.

It's that time of year again, frosty mornings, roaring log fires, red noses ... and all those presents to buy.

We know how difficult Christmas buying decisions can be so, to make life just a little easier, we've come up with some splendid gifts for the Amiga lover in your household, at bargain prices.

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To take advantage of these bargain buys just call us on 0525 718181, armed with your credit/debit card details, or write to us enclosing a cheque or postal order. We will despatch goods within 5 working days or, for an extra £5 postage, the same day on a 24 hour delivery, right up to Christmas. Please quote reference AMX938 when ordering.



## Languages

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HighSpeed Pascal - a complete Turbo Pascal 5 compatible compiler/editor system	£70
TurboText - programmer's editor	£50

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Mastering Amiga Printers	£16
Mastering Amiga AMOS	£16
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# NEWS

by John Butters

## CBM operating costs slashed

COMMODORE have substantially slashed their operating costs, but continue to lose money - \$356 million in financial year 1993 and \$9.7 million in the first quarter of the current financial year.

A statement at the end of last year's report says the firm's financial position and operating results raise substantial doubts about their ability to continue as a going concern.

Another says the company were trying to work out new credit terms with suppliers that had restricted credit but there was no assurance such arrangements could be made.

The loss was blamed on intensely competitive pricing pressure and economic softness in all their major markets, inventory write-downs, restructuring costs and discontinuation of the PC line.

The shortfall wiped out shareholders' equity, which slumped from \$325 million on June 30, 1992 to a deficit of \$53.2 million on June 30, 1993.

Details of the firm's first quarter 1994 results were given with the 1993 figures. They showed that during the three months ending September 30, Commodore lost a

Could:  
Addressing  
financial  
difficulties



further \$9.7 million. This was down from \$18.8 million in the corresponding period in 1992, as were sales from \$158.6 million in 1992 to \$82.6 million.

Recently the company have been cutting their costs around the world, with several European offices now closed and their after sales support controlled from Germany.

The benefits of these savings are now starting to be seen, with the operating expenses being slashed in the first

quarter to \$13.7 million from \$39.5 million in the same period during 1993.

The first quarter loss gave Commodore a negative equity of \$61.2 million, and no updates were given to their end of year footnotes.

"Clearly the financial performance for the fiscal year was extremely unsatisfactory," said Commodore chairman Irving Gould.

"The company have addressed their current financial difficulties by restructuring their business in a number of ways including eliminating unprofitable product lines.

"These actions have resulted in improved operating performance enabling substantial narrowing of the operating loss for the quarter ended September 30, 1993."

In Britain Commodore's joint managing director Colin Proudfoot said that although the company are in a weak financial position they will continue spending on the Amiga's future.

"It is essential to keep the product range up to date and development is continuing as a priority," he said.

Proudfoot added that the firm are confident that the success of CD32 will give the firm a second quarter profit.

## Amiga-bashing video dropped

ACORN have voluntarily dropped an Amiga-bashing Archimedes home computer video promotion after Commodore instigated legal action to prevent its distribution.

The tape was produced by the Cambridge-based manufacturer and was billed as a beginner's guide to using home computers in the office and classroom.

The Home Computer Minifield had been available through reply coupons and telephone numbers advertised in national newspapers.

Commodore had earlier obtained a temporary High Court injunction stopping further copies being sent out, and now intend to take the case to trial unless there is an out of court settlement.

Sources close to the firm say that although the video has been withdrawn,

the company will seek costs to cover management time spent dealing with the dispute.

They argue the tape gave a misleading impression of the Amiga, and claim it was made merely used as a means of knocking the performance of six competitor machines.

The firm say it implied their computers are only suitable for games and cannot handle more serious applications as shown in the video.

In court they produced a long list taken from a current computer magazine showing graphics, education, desktop publishing and accounts software for the A1200.

Acorn were unavailable for comment at press time but we understand a replacement video is due from the firm within the next few weeks.



Archimedes: Acorn video dropped after CBM objection

## Buyers' new bundle of fun

A BUNDLE containing four award-winning games from the past year will soon be offered to people buying Amigas from independent computer dealers. The Chaos pack has been put together by trade distributor SDL and contains the titles Chaos Engine, Syndicate, Nick Faldo's Golf and Pinball Fantasies.

Most dealers buying stock from SDL are expected to give their customers the pack with machines bought at the computer's recommended retail price. "We have created a pack that dealers can offer their customers with Amigas," said SDL spokesman Andy Leaning.

"It features the four best games of 1993 and is undoubtedly the best Amiga games pack so far."



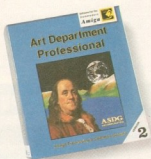
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# News Briefs

## Subscription changes

THE publisher of the Amiga enthusiasts' newsletter Access Amiga say that cheques for subscriptions and memberships should now be made payable to Weekend Developments Limited.

Rates for subscription are: One issue £1.75, six issues £10.50 and 12 issues £19. Orders should be sent to the firm at PO Box 208, Folkestone CT19 5EZ.

## Photo images

PHOTO-realistic images of landscapes and sunsets are now available as 32.256 and Ham8 images for use with Amiga.

Each volume contains three or four disks and costs £6.95 from Weekend Developments at PO Box 208, Folkestone CT19 5EZ.

## Finding space

A SOLUTION to the problem of insufficient disk storage space is Disk Expander, a new package which as its name suggests aims to double the capacity of floppy and hard disks.

Bedford-based Power Computing (0234 843388) have been given the rights for its worldwide distribution, and will be selling the software for £29.95.

## Repairs at home

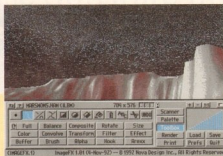
RETAIL distributor ZCL have joined forces with ICL to give a year's home warranty for A600 and A1200 owners with internal hard disk drives.

The service will be offered through independent dealers, Calculus Stores and Indi and will solve the problem of hard drive upgrades invalidating Commodore's warranty.

ICL will add free of charge a further year's home warranty to any existing warranty that the Amiga 600 or A1200 might have.

## Dot matrix prices cut

PRINTER giant Epson have cut the price on 11 of their dot matrix models by up to 16 per cent in a bid to increase the firm's sales lead in the 9 and 24-pin market.



ImageFX: Extra image manipulation and creation features

## More effects in ImageFX

GRAPHICS package ImageFX has just been improved to give Amiga owners a range of new image creation and manipulation features.

The Great Valley Products' software features drawing and painting in real time, and loader and saver modules allowing it to save and load files from a selection of other applications.

Several special effects are possible and it gives direct control of scanners, frame grabbers and 24-bit boards. GVP's CineMorph is included to give morphing ability.

New in v1.5 is MAGIC, a system that allows applications to share images in memory to reduce memory overhead when multitasking several graphics programs.

The program gives faster operation, especially in virtual memory handling, and there are preview displays in a range of resolutions.

A macro system automatically creates AReX scripts from macro recording, eliminating the need for programming AReX scripts for batch operations.

It is supplied in Britain by Silica Systems (081-309 1111). Existing users can upgrade for £29.95 and the cost for newcomers is £199.

## Brit firm in ProDAD link

PRODAD software, upgrades and technical support are now available in Britain from computer consultancy firm BVCC (081-567 4623).

The London-based company will sell Amiga software including Digital and video effects program Adorage 2, and the new animation processing package clarISSA.

clarISSA will enable users to create animations in ANIM5 format or as SSA from single frames rendered by software such as Imagine.

Once converted to SSA format, the firm claim animations can be manipulated in several ways, made more colourful and run about 1.5 times faster than ANIM5 sequences.

BVCC boss Ben Vost told Amiga Computing that ProDAD asked his company to distribute the software because he had become familiar with the packages when writing their manuals.

Adorage 2 and clarISSA cost £79.95 each.

## Going faster with A1200

EXTRA speed is now available to A1200 owners with the aid of Great Valley Products' new A1230-II.

The trapdoor expansion fits into the computer giving a 50MHz 68030 processor with memory management unit, up to 32Mb of memory and an optional maths co-processor.

A DMA Peripheral Port (DPP) allows data to be transferred between plug-in devices and the memory of the computer without processor intervention, resulting in faster operation.

The DPP will enable users to plug in further expansion card and three such upgrades will be launched by GVP soon for owners of the A1230-II.

## UMATCHED

The first will be the A1291 SCSI Kit Performance II, which the American developer claims will give "unmatched SCSI performance".

The hardware module and SCSI device driver can achieve transfer rates of 4.2Mb per second, and uses the latest in SCSI termination technology - Active Termination.

This is claimed to avoid the traditional hassles of SCSI termination and resistor packs. Other products will allow the Amiga to perform 16-bit direct to disk sound sampling and real-time video frame grabbing.

"The A1230-II is the ideal Amiga 1200 upgrade for users wanting the best performance or expandability," said Silica spokesman Andy Learning.

"In a single card, the A1230-II allows users to boost the power of their A1200 while also allowing them to expand their system with a range of unique upgrades."

Supplied without memory, the board costs £379 from Silica Systems (081-309 1111).

## Scalable fonts from Seikosha's new printer

SEIKOSHA'S latest colour 24-pin dot matrix printer is claimed to print scalable fonts with variable heights and precise graphic output.

The SL96 has a maximum resolution of 360 x 360 dots per inch and a speed of 240 characters per second in Draft mode. The letter quality print speed is 84cps. It contains eight bitmap fonts and two scalable fonts which can be printed at between 8 and 32 point, and has a 42k memory.

Single sheets and fan fold paper can be used for output and a paper tray can be fitted to give automatic single-sheet feeding. An optional sheet feeder is also available.

Epson emulation is included and buyers can request an optional Amiga driver. The SL96 Colour has a recommended retail price of £292 and colour ribbons can be bought for £11. Its one-year return to base warranty can be upgraded to a year's on-site warranty for £11.



SL96: Features scalable fonts and precise graphics



# Weekend comms prices slashed

MODEM users are set to benefit from cheaper telephone calls just announced by BT.

A three-minute call to anywhere in the country outside the caller's local area will cost 10p at anytime during weekends, and the firm have promised more cost-cutting is on the way.

Within the next year the telecoms giant will launch a scheme to allow customers to nominate regularly called numbers for which they will get automatic discount on calls made.

And there will be improvements to Option

15 which gives residential customers a discount of up to ten per cent on all their calls in return for an up front quarterly charge of £4.

"A year ago we launched the first of our special offers - the Sunday Special - and followed that with a series of offers on international and local calls," said BT boss Michael Hephner.

"Since then we've listened to what our customers have been telling us and they like special offers that cut the cost of calls, particularly at weekends."



Comms: BT price cuts bring weekend gains

## Diary dates

January 12-15, 1994

BETT '94

Venue: National Hall, Olympia

Organiser: EMAP

(071-404 4844)

Britain's leading IT exhibition for the education market.

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.

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 26-30, 1994

Future Entertainment Show

Venue: Earls Court II

Organiser: Future Exhibitions

(0225 44244)

The biggest public show for computer and video games players.

## Overseas

March 16-23, 1994

CeBIT '94

Venue: Hannover, Germany

Organiser: Deutsche Messe

(010 49 511 890)

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

## Amiga advice over the phone

A CONSULTANCY firm has just been set up for people who need up-to-the-minute information and support for serious Amiga software and hardware.

BVCC is run by the former technical manager of Micro-Pace UK, Ben Vost, who says the service offered is similar to that seen in the PC and Apple Macintosh markets.

A range of services are offered: telephone advice, scanning, translation, public domain distribution, face-to-face tuition and software and hardware recommendations.

The telephone support service is open between 10am and 10pm and gives information on 3D modelling, graphics, video, desktop publishing and other productivity software.

### ANSWERS

The firm can say whether hardware will be compatible with users' existing peripherals, and if they don't know the answer to a question BVCC will try to find the information within a day.

Photographs up to 6in x 4in can be scanned by the firm at in a range of formats at 24-bit, and if the picture is to be used in a 16-colour Windows environment the palette will be correct.

Manuals and documentation for French and German products can be translated and even reprinted if required, and face-to-face tuition is available for first timers.

Courses on specific elements of Amiga computing such as desktop publishing are also run.

The cost of phone advice is between £5 and £6 per 15 minutes or part of, and others prices can be requested from the firm by telephoning 081-567 4623

## Government act on child porn

PORNOGRAPHERS holding simulated indecent images of children on computer disk could face prison under new legal provisions just announced by the Government.

The move follows a recent case where pornographic pictures of women were scanned and modified to make their bodies appear more child-like.

Children's heads were superimposed onto the images to produce convincing "child pornography" of photographic quality.

Although it has not been tested in court, the Government believe that because the images were simulated and not actual photographs, the existing law might not cover them.

The new measures will be included in forthcoming criminal justice law. They will give courts the power to impose jail sentences of up to three months, a £5,000 fine, or both for possessing such material. Traders will face up to three years in prison.

"We must send the clearest possible signal to pornographers that their activities will not be tolerated," said Home Secretary Michael Howard.

"It's vital to take tough measures at the outset if we are to succeed in stamping out this vile trade."

## Games makers agree on ratings

EUROPE's games makers have agreed overwhelmingly to introduce voluntary video-type classification on all floppy disk, compact disc and cartridge-based software.

The move is intended to help improve the image of computer and video games, following a year of media concerns over their effects on health and society.

Games publishers will fill out rating assessment forms which ask whether their programs contain certain types of graphics material and which of four ratings they think should be given.

The titles will then be sent to the Video Standards Council where the final decision will be made. Among other things they will be looking for extreme violence and sexual content.

The four ratings will be up to 10 years old, 11 to 14 years old, 15 to 17 years old and over 18s.

Although retailers will still be able to sell products to children younger than those for which the game is recommended, worried parents will be able to see the guidelines.

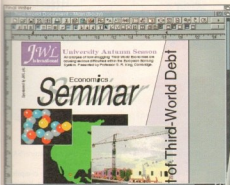
ELSPA's general secretary Roger Bennett said members who release titles without sending them for classification could face a ban from the association.

## REM with FMV?

ACCORDING to sources close to Commodore the company will package the CD32 Fun Motion Video module with a disc containing hits from pop group REM. It is expected to cost £199.



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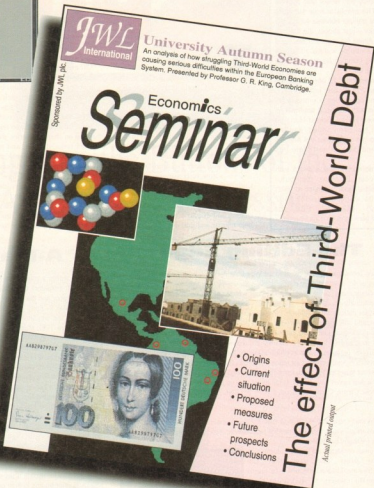


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and a complex, costly Desk Top Publishing Package...

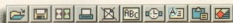
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Even then though, you probably won't find a program that will combine the very best in Word Processing and... easy to use integrated DTP type facilities.

You certainly can't find software for your Amiga that's capable of all this...



## ...or Can You?





## Redux revisited

The development of Emplant's Macintosh emulation module streams on. With Emplant 3.2, which should be available about the time you read this, nearly all the planned features will be in the program, which should free Utilities Unlimited to get rolling on getting the IBM emulation module out the door.

The biggest improvement is that the emulator now acts like a "32-bit clean" Macintosh, which means you can use almost all of your Amiga's memory with the emulation, and expect increased compatibility with newer Mac applications. The emulator now supports direct file transfer between Amiga and Mac disks — just choose the file in a Mac or Amiga file requester and send it over; modules will be added for translating common file formats, such as PICT to IFF.

It is now about 20 per cent faster, and about 215 per cent faster for floating-point operations. Compatibility problems with Microsoft applications have been solved. Sound Manager support has been added, and UU hopes to get support for the Amiga's serial and parallel ports into this version.

For more information check with your local Emplant distributor or contact Utilities Unlimited at (602) 680-9004 voice; (602) 543-6407 fax; (602) 453-9767 BBS, or j.drew2@genie.geis.com via Internet.

Top marks for an improved language release, and news of two competing Apple emulation systems in this month's Stateside report from Denny Atkin

# C plus!

**T**he premier development system for the Amiga (Commodore use it for AmigaDOS) now has a real plus — two of them, actually. The newly released SAS/C Development System v6.5 now includes not only a top-of-the-line C-language compiler, but C++ as well.

If you haven't used C++, it's an object-oriented version of the C language that helps tame the obscurity level of C a bit. This release a huge improvement over the company's old C++ compiler, which was marketed under the Lattice label.

C++ is now fully supported by the CodeProbe debugger, so you can now display C++ auto, static, and extern variables; display members of C++ classes; display C++ source code in both regular and mixed modes. Now it's

like using a real C++ compiler instead of an add-on for a C compiler.

Other enhancements include a brand-new profiler, SPROF, which helps you optimise your programs by showing you the number of times each function is called and the amount of time spent in each function, including subroutines.

SPROF not only works on regular tasks, but also on shared libraries, dynamically created tasks, devices, and nearly any other kind of AmigaDOS task.

This will come in particularly handy since v6.5 has several new features, including startup modules, designed to make writing devices easier. SMFIND is a new Workbench utility which will search for particular strings in your projects. Utilities are included to ease conversion of

files from earlier versions of Lattice/SAS C, and even from Marx Aztec C.

As in previous updates, the compiler now produces better, faster code. Version 6.5 ships with the AmigaDOS 3.1 include files and link libraries. There are over 300 new pages of documentation, bringing the reference material up to an astonishing 1,500+ pages. There's now also over 1.3Mb of on-line documentation. The package requires 1Mb of RAM and two floppies for the C language (more memory and a hard drive are recommended), and 4Mb of RAM and a hard drive for C++ programming.

For more information, contact SAS Institute, SAS Campus Drive, Cary, NC 27513; phone (919) 677-8000, extension 7001.

## The Editing Edge

Texas-based Inovatronics has released an incredible new text editor called Edge. This easy-to-use editor is completely configurable — the entire user interface, from menus to keyboard commands, can be changed to fit your whims. AReX macros can be written or recorded automatically. You can open multiple windows with different views on the same file — great for cutting and pasting in large documents. It supports all screen modes and resolutions, and will open on public screens.

It has multiple-level Undo and Redo, limited only by memory. The editor features blazing speed in scrolling, formatting, and search/replace operations. The on-line help is unmatched — the entire manual is available using the AmigaGuide help system.

Inovatronics recently opened an office in the UK, but this product was so impressive (the first editor to get me to switch from TurboText) that I felt it deserved a mention.

And you don't even have to call Texas to get info on it: just contact Inovatronics, Unit 11, Enterprise Centre, Cranborne Road, Potters Bar EN6 3DQ, Tel: 0707 662861, fax: 0707 660992.

● In a previous column, I mentioned that the new version of CanDo required you to contact Inovatronics to get the files needed to distribute standalone applications, and that a licensing fee might be involved.

Inovatronics contacted me as this column was going to press and said that the necessary files would soon be available on-line to allow CanDo owners to distribute their applications without contacting Inovatronics first. The company does request, however, that you send them a copy of any application you create and distribute with the program.

Inovatronics give you the edge when editing



## A-Max gets colour

Nobody wants a black-and-white TV any more, so who wants a black-and-white Macintosh emulator? Canada's ReadySoft have updated their A-Max Mac emulator to support colour and the newest releases of Apple's operating system. A-Max IV is based on the A-Max II+ Zorro II board, so you'll need an Amiga with slots to use it.

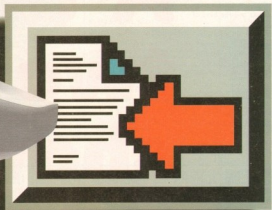
Among the emulator's features are support for Apple's System 7.0 or later using inexpensive 128K Mac Plus ROM chips; full colour support (16 colours on ECS machines, 256 on AGA, and true 24-bit with Picasso II, Retina, EGS, and some other boards); support for multiple display devices if you have an add-on graphics card; auto-scroll screens of any size; and stereo sound support and Apple SuperDrive emulation. It's a full 32-bit clean emulation that supports up to 2Gb of RAM. Like previous versions of A-Max, this emulator supports using the Amiga's serial and parallel ports on the Mac side. As a bonus, you can save ImageWriter 9-pin and 24-pin output to IFF files, making transferring Mac printouts to Amiga applications a snap. You can also out and paste data between the Mac clipboard and the Amiga clipboard device.

Unlike earlier versions of the A-Max software, this update multitasks with Amiga software and uses standard AmigaDOS device drivers to access hard drives — no more need for custom AMHD files. Stock A1500 and A2000 owners will need to upgrade their systems, as the emulator requires at least a 68020 processor, AmigaDOS 2.1 or later, and 2MB of free RAM; you'll also need Mac System 7.0 or higher on the Macintosh side. Pricing is pretty steep at the retail level: The board retails for \$509.95; A-Max II owners pay \$119.95 for update disks and chips; A-Max cartridge owners can get the board for \$249.95 after trading in their cartridge; and owners of "other" Mac emulators (read that as "Emplant") can trade in their board and get A-Max IV for \$279.95. Interestingly, Emplant developer Jim Drew has claimed on various on-line networks that A-Max IV violates software patents he has on Emplant, and that he will attempt to get a restraining order to prevent A-Max IV from being shipped out of Canada.

For information, contact ReadySoft, 30 Wertheim Court, Suite 2, Richmond Hill, Ontario, Canada L4B 1B9; call (416) 731-4175 or fax (416) 764-8867.



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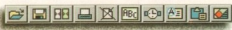
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is now available to you along with a list of features that just goes on and on. We know that you'll be impressed by this revolution in Amiga Word Processing, but don't be put off by its advanced capabilities. With its complement of user definable Command Buttons and Superb Manual, Final Writer is simply one of the easiest programs to learn and use.



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**T**hough doubters and cynics in the industry have of late begun to mutter ominously about the future of the Amiga market, the people whose opinions really matter – the buying public – have continued to show a great deal of optimism and faith in the machine. Two recent Amiga shows are all the evidence one needs for that.

Cologne, hosting the World of Commodore show from November 5 to 7, has always been an important venue for Commodore events, and this year's effort was no different. Dozens of developers and manufacturers turned up to join the box shifters, and the best of European engineering went on display.

Peripherals being developed by several German and European companies included high speed digital broadcast cards based on jpeg technology, Mpeg players, PCMCIA fax modems, accelerators, and even a transporter card. Video applications were as usual well represented, and the number of stands running digital movies from hard drive was matched only by the number of smiling new Elite 2 owners.

Surrounding all this showy behaviour was a determined crowd of punters with bulging wallets and an eye for an upgrade. The buying frenzy reached such epic proportions at some stands that wobbly trolleyloads of replacement A4000s had to be wheeled up to replenish stocks once the machine had sold out.

By midday on Saturday, the height of the show, there was a 200-yard queue outside the cavernous hall and the security guards were forced to close the doors and send people out by another exit until things calmed down.

The milling crowds of waiting German enthusiasts were reduced to cheering throatily for the lucky few who were allowed to pass through in drabs and drabs.

With so much interest in the Amiga, such a frenzied burst of spending, and the healthy display of top notch Amiga add-ons we saw while at the show, it is clear that we still have a vibrant machine in a strong market.

The leisure market may be suffering from PC and console competition combined with the games industry's determinedly gloomy view of the Amiga, but the productivity and videography industries are doing very nicely.

The UK side of the same coin presents an interesting contrast. At a recent sizeable show in London, the emphasis was on the entertainment industry as a whole rather than the Amiga, and the consoles were the most obvious force.

A 40-feet high helium-filled Sonic hovered menacingly over everyone at the show in a sort of symbolic gesture of the truth about Sega hype: pretentious presentation, but mostly hot air.

Little that was new on show, but the assembled public seemed to be having a wall of a time, and there much more of an atmosphere of fun than at the German show. Games and playing them were the predominant themes and nothing the odd technical demonstration

The Amiga is alive and well and living in Europe, as the latest Amiga shows have proved

# A tale of two shows



could do was able to dispel the atmosphere. As usual, the good old British box shifters were there in numbers, and more than a few happy customers could be found taking advantage of special show prices, so although there was a disappointing lack of high-end stuff (relegated to an oasis around the Commodore stand), there was still a positive message.

Had we visited just the London show and missed out on Cologne, the impression of a slowly declining Amiga would have been overpowering. As it was, we were able to conclude that in the face of the stiffest competition imaginable, the Amiga is still jumping off the shelf and into the hands of enthusiasts all over Europe.

The UK industry's over-concentration on the games side of the Amiga leads many in this country to make pessimistic predictions about the machine, ignoring as they do the Amiga's other talents.

No-one has properly surveyed the video and multimedia industries to calculate exactly what sort of market share the Amiga has, but if the 52 Amigas used in the production of *Jurassic Park* are anything to go by, there's plenty of room left for expansion.

We enjoyed a huge boom in the low end of the Amiga market while its prowess as the best games machine was

unchallenged. These days, with the consoles and the PC making a determined thrust in the leisure area and so much development now concentrated on CD-ROM, the Amiga is fortunate in having a solid image in other areas.

As the games side of the Amiga changes, evolving towards AGA games and, hopefully, CD32 in the coming year, it is difficult to predict how the market will develop.

Some in the UK games industry are certain that the Amiga has had its time, mostly through the inevitable move from floppies to CD discs, but as the Amiga has made a bold move into CD-ROM with CD32, can we share this pessimism?

We must wait and see what the UK software houses make of CD32, but at least the signs are that the Amiga will continue as a strong independent platform even without a leading stake in the games industry.

The evidence is on your TV set in the form *Rubylun 3*, *Deep Space 9*, *SciQuest DSV*, *Jurassic Park*, and many other examples of the Amiga's use as a cheap, effective videography tool.

You might miss this sort of involvement at a UK show, but take the wider European view and 1994 is going to be a much better year for the Amiga than many of our games-obsessed cynics would have you believe.

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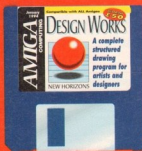
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**D**esign Works is a structured drawing program, which means it works in a very different way to DPaint and the other bitmap art programs most users have at one time owned or used.

Instead of storing its drawings as a map of pixels, rigid and set once saved, Design Works uses mathematics to describe the curves, colours, and areas covered by the drawing.

The method has one huge advantage over bitmap art in that the drawing can be scaled, rotated, and reshaped without losing resolution and without the jagged edges ("jaggies" as they're known) which result from changing the size of a bitmap drawing.

When the images are printed, either from a word processor or DTP package or from Design Works itself, it is printed at the highest possible resolution, leading to crisp outlines and no jaggies.

Everything needed to run the program is present on your CoverDisk, including a fonts directory, and it is

With Design Works and Vidi Amiga, we bring you an artistic double act that's hard to beat



easy to install Design Works on hard drive.

Simply boot from your normal system partition, put the Design Works disk in d10, and type the following commands:

```
MAKEDIR DHO:DESIGNWORKS
COPY DHO:PT TO DHO:DESIGNWORKS.ALL
```

Now just double click on the Design Works icon on your hard drive and off we go. The directory you have created includes a directory with four fonts - System, Times, Helvetica, and Courier. If you do not have these fonts already,

# the DISK SK

# The

copy them to your fonts directory using the command:

```
COPY DHO:DESIGNWORKS/Fonts/AT TO Fonts:ALL
```

Of course, DHO has been taken as an example, but if you have a partition called Work or DHI, just replace DHO with this drive name in the commands listed above.

Right, let's start the program by double clicking on the Design Works icon. There will be a delay while the program reads the fonts directory, then a window will open up showing a blank page superimposed by a grid, and three windows for the toolbox and current pen and fill colours.

If you have a copy of the ProWrite

word processor, Design Works' interface will be familiar to you, but there should be few problems for those who haven't used a New Horizons package before as the usual hotkey commands do the usual things. Let's start with a sample document.

Select the Open option from the Project menu, then double click on the Sample Documents directory. There should be a number of examples in this

## Vidi Amiga 12(RT)

Author: Rombo

The Vidi Amiga software on this month's CoverDisk is the full release of Rombo's latest software for the Vidi Amiga range of digitisers, bundled with the Vidi Amiga 12/24 (RT) hardware, with full grabbing and save options enabled.

Users of the existing Vidi Amiga 12 hardware should be able to make use of this software with the hardware they already have and those without the hardware can use it to process images or take advantage of the offer we are running in this issue to buy Vidi Amiga 12 (RT) at a reduced price.

As usual, the 12(RT) software has been archived so that we can unpack it onto its own disk, and as soon as this is over users should boot from the resulting disk.

The software runs from Workbench and on appearing will offer a main screen with the four main sections and two preferences screens available via button controls. Most readers won't have the Vidi hardware and those that do won't need to be told how to use the grabbing screen, so let's go straight to the edit menu.

Click on the Load button at the bottom of the screen and

select Sean.libm from the file requester to load a digitised picture of Sean Connery. If you have a non-AGA Amiga, this Ham8 image will not be displayed, so load the test card image from the Vidi disk or choose a Ham file from your own art work. Now that we have some data to operate on, click on Edit to go to the edit screen.

Before any editing takes place we must convert the image into RGB data for 12(RT) to go to work, so choose GetRGB from the list of operations in the centre window. The command name will appear on a button to the right of the window and if we click on it the operation will be carried out.

### PROCESSING

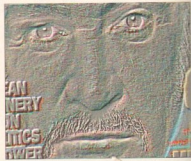
Once that's done, we can start to mess about. For complete fidelity, using every one of the processing controls in a random order would give you an idea how they all work, but there are one or two more spectacular ones we can go straight to.

The first process we'll try is emboss, which will convert the picture to a grey scale relief map of Sean's face. There are no user-definable settings for this feature, so just click on Emboss and wait for Sean to be turned to stone. Take a

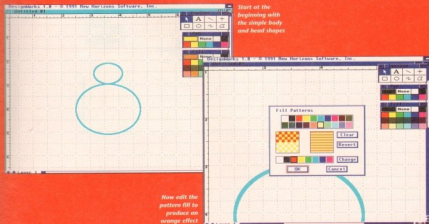
good look at the display and note that whiter areas appear higher and darker areas lower. Users can create very neat effects by loading DPaint IFFs and applying this when using the other Edit features, so keep an eye open when using this software for opportunities where it might be useful.

Before any other operation is carried out, click on Undo for the image to be rapidly returned to normal. Vidi Amiga 12(RT) keeps a buffered copy of the original image to ensure that the user can experiment without constantly loading the image back in again.

At all times, the image's size and whether or not it has







# restructure of art

directory, so double click on the NH Logo file to load it up. This is a simple drawing of the New Horizons logo and we'll use it to show how structured drawings are put together.

Look at the toolbox window and you should see that the arrow icon is active. This means we are in object manipulation mode, and if you click on the logo itself, drag points should appear at its four corners. Keeping the

left mouse button down, drag the drawing around the screen and release the mouse button, then click on one of the four drag points and move it around. Notice how the pointer changes to a crosshair and we can alter the width and height of the drawing?

Move the drawing to one side and make sure it is more or less the same shape as it was imported, then click once on it with the left button to make it

active and select Ungroup from the Arrange menu. The ball in the middle of the logo should now have its own set of drag points. What we have done is to split the drawing down to its next most complex component parts, and we can now drag the ball around without affecting the rest of the drawing.

For now, drag the ball to the middle of the screen and use the Ungroup option again. If you have any problem

getting hold of the ball, click on an area of the background it is sitting on and select Move to back from the Arrange menu.

Once the ball object has been ungrouped you will notice that it was made up of the red ball, a spot high light, and an area of shadow, which were grouped together to give the impression of a 3D ball. You should by now have realised that a structured drawing is made up of many component drawings grouped together to form the whole and that any drawing can be edited by ungrouping it and re-arranging its parts.

How much easier is this than rubbing out a line or filled area in DPaint? Lots. Now select Close from the Project menu, don't bother saving changes to the drawing, and we'll draw a seasonal snowman.

Our snowman will be made up mostly of two white circles, one each

for the head and body, but if we draw them as white against a white background things could get tricky.

Look at the Fill and Pen colour windows on the right of the screen, and choose white as the fill colour and light blue as the pen colour so that we can see the outline of our circles.

Now draw two circles and drag or re-

been converted to RGB are displayed on the right, so there should be no confusion when working with a number of frames.

Go back to the main screen by clicking on the close gadget on the Edit screen's window and click on the Carousel button. This option enables the user to load a number of frames from an animation or sequence of digitised images and edit the order they appear.

Sequences can be played from here at varying frame rates, backwards or forwards, and frames can be moved to a new position in the sequence. For now there should be a

thumbnail representation of the image we have in memory, so click on it once then on the Del button to start with a fresh slate.

Now go back to the main screen and load our image twice (yes, twice!) and return to the Edit screen. We should have two images in memory, a fact which is reported in the bottom right hand corner of the screen.

Use the GetRGB option with both images, swapping between them using the slider control, then go back to frame one. Click on the Cut button and cut out an area of the image (use the eye if you have loaded the Sean picture),

then go to the second frame and click on paste.

You should now be able to paste the brush from the first frame into the second. If this doesn't happen it is probably because you've forgotten to GetRGB, so don't worry.

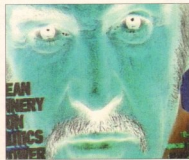
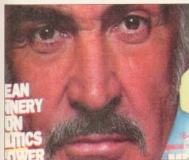
OK, we know how to load images, more than one if needed, use the processing tools on it, and cut/paste from one frame to another. The Carousel option now requires a bit more explanation.

## THUMBNAILS

When we go back to the Carousel screen, both frames should be visible as greyscale thumbnails. Notice that they are much clearer now that the program has some RGB data to work with.

Starting from left to right we can see the program controls which enable us to jump to any other section, then a list of switchable file specification buttons, and finally a set of controls for editing and viewing a sequence.

The top button of the image specification controls can be used to toggle between two sets of images. Let's say we load a pure 24-bit file which the software will convert to a



Vid's image processing tools can take an ordinary picture and do some far from ordinary things to it. Here Sean has been turned into a colour negative and embossed





size them using the drag points until they are in the rough shape of a snowman. You will have to click on the arrow icon once the circles have been drawn to put us back in manipulation mode.

Ensure that the head overlaps the body a little and use the Arrange menu to bring the head circle to the front of the drawing, then hold down the Shift key and click on both circles. This is called multiple selection and makes both objects active.

Next, choose Group from the arrange menu and we should now be able to move and re-size both circles as if they were one. For now, we don't want them grouped, so ungroup them

and we'll add some detail.

First of all, some facial features. Select black as both the pen and fill colour, then draw a circle which we'll use as an eye. Now click on the black circle and choose Duplicate from the Edit menu. We didn't have to do this in such a simple case, but when you need two objects to look exactly the same the easiest way is always to create one and then duplicate it.

Move the two eyes to the correct position on the snowman's head, and notice how they don't move with complete smoothness. That's because the default for Design Works is that objects should align themselves to the grid you see superimposed on the screen.

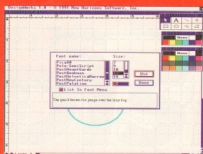
## THE GRID

This method is handy to ensure that objects line up correctly with each other but can be a pain when trying to precisely arrange small details. Select Grid snap from the Layout menu to turn this feature off, then place the eyes correctly and turn grid snap back on. Easy, eh?

Now for the nose. We'll need a carrot, but there is no orange colour on our fill window. Design Works uses eight colours on-screen the maximum which can normally be produced by colour inkjet or dot matrix printers) and dithers them to produce the impression of more colours.

In this way, the program works in the same way as your printer and makes it more likely that what you see on screen is what you get on paper. We need therefore to make a pattern which will look like orange, and easy job of mixing red and yellow.

Select Fill patterns from the Layout



menu and a window will appear with the current fill patterns in boxes. To change one, click on the light yellow pattern (fifth from the right on the bottom row) and it will pop up in the edit windows.

On the left is a close-up of the pattern and on the right is a representation of how it will look on-screen, so choose red from the selection of colours below the windows and fill in the white pixels with red. This will result in a red-yellow dotted pattern which will look like orange. Click on OK once you're satisfied with this and make sure it is the current fill pattern by checking on the fill window.

To draw the nose, choose the closed polygon tool (extreme right, bottom row) and draw a triangle in roughly the shape of a carrot. Clicking on the first point to close the triangle will pop us back in manipulation mode, but if you want it is easier to draw two sides of the triangle and select Polygon...close from the Edit menu.

Now scale the triangle to the correct size and put it on the snowman's face. To finish the face, we need a mouth, so

use either a few black circles or draw a smile using one of the drawing techniques we've already explored, and slap a grin on our frozen friend.

If you want to do some detailed work on any of the elements, choose Enlarge from the Layout menu, and remember that the mouth can be made to go under the nose by bringing the nose to the front using the appropriate option from the Arrange menu. Once the mouth is in place, multiple select the eyes, nose, and mouth and group them together.

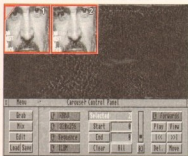
Next we'll make a scarf using the freehand drawing tool (second from the right, bottom row). Select red as the fill colour and black as the pen colour and draw a scarf around the snowman's neck.

When you've finished this drawing, a spline-based polygon will appear complete with drag handles which you can use to alter the shape of the polygon.

Use the Enlarge option for close control of the polygon if required, then draw the second part of the scarf hanging down from the snowman's

HAM image. We can't have that in the same sequence as a set of HamB's, so Carousel starts another sequence off in memory.

Using the toggle button to swap between HAM and HamB will also swap between the HAM and HamB sequences. Next is the resolution button which does a similar job if there are two sequences with differing resolu-



The Carousel option is ideal for moving frames around

tions, a button to swap between single image settings and sequence, and finally the file format button.

Clicking on this reveals that we may load a variety of images, from TIFF to BMP to 24-bit, all of which will be converted to RGB and displayed for the user to work on. Vidi Amiga 12 (RT) is therefore extremely useful for those who might have images taken from PC or Mac, as the TIFF and BMP formats are used extensively on those machines.

The next set of controls enable us to set the start and end point of any sequence we'd like to view and is accompanied by a slider giving variable control over playback speed. If you have a fast enough Amiga, you should be able to achieve 20 frames per second or more.

## VIEW OPTIONS

On the far right, the last set of controls give the user the option to view a sequence backwards, forwards, or in ping-pong fashion, view a particular frame or play the whole sequence. You will also find the Del and Move buttons here.

These are most important because by using them it is possible to select a range of frames and either delete them or move them to another part of the sequence, one of Vidi's most powerful editing features. Mastery of these controls

and the technique of cutting and pasting frames is essential if you are to get the most from the software.

Everything else in the Vidi Amiga 12 (RT) program should be either easy to experiment with or to pick up as most of the features are self-explanatory. With a bit of practice, home video enthusiasts who take advantage of our special offer should be editing their own digital movies within days.



If you don't like the default grab, just change the grabbing preferences



neck. This should go under the other part of the scarf, so make sure you use the backward/forward controls from the Arrange menu to achieve the desired effect before grouping the two together.

We now have a basic snowman to which we could add a hat, a couple of arms, and a broom, and we've used most of the basic drawing and editing tools to do so. At the moment, though, we would be advised to save the work done so far, and there are two ways of doing this.

One is to save the project as a Design Works document, a process which saves everything on the page, but we could also export the drawing as a clip for use in other programs. To do this, multiple select all elements of the drawing, group the whole lot together, and use the Export Pict option from the Project menu.

Now to add some text. Go to the Text menu and select the Font option, but don't let go of the mouse button yet. There should be a sub-menu with three fonts on offer and an option marked Other. Choose the Other

option and a list of the available fonts should appear. If you are booting from the Design Works floppy, you should be able to choose from four fonts with their various sizes, but if working from hard drive you should be able to select from any of your bitmap, CompuGraphic, or PostScript fonts.

Choose one you like and make sure the size is at least 24 points, then type an appropriate message below the snowman. If this were a New Year card, "Happy hogmanay" would do just fine. Click on the arrow icon to finish entering text.

The text should appear as you type it just as if this were a word processor, and when you've finished it will be presented as a text box. Now look at the text menu, which offers options to make the text bold, italics, or underlined, and from where we can control justification and spacing.

There are enough word processor-like features to give our text the look we want, and none of the features in this menu should need much introduction.

Note that justification is carried out

in relation to the text box rather than the text, and that if we choose centred text, it will be centred in the text box itself.

We can change the text colour using the pen colour window and the background colour using the fill window, so there are plenty of options to ensure the final result is just as we'd like.

Finally, let's look at printing the drawing. As already mentioned, Design Works uses eight colours with dithering to that drawings appear on paper as they do on screen, but if you have a black-and-white printer the program will use shades of grey instead.

## DRIVERS

The Design Works floppy includes printer drivers for Epson, Canon BJ10, Star LC10, and PostScript printers, which covers most of the available models. If you are using the program from a hard drive with printer preferences already set up, Design Works will use them, and there's enough space on the floppy for other drivers, so DeskJet owners for example should be able to use the HP500 drivers we've given away in the past.

Select the Print option from the Project Menu and the defaults should be correct. That is, eight colours, single sheets, 360 x 360 dpi, but you can change these if you like to suit your printer. The toggle option from normal to high quality makes for better output, but it will take longer to print.

And that's all we have time for, folks. Design Works is one of those packages with which it is easy to experiment and explore, so you should be able to get plenty out of the program with this introduction. Happy drawing.

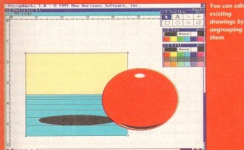
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## PrintManager 2.0

Author: Nicola Salmoria

This is the latest version of the best shareware print spooler around and is one of the most useful utilities a printer owner will ever have. The program's job is to intercept all print commands from Workbench or any program launched from Workbench and speed them to a pre-set area in memory or on disk to await printing.

An obvious advantage of this approach is that it almost immediately frees the program which issued the print command to do something else. No more waiting around for ages while that 15-page listing churns out of the dot matrix.

To install the program on hard drive, just drag the PrintManager icon to your Tools/Commodities drawer then type the following command:

```
COPY DFD:DEVS/SPOOLER.DEVICE TO DEVS
```

So long as your Workbench disk or hard drive has the commodities library, the program will run perfectly.

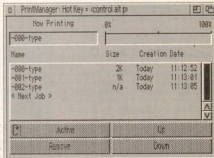
All functions of the program are controlled from the icon's tool types, including the drawer where print jobs will be stored before printing, and the interface is very intuitive so most printer users should have no problems.

To test PrintManager, select its icon and look for the tool type SPOOL-DRAWER-TSPOOL and change it so that it reads SPOOL-DRAWER-RAM. We should now be able to load the program's document file and by holding down Alt-

Shift-O print it to the spool drawer.

If everything works it should take only a split second for the printing to be accomplished and you should be able to continue reading the document while your printer takes its orders from PrintManager.

Full details of the other tool types can be found in the on-disk documentation, but this is the essence of how PrintManager works. It is easy to use and makes printer use a lot less hassle.



Total control over all print jobs with the latest in print spooler technology





## EditKeys

Author: David Kinder

Keymaps are small pieces of code residing in the DEVS-Keymaps drawer which can be loaded using the AmigaDOS SetMap command to alter the way the keyboard reacts to keypresses. If we could edit our keymap we could, for example, tell the Amiga that when F1 is pressed it really means "Run SYS:DPaint".

The flexibility of a program like this is immense as it can be used either to produce hotkeys such as the F1 example above, customise a keyboard for a disabled user to make typing easier, or change a USA keymap into a GB keymap.

Run the program by double clicking on its icon, at which time a file requester should appear with the available keymaps for you to choose from. If this doesn't happen just use the Load command from the program's menu to load one.

There wasn't enough space on the disk for a selection of keymaps and we figured you'd rather edit your own, so you'll have to drag the program icon to your Workbench floppy or hard drive and run it from there. If this is done you should be able to edit keymaps from your own Keymaps drawer. See the on-disk documentation for full instructions.

## Assign Manager

Author: Matt Francis

Assigns can be a real pain for hard drive users. You soon have so many of them that the list is as long as your arm, and many of them can be redundant in most situations. To remove an assign can also be a pain, and keeping track of them is sometimes impossible, so Assign Manager does it for you.

The program is designed to be used as a Prefs editor, so to install it to hard drive just drag the icon to your Prefs drawer and add the following line to the beginning of your user-startup file or startup-sequence:

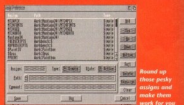
ASSIGN USE

As Prefs is usually part of the command path, the Assigns program should be found and initiated. Keeping an eye on your assigns is now a simple

matter of running the program and scrolling up and down the assigns. They will be listed as one of four types: simple, defer, add, or path.

Simple assigns are the most common and are used by most commercial programs which install on hard drive. Defer assigns are those which look for a directory and don't panic if they can't find it. Add assigns add a directory to, say, the LIBS: logical device, and Path assigns just add the assigned directory to a the AmigaDOS path.

Full instructions for this program can be found in the on-disk documentation.



## ABCDir

Author: Marc Dione

ABCDir is a directory utility similar to TDM and SID 2, both of which have made appearances on past CoverDisks, and is an attempt to bring together everything the author liked about other directory utilities in one program. To this end, the program is completely self-contained and even has its own Shell window built in.

When first loaded, the program will open an interlaced screen using a fairly small font which, though readable on high res monitors, will cause a bit of eyestrain on a TV or 1084, so our first job is to alter the configuration.

Look at the gadget strips between the two main windows and you'll see that there's a Config button three spaces up from the bottom of the left hand strip. Click on this button to reveal the config options.

The list is a long one, so just scroll down it using the slider until you see an interlace option, which should be the last one. Click twice on this

to make it read non-interlaced, then on OK. Got it? We should now be able to see better, but notice that the Shell window is no longer visible. As this sits on the lower part of the screen it is not accessible if you use a non-interlaced screen.

Sorry, but at least all the gadgets are available, and they're the important elements. I mean, we use directory utilities to avoid Shell, don't we? If you feel the need for a Shell window and the extra window showing all devices and assigns, select the double height non-interlaced setting to open a double height window. Simply move the mouse pointer to the bottom of the screen and the lower portion will scroll smoothly into view.

With that minor sticking point out of the way ABCDir should be a simple program to use. It works in the same way as most directory utilities in that you first select a device from the gadgets above the main windows, then a directory by clicking on it, then a file. Once the file is highlighted you just click on the tool of your choice from the central strips.

Full instructions for this shareware release can be found in the on-disk documentation.

## Think you can do better?

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 submission 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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Address \_\_\_\_\_

Daytime phone \_\_\_\_\_ Evening phone \_\_\_\_\_

Submission name \_\_\_\_\_ Submission size \_\_\_\_\_

Type of program: ☐ Game ☐ Utility ☐ Other \_\_\_\_\_

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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!



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. None

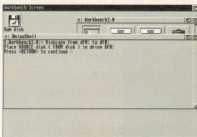
of the first things you must do when get your CoverDisk is make a backup copy, then put the original CoverDisk away for safe keeping. As a rule you should also do this with the majority of your software collection.

## 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 d0: TO d0:
```

When prompted, put your CoverDisk (the source disk) in d0: 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.



## 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 slashed 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.

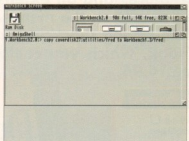
For example, if you wanted to copy a utility called FRED from CoverDisk 27's Utilities drawer to a directory called FRED on your Workbench disk, you'd type:

```
COPY COVERDISK27/UTILITIES/FRED TO WORKBENCH.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 Commands.

## 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.

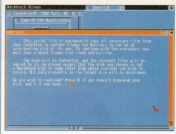
De-archiving programs which are on the CoverDisk is a very simple task. If a program has been archived then you will need a blank disk to dearchive it onto.

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 written-abled to perform the dearchiving process.



## 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.





# Have designs on this...

Not only have we given you - absolutely free - the complete DesignWorks software on the CoverDisk, but we've got a great manual offer as well! In 96 pages it comprehensively covers every aspect of this superb structured drawing program for artists and designers.

**The  
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manual, only  
£14.95**

The DesignWorks manual begins with a friendly getting started section and then moves on from the basics to explain all about creating, selecting, modifying and arranging objects.

This is followed by an explanation of the advanced features and an extensive reference section which covers all the details on the menus. To finish off there is a neat section on time-saving short cuts.

This very useful book, which you could put to good use, is great value at only £14.95.

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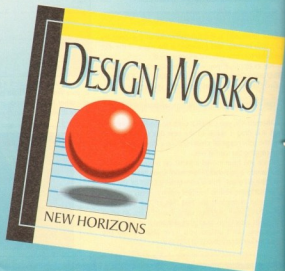
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# Vidi Amiga (12) RT

## CoverDisk offers

Here's a great opportunity to buy the manual and digitiser to make sure you use this month's CoverDisk to its full potential

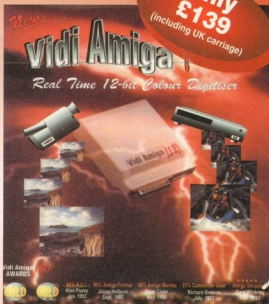
### The full Vidi Amiga (12) RT package

This real time 12-bit colour digitiser enables you to load and capture images from live video and digitise them. You will be able to capture images at up to full overscan video resolution in all AGA colour modes. There are swipe and play animation features and a whole load of powerful image processes you can carry out, including blur, convolve, emboss, negative, quantise, and saturation.

The easy-to-read 64 page manual covers everything you need to you know. It takes you through setting up equipment and provides tutorials covering the most important points of the Vidi Amiga (12) RT package, such as grabbing, mixing your colour image and editing. The comprehensive reference section describes every function of the software in detail. There is also a glossary and a trouble-shooting section.

To order please send this form to Vidi Amiga Offer, Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield SK10 4NP, or telephone 0625 878888 or fax 0625 850652.

Overseas readers will be charged carriage at cost. Please call Rombo on 44-506 414631 to find out the cost of carriage to your country.



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 Springer[illegible]



## VIRTUAL REALITY

## Better

Why watch a movie when you can be in one? Adam Phillips reports on the rapidly expanding and often controversial world of virtual reality

Once in a while, there comes an invention that influences the way in which society lives. The car, television, the atom bomb, the computer... Now virtual reality is beginning to show its first signs of growing up from the wildly speculative pipe dreams of its early years into a fully-fledged, commercially viable and above all, exciting industry.

VR has the potential to be the next "big thing" to grab the collective imagination of the world. While television and film only offer a screen to look at, with audience participation rarely surpassing the heady heights of Noel Edmonds's *House Party*, and the most involving computer games resembling a two-player go on Galactic Body Blows, virtual reality generates a multi-user, fully interactive environment where, in theory at least, the only barrier is the imagination.

At present, not only does VR challenge

the way games are played when compared to the likes of the Amiga and Super Nintendo, it has an endless stream of possibilities that can be used in all walks of life from 3D walk-through architectural plans to a surgeon training for open heart surgery.

Contrary to popular belief, virtual reality has been around for over 20 years and has only come into the limelight with the increasing technological advancements and due to people like Ivan E Sutherland, Jaron Lanier and John Waldren.

### HEAD-MOUNTED

As a concept, VR was pioneered by Sutherland at the University of Utah in 1968 where he produced the first head-mounted display (HMD) showing a topographic map of the US. Due to the unit's weight, the kit had to be hung from the ceiling, and it had a power cable running down the user's back with 50,000 volts coursing through it.

In another American state during the '60s, Myron Krueger was creating the first VR games at the University of Wisconsin with the likes of *Critter* which displayed a video silhouette of the user's head and shoulders. A bug would crawl up to the head to be subsequently removed by the player's hand.

In the '80s, Frederick Brooks created

GROPE, where the user could manipulate molecules by the use of 3D image and touch.

Jaron Lanier, the owner of VPL (Visual Programming Language) was the man to come up with a label for all this experimentation - virtual reality. His own achievements are as the inventor of the DataGlove, the inspiration for which he puts down to a desire to create the ultimate air guitar, and the EyePhone, head-mounted display unit for the home user.

Still confused as to what VR actually is? Think of it as an artificial, computer-generated world, created by sophisticated software and entered by the operator through the use of advanced, specialised peripherals, such as helmets and gloves, in either standing or sitting position, depending on the software.

It creates an environment which is 3D, affecting the three principal areas of sight, sound and touch. The peripherals monitor the operator's movements and duplicate



One button for moving, the other for firing; a very basic but relatively effective control device

## Dresden virtually rebuilt

On February 15, 1945, the Frauenkirche, the Church of Our Lady in Dresden - part of the then East Germany - was destroyed by a firestorm. This was brought about by the heavy British bombing two days before which caused a fire to ravage the one of the greatest masterpieces of European architecture until its walls finally caved in leaving a heap of rubble.

Enter '90s technology to reconstruct the church from scratch using the original materials, sandstone from the Elbe valley and historic building techniques.

To help with the rebuilding, surviving detailed architectural drawings and photographs were used to create a model which was then turned into a 3D photo-realistic computer animation of a flight round the Dresden Frauenkirche.

The sequence of the church will prove invaluable for the reconstruction, giving the designers and builders the closest view possible without actually building it - a virtual reality.



Before its demise during the Second World War, the Frauenkirche was regarded as masterpiece of European architecture...



The virtual rebuilding had to contain the atmosphere and emotions to give the rendering authenticity



# erthan the ports g ial ty real thing

*Virtual reality  
won't merely  
replace TV, it will  
eat it alive...*

Arthur C Clarke

them in the virtual world in real time, thus giving rise to an immersive experience, in which the operator is able to manipulate his surroundings via the computer.

At present, there are several peripherals that can be used in VR. These are split into two categories – the sensors and the effectors. Sensors send your signals to the computer and affect your actions in cyberspace (a computer-generated virtual world) while effectors send back data to the user.

An HMD, where the player sees the action, is an effector, while joysticks are sensors. The hand movement devices found so far in the British arcades are the basic joysticks which have one button to fire and the other to move in the direction you are looking.

Data gloves, available in America for some time, let your fingers dictate your movements. The next stage is a glove that will enable the user to "feel" their environment through the use of pressure pads in the peripheral.

Beyond this, the biggest and potentially most important immersive effector/sensor is the full body data suit. Virtual Presence's version features 96 sensors to track joint and body movement. With the titanium wiring, the suit is very light and if bought with their latest HMD

– a much lighter product than the Virtuality display – it will set you back £5,000. A snip.

The VR technology us everyday punters have access to is in the arcades and appears a little unimpressive and arcane at the moment when compared to cabinet-based machines, with rather slow update rates and basic graphics. But the makers of these machines, Virtuality Group plc, see these as only the first step in a long but definite route to achieving the ultimate in sensory experience.

The company, founded by Dr Jon Waldren in 1987 under its old name of W Industries, is the world's leading manufacturer of virtual reality equipment and software and has sold more than 350 systems in 20 countries at the healthy price of £25,000 each.

Waldren built his first VR system during his PhD at Loughborough in 1984. From there he established his now booming company and the following year won the British Technology Group Award in 1988.

The company has continued to grow at a healthy rate, knocking aside that old British technological neurosis – great idea, no business sense whatsoever – and has



Save the Loch Ness Monster in the Virtual Adventures theme park ride coming to you in 1994



£85 military simulators – one day all games will look this good...



The VR hang glider game showing off the realworld potential of virtual reality



Touch Glove allows users to feel virtual reality objects



## Sega game could cause eye damage

A NEW test that allows the user to play a Sega game while wearing a VR headset could potentially cause eye damage.

The experiment was carried out by a team of researchers at the University of Edinburgh, among others. Worries have been aired that the HMDs may well cause binocular stress on users' eyes and cause nausea and headaches, among other symptoms.

After setting up a test involving 20 young adults seated on a "tethered" cycle and asked to ride round a virtual landscape with signs, buildings and bridges, over half the subjects reported blurred vision and one individual's eyes took 40 minutes to return to their normal state.

The equipment they tested was the VPL LX Eyephone with Fresnel lens which was regarded by many VR companies as a poor comparison to their own hardware. Wann also claims that the similar problems have arisen with the LEEP lens systems, and that further research is required. Virtuality had this to say about the subject:

The HMD has recently come under attack in the press and under research by John Wann and his colleagues at the University of Edinburgh, among others. Worries have been aired that the HMDs may well cause binocular stress on users' eyes and cause nausea and headaches, among other symptoms.

secured contracts with some of the world's biggest names such as MCA in America, Nabisco and Budweiser, among others.

The real ace in Virtuality's pack, though, is the recently attained contract with Sega, when Walden and company sold the first significant operating system licence to the Japanese entertainment giant. Licensing technology is Virtuality's attempt to standardise a still young mar-

ket. The deal is to produce a high performance virtual reality game which, in the words of the ever-modest John Walden, will be "a landmark within the arcade entertainment field".

To top all of this, the company was recently floated on the stock market and fetched £10 million from the newly acquired shareholders with premiums at 73p on the first day.

You may be wondering what kind of

## The negative side

"With respect to physical side effects of VR, such as eye strain, any poorly designed equipment will introduce eye strain. It is the responsibility of good engineering and correct health and safety tests to ensure products do not reach the market in such a state."

Earlier this year the Independent launched an attack on Sega and its prototype designed for home use, the Sega Virtus VR HMD, for being one of the guilty parties in the eye strain wars that could possibly cause squints in young children if used for too long.

Whether this was true or not is not the issue because the equipment the tabloid-style article wrote about was still being researched and tested in the labs and was not available to the general public.

Any hopes though of the Sega's VR unit being released before Christmas are highly unlikely. It's possible that the machine will now be delayed until late Spring 1994.

The reason given is the continuation of extensive tests which are taking longer than previously thought, and to improve the games that were to be released with the system, possibly after the very mixed reaction they received.

With the Health and Safety Executive sacking £200,000 into further research on the possible side effects of VR use, it's obvious the matter is being dealt with seriously, and all parties are apparently giving full co-operation.



Still in research, Sega's VR HMD can be expected early in '94

machine it takes to run the future of entertainment as we know it. It's none other than an Amiga. Although stuffed to the brim with graphics cards and boards introducing processing technology many times in excess of the basic unit, it's still a Commodore at heart...

With Virtuality Group plc's financial holdings well and truly anchored, how does John Walden see the VR future?

"We envisage the technology becoming

significantly lighter and less cumbersome. In terms of the most important aspect, that of the software development at the moment entertainment applications and other VR applications are very crude.

"As we speak, these are becoming more sophisticated in their complexity and in their usability. It is critical the environments are both compelling and highly enjoyable, but at the same time immediate and uncluttered by technical

From the actual reality of driving around Nottingham hopelessly lost to the virtual reality of a Gladiators game hour horribly wrong, where this humble reporter was turned into a bloodthirsty, rampaging robot, is an example of the pure escapism VR offers.

Laserquest in Nottingham is one of a chain of nationwide sites boasting an extensive range of VR games. Started nearly two years ago, the leisure complex has gone from strength to strength and now has four fully operational VR pods with a mere accumulative cost of £100,000.

On entering the premises, you'd expect to see some huge towering piece of equipment to justify the price but in fact, after having a good look around, my eyes finally stumbled across a television, four Amigas with accessories and four hollow artificial tree stumps in which the players stand wearing the VR headgear and clutching their joysticks.

Before testing the alien-looking equipment, I asked VR and laser quest marshal Paul Shelton his opinions on virtual reality:

### How are people reacting to VR?

"It's been a positive response from the Laserquest players: the general public really enjoy playing as well. It's ideal for corporate events where there's a real sense of who can outwit level 6 of Legend Quest or beat the alien in Grid Warriors."

### What do you think of the possible side effects of VR such as eyestrain?

"I've been playing virtual reality for nearly a year now

## At the arcades



since it's been down here, sometimes playing games like Gridbusters two or three times a day and have had no problem. Another guy has been using it for two years and is perfectly fine. We've never had any complaints..."

### What do you expect to see over the next few months?

"Over the space of six months [since...] Combat Zone was released to the latest one, Gridbusters, [they've added] digitised photographs and a totally interactive soundtrack which adjusts to the player's situation, telling you where to go and what to look at."

"I can see that side developing first and the graphic capabilities afterwards. In the future, I can see virtual reality rivaling the arcades."

This may all sound very enticing, but what about the actual prices of playing in game heaven? For the addictive players among you, it'll cost £120 for an eight-hour



Dungeons, dragons and zombies work in this, the most interactive of all the virtual reality games so far...

session on Legend Quest down to a more reasonable £4.50 for 15 minutes.

For the same amount of money, the time allowed fluctuates on different games. It may sound a little on the dear side but with member and guests lists of well over 7,000 customers, virtual reality seems to have made solid impact on the arcade-playing public already.

So what are the actual games like and are they worth the money? While Dactyl Nightmares and Gridbusters are reasonable titles, Legend Quest is by far the best example, really showing what virtual reality is capable of. It takes the clichéd format of an adventure set in a gothic where you, the player, may select to be either a dwarf, an elf, or - if you're in a really daring mood - a human. Choose a profession - fighter, thief or magician



or aspects of primitive software interfaces."

While Virtuality's main field is in entertainment, they are also placing a firm investment in many other areas of development.

Included in these is "edutainment", a mixture of education and entertainment where VR is already being used in the design of experiences which depict the issues related to an environmental type of simulation.

## RECONSTRUCTED

In the future, imagine a classroom without the need for a blackboard and a high velocity chunk of chalk where the pupil walks in, sits down, puts on VR glasses and taught at first hand about the battle of Bosworth or watches the siege of Leningrad reconstructed in a virtual world. These systems are also planned to be used in universities and museums and again offer a



Division have created where a military trainee stands in a virtual environment of realistic targets, activities and interaction

potentially excellent learning experience? Finally, for those of us wishing to have a virtual world in our own front room, a home-based virtual reality kit is been dis-

cussed with several manufacturers, for joint development of the computer gamer's dream.

Another British company doing financially well both at home and abroad is Division. Founded in 1989, their specialisation is in applications such as computer-aided design, molecular modelling, telepresence and simulation.

Last October, Volvo demonstrated their Division-designed Virtual Reality Crash Simulator where the user is able to experience a 25mph side impact and walk away unharmed. Charles Grimsdale, MD of the company said: "A full scale 3D model of the car can provide invaluable insights into both ergonomics and aesthetics of design."

In the Netherlands, virtual reality has not been used to show houses which have not yet been built. Prospective purchasers



A Division-produced game designed specifically for the recent SIGGRAPH show in America

and the quest begins. Split up into several levels infested with monsters, puzzles and treasure, up to four players can move through the adventure, amassing fame and fortune and generally having a damn fine interactive time.

Calling to your fellow companions in a distorted sound-synthesised voice through the VR headset to watch their backs - because of the several skeletons rising from the floor - and discussing strategies creates a real feeling of teamwork and excitement as you work together to progress into the later levels. It is possible to save your game to return to later if you run out of money.

## DRAMATIC

Winner of CyberEdge Journal's VR software of the year award 1993, Legend Quest is what virtual reality is all about - feeling like you're there.

Despite the basic chunky look of the graphics, the far from perfect frame update and the occasionally unresponsive at times controls that don't exactly show off state-of-the-art technology, insiders believe that there will be a dramatic improvement within the next 12 months.

According to Clive Jones of Dimension: "The whole marketplace is technically developing incredibly quickly particularly [in] the graphics performance area."

With peripherals such as data gloves soon to be released into the arcades and five more games on the way including an underwater adventure, a Star Wars-type escape and a boxing game as well as a flurry of entertainment activity across the Atlantic, VR is shaping up to be a healthy contender for the coveted title of the ultimate gaming experience.



The common set-up for standing games: Here the players stand in a CS 1000, a "pod" used for a safe playing area... in this example, Legend Quest



Excess - one of the games in the Virtuality catalogue



Gridmasters - a frenzied gladiatorial game set in the future

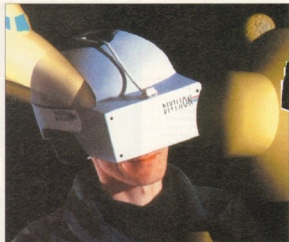


One of Virtuality's games, Flying Aces, is played in the sit down pod, the SD1000...



Watch your back and shoot the opposition in one of the first VR games





Division's HMD

were able to walk through and see their future homes, and during the two days that the VR system was in use, more houses were sold than in any previous two-day period.

Clive Jones of Division said: "...if you look at some of the ways [virtual reality] is going to help people interface with computers and some of the ways in which it's going to allow multimedia to come to life which it hasn't done before, it's more than just another step - it's quite a radical improvement."

## LEISURE

Stateside, where things move faster and cost more, companies like Evans and Sutherland - the makers of military and scientific simulations for industry - have decided to turn their talents to the entertainment sector.

Unlike Virtuality and Division, whose philosophies are to make VR as affordable as possible for the mass market, E&S have pulled out all the stops and created Virtual Adventures for a bargain basement price tag of \$1 million each, to be

installed in major theme parks in 1994.

The company's idea is to move away from the HMD and into a more sociable and interactive environment where a group of people work together to win the game.

Their first product is a game where a team must work together to save the Loch Ness monster using a vehicle containing six people performing different tasks - one pilot, a navigator and robot arm operator among others.

At the recent SIGGRAPH show in America, the world's largest computer graphics get-together, Evans and Sutherland stole the event with their breathtaking virtual reality hang-glider ride which allows two participants to fly simultaneously through separate urban landscapes. Even though this was put together purely for the show, E&S have plans to produce a line of machines for under \$100,000 each.

While there are only a handful of companies through out the world in VR production, many other industries are becoming increasingly interested in the



A small, light and sleeker HMD compared to older models

uses for this new medium.

According to America's Ben Delany, editor of the *CyberEdge Journal* (a paper specialising in all things cyberspace and virtual), among many of the proposed applications is telepresence where instead of a human going into a potential lethal situation such as a massive fire in a petroleum refinery or a meltdown in a nuclear plant, a remote-controlled robot is sent in operated by a person wearing a data suit which causes the machine to mimic their actions.

VR's uses spread as far as psychology where patients will be able to talk to an unassuming virtual therapist controlled by people out of sight - potentially useful in dealing with highly disturbed children.

## GENETIC

Other more controversial VR techniques will be in genetic engineering where the engineer will move about in the fish-tank-like setting of a virtual cell, grabbing and moving organelles at will. At the same time, laser cytometres will be performing the actual manipulations on real, living cells, copying the actions of the operator.

You may have read articles and press releases about virtual reality before and grown tired of the endless stream of hyperbole: "It's the dawning of a new age," "The world will never be the same again," "It's not life as we know it, Jim," to the other extreme: "It'll destroy society, crush the souls of children, annihilate human communication..."

Although the above comments are on the extreme side, whatever VR is capable of, it is up to the people who develop and use it to make sure that this powerful medium that's coming of age is used responsibly and creatively.

While virtual reality may be just another step in technology's evolutionary ladder, the signs are that this is no flash-

in-the-pan craze, and that we'll be seeing more of VR in the months and years to come.

In the words of Clive Jones at Division, questioned on the future of virtual reality: "Has it reached the unstoppable roll? It's very, very close to it."



## Special thanks

Parallelogram magazine  
Dr Brian Collins, IBM UK Scientific Centre (Dresden)

## Further reading:

Mondo 2000  
*CyberEdge Journal*  
Virtual Reality by Howard Rheingold

## Further viewing

**Brainstorm** - The first and so far best VR film made starring Christopher Walken as the scientist tapping into the human mind to create the ultimate sensory experience.

**The Lawnmower Man** - A very weak, limping plot just held together by the superb VR sequences created by Angel Studios.

**Emmanuelle's Seventh Heaven** - Another chance for the porno industry to sink their teeth into something new. Emmanuelle conducts sex therapy through the use of virtual reality in this soft porn flick.

**Cyberzone, BBC2** - Craig Charles desperately tries to make this VR cat 'n' mouse game interesting but there's no doubt that it's just a little tedious when viewing. Worth watching it only to see virtual reality in action.

## Exhibitions in VR

Imagine a system that combines virtual reality, video and sound, all squeezed into a virtual environment displaying 24 exhibits in space that normally only fits one. The Virtual Exhibition System (VES) is the brainchild of Perry Hubber, a designer working for design company Faberwulh.

It's a multimedia experience in the true sense of the word, where the user is able to move via a custom controller called a Spaceball through a virtual exhibition. A series of computers are lined up which, when approached, play a short video clip describing the particular product.

"VES helps make virtual reality a more usable and accessible technology," Hubber says. "For the first time, many companies can see the potential benefits of VR, and more importantly, can afford to use them."

While using a non-immersive VGA monitor, Hubber opted for an Amiga 1500 fitted with an accelerator card, connected to a Laserdisc player. He intends to upgrade to a Motorola 68040-based Amiga 4000 in the future. My, my, that Commodore machine gets everywhere.







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Firstly, none of these units can work miracles and if the signal fed into the digitiser is poor then you can bet your bottom dollar that the results are going to be equally poor. You can get great results from CD decks, records and tape machines but if you want to use a microphone for recording voices and so on then a little more care is needed.

Microphones, such as the those provided with cheap portable tape machines, are best avoided (like the plague). If you need to sample microphone-based input then try and get hold of something decent (like an AKG, Shure, or Beyerd) even if it means borrowing one from a rich friend!

One criteria used to measure the signal quality of hi-fi equipment and the like is something called the signal-to-noise (SNR) ratio. This basically gives a measure of the signal itself relative to any extraneous electrically generated background noise produced by the equipment.

Keeping tape heads and records clean, and using good quality connecting leads



Probably the best 8-bit analog sound sampler in the world

(which should incidentally be as short as possible), can all help to improve the final quality of the audio signal.

Because it is important to provide the digitiser with a good strength signal, the sampling software will provide graphic

indicators which allow you to see whether a suitable signal level is being provided.

Too low and the sample will have a lot of background noise, too high and the digitiser's input circuitry won't be able to cope and you'll get a distortion effect known as

## Trouble shooter

With proper attention to input signal levels, and a decent original signal, very little can go wrong with your sample taking. There are however a couple of extra points worth mentioning.

To start with, dirty contacts on the audio lead that links the sound source to the digitiser can often result in poor sample quality. The remedy is to clean the jacks/phone-sockets (loose connections cause similar problems and the solution should be pretty obvious).

Audio leads trailing near to a mains power cable are another thing to watch for – it is all too easy for mains-induced hum to be inadvertently picked up.

The moral here? Keep all audio leads away from cables that carry current and don't, incidentally, do silly things like draping audio leads over your monitor.

Not because it's particularly unsafe but because the high voltages inside the monitor can also result in the audio input cable picking up induced hum.

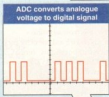
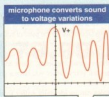
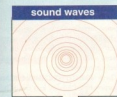
# rsampling

## The sound sampler

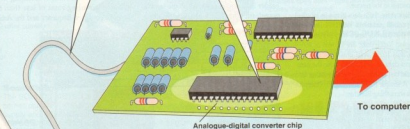
Sound samplers convert sound to a digitised form which can be stored and manipulated by a computer. Samplers rely on chips called analogue-to-digital converters (ADCs). These specialised chips sample analogue voltages and convert them into binary numbers which the computer can digest. Sound samplers usually operate at rates of up to 40,000 samples per second (sps) although sampling rates of 8,000sps to 15,000sps can be quite adequate. Control of the recording level or gain is very important. Some samplers control gain digitally on screen while others offer only hardware control.

### The analogue-to-digital converter (ADC)

This is the heart of the sampler. The chip samples the analogue input at a controlled sample rate and measures the voltage variations at regularly spaced intervals, generating a list of binary numeric values which can be stored and manipulated by the computer.

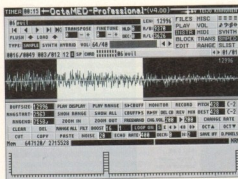


**Nyquist's Law**  
Nyquist's Law states that the highest recordable frequency is equal to half the sampling rate. The range of the human ear goes up to about 20,000Hz so to record sounds at this frequency would require a sampling rate of 40,000sps – this is about the rate at which sound is recorded for compact discs. 15,000sps is usually quite adequate for home computer use, however, and at this rate the highest recordable frequency would be 7500Hz. Any sound above this frequency would be recorded as noise or "aliasing".



Once in digital form various techniques can be applied to the sound file including echo, flanging, reverb, scaling and resampling. Flanging adds a whooshing sound to instruments and voices. Reverb changes the volume of a sample gradually from beginning to end. Flipping makes the sampled sound play backwards. Scaling changes the volume of an entire sample by a specified amount. Resampling improves the quality of a piece of sound by sampling at a high rate then bumping it down to a lower, less memory intensive speed. This gives a better quality result than would otherwise be possible at a lower sampling rate.





Trackers programs like OctaMED let you create your own compositions using sound samples

clipping. For the best results, start with a signal that is a little too loud and experiment by sampling it, and listening to the results.

If on replay you hear any evidence of clipping, then reduce the volume slightly and try again. Repeat the process until you are convinced that you've recorded the strongest non-clipping signal possible. Some digitizers, incidentally, are fitted with volume controls. Others are not and in these latter cases the signal level will need to be adjusted directly from the audio source.

Collecting sound samples is great fun. It is, however, of little use unless those samples can be saved and re-used and herein lies another part of the sampling story...

The digital copy or image of the sound in memory is called the raw data and many sample editing packages offer facilities for writing this information directly to disk.

Raw files are used mainly by programmers - a games coder for instance might use raw sound sample data and embed the required details of playback rates and the like, within the program using the sound.

As a means of creating portable data files, ie sound sample files that can be used with any number of different sound editing programs or tracker programs, raw sample files are less than ideal. This is because a program reading such raw sample data is not going to know how the waveform should be played back or used.

What is needed therefore is a file format that saves not only the waveform data, but some details about how the sample should be played and this is where the IFF 8SVX file format comes to the rescue.

IFF files store their data items in labelled blocks (called chunks). With 8-bit sound samples the chunks, since they represent 8-bit Sampled Voice data, are known as 8SVX chunks and these will contain the raw waveform data, details about how the sample should be played, plus perhaps other info as well. A simple 8SVX file might, conceptually look something like this:

```
----- IFF 8SVX sound file -----
<IFF label> <size> <VENDOR header info> <8SVX
waveform data>
```

The IFF format allows a number of different waveforms to be stored together, including a one-shot sample which is a waveform that is intended to be played once at some nominal playback rate. The file may also include a

repeat part waveform. The idea here is that when samples are played as musical instruments, the programs using them can initially play the one-shot part of the waveform, and then loop around the repeat part of the waveform for as long as the sound needs to be sustained.

Programs which use sampled sounds as instruments achieve different notes in a particular voice by modifying the rate at which they play back the sound sample.

Samples however always sound best, or at least most natural, when they are played back at rates near to their original sampling rate and with large alterations in playback rates the quality of the voice can often deteriorate drastically.

## MULTIPLE

The IFF standard helps programs to avoid these sorts of problems by allowing multiple octave sound data to be stored so that in any given situation a program can choose an octave nearest to the note that it wishes to generate. Three and five octave 8SVX file versions are common.

IFF 8SVX is fine as an 8-bit standard but over the last few years a more sophisticated file standard has been created that will become increasingly important as 16-bit sampling becomes more accessible.

It's called Audio IFF and one of the packages which supports this format is Microdeal's Clarity 16. The AVR format, an in-house standard created by Audio Visual Research, is another 16-bit arrangement that you may also read about.

AVR files consist of a small block of header information followed by the sample waveform data. There are incidentally a

number of Midi-oriented sound sample file formats also available but these are really only of interest to professional users.

By virtue of the way they are obtained, digitised samples are of necessity both time quantised and limited to discrete steps in amplitude.

The world of mathematics has provided us with something called the Nyquist theorem which essentially says that a continuous time waveform, when sampled at a frequency greater than twice the maximum frequency component in its spectrum, can be reconstructed completely from the sampled waveform.

Now in theory you can use these ideas to predict suitable sampling rates when taking

*Let your ears be judge and jury and you won't go far wrong*

samples of a particular musical note (if for instance you are sampling a sound with a frequency of 15kHz, this theory suggests that you'd need to collect data at a frequency of at least twice this, ie 30kHz to get a good sample).

In practice things are not that simple because musical instruments produce notes which contain other frequencies, called harmonic overtones, which colour the sounds. These harmonics may include frequencies which are at a much higher frequency than the main note.

If the Nyquist relationship tells you anything at all it is that a sampling frequency at least twice as fast as the frequency of the highest frequency component present in the original waveform needs to be used.

Since you'll never know the frequency of the harmonics any chance of making sound predictions (apologies for the pun) of suitable sampling rates go out of the window! The solution of course is to forget any "I can calculate the required frequency" ideas and let your ears tell you whether you have a good sample or not.

Samples can incidentally suffer from waveform distortion known as aliasing when taken at sampling rates of less than the Nyquist predicted frequency and the Amiga

## Jargon buster

**chip memory** The area of memory that is accessible by the Amiga's custom chip set. Sound samples have to be held in chip memory in order to be used.

**clipping** When a signal is provided that is too loud for the digitiser circuitry to cope with, the top parts of the input signal waveform can be effectively chopped off or clipped. This produces a distortion which, for obvious reasons, is called clipping!

**hertz** The hertz is the common unit of frequency equivalent to one cycle per second, so 1kHz = 1,000 cycles per second.

**RAM scanning** A facility provided by some sampling software whereby you can hunt around the Amiga's memory and "play" whatever's there. Needless to say nobody ever uses these options for stealing other peoples' samples!

**tracker programs** These are sequencer-type programs that are based on the use of sampled sounds. OctaMED Pro is a typical example and very good it is too.

is fitted with an anti-aliasing filter to minimise this effect.

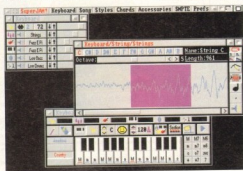
Unfortunately this filter works by cutting the high-frequencies (because they're the ones most affected by aliasing distortion) so samples end up sounding flat (dull). Basically the sound loses its sparkle because it loses those all-important harmonics mentioned earlier!

Some sampling software can employ a playback technique known as oversampling which allows aliasing distortion to be reduced without cutting the high-frequency waveform components.

There is incidentally another source of distortion-based quality loss that is worth mentioning. Some software allows the IFF 8SVX sample data to be compressed to save space.

Fibonacci-delta compression, the technique that is always used, is not really suitable for compressing musical instrument samples - it can, and usually does, introduce distortion that is especially noticeable on samples recorded at low sample rates. Sometimes you can get away with it but as before the only safe solution is to experiment and let your ear be the judge!

Developing an ear for music, being able to recognise a good sample from a bad one, and so on is something that only comes with practice. At the end of the day there is only one rule to apply to the samples you take - if it sounds good... then it is good. And if your ears are your judge and jury in this way you'll find that you won't go far wrong.



This highly sophisticated automated composition program from River Ribbons Soundworks uses sampled sounds for its instruments



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A second floppy disk drive can revolutionise the way you use your Amiga. Phil Morse looks at the wide variety of models on the market

**A**ll disk drives are the same. A fact which, at first glance, seems to make this review rather pointless. But while they all tend to use one of a very small number of reliable, well tested and trusted actual drive mechanisms within their cases, the construction quality, software supplied and extra features are all up to the particular manufacturer.

Actually, there are a couple of types of drive, although for the Amiga only one kind is really viable unless you require one for specialist use, and this is the floppy drive format. HD stands for high density, which means the disk can hold around 800k of information as opposed to roughly half of that using old (now dated) variants.

As well as HD disks, it is also possible to buy DD (double density) variants. These can record roughly double that of HD disks, and use much higher quality magnetic coatings on the disks' surfaces to record accurately such a large amount of information.

We have tested one such model, the Power XL drive. Such drives are great for

# Two's com



## Blitz those disks

Blitz is a piece of copying software. Now while people undoubtedly use such software to pirate commercial releases, they also use it to get around commercial blocks in order to back up their expensive software. While understanding the latter, to deny that the former goes on just as much would be stupid.

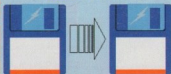
However, Blitz is available and people are buying it, so what does it do? Well, by putting the disk to be copied from, write-protected, into the Amiga's internal drive, and the disk's to be copied to in any external drives (write-enabled) it simply makes a bit-by-bit copy of the entire disk.

It does not do it 'intelligently'; it has no way of knowing if a copy is successful or not, but most of

the time they are. Power recommend that you use HD or high density disks - popular in the PC world due to their propensity to hold twice as much data as their DD (double density) contemporaries - because they are made of very high quality magnetic media and so Blitz will be most likely to make an error-free copy onto such a disk.

Blitz can, indeed, also copy PC and ST disks, due to the fact that it doesn't care what it is that it's copying across, and with other options including doing up to three disks of a time (assuming you have enough drives, of course) this is undoubtedly an extremely effective program. It is up to users to use it responsibly - and there's only a faint chance of that, I fear.

**Blitz Turbo**  
Amiga Version



Copyright Power Computing 1991

The Blitz backup software in use



## Power PC883 Dual

### Power Computing

This is a novel concept, and one which will appeal to those who want two instead of just one extra drive, but who wish to keep everything nice and tidy. The Power Dual is two fully-featured Power disk drives in one neat metal case.

Each drive is in actual fact a completely independent unit, so you can copy from one to the other, the Amiga recognises them both icon-wise as two separate units, and so on.

Switched on via the switch on its rear, the unit is actually powered by its own mini-transformer mains power supply. This is to reduce any strain on overworked power supplies, and is only to be welcomed. It's a common misconception that power supplies last forever...

The Dual Drive comes complete with Blitz software, too (see box), and can – indeed, must – make two copies of anything you're backing up from the Amiga's internal drive in order to make it work.

It's novel and very neat. While it may never be a best seller, there are many circumstances where two disk drives in one neat box could be a perfect solution, and if it's such with you, this is a first rate model.



## Power XL

### Power Computing

Sharing the same sleek looks as the 880B except for a slightly darker shade of grey used for the front plastic casing of the drive itself, this drive is different in that it can handle high density disks, known as HD disks for short. As mentioned, these allow you to format the special HD disks to hold a maximum capacity of around 1.6Mb – double that of usual DD disks, and so especially useful for those wishing to cram a large amount of data onto a single disk.

Therefore this drive appeals to those using their Amigas for DTP or animation and graphics work, where the disks can hold more pages, frames or pictures than their lower capacity counterparts.

Visually, the only difference on the disks themselves (discounting the HD logo) is a second hole opposite the write-enable/disable slot. This hole is a permanent one, and using it the disk drive senses whether the disk which has just been inserted is HD or DD. Therefore, the Power XL drive is able to read, write and format both types of disk – the best of both worlds.

The drive has four rubber feet which hold it very still, and the usual enable/disable switch and daisy-chaining socket on the back. So if big files or programs are your thing – or if you're putting off getting that hard disk yet wish you could have a second drive stacked with all the things you need to keep swapping disks for – this could be the one for you.



## Beating viruses

I could have called them "viri", but then you wouldn't have known what I meant, would you? However you pluralise them, viruses – nasty little computer programs which can do everything from locking up your machine to flashing "amusing" messages at you to reformatting your hard drive – are highly undesirable.

Disk drives which contain anti-virus circuitry allow reading and writing to and from Amiga disks as usual, but will block any attempts to write to the boot-block of any disks in either the external drive or the Amiga's own internal one.

As most viruses work by bootblock corruption, this is an effective aid in the fight against them, although it should not be used instead of a proprietary virus killer – such circuitry can't do anything about already affected disks.

Unfortunately, the so-called "link" viruses are immune to this kind of protection as they work in a completely different way. Link viruses are generally far more serious than their bootblock contemporaries, doing such desirable things as complete disk wipes (hard as well as soft), so it is doubly essential to make sure that you scan all new disks with that up-to-date virus killer.



## Power PC880B

## Power Computing

The Power drive is a long beast, but is nevertheless streamlined and good-looking in its plastic and metal casing. It bears a great resemblance to its cousin, the Power XL high density drive, brought about by being sold in the same casing.

The PC880B has an isolating switch which makes it effectively "disappear" when switched off, allowing compatibility with extra-drive-sensitive software, and also comes with the usual through-port for connecting a second drive to.

Power recommend that you do not connect more than two drives together running off the Amiga's own power supply – although this advice may vary depending upon what machine and so what type of power supply you have. Power's suggestion is a sensible rule of thumb.

One feature which particularly impressed me was the inclusion of an anti-click device which effectively stops the drive clicking periodically – the bane of the Amiga's internal drive.

It's a problem caused by the Amiga continually checking to see if a disk has been inserted in the drive, and one which users have previously got around by either putting a "dummy" disk in the drive (so there is one there and so no need to click) or by using a small PD utility permanently installed and programmed to stop it. Power's solution is both transparent and effective.

What makes Power's drive stand apart from the crowd, however, is its Blitz software, which is included with the drive in the shape of a floppy disk, and an extra switch on the back of the unit. The function switch can select one of three options. The first is Normal. The second is an anti-virus setting, which is discussed in more detail in the separate box.

The final setting, Blitz, is for use in conjunction with the aforementioned software. See the box-out "Blitz those disks" for more information on this feature.



**Cumana CAX354**  
Cumana Ltd

Definitely the grandad of the Amiga external floppy drive world, the Cumana has been around for many years. Looking rather old fashioned in this day and age – it's slightly bigger and clumsier looking than its competitors, and its noisiness betrays a rather basic design – the Cumana has nevertheless lived a long and popular life which sees no sign of decline.

Maybe people like it because of its reliability. Eschewing flashiness and fashion, the Cumana is one of the most trustworthy drives in the business.

It comes in a two-part moulded plastic case, complete with an extra port on the back for daisy-chaining another drive. It has four small plastic feet, which are not particularly bril-

liant at holding it still. Indeed, our office Cumana (pictured) has been doctored with six large rubber feet and now looks somewhat like the souped-up Morris Minor of the floppy disk world! But it's testament to the unit's reliability that no-one can remember how long we've had this particular specimen. Devoid of gadgets and extras, this is the drive for you if you're after something tried and tested and through with flying colours.

## Roctec RocLite

Gordon Harwood

A very popular drive with the trendy, streamlined mob, and not too surprising either, as the RocTec's sleek metal case certainly conjures up elegant adjectives such as "diminutive" and "understated".

Although its design is compact, it lacks the spill-coffee-unfriendly top vents of its streamlined contemporary the Zappo drive. On the Zappo model, vents appear to be a design feature designed to keep the drive mechanism cool within such a small case, but the Roctec does not appear to get hot in use without them.

It is equipped with the usual enable/disable switch and socket for daisy-chaining other drives to, although you may have to search for a trendy-looking 23-pin cable to connect them up with or the plug in the back might ruin this vain little number's good looks!

It also has, rather more usefully, an anti-virus facility along the lines of the power drives (see box for an explanation) which is only to be welcomed and perhaps pushed this model a little ahead of the Zappo in the sleek desirability stakes.



## Zappo RF332C

Indi  
irect/Hobbyte

This is a highly attractive drive, and for those with fashion-conscious Amiga setups, it could be right up your street. Extremely slimline, both in height and length, it comes in as sturdy grey metal casing, which is finished in an attractive speckled pattern, and has the usual 23-pin D-plug for attachment to your Amiga, and a D-socket on the rear for attaching further drives.

Possibly the only worrying factor about this attractive design is the use of two cooling vents on the top of the unit towards the rear. While no doubt essential for the cool and proper running of the Zappo, these vents nevertheless are prime target for any stray cups of coffee or small objects in the curious paws of young children...

No doubt the trendy, streamlined design of the drive is the reason these vents are necessary, so if you want small size and looks, just be extra careful with drinks and children.

Finally, the drive has a small on/off toggle switch at the back to deactivate when its use is interfering with software. Like most of the drives reviewed here, the Zappo has not got a power supply of its own, but if my humble A600's power supply can happily feed it, then I imagine it will be all right on all Amigoes.

## Addresses

Cumana Ltd, Pines Trading Estate, Broad  
Street, Guildford GU3 3BH  
Tel 0483 503121 / fax 0483 451371

Gordon Harwood, New Street, Alfreton,  
Derbyshire DE5 7BP Tel 0773 836781/fax  
0773 831040

Hobbyte, 10 Market Place, St Albans AL3  
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Indi Direct Mail, 1 Ringway Industrial  
Estate, Eastern Avenue, Lichfield WS13  
7SF Tel 0543 419999/fax 0543 418079

Power Computing, Unit 8 Railton Road,  
Woburn Road Industrial Estate, Kempston  
MK42 7PN Tel: 0234 843388

	Power supply	Daisy-chain	Enable/disable	HD <sup>1</sup>	DD <sup>2</sup>	Casing	Anti-virus	Cost	Suppliers
Cumana CAX354	No	Yes	Yes	No	Yes	Plastic	No	£49.95	Cumana Limited
Power PC880B	No	Yes	Yes	No	Yes	Metal/plastic	Yes	£60	Power Computing
Power PC883 Dual	Yes <sup>3</sup>	Yes	Yes	No	Yes	Metal	Yes	£125	Power Computing
Power XL	No	Yes	Yes	Yes	Yes	Metal/plastic	Yes	£99.95	Power Computing
RocTec RocLite	No	Yes	Yes	No	Yes	Metal	Yes	£59.95	Gordon Harwood
Zappo drive	No	Yes	Yes	No	Yes	Metal	No	£51.50	Indi Direct Mail/Hobbyte

<sup>†</sup> Handles high density (880k) disks

<sup>2</sup> Handles double density (1.76Mb) disks

<sup>3</sup> Comes complete with own separate transformer/power lead and plug



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### Quarterback Tools

- Scans disks for a wide range of problems and repairs them automatically.
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- Searches for and recovers accidentally deleted files.
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- Defragments files for optimized disk performance.
- Includes an advanced disk sector editor, for direct access to data on disk.
- Full macro and AREXX support.
- Full AmigaDOS 2.0 and 3.0 compatibility, including support for both hard and soft links.

### Replicator

- Quickly makes multiple copies of floppy disks.
- Creates disk images and saves as AmigaDOS files.

### Locator

- Searches disks for files that partially or fully match specified names.
- Displays locations of files, information about files, and file contents.

### Encryptor

- Encrypts and decrypts files to prevent unauthorized access.
- File decryption is password protected.

### File Eraser

- Completely erases and deletes files to make their contents unrecoverable.
- Uses standard or US Government erasure methods.

### Disk Eraser

- Completely erases all traces of just deleted files, or of all files on a disk.
- Uses standard or US Government erasure methods.

### Keystroke Finder

- Displays keystrokes necessary to generate any character.

### System Mover

- Quickly and easily moves fonts, printer drivers, and system files between disks.
- Displays version information for printer drivers and system files.

### Brain Cloud

- Makes a floppy disk inaccessible to AmigaDOS.
- Not even the Amiga's "Format" command will work on a disk with a "Brain Cloud".

### General

- Workbench 2.0 style "3-D" user interface.
- Requires Kickstart 1.2 or later (Kickstart 2.0 or later recommended).



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## Junior Essentials<sup>™</sup>

For children 5 to 11 years

A truly flexible package covering many topics essential for building a good educational foundation. The areas covered have been carefully chosen by a team of experts and come from several subjects and levels of the National Curriculum.

The child's progress in these areas is constantly monitored and recorded and parents or teachers can easily discover where a child needs help. As with all the 10 out of 10 series, further motivation to play the games and learn more is added in the form of High Score Tables.



## Dinosaurs

For all ages

This package is the fun way to learn the truth about dinosaurs. The six games all have superb digitised graphics to make a whole area of history - dinosaurs - come alive. If you come face to face with tyrannosaurus would you run away? Or are you safe because it's a vegetarian and wouldn't eat you? This, together with 100s of other interesting facts, can be discovered from this enthralling package. The six games - all with single and multi-player options - are educational fun for everyone.



## Maths (Number)

For children 6 to 16 years

"Well thought out to offer real benefits to children studying in British schools."

- PC Magazine (July '93)

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- Archimedes World (December '93)

"Unique in home-based programs because of the National Curriculum link."

- The Micro User (September '93)

"Excellent for reinforcing specific mathematics knowledge."

- Junior Education (July '93)

"The 10 out of 10 Series lives up to its name!"

- PC News (August '93)



## Early Essentials

For children under 7 years

"Outstanding. All of the activities are not only very enjoyable but they're well thought out. It's one of the best multi-purpose infant packages I've seen in a long while. If you have young kids get it for the home. If you're a teacher, name it on the headteacher's door and beg for money to buy a copy."

- Archimedes World (July '93)

"At just £25.95 you'll be hard pressed to find anything which even comes close to Early Essentials."

- Micro Computer Mail (Sept. '93)



## English

For children 6 to 16 years

"Everything being done is relevant to the pupil's education. An invaluable curriculum experience, plenty of fun, lots of variety."

- PC Home (November '93)

"Guaranteed to sustain the attention of even the most restless learner."

- RESC User (January/February '93)

"Most importantly, as the games are fun, children can't help but learn."

- Asian Computing (March '93)

"Allows progression from Junior school age right up to GCSE level."

- Amiga User International (Sept. '93)



## Maths (Statistics)

For children 6 to 16 years

Attainment Target 5 of the National Curriculum is Data Handling - a vital area of Mathematics. 16 out of 10 Maths (Statistics) covers 36 specific topics from that subject.

In this package, recording animal sightings in an animated pond or riding dice are just two of the many challenges that children will relish as they learn about statistics. And as graph drawing be a game? It becomes arcade action as bricks and bonuses are dropped onto the charts. This is a really enjoyable way to learn about statistics.



## French

For children 6 to 16 years

This suite of six educational games will give fun and motivation to all children learning French. The package is designed with the Modern Languages National Curriculum firmly in mind and contains many opportunities to reinforce facts stated in Attainment Targets 3 and 4.

16 out of 10 French is essential for children on Key Stages 3 and 4, but the numerous parent and teacher customisation options make the software suitable for all children - however young - who are learning the French language.



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Whether you're a novice learner or an advanced expert, there's plenty you can learn from this package. There are thousands of built-in questions and you can choose whether you want to answer them directly or add to the fun by trying them within games.

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# Promises, promises!

Star Letter

I'm fairly new to the Amiga, but having worked in the PC retailing business for a while I know a couple of people in the industry and so can usually pick up a lot of gossip about other machines. Specifically, I've been hearing a couple of worrying things about Commodore.

Is it true that they won't be releasing the A1200 CD-ROM drive this side of Christmas? A friend assures me that though Commodore promised it would be available, it now won't be appearing until Commodore can get the price right.

Is it also true that virtually none of the games houses will be living up to the promises they made when the CD32 was launched? In other words, I hear that few of them will be releasing A1200-specific games this year, never mind CD32 games.

Now my main point. Why make a promise when you have no chance or no intention of keeping it? All this sort of hype and lying in the computer industry serves only to confuse and annoy the customers, and as someone who's spent three years dealing with computer buyers I can tell you that when confused and annoyed by a product they just drop it and run.

If the games industry and Commodore themselves carry on being overly optimistic, they'll do more damage than if they had just said "not for a while yet" when asked to name a release date.

Peter Coady, Middlesbrough

I'm not sure where you're hearing your rumours, but they are at least partly true. Most software companies who announced products at the time of the CD32 launch are missing the launch dates they set themselves and Commodore still haven't confirmed the launch of the CD add-on drive.

Don't despair, though, as software houses continually miss their deadlines and expected release dates, and Commodore are backing half all other projects to concentrate on making and selling the A4000, A1200, and CD32 over Christmas. The fact that a few games are late shouldn't be too alarming.

You are right to be irritated by over-optimism, and companies have certainly been guilty of this in the past, but remember that a lot can come down to the expectations of the industry itself, the press, and the public.

If we all expect and demand that so many games are released on the CD32 before Christmas, Commodore and the games houses will endeavour to give them to us.

If this means they strain the boundaries of what can realistically be expected, are they lying or telling us what we want and demand to hear?

## Cream crackered Amiga

I hate cream crackers. I really do. Apart from the fact that they always fall apart when you try to butter them and they stick to the roof of your mouth, their butter-smears flakes are a hell of a job to clean off floppy disks.

I hate four year-old spongy playing with my disks even more. "OK son, just leave my disks alone or you'll break them. Where's the rest of your cream cracker, the bit you haven't spread all over my disks?"

The next day I found the soggy cracker when I tried to load a game into my Amiga. Yep, you could say the disk drive was literally cream crackered.

The guilty party was confronted with the evidence. "But son, why did you do it?" I asked. "Well," came the reply, "it's the same shape and it did fit." Huh! Anything fits if it's covered in butter, I muttered.

Mother acts for the defence: "Well if you won't let your kids play with real disks, what else can they play on the Amiga with?" Good grief!

I really do hate cream crackers.

Steve Clarke, Kempston

You have to look on the bright side when this sort of thing happens. I mean, it could have been a chocolate digestive.

Seriously, though, by cleaning the drive thoroughly and see if it isn't still working. Cream crackers are messy, but not particularly metallic, and the drive mechanism may not have been damaged.

There's a good chance the heads have been badly affected, but you can always try before spending money on a replacement drive.

## Ezra Surf's Postbag



### Impossible upgrade

Will there ever be an upgrade kit for the A500 to make it into an A1200? There was the ECS chip set upgrade and Kickstart 2.04 chip to make it into an A500 Plus, so why not another jump up the ladder?

I don't want to get rid of my beloved A500 if I can avoid it, as I have too many peripherals which use the DMA slot. These would be useless on the A1200 unless someone was to produce an adaptor. Any chance of this?

Colin McGrain, Aberdeen

I'm afraid there's no chance of an A500 to A1200 conversion kit as it would probably cost more than a new A1200. Your idea for a converter to enable the A1200 to use A500 DMA slot peripherals is an interesting one, though.

This should be possible, but no third-party manufacturer has as yet announced plans for this sort of add-on, so we'll just have to wait and see.

There must surely be a market for an A1200 DMA slot, as the number of upgrading A500 owners is in a similar predicament to yours must be substantial.

### Wrong balance?

I've been reading your magazine for years now, but I'm not sure how much longer I'll bother. The standard of the magazine hasn't fallen, but the content has.

You used to cover a good mixture of topics every month, including general interest articles and just about every conceivable aspect of the Amiga was

covered in some review or other.

These days there are fewer articles and you seem to concentrate on graphics and video to the exclusion of all else. Please address this imbalance before I am forced to stop buying a magazine I have always loved.

James Pitt, Wellington, New Zealand

Your concern has been noted and we acknowledge there have been fewer general interest articles of late, but you may have noticed the balance already changing.

We have continued to offer at least one round-up and one survival guide to an area of Amiga technology every month, and in future we will be putting more emphasis on the "How 2" type of article, such as last month's "How 2 fit an A1200 hard drive".

General interest features are back on the agenda, as you'll have noticed from our pieces on the Zaxxon Theatre Company, hackers, and virtual reality, but you can't criticise our reviews of graphics and video products as these are by far the biggest part of the new peripherals market.

If the majority of new peripherals were samplers and other Midi equipment, we'd be reviewing these, and no doubt attracting flak





## Indie sinks on HD

Our family bought an A1200 for Christmas last year and we've been reasonably happy with it. The first game we bought, Indiana Jones and the Fate of Atlantis, was a brute to play on a single floppy drive machine, and I promised my ten-year-old a revelation when we fitted a hard drive this week.

Revelation right enough – the bloody thing won't run on a 120MB hard drive. According to the man at US Gold there have been a lot of problems with larger drives, which apparently spin too fast for Indie. We admitted the game hadn't been tested for the A1200 before it was released and it was too late to do anything about it now.

OK, that's fair enough as far as it goes. You can't expect total compatibility in the surge for better technology, but I do feel it's grossly unfair that in the ten months I've owned Indie not one magazine, retailer, software house, or individual has made it known that a £250 hard drive and a £38 game are incompatible.

US Gold admit they've had a number of calls from people like me, so why has this been kept such a big secret? Like your reader Nigel Spence (ESP, June), I shan't be buying any more high-priced games that don't run on the A1200.

Bill Mackintosh, Glasgow

The reason we didn't make it known was that we didn't know of the problem ourselves. Our review of Indie was carried out on an A1200 with 80MB hard drive, so we had no problems with hard drive use and assumed this would be the same no matter what size the drive was.

US Gold should not be making excuses for their game, because the A1200 hard drive interface is the same as the A800's, and this was most certainly available during testing. It was also their responsibility to tell the magazines or, better still, the public by making known any problems with particular machine configurations.

## Accounts quest

I am writing in the hope that you or your readers may be able to assist me. Before a three year stint in New Zealand in 1990, I purchased the program Personal Accounts Plus by Equinox Business Systems Ltd from a local computer store, but having now returned to the UK I find that I've lost the manual.

I have made enquiries at the store where I bought the program only to find that the company went bust in 1991 and they have no idea where I could obtain a copy of the manual. Can you help?

C P Brown, Oxprington

I haven't been able to locate a company still selling the package you mention, but I'm sure one of our readers must have a copy or know someone who does, and they may be willing to part with the manual at a suitable second hand price.

Try our classified ads section, or alternatively watch these pages in case one of our readers can help you out.

from those who don't like Midi stuff. Sorry, but in our reviews section we can only cover the peripherals the market sees fit to release.

Having said that, we hope you continue to find enough in Amiga Computing to carry on reading it.

## Warranty woes

Having just been reading issue 66 and noticed that ICL have been given the warranty contract for new machines, why can't existing owners have their warranties covered by them as well? Wang are still delaying repairs.

Three weeks ago my A1200 stopped working and was totally dead. On stopping the number on my warranty I was told that Wang would be in touch and fix it in six days. Many phone calls later I'm still waiting, having been told they're waiting for spares.

They said there was a new power pack and they were having difficulties getting one. Why is it I can buy one in the many adverts in your magazine and get it delivered the following day and yet Wang cannot?

I thought Commodore were improving their after sales service, but apparently not. If current Amiga owners cannot get the service they deserve, how do Commodore really expect to improve their market standing?

I owned an Amiga 500 for four years completely trouble free, but my A1200 is under three months old. Have they tested the so-called new technology or has quality control gone the same way as after sales service?

B Heavorth, Southport

The new technology in the A1200 is all silicon, and to be fair to Commodore's chip designers, we've never seen the AChip set fail. However, the secondary technology has produced a few villains, chief among which are the TV modulator, the power pack, and the floppy disk drive.

In the main, problems have usually been caused by the fact that cheaper components were used to cut costs, but there were also some early problems of the sort associated with any brand new production unit. There's

Got something to say through the pages of AC? Ezra Surf is our mailman, dedicated to reading your letters and selecting the most interesting for publication. Drop him a line at:

Ezra Surf's Postbag, Amiga Computing  
Adlington Park, Macleanfield SK10 4NP

Please don't enclose aas as Ezra just hasn't got enough paper to reply personally. He might also have to shorten your letters, so don't be offended if you end up getting the chop.

no excuse for a PSU pipping its clogs, and if this is the cause of your machine's malaise, I suggest you phone Commodore UK on 0628 770088 and complain.

Wang have a contract with Commodore which specifies a response time, so it's in Commodore's interest to keep tabs on whether Wang are keeping their side of the bargain.

If you get no joy from Commodore, phone Wang again, and this time make it clear you have a complaint to make. Don't let them fob you off – make sure you get the name of the person in charge of customer services or the equivalent.

Often the problem with British consumers is that they don't complain properly. If the

person at the end of the phone isn't helping you, don't waste time arguing with them, just get their name and demand to speak to the boss. Don't be put off with a vague promise, but insist on the service to which you are entitled and for which you have paid.

## Road requests

After watching the Le Mans 24 hour race this year I just had to ask you the following three questions:

1. When Core Design released Jaguar XJ220 they stated that they were doing a 3D version concentrating on the Le Mans 24-hour race. Are they still making this?

2. Are the Papyrus Design Group still making a follow-up to the highly underrated Indianapolis500? I prefer this to Microprose's Formula 1 GP, but only just.

3. Is Geoff Crammond going to do a sequel to Formula 1 GP? If so, I hope it will be harder as the original was too easy.

I would really appreciate answers to the above as I am a huge fan of 3D racing games/sims.

Jim Barnes, Southampton

Your questions were passed to the Gamer crew who, after a short conference, returned the following answers: No, no, and yes. In other words, forget about the 3D Le Mans game and the follow up to the excellent Indie 500, but look out for an improved version of FIGP.

In the meantime, Europress Software's RAC Rally game is shaping up nicely, though it remains to be seen how well they manage the Amiga version.

## A4000 corner?

I've recently bought an A4000/030 and to be frank I'm delighted with it. The extra power of the CPU, the graphics, and the superb Workbench 3.0 just blow my old A500 Plus out of the water.

One thing I have noticed, though, is that the A4000 doesn't get nearly as much coverage as the A1200 and there seem to be far fewer round-ups of products for the big brother machine.

Is there any possibility that you might start a column for the A4000 or at least have a certain number of pages devoted to it every month?

Charles Tanton, Bridlington

Yes, there are fewer pages devoted to the A4000 than in most magazines, but there is a very good reason for this. There are far fewer A4000-specific products around, a situation which restricts coverage for the machine, but which is rapidly changing.

As more A4000 peripherals come onto the market, they will be reviewed in this magazine, so keep reading. You should already have noticed the number of A4000 software packages tested recently, so there is no shortage on the software front.

As we go to print, a host of A4000 SCSI-II cards and other hardware is poised for launch, so the drought won't last long.

Reluctantly the A4000 to a column of its own would probably only serve to marginalise its coverage, so we will continue to look for A4000 products and review them as and when they are released.







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# The Gold Chip Challenge

## Hardware

This was an exciting section, where several of the awards were decided by a very tight margin. The closeness of the hardware votes shows just how well the market has been served this year by manufacturers, with dozens of quality add-ons competing for our wallets.

So, without further ado, let's look in those envelopes...

### Best video add-on

OpalVision, Centaur Software

### Best hard drive

A500 HD8+, GVP Inc

### Best RAM expansion

MBX1200, Microbotics Inc

### Best music add-on

Miracle keyboard, Mindscape  
International

### Best printer

DeskJet series, Hewlett Packard

### Best monitor

CM8833 Mk2, Philips

### Best scanner

GT6500, Epson

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GOLD CHIP

A W A R D

Who has won and who has lost in the  
*Amiga Computing* reader awards 1993?  
Will it be tears of joy, or fake  
congratulatory smiles for our nominees?

**A** couple of months ago, we asked you to vote for the best hardware and software of 1993, and since then your votes have been flooding the AC offices as thousands of ordinary readers take the opportunity to tell the manufacturers what they think.

The results are a reflection not only of our readers' preferences but of the relative strengths of the packages in the market. For example, the OpalVision card came out top of the video peripherals despite the fact that the video add-on module has still not been released.

So many OpalVision users are out there that the card won by a streak, demonstrating that if Centaur could pull their fingers out with the upgrade modules, they still have a sizeable market.

Other results were a little more predictable, but all have one thing in common: They are the preferences and opinions of the voting (and paying) public and as such carry a lot more weight than press speculation.

## Games

This was a tough one, not only because there have been so many excellent games this year, but because people usually vote for their own particular favourite.

### Best arcade/ platform

Flashback, Delphine Software

### Best sports sim

F1 Grand Prix, Microprose

### Best strategy/ war game

Civilization, Microprose

### Best adventure

Monkey Island 2, US Gold

### Best flight sim

Gunship 2000, Microprose

Well, that's that for another year. You've voted with your wallets and your pens, and spoken as a group of readers of the only Amiga magazine to cater directly for the enthusiast. The responses given through our votes represent a group of dedicated Amiga users with a broad range of equipment, from RAM expansions to the most expensive peripherals around, and if you aren't a suitable peer group for judging Amiga products, then none else can be.

## Software

A quietish year for productivity software has seen the accolades go to mostly older established products, but the difference in voting behaviour between hardware and software is striking nonetheless. Not one of the final votes was close, and all winners cantered home at least a couple of lengths ahead.

### Best word processor

Wordworth 2, Digma International

### Best office package

Maxiplan 4, The Disc Company

### Best productivity package

Directory Opus, INOVAtronics

### Best language

Amos Pro, Europress Software

### Best art package

DPaint IV

### Best DTP package

Final Copy II, SoftWood Inc

### Best 3D package

Real 3D v2, Activa International







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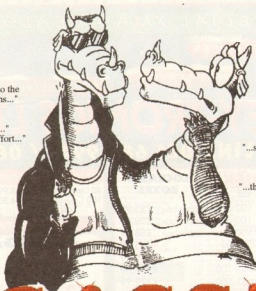


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## Mac transfer

I am currently looking for a program like CrossDos that will allow me to transfer normal text files between Amiga and Macintosh formatted disks. It is very important that I can obtain such a program for my computer so I can continue work at college and at home.

If there are any programs that are on the PD circuit, shareware, or even commercial, can you please give me details? Is it possible to configure CrossDos and, if so, how?

I own two versions of CrossDos, the one on the Workbench disks and one given away on a magazine CoverDisk. My setup consists of an Amiga 1200 with 800k hard drive.

Ryan Morse, Milton Keynes

Mac drives work in a very different way to Amiga drives, so the only way you can make your Amiga read Mac floppies is either to buy an emulator such as Emulplant or the commercial program Mac-2-Dos, which enables the connection of an external Macintosh floppy.

However, a Mac floppy drive will cost you over £100, so why not just use CrossDos? The Macintosh can read PC disks, as can the Amiga, so to save a lot of money you could use your 720k MS-DOS disks as go-betweens.

If the Mac in question uses the System 6 operating system, it should have a utility called Apple File Exchange, which is used to read and format PC disks or copy files to and from them.

If the Mac has System 7, you can format PC disks from the desktop, but make sure you do this on the Mac as System 7 has a particular way of formatting the disks and will sometimes refuse to recognise a PC disk from another machine.

## Bad sums

I have recently returned to the wonderful world of the Amiga home computer by purchasing an A1200 complete with 85Mb hard drive. Up until yesterday things were going great but now I have a problem.

My hard disk is divided into two partitions, one which houses Workbench, called System3.0, the other called Work which stores everything else. Whenever I click on the Work icon it opens OK, but also displays the following message:

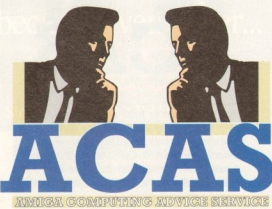
WORK HAS A CHECKSUM ERROR ON SECTOR BLOCK 90758

After cancelling the message the machine seems to perform the same as it did before the message started to appear. Please can you tell me what the error means and how to fix it?

Stephen Reid, Epsom

A checksum is a number which is appended to a block of data on disk, and is the result of a standard calculation carried out on the data held in the block. This sum is used as a reference to check (yaddit?) the data and make sure it isn't corrupt. The error message you have been

From viruses to thunderstorms, we've got answers to all your problems, natural or otherwise, from our team of experts



receiving merely tells you that a minor fault has developed with the data on one small part of your hard drive. Use Quarterback Tools from the December issue CoverDisk and choose the repair damaged volume option.

Quarterback will scan the drive until it finds the bad checksum, then attempt to recalculate it. If this is not possible, the data block may be deleted, which will mean deleting the file which was held there. Best to vie.

Oh, and remember that you should never, ever use a disk repair program on a hard drive

which is showing no symptoms of sickness. I mean, would you take your car's engine to bits just to try out a new socket set?

## Plates of jelly

I recently had a problem with my A500's floppy drive which the local computer shop diagnosed as (probably) a faulty chip called CIA. They subsequently offered to fix the fault for £47. This is too much for my pocket, so I decided to buy the CIA chip

described by the engineer and fit it myself. However, having opened the Amiga for the first time I was seized by an attack of nerves. For all I knew it might as well be full of plates of jelly and ice cream. Do you have any advice on what I might do to locate the correct chip and set things right?

Allen, Alageer

It sounds as if you are unsure even which chip you are replacing, and unless you can be sure it's best to leave it to the engineer you first spoke to.

If you insist on doing this yourself, confirm with the shop that you have the correct CIA chip (there are two of them, CIA-A and CIA-B), and use the old screwdriver method.

This involves carefully levering the chip out at both ends using a small flat-bladed screwdriver and is easy enough, if a little daunting when first tried. Carefully insert your new chip and put the Amiga back together again, then cross your fingers and turn it on.

You can't damage anything other than the CIA chip itself if you inserted the wrong chip, but as you've already paid for this it might be wise to have the engineer finish the job for you.

## Amos answers

I have a few questions on Easy Amos and the difference between it and the rest of the range. I hope you'll bear with me.

Does the Easy Amos package contain both disks and a manual? If I buy the Easy Amos package would I still have to buy a compiler or would it be immediately ready to run?

Is there any difference between Easy Amos and the Amos Professional package, or once I understand Easy Amos will I be able to understand or graduate smoothly to Amos Pro?

I hope these questions are not considered a menace, but as an Amiga owner of only two months I am desperate to be weaned off games. Finally, if I buy Easy Amos, will I really need to buy Mastering Amiga Amos or could that be done in the distant future once I have a working knowledge?

Friedrich in need, London

Easy Amos is a perfect way to start on the Amos trail, and has ample manuals with on-line tutorial help to gently ease new users into programming with the language. You would still have to buy a compiler to create stand alone programs, but Amos also has a utility called Ramos which will enable programs to be run from their own disks.

This isn't as fast and smooth as compiling a program, but Ramos at least makes it possible for users to release their stuff through the public domain. There are a lot of differences between Easy Amos and Amos Pro, but these are mostly to do with the latter's extra commands and facilities.

You should find no difficulties in moving from Easy Amos to Amos Pro once you've mastered the basics. If anything, this is the

## Net nightmare

I am looking for a solution to a problem I have in transferring files between an A1200 and a 486 PC. So far I have been using Windows Terminal and an old Amiga comms package called Access.

I transfer large files (sometimes up to 30Mb) and although the method works it is almost non-viable due to the slow transfer speeds I can use. I use 19,200 baud and I'm sure I can transfer at 115,200 using Laplink 3 or 4 on the PC and a similar program on the Amiga.

The problem wouldn't be so bad if I could transfer the file in one go, but an unfortunate quirk in Access means it crashes if you select a directory that has a file larger than 999k within it, so I have to break the file down using Splitz and transfer it as a series of 1Mb chunks. This is a nightmare.

Please can you advise me on the package or combination of packages I am looking for, or suggest a better way of going about things?

Stephen Davies, Wolverhampton

The first thing you should do is dump the comms package you are using and either lay your hands on a newer version or get hold of one of the other packages such as JRComm or NComm.

You should be able to transfer files of any size at almost 60 kilobaud if you have a modem with good error checking, and should not have to break files down.

If this isn't good enough, try a networking solution. A new PCMCIA Ethernet card has been launched by Californian-based Interworks. Dubbed the i-Card, you should be able to use this to connect the Amiga to the PC using a suitable PC Ethernet card and some decent software.

Transfer rates for Ethernet running through the PCMCIA slot won't be much above 300k per second at best, but this is a hell of a lot better than using a modem, if more expensive.

You can phone or fax Interworks on (0101) 809 899-8120 for more information, or keep an eye on this magazine for a forthcoming review.



recommended route for those who wish to take it slow and easy.

Lastly, you won't need another manual immediately, as the *Easy Amos* manual is quite good enough. Once you feel confident with Amos, though, there are a few very good programming guides, and there's always the Amiga Computing monthly Insight column.

## Choices, choices

For Christmas my parents plan on getting me a new computer to aid me in my work. I was thinking of an A1200 with 85Mb hard drive, but my parents think I'd be better off with a PC 486sx because of its high quality of business software.

My current Amiga software includes PageStream 2, Wordworth 2, and Protext 5.5 and I use my A500 for business and leisure. I would be grateful if you could advise me on which machine to buy.

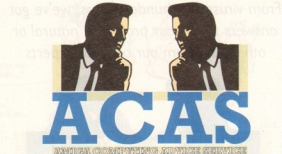
After reading numerous comms sections I would like to buy a modem to communicate with other modem users and bulletin boards. I was thinking of buying a Supra Fax modem (2,400bps) or a Supra 14,400 baud modem. I plan on using the modem about four times a week to download about four utilities or less each time and upload a few.

Could you recommend one of these two or even suggest another model? Also, does NCom have an archiving and de-archiving utility? Thanks for answering my questions.

A Chang, Wimbledon

The choice of which machine to buy is one you'll have to make after long hard consideration, but the A1200 is a better bet on several counts. First of all, the software is much cheaper, particularly office software, and as long as you don't plan to run a large company's accounts and stock control on the machine, the Amiga is fine for business.

Modems should be less of a problem if you read our survival guide and run-up on this subject a few months ago, but you still seem a little confused. The Supra Fax modem is available in two models, the more expensive of which is a 32 bit unit capable of 14,400 baud. This is the slowest modem we can



**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.**

recommend for regular comms work as a cheaper and slower modem would make a big difference to your phone bills.

As for NCom, this is a splendid comms package, and you should be able to get your hands on the latest version of the Uni archiver when you first log on to a BBS. Friendly front-ends for complex archives do exist, Luarc being one example that springs to mind, so you should have no excuses for not using one.

## Small screen

I own an A1200 and an AOC multisync monitor. Usually, I use the double PAL hi-res no flicker screen or productivity mode, but I have been unable to find any way to use the whole of the screen.

I know how to use overscan prefs, but even with these at their maximum I am still left with about two inches of space on the left and one inch on the right. Is there any way to utilise this extra space?

Obviously I am aware that I can alter the horizontal picture size of the monitor,

but I gain no extra actual screen space doing this. I also use a PC from time to time and this seems to be using the whole screen.

Surely the Amiga isn't inferior?

Craig Thompson, Orpington

You should have mentioned the AOC's model number, as it is possible you have a standard SVGA monitor and are mistakenly referring to it as a multisync.

The standard AOC 14in model is happy with both double PAL and productivity mode, but these are often just approximately close to the monitor's normal operating mode rather than mono.

You will always suffer from a certain amount of edging on a monitor screen, but two inches sounds a little over the top, inviting the conclusion that the Amiga's signal isn't quite to the monitor's liking.

Try using the VGA-only monitor driver, but if you get no joy out of this then there's little you can do except start saving for a true multisync or swap your AOC for a 1942.

## Cracking the colour code

As a new Amiga owner, I was delighted when I first booted ProPage 4 and created my first money layout, especially as I knew I could make some money this way. A friend of mine has a small restaurant and asked me to design and print some colour leaflets about his special Christmas dinner menu. I said OK, went to work, and had him approve the designs on my monitor screen before printing them at a local bureau.

However, when the 500 leaflets were delivered a few days later the colours were all wrong, particularly anything with red in it. I checked the PostScript output specs, confirmed that I'd chosen the right colours, and everything seemed fine, so why the big difference?

I hope you can sort this out, as I hope to develop it into a regular sideline.

R Savage, Edinburgh

Colours shown as points of light on a glass screen are, unfortunately, very different from those same colours when sitting on a piece of duller paper reflecting the surrounding light.

The difference is one you can really only learn by experience, and it is only with a great deal of practice that the DTP professional picks up expertise in this sort of area.

There are, however, some things you can do to make things a little easier to start with, the most obvious of which is the Pantone colour system.

This has been specially designed for spot colour jobs and gives you the opportunity to tell the print bureau exactly which shade of ink you want by selecting it from a colour chart.

ProPage 4 supports Pantone colours, so you should see these if you have a specific needs for a particular shade of red.

## Stats freak

I am working as a safety engineer at a small pottery in Stoke on Trent and we've developed a simple heat monitoring system which presently runs on a clapped-on old Amstrad PC.

Briefly, the system comprises of a dozen heat sensors hooked up to an IEEE serial port card which feeds constant data to a program we had written for us a couple of years ago.

This keeps track of the heat changes within our kilns and reports on a variety of areas such as average temperature, latent heat build up, and so on. I now discover that the program is a simple little thing which I can recreate on my Amiga 1500 and would like some advice on the best way to go about this.

Will I need to use machine code, and will the Amiga be able to use the PC's interface card?

George Foley, Stoke on Trent

The IEEE card you mention, if it uses the ISA PC bus, should work perfectly in your A1500's PC slot, and you should be able to write a routine in C to address the ports so long as you have the relevant information from the card's manufacturers.

If the heat monitoring program is as simple as you say, you should be all systems go, but remember to thoroughly test the program before switching over to the new system.

The art of programming is 99 per cent perspiration, and complete bug-testing is a must when the program is going to carry out such a vital job.

## Tardy drive

I have an A3000 fitted with an old Maxtor 105Mb drive I got second hand, and for most of the time the drive works well. However, on a cold boot the machine seems to wake up before the drive, and I have to warm-reboot again to get the hard drive to boot.

Is there a problem with the drive or the A3000 SCSI interface? I have never before seen a hard drive do this and I live in fear that it will one day go pop and take my work with it.

Once booted, the drive is fine, and I've never had error reports, but could there be a disaster waiting around the corner for me?

Lee Billings, Brantree

Your hard drive obviously has a few problems waking up in the morning, but there seems to be little to worry about. If a warm reboot is fine and you've had no errors or lost data, it could just be that this old drive takes a second or so longer to unspool the heads, power up to speed, and report itself ready for duty than the A3000 can wait.

For safety's sake, make regular backups of essential data and keep an eye open for the first hint of problems.



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If you own an Amiga you'll be interested in graphics in some shape or form. It's inescapable, as you look at the many beautiful images on your screen and on the pages of your favourite Amiga magazine, you can't help but enjoy good quality high resolution graphics.

You may be content with looking at those which have been created by other people, but sooner or later with all that graphics power in your grasp you'll get the bug and want to do a little bit of your own graphics magic.

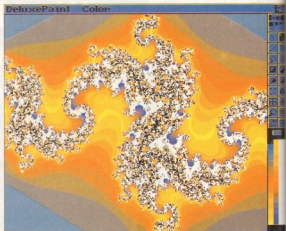
The Amiga has always been particularly well served as far as graphics packages are concerned, but although it's always had real state-of-the-art graphics programs for you to run, it's only been in the last two years that graphics on the Amiga have really come of age.

True Colour or 24-bit cards are really in full swing now, and what with the OpalVision, Harlequin, Picasso, Retina and GVP's IV24 and EGS Spectrum cards all coming with their own graphics

## Deluxe Paint 4.1 / 4 AGA Electronic Arts No price

This is the great granddaddy of them all. The thing about Deluxe Paint is that it was written early enough in the life of the Amiga to become the standard by which the programs which came after it, ie. all of them, were measured.

This shows itself in that in any graphics program you can mention, the same keyboard short-cuts as Deluxe Paint apply, and features (even button icon designs) have been borrowed from DPaint's system to make newer programs look familiar. This means that once you've mastered Deluxe Paint you will be at home with almost any graphics program on the Amiga. Although not really



A fractal fantasy as DPaint gets to grips with countless colours from the AGA chipset

# Art to heart

programs, you are really spoiled for choice as to which you should go for.

Having said that, apart from TVPaint and OpalPaint most of the free graphics programs which come with hardware are pretty slim on quality.

With the new AGA Amigas like the 1200 and 4000 came a new graphics power in the form of the two new graphics modes, Register mode and Ham8, which give you 256 or 262,000 colours to play with. I defy anyone to tell the difference between a full 24-bit picture and Ham8 at a moderate distance.

So the time has come for a long hard look at graphics on the Amiga, and in particular all the bitmapped painting packages you can buy.

Bitmapped graphics are fundamental to the way a computer screen works. Each coloured dot on the screen is defined by a series of "bits", or digital locations inside the Amiga's memory. The bits form a "map" or pattern across the screen, telling the computer where each dot is and what colour it should be.

In order to create graphics on your Amiga you need to buy a graphics package.

If you're lucky then one came with the computer when you bought it, but if not then I'm afraid you've got to put your hand in your pocket again.

And incidentally, don't automatically pass up any "old" or second-hand graphics software you see around, as it might be OK, and may save you hundreds of pounds in graphics tools. For an idea of what second-hand bargains you can expect look at our "Bargain Basement".

Phil South looks at all the best painting and art programs for the Amiga, and some of the tools which drive them

## Brilliance Digital Creations £199

A new contender for the Deluxe Paint standard, and a very good one too, is Brilliance. The forerunner of this great program was DCTV Paint, also by Digital Creations, as part of the DCTV device. The new program bears only a passing resemblance to its forebear. Brilliance is an almost professional quality paint and animation program with the ability to animate and paint in up to 256 colours

available on its own at the moment, being a key part of some of the serious bundles this Christmas, the program is well worth getting hold of by any means you can, as especially in AGA it is easily a match for low-end 24-bit programs and enhanced HAM mode devices like those in our bargain bin.

The program is long overdue for major revision, especially with the likes of Brilliance taking up any slack between standard paint programs and the 24-bit crew, but it still manages to keep its head above water.

All the most recent versions of Deluxe Paint handle animation as well as stills. The interfaces are very simple, and to step between frames you use the 1 and 2 keys on the top row of the keyboard.

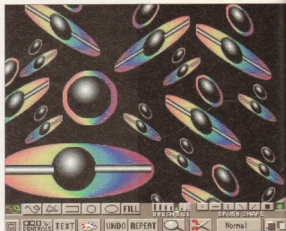
This means you can draw with your right hand on the mouse and flip the pages back and forth with your left. You can even flip screens between the point you click the start point of a line or shape and when you click the end point.

For even more precise alignment the program also includes a lightbox facility, enabling you to see the previous frames in a sequence, making it simpler to match what you drew before with subsequent frames.

Until you've tried Deluxe Paint you

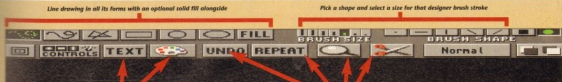
really aren't going to know what you're looking for in a graphics package.

So it's really not so much a question of: Are you going to buy Deluxe Paint or another program? It's: What program are you going to buy as well as Deluxe Paint?



Perspective effects in seconds courtesy of DigiPaint





It shows front end in active as  
Step-Point is put through its paces

Text import and palette control at the touch of a button

Zoom-in, cut and paste, repeat your genius or undo a disaster

AGA reg mode in fact), but also with a special HAM version of the program called TrueBrilliance you can also edit and create True Colour 24-bit images.

This is all done without an expensive 24-bit card to hand, and to a certain extent you are handicapped by the limitations of HAM. OK, so Ham8 is really very close to the real thing, but regular HAM mode, even interlaced, is pretty much touch and go.

This is a program best used on an AGA machine. The price is justified by the facilities and the speed with which they operate. It's a good program, but unlike so many others it's fast too.

You can do pretty much all the things you can do with Deluxe Paint and even some of the things you can do in OpalPaint and ImageFX. The quality of the end result is better than what you see on your screen in 24-bit mode, as the program works in 24-bit under the hood, and what you see is only the best rendition of the real image that you can get on your particular system.

The animation settings are very sophisticated having more in common with a high end 24-bit program or even a new-tracing suite like Imagine or Lightwave. You can tween characteristics over time and make some very special effects. There is a morphing feature but it's more like the Deluxe Paint version of morphing than a replacement for the more professional Morph Plus or Cinemorph.

This is certainly a very sharp contender for the best graphics program of this year, especially as OpalPaint (the only other program I really like a lot) was actually last year's big hit.

## OpalPaint 2.0 Silica Shop £499

Although comparatively new to the Amiga scene, the OpalVision board has got a nice little niche for itself. It's a great 24-bit card, and although there are a lot of promises of Video Modules (real soon now!) this is not the card's strength. It has one of the easiest to use 24-bit paint programs on the Amiga, and now discounted it's almost as cheap as the old DCTV unit.

The 24-bit quality on the screen is very smooth and clean, and like most programs which come with some kind of display enhancer, the new display makes the program look good. But OpalPaint is a very useful and clever program. It's been

through more revisions than a best man's speech, and it's possibly the most finely tuned program of its type as a consequence of that.

Sure some people will still complain it doesn't do this, that or the other, it is still a very potent force in the 24-bit paint market. Updates to all facets of the program and the hardware are available on-line on an almost weekly basis.

The program can be a little slow if you don't have any kind of acceleration. This is particularly noticeable on the spray can function and anything else where the screen needs to be re-drawn. 2Mb of chip RAM is almost essential once you start getting into professional style work.

The screen sizes you can work at will be severely restricted if you can't power up your machine with a faster CPU and more brain in your Chip memory. It's a bit like salmon fishing through a keyhole.

Although not so good for creating game graphics like Deluxe Paint does, it's the bee's knees for True Colour graphics creation or for video work. It has the added bonus of being able to save in Jpeg format to save space on your drives, but of course this is not to be recommended for high quality images.

And of course you'll have to wait a while before you can use the OpalVision frame grabber, but that's just a minor detail. I don't care where the modules come along. If they do it'll be a bonus, but I'm not holding my breath.

## TVPaint Tecsoft • £600

TVPaint has been the graphics engine of choice on a number of 24-bit cards on the Amiga. First it was the Harlequin, then AVideo, and then it popped up on a few others. This program runs on two screens, one for the Amiga, for menus and the like, and one for the display card on which the real time 24-bit graphics happen.

The program is getting on a bit now, and although the quality is very good it is very expensive, putting it out of the running as far as most people are concerned. It is, however, simply the best that you can get for a variety of reasons. Unfortunately none of these have a bearing on the price. Version 2 has a lot of new bits added to prevent the age of the program showing in a lack of modern features. So now it has perspective, for example, just like all the other programs.

The menus are easy to navigate and the quality of the output is second to none.

## Hardware wars

### Tablets

Apart from the mouse, what other graphics input options do you have? Serious options like TV Paint have drivers for Wacom graphics tablets, that much we knew about, but also you can get tablet drivers for OpalVision too.

This is handy for artists who have a bit of trouble converting the moves they would make on a page into mouse moves on an upright monitor screen. For the tight of pocket, Deluxe Paint v4.6 also supports pressure-sensitive stylus and tablet input.

### Scanners

Where scanners really start to kick ass is when you get over the £500 mark – then you start to see some really professional items, and not just the hand scanners but the flatbed ones too. These are sort of hybrid computerised photocopyers really, with no paper trays to change and no toner cartridges to refill.

The PowerColour Scanner (Power Computing £239) supports 4,096 colours and scans at resolutions of 50 to 400 dpi. There are versions available for the A500 and the A2000 with the A2000 version having its own little Zorro-shaped adaptor board.

The PowerScan v3.0 software enables you to digitise full 12-bit images, which are stored in 12-bit internally so no quality is lost when displaying as HAM. The software supports both Workbench 2 and ECS screen modes.

By way of opposition, there's also the Migraph Colourburst at £399 and the AlfaData AlfaColour at £299. Many other black-and-white hand scanners are available for upwards of £99. Obviously you then have to colour the images in, but that's half the fun isn't it, join-the-dots fans?

Then there's the Epson GT-6500 (£799 plus £110 for driver software by ASDG) which scans in 24-bit pictures in resolutions as high as 1,200dpi (with special software interpolation).

For colour DTP there's no short cut to this kind of quality. OK so you could get yourself a good 24-bit video digitiser, but the results will always be fuzzier and in almost every way inferior to a flatbed scanner.

### Digitisers

The VLab YC is the best I've used (MacroSystem £299). It's a half height Zorro card and as usual with Zorro cards it fits into any slot you've got spare. The card grabs a full frame of colour video when the grab button is pressed on the screen using the mouse, and this works best when the video is in motion.

Once the frame has been grabbed, the YUV image can be saved, or the frame can be previewed in HAM colour, or 16-colour greyscale, or you can send the image directly to a Harlequin card for the best quality of image.

The DigView unit supplied with the MediaStation package is the oldest and most used digitiser on the Amiga, as it was the first out and was in fact the only one on the market for quite some while.

You use it with a black-and-white video camera mounted on a tripod, and hold coloured filters over the lens to scan manually for the RGB components of a colour picture. Although not really holding its own among all the new units, it's still a bargain, especially second-hand.

New units from Rombo look to be about to change all this, the Vidi (12) and VIDI (24) RT (Rombo £199 and £299). Rombo have been in the digitising game a long time, since before the Amiga was a project box called Lorraine.

The VIDI 12 unit is based on the old basic mono VIDI Amiga, although now the unit also has the RGB colour splitter built in to it rather than being separate.

The new VIDI 24 is full 24-bit grab and save, with both these new units doing the job in real time on moving video the same way as the VLab. The main difference is that the VIDIs will work on any Amiga with a parallel port, whereas the VLab needs a Zorro slot.





Add the finishing touches to a huge image thanks to the power of virtual memory

OpalVision looks flickery and imprecise by comparison. This is the professional end of the game and you don't really want to know about it unless someone else is paying.

## Image FX 1.5

GVP • £199

Although primarily a treatment editor for graphic effects on already existing images, you can edit quite extensively with ImageFX. Although this is primarily a competitor of Art Department Pro v2, it can in fact act more like a paint program if need be, although for the creation of graphics you might want to look elsewhere.

It is a very powerful 24-bit file manipulator, and if you want to have an Amiga version of Adobe's Photoshop, ImageFX is the package that comes closest to that. Not

## Bargain basement

### HAM-E

(Black Belt Systems)

A forerunner of the AGA graphics modes, providing 256 colour and 262,000 colour Ham-E modes. A built-in graphics editor never got past the beta stage and was anyway surpassed by Image Master, which eventually became a separate release.

Other programs which supported the unit came and went, like Spectracolor HAM-E and HAM-E workshop. These are nice units if you can find them, if a little tricky to get set up.

### DCTV

(Digital Creations)

Before Brilliance came along, there was DCTV Paint. The DCTV was a combined painting and digitising unit which boasted real 24-bit, which of course it wasn't, really, it just looked like it. A bit like AGA I guess. The unit had three plugs on the back, one which plugged into the RGB socket on the Amiga and had a pass through directly to an Amiga monitor. The output from the DCTV was sent to a composite TV monitor (or the video in socket of a domestic video recorder).

only can you manipulate images but you can convert them to BMP, DPII PC, Impulse RGB, GIF, JPEG, PCX, PPM, PMG, Rendition, Targa, DCTV and HAM-E.

The animation side also converts between ANIM and PC formats FLI and FLC. The program also supports a number of input devices like scanners directly from the user interface.

The program also does morphing via Cinemorph and a number of other mind-boggling effects. ImageFX is not to be seen as a replacement for any of the programs on offer here, but could be seen like Deluxe Paint as a standard tool in the arsenal.

## Personal Paint

Cloanto • £59.99

Although UK distributor Micro-Pace recently vanished, this excellent program is still worth a look if you can get hold of a copy. Although strictly limited to 256 colours on an AGA machine, it shouldn't be written off completely as 256 colours is actually quite a lot!

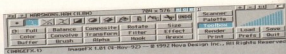
PC paint programs have got by on this much colour for a long time, and the material you can produce is very colourful, and very precise, lacking HAM or Ham's capacity for fringing or bleeding.

However this is all the program does, so if you want something a little bit more flexible, then something like Deluxe Paint or Brilliance might be more appropriate, depending on your budget. This program is also available in a reduced version with the new Picasso display card.

## MediaStation NewTek £139.95

The graphics engine of this DigiView based graphics/presentation pack is DigiPaint 3. An old program now, it still has something to offer. It's HAM only, coming from a time when there weren't actually that many HAM paint programs.

All its work internally is done in 24-bit, and so the results are very smooth. It's particularly good at treating digitised pictures, which is not surprising as DigiView, also by NewTek, is also supplied with the package.



ImageFX is often referred to in the same breath as ADPro, but let's not forget it's a paint package as well as an image processor. If you're looking for an all-rounder that will grow with your need it's well worth the extra investment

## Jargon buster

- 64 halfbrite** A hardware trick which doubles the amount of colours available in lo-res from 32 to 64.
- AGA** Advanced Graphics Architecture. A new graphics standard on the Amiga 1200 and 4000 allowing 256 colours on-screen in standard modes and 262,000 in Ham's mode.
- anim** A compressed animation format, that stores the differences between frames rather than the whole pictures.
- anti-aliasing** Smoothing method used in computers to blur the transition between sharp edges and background colours by using intermediate colours.
- chip RAM** The amount of memory available to the custom chips, usually the first 1Mb (or in some cases 2Mb) of memory. 2Mb is needed for some 24-bit graphics operations, and this can be added to Amiga which don't already possess it.
- fast RAM** Expansion memory, up to 8Mb on standard Amigas, and more if the machine has a more advanced CPU on board, like an 030 or 040.
- GIF** A compressed file format used by CompuServe.
- HAM** Hardware trick to give you 4,096 colours in lo-res and lo-res interlace.
- hi-res** Up to 16 colours, but more horizontal resolution so size is more like 640 x 256.
- IFF** Short form of Interchange File Format. All types of Amiga files are interchangeable between programs, like IFF ILBM files are pictures, IFF ANIM files are animations. Created by Electronic Arts and Commodore Amiga.
- ILBM** Short for InterLaced BitMap. The bitmap graphics IFF standard.
- interlace** Doubles the vertical resolution by alternating two sets of 256 lines very fast, giving you a slight flickering effect. Usable with both hi-res and lo-res, and doubles the vertical resolution, so lo-res becomes 320 x 512 and hi-res becomes 640 x 512.
- jpeg** A compressed file format used for 24-bit pictures, which are about a sixteenth of the original size in most cases.
- lo-res** The basic Amiga graphics format. Up to 32 colours and 320 x 256 pixels in size.
- overscan** Usable with all Amiga resolutions to take the image to the sides of the monitor or TV screen. A mode for video users to enjoy.
- pixel** The dots which make up a TV or computer screen.
- resolution** The amount of pixels you can fit horizontally and vertically onto a monitor screen. The Amiga has many different graphics modes. (See lo-res, hi-res, interlace, HAM, 64 Halfbrite, super hi-res and overscan.)
- super hi-res** Mode made possible on Amiga's with the ECS chipset. Doubles hi-res resolutions. Also usable with interlace.





# FOOTBALL MASTERS 4

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**EASY TO PLAY** Animated Wrestling game

Joystick or Mouse.  
1 or 2 players



## STABLE MASTERS V2

This game has been designed to be as close to real racing as possible. Five years of development by a clever racing expert has led to the second version of this Flat Horse Racing Simulation. Up to 4 players can participate as Owner Trainers with the primary objective of becoming the top rated trainer, in respect of prize money won, at the end of each racing season (March to November). There are up to 35 other intelligently controlled computer trainers to compete against and compare your personal performance. To achieve this aim they must discover a potential champion and train them so that they become capable of competing well and winning any of the 47 big prize money races (Handicap and Group). eg. The Derby To give you an idea of the tools provided in this game to assist you reaching your objective we have listed the main features below:-

- 250 horses each with over 60 individual characteristics
- 26 different race courses (2 all weather), real life characteristics mirroring the diversity of racetracks in the UK (descriptions provided).

## World Cup Cricket Masters

A fantastic graphical and/or tactical representation of Cricket that has been completely written by a traditional fan. You can physically participate with batting and/or bowling as well as to the computer to automatically handle. See full review list below >

### GAME OPTIONS

- 1 Day limited over test.
  - White or coloured clothing.
  - Three Cricket grounds.
  - Load/Save game. Skill levels.
  - Computer/Human players.
- ANIMATED ACTION:**
- Sound Commentary.
  - Umpire statistics.
  - All the strokes out, pull, drive, etc.
  - Appeals, dropped catches, run outs.
  - Bowlers, wickets and no balls.

### STATISTICS

- Scorecard & bowling analysis.
  - Weather and ground reports.
  - Wagon Wheel.
  - Matchmaker Chart.
- PLAYER VARIETY**
- Rated on 8 adjustable factors.
  - Left and right handed players.
  - Range of batting types.
  - Editor to alter game stats.
  - Bowlers figures include seam, swing, change and both types of spin with 8 speed levels.

### FRIENDLY CONTROLS

- Icon driven with point & click.
  - Large 3D scrolling screen covering the entire playing area.
  - Mouse controls bowler's line, length, direction field settings.
  - Joystick control of batsman's attack level, strokes and running between wickets.
- VARIABLE CONDITIONS**
- Surface and pace of pitch.
  - Risk, bad light, cloud cover, temperature and humidity.

## CRICKET MASTERS

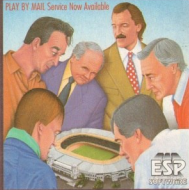
This is a purely managerial cricket manager game that concentrates on strategy and includes plenty of relevant statistics. The game has been designed and developed by a true fan of the sport. It replicates everything that a real manager has to contend with and it's a totally unique production that anyone with an interest in Cricket should experience. A summary of the main features is shown below:-

- AXA EQUITY & LAW 18 league county teams, 50 overs per game.
- 4 Cup competitions including Benson & Hedges, Nat West.
- 20 different match umpires with accurate names and strictness.
- Accurate player details: Name, height and age.
- 27 different player attributes. Most skills have a direct impact on the effectiveness of each individuals actions during a simulated match.
- Easy player selection. All game text is clearly presented.
- Batting and bowling averages. Top batting and bowling tables.
- 3 Different training intensities to boost batting, bowling or fielding.
- Weather, pitch and light often make an impact on ground condition.



- 20 Jockeys who vary in ability and booking fees, Orders & Feedback.
  - Formbook and Win Summary Cards cover the previous 200 races.
  - Animated race display or just the result. View Declaration List for races.
  - Very informative report by Head stable lad. Tipsters, Bookmakers.
  - Racecards similar to racing press. Real life. Handicaps & Race Types.
  - Viruses, Injuries & Vets. Load/Save game. Many other features included.
- Version 1 is available upon request (Simple training & betting) @ £15.

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- Full match highlights let you watch the action ball by ball with full graphics and/or realistic sampled sound effects for significant events (Fours, Umpire decisions, etc.). Interventions are permitted at any time to change batting tactics or fielding placements.
- 3 Batting/Bowling classifications (Normal, Attack and Defend).
- Choice of 15 different field placements.
- Full scorecard results with best batting and bowling figures.
- Other staff (Physio, Groundkeeper, Scout) can be hired and fired.
- Annual league fixtures listed. Current week and last league results.
- View current cup competition draws and historic records.
- Real time transfer market. Player contract and wage negotiations.
- Sponsors, Printer access, Finances, Poor ground fines, Manager rating.
- 15 Options to alter game preferences, Load/Save game.
- Instruction book with plenty of examples.
- Plus many more fine details that we are unable to list here.

## ORACLE

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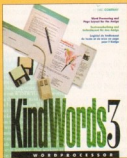
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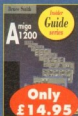
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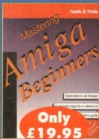
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There can be very few Amiga owners who have used neither a word processor, a spreadsheet nor a database program. And even fewer who wouldn't know a word processor or spreadsheet program when they saw one.

Most would doubtless also recognise a database but the evidence suggests that, as far as database program use is concerned, a lot of people are far from clear about the basic concepts, the benefits and advantages of the various types of database programs, and in fact about their own data-oriented needs!

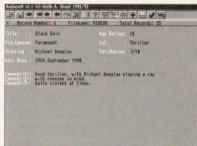
Some users spend a fortune on a heavyweight package only to find that years afterwards they still really only needed 2 per cent of the facilities that had been provided. The chances are that a cheaper program could easily have the same job.

Others confuse database program power with the need for an application to have large amounts of disk storage space available. They waste money on an expensive package when they should really have got a simpler program and added a hard disk.

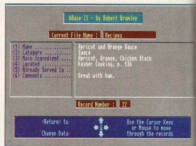
People buy "relational" database programs because they are "better" but then fail to use them properly. Users often, for example, set up record structures which prove difficult to modify at a later date (thus defeating one of the main purposes of the relational database ideology).

In short, database program use is not well understood, and although in these pages there is not space to deal properly with the underlying technical issues, you will find some help along with details of the Amiga database programs which are currently available.

The main advantages of a single integrated Database Management System (DBMS) relative to a collection of individ-



AmiBase - a useful flat file database offering



dBase - one of the many flat file database programs from PD sources

ual flat file-based applications programs are easy to state. They should let users isolate their data, enable them to remove unnecessary data item duplication, and in general offer a level of data independence sufficient to allow stored data to be used in a variety of different ways. Having said that, a lot of so-called databases are nothing more than conventional record storage/retrieval systems that let you, the user, set up the required record format.

Because a database will consist of one or more files, all appropriate record definitions need to be created before any information can be stored. How this is done will depend both on the database

## Paul Overaa on why so many of us fall wide of the mark when it comes to understanding and using those most useful of application programs, databases

package being used and on the application it is being used for. You might for instance decide you need a client file that contains client surname, first names, address, date of birth and telephone number details and most programs will allow such record fields to be not only created and named

but classified as text, numbers, dates and so on. They'll use these characteristics to provide limited verification during data entry. If for example you type text into a field which has been defined to hold numerical values, any self-respecting database program should give a suitable

## Product listings

### AmiBase v4 Supplier: One Vision Price: £15

Details: Useful, good looking, flat file database program with VCR controls. New version offers record filtering, improved (background) printing and many other facilities.

### BuddBase Supplier: Your Choice Price: £1.30

Details: Flat file freeware database program (Disk BU056).

### DataRetrieve (Abacus) Supplier: Abacus

Price: \$79.95 + \$13 UK shipping charge

Details: This is a reliable product that is suitable for a great many types of applications. It has good documentation, on-line help, indexing and macro facilities plus extras like database password protection. The program can work with up to eight database files at the same time and it has brilliant search facilities. The screen tem-

plates, called masks, which are used to input data are easily created and versatile report production facilities are provided. Unfortunately there isn't a UK distributor but it can be ordered directly from Abacus.

### DataRetrieve Professional (Abacus)

Supplier: Abacus

Price: \$295 + \$13 UK shipping charge

Details: For serious Amiga users wanting a powerful system with relational facilities DataRetrieve Professional is, to my mind, the package of choice. It offers relational file links and the input mask arrangements allow you to set up any number of independent views of your database files using fields from any file.

There are similarly flexible mask-based output view facilities. Although there isn't the space to go into details, 'view flexibility' is, to some extent, what the relational approach is all about.

The program is a true heavyweight with superb indexing/search and reporting facilities and many extras including its own Basic-style programming language

called Profil. If you are after an Amiga database package with power this offering really does deserve to go on your shortlist! Again, there isn't a UK distributor but it can be ordered directly from Abacus.

### FlexiBase Supplier: Your Choice Price: £1.30

Details: Freeware flat file database program (Disk BU052).

### Gold Disk Office (Gold Disk) Supplier: Silica Systems Price: £49.95

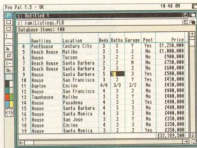
Details: This integrated package includes word processor, spreadsheet, DTP and business graphics facilities. It also offers a simple, but perfectly usable, flat-file database program. Files can contain up to 32,767 records, 256 fields per record and 256 characters per field.

Unlimited numbers of user-defined indexes can be set up and there are easy to use form and report generator options available. Very useful providing your applications are straightforward.





bBase Professional - true heavyweight and highly recommended



Pen Pal - another good bet if you want an integrated package

warning or error message. As well as creating record definitions it is also usually necessary to create some kind of screen-based data input form, to set up the screen arrangements which you will use when inputting data. Since there's not a lot of pointing in storing data if you can't get at it, database programs will also provide integral searching and reporting facilities which allow you search for records based on particular criteria and create and print hard copy reports.

You might, for instance, want to search your client details database for all clients who do not have a telephone number and create a report listing their names and addresses. These types of things are easily

done with most Amiga databases.

Programs vary enormously in respect of the facilities they offer. Some provide only the most elementary file definition and data input facilities, while the heavyweight offerings on the other hand really do provide the high level of sophistication and flexibility suitable for the needs of an advanced user.

These offerings, incidentally, will come with their own Basic-like Database Management Languages allowing experienced users to create highly customised database interrogation and reporting routines.

There are similar variations in the searching and reporting facilities on offer

and on the extent to which data items present in the records of one file can be combined or linked with the data held in another database file.

The most sophisticated inter-file links tend to be those found with programs known as Relational Database Management Systems (RDBMS) but unfortunately it is these type of programs that are normally the most expensive and the most difficult to use properly.

Before implementing a multiple file relational database application it is best to look at the logical structure of the data that is being stored, carry out a process

known as Normalisation, and then use the resulting record structure as a blueprint or model for your real data files.

Most users who buy RDBMS software do not do this, and the result is that many never see the real benefits that relational systems can provide.

A Database program may provide all manner of other facilities such as AREX control and Import/Export options that let the program read data from, or write data to, other Amiga programs and files. Many Amiga databases allow users to store references to IFF pictures, 8SVX sound samples and so on and this enables not only specialised Amiga graphics and sound databases to be created but allows such material to be used as part of a conventional text-based information system. The potential uses are limited only by your imagination, and the amount of disk space you have available.

Extensive graphics or sound-oriented database applications will, needless to say, require a lot of disk space and in these (and a few other instances) a hard disk becomes essential. Many database programs can however be set up to run on quite modest Amiga systems (eg single drive 512k machines) although obviously much depends on the type of application you are trying to set up.

## Words of warning

There is a certain amount of poetic licence as far as the word 'database' is concerned and many programs described as databases push this to the extreme.

There is an Astronomy database program called Distant Suns, a genealogy database called Norgen, and even Digita International's Mailshot Plus program sometimes gets described as an 'Address' database program.

None of these programs, nor many others that sometimes acquire a database label, are database programs in the true sense.

### Home Business Pack

Supplier: Anglia PD

Price: £4.20 for a three-disk pack. Printed manual available at £2.99

Details: This contains the bBase flat file database program along with a text editor, spelling checker, spreadsheet, accounts program and other software. Good value for money.

### KData (Kuma Software and HiSoft)

Supplier: HiSoft

Price: £39.95

Details: K-Data is a part of the HiSoft K-Pack spreadsheet and flat file database offering. It provides similar record definition and search/sort/report facilities to those found in alternative offerings in the same price range.

Unfortunately the package shows its age in that it is unable to handle references to graphics or sound - so it is only going to be of interest to users wanting to set up conventional text and number-oriented applications. K-Pack comes with the usual high-quality HiSoft documentation.

### Mini Office (Europress Software)

Supplier: Europress

Price: £59.99

Details: Another integrated package which includes easy-to-use flat file database facilities.

### Order v2.54 (Shadow Software - formerly South Hams Software)

Supplier: Shadow Software

Price: £19.95

Details: This is one of the few budget-priced database programs that support multiple-file, relational links and in this respect it is considerably more powerful than other offerings of a similar price.

Order has had a rough ride in the review press and there is no doubt that many (but not all) criticisms of the early releases were valid and the poor original documentation did nothing to help.

Since the early days however a great many improvements have been made and the price has been brought down to a level where Order has become extremely good value for money. It is not as easy to set up as a simple flat-file database program (relational type

databases never are) but it is recommended for users who need some relational capability but cannot afford one of the more expensive heavyweight commercial offerings.

### Pen Pal (SoftWood) Supplier: SoftWood Products Europe

Price: £49.95

Details: Pen Pal is an integrated package that combines word processing and pageform design facilities with a simple database program. It's an attractive, well priced offering and although its database facilities sometimes seem to border more on the spreadsheet rather than a database-type arrangement, it does nevertheless provide a set of record creation and use facilities which are quite sufficient for many flat file purposes.

### Philo Supplier: Your Choice Price: £3.50

Details: This is a licenceware database program (disk LU07) which is easy to use and perfectly adequate for simple applications.

Continued overleaf >



## Relational databases

With some data storage programs each application has its own set of data files. You might, if you were say a consultant, have an appointments program that stored records containing details of client names and addresses along with notes about any work carried out.

You might also have a mailshot application which stored standard letters along with, again, client names and addresses. These individual program and associated file arrangements are often called flat file applications and are so named because individual data files are just straightforward collection of identical format records with no interaction or links between the datafiles of various applications areas.

Independent flat file approaches are fine in many cases but when uses of the items held in the data files overlap all manner of problems start to appear.

In the above example the use of separate appointment and mailshot programs means that client names and addresses need to be stored twice and this duplication or redundancy is a waste of space.

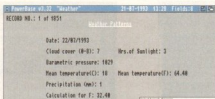
More importantly it is necessary to remember to update the client details in both data files when changes need to be made.

The whole idea of the relational methodology is to separate the data from its use in a way which both allows many programs to use a common set of data files, and any number of differing input and output views to be imposed on the various items of data stored.

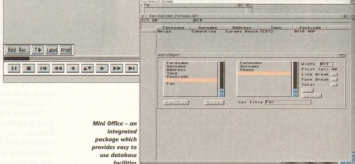
The software which enables this to be done is called a Relational Database Management System (RDBMS) or more commonly nowadays, a relational database program.

The database version of the above consultant scenario would involve an appointments/work-done file, a mailshot file, and a client details file that would be shared by both appointment and mailshot applications.

Changes to client details made from the appointments area of the application automatically become immediately available for mailshot use (and vice versa) without any further data entry. The result? Less work. Less chance of mistakes. Easy life!



PowerBase - a budget-priced offering which looks good, probably tastes good, and by golly...



Mini Office - an integrated package which provides easy to use database facilities

## Jargon buster

- attribute** Some characteristic of an entity. Name, address, and postcode for example are three likely useful attributes of a customer entity.
- DTP** desktop publishing.
- entity** A database-application related object that usually, but not always, physically exists. Customers and invoices are two commonly occurring database entities.
- normalisation** A process whereby the logical relationships of the proposed database entities and their attributes are examined with a view to removing various types of logical data inter-dependency known to cause data-access and/or record field expansion problems. Reduction to 3rd Normal forms is sufficient in most cases.

## Product listings continued

### PowerBase (AmiVision) Supplier: AmiVision Price: £14.95

Details: This program started out as a licenceware title and has now grown into a fully-fledged, but budget priced, commercial offering. PowerBase allows users to set up record definitions for specified files and then enter, edit and retrieve data using SuperBase-style VCR controls. Text, numeric, date, time, logical (ie Boolean Yes/No, True/False fields), percentage and calculation fields are allowed along with an external field which can provide links to both Ascii text and IFF picture files.

PowerBase offers a good Workbench 2 style interface and, among other things, a reasonable set of search and filter facilities. Filtered records (ie a subset of records which satisfy some chosen search criteria) can be sent to the screen, the printer, or a file and there is a label mode which can suppress the printing of field names (useful for printing mailing labels - hence the name).

Although it's possible to create as many separate files as you want, there are no inter-file link mechanisms available. In other words this is a simple flat-file system! Despite these limitations the program is far value for money and perfectly adequate for first time users or others with simple database needs.

### QuickBase Supplier: Your Choice Price: £13.30

Details: Fairly average freeware flat file database program (disk BU009).

### S-Base 4 Personal (Oxxi) Supplier: HiSoft Price: £129.95

Details: S-Base is the new name for what used to be the SuperBase range and this offering, like SuperBase Personal before it, is likely to continue as the most popular Amiga Database program in the UK. Its VCR-styled control panel approach is easy to use and the program flexible enough to be used for all but the most demanding of database applications.

### S-Base 4 Professional (Oxxi) Supplier: HiSoft Price: £249

Details: This is the package formerly known as SuperBase Professional. It's another truly heavyweight database package which provides sophisticated database creation, search/filtering and reporting facilities

along with its own Basic-style database language (with ARExx and comms support).

Both in terms of use and the facilities offered S-Base 4 Professional is rather different from DataRetrieve Professional (its main heavyweight rival) but there's no doubt that the S-Base product is an extremely capable program and another one for power users.

### Supplier telephone numbers

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# PICASSO II EMPLANT WAVETOOLS

Integrable Graphics (RTG) is the future of Amiga graphics display technology. True RTG means that a graphics card will not be restricted by the memory limitations of the host system's chip memory, or by the speed of the custom chips. A true RTG device does not have to use Chip RAM at all, and can run exclusively in Fast RAM if needed for the best possible performance whilst allowing any well behaved software to utilise the enhanced resolutions and colour modes of the RTG device without any modification to the program. Well behaved software will be able to rely on running on high resolution custom screens and will not have to rely on running either the Workbench screen, or screen promotion hacks, to view compatibility.

The Picasso II RTG Emulator integrates seamlessly into the Amiga operating system to give the most reliable emulator 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 Picasso1280 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.

**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!)

The supplied Mac emulation boasts full colour (16 ECS, 256 AGA, 1.6 Million with supported graphics cards) and superb Stereo Sound.



**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, EMPLANT 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 (DHD, RAD, VDD, etc.), Scanners, Graphics Tablets, CD ROM with the emulation.

Emulation speed is exceptional and compatibility is excellent. All known software runs!

The IBM 386/486 emulation is to be released in the new year, with Atari 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/cx/SE30 ROMs.

**EMPLANT** can be expanded to provide 2Mb of battery-backed static RAM and has an audio digitiser built in! Other add-ons are planned.

**EMPLANT** incorporates a File Transfer system between Amiga/Mac/PC.

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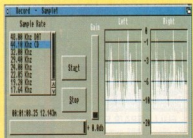
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Now you can really make some waves with the awesome sound of the all new WaveTools. 16 bit Amiga sound system. WaveTools 16 bit audio card plugs into any Amiga 1500, 2000 (accelerated), 3000, or 4000 computers.

WaveTools hardware and software gives your Amiga the punchy sound quality of CD's and DAT recorders at a fraction of the price of other 16 bit sound cards. WaveTools uses your computer's hard disk drive to record, edit, mix and playback audio with the clarity and crispness that only 16 bit technology can provide. Using state of the art circuitry and the latest in 64K over-sampled Sigma-Delta conversion technology, WaveTools has a frequency response of 10kHz to 20kHz and a dynamic range of 85dB for faithful reproduction of sounds from the faintest bass to the thinnest strings. WaveTools provides a pair of stereo I/O jacks for direct connection to any device with standard line in and line out connectors. Record from CD players, DAT recorders, Video Tape, Videodisk or any other line level audio sources. Add voice-overs or other sound effects to produce crystal clear audio tracks for productions demanding uncompromised sound quality.



WaveTools feature set meets the needs of the most demanding users. Audio is recorded directly onto any hard disk drive in Amiga compatible AHI16 stereo files. Multiple waveform windows may be opened simultaneously and audio can be cut and pasted between open files to facilitate building complex audio tracks. In addition to cut and paste WaveTools supports 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 recordings. Using WaveTools extensive editing and mixing functions, you can sweeten your basic tracks with overdubs, perform ADT, and place sound effects at specified points in the sound track. Best of all, since 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, 8 and 30 frames per second to ensure perfect synchronisation of your audio files with video and animation, if required.

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# The last word?

Final Writer claims to take Amiga office software onto a new professional plateau inhabited by such icons of quality as Microsoft Word, but is this a tall claim? Stevie Kennedy finds out

**A**fter the activity of a year ago when Wordworth 2 and Final Copy emerged in a flurry of renewed fighting over the Amiga productivity market, things have been rather quiet on the word processing front. Ever since that time, though, SoftWood's designers have been beavering away at a secret weapon designed to end the war by Christmas.

Final Writer is a natural successor to Final Copy II, the program on which it is based, and attempts to answer some of the criticisms its little brother has attracted. Though a high quality package capable of superb output and with graphics management second to none in its field, FCII lacked many of the power word processing features enjoyed by its rivals.

A carefully crafted user interface, slick presentation, and ease of use guaranteed FCII a large and appreciative audience, but without strength in depth it could never hope to compete for the serious word-crunching jobs such as manuals, books, and lengthy reports to which Wordworth 2 was better suited. Final Writer tries to eradicate that gap and offer more power without losing the easy going nature of its ancestor.

In essence, the two programs are



understandably similar in appearance, but there is much more to Final Writer than at first meets the eye. In fact, to compare it directly to FCII is like comparing a Ford Escort to a Sierra Cosworth simply because they bear the same manufacturer's stamp and design style.

To attract users with big job requirements, Final Writer starts with a battery of improved layout and document handling facilities, the most important of which is the master page approach. Simply put, this enables the user to create a template of every page in the document bearing common information such as the document title, section headings, page numbers, and so on, making document processing a much easier job.

For example, if the title of a document is changed, it is a simple matter to change the master page for all pages to bear the new title, and if a logo is to appear on



Some of the many fonts on offer

every page, the graphic need only be inserted once on the master page. Even better, Final Writer offers a section-by-section layout tool which gives the user complete control over the different parts of a document.

A document is treated as a number of

sections, one each for such components as the main body text, the title, page contents, and so on, and the user can create sections and swap between them at will. In this way, a document contains two or more very different styles (such as the difference between body text and a

## DIY delights

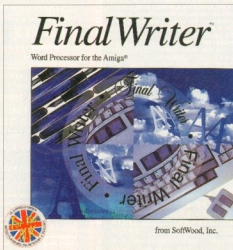
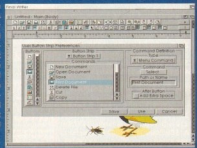
Final Writer is easily the most configurable Amiga word processor ever. It has a superb preferences menu similar to FCII's, but on top of this it has a user-definable button bar and menu, and an ARexx macro system with 26 pre-defined scripts.

There is no auto-record for these macros, which means that users will have to master the basics of ARexx before writing their own, but the button bar and menu should negate the need for most of us to use the 174 dedicated ARexx commands.

To change the default button bar, users need only select the appropriate preferences option, choose a new button icon, and assign a menu command, ARexx script, or string command (a single ARexx command) to the button. There can be as many button strips as needed, though two will usually be enough, and the user can swap between them at will.

An auto-record feature, such as that planned for PageStream 3.0, would have significantly enhanced the power of ARexx macros for beginners, but the potential is at least there if required. Given the almost obsequious nature of the user-friendly button bar and user menu, ARexx macros tend to lose some of their significance, but many are very useful.

For example, the package has no option to make text bold, as this will normally involve loading the bold equivalent of the present typeface, but ARexx macros are available to be assigned to user buttons which will create the equivalent of bold, plain, and bold-italic text without the user having to load the new typeface. Another option is



from SoftWood, Inc.



the page) needn't be split into separate lines, but can be kept together as a collection of sections.

Each section can have its own page numbering or the user can set the page number at which each section begins, so when printing it is easy to stitch everything back together.

The main body of any document always has a number of default styles, but the user can define new styles, and as each section can have its own master pages there is a great deal of flexibility in the system. Default styles include settings for sub-topic headings, the table of contents, and so on, and all are user-definable.

Unlike in Wordworth 2, the user can decide not to automatically generate an index or table of contents, but can also select the font and text style in which the various elements of the table will be printed. Large friendly requesters handle all such operations in style generation, and each style can be assigned a hot key.

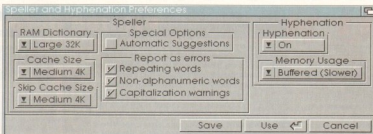
In short, there is little the program would do that isn't already doing to make life easier for large documents. With the master page, sections, style tags, and automatic list generation features, those writing long reports or novels will find in this package a lot of time and energy saving attractions.

## SCIENTIFIC

In any legal or scientific document, the main body of text is more often not arranged in sections which may have their own topic headings or a simple section identifier such as L1/L1a. To cater for this sort of document, Final Writer gives the user complete control over how outlines are generated.

Automatic generation of the outline is determined by the styles used in a document, so that if we wanted all sub-topics included we would go to the style definition requester and indicate at what level in the outline each type of sub-topic appears.

At first this can be a little confusing, and a sample document would have helped new users, but with practice the



Set RAM cache preferences to speed up the speller

outlining of complex documents should be no more difficult than marking words for inclusion in the index.

Other layout tools include multiple columns complete with vertical justification, hanging indents, and text boxes. The latter is a very DTP-esque feature and seems to lift Final Writer into the publishing arena, but in reality it is of limited use.

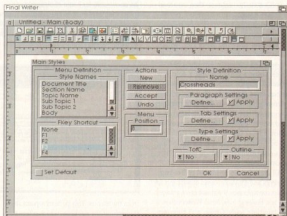
Text boxes can be created easily enough, moved around, rotated, resized, and treated to all extents and purposes as free agents on the page, but they can contain only a single line of text and are therefore of use only for headings and logos.

Improved flexibility does, of course, come with the ability to take a word and stretch, rotate, and re-colour it, but nowhere near as much flexibility as would be gained from treating all text as a page element.

All other operations regarding text and its handling are sound and well thought out, containing many options more usually associated with DTP. Of particular interest is the control over text width, leading, and oblique angle.

By selecting an area of text and using the width option, words can be given a new width from between 50 per cent and 150 per cent of the default for that typeface. Again, leading (the space between lines of text) can be controlled by selecting the number of points between each line (one point being 1/72 inch).

Oblique control offers the user a definable amount of italic-like slant in



Defining styles with the simple requester

letters, either to the left or the right, and can be used in conjunction with other effects to create an unusual look for a masthead or logo. It is no substitute for a proper italicised typeface, and will seldom make an appearance in body text, but oblique can be a useful design tool.

With capitalisation under the heady eye of yet another option, offering all caps, normal, or small caps, Final Writer's text handling facilities come right up to scratch with the notable exception of a show invisibles toggle. This feature, to enable the user to see carriage returns, tabs, and spaces on-screen represented symbolically, is a basic of just about every other word processor in the world and a breath-taking omission from Final Copy II.

When the same omission cropped up on the professional follow-up to FCII, I for one was puzzled and disappointed. Many might think this is a point of pedantry, but when loading a file from another source, perhaps an ASCII file from a CoverDisk or PD disk, or a document saved as ASCII from another word processor, it is absolutely vital that one can "light up" the control codes to see where the document might have a lot of double spaces, tabs, carriage returns at the end of lines, and so on.

If such control is not possible, the hassle of re-formatting a document blind has to be experienced to be believed, and I would beg SoftWood to make good the fault as soon as possible.

On a brighter note, Final Writer is a superb handler of graphics, the one area

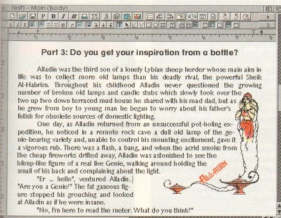
in which most other word processors take a dive. All IFF bitmap formats are supported as is the industry standard encapsulated PostScript (EPS), and all can be imported and displayed in full colour.

Speed of operation when graphics are involved can slow to a crawl on some packages, but Final Writer shows its SoftWood pedigree by providing both speedy treatment of imported graphics and a few built-in tricks of its own.

Lines, boxes, and ellipses can be drawn directly on screen using icons on the button bar, and text flowed around them in the same way as imported graphics, giving the program a distinct edge in presentation terms. Creating documents with borders and other graphical content is much easier than in any other Amiga word processor, and screen update is refreshingly fast.

That's not to say speed doesn't suffer, and in 256-colour mode the program can become a bit tiresome. However, while Final Writer is being tiresome most other packages would have reached the "never mind, I'll hire a couple of scribes" stage, and the program has more than one tactical approach to feline de-furification.

When large Ham8 or EPS pictures begin to slow things down a bit, simply changing the way the images are displayed is easy. The user can change each picture individually or all in a



Regular text flow simulated using Final Writer's line drawing tools



document at once, so the largest can be turned off while the smaller graphics are displayed properly.

As soon as they are bumped into preview mode, on-screen images are replaced by a box containing a diagonal cross in time-honoured newspaper paste-up fashion, thus speeding up scrolling and screen refresh. In this way, pictures can be viewed in full colour to check that they don't clash with the document's other colours, then switched off to save speed.

Imported graphics cannot be rotated, but any lines or shapes produced using the integral drawing tools can, which makes them useful as bounding lines. This is a technique whereby the user draws a series of lines close around a complex imported graphic, then flows text around the bounding lines rather than the image.

Irregular text flow is therefore possible even when the image is imported in a solid box of colour. The package offers contoured text flow to the left or right, but not both sides at once, so the bounding lines compromise comes in particularly handy in some documents.

All graphics can be treated as free page elements and moved around at will, but to retain control onto the number of images and text boxes grows, Final Writer offers a few handling tools. Group and Ungroup perform their obvious functions, enabling the user to move and scale a group of images as one, while Lock and Unlock can be used to avoid unnecessary waits for screen refreshes because a graphic has accidentally been moved a tenth of a millimetre.

A whopping 100 EPS images, some good, some feeble, are included with the package and are accompanied by 120 outline fonts in the NimbusQ format. Final Writer will also accept any AGFA or Adobe Type 1 PostScript fonts, a fact which is particularly welcome given that it will print EPS images and PostScript fonts to any printer, and has a good custom PostScript driver for the rich users out there.

At times, the screen display of such fonts is less than perfect, and at normal (100 per cent) magnification, nine point text can be difficult to read.

Final Writer attempts to offset this by giving the user control of screen resolution, which can be set up to 300 by 300 dots per inch using the excellent preferences menu, but the only real answer is to buy a bigger monitor or use the 125 per cent viewing setting.

Flipping back and forward in view modes can be annoying, but as there are three ways of doing this (menu, button strip, and holding down Alt while clicking the mouse button), the user at least has plenty of choice.

Navigating in general is a pleasure with this program, as the user can jump between sections, use the scroll bars to quickly jump from one part to another, use the page button, or select Go To Page

## Printed output

Final Writer enjoys excellent printed output thanks to its built-in PostScript printer driver and its ability to send EPS images and outline fonts to any printer. If a dot matrix or bubble jet printer is used, Final Writer will coax the unit's best resolution from it, ensuring that the quality of hard copy is as good as it can be.

The clean way in which outline fonts appear from a cheap bubble jet is very impressive, and is as good as any of the top notch DTP packages. EPS graphics printed at 300dpi on a Canon BJ10 are similarly satisfying, so documents output to one of the middle range printers such as the Canon or the HP DeskJet series should be acceptable for home or business use.

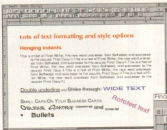
Printing preferences are available for the program's final (best quality) or draft (images printed as preview boxes) settings, and for graphics printing. Dithering can be either ordered or halftone, and the PostScript printer preferences also offer custom halftone



Printing options are extensive and easily set

settings for screen angle, lines per inch, and whether dots or lines are used.

Default settings for most options are perfectly acceptable, but if the user has specific requirements or fancies a bit of tweaking, Final Writer is very accommodating.

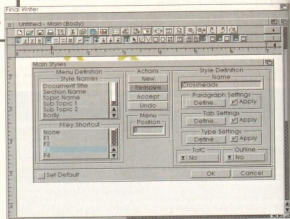


There are plenty of text style and formatting options for use in style tags

from the menus. This pattern repeats itself throughout the package, which offers two or three ways of doing everything before the user even considers AltEx macros or the user-definable buttons and menus, and this is a tribute to the thought which has so obviously gone into the whole package.

From the 700 page manual (I'd have preferred it ring-bound, but never mind) to the smooth operation of just about every feature, Final Writer is a product which oozes professionalism and an attention to detail.

As a word processor, it has several advantages over Wordworth 2, hitherto the leader on the serious side of things, and yet it has all the qualities and more



## Missing links

If Final Writer doesn't quite live up to the claims that it rivals Microsoft Word, it is because of a small list of annoying omissions and features that haven't been finished off. None of these is particularly damaging, but there are enough of them to ensure that the package is flawed.

Of most concern is the lack of a show invisibles option, discussed elsewhere, which can make editing imported text very awkward, but up there on top with this is the lack if an undo edit feature. Both basic features should be implemented as soon as possible.

In other areas, it is impossible to copy text from the document and paste it into search and replace requesters, and there is no highlight and drag capability. Both are found in the leading PC and Mac word processors, and both can be great time savers.

Another omission is the lack of bookmarks, used in Wordworth 2, which enable the user to jump to pre-arranged places in a document, and the absence of any sample documents with related tutorials might dismay first time WP users.

Limited options on ASCII import/export can also be a pain, and the rotate function's refusal to work with imported graphics sets a limit on page design. Finally, the auto-save feature is very poor, as it throws up a requester every time it is about to save out and asks the user to confirm.

Excuse me, but isn't the word "automatic" to be found somewhere in the term "auto-save"?

## SYSTEM ESSENTIALS



## The bottom line

Product: Final Writer  
Supplier: Gordon Harwood  
Computers  
Price: £129.99  
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Ease of use 9  
Implementation 9  
Value for money 9  
Overall 9



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PICTURE SHOWS GVP HD8+. THE A530 FEATURES SIMILAR DESIGNER STYLING

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#### COMPARISON CHART

FEATURES/MODEL	GVP HD8+	ICO TRIFECTA LX	COMMODORE A530	OVERSAM REFERENCE
*TRANSFER RATE: Kb per second	1025	1028	564	430
GVP DESIGNER STYLING	✓	-	-	-
RAM EXPANSION/MEMORY	8Mb	8Mb	2Mb	4Mb
MINI SLOT FOR FUTURE EXPANSION	✓	✓	✓	✓
SCSI INTERFACE	✓	✓	✓	✓
GVP PERFORMANCE PAPER ROM	✓	✓	✓	✓
DEDICATED POWER SUPPLY	✓	✓	✓	✓
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Computer Mail April '92

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\*Figures taken from Amiga Computing, October 1990

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FEATURES/MODEL	GVP HD8+	ICO TRIFECTA LX	COMMODORE A530	OVERSAM REFERENCE
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#### 40MHz ACCELERATOR + HARD DRIVE + RAM EXPANSION

The GVP A530 is a unique combination of a Hard Drive, RAM upgrade and an accelerator. Inside is a full Motorola 68030C processor running at 40MHz, making your A500 faster than you thought possible - almost nine times faster than an A1200. And, fitting a PGA matrix co-processor (40MHz 68882, ref: UPG 1982, £129 inc VAT) can improve this still further, with some operations being 30 times faster than an A500. In addition you can add up to 8Mb of 32-bit RAM, which further enhances performance.

#### FASTER THAN AN A1200 or A4000 030

An A500 with the GVP A530 fitted will be considerably faster than either the A1200 or A4000. This is possible because the A530 uses a 40MHz 68030C processor, whilst the A1200 uses the slower 14.19MHz 68020C processor and the A4000-030 uses the 25MHz 68030C processor.

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- Up to 8Mb of 32-bit Memory, 1Mb of 32-bit Fitted
- PLUS Same Features as HD8+
- Mini-slot for Future Expansions, use PC Emulator - far left
- On/Off Switch for Game Compatibility
- Dedicated Power Supply and Fan Unlike Many Competitors
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 1x 4Mb - £39 - 1x 2Mb - £179  
 1x 4Mb - £39 - 1x 2Mb - £179

#### SYN INFO CPU MIPS

SYNOPSIS INFORMATION TO PRODUCE ABOVE



#### A530 40MHz 68030C, 42Mb HD, 0Mb RAM

PREVIOUS PRICE **£499**  
**£399**  
 INC VAT - HAR 0962

FEATURES/MODEL	GVP HD8+	ICO TRIFECTA LX	COMMODORE A530	OVERSAM REFERENCE
A530 40MHz 68030C, 42Mb HD, 0Mb RAM	✓	✓	✓	✓
PREVIOUS PRICE	£499	£499	£159	£599
INC VAT - HAR 0962	✓	✓	✓	✓

### PC EMULATOR

FOR USE WITH HD8+ or A530

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PC EMULATOR  
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Over the years ASDG have become synonymous with quality products with the leading light being the ubiquitous ADPro. However this isn't the only success story in the ASDG stable.

Although less glamorous than its image processing counterpart CygnusEd Professional – or CED as its predecessor was known – is a long-standing award winner.

Although only exactly hot news for video kids, the new CEDPro could well prove to be the Lemmings of the programming world as countless members of the furry collared community cast aside lesser text editors and leap into the open arms of CEDPro.

First and foremost comes the program's unlimited level of undo, which as you'd expect allows it to back-track any changes made to the file.

## SPEEDS

Next up comes the impressive search and replace facilities which can be utilised either interactively or via with the a lightning fast turbo mode. In addition the feature also support history – so you'll never need to re-type repeated patterns.

As you'd expect AREXX is well supported and as a result it's possible to interact other packages – such as compilers – to call CEDPro and even place the cursor on the exact line where an error has occurred.

Yet another programmer-friendly feature allows CEDPro to detect bracket and brace errors within the code in addition to direct editing of binary files.

Macros are another area in which it

# Editing and control



Paul Austin casts a kindly eye on the latest release from ASDG and the ultimate in infra red control for VlabY/C



Simple but effective, CEDPro puts multiple file handling into action

scores well. Simply start the function and the program will remember all subsequent keystrokes. Once complete this new macro can be assigned to any single or combination of keys. It's even possible to

call a special macro editor with which to edit existing macros when necessary. Like its predecessor, you can edit literally dozens of different files or file areas simultaneously. As for speed, there are no complaints – although there rarely are with any text editor. However, no matter how many files you have open it's highly unlikely you'll ever need to wait for the program to catch up with your editing exploits.

Specialised needs are also catered for with numerous options including command key bindings, variable tab sizes, word wrap, screen sizing and definable colours – even the scroll speed can be defined and saved. In fact alternative set-ups can be recalled as required.

Compatibility also shouldn't prove a problem as the program works across the entire range while making the best of AmigaDOS, employing the Clipboard to share its output with other packages.

Even crashes caused by other packages need not be terminal as CEDPro has the ability to recover edit sessions if disaster strikes. Combine this with a user definable timed saved and you're looking at arguably the most secure file editing system on the market.

Obviously with the myriad of PD and shareware text editors CEDPro is strictly for the pros. However if you demand the best and are willing to pay for it CEDPro could well become the ADPro of the programming world.

Product: Cygnus Ed Professional  
Supplier: Silica Systems  
Tel: 081-309 1111  
Price: £79.95

## Automation with AirLink

If you're among the numerous videophiles who've invested in VlabY/C the word, AirLink may inspire a distant memory of promised automation. For those unfamiliar with VlabY/C, the connection between the two revolves around VlabY/C's IFR frame grabbing capability.

IFR – Interleave frame recording – gives VlabY/C the unique ability to grab unlimited sequential 24-bit frames from live video. To achieve this, it first picks a reference point on the tape, followed by a starting frame, from which a user defined number of frames are then grabbed.

The beauty of the system is that any VCR can be used for the process and better still no timescode is required on the tape itself; the software quite literally remembers which frames have been grabbed and then attempts to grab the remainder on a subsequent pass over the tape.

The only problem with this approach is its heavy dependence on user time as the software demands constant rewinding of the tape ready for the next pass. However thanks to AirLink hours spent at the controls of a VCR are a thing of the past. Existing users may recall that IFR's control window provides the option to not only execute a processing script on images but also add a rewind AREXX macro which can call on Airlink to do all the hard work for you.

As a result complete automa-

tion is now possible with the only user input being initial scene selection and IFR set-up – after which you can leave your Amiga and the VCR to their own devices.

No matter which application you apply AirLink on the basic set-up procedure remains the same. First you must install the hardware – this takes the form of a cable connected to a small Infra red transmitter/receiver, the other end of which slots into the Amiga's free joystick port.

## Handy hotkeys

Once installed you simply run the AirLink software which provides numerous examples along with the essential sampler program. As the name suggests this allows you to program AirLink to emulate literally any infra red remote controller.

In order to control a device you simply design a graphic representation of a remote control panel using the paint package of your choice. The Airlink software then allows you to add button areas to the graphic – appending the appropriate remote control command on each. These graphic remotes can then be saved out, complete with hotkey combinations, and recalled when required.

Actually programming Airlink is very simple; you just activate the sampler program, record the signals from the original remote you wish to control and then append the appropriate signal to the button in question.

Alas that's all that space will allow for this month, but tune in next time for more on AirLink and its immense potential within a multimedia environment.

Product: AirLink  
Supplier: Amiga Centre Scotland  
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Price: £69



Keep your remotes on-screen rather than down the side of a chair















Our Amos expert, Phil South, concludes his two-part look at Amos 3D and looks at some undocumented features

# Adding an extra dimension



This month we'll go into how you actually move objects around using Amos 3D. As the program is an extension to the Amos language, there are some special commands added to the standard Amos command set which you can use to move objects around in 3D space.

Once the Amos 3D extension has been added to your program, you can load and move 3D objects in your normal Amos programs using a series of new commands.

Now you have to come to terms with the idea of space - 3D space. The world now has a trio of axes, called x, y and z. We are used to using x and y on the computer screen, and translating objects added that screen merely involves adding numbers to their x,y co-ordinates - like the numbers which tell a move sprite command to shift the position of a sprite. But now you have an extra dimension, that of depth, and this is the z dimension.

With Amos 3D there are a new set of commands called "Td" commands, and these preface any 3D commands you put in your programs, like this example:

```
Td 0 1 "59"
```

This points to the disk which contains the 3D objects. It's the 3D version of the "Dir\$=" command you get in Amos. Next a few commands you will be familiar with:

```
Hide : Double Buffer : Autoback 0
```

If you are moving sprites, even 3D ones, you'll need to be double buffering to cut the amount of unnecessary flicker. Next you have to load the object:

```
Td Load "checkmark"
Td Object 1,"checkmark",0,0,5000,1,5000,-4000
Palette ,,,,,,FFFF,FF,FFFF
```

The process is not unlike that of loading and positioning a sprite. First you load

the object, in this case "checkmark". This is loaded from the disk you pointed to as being your 3D directory. Then the Td Object command positions the object on the screen. It's object 1, its name is "checkmark", and we want it positioned as described in the command.

The first three figures are the position of the object in space, so we have x=0, y=0 and z=5,000. This is pretty much dead centre on the screen. Next we want an attitude, and this doesn't mean your shape should be talking back and dissing you.

Attitude describes the direction the shape is pointing, in this case A=0, B=5000 and C=4000. This is unimportant if the shape in question is a cube, but if it's a spaceship you'll want it to be the right way up and pointing in the direc-

tion it is supposed to be flying.

Finally we enter the loop zone where the movement is calculated:

```
Repeat
  Td Angle 1,A,B,C
```

This is like a Bob command, where the angle of the object in all of the three dimensions is fixed.

```
z=z+1000
```

Increment the X dimension and our object will tumble.

```
Cls 0
Td Redraw
Screen Swap
Wait 90
Until False
```

And wrap it all up with drawing the screen and waiting for the next vertical blank before you alter the position of the object. It's all basically the same kind of deal as moving sprites around the screen.

Obviously you now have to learn to think in 3D, but that goes with the territory. Vectors are hard to do in normal circumstances, but this program should make the whole thing really that much easier to cope with. You can sketch out your 3D ideas on graph paper beforehand, just to give you an idea of what you want.



## Hidden gems

The disk also features details of some undocumented Td Commands like the one to define order in which objects are drawn:

```
Td Priority n,p
```

where n = Object number and p = Object drawing priority

This allows you to specify the order in which objects are drawn by the 3D system. In other words objects that are drawn first appear in front of other objects. The command makes some interesting special effects possible:

```
Priority,p Object drawing order
```

which translates as:

```
0 Draw the object in the normal way (by depth)
>0 Draw the object in front of all other objects
with a lower priority
< Draw the object behind all other objects with a
higher priority.
```

By default all objects have a priority of 0. Note that if two objects have non-zero priority the one with the highest priority will be drawn first (in front).

The other undocumented feature is TD SET COLOUR which sets a specified object block's colour combination, like so:

```
Td Set Colour n,b,c
```

where n = Object number, b = Block number and c = Colour combination code of the block (same as in OM).

This command is the language equivalent of OM's colour combination tool described in the 3D manual. It sets the colour combination code of the specified block.

Valid colour numbers range from 0 to 16, colour combinations 0 to 12 are the same as in OM, colour combinations 13-15 are new. An out of range colour code will be truncated to the nearest valid code without causing an error.

## Want to catch up?



Missed last issue's first part of the tutorial? Catch up by ordering a back issue. Turn to page 172 for details of how to order.

If you want to really master Amos 3D, our exclusive manual offer can get you there at a discount price. Turn to page XX for details



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## Kings Quest 6.....tRing







InnoVision aren't new to the business of TV graphics, and their groundbreaking Broadcast Titrer package has long been a standard of excellence in terms of its high quality fonts and smooth anti-aliasing. Now the company have moved from the purely titling arena into TV graphics proper with the release of Montage 24, a program designed to produce not only text titling, but 24-bit backdrops and transition effects.

Montage is a sizeable package supplied on six disks and comprising the main program itself, some tutorial data, and eight anti-aliased fonts. The latter use a proprietary format and are the only typefaces available for use in Montage, although a range of font packs will be offered as back-up and a module should soon be released making it possible for users to treat PostScript fonts as Montage fonts.

A disadvantage of this approach is that the user is dependent on future releases by InnoVision, but the advantages outweigh this. With the carefully optimised typefaces supplied as standard it is possible to carry out a wide range of sophisticated operations on your text.

## SUPERB

Text can be scaled in any way, coloured using smooth gradients, given a variable amount of soft or sharp shadow, embossed, bevelled, or even re-armed, all with superb anti-aliasing. There can be no excuses for shoddy presentation text when you're using this package, as over half the available functions are dedicated to controlling the use of high quality verbiage.

All operations are carried out using the friendly "big button" interface used on most video and TV software packages these days. Everything hides behind nice easy buttons on clear, uncluttered panels, and the main areas of interest are sensibly separated into screens of their own.

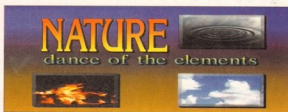
The beginner should therefore have few problems with Montage, and the well written, concise 130-page manual could easily find itself back on the shelf inside

ten minutes. Part of the reason for this is the program's relatively simple purpose in life, which is purely to produce text on a backdrop, but the designers should also take credit for keeping things as straightforward as possible.

Montage will run on either an AGA Amiga or a machine equipped with the OpalVision or IV24 cards, and works best when teamed up with OpalVision. In this configuration, Montage can utilise full 24-bit graphics and a full complement of 20 transitions, 13 of which work with AGA

and only two with IV24. On a standard A4000, Montage is comfortable enough, if fussy about the system setup. All Workbench overscan settings must be reset to default and mode promotion must be turned off or the program won't run properly. This is a pain when used on a machine which has a multi-purpose role and therefore a multitude of overscan and monitor settings, but shouldn't be a problem if Montage is being used in a purely video environment.

When first used, Montage can have a strange initial impression as all pages in a sequence are set up on a HAM preview screen which only roughly represents the finished image, then rendered as either 24-bit or super hi-res Ham8. Finished images once rendering is complete are superb and quickly dispel any doubts brought on by the HAM preview which,



Mix text, backdrops and brushes with ease

# Smooth talker

## Stevie Kennedy wipes and fades with Montage 24, the latest high quality TV graphics package

to be fair, is designed to make production as quick as possible. When working in 24-bit it can be more than a little memory and time consuming to throw chunks of picture data around, so by demanding that everything takes place in HAM before final rendering, Montage avoids long waits during production.

Unfortunately, the same cannot be said about rendering or the final playback of complete sequences. Rendering each page can take a while, particularly if the page includes a lot of text which has been coloured, scaled, and so on.

As each page can be a fairly monstrous 24-bit file, Montage loads each from disk as it plays them back, which means that in addition to the rendering delay there is a relatively slow rate of playback.

For example, an average page might take seven seconds or so to load and be displayed using a page transition effect, a delay which though perfectly acceptable for many purposes would restrict many videographers. Montage partly makes up for this with a couple of tricks in the triggering department.

Pages may be set to display immediately upon loading, which is fine for looping information displays, but the user can also set a timed transition or choose to use the General Purpose Interface (GPI) trigger. This is a method by which Montage can be triggered to go to the next page by a GPI switch connected to a VCR, making possible the use of Montage pages genlocked over live video action.

The inclusion of this sort of triggering gives Montage an outlet in the multimedia

point-of-sale world as well as opening up many more dramatic uses during presentation, and with its top notch results, easy operating environment, and decent transition effects it should do well as a dedicated graphics package.

With the reservations that speed of playback could be improved and the fact that Montage grabs hold of the system and refuses to multitask, it is difficult not to recommend this program to the videographer in search of broadcast-quality graphics.

As a dedicated system, it is perhaps not ideal for the home video enthusiast, but if the question "how can I title my video to a higher quality?" is put, Montage 24 might well be the answer.



## SYSTEM ESSENTIALS

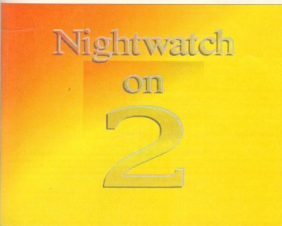
8BIT = Essential YELLOW = Recommended



## The bottom line

Product: Montage 24  
Supplier: Meridian Distribution  
Price: £329  
Tel: 081-543 3500

Ease of use 9  
Implementation 8  
Value for money 7  
Overall 8



Montage can produce top quality TV graphics



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As well as ten copies of the original Pushover, we've got five copies of One Step Beyond (one of the latest releases from Ocean Software) to give away free to the best five entries in this

month's competition.

One Step Beyond took almost a year to develop. Colin Curly, one stormy night, finds himself sucked into his computer while eating his Quavers. In order

to escape he has to solve a series of increasingly baffling puzzles taking him through 100 levels and ten Quaver zones. Despite the considerable investment to perfect the animation, graphics and game play that make up One Step Beyond – if you don't manage to win a free copy, you can have the unusual luxury of a reduction in the price of a new release – One Step Beyond costs only £19.95.

**"If you are looking for a game that is enjoyable to play, but will make you think a bit in the process, you can't go wrong with this."**

Amiga Action, September 1993

## ENTRY FORM

There are ten copies of Pushover and five copies of One Step Beyond just waiting to be won. To enter all you have to do is answer these simple questions and send this form to: Colin Curly, Amiga Computing Competition, Europress Direct, PO Box 2, Ellesmere Port, South Wirral L65 3EA

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**2. How many levels are there in One Step Beyond?**

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- b. 50 \_\_\_\_\_
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**3. What is Mr Curly's first name?**

- a. Kevin \_\_\_\_\_
- b. Christopher \_\_\_\_\_
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Impulse's long-awaited Imagine 3.0 hadn't quite shipped when this issue went to press, but the company did ship an interim version – Imagine 2.9 – to their registered users.

Since 3.0 was taking longer to finish than expected, Impulse sent out 2.9 – which has many of the new features – so current Imagine users could get started with some of the new capabilities, and act as testers for the new program aspects. By the time you read this, Imagine 3.0 should be available, and we'll have an update on the full program in an upcoming issue.

If you're not familiar with Imagine, it's a 3D rendering program with a quad-view editor, powerful animation capabilities, and fast rendering speed. Although the previous release, Imagine 2.0, didn't have the massive feature set of newer programs like Real 3D 2.0, it did have fast rendering, fairly bug-free operation, and a massive library of commercial, shareware and PD objects and utilities to support it.

Some major new features are coming in Imagine 3.0. These include bones, kinematics, improved anti-aliasing, new light sources with improved shadows and shadow mapping. Also coming in the release version are new stage and animation tools, and the long-awaited improved manual. Version 2.9 comes with a 25-page addendum that discusses the new features.

Imagine has always been a fantastically powerful program, but the poor documentation has previously been of little help in getting you over the program's learning curve.

There's plenty new in Imagine 2.9. These features are strikingly obvious, as Impulse put almost all of them in a menu called New, figuring that everyone who got release 2.9 would immediately want to jump in and play with them immediately.

But the most useful feature – the one that alone makes this upgrade worth the price – isn't obvious this immediately: Imagine has a new real-time interface. Now objects actually move around in real-time in the Perspective window as you drag and resize them. There's no way I can emphasize enough how much easier this makes it to compose scenes.

In each of the editors you'll find three

new gadgets which support this real-time perspective feature. The A gadget controls angles, letting you move the camera's perspective of the object by moving the actual view of the object. Z controls zoom, letting you move the view in and out.

Subtle but powerful is the P, Perspective, gadget; this lets you change the perspective view, so that, for instance, a checkerboard floor will appear to be made from squares instead of diamonds. (It's like adjusting the angle on a telephoto camera lens to remove distortion.)

A new FOV (Field Of View) menu item lets you precisely adjust the camera's view field between 10 and 120 degrees for similar effect.

The Quick Edge feature makes moving objects around much quicker. You can define only certain edges to show up, so you can, for instance, only view the out-

line of your aeroplane's fuselage and wings while working in the editor. This not only speeds up redraws, but makes it much easier to differentiate objects, since the screen is far less cluttered without the tiny triangles that usually make up objects everywhere.

These functions work in all the editors that use the quad-view interface. You'll find plenty of new features in the individual editors as well. In the detail editor, the primary place where objects are created and modified, the new Load/Save DXF menu items let you import and export objects in AutoDesk DXF format.

This is the most popular object format in the IBM-compatible world, and will let you access the huge library of objects available for those machines.

There are a number of new Deformation functions for modifying existing objects. These include Twist, Shear, Taper, Pinch, Bend, and Stretch. You can select the gadgets at the bottom of



This logo was created by loading a PostScript font into Imagine's new Splines editor and extruding the words into 3D. This uses just a few of the 50 textures included with the new release; note that the A in Amiga has been partitioned.

# Use some

With Imagine 3's release imminent, Denny Atkin takes a peek at Imagine 2.9, which has many of the new versions features and is shipping now

the screen and manually deform objects and primitives using your mouse, or you can choose the equivalent menu item and use requestors to precisely define how you want to deform objects.

Next to Deformations in the New menu is the Particles option. Particles are objects – spheres, cubes, even dodecahedrons – which can replace the faces of your object. See the "A" in the Imagine-rendered Amiga Computing logo for an example.

You can have an object appear to be created from bubbles, use particles to make object look like it's evaporating, or any number of other organic-looking functions.

Imagine doesn't let you control the behaviour of individual particles but instead ties them into the original polygon faces of your object. This is done to keep the amount of controllable objects down to a realistic number.

You can now use the Fracture function in Object mode to create some impressive effects. Fracture breaks up the triangles that make an object. If you type in a Fracture value of 1.5, for instance, your object will be 1.5 times larger than it was before. But the extra space is now between the triangles that make up the object.

Progressively larger fracture values in an animation can be used to make it look like an object is exploding; if you fracture an object to a large degree, then back to the original object, and run this reversed-fracture, it can make an object look like it's

forming from thin air – a very impressive effect.

Other new functions include Lattices, which is handy for making frameworks like the inner structures of buildings or space stations (see the new Imagine logo for an example of this); Applique, which lets you wrap an image onto an object to deform the triangles that make it up, creating a 3D effect that corresponds to the grey-scale brightness of each pixel in the image; and Wave, which is a ripple effect.

The new Check Obj menu item is handy for finding and correcting problems like duplicate points or improper edges in objects. Although you're not likely to have these problems with objects you create yourself, they often show up in objects translated by conversion software or third-party object editors.

Finally in the Detail editor you'll find the new States function. This innocuous menu item packs a lot of power. Essentially, it lets you define different states – size, shape, and other characteristics – of objects or groups of objects.

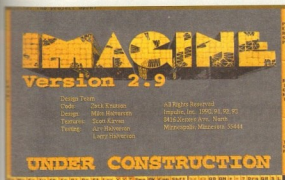
A simple example would be a box that you morph into a teardrop. You create the initial box with a certain shape and colour, then you define that state as BOX. Then morph and otherwise change the object, and save that state as TEAR. Now you can save the single object which has both "states" of the object stored in the file.

You might have an aeroplane that has

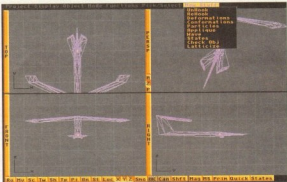


Imagine's new Splines editor allows you to work with PostScript fonts and other 2D objects and external textures





The new title screen; note the use of the new texture and lattice features in the word *Imagine*



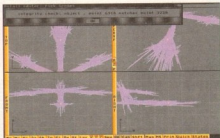
This interim release puts the new features in their own menu; this is the Detail Editor

# e imagination

five different states where the propeller is in a different position for each one, or you could have a human figure with different states depending on the position of the limbs. You can tween between states, making movements or morphs between states a snap.

States can also be used to do texture and image tacking. This solves a problem with earlier versions of Imagine where textures and images would "slip off" of an object when you manipulated its shapes. By tacking the texture down it maintains its position on the polygons that make up the object. Now you can twist a T-Rex's neck around without worrying that the impressive new Dinosaur Skin texture won't follow his head as it turns.

Impulse has hesitated at replacing the current polygon-based object creation system with a spline-based one due to performance considerations – although some functions in Imagine aren't as intuitive in as in some other programs, generally the rendering takes place much faster, and Impulse don't want to lose that advantage. In the meantime, though, they've included a 2D spline editor for creating shapes which you can then



extrude. Although this feature is nice for creating some objects, I've found it most handy for text.

The spline editor will load IBM-format PostScript Type 1 fonts, making bringing text into Imagine a simple process – no more loading individual character objects and meticulously positioning them to get the best effect.

To create the "Amiga Computing" picture above, I simply entered the Spline Editor, chose a PostScript font (I configured Imagine to look at the PSFonts directory in my PageStream drawer, and it automatically made all the fonts

You can now check an object's structural integrity before rendering it, saving you from problems later

available), and typed "Amiga Computing", stamped that down, and typed "Computing". I then grouped the two objects and used the Add Points command to extrude and bevel the text to make it 3D. I saved the resulting object and loaded it into the Detail editor where I added colour and texture.

In the Action editor you can now associate objects with each other. You can, for instance, set a camera to follow a plane through manoeuvres without having to mess with complicated paths or tracks.

You can also create Particle F/X here. You'll find special effects like Rain, Wind,

and Delayed explosions which can affect your objects. You can also control Emission here, so you can have particles "ejected" from an object, creating, for example, a particle-based comet-tail. (If you've ever seen the meteor at the opening of *Star Trek: Deep Space 9*, this is what we're talking about.)

Although many of the new Stage tools didn't make it into this release, one major feature did, which will make composing complicated animations much easier: Layers. Now you can load objects into different layers and "turn off" layers that you don't need at the moment. For instance, in a scene with a car speeding down a highway, you could load the ground, road, signs, and trees into Layer 0, the oncoming traffic into layer 1, and the main car into layer 2.

Once you've placed the scenery in layer 0, you're not going to move it again, so you can then turn that layer off so that your screen redraws will take place much faster.

A huge help in designing your scenes are the new camera and light lines. These are essentially projections from the camera and lights that show exactly what parts of the scene fall into their field of view. This makes it much easier to manually track objects with cameras and lights – now you just point the projecting lines at the objects.

The 3.0 release promises to dramatically ease creating animations, with features like Bones and Kinematics. Release 2.9 has been solid in my experience, and Impulse have managed to cram in a number of new features while actually reducing the amount of time many functions take. If you've used previous versions of Imagine, you'll definitely find this upgrade worth every penny.



## Can you feel it?

Imagine now sports 50 impressive new textures. Among these are Corffelt, Crumpled, DinoSkin, Leather, Monster, Mosaic, Stained Glass, Bath Tile, Gas Giant, Lens Flare, Death Star, and the icky WormVein. These are all configurable and each texture can be used to create a multitude of effects.

Unfortunately, due to a change in the texture system, you can't use the Essence texture packages created for Imagine 2.0. Although they're not as necessary with all the new textures featured here, it might make bringing some of your old objects into the new version a bit more of a task as you'll need to redefine those textures. Also note that, with Imagine 2.9 at least, the

textures only work with the floating-point version of Imagine, which requires a math co-processor. Impulse hopes to make them work with the Integer version by the time that 3.0's released.

You can now view all the textures in all of their glory thanks to Imagine 2.9's AGA support. You can render in 256 colours or Ham6. It only supports direct rendering to screen in sizes up to 640 x 512, though – you'll still need to render into custom sizes and use a package like ADPro to create pictures and animations in modes like Super720 or SuperHires.

Ham6 animation was bugged in 2.9, but should be fully functional in the 3.0 release.



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**A**s usual, a high standard is very apparent in this month's round-up of software. From business to games, it seems that the unsung programming heroes of the software industry out there just keep getting better and better...

## World of Manga

Produced by: Comax

Available from: Graphic F/X Disk  
No. AA 018

First up is World of Manga from Graphic F/X who sent some interesting stuff in for review this month. This is a guided tour of what must be nearly every Manga character ever drawn.

There are 40 AGA only slides in all on four disks presented in hi-res interlaced graphics. One of the most impressive features is the superb fade thru to the next

It's Christmas and Santa's dropped an extra large jiffy bag down the Europress chimney. Adam Phillips opens his seasonal stocking to find out what the PD libraries have given us for Yuletide...

image that the programmers have managed to pull off. The transition is silky smooth and really gives the whole package a very professional look.

The only negative point is that the images are not on Amiga DOS so there for cannot be lifted out and used elsewhere.

That aside, if you're into Manga and its ultra violence, ultra titillation and pounding action, then this is the perfect companion to the video cassettes stashed on your living room shelf.

## Road to Hell

Programmed by: Philip G Harle

Available from: Graphic F/X  
Disk No: GA 069

Fortunately, this rather good overhead racing game is in no way related to that miserable, whinging song by Chris Rea.

Programmed by PG Harle, Road to Hell is a fast, edge of the seat, one or two-player chase round narrow bends and fast lanes to win the race and earn as much cash as possible.

Choose from the three different championships, Bronze, Silver or Gold and you're placed at the bottom of the league to take part in several races against either the computer or a friend with the intention of ending up the winner.

As race starts, the first thing noticed is the smooth scrolling and the hectic speed of the action; 180 degree corners to shoot round, kerbs to be avoided. If hit too many times, the car is destroyed and all is lost.

The action can be viewed either as full screen or split screen to see what the opposition is up to. As you progress through the game, more and more money is amassed which can then be spent in the shop on power steering, better tyres, armour plating,



No, not the M1 but a series of high speed, uncluttered without road works race courses

# PUBLIC SECTOR



Manga, Manga, Manga... recommended but could have been superb with more action shots and less portraits

## Beetle

Produced by:

Unique Styles Production

Available from: Express PD

Disk No: P431

Strange game this one - guide a lump with dangly bits for ears around a series of platforms collecting what look like baby grubs which, once fetched, whizz off to the top of the screen and are deducted from the amount that need grabbing. The



## Audio Rhythm 2

Produced by: Tronix

Available from: Graphic F/X Disk No: MU 162

My suspicions have been proved correct about that cartoon character, Shaggy out of Scooby Doo - that classic program where each week a ghost/monster/ghoul/satanic wereshipper/mummy would terrorise a hotel owner/guests/ old women/Shaggy only to be investigated by Scooby and company and revealed as an imposter wearing a suit/fusing mirrors/ playing horror tape effects and so on.

Throughout each episode, Shaggy was always the one cowering in the corner, saying that he would never do this again but nearly always helping in some inadvertent way to solve the mystery in the last reel.

What happened to him since his exit from the show? Well, he's moved into Amiga PD to take on his true personae - a 60s, easy riding, dope smoking, loose and chilling presenter of pumping hardcore music demos.

Shaggy is now the anchorman of Tronix's Audio Rhythm 2, offering the user five sampled tracks to listen to - Love So Strong by Secret Life, if a remix of Janet Jackson by Brothers in Rhythm and three other tracks, Promising, Going Insane and Hardcore2.

The samples are crisp and clear and with Shaggy there to mellow you out, this is a great buy.



## Instinct Slideshow

Produced by: Instinct

Available from: Express PD  
Disk No: G0159

Another demo, supplied by Express PD, is Instinct, a collection of different artists' work making up a portfolio of over ten pictures.

Running on any machine, this is quite an impressive gallery with varying different screen resolutions showing different styles of computer art from Frank Frazetta copies to Walt Disney images.

The music accompanying the show is laid-back and sexy jazz-like stuff which suits the display well. It was interesting to see the reactions from the male population as it drifted across the room - stampeding feet followed by sighs of disappointment at the lack of naked women. Never mind.





Guide your space hopper through the levels picking up your grubs... but keep an eye on the beetle!

idea in this demo version is to beat the beetle to the top of the garden wall by going as quickly as possible through the 30 levels.

Power-ups can be grabbed to aid progress through the multitude of screens ranging from pogo sticks for extra jumps and swords to slice through the enemy to invincibility from the dastardly garden creatures.

If you've got a friend round then slap a joystick in port 2 and play the special two-player mode where each space hopper has to grab their grubs and rush to their individual exits.

On top of this is a level editor which is only partially operational on the demo but shows off the flexibility of the program by giving the user the opportunity to design any course they like using the in game images.

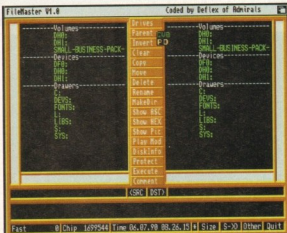
There are some nice touches with the graphics and variety in the gameplay. For a taster, here's a neat, professional little game that's well worth taking a look at.

## 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 shining 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



Sort out all financial worries with this lovely little ewer

## The Small Business Pack

Programmed by: Various

Available from: GVB-PD Disk No: U294  
If you're thinking about starting a new company and are worried about the distinct lack of management programs or the prospect of coughing large sums of money up on single packages, then this offering from GVB-PD could be the alternative you're looking for.

Check-a-block with utilities of all sorts, this is an absolute bargain at only £6. Every program has full documentation and can be printed through one of the 27 printer drivers available.

Utilities include Stockbroker for share management, expense and chequebook reports for bank account managing, a memo pad, a Secretary for efficient file and Wordbench operation and many, many others - even a "nag" to hassle you

## Rebouldix Programmed by: The Terminus Team

Available from: Pathfinder  
PD Disk No PG209

Why is it that many of PD's classic games are based on old, nostalgic software? Perhaps it's because they are relatively simple to program or that the writers don't have any original ideas of their own or maybe, just maybe, it's because games like Boulderdash hark from a day when gameplay came first and graphics second.

They seem to have an ageless playability that people never tire of and that can be continually enhanced and developed into better games. If you look at the average Mega Drive chart these days, most of it will be taken up with platform clones with incredibly pretty graphics but gameplay that hasn't advanced since Manic Miner on the Spectrum.

Rebouldix from Terminus Team in Sweden could, at first glance, simply be shovelled off into a hole like so many games of this genre, filled in and engraved "Here lies another Boulderdash clone - rest in peace".

Indeed, with the price tag for the full working copy being £18, you might think it would be a justified epitaph when you start



In the middle of a chain reaction...

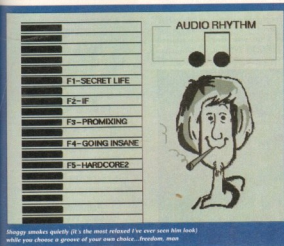
to play. That's exactly how I felt but...

What makes this game so refreshing when compared to the usual carbon copies is that it's more of a sequel to First Star's classic than just a copy. As with the original, the player controls a little miner who digs around the screen collecting various glittering jewels while avoiding being crushed to death by rocks, traps and monsters of varying different sizes.

With this latest upgrade of an old idea though, there is much more to do. Each level on the demo disk presents a different mix of arcade skills and strategic planning. Switches must be thrown, diamonds collected in the right order, difficult puzzles solved and many other touches.

The graphics are effective and clear and are quite varied for this kind of game.

The gameplay is very challenging and it will take some time for even the most experienced player to get through the more fiendish levels on the demo. If £18 still sounds like a lot then check out the sample disk to see for yourself what a refreshing breath of fresh air this is. Recommended.



Shaggy smokes quietly (it's the most relaxed I've ever seen him look) while you choose a groove of your own choice... freedom, man



through the Amiga's audio and voice capabilities when you want reminding of something.

This is an impressive array of titles which cannot be given justice in such a small space - order them and check it out for yourself.

## Assassins Games

Programmed by: Various

Available from: Assassins Disk No: 138

Assassins Games seem to push out untold amounts of games each year, some ranging from the simply abysmal to the very good (a bit like *Pygnosis* really).

This latest collection is a perfect cross section with the three games offering examples of poor, average and good titles.

Starting at the bottom of the quality bucket, we have a computer version of air hockey. In the original, you hit a puck that floats millimetres above the table on a bed of air which is knocked back and forth between the two players until it lands in a goal; the same applies to this version.

Being a two-player game only, air hockey is works relatively well but is unlikely to raise blood pressure and adrenaline levels above those found in a corpse. The graphics are very basic and little effort has been put into the front end of the game making this the least recommended of the bunch.

Galactoid, the second title on the compilation, is a competent vertical shoot-'em-up in Galaxians mould where enemy ships sweep onto the screen, gather in a formation and swoop down on you dropping missiles.

There are plenty of varying stages with different types of aliens and also special levels where a complete wave of marauding enemies must be wiped out to receive the maximum bonus.

Finally, your single turreted ship may be upgraded into a two-gun mega blaster with the aid of a falling power up - this increases the size of your craft considerably, making it an easy target but helps to

## Jurassic Park Slideshow AGA

Produced by: Gentry

Available from: Express PD Disk No: G0144

Seeing that Jurassic Park has managed to permeate into every corner of society from toothpaste to toilet paper, it was just a matter of time before it raised its prehistoric head in the public domain.

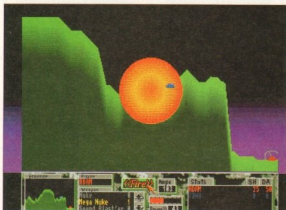
Maybe it's just me but I wasn't that impressed by JP (to its friends); the dinosaur sequences were superbly handled and suspenseful but as for the rest of the film, it had a slack story and some pretty ranky acting, especially from Laura Dern.

The actual demo comes with a staggering four, yes, four stills from the film presented in hi-res, interlaced Ham8 near-photo quality graphics which can only be run on AGA machines. This may sound like very little but seeing that each image takes up 150 to 180k then it's understandable.

With an accompanying soundtrack, the show is short-lived but if you're a fanatic of the movie like the rest of the planet, then this will satisfy your appetite admirably.



It's that film again... Here Laura Dern tries desperately to act convincingly towards a large lump of rubber



Position the turret just right and score a bullseye with a mega nuke

destroy the aliens with relative ease.

If you don't mind the repetitive nature of this genre and fancy a cheap blast then Galactoid will fill the gap until something better comes along.

The third and final instalment is Scorching Tanks, a great two to four

player 'hammer the hell out of each other' piece of software.

The premise is simple - up to four tanks are placed on a scrolling landscape and must destroy each other. This is achieved by aiming the turret at a certain angle, selecting the weapon you want to use from

the vast arsenal at your disposal, choosing the power of the shot, pressing fire and crossing your fingers.

The more hits made on the opposition the more money you make which can then be spent at the armoury on projectile such as single shots, dirt balls to create cover for yourself, mega nukes and mountain missiles which carve out huge chunks of landscape - there are 26 offensive and defensive weapons in all.

The presentation and graphics are of a high standard - when the ground is hit, it crumbles smoothly away leaving a gaping drop.

An additive and strategic title, the Assassins 138 compilation is worth buying for this game alone.

## Contact addresses

### Assassins

Ripley Avenue, North Shields  
NE29 7SA

### Express PD

47 Aberdale Road, West Knighton  
Leicester  
LE2 6GD

### Graphic F/X

PO Box 69, Manchester  
M21 2BN  
081-860 4292 (8am-10pm)

### GVB-PD

43 Badger Close, Maidenhead  
SL6 2TE  
0831 649 386

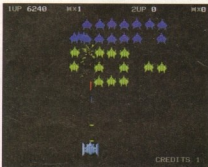
(Make cheques payable to GV Broad)

### Pathfinder PD

41 Marion Street, Bingley  
BD16 4NQ  
0274 565 205



Hit the puck back and forth, back and forth, back on...



Blat everything...















**A**s promised in last month's AC, Lightwave returns for the long-awaited definitive review. However, before the inside story can begin, a brief recap on the essentials is probably wise.

Before you can enjoy Lightwave you'll need the LightRave dongle and its accompanying control software. Once installed the dongle emulates the presence of a Video Toaster - thereby duplicating Lightwave into operation.

## DOUBLE

Alas as part of this deception you're required to part with a nerve-jangling £399 for a piece of plastic that does nothing more than sit in the serial port. Worse still, the aforesaid sum doesn't include the cost of Lightwave - which regulars will remember comes as part of the Video Toaster's 46 disk software compendium.

Assuming you've installed the essential emulator/dongle, the next challenge is to add the Lightwave software to your system - the word challenge couldn't be more appropriate.

As detailed last month, installing the Toaster's software isn't exactly simple. And unfortunately even after lengthy tinkering there still appears to be no way around certain limitations inherent in the Toaster's arcane installer.

Although it is possible to terminate installation prior to completion, it's not recommended unless you're particularly well versed in AmigaDOS. Worse still is the installer's unavoidable demand on storage space.

In short, if less than 66Mb of free space isn't found on an 80Mb+ hard disk, the installer simply refuses to install any Toaster software whatsoever.

Unfortunately due to its ridiculous design there's no way to avoid the aforementioned restrictions. In addition even when installation was followed to the letter, three out of the five machines tested with the LightRave/Lightwave combination still locked up when attempting to run the software.

To be honest there's a chance this could be caused by faulty hardware on our part or perhaps the very early version of the LightRave on test, as opposed to a terminal problem between different machines. Having said that it would still be wise to secure a cast-iron money-back guarantee - not in case similar compatibility problems arise on your system...

In addition, when running on an AGA machine its wise to use the Double NTSC monitor driver, thereby ensuring smooth operation in the various Lightwave modes - something which isn't mentioned by the LightRave manual.

After running LightRave and entering Lightwave, you're taken directly to the program's layout screen. At first the temptation is to stay there forever as it's here where all the exciting elements such as mapping, lighting, lens flares, bones, animation and morphing await.

When all of the above are combined with approximately 170 supplied objects,

# The new

Paul Austin puts Lightwave, the very latest Toaster-linked ray tracing and animation system, under the spotlight and asks: Can this monster topple the big boys?



One of the few operating restrictions within Lightwave is the program's NTSC bias when it comes to available screen sizes. As a result for PAL productions it's necessary to use Lightwave's higher resolutions in combination with the program's limited region rendering.

In this example the full screen resolution is 7,280 x 800, as shown by the dotted grey bounding box, within which sits the 736 x 580 - PAL compatible - limited region.

Unfortunately Lightwave's screen dimensions work in percentages rather than pixels, so a little elementary maths is required to determine the exact scale of the necessary region - but once set either stills or entire anims will enjoy your designer dimensions.

layout to form hierarchical jointed object combinations.

If the temptation of setting permanent residence in the Layout screen was simply too much, the first question you'll ask is: "Why aren't all scene designing interfaces just like this one?"

## PERSPECTIVES

Layout literally is that good. You can edit from the Cartesian view, or in fact any one of the three perspectives. In addition when in the Cartesian mode you can view the scene from either the camera

or the urge to set up camp permanently in the layout is almost too much to bear. However if and when you do manage to drag yourself away and into the Modeler, you'll find a myriad of features which put Lightwave on a par with anything when it comes to object design.

## POSTSCRIPT

In fact this latest version of Lightwave has seen over 250 improvements - approximately 50 per cent of which appear in the Modeler. Notables include excellent PostScript text support, Boolean operations, lathes and extrudes, patches, twist, turn, shear, macros, AReX, spline curves, drills and freehand sketching.

Due to available space this is only a taste of the high points which when added together with less glamorous features combine into arguably the most flexible and friendly design systems on the Amiga - possible exceptions being Imagine and Caligari. Even so, it must be said that Modeler does take some getting used to. This is primarily caused by the program's unique approach to object design. For example when building an object separate elements are created under user defined surface names - which are then imported as part of the overall object into layout where they can be selected individually for surface attributes and mapping.

Although objects can have unlimited surfaces these surfaces are not individuals within a hierarchy. In fact single objects, no matter how complex, only have a single user defined axis - no internal groups allowed. As a result Modeler's 16 foreground and background layers provide an invaluable tool when designing objects which in time will combine in

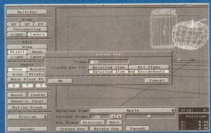
This example demonstrates Lightwave's hierarchical association between objects. In the scene the apple appears to wait around the program as both items dance in a duet across the screen.

In reality the program is in fact simply the parent in the hierarchy. This parent-child relationship is a vital part of Lightwave's animation system. Like many ray tracers, children follow their parents while also having their own children and individual animation.

As a result Lightwave is capable of pseudo kinematic animation. For example if you wanted to animate an arm you would first build each element in Modeler, import them into layout, adjust the pivot points to act as joints and assign the parent-child relationships to the various parts.

In the case of true inverse kinematics you would now be able to grab the hand, move it, and thereby straighten the arm. In the case of Lightwave however moving the hand would simply pull it completely free of the forearm.

Fortunately there is an alternative. If you work down the hierarchy, rotating rather than moving the elements everything will twist and turn from its joint just as you'd expect. If you combine various poses with assorted key frames and the spline based motion and velocity control you can create perfect kinematic effects. Hopping wings, thrusting pistons or whatever you want.





# Wave

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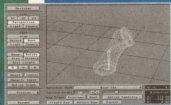
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Spectacular fast  
import, animated  
ripples, a built-in  
procedural cloud  
texture, lens flare and  
the best animation  
system in the business.  
What more could  
animators ask for?



Here we have use of the highlights of  
Lightwave's animating repertoire, namely  
bones. Although the phalanx bones is  
perhaps as good a choice as any, it is a  
little misleading.

In some ways bones might have been  
better described as muscles. For example if  
we return to our arm example the object  
axis/joints would provide the illusion of  
bones whereas the bones themselves could  
emulate the muscles that surround them.

For example, animating the arm bent at  
the elbow a bone in the centre of the upper  
arm could be scaled up to give the effect of  
an expanding muscle.

In short, bones are basically an  
advanced form of freeform deformation,  
but in the case of Lightwave the ability  
deform can be very precisely controlled  
within animations.

To actually add bones to an object you  
simply load it into the layout screen, add  
the required number of bones, define their  
rest position and scale and finally make  
them active.

Once active the bone enters a forcefield  
which when altered by rotating or sizing  
directly affects the object area around it.  
As a result character animation is quite  
liberally transformed.

For those interested in more than  
endless space shoot-out bones are missing  
from heaven. On a commercial level the  
potential for productions in the *JF Movie*  
liquid veto are endless, while animals and  
other organic forms can finally cast off  
that rubbery look and movement that often  
bills the illusion of life.

Like all the major ray tracers, Lightwave has its fair share of mapping alternatives which  
include procedural textures such as bump maps, ripples and fractal colours with  
approximately seven basic variations which can in turn be customised by the user.

In addition to the procedural offerings you can also use *brushmaps* either as single  
frames or as part of a sequence - colour cycling is optional. To apply the brush you're  
given a choice between five mapping formats: planar, cubic, cylindrical, spherical and  
projection.

Unfortunately *brick* mapping of images is Lightwave's only real disappointment. It's  
not that the various effects don't work, but it must be said control over images isn't as  
comprehensive as it is in other programs like *Image* and *Real3D*.

It's true there are some nice effects - such as *density fades* and *wallpapering* - but  
due to the fact only one map is allowed per surface achieving photo-realism can be  
tricky.

On the other side of the coin, Lightwave's variety of applications for procedural or  
image maps leaves nothing to be desired. Literally every element of the surface attributes can use a map as a filter, luminosity, diffusion,  
specularity, reflectivity and transparency can be affected and of course that doesn't include bump mapping and the excellent displacement maps.

Displacement maps are unique to Lightwave and allow an image to be projected onto the surface of an object, at which point the image will  
deform to object to reflect the luminosity of the image - ideal for waving flags, facial features, landscape generation or whatever else this  
immensely powerful function inspires.





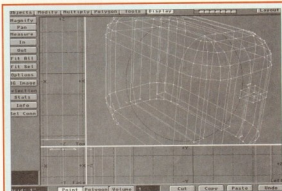
perspective or any one of the lights in the scene. Once in your chosen mode you can not only edit the objects but also the viewpoint.

Better still, animation can also share from the aforementioned flexible. For example, in addition to the camera position you can also render a box or wireframe anim from either a light or perspective – great for spotting accidental collisions.

Lights can be added with ease and their attributes defined in seconds, whether that be lens flare, colour, intensity, type and even the parameters for superfast shadow mapped light sources.

When it comes to rendering, there are a whole host of modes ranging from tiny lo-res previews right up to print resolution creations employing reflections, refractions and shadows all combined with incredibly impressive anti-aliasing and shot with the camera of your choice.

Unfortunately direct comment on the quality of Lightwave's tutorial is to say



*Like most modelling environments Modeler opts for a basic orthographic or tri-view with an optional fourth preview window, but as you can see from the example any one of the views can be expanded to full-screen when necessary.*

*In the top right of the screen you'll notice the invaluable layers which make complex modelling much easier. My only real complaint concerning Lightwave, and more accurately layout, is the inability to show objects as solids as opposed to the transparent wireframes.*

the least a little tricky – as the pre-production manual on hand displayed a notable lack of tutorial passages.

This temporary lack of tutorial shouldn't in any way reflect on the manual – which easily ranks alongside the best in the business. The style is friendly and informative with pointers to related info where necessary. To be honest the quality of the manual is basically a reflection of the software itself. As mentioned last month, Lightwave is easily the most intuitive modelling and anim system on the market. As a consequence plunging through the manual is kept to a minimum – with the occasional excursion required for help with the more complex modelling and animation procedures.

The big question has to be: is it worth the money? As ever this is a horses for course decision. For the enthusiast, realistically the answer has to be no. Although Lightwave is a spectacular product it's simply too expensive for non-professionals – especially if they've already invested hard cash and more

importantly huge amounts of time mastering another package.

In addition, Lightwave is only really at its best as an animation tool, so unless that's your primary interest other programs offer much better value for money. While on the subject of the opposition it's worth mentioning the recent slash in the price of Calligra to just £99. Like Lightwave the program boasts a similar hierarchical spline-based animation system and is ideal for flying logo corporate applications.

Another alternative is of course Imagine! – which you'll find elsewhere in this very issue. If you're already a proud owner of Imagine2 the present upgrade offer is simply impossible to ignore. In fact if the new version lives up to the rumours it could completely dominate the market – I'll reserve comment until I've seen it.

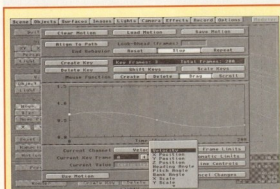
But even with excellent offers from the opposition Lightwave is still incredibly tempting. The design of the interface is faultless and the available features put almost every other package in the shade.

The only program that can offer superior features such as gravitational effects and collision detection is Real3D v2 – but as you're probably aware this is a very tricky package to master. In short if you're a pro or semi-pro animator who can envisage making back your investment, Lightwave and LightRave are simply too good to ignore.

AC

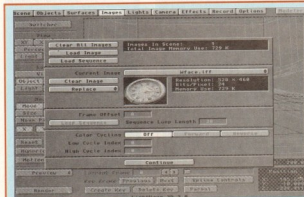


*Anim previews can be created at any time and from anywhere, and played back via the usual array of VCR controls. As you can see various frame rates are on hand and you also have a choice between boxes or full wireframes.*



*Although frighteningly techy at first glance, motion control ranks alongside lens flare, depth of field, motion blur and Displacement maps as one of the high points of the system.*

*As you can see from the grab every aspect of motion can be controlled via silky smooth sliders. Better still, everything within the scene has a motion curve – and that includes the focal length of the camera, enabling weird trouble-free effects and other focal tricks which can lend a real movie feel to animations.*



*Here agains Lightwave enhances its friendly approach with on-screen miniatures, simple colour cycling control and sequential image set-up. As surfaces are considered separate entities when mapping images themselves are also held in a list which in turn can be selected for mapping when designing surfaces. Although mapping individual surfaces individually is a perfectly acceptable approach, I must admit an option to map an entire object – including all its surfaces – would save some design time on occasion.*

## SYSTEM ESSENTIALS

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## The bottom line

Product: Lightwave & LightRave

Supplier: Ramiga International

Tel: 0782 398840

Price: £BA

Ease of use: 10

Implementation: 9

Value for money: 5

Overall: 8



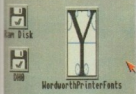








Amiga Workbench 1,545,600 graphics



Double click on the PrinterFonts icon to open the window

**T**hings are beginning to click now – the haze of confusion that had gathered so swiftly on first booting up the Amiga has now begun to dissipate ever so slightly.

Admittedly, you find yourself talking about window manipulation at dinner parties and receive strange looks and questioning glances before you can stop yourself from being, well, boring.

The manual is still like a wall though – jargon flies from page to page, leaving you miles behind wondering what the hell the hard drive is and why you don't have to put any disks into it.

Your newly subscribed Amiga Computing lies unopened on the coffee table, a bundle of notes to the side of it. Next to them, a large box sits with the words Wordworth emblazoned upon it.

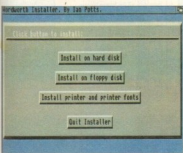
You need to lead the word processor to type up that huge pile of written essays so picking up and flicking open that magazine, you read on...

Window manipulation should cause you no problem now – if so, just dip into the manual at the relevant pages and the other remaining functions will become much clearer.

At the moment, we've been through the very basics of Workbench use but



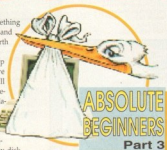
Double click on Wordworth Install icon



Choose Install on hard drive from the menu

Adam Phillips puts the hard drive under the microscope for this month's dissection of your favourite personal computer

# It's a hard life



what about actually creating something useful that has a practical purpose and end result? Open up the Wordworth package and take a look inside.

If you didn't buy the Desktop Dynamite package and therefore don't have Wordworth then you'll still find that many programs – especially utilities – use a similar installation routine to the one described below.

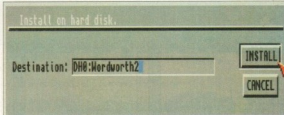
The hard drive, as mentioned last month, is far more reliable and much faster than a floppy disk. Depending on the size you buy, a reasonable amount of software can be stored onto it.

Installing simply means taking information off the floppy disks and putting a copy of it into the hard drive. It can always be advisable to do this whenever you can so that the original disks don't have as much chance of becoming damaged through mishandling or dust finding its way into the disk and so on.

## POWER PERILS

Click on the computer from the switch on the power pack. This must be done each time because if the lead is simply slapped into the back of the machine, there is a small chance of a power surge which could basically render the Amiga useless unless given extensive repairs.

The same rule applies to turning off the machine – if the power is yanked out of the back and the hard drive ticking over, there's a good chance that the information could become corrupted, lost and irretrievable. This may all sound a little ominous but it is always best to be safe so that you don't find after spending four hours typing in a journal, it becomes useless because of a split second of carelessness. Take out the



Check the destination box to make sure that Wordworth is going to DHD

Wordworth disks and find the one that's labelled Wordworth Printer Fonts. Insert it into the disk drive after Wordbench has booted in. A large icon will appear in the top right-hand corner.

Mouse click on this with the left-hand mouse button and a window will open. Inside, there are a series of other icons. Don't worry about the other, simply move the pointer over to the one labelled Wordworth Install and double click.

You will be presented with four options. The first is to install onto hard disk. The second to install on floppy disk for extra back up protection, the third to select which printer you want to print out and finally, to quit out of the program to the previous window.

Click on hard drive install and the computer will tell you where it is going to place Wordworth. Its preset destination should be DHD – if not, simply click at the beginning of the name in the destination bar, delete the old entry and type in DHD.

Once done, click on install and the program will ask you for the main Wordworth disk. Take out the PrinterFonts disk

and slip the requested one in. You'll find that the computer will ask for each disk in the pack, so simply follow the on-screen instructions. Installation does take time so be patient.

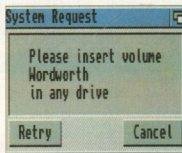
If you're worried that it may not be working, simply look to see if the hard and floppy drive lights are flashing on and off in the top right-hand corner of the keyboard – this means they are activated.

## READY TO GO

Once the installation is complete, a message will appear telling you it's finished. Click on OK and the original list will appear again. Press on the Quit Installer option, take out the Thesaurus disk left in the floppy drive and reset the Amiga.

This is achieved by briefly pressing the two Amiga buttons on either side of the spacebar and the Control key, all at the same time.

Once reset, click on the DHD icon on the Workbench and a window will open. Press on the W2 drawer and the next Wordworth drawer and – finally – you will be presented with a large picture icon with a W in it. Double click on this and the program will be booted up.





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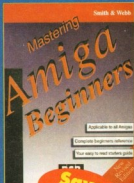


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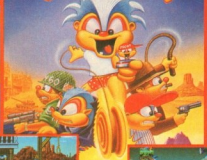
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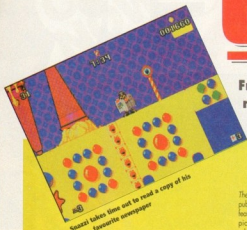
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# Gamer GLOBE

From Dennis the Menace to the seedy world of the newspaper photographer, it's all happening in the Amiga games world



## Video Game ate my Hamster

The Sun, undoubtedly a top quality newspaper, is about to publish its own computer game on the Amiga. Snapperazzi features a hero known as, ahem, Snaazi, and he must collect pictures and earn cash by snapping minor and major celebrities.

The major celebs are different for each level, starting with bikini-clad Page 3 girls on level one. The girls blow kisses to protect themselves and Snaazi must dodge these to stay in good health.

Apart from Planet of the Page 3 girls, there are another six levels to conquer which include worlds like Planet Royale and Planet Rock.

Snapperazzi has been sponsored by Domino's Pizza and Lard, who are the makers of Fizzy Chewies. Both products feature in the game. There will be plenty of bonus and sub-games and the whole platform ramp will be accompanied by specially written rave soundtracks.

Just as The Sun cut its paper price from 25p to 20p, Snapperazzi will undercut other full price games by a fiver. Although published by The Sun, Snapperazzi will be distributed by Alternative Software. It will be available in the shops for just £19.95 and should be ready in time for Christmas.



One of the bikini-clad beauties who star in Snapperazzi

## Menacing the masses

Did you know that over 318,000 copies of the Beano and Dandy are bought every week? Both comics have been around for over 35 years. Did you also know that Dennis the Menace has his own show on the Children's Channel and that a Beano video has just been released by Polygram?

Ninety-four per cent of 11 to 14-year-old Beano readers regularly buy computer games, so you'd think that someone would be smart enough to release a game featuring the antics of Dennis and his chums.

Well, as it happens Dennis the Menace and his trusty dog Gnasher are about to start in their very first home computer game courtesy of Alternative Software, the company responsible for Doki Attack and Thomas the Tank Engine. The antics of Dennis and Gnasher are being brought to the computer screen in a series of 3D isometric adventures where the game-play takes place in Beano-world, just as in the comic.

Fans of Dennis and Gnasher, and there are over one million members in his fan club, will relish the thought of being able to become involved in menacing the inhabitants of Beano-world with stick bombs, water pistols and poo shooters.

Dennis and Gnasher has over 3Mb of bright and colourful graphics along with 1Mb of music and sound effects. The packaging has been designed and created by the same artists who produce the weekly comic.

Alternative has scheduled Dennis and Gnasher for a Christmas release and will cost you £24.99.

## Core's Corkers

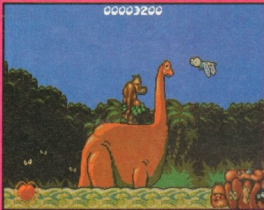
After three years of full price publishing, Core Design are launching their own budget label, Corkers. Corkers will commence with a collection of four cult game releases - Chuck Rock, Corporation, War Zone and Torvak the Warrior.

For those who can't remember, Chuck Rock is a prehistoric platform featuring a porcelline cavewoman who's intent on rescuing his beautiful wife. Corporation is a futuristic 3D adventure

which takes you on a journey into the world of Cybernetics. War Zone is eight levels of scrolling shoot-'em-up action while Torvak the Warrior is a gargantuan hack 'n' slash adventure.

These titles should be in the shops now and retail at a price of £9.99. Subsequent titles from the Corkers budget label will be released at a rate of between two and three titles per quarter. There is no fixed pricing for the label and retail prices will vary dependent upon the title, game genre and format.

War Zone and Chuck Rock are reviewed in this month's Cheap Seats.



Chuck Rock



War Zone



Torvak the Warrior



## Hit for six... again!

Graham Good's Second Innings is an expansion disk for use with the critically acclaimed Graham Good's World Class Cricket. A number of changes have been made to improve what is possibly the world's best cricket game. Tougher opposition is now provided by the computer batsmen. You can view the scoreboard for any innings and during computer matches, plus ten games can be saved to one disk.



2nd Innings

bowling averages up to the end of the season. A new England squad is also included which comprises all of the players selected for the West Indies tour.

Many of these new features were suggested by users. Audiogenic couldn't include every idea, but they pleased with users to keep writing in because they hope that one day they will create a version for the A1200 and CD32.

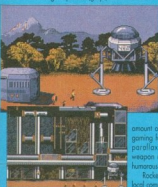
Graham Good's Second Innings is in the shops now and will cost you £17.99. However

You can now load in specially created saved games, either provided on the 2nd Innings disk, magazine coverdolls or on future expansion disks. This enables you to recreate historic matches from the past.

As well as the five historic matches included on the disk, there are also complete 1992 season for all 18 English counties, with batting and bowling averages up to the end of the season. A new England squad is also included which comprises all of the players selected for the West Indies tour.

## Rocket and roll

Over the past few years every concept in video gaming such as flight sims, god games, platformers, shoot-'em-ups, beat-'em-ups, drive-'em-ups, strategy and sport sims have all been mastered and cloned several times over, except for the gaming concept of Hot Shot Entertainment's Rocket Rescue. It is an original product (gasp!) and involves skill and judgement where the player has to take control of a rocket ship, negotiate forcefields and weather conditions and destroy all enemy predators.



Rocket Rescue

In order to fulfil the tasks of each level, the rocket ship has to land on each planet's surface and save the otherwise doomed hostages.

Rocket Rescue simply exploits all of the hardware capabilities of the present day Amiga and features detailed graphics and an incredible amount of depth to the all-important computer gaming factor. The game includes 100 levels, parallax scrolling, use of power-ups and weapon add-ons, game save feature plus a humorous digitised speech and sound effects.

Rocket Rescue should be available in your local computer store now. The price is still yet to be confirmed.

# INNARDS

It's a Happy New Year, and if you'll excuse me I've still got a really bad headache. I'll get the Asprins while you look at...

## REVIEWS • REVIEWS • REVIEWS

**Elite 2** ..... 128  
Yes David Braben's sequel to one of the greatest games ever is finally here, but was it worth the wait?

**Magic Boy** ..... 132  
While the magician's away, the boys will play. Grab your sock and swipe up some beetles in Empire's latest platform romp

**Kingmaker** ..... 134  
Will US Gold's strategy board game really scrape the sky? Or is it just another yellow-bellied hole digger?

**F-117A Stealth Fighter 2** ..... 136  
Hey there's a surprise. Microprose have got a new flight simulator out! Simon dons flying helmet and zooms up into the sky to check it out

**Alien Breed 2** ..... 138  
The sequel that every shoot-'em-up freak is lusty for. It's tougher, darker, badder and better, but is it any good?

**Cyberpunks** ..... 140  
Take a peek at Core Design's Manga-inspired shoot-'em-up featuring a trio of wide-eyed punks from the 501st Cyber Assault Squad. Carl

**Jet Strike** ..... 140  
They go up tidily up in Rasputin Software's brilliant little arcade action plane game. Chocks away, chap!

**Body Blows Galactic** ..... 142  
Team 17 return with another bout of frenzied fighting and this time the whole universe has joined in the fun. Gup!

**Feature: Into the next Millennium** ..... 144  
A quick trip down to Cambridge to interview the men that make Millennium tick plus a look at some of their forthcoming titles that will shake up the games world in '94

## REGULARS • REGULARS • REGULARS

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New staff member Tina rounds up the latest and downright dirt cheap games that your money can buy

**Cheat Mode: The Patrician** ..... 151  
A set of hints and tips on how to get by in Daze's trading simulation courtesy of Simon's nimble fingers

**Cheat Mode: Ishar 2** ..... 152  
The concluding part to our complete guide to Silman's classic adventure. You lucky, lucky cheaters!

# GET IT BEFORE IT GETS YOU!!

ALIEN BREED 2 - NOW AVAILABLE

TECHNICAL

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Remember this one kids - red sky in the morning, shepherd's warning

There is probably no-one who has owned a home computer who hasn't at some time or other come into contact with David Braben's trading-cum-action space campaign, *Elite*.

First released on the BBC Micro, its wire-frame 3D sent all and sundry floating at the mouth. As a goggle-eyed 15-year-old I spent months upon months locked away in a dimly lit room, with only my Human League albums for company.

As keen as the next schoolboy to reach the dizzy heights of *Elite*, this reviewer soon got lost in space. Sacking the default character Commander Jameson, I assumed my action heresy pseudonym, Wolf Flapside.

Yes indeed, Wolf Flapside: Righter of wrongs, purveyor of purity, guru of goodness, federation freedom fighter and legion of liberation.

Well, it wasn't quite like that; there was the odd run-in with the law for smuggling the odd ton or 20 of Archurus Megaweed, and a couple of errors in judgement due to mistakes in identifying nice, ripe, juicy traders carrying priceless cargo for nasty roughneck good for nothing pirates.

As the incomparable Wolf, I had many exciting and dangerous adventures (well, kind of for a teenager playing on a home computer). In fact there's one particular incident that I remember with some clarity.

We'd been travelling for over 20 days, the hyperspace jump from Quaxxon to Zaanee was some jaunt, and talk about dull. All around the half-shadowed interior of my boat-up Cobra, beer cans lay redundant reflecting the lights of the ship's auto-pilot.

In a half drunken stupor I glanced across at the long range scanners, nothing but asteroids for entertainment, and to be quite frank the novelty of zapping lumps of rock had long since dried up.

Another turn of the head and I'm gazing at the Grank, my ever-faithful companion. He, lies snoring his little furry snout off, occasionally clucking an ink up his hairy torso with a dizzy caw.

I begin to snore myself, and am just beginning to fantasise about a night on Rigel 5 with the four-breasted love sirens when I hear the shrill sound of the scanner alarm. With a start I

# ELITE FRONTIER

**After an eternity lost in space it's finally here, the game that's set to launch a thousand shuttles and keep gamers up at night without any cryogenically-induced suspended animation**

jump to my feet spilling beer, peanuts and ash everywhere. Cursing my luck, the Grank sends a proboscis from his snout looping out towards the scanner, seconds later my stomach drops as an onerous image materialises on the main screen.

"By the piles of the Phloides, it's a Thargoid invasion ship!" I gasped.

The Grank groined on his planet, granking wind in a different colour expresses an emotion purple wind everywhere, as if in some way summing up the horror of the impending situation.

As the rank air cleared around me, an even bigger stinker was dropped; a Thargoid missile was raking its way through the blackness of wynchspace towards the ship.

In an instant the projectile had found its lock on my fragile hull, in response I hammered on my ECM (Electronic Counter Measure) and initiated my rear thrusters.

The missile exploded and rocked my craft, just

as the rear thrusters initiated themselves. As we shot back the ship centered and put four bolts of military laser into the Thargoid's belly.

The sky void illuminated suddenly as the warship's shields failed and 100twe of laser burned into its weak underbelly, exploding it into a million fragments of space debris.

The action over, I cracked open another "finny" on Grank's beak and lay back in my seat, content in the knowledge that Wolf Flapside would rule the space lanes for another evening.

The true actuality of the events however, was somewhat different. The reality of the situation was a stuffed teddy anteater please don't ask why anyone should envisage this particular species of mammal should make a nice cuddly toy and myself in my bedroom with the curtains shut gazing at a BBC computer, surrounded by empty bins of pop - but such is the imagination of a 13-year-old. It won't long after that, having



Well-huh, look at the pretty colours as you drop out of a light speed jump

reached a rating of *Elite*, that my anti-grav boots were hung up. But, as they say in movies, that was then and this is now.

After what seems like a lifetime of self-inflicted solitary confinement, Mr Braben is back with the long-awaited *Elite 2: Frontier*.

While in this self-imposed imprisonment, many rumours floated around as to what would eventually be in *Elite 2*. For instance there was talk of planet landings and exploding stars. While some of the reports were somewhat exaggerated, on the most part speculation has materialised into truth.

The most striking thing about *Elite* that you notice almost immediately is that it has no plot. At least no plot in the traditional sense that games generally follow.

## DECEASED

The only background relevant to you is that you've been left a paltry sum of cash and a middle-of-the-launch-pad type space ship by your recently deceased grandfather (didn't mean to sound ungrateful - honest pops), in a huge galaxy where you can basically do anything.

When you first boot up *Elite 2*'s it's quite daunting because you just don't know where to start. To tell you it's a vast game area really is an understatement.

In the original *Elite* there were eight galaxies, in *Elite 2* there's just the one. However, it's as accurate to the genuine article as amateur astronomer Mr Braben could render it, and contains 200,000,000,000 (11 zeros) stars with some 30,000 inhabited planets.

So you can immediately gather that to get anywhere of any status in the game is going to take a little bit more effort than the usual drink-few ladders and blast a few boddies malarky.

After you've come to realise your own petty insignificance within this massive arena, the next task is to decide what on earth you're going to make of yourself.

In the original you reached the top notch through a combination of fighting, clever trading and maybe a touch of under-the-counter smuggling.

Well in the sequel those elements have been retained, and you could easily play it in the same manner, but would be missing a great deal of the



These new England petrol stations really are the limit, now where is our fuel?



If you can't tell a star system from a lamp-post, let the auto-pilot take the strain



Here at the hardware store you can buy a full range of stuff to kill people



Trading in the galaxy's come a long way since the original *Elite*



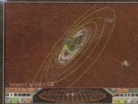


This is the local chart, you can zoom in on any object and target your auto-pilot

underlying intelligence that exists within it.

To all intents and purposes Elite 2 has recreated a new life in a universe of the future. The political infrastructure that exists in this time is one of cold war espionage and assassination between the Federation and the Empire.

One of the many decisions you can make is to perform tasks and work for one of these two huge governments, in a way pledging allegiance.



Ah, one of the true stellar delights of the solar system, Sabre's split ring

Undertaking work as an agent gives financial reward and also rank; the more successful missions you carry out, the higher rank you achieve (yes, it's not just the Elite rating that's important in this title).

In the original there were only a spartan number of missions littered throughout a vast universe.



Amazing map views of the galaxy, including a zoom shot of the spiral arm naked

Elite 2 has literally thousands and includes over 70 different types of mission.

On landing at a space port or one of the many orbital space wheels, stations and cities, you can access a bulletin board. It's here that much of your destiny

will be decided. To begin with the missions you are offered are quite simple, and can very easily be incorporated into trading. For instance, you may well be required to deliver a message or parcel from one base to another.

If you are successful then your reputation is enhanced and more complicated tasks will be pushed your direction. Conversely, if you manage to make a gorgeous nebula of a mess of your job, then you lose the confidence of your employers.

The military of both governments are always on the lookout for recruits, so it's quite easy to enlist here. Again starting out on simple spying trips, if



**GAMER GOLD**



The first of the star system charts. This one guides your hyperspace jump and tells you distances.



Oil Barrel, yam comin' down the push for a point? Imagine it a planet full of Brummies - what a heaven



Cricky, it's New San Fran. I wonder if the flowers still grow here, regardless of the pollution and radiation...





Uh, up, there's trouble at mill, then there pirates are taking pot shots at my space station

you're successful you'll soon be on a contract killing missions or sent to destroy an enemy space station.

Obviously, the stock market aspect of Elite is still in existence. However, fundamental changes have taken place since the heady days of the 80s. For one the prices at each location are no longer static.

What this means is that because prices behave like a real stock market, you could actually sit at one port buying and selling commodities for profit, without actually blasting off anywhere.

#### DRAMATIC

The other probably immediate difference to the trading aspect of the game is that the range of products has increased dramatically.

The same is true of equipment that can be bought from the stations around the galaxies. For instance, if you wanted to become a space taxi then you'd have to purchase passenger cabins.

You can also upgrade just about everything to the nth degree. From engines to lasers and missiles the list is almost endless. It's even possible to purchase something called a Hyperspace Cloud Analyser which checks where a ship has gone once it's in hyperspace.

But, I've left the best till last, because in Frontier you can actually upgrade your ship. No longer do you have to stick with the Cobra, and

there are over 30 to choose from.

The choice really is yours - you can stick to nimble acrobatic combat single sectors or get yourself something a little more substantial like the 2,500 tonne Panther (Volvo of the future) for extensive trading.

So you can see there's an absolute crater full of things you can do in Frontier, but the question that's positively burning to escape is: What does it play like?

When you first start controlling Frontier it'll feel very alien and different to the Elite you knew so well of yesteryear. For one, the simulation of space travel has been made much more realistic, with zero gravity and directional energy having a lot more relevance than in the original.

This at first is off-putting and somewhat confusing, but don't be disillusioned by it. It doesn't take long before you get into the swing of things or the icon control system employed for observing charts and equipment. In fact, it soon becomes a very logical system which feels second nature.

It's incredibly difficult to describe what playing Frontier is actually like once you've become adept with the controls. I could give you some long-winded narrative (me!) full of superlatives and theatricals, but I think it's far better for you to find them out for yourself. Let's just say that you get intensely involved in matters.

Visually, Frontier contains some of the highest detailed polygons your likely to see on an



Unlike the original, the razors now have their own Portakabin

Amiga. From the huge space wheels to the domed cities on the planet surface, it's all there in beautiful light-sourced technicolor detail.

One of the most visually impressive aspects to Frontier is that you can be out in the depths of vacuum space pointing your ship at a prick of light some six light years away. Then fly at it and watch it grow - you might eventually end up at the window of some complex on the surface of the planet.

#### ASTRONOMICAL

Everything being astronomically correct, you can watch nightfall from one of the moons of Saturn or orbit Jupiter and follow the red spot. For a game to handle so much, there has to be some pitfall. It has to be said that on an A500 machine the update is a rather slow affair and behaves like a bit of a lame mule. However, detail levels can be turned down, and this does speed the general pace of the game up.

Frontier is an incredibly difficult title to bracket. There are many different styles of game in it, and many different ways in which you can approach it.

It's also quite tricky to come up with a superlative that encapsulates (serious word time folks) the total feeling that Elite 2 generates. It has everything really - great graphics, vast play area and an ongoing depth that immerses you further the more you play.

In a word, Frontier is unmissable. It's a star of

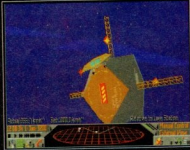
a product that burns brighter and with a greater magnitude than any other product has for many a year, and you'll love it.

SIMON CLAYS

<b>VISION</b>	
GGGGGGGGGG	
<b>AUDIO</b>	
GGGGGGGGGG	
<b>DIFFICULTY</b>	
GGGGGGGGGG	
<b>LASTABILITY</b>	
GGGGGGGGGG	
Understandably another all-time classic in the making from Mr. Braben. Great graphics and absorbing play make Frontier the ultimate space experience - ever.	
<b>94%</b>	
Publisher > Gametek	
Developer > David Braben	
Disks > 2	
Price > \$34.99	
HD Install > Yes	
Size > 1 meg	



Sir, I have it on main screen now... It's a giant planet moving at a tremendous rate of knots.



A very stylish Cobra Cabriolet attempts an extremely complex docking manoeuvre without an auto-pilot



Blissfully enough, the status screen tells you your status





**WHEN THE STREET JUST AINT  
TOUGH ENOUGH...  
GO PLAY IN THE PARK**

**IF IT'S NOT JURASSIC PARK IT'S EXTINCT**

**JURASSIC PARK  
GAMEPLAY HELPLINE**

For more information on the Jurassic Park games, visit our website at [www.ocean.co.uk/jurassic](http://www.ocean.co.uk/jurassic) or call our helpline on 061 832 6633. We'll be happy to help you with any questions you have about the games. We'll also be happy to help you with any questions you have about the games. We'll be happy to help you with any questions you have about the games.



**PC COMPATIBLES  
CDM AMIGA**

**GAME BOY  
SUPER NINTENDO**

**Nintendo  
ENTERTAINMENT  
SYSTEM**





Magic Boy gets hits everywhere in Sand Land

**M**agic Boy puts you in the unlikely control of an apprentice wizard with the equally unlikely name of Hewlett. Now, little Hewlett is a student of sorcery school and this is the first thing that needs addressing.

It makes sense to me that if you are going to attend magic school you need an entrance qualification. Now, I don't know about you but when it came to decision time of my comprehensive concerning your options, 'O' level magic was not on the list.

English language, maths and even religious education yes, but no insight into the world of arcane knowledge – well not at my working class, state run school of learning.

However, it would be interesting if such a topic was an exam subject, because I for one would take it.

Imagine the exam, you walk on to a fortress of trumpets wearing a patched up cape, top hat and obligatory white gloves (all courtesy of Mr. Hootley). Along side you your gold bikini clad assistant, the beautiful sixth form babe Jane Hedley-Hedley-Smyth-Smyth (she lives on the nice estate).

As the rest of the school look on with mouths gaping wide open, you embark on your first exam: instant trick – saving the beautiful Jane into segments.

However, because of the government outbursts in education spending, all it is not what it should be on the props front. For one, the box into which the sultry Jane must slip her slender self into is courtesy of the second year craft department.

These particular pieces of timber lived their former lives as part of a front gate and the remnants of a ledge involved in a freak downhill accident. But anyway, thanks to the talents of Form 2B, the box is ready on exam day, albeit suffering from chronic dampness and splinters.

A drum roll commences and Jane slides into place, simultaneously your makeshift box makes its appearance to crisis from the crowd.

To be honest these aren't shrieks of horror at the size of the saw in your hand, but cries of astonishment that you're going to attempt this act with a craft knife from the art department.

As you make your first incision into the jagged slots filled into the box, your unwitting assistant jabs her shapely posterior on one of the many splinters.

The next few moments seem to last a lifetime, as Jane jumps in pain the craft knife slips and bounces her thigh. This in turn dislodges the box which topples sideways to reveal a hollow plinth, where

**Izzie Wizzie let's  
get busy, err...  
Open Sesame with  
Magic Boy's staff  
of power, that or  
just stick the disk  
in your drive**

# Magic

the slightly wounded Jane stands sobbing into a pair of dummy legs.

Those fateful few moments have sealed your fate, and put the dampers on your dream of a career in magic. Think, no hope of going prematurely bald, "not a lot" of opportunities for having the worst catch phrases in show business and best of all absolutely no chance of marrying your mutant dressed as lamb assistant. Anyway, once more

their seems to have been a quite major digression from our starting point. To recap: Hewlett is top dog at sorcery school – it's a bit like Fame with wands and cauldrons. He's passed all his exams and pipped the mousetoothed David Copperfield to the number one spot despite his

impressive vanishing of a jumbo jet up his magic circle.

Despite being Merlin's little pet things aren't total bed of roses. You see, one evening Hewlett stays behind to jinx up on some book or other. As he runmages through the cupboard where ever



One small step for mankind, but a big one for Hewlett



Magic Boy works out on the treadmill





Something fishy's going on in this place. Cud knows I've hadd-ock enough



Der-dum... der-dum... der-dum... dum, dum, dum... arr, I guess I think

Silly sorcerer keeps their left over spells, he trips over a trapdoor that leads to the basement.

It's down here that the Grand Wizard keeps a wide variety of crazy magic animals. But not for long, because as soon as they stop sight on the vaguest hint of daylight they bolt for it.

Now I don't know about you, but it seems that the big cheese isn't looking after his pets very well. Keeping them locked up in a subterranean cell it's no wonder they bolted, anyway remember kids - a magic animal is for life not just for Christmas dinner. Hewlett however, is not concerned with living

the born free ethic and is more concerned about not getting into trouble with teacher.

To achieve this Hewlett must recapture all of the marauding menagerie and return them to their environment as natural in the cellar.

As Hewlett's search will take you through four main worlds. They consist of Sand Land, Wet World, Plastic Place and Future Zone, and strangely enough they all really do speak for themselves when it comes to what kind of environment they are.

Now, each world is made up of 16 levels. This might shatter the illusion of the plot somewhat, but then again we're talking about a platform puzzle and not real life. As you journey around the

worlds you are asked to complete an initial eight levels. Once you've done so when you visit for the second time you explore a second set of eight.

To access any of the levels you simply highlight them on the compass screen which clever dogs Hewlett carries around with him.

Basically control of the play is fairly simple and straightforward. All the normal joystick movements push Hewlett in the relevant direction and pressing the Fire button shoots his love wand - they don't call him Magic Boy for nothing you know.

Hewlett's wand has a range of power ups which lengthen, strengthen or spray his shot wider and all help slay the animals.

Once they are slurred simply moving the wand into the stunned creatures results in them being bogged up in Hewlett's magical sock and hence recaptured.

As usual in this form of zap-puzzle-platform scenario there are a number of things which are helpful and some which are a pain in the magic circle.

For one, there are tokens to collect which when completed grant you extra lives. On the downside there are dissolving platforms, sticky blocks, toxic pools and trap squares to be aware of.

Graphically, Magic Boy is very sweet and sugary. With his blonde hair sickly smile and red cape Magic Boy is a dead certainty for a cutesy award.

This doesn't say a lot for his big magic wand pretensions, but his sugary tunic (which could easily pass as a skirt) does keep it firmly lodged in the right place.

On a more serious note, both the scrolling and animation are really rather nice on Magic Boy and despite my allegations directed towards his monstrosity the whole feel of the product right.

Playwise, I've never been a great fan of platformers of any kind, but I do acknowledge that they have a massive following among gamers.

I also have to confess that I actually enjoyed playing Magic Boy. The control seemed to respond really well and the puzzle aspect of the game made play a lot of fun.

With 64 levels and 32 bonus levels to explore there's a great deal to do in Magic Boy. It's a very

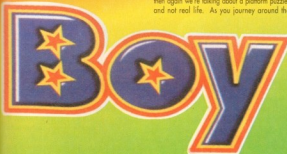


Oh, it's clammy in here

friendly and easy to play title with a lot to offer platform lovers.

It sounds good, plays well and it's so annoyingly cute you almost want to netch. Plus, the first few thousand copies feature a free copy of the Cool Croc Twins. What more do you want from a game?

SIMON CLAYS



Ooh, the crab - scratch-scratch. Magic Boy picks up a double dose on the rocks

<b>VISION</b>	
GGGG	
<b>AUDIO</b>	
GGGGGG	
<b>DIFFICULTY</b>	
GGGGGGGG	
<b>LASTABILITY</b>	
GGGGGG	
Nothing in particular to write home about - just a good, honest platformer with decent sound and graphics, and the odd twist to elongate its appeal.	<b>79%</b>
Publisher ▶ Electronic Arts	
Developer ▶ Dynamic	
Disks ▶ 1	
Price ▶ \$25.99	
HD Install ▶ No	
Size ▶ 5 meg	



**T**here are hundreds of gamers out there who love strategy games. Unfortunately most of them have been stereotyped by a lot of people. Yes, if I asked you to describe a strategy games fan off the top of your head you'd probably say that they wear anoraks, NHS specs, beladavias, ill-fitting trousers, have spots and harbour a fondness for trains.

This is not the case, although there are probably a few "anorak" out there who give strategy fans a bad name. There's definitely a stigma attached to the name "strategy", but hopefully US Gold's Kingmaker can do something to try and get rid of or at least ease it.

In recent times, the computer strategy market has seen the movement away from "hex and square", super detailed games (SSI-style war games) to graphically competent products with very user friendly control systems. Products such as Powermonger and Civilization have been amazing successes and show just what you can achieve with a strategy game.

Kingmaker is a strategy board game that has been on sale since 1974. Excuse me for being ignorant, but the only Kingmaker I'd heard of was the tabletop board, but older members of staff do vaguely remember it.

The board game is an abstract recreation of the chaos, war and intrigue that epitomised the period of British history known as the War of the Roses.

In four turbulent plays, Shakespeare portrays the War of the Roses as a conflict of treachery, murder, leonine vengeance and bloody battles. For those who lived in Shakespeare's era - a century later -

the Wars were a time of violence, devastation and anarchy. Only when Henry Tudor killed Richard III at Bosworth did these evil times come to an end. For those bold enough, the War of the

# KINGMAKER

Roses provided opportunities for advancement and power to established noble families fell by the wayside and local rivals were slain.

Hands up who now thinks that a strategy game about the War of the Roses would be naff and not interesting or exciting in the slightest? It's almost like finding out the Shakespeare isn't boring and is, in fact, more like an oldie worldie Quentin Tarantino.

Kingmaker kicks off with a fancy intro presented by William Shakespeare who is accompanied by a series of digitised pictures detailing the occurrence of the War of the Roses.

## ROYAL PIECE

It's then right down to business and you are presented with the main screen which is split into three sections. Your objective is to control the last surviving royal piece and so become the undisputed King of England. You are in charge of a faction of nobles representing actual historical personalities from 15th Century England.

Kingmaker accurately reflects the changes in strengths of the factions as they are decimated by battles, plagues and failed ransom attempts, or have new honours bestowed on nobles with attached troops and castles. US Gold reckon that most people have interest in other strategy titles because their artificial intelligence programming is weak, meaning that the player can learn the "perfect" strategy. Kingmaker is different from its rivals because

**A strategy war game based upon the War of the Roses that features intrigue, factional politics and bloody warfare. US Gold's newbie certainly isn't cricket!**



Next on BBC2, William Shakespeare presents 'Gardeners' Olde World...

there is no such thing as a perfect strategy. As a general rule, board games don't translate to the home computers very well.

For starters you lack the human interaction which makes them so enjoyable. Secondly, there isn't a lot more a computer game can do that the board game can't and the board game will probably cost you a lot less to buy.

Kingmaker, fortunately, features a lot of features that wouldn't be possible to achieve with a board game, such as tactical combat and cinematic action sequences. Instead of a battle being lost on the turn of a card, you can now fight and decide the battle

for yourself. The computer's artificial intelligence has been carefully designed and tries to recreate human thought processes as best as it can, and so can react favourably to an ever-changing tactical and strategic situation.

A nice little touch is the in-game help feature. An important objective of the computer game was to make the game accessible to novice strategy game players and this was achieved via a help or "strategic" system which prompts players at key points in the game with suggestions on strategy and tactics. This can be altered to different levels depending on whether you're an expert or a beginner.

It also means you can practically check the weighty manual in the bin, but it does contain a wealth of historical information and sets the atmosphere and scene, as well as more detailed instructions on how to play the game.

Control of Kingmaker is via the mouse with a completely intuitive icon system that gives you easy access to all of the game functions. As mentioned before, the game is played on a digitised map of the UK using "counties" represented by the 100 per cent accurate heraldic shields of the historical nobles.

Several of the towns and cities have digitised pictures of the historical castles or cathedrals in existence in the 15th century. All this detail is very impressive and gives a good feel to the game.

Before you head on into action, a menu asks you to select the number of factions (1 to 5) you face in the game. The more factions the computer controls, the tougher the game becomes, although the computer-controlled factions will cooperate against each other just as frequently as



The start of Kingmaker and you begin to split your nobles into factions



By clicking on a noble's shield you can obtain some helpful information



The start of the "turn" phase and you have the perfect chance of conquering Norwich. Fun? I should coat





Waiting for the computer can be a long process, so why not go make a brew and decide what to do next? No stress! No problem!

they compete against you.

As mentioned previously, to win at the game you must control the last royal heir. To achieve this you must capture and control an heir, eliminate all his/her rivals and have your heir crowned king in a cathedral town or city by an archbishop or two bishops.

Planning the risk-free capture of an heir is one of the most important parts of the game's opening period. Your faction's opening dispositions and moves should be geared primarily towards the capture of at least one royal heir.

#### VARIABLES

Choosing the right one is a question of balancing a number of variables. How close are the forces of opposing factions? How well guarded is the heir? Is there a noble in play who can capture the heir easily by virtue of an office they hold?

In fact, Kingmaker is a game where questions like these arise on every turn and decisions must be made which will, in turn, decide your victory or defeat.

For your first few games, the right strategy might seem bewilderingly obscure. Until you get used to the game you are advised to set yourself a simple



Time for battle to commence. Note the handy help screen at the top. I, err, wasn't using it of course - I just thought I'd show it to you. Ahem

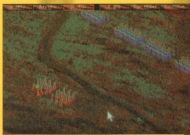
goal and go for it. You'll soon get used to the advantages and disadvantages of certain combinations.

Kingmaker is relatively simple to use and control, but you'll have to spend many a long hour at your monitor screen before you'll be able to master it.

On my first go I played on the easiest level and managed to beat the computer (hey there's skill for

you), but on the harder levels I was like a fish out of water.

This is perhaps the best way to go about playing because if you keep in at the deep end you tend to struggle your way through and in turn learn about how to play as you progress. There is always the Help option available and the computer opponent tends to be fairly slow, so it won't defeat you in a



Thanks to the power of graphics and animation, you can fight your own battles rather than have them decided for you on the turn of a card

couple of turns. I could go on about *Ultima's* strategy just for ages because there is a ton of strategy to tell you, but lack of space prevents this and I'd get fairly boring anyway. Conclusion time it is, then.

I must hold up my hands and admit that Kingmaker is a damn fine strategy game. I found myself engrossed and determined to see the game through to the end whether I won or lost.

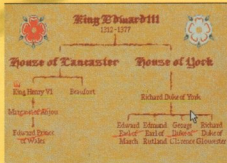
The graphics for the main part are fairly bland, but that's only because they were translated from a board game. The introduction of the digitised screen gives things up a bit and the battles are well animated, if not a bit slow.

There are also a few choice animations slipped in there for good measure; the execution scene being a good example. The sound is sparse, but as the board game distinctly lacked noise I shouldn't grumble too much.

The only real complaint I have is the fact that the computer does take rather a long time to decide what to do next. This does give you the ideal chance to plan your next moves, but after a while it gets on your nerves.

Kingmaker impressed me and coming from someone who is not overly fond of strategy that can only be a good thing for strategy fanatics, who are going to love it. Obviously it's not going to appeal to everyone, but if war/strategy is your thing then you'll be more than happy with Kingmaker.

JONATHAN MADDOCK



Find out what state each royal heir is in via the ever-so-helpful Family Tree. Great Aunt Mauds are not included

## Icon make you feel good

#### Faction Build Key



This returns you to the Faction box where you can make changes to your faction's line-up. You can also use the review function to observe where other factions have their armies, and where the royal heirs are.

#### Family Tree



This lists the royal heirs, by house, in order of precedence. Where a royal heir has been killed, that character's name is "crossed-out". If captured by a faction it is indicated by a bar in the colour of that faction. If crowned king, the character's name will have a crown beside his name.

#### Secret Support



During the Reinforcement phase of the game, factions may be joined by additional nobles. These can be brought into play by clicking on this icon.

#### Chronicle Key



By using the menu you can discover detailed information about various parts of the game. To read about an item all you have to do is click on it.

#### Review



This allows you to discover the whereabouts of royal heirs and enemy nobles.

#### Where is?...



Use this to track down nobles, royal heirs, bishops, towns or anything else currently in play.

#### Save Game options



You can store up to 8 saved games allowing you to stop and continue play when you feel like it. You can also restore a saved game from here.

#### Game options



From here you can restart the game, quit, toggle sound on/off and alter the auto-help setting.

#### Fresh Horses



Fresh Horses allow a Faction to make twice as far in one go. This icon records how many fresh horses your faction has.

VISION	
G G G G G G G G G G	
AUDIO	
G G G G G G G G G G	
DIFFICULTY	
G G G G G G G G G G	
LASTABILITY	
G G G G G G G G G G	
Kingmaker is a damn fine strategy game and will appeal to beginner just as much as the expert, thanks to the handy Help option.	85%
Publisher > Electronic Arts Developer > Dynamic Disks > 1 Price > \$25.99 HD Install > No Size > 8 meg	



## F-117A Stealth Fighter

**W**hen you think of flight simulations, the first company that springs to mind is MicroProse, purveyors of such quality products as *Knights of the Sky*, *F-15 Strike Eagle*, *F-19 Stealth* (F-117A's forerunner) and the legendary *Gunsip*.

More recently, Doflight and the highly popular *Gunsip 2000* have grazed the shelves, and indeed the top of the charts of your local software emporium.

When you glance at that list it makes fairly impressive reading. In fact, the only two products that have come out of the MicroProse stable and gone slightly lame on take-off were the over-ambitious *Flying Fortress* and the underrated *WWII Flight Strategy Ancient Art of War*.

It seems that for quite a while now MicroProse have churned out nothing but extravaganzas in the air, and they appear to have approached every conceivable flight simulation feasible.

What could they possibly simulate this time? They've done them all - modern warfare in the skies, old-style dogfighting, fighter simulations, bomber simulations - the lot.

What could be next? After several hours of racking my brain, thinking of every conceivable type of military and commercial jet known to mankind, I finally hit on what it was that

MicroProse were going to simulate this time around.

Yes indeed folks, MicroProse are proud to present their latest true-to-life flight of fantasy - *Codenamed Flying Rat: Pigeon Simulator*.

MicroProse are guaranteeing that *Pigeon* will be able to totally accurately replicate the real McCoy. It'll come equipped with a modern dip-seeking beak, one gummy leg, people-finding guided excretion missiles and completely nackered wings (I'm not sure they all have, but they do where I live).

Beginning as a young chick, you'll start at the flight egg-cademy where you'll learn flight theory. From there it's on to serious missions as a rookie.

Starting on single missions you'll begin as a young flying learner. You'll be set such tasks as basic back garden take-off and landing manoeuvres, moving on to land-on-the-garden-fence stunts with enemy ginger Toms crawling all over the area.

Pass these basic tests and you'll be sent into action in one of the many town centre zones. Fly dangerous bombing missions around national monuments such as Trafalgar Square, using your laser-guided excretion missiles to seek out freshly coiffured hair.

Avoid being squashed by the traffic as you



The male roster room or have I just got back to my Magaluf hotel foyer three sheets to the wind?



The mission briefing screen. It also makes a noise.

# F-117A



Your jet-out was successful. An 85% aircraft losses on your mission and this one is yours.

Press Southern Hemisphere

Play Taranas as you sailing from a helicopter

waddle around roadsides in an attempt at being the dumbest creature on two legs.

Fly life-threatening sorties into political hotspots around the world. Play your way into the Far East and avoid ending up as Bombay Duck.

Enjoy the carnal pleasures of reproduction and push your flight skills to the limit. Play carefully as you attempt the highly risky mid-air link-up with the hen of your choice.

Plus, in true MicroProse fashion, all the action can be viewed from a multitude of angles. Some of the most interesting are the external shots, especially the pigeon's bombight view.

Actually, imagine my surprise when this new product turned out to be not a pigeon simulator, but in fact F-117A Stealth Fighter. Envisage my

immediate disappointment at finding out that there would be no emu, duck or owl data disks, just another aeroplane sim.

However, the *Stealth Fighter* or *Nighthawk* boards like one of the Gladiators is no ordinary plane. During the Gulf War it proved it was entirely worth the massive investment by its manufacturer, Lockheed.

Although there were only a handful of them involved, within hours of the first day of war they had completely crippled the Iraqi air defence network.

Having flown invisibly through hundreds of miles of electronic enemy eyes the F-117As had paved the way for the rest of the coalition air force and given the allies almost total air supremacy.

With this type of success it now comes as no surprise that MicroProse opted for *Stealth* as opposed to the pigeon simulator.

As is usual with MicroProse products, *Stealth* comes with a manual chockingly crammed to the rafters with information about the plane, its equipment and armament.

After this spurious form of training it's time to embark, and march in hot-malled boots down to the main roster room.

The first thing to say is that F-117A is not one, but two simulators in one. The main MicroProse simulator has a bias towards action, combat and missions.

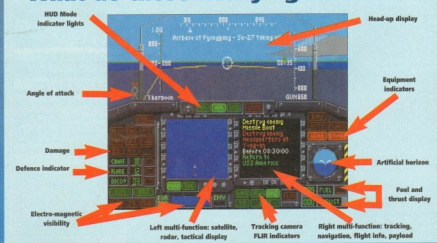
Conversely, the Lockheed version is much truer to reality, but features less dogfighting. However, on both versions you can toggle through and adjust everything from the ground detail to the skill of the enemy.

Once you have decided whether to take action or action, you can take a stroll into the commanding officer's office (having knocked first of course) and choose a theatre to operate within.

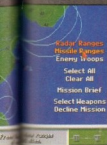
Now, the interesting thing about F-117A is that unlike most sims, it has different dimensions to its level of conflict. You can operate in a cold war state or go for full-blooded, all-out conventional warfare.

What this means is that there are for now

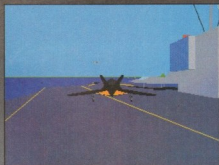
## What do those flashy lights mean?







Here's the bit when you screech away from the lights ahead of the Capri with your jacked-up suspension and stereo blaring



Always the same on these bloody ferries, park your bumper to bumper

## STEALTH FIGHTER

Second time around for MicroProse with the Stealth Fighter, the big question being: is it still healthy to be stealthy?

mission types at your disposal. For example, in a cold war scenario you will be sent on more surveillance missions where the emphasis is on detection.

You can also select more specific aspects to the mission, like whether it is an air-to-air dogfight or a target strike mission.

As you've already probably gathered, Stealth has a million and one options to choose from,

and every conceivable setting to place yourself in.

There isn't really space to go through all of the choices available, but rest assured you have every type of rocket, missile and munition to ponder over.

We've been assured that this time the interior of the Stealth is as accurate as can be achieved on a computer screen. This is because the programmers actually got the opportunity to climb

aboard the real McCoy and study it at close range.

Playwise, F-117A has all the features you've come to expect from MicroProse. Internally all of the advanced technologies you'd expect are included on Stealth. It has state of the art HUDs, radars and armament facilities for you to play with and practise on.

To fly successfully you're going to need all your flight sim skills. While the Nighthawk has all the up-to-the-minute technology, its realism and the amount of buttons you have to operate make it a tough little cookie to handle.

During the missions the action comes thick and fast, with you up against some of the top strike aircraft in the world like the dreaded MIG-29.

The graphical world of the Stealth Fighter is vast, detailed and very cleverly blended into the missions. For example, when your mission brief is to destroy the palatial residence of Saddam Hussein, you get a full view of Baghdad as you fly towards it.

On all machines the graphics are pretty slick and well defined. While Stealth obviously performs a lot quicker on the A1200, the standard Amiga handles it pretty well. This is no mean feat as the amount of ground detail is high.

There are some really nice touches within F-117A that warm you towards it, especially the attention to detail. For instance, when flying in one of the oil rich nations, don't be surprised to

see rigs scattered left, right and centre.

Also, on night missions you'll see an extremely picturesque moon and star-filled sky, which makes for that little bit more realism.

Over the years there's been a whole squadron of flight sims, some good, some bad and some indifferent. Stealth Fighter definitely comes under the heading of good, because it contains that little bit extra.

Graphically the engine is reminiscent of Gunship 2000, which can't ever be a bad thing. The difference is that Stealth is a more polished product.

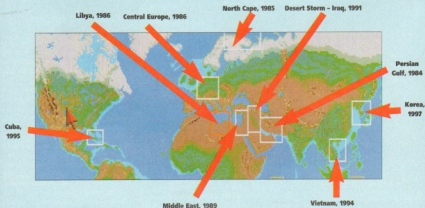
On a personal level, I prefer Gunship 2000, but that really is a slightly unfair comparison as it is the top sim on the Amiga. For Stealth to have even entered the same runway as GS 2000 is saying a lot.

Stealth Fighter really is a quality product, and will thrill jet fighter sim enthusiasts all over the globe. I suggest that all you budding fighter pilots don your chocks and stealthily step out to buy this excellent flight simulation.

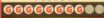
SIMON CLAYS



## Tread the boards in all these theatres of war



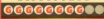
### VISION



### AUDIO



### DIFFICULTY



### LASTABILITY



Stealth Fighter is a quality game. The graphics and sound are first rate and the playability will keep you strapped up in your pilots seat for a good while.

91%

Publisher ▶ MicroProse  
Developer ▶ in-house  
Disks ▶ 3  
Price ▶ \$34.99  
HD Install ▶ Yes  
Size ▶ 1 meg



# ALIEN BREED II

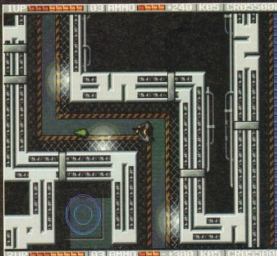
**Team 17 return with another feisty and atmospheric bout of frenetic alien blasting**

Everybody knows that Team 17 are one of the elite companies in the software business and I don't want to waffle on for ages about how good they are. They seem to know what the public want and provide it with amazing graphics, sound and playability slapped in there for good measure.

Alien Breed is still one of my favourite games ever, not least because it was a sneaky interactive rip-off of the film, *Aliens*, by James Cameron. One thing that was consistently present in the film was atmosphere, and luckily the film version did transmit successfully to the screen.

The original Team 17 blaster featured two marines called Johnson and Stone who ventured forth into a station called BT204 which contained an Alien Breed. Johnson and Stone wandered through six massive and hugely challenging levels fighting aliens with all guns blazing.

Alien Breed was probably the first product to really set the Team 17 success ball rolling and proved to be an immensely popular with the games buying public. While everyone was eagerly awaiting the sequel, Team 17 did the unexpected and released a superior and enhanced version of Alien Breed at a budget price. Most



You've entered the complex and it's time to make those alien beasties eat lead

companies wouldn't even dream of doing that, but Team 17 managed to hit the bull's eye and Alien Breed Special Edition has been at the top of the budget charts since November 1992, breaking the record for the longest stay at number one.

The Special Edition featured more action, more atmosphere, more gameplay, was a bigger game

to boot and at only £10.99 has to be one of the best value for money games you can buy.

A masterstroke had been pulled by the lads and ladies from Wakefield, but the general public was gasping for the "proper" sequel and now after almost 22 months of desperate waiting it is here.

It's been nine long years since the first outbreak of aliens when Johnson and Stone crashed the invasion on a remote space research station.



The character selection screen. Choose the Males or the Jurassic Park rejects!



The Intex 4000 shopping channel. Flamethrowers at reduced prices. Buy one today!

The horror has temporarily ceased. Times have changed in many ways: the IPC has now grown and strengthened, mainly due to the alliance of the six major races in the Federation colonies.

Problems, it seems, are long gone and the Federation can look forward to indefinite peace. But Johnson and Stone who witnessed the horrors of the aliens can still not rest easy.

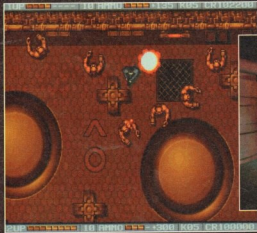
## FEDERATION COLONY

Federation Colony Alpha-Five, home of several hundred crew members, has been transmitting emergency signals for the past few hours. Federation HQ fears the worst and it's almost as if history is beginning to repeat itself.

The four strongest members of the IPC's marine force are called together, but just two will make the journey to FCAS their mission brief unclear, but they know that the horror is about to continue.

Yep, the scenario is similar to James Cameron's *Aliens*, but that isn't such a bad thing. The first new feature you come across is the introduction of new marines. You can choose which of the four IPC characters you want to play with.

Each one starts with different weapons and slightly different abilities, but you will have to find out what they are for yourself. Defaults are the old crew of Johnson and Stone, but you can



Red Alert! One of our heroic marines legs it to the exit before the level explodes



One of those nicely drawn screens that connects the levels on the AT200. A500 owners will note a slight loss of colour on their version



## GAMER GOLD

fer slightly from colour loss, but nothing that's noticeable straight away.

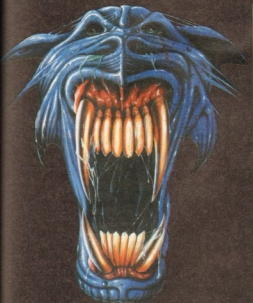
The static screens in the A1200/A4000 are far superior to the A500s, but it's all rather superficial as you're normally too busy rummaging through the levels blasting aliens to take any notice of the static shots.

Alien Breed 2 features a more varied count of aliens and levels than its predecessor. In fact there are many new features, and it still retains that fresh feel of originality which captured the hearts of hungry little gamers a couple of years ago.

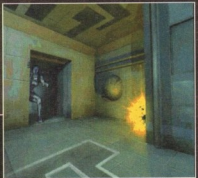
Any self-respecting Alien Breed fan will have already rushed down to the shops and bought this one, having had it on order for the last six months. The only gripe I have about Team 17's sequel is that it is bloody hard, but hey, that's probably just me being completely useless!

I don't need to tell you twice to buy Alien Breed 2 because it is so good. Fans of the original will fall deeply in love with it and want to have its children while newcomers will wonder why they ignored the first effort. The enemies are going from strength to strength, and at the moment look completely unbeatable.

JONATHAN MADDOCK



It's all go as one of the hard marines happens upon a chance to have a quick game of tag!



Smile for the camera Mr Alien and, err could you wipe that acid drool off your face...

were a source of supplies.

Once you've logged onto the computer network, you can order extra weaponry, key packs, ammo packs and such like. The weapons are available in three stages. Each is more powerful, but each stage uses up more ammo, so it's up to you which weapon you choose.

The Intex terminals also supply your marines with information on the current mission and gives access to the info base which is a large source of information about the game. For the truly dedicated "breeders" out there there is the option of looking at your current statistics and status.

### BRILLIANT

I had only played Alien Breed 2 for ten minutes and I already knew it was as good as its predecessor. It plays just as well as the original Alien Breed, and that is a good enough reason for me to pour superlative over superlative onto the sequel.

Alien Breed 2 is no better than or worse than the original product - it is just as brilliant. Obviously the graphics and sound are better than those seen in the first game a couple of years ago.

I could grumble and whinge about the fact that the sequel's graphics don't seem to be as dark and moody, and thus are not quite as atmospheric as those from the original.

But that's not to say that they don't look exquisite though, especially in the A1200 and A4000 versions of the game. The A500 does suf-



A handy map that tells you where the terminals and places of interest are

now select Ruffertoo and Zolux.

Ruffertoo is an intelligent lizard likeform while Zolux takes on the form of a tough war robot. You may find it best to experiment with combinations of characters that best suit your style of play before you start your mission properly.

When you begin the game, you are lowered by a Federation dropship onto the landing pad of the Alpha-3 base. Your mission will be as the brief outlined to you by the Federation before you start to kick alien ass.

With a silly insane grin spread across your face you decided to check out this second bout of Alien Breed tomfoolery. Starting outside the base you get the chance to boost up your supply of cash

and keys while desperately trying to avoid the gunships and meteorites that fly overhead.

Finally you discover the exit and immediately tense up because you know in just a few seconds time it will be time to face the aliens once more. Embarking onto the next level you are immediately faced with one of the rasping beasts instinctively you grab your machine gun and plough a ton of lead into its disgusting alien body. One down and only thousands to go!

Wandering around the level you find that you can once more gain access to the Intex 4000 computer terminals. For those who don't know anything about Team 17's original alien blast-'em-up, the Intex 4000s



Here we destroy some brand new aliens

### VISION

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### AUDIO

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### DIFFICULTY

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### LASTABILITY

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ALIEN BREED II is as the original with enhanced measures of graphics and sound bumped inhere for good measure. A classic and a must-buy.

92%

Publisher > TEAM 17  
Developer > IN-HOUSE  
Disks > 3  
Price > £25.99  
HD Install > No  
Size > 2 meg





Our three intrepid marines start their wonderful adventure. Wide-eyed cuteness aho!

Ever since the introduction of Akira to our television screens via the power of video, the world has apparently gone Manga crazy. These sophisticated and often violent "cartoons" are currently the hottest thing on sliced bread.

It seems that the game designers who created



If only all aliens were as cute as that then Ripley would never have had all that trouble

# CYBERPUNKS

Blast away in Core Design's new shooter that features a trio of Manga inspired heroes...

Cyberpunks for Core Design have caught the Manga bug. Cyberpunks looks like it has been heavily influenced by these dynamic Japanese films, especially when you take a squirt at the game's characters.

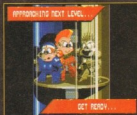
Raa, Bee and Gee are part of the 301st Cyber Assault Squad and they have to rampage through five action-packed missions in order to rid the universe of the toughest of alien enemies.

## TELEPORT

Each mission consists of three to four levels with the option to teleport between decks. While fighting the alien beasts, you can obtain weapon power-ups, force-field keys, smart bombs and time-distortion cubes to help you complete your quest.

Missions vary from investigating unknown power surges at the Sub Atomic Reactor Station to rescuing a top computer scientist at Space Lab Genesis 8 where there are hundreds of drooling alien life-forms.

Cyberpunks is fairly unique because you control three characters all at the same time.



The three Cyberpunks try their best to look 'ard as they travel to the next level

Sometimes it makes life easier, sometimes harder and that is what makes this blast-'em-up work.

The best way I can describe Cyberpunks is by calling it Alien Breed for kids. The game would definitely appeal to the younger gamer although older users with a taste for this kind of thing might fancy a dobbie.

As I mentioned at the beginning, the graphics

sions demand a balance between both skill and tactics to complete. Jet Strike is an unbelievably big game and the game's creators reckon that it will take an average player many months to work through all the combat missions.

Just like Rip there is a two-player option in the form of an Aerolympics competition. This lets you and a chum to take it in turns to fly ten aeronastrical test against the clock. The aim is to get more points than your opponent and this is achieved by doing the task quicker and, err having the ability not to crash!

Jet Strike is an original piece of software and one I would heartily recommend to any gamer. The control system is difficult, but Rome wasn't built in a day, so you should be able to put up



All together now! Those magnificent men in their flying machine...

# JET STRIKE

Whenever "flight" games are mentioned in passing conversation, you immediately think of MicroProse and their ubiquitous collection of flight simulations.

I don't suppose it ever dawned on anyone to make an arcade "flight" game. The only decent one I can think of was the fantastic PD software that called itself Zip.

Rasputin Software have seen this gap in the flight market and created Jet Strike, a plane



Here is the plane selection screen. Choose one from 40 including the fire-breathing dragon

Alternative go up tiddly up with their latest flight game

game with a difference. In Rasputin's flight of fancy you must stop the devious SPUD forces by attacking them with your, ahem "borrowed" aircraft.

Your commanding officer will give you a mission objective which you have to achieve without dying. Simple? Hmm, not very. First of all you have to learn how to fly the aircraft; this is not an easy task and one which you must persevere with.

Pushing the joystick up rotates the aircraft anti-clockwise while pulling down rotates it clockwise. This system sounds a little strange at first, but once learned it allows you to control the aircraft with an amazing degree of accuracy.

There are over 135 missions and you get a choice of 40 different aircraft (including the surreal dragon option) to fly in them. All the mis-

<b>VISION</b>	
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<b>DIFFICULTY</b>	
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<b>LASTABILITY</b>	
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Cyberpunks is a fairly unique blaster with a Manga-esque feel to it, but it is more suited to the younger gamer.	<b>70%</b>
Publisher > Core Designs Developer > Dynamic Disks > 1 Price > \$25.99 HD Install > No Size > 1 meg	

have been highly influenced by Manga and this tends to give the game a cartoony feel.

Cyberpunks is a fairly competent blaster and the ability to control three characters is a nice touch that makes it stand out in a crowd. Younger gamers will be more than happy with Core's shooter, but older gamers might want to think twice before buying.

JONATHAN MADDOCK

The graphics are really cool; although they're quite small they are wonderfully detailed. If you're looking for something a bit different this month then take a quick squirt at Jet Strike you won't regret it.

JONATHAN MADDOCK

<b>VISION</b>	
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<b>LASTABILITY</b>	
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Hard to control at first, but perseverance will reap rewards. Nice graphics and it is great fun to play. Buy it!	<b>90%</b>
Publisher > Alternative Software Developer > Rasputin Software Disks > 2 Price > \$25.99 HD Install > Yes Size > 1 meg	



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Seek out and destroy the forces of SPUDD!



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Intelligence reports are being received that a renegade organisation, SPUDD is massing its forces ready to attempt word domination. Only an underground task force can save the day. Are you ready to become a part of that underground taskforce? Which of the 40 aircraft will you choose as you fly 100 sorties across the world against the forces of SPUDD? The civilised world anxiously awaits your decision!

Available for the Amiga  
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## Phantom

This uncanny chaparral exists as an individual energy mass and subsequently is a real tricky to pin down. Expect a lot of flitting around and some pretty lethal orb-type weapons as his repertoire.



## Inferno

Coming from the hot side of the world of Ebbens and is a fiery kettle of fish. Among his talents are the ability to throw the deadly Heatseeker and burn you with a spinning flame.



## Dan

One the most is obviously from Earth. If you don't remember him from the first title let me tell you that he's pretty adept in the skills of the Orient. He also has a pretty sassy kick with an energy ball.



## Lazar

Lazar is from the most hectic planet of them all, and subsequently has a lot of electronic weaponry at his disposal. Ramping from the high-powered laser beam through the Lightning Strike, messing with him could give you a nasty shock.



## Warra

Hailing from the planet Eclipse, Warra lives on the side of the planet which is totally immersed in darkness and cold. A pretty tough cookie, Warra can give you the cold shoulder and inflict the big freeze.



## Dragon

Dragon also hails from the planet Eclipse. A massive and rather dragon-like character, he can take a hell of a battering and can also inflict a great deal of pain.



## Dino

A resident here who comes from the planet Gallus-4. Unusually enough this planet is at an inflection stage of development, hence it is populated by dinosaurs. Dino comes equipped with a deadly bite. The friend who has a nasty nip.



## Puppet

An occupant of the planet Mizarra, puppet is no soft toy. His mechanical joints make him a very pliable bundle of wood and string. His slicer and laser-missile weapons are particularly lethal.

# GAMER GOLD

# BODY BLOWS

**Biff, Sock, Pow and Soy. After a long break on holiday on the Cote d'Azur, the Steven Seagal and Jean-Claude Van Damme of the games world take on a universal challenge**

**W**hen the original Body Blows hit the Amiga it was met with great critical acclaim. In every department it out-punched, jabbed and

kicked its rivals. It left both of the Streetfighter conversions totally gobsmacked and floundering in a corner with the proverbial spit lip. Body Blows had everything that the overrated coin-op lacked – in a word, playability. While SFT boasted neat graphics it had little else. Pound for pound, when the two met in the ring Body Blows out-gunned it in every department.

The two main characters in Body Blows, Dan and Junior, having totally destroyed and debauched the Evil Max and his band of noisy cohorts, retired to the South of France.

After about a year, Dan and Junior were sitting on a sun-kissed beach reflecting their lot. A year of self abuse, 12 months of hard drinking, 365 days of worshipping in the sun...

Sitting around a table that has become a paragon to abuse, they neck the drugs of another Beer Blonds.

Only daring to glimpse out of the corner of one sorry eye at flabby pretensions and redundant careers, both reach the sad conclusion that in the time it has taken for the sun to rotate around the planet, they have become slobs.

But, it's so difficult to be motivated by anything short of blasting the carnage out of your nostrils when you've defeated a whole world's worth of evil.

What to do to generate enough interest in life? What greater challenge can we met and overcome? There just aren't any, well not on terra firma.

Then it hits him in one almighty powdered

cloud. They must fight the roughest and toughest aliens, creatures and humans throughout the known and unknown galaxy.

To you and I this must seem like a little bit of a far-fetched idea to reach, but we only get two or three weeks of life-long and infra red indulgence to combat. These guys have been at it for a good year, so the conclusion they reach is probably the most natural.

I'm also at odds to discover how one goes about arranging an inter-galactic bout of fist-cuffs, but ours is not to reason why. Just hassle Team 17 for not being bothered to worry about the plot and to have concentrated on low-rate play instead (well, hold your horses and tell 'em the plot - well).

Anyway, take it for granted that Dan and Junior somehow manage to get through to all the inter-galactic punters via the international operator and set up the competition.

After that they both embark on a "my body is a temple" routine. Using the infamous Bullworker and Charles Atlas body map, they make a steady return to their dynamic best.

With the competition set up the rest is down to you bunch of joystick-wagging punters. Incidentally, a few of the facts I've taken the liberty of including you may not find detailed in Team

17's manual, but hey, what's a little artistic license between reader and writer?

The first thing to say about 88 Galactic is that it comes in two versions. There is the standard A500 version which will run on just about any Amiga known to mankind, and there's the A1200 AGA chipset version. This enhanced version doesn't



**Spot the difference**

The frame on the left comes from the A500, and the one on the right is the enhanced A1200 version. Can you spot the difference? Answers on a postcard to: Dumb comps with no prize, at the usual address



## Kai-Ti

This most ravishing chick hails from the planet Femina. This is a world totally populated by women, and although I don't know exactly if they all look like her, it can't be that bad. Kai-Ti is a lovely mover, is extremely agile and supple... and I love her.



## Junior

This champion boxer is also from the planet Earth. A real tough nut with some deadly moves. As well as all the standard moves, he can kick with a series of jabs or deliver the punishing Flitz of Fury.



## Tekno

Another inhabitant of the planet Titeko, Tekno is probably the most advanced being in the game. He has a lethal weapon is the Thunderbolt and an excellent grabbing technique with the Power Pull.



## Azora

The rock chick of the crew, this muckin' extra from a Mad Max movie is also from the planet Titeko. Equipped with a heavy-beard, she has some nuff alibans and a bullet-belt.



# GALACTIC

really differ playwise, but does feature extra colours on the backdrops, better quality music and stepped-up sound effects.

All of the action takes place over six different planets. Each planet is the host to two different champions. Each different planet, apart from Earth, has an environment which reflects the attributes of those inhabitants.

For example, the planet Titeko is the most technologically advanced, and the two guardians of the planet are Tekno and Lazar.

Now, there are a variety of ways to play Galactic. In one-player mode, having chosen the character that takes your fancy, you journey from world to world in an attempt to defeat each computer-controlled character.

In two-player mode you both choose a character and select a

planet to fight it out. You can even hot things up to a higher temperature by selecting the same character, so you both have exactly the same moves.

There's also a tournament mode which allows a greater number of your mates to battle it out in a league affair. You can also change the amount of time you compete for, the number of rounds you fight for and the rather interesting Mercy option.

In Mercy mode your opponent will leave you alone if you take a big shot on the chin and need a breather. On the contrary, leaving Mercy off means that when you're down and winded your opponent will come steaming in for the kill.

On the character front, there's a very interesting selection for you to get to grips with. Rather than the normal selection of martial arts experts and kick-boxing freaks, in 88 Galactic the choice is much more varied.

Of course, Dan and Junior are versed in these particular skills, but the other characters are different altogether. There are robots, dinosaurs, puppets and all forms of elements.

However, the most amazing character in Galactic must be the stunning Kai-Ti. This woman must surely be the most perfectly put set of pixels I have ever seen on a home computer. Not only is she beautiful, but she is also as deadly as a female black widow, with some absolutely devastating moves.

Speaking of moves, each character comes equipped with 20 different moves, blocks and damage-inflicting blows. These are arrived at through a variety of joystick movements and button presses. Each character's moves have been



Forget Inferno, I should like to get hot with Kai-Ti

designed to suit the particular personality. Some are more obvious than others; for example, Tekno the robot has such things as thrusters and missiles, whereas Inferno can tumble into a heap or throw a fireball at you.

It gives me in some ways to say that 88 Galactic is brilliant. The first reason is that it's getting slightly annoying that the 17's keep on churning out benchmark products without a slip-up at all.

Secondly I've always been in a slight turmoil with games that are so blatantly physically violent. It's not that I don't appreciate the fact that most games feature the player inflicting some form of punishment on something, even in the cutest titles. It's just that in the beat-'em-up category this is taken to the nth degree.

However, for all the mauling it has to be said that Body Blows Galactic is brilliant. The graphics are smooth and beautifully executed, the sound effects beefy, and most importantly the play is compulsively addictive.

The one-player option is pretty good fun, as you take on the might of the computer. This poles into the shade in comparison to the two-player option.

It's brilliant fun watching a friend take on Almighty Blow to the skull as you sock him between the teeth with your special weapon. Quite honest-



Soy! Big Trouble in Little China in a kind of watery way

ly, Body Blows Galactic is the best beat-'em-up ever to be inserted into the drive of an Amiga. OK, so its older brother Body Blows, and Azura, were both pretty hot, but Body Blows Galactic takes the title. Please, take my advice and visit your software emporium now.

SIMON CLAYS



Bang! Junior strikes another blow for freedom, democracy and err... it feels good

<b>VISION</b>
●●●●●●●●
<b>AUDIO</b>
●●●●●●●●
<b>DIFFICULTY</b>
●●●●●●●●
<b>LASTABILITY</b>
●●●●●●●●

This game is going to go down as the best beat-'em-up of '88. It's an all-kicking, all-punching piece of powered-up perfection. Make your best selection and buy it!

93%

Publisher > Electronic Arts  
Developer > Dynamic  
Disks > 1  
Price > \$25.99  
HD Install > No  
Size > 1 meg



# Pinkie



In the first of a two-part feature, **Gamer** talks to some of Millennium's top bods and takes a look at Pinkie, a new platformer set to make heads turn

## INTO THE NEXT

### Michael Hayward • managing director

#### **GAMER** How and why did Millennium first start up in business?

Millennium started up four and a half years ago through a management buyout of the entertainment division of Logotron Ltd, an educational software company.

The three principal directors of the company, Ian Soutter, Henry Elliot and myself were excited about the prospects in the computer and video games industry. This decision has proved to be hard work, great fun and profitable for us all and we wouldn't want to do anything else.

#### **GAMER** What were the early days like when competing with industry giants such as Ocean, US Gold and Pygmalion?

We have never been concerned with the competition and what they are doing. If we were we would not be able to produce original games such as *Pond*, *Pinkie*, *Diggers*, *Brutal Sports* etc.

#### **GAMER** Games-wise, what was the big breakthrough for Millennium?

James Pond 2 was the big break that we needed. It has now sold over one million copies on all formats and gave us the confidence to go on to produce the offerings that we have lined up for 94 and beyond.

#### **GAMER** With what do you attribute to the popularity of the James Pond series of games?

Everyone knows what a secret agent is about so it was easy for people to relate to *Pond* as a character. He is well animated - particularly in *Pond 3* where there are over 130 animation frames, this brings out the adaptability of *Pond* and allows us to participate in his efforts and humour as a spectator.

I think that it is important that *Pond* always has a special property - in *Pond 2* he could stretch using his extendable arm and was able to run fast, in *Pond 3* he can walk upside-down run twice as fast and uses many novel vehicles. This adds to his appeal as the small, brave agent working against seemingly impossible odds.

#### **GAMER** Millennium was the first company to enter into the CD32 market. What was the reason behind this move?

We think that the Amiga market is essential to the growth of the computer and video games industry. Because there is such a good strong base of Amiga in the UK we have a strong culture of very able programmers. That is one of the reasons that the UK is prominent in the world of software development.

The CD32 is a well received development from Commodore - the hardware is powerful and the added CD facility allows us as developers to explore new ways of delivering our titles to the marketplace. I do not know whether CD technology will become the standard as the access times of the game cartridge is much quicker than any known CD technology at the moment and speed is an essential part of game development.

#### **GAMER** How risky is it to move into new markets such as the new CD platform?

It's only risky if you do not know what you are doing. It would be easy to get carried away and invest in live action, model building and call animation in the belief that this was where the future lies. We have opted to invest in sound, animation and rendered graphics. This involves a great deal more cost, but as we are only concentrating on these areas we have a smaller learning curve than by trying to do everything. We are currently investing in some state-of-the-art rendering workstations which will improve our productivity tenfold in the coming year on our rendering projects.

#### **GAMER** Are you surprised that other companies haven't got their products out on the CD32 yet?

No, there are so many platforms in the marketplace at the moment with new systems to be introduced in 94 and 95. In order to be successful it is



**"We want to be a world leader in entertainment software development - just watch this space!"**

- Michael Hayward, Millennium MD

important to concentrate on what you can cope with of any one time. We have been writing "legal" operating system code for the new Amiga chip set and it was not a big deal to move onto the CD32.

Other publishers who wrote straight to the Amiga hardware have obviously experienced a new learning curve so naturally it has taken them some time to get up to speed with CD32.

#### **GAMER** How do you rate the standard of your competitors?

The competition is getting tougher all the time, there are so many good games now being produced it raises the stakes every time we develop a new title. This is good for our customers and for the industry as a whole.

#### **GAMER** What is the future of computer gaming?

The next two years are going to be very interesting. There are several new

hardware platforms slated, Sega Saturn, Nintendo 64-bit, Sony CD, 3DO and a new and more powerful CD32.

The added power of the new systems will allow us to produce bigger and better games designed for a broader audience. I say this as I assume that the traditional market will extend from the bedroom to the living room and more people in each household will become interested in what we have to offer.

One thing that is important to keep in mind though is good old-fashioned gameplay. It is all too easy to produce some flashily visual effects with these new hardware platforms and to forget what the gaming experience is all about.

#### **GAMER** Where and how do Millennium see themselves involved in the future?

We want to be a world leader in entertainment software development. We are investing heavily in our development department and have some truly amazing projects in development - just watch this space!

#### **GAMER** What is your philosophy as regards product placement and marketing?

It is important for our trade customers to know that Millennium is a good label that produces high quality products which sell. So at that level it is important for us to leave a good profile.

As far as our customers are concerned the label is of secondary importance - the products themselves and our characters are the heroes. Does it make any difference to someone who wants to buy the latest Michael Jackson album what the record label is?

It is very important that James Pond, Pinkie, Brutal Sports Football and other Millennium brands have a high profile and that our customers know who they are and what they stand for. We spend a great deal of time and effort to promote our titles and as the market develops this investment becomes greater.

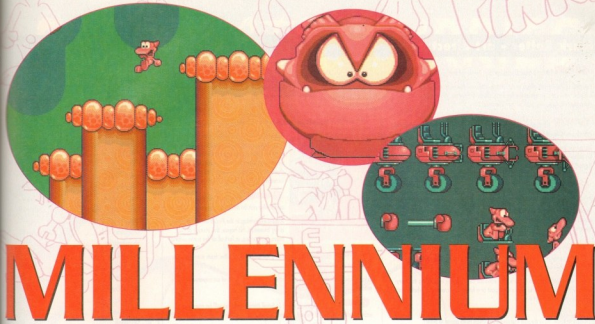
#### **GAMER** What is your favourite Millennium game and why?

My favourite has to be James Pond 3. Two years in the making it is very different to both of the previous games. All of the code, maps and graphics are new. In *Pond 3* we set out to produce the ultimate platform game.

There are over 100 massive levels with over 65 enemies. The story line is essential to the game with dialogue boxes appearing at key moments to give the player feedback and clues. *Pond 3* is bigger, has a girlfriend, Angelfish and a new sidekick - Fenix. There are literally hundreds of secret rooms, chambers and blocks to discover.

There are several ways to complete the game so the player will not have to map his way through [it] in a linear fashion. Even our game testers who had been playing the game day in and day out for weeks were consistently discovering new features. It is a game that you can keep coming back to for more and more.





# MILLENNIUM

## Keith Smith - PR manager

### GAMER

Why do you think that James Pond and RoboCop sold so well across all the computer/console formats?

He has become a legend. The first game was cleverly marketed and did not overexpose James Pond. The games always relied upon the gameplay and not the character. Everybody can treat out "crazy" characters that are running on a standard platform engine. Each James Pond release has offered tremendous value for money and intense playability.

### GAMER

James Pond is probably one of the oldest and best loved Amiga characters. Why do you think he is so popular?

He is so popular because he gave the Amiga a character that owners could call their own. The games have gone through several formats for owners of different hardware. For example, the A1200 version of RoboCop was significantly enhanced to show off the equipment.

The CD32 version included animation and had an interactive book. James Pond has always offered great value for money on the Amiga that console players would not get.

### GAMER

How will James Pond 3 be different from the first two games?

JP3 is radically different. It follows on from RoboCop through the use of cell animation and takes Pond to the moon. Dr. Maybe is mining the planet for its rich dairy product reserves and has kidnapped two F.I.S.H. agents. The main sprite is so much more animated and can run faster than any other game character. Punch, pick objects up and throw them, run upside down and use the many new weird pick ups in a game with over 100 levels.

It is huge and will take most players at least a couple of weeks to complete. We are also giving owners the F.I.S.H. pack free of charge. That alone is worth £9.99.

### GAMER

The animation used for the CD32 release of RoboCop was very impressive. Will we be seeing more of this in Pond 2?

Yes. The animation is a great link between RoboCop and JP3 and will appear on the CD32 version to coincide with the release of Commodore's FMV (Full Motion Video) card.

### GAMER

How do you see the Amiga market progressing? Will CD technology slowly become the standard platform for games?

I used to work in the video industry and it doesn't take a rocket scientist to work out that, being a linear format, video does not allow you to skip around programmes and interact with it.

The major Hollywood studios are all developing CD products and I will put my neck on the line and say that it won't be too long before you will be able to buy the film, the book, the soundtrack and the game all on one

format and played through one machine. CD offers us, as developers, so much more flexibility. We are developing projects currently that will be a mix of animation, film and computer-generated graphics giving players an amazing amount of gameplay that floppy formats and cartridges cannot offer.

### GAMER

How hard or easy is it to market a character like James Pond?

Marketing James Pond is always slightly difficult because he is never around when you want him. Obviously, the fact that every game is better than the previous one helps because people know that he is dependable and offers great entertainment.

However, we never rest on our laurels and are always working on the profile. We have to bear that in mind when we license him to different formats that companies such as Ocean and Electronic Arts are buying a reputation as well as a great game.



*"...there is a bright shiny four-inch wide and disc-like future for us all."*

— Keith Smith, Millennium PR manager

### GAMER

Do you think that Pond 3 will be a bigger seller than the incredibly popular RoboCop?

We certainly hope so! There is no reason why not. RoboCop has now been licensed on 14 hardware platforms and has passed the one million unit mark. If RoboCop can do it, Operation Starfish will.

### GAMER

Mr. Magoo is the first licensed game that Millennium will publish. How does it fit in with a licensed game and why use Mr. Magoo?

If you look at the profile of Magoo especially in the States, he is one of the most recognised images, along with Coca-Cola and Elvis. He has always been a bumbling old fool who accidentally rights wrongs and talks to hat

stands believing them to be policemen. He is the spokesman for General Electric, RCA, Timex and several other major US companies.

He has been in existence for nearly 45 years and is a household name throughout the world. Amblin entertainment (Steven Spielberg's company) are also producing a Magoo film which will help the awareness of him to games players.

We've always been on the lookout for good licences, but when Michael Hayward was approached by UFA he felt that this was too good to miss.

### GAMER

Millennium were very eager to show their support for the CD32 by releasing Diggers, RoboCop and Morph for Commodore's new machine. This is not normal behaviour for a company who can't afford to waste money, so why did you leap into this new market?

Commodore had the bottle to go ahead with the first 32-bit CD console and when someone is that committed to a project, it's hard to refuse!

It was a sound business proposition, but if everyone sits on their hands and says "we'll wait and see if everyone jumps", then you end with one less innovative hardware company and no games for a project that should, in theory, work.

At least we can say that we gave Commodore 110 per cent backing all the way to the launch, and you don't get respect if you don't try.

### GAMER

What will the future be like, as far as computer games are concerned?

As long as we can prove to the powers that be that we can police ourselves and we don't let the porn merchants succeed, then there is a bright shiny four-inch wide and disc-like future for us all. One thing that affected the video industry was by allowing it to be manipulated by the pornography and school teachers.

Everyone then associated the two and the side began. Only now is it beginning to realise just ground through a more respectable image and other momentous losses of revenue.

### GAMER

What part will Millennium play in the future of computer games?

Millennium will always play an active role in the industry, producing truly innovative games using the most up to date technology worked by some of the UK's best programmers and artists. So there!

### GAMER

Will 1994 be the year of Millennium?

I think we've had a pretty good run this far. Millennium has experienced considerable growth in some of the toughest conditions through tight margins whilst maintaining the independence to move with the market.

1994, however, will see some of the best over Millennium games, that we think people want to play. We all enjoy playing games here and hope that everyone enjoys our games as much as we do!



## Mark Rafter - art director

**GAMER** What is your background as far as art and animation goes?

I studied at the Royal College of Art, doing a BA and MA in painting. After this I did a further course in Design at the London College of Printing. After that I worked in animation for three years on feature films and TV.

**GAMER** It's very unusual for a company to have a specific art department. Why have Millennium leaped into the world of animation?

As far as I know, having a specific art department is unusual, but with the demand for better graphics and animation, it's got to be a good thing.

**GAMER** What are the advantages of having a full-time art department?

Someone is always at hand to offer solutions to design and graphic problems as they arise.

**GAMER** Lengthy high-class animations will undoubtedly go hand in hand with the new CD technology. How will these attribute to the success of a game?

Animated intros/outros on CD products enhance the game by expanding the story-line which gives the central character a past or a future. It's creating a whole world if you like, rather than just a game.

**GAMER** How do you transmit your ideas from paper to pixel?

Over the pixel artist's shoulder!

**GAMER** What are the benefits of having a "real" artist work on a game rather than just a "pixel" artist on his/her own?

I try to put a broader perspective into the game, the big picture; how one part relates to another, rather than just the detail.

**GAMER** How involved do you get when working on a game?

I try to get involved as much as I can with the look of each product, but as I have up to five or six different games to work on at any given time, I'm moving about quite a bit.

**GAMER** What was your design brief for Pinkie?



Pinkie already existed in the game, it was my job to storyboard the animated intro sequence; for this my brief was to show his background, where he came from, what makes him tick, his character, courage, cuteness, attitude and determination.

**GAMER** How much of Pinkie's world and Pinkie can be attributed to you?

Almost everything in the Pinkie intro animation is my invention, his house, the interior of his room, his garden, in fact all of the scene setting.

*"...as far as animation is concerned, yes, the sky's the limit"*

— Mark Rafter, Millennium art director

**GAMER** How does the world of a software house differ from working in an animation studio?

A lot of fun, I have more of a say creatively. I'm not just part of an impersonal machine.

**GAMER** The graphical world in Small Furry Creatures will be represented using works by some of the old masters. Why did you decide to use this kind of art?

Small Furry Creatures (working title) is influenced by old master painting, but I felt the game needed a radical new look that would suit its storyline.

**GAMER** In the future do you think that we will see games that will play and look like something from the Disney/Sullivan Bluth studios?

I think games involving characters like James Pond and Pinkie will become more like interactive cartoons, as far as animation is concerned, yes, the sky's the limit.

## Millennium softography

Title	Released
Kor.....	Jan 88
Quadrail.....	May 88
Sargon 3.....	May 88
StarKey.....	Oct 88
StarGoose.....	Dec 88
Prospector.....	Mar 89
Archipelago.....	Apr 89
Eye of Horus.....	Nov 89
Starblaze.....	Nov 89
Bad Company.....	Jan 90
Kid Gloves.....	Mar 90
Cloud Kingdoms.....	Apr 90
Resolution 101.....	Jun 90
Thunderstrike.....	Aug 90
Yokanda.....	Sep 90
Monix.....	Oct 90
James Pond.....	Nov 90
Horror Zombies.....	Jan 91
Warlock.....	Feb 91
Moonshine Racers.....	Mar 91
Stairball.....	Apr 91
Robin Hood.....	Oct 91
Robocod.....	Nov 91
Kid Gloves 2.....	Mar 92
Steel Empire.....	Apr 92
Global Effect.....	May 92
Aquatic Games.....	Oct 92
Rome AD92.....	Nov 92
Morph.....	Jun 93
Robocod A1200.....	Jun 93
Robocod CD32.....	Sep 93
Diggers CD32.....	Sep 93
Brutal Sports Football.....	Nov 93
Morph CD32.....	Nov 93
Diggers A1200.....	Oct 93

## In Part two...

We talk to top games designer Ian Scaunter about Small Furry Creatures (working title), a revolutionary new piece of software involving the use of artificial intelligence. We also look at Mr Magoo and chat to Marcus Brown about Millennium's first licensed game.

## Pretty in pink...

During our visit to Millennium it was almost impossible to walk anywhere without hearing, seeing or treading on something concerning this little pink choppie.

Pinkie is Millennium's great pink hope and it is envisaged that he'll be bigger than James Pond (no mean feat with over a million copies sold).

Although Pinkie is a platform hero, he is radically different to anything gamers will have seen before. For a start he has no special powers - he can't jump from a height and squash enemies or shoot things at them.

He can't run fast, climb high (allergic to altitude) or fire weapons. In fact, pinkie can't really do anything malicious because he's also allergic to pain (tells me about it) and despises violence.

But he is intelligent, thoughtful, inquisitive, gentle and most of all concerned. The plot will see Pinkie

expressing his worry about the imminent demise of the dinosaurs throughout the universe.

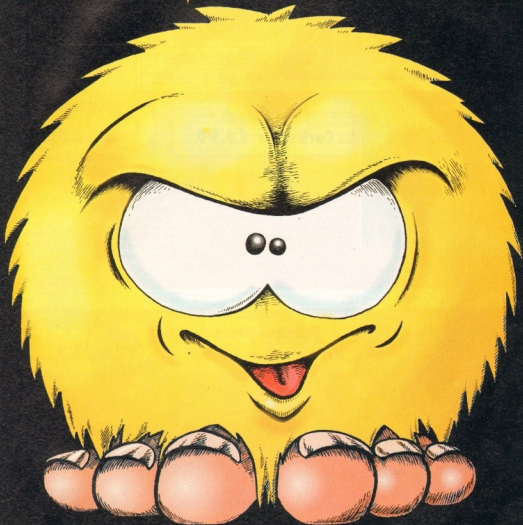
So, he departs from his beautiful native planet Pink and sets off to secure dinosaur eggs and bring them to the sanctuary of the serene planet Pink.

Work is well on the way in Pinkie and already one can see the benefits of using a trained movie animator. His movements and characteristics are some of the best I've ever seen on any computer, home arcade or otherwise. Pinkie also uses a most unusual colour scheme for his locations and backdrops. Although still in the development stage, they look gorgeous and you can tell the eye of an artist trained in colour has been employed.

Pinkie has secured licensing deals on seven other platforms. Pinkie looks as though he could be a major star for 94 and leave Millennium Interactive well and truly tickled pink.



# FURY Of The FURRIES



Manual in English, Manuel en français, Handbuch auf deutsch, Manuale in italiano, Manual en español

Distributed By



MINDSCAPE

AVAILABLE FOR: PC & 100% COMPATIBLES, AMIGA, CD32

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Published By



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# THE CHEAP SEATS

**"Go past the buffet car, toilets, first class, second class, scum class and there you are". Yes, it's the Cheap Seats, and Tina the Train Driver ushers you into the Budget station!**



Err, Chuck's chin looks familiar. Not unlike a certain football commentator, wouldn't you agree?

## Chuck Rock Corkers • £9.99

He's fat, he's hairy - no, it's not Danny Baker again, it's Chuck Rock and he's back via Core Design's new budget label, Corkers.

Well, as if you need reminding, the basic plot behind Chuck Rock is that Gary Ginter has kidnapped Chuck's wife, who promptly was off through the neighbourhood to find her. Ash, true love, hey! (Or perhaps Chuck just has a fetish for wandering around in a green leaf skirt and thrusting his belly into small, furry animals...)

So, off he sets through five increasingly challenging levels of wacky animation to rescue his babe-licious wife Ophelia. The headbanger's 'belly-buttin' Chuck has to pit his with against

harmful pterodactyls, flames and mudmen to name but a few, which he can belly butt, throw rocks at or kick. There are also some humorous end-of-level guardians who are nice and tricky.

If you missed this title last time around then it is a must - it's bigger than

Chuck's belly and jam-packed full of superb animation with oodles of great gameplay. This is not to mention the great soundtrack and cartoony effects as well. Phew - what more could you ask for!



## GAMER GOLD

Right, imagine the kind of torture you would have if you were trapped in a room with Heinz Beanz' chiefesters, whose idea of fun was to listen to Agadoo continually while watching reruns of the Bobby Davroes Rock with laughter show. This is the same degree of evilness I thought I'd have to go through when I first started playing Parasol Stars. At first glance the graphics are

## Parasol Stars Hit Squad • £9.99



garish and unimpressive, the tunes grating and there are no proper bosses to get your teeth into. But I plodded on and to my surprise - once I actually realised what was going on - I started enjoying the game.

This is the third in the series of Bub and Bob games, the aim this time being to defeat the monsters with your magic parasol, and thus free the universe. You get eight different worlds to

Oh dear, Bub is having a problem handling his parasol. Watch out for these buses

explore for your £9.99 and can even take your friend along if you don't like playing alone. There's a bonus level and plenty of collectible objects such as magic shoes, power hearts and miracle icons.

How long the game will keep you amused is questionable but it is worth a look just for the unusual gameplay and strange choice of enemies, such as grand pianos, helicopters, and playing cards.



## War Zone • Corkers • £9.99

Well, if you fancy a real Mission Impossible, this is the game for you. If your idea of fun is a shoot-'em-up where it is virtually impossible to avoid the enemies' bullets, and every time you pick up a decent weapon it is taken away again if you get hit, then go for it. But for us mere mortals this game leans heavily on the "yikes, this is too difficult!" side.

Visually it isn't bad, but if you like to see blood and guts splattered then you'll be disappointed, and some of the enemies when shot look more like they're playing paint ball than having just been obliterated by a flame-thrower.

There is a good selection of weapons to choose from which offer a good range of sound effects. Fun can be had in two-player mode where players need to develop a 'cover my back'-type strategy, so beware if your comrade is the mean type who goes around trying to hog all the bonuses and upgrades which can be found.

The levels include warships, jungles, swamps and sewers, and there are different types of enemies, ranging from those that can be seen off by just one blast from your big weapon to those needing a more advanced method of elimination.

This is quite good little shoot-'em-up which is rather addictive but for most it will prove to be a bit of a tough customer.



But he drinks Carling Black Label...









# TOTAL CARNAGE

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The first and most important thing to realize is that although money is important, it's a substitute for power. Begin the game by basing yourself in Luebeck. Having borrowed an appropriate amount of money, start trading between Luebeck and Hales.

Take wine or salt from the former, and wood and wool from the second. At the beginning of the game you should concentrate on shifting cheap goods such as salt and corn. Low price means low risk and high quantities.

Look out for the arrival of the spice fleet. If you choose "Quick Start" the spice fleet will already have docked in Brugge when you begin.

When the fleet docks you should sail straight there and buy as much pepper as you can, then stay in dock for a couple of weeks. You will then be able to sell the stock for twice what you paid for it.

There are other commodities that will provide you with an equally speedy way of rendering yourself solvent. However, you must buy them in the correct location. For example, buy furs in Novgorod and sell them in London. Purchase wine in Brugge, oil in Bergen and hemp (from, sounds like fun) in Danzig. Buy salt in Luebeck and sell it in Stockholm.

## LUXURIES TOO

But there is more to trading than making a fast buck. You must also impress the townsfolk with your activities. If you only deal in essential goods such as meat and fish you won't get yourself noticed, or remembered, it's worth bearing in mind that a little flair may be called for, and a little trading in luxury goods.

Once you have enough money, a wise way to spend it is on more ships. By far the cheapest and fastest place to do this is in Novgorod. All you need to do now is load yourself up with hemp, as all the other materials you need should be located in the town.

Dealing with the scum of the seven seas is definitely a risky business. But, if you are willing to take a chance you could end up with an entire

fleet of ships for next to nothing.

Hand over a fully-armed ship and crew - as far from home as possible - and the pirate will sell you every ship he captures, for a pittance. On the other hand, he may disappear and never be seen again.

Alternatively, set up a guard ship in front of the town you know the pirates are heading for and attack them as they enter the port.

If you win the battle you will not only get to keep their ship, but also gain the gratitude and admiration of the townsfolk. This aspect of events is an invaluable commodity.

## DODGY DEALS

Always ensure that you have enough money in the office and that you can repay your debts on time. Keep your ships in good condition as deterioration in their condition will reduce their capacity.

If you have a ship that is a complete wreck, just sell it. Selling ships at auction is a good way to make money. Here you can bump up the price of your boats by bidding against yourself - but you do need to be very quick on the keyboard.

However, heed this warning: Don't bid too high or you may end up paying for a ship you

already own. As with most real life, the easiest way to become popular is to spend money on people. In the Patrician, this is best achieved by throwing a party.

If you're having problems with the catering side of your ship, then here are some invaluable tips. For one, build yourself a warehouse and hide 30 burden of the following items in it: Meat, fish, oil, wine and corn.

The best days to throw a feast are between the 24th and 31st of December. Where weddings are concerned the same catering arrangements apply. But why on earth should a swash-buckling wealthy businessman like yourself even utter such a desperate word?

With all the advantages you have bestowed on yourself you should be out there sowing your wild oats at one of your swinging parties, instead of sitting in front of the candle being inspected by Brumby.

And when you finally decide to hang it up, the best bribe you will be offered is the generous welcome at a bargehouse - what, so this wasn't?

On the plus side, as a dowry you will receive two large ships (and a hug boat if you include your new bride).

To become Alderman you need to be mayor of your hometown, and have an excellent reputation in several other towns. Join as many



guilds as you can and trade between as many towns as possible.

An important tip here is to be generous with your wealth. While we realise this will hurt, if you want to succeed in Patrician we're afraid it's a necessary aspect of play.

If you want to see results you should spend around one million thaler on the town initially, about 1.5 million the second time, and about 3 million the third time.

Use your warehouse. Buying cheap products like corn and storing it will result in the employees you have taken on processing products like beer from it.

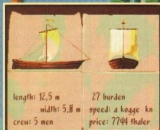
There are many unpredictable elements in the game. Disaster or good fortune may strike at any time. However, one thing becomes blatantly clear the further you get into the game. The deeper you go, the more dangerous it becomes to transport goods. Equip one of your ships to lead a convoy and you not only reduce the risk, but also gain popularity.

Remember of all times the main key to success is popularity.



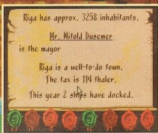
For a successful attempt at Patrician it's important to start business in the right towns. Luebeck is as good, if not better, than most.

At last after going broke time after time, help has finally arrived. Yes traders, a complete guide to getting rich, making friends and influencing people...



It's important to build better for success

Always pick a nice juicy, wealthy town with plenty of loot



ware	town	ship	price	CR
corn	1311	B	44	1-2-3
meat	451	B	59	4-5-6
fish	53	B	83	7-8-9
alc	27	B	98	10-11-12
honey	289	B	174	13-14-15
cloth	21	B	269	16-17-18
crocker	8	B	293	19-20-21
wood	711	B	48	22-23-24
wine	1	B	386	25-26-27

Here's a list of goodies you can buy in towns



## Akeer's Island

Return SE to the corridor with handles. Go due N into the passage and follow the corridors to the W. Beware of the destroying Wizard of Chaos (prepare psychic protection). Kill the wizard. Pick up treasures and skull.

Return to the passage entrance. Take the corridor to the SE. Beware the dangerous magician. Kill the magician. Secret passage in one of the walls; click on the button under the eagle heads.

Continue along the corridor to the N. Place the six skulls on the six statues. Continue along the corridor. Kill the guard. Pick up the relic. Return to the landing stage. Re-enter the town.



# Ishtar II

Here is the concluding part of the complete guide to Daze's brilliant adventure game. Enjoy!

## Jon's Island 1

Find the passage to the West and head along the road. Watch out for the dwarves as they always try to kill. After a while turn North into the mountains.

On the way you'll pass two cave doors, West and East. Take each of them in turn and pick the edelweiss plants. Go back to the end of the passage and head East, watching out for the vultures.

Go North into the mountains and find yet another edelweiss. Go South back to the passage and keep on East. Take the first path North and then go East and you'll find two more of the precious plants. Watch out for the curse find lies in the area; try to cast a curse-lifting spell prior to entering.

Because of the altitude you may find your characters being affected by vertigo. Avoid this by drinking anti-vertigo potions. When they take effect, continue higher up the mountains. Collect the relic at the end, then return to the harbour and head for the North-West landing of Jon's Island.

The end of the quest is nearing, however this is the deadliest and most demanding Island of all. First thing to do on this island is to fight the Fire Elemental. This is easier said than done because to kill the Elemental you must have one of your characters hold the magic shield while someone else casts a fire protection spell, then stop forward and strike.

At the first crossroads, turn right and follow it around the block until you reach an opening to the North. When you reach the next crossroads turn to your West if you fancy more experience and treasure.

Once you've exhausted the maze return to the crossroads. Go North to find the one of the toughest creatures in the game, a fire-breathing dragon.

Use the same method as you did against the Fire Elemental to defeat the dragon. He may take quite some time, so be prepared to take a couple of steps backwards to heal yourself.

After the defeat of the dragon, head North. Examine every rock and cranny in the walls because there are hidden treasures contained in a good many of them.

Shortly you will reach another crossroads. Head North, then watch out for a secret passage leading from the North wall. Follow this secret passage, fighting all the skeletons and wizards en route. When you reach the end of the passage, enter the town.

## Jon's Island 2

At the harbour head West along the coast line. When you reach the Mountains to the East, you must dismiss one of your characters. To make matters worse you must strip them of all their gold and possessions.

Head through the mountains to the East, watching out for guards. At the end of the path you will come across five pillars and a dead druid. By this stage you should have five relics.

Place a relic on each of the pillars and the druid will be re-incarnated. Recruit him and treat him nicely. Head back to the harbour stock up with supplies, rest and perform all other bodily functions. Then head for the fortress on Olbar's Island.



## Zach's Island

Go back to the city once more. Head for the clothes shop and buy five evening tunics. Dress in your new garb and wear the pendant given to you by the Ent. Do this before you enter the Blue Velvet nightclub; here you will find one of the Fortuna parchments.

Check finances, as you will need at least 20,000 coins for the next part of the quest. If you don't have enough, then indulge in a killing and robbing spree in the city until your finances are sufficient and your bloodlust satiated.

Next, go to the alley of the four towers which is North-East of the harbour and wait until two in the morning for the suspicious character to appear.

If you've been one to enter as many pubs as you can during the game, chances are you'll have met him before. Give him your 20,000 coins and he will give an important item.

Go to the herb shop and buy the ingredients for five anti-vertigo potions, otherwise known as Milding. Eat, sleep and head for the North-East side of Jon's Island.



## Olbar's Island

maze. Beware this is no ordinary maze, as most of the walls are invisible doors - so map carefully. At the end of the maze pull the handle and fight your way back to the crossroads.

At the crossroads go South, then stop when you reach a room. The walls in here have spikes poking out of them, so make sure you slalom through carefully.

You should now have reached Shandar's fortress. In the first large room, stick to the edge of the room - avoid the middle! At the South-East of the room called the treasure.

In the North-West corner of the room there is a knight who you will have to kill. Once defeated, leave by the door behind him. Walk straight through the next room and leave by the North exit.

Look out for a small room to the West, enter it and activate the mechanisms. Now race back to the end of the corridor. Your next encounter is with a Gorgon, she has a particular talent for inventing people so kill her as quickly as possible. After you've defeated her, move into the room beyond and drink from the fountain to restore life.

Head South into a labyrinth full of mummies and witches for you to kill. When you've dealt with them all, leave by the Southern

exit. Take the next passage East and look for a small room to the West. Activate the mechanism you find there, then head back into the passage. At the end you will find some Lion guards; kill them and use magic to heal any wounded characters.

Examine the grille in front of you and trigger the trapdoor next to it. Walk through and head North at the next crossroads. Walk to the end, take the treasure and activate the mechanism. Return to the crossroads and head down the South passage.

At the end is a room with a magician in it. For once in your blood-lusting life don't kill him; try the humble art of communication and listen to what he says.

Go back to the corridor and take the North passage. You should come to a closed passage. Place the perrot in front of the large ear and let it talk - the passage will open.

The next room has low ceiling points, so slalom through with care. At the next room, work around the edges and keep away from the centre.

You are about to engage in the final battle of the game, so get everyone up to full strength and prepare a Psychic shelter spell. Head into the Northern room and Shandar will appear. All you have to do now is kill him, then retreat from the fortress enjoying the fireworks. Kendaria should now be able to look forward to a peaceful and prosperous existence.



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**S**o, what are the limitations of AReXX's string handling routines? Well, for a start, they are a bit too fixed and rigid, a bit too literal, if you like. Essentially, AReXX offers three methods of parsing a text: It can detect individual words in a text, such as text separated by so-called "whitespace", which is computerese for blanks, new lines, tab stops and the like; it can search and find specified characters in a text; and it can find text in specific numerical such as the tenth character in a string. These methods can be used in combination, and with a bit of smart coding they can be very powerful.

The weaknesses start to show when you want to parse for a string that is not so rigidly defined: perhaps a string that is defined by alternative choices, or by what it does not contain, or even by the characters it contains, but not necessarily in the correct order.

## Searching

For instance, suppose you want to write a routine that searches a text either for the pattern "abc", or for the pattern "xyz". You will have to perform at least two separate operations (two checks) before you have your result.

There is no way in standard AReXX to formulate the idea: "search the text for either pattern 'a', or pattern 'b', and notify when you have found it", in one step.

The same applies in all the other examples above - whereas it is not too difficult to get the desired result, quite a few steps are needed to get there! Searching the same piece of text several times over before you find what you want can be quite wasteful, and can make your programs slow.

With a bit of thought, you will realise that it should be possible to check through a given text only once, testing for all alternative patterns as you go along, much like a human reader would.

After all, if you want to find out whether a text contains any of the words "dog", "cat" or "mouse", you do not read it three times! What is needed is an appropriate notation that will allow us to specify the alternatives we are searching for, and an algorithm to perform the search efficiently.

In other words, we want a sort of super-flexible pattern matching notation that will also allow "wild" characters, negatives and alternatives.

A notation like this does exist, and it is known as "regular expressions". Regular expressions play a very important role in computing, and for good reason.

The notation of regular expressions is extremely powerful; for instance, it can be used to analyse any stream of characters in order to see if the words they form belong to a certain language or not - whether that language be English, Latin, Basic or AReXX.

This notation has now become more or less standardised (there are small variations), and is used whenever a computer language is designed or analysed.

However, despite their power, regular expressions are quite easy to use, and are useful for scores of other jobs too - some of them a lot more common than computer language design.

Even the ordinary AmigaDOS file wildcards like ? and # (where #?info means any file starting with "p" and ending with "info") are simply a very small subset of the regular expression concept.

Other examples include pattern matchers for finding

crossword clues, database enquiry systems that can accept incomplete specifications, and, of course, the good old word processor spelling checker that gives you alternative suggestions.

There are also several programming languages - especially languages that are intended for text processing - that have a built-in ability to handle regular expressions, such as Perl and Awk. Anyone who has worked with these languages will miss their power and flexibility when having to use AReXX. The history of regular expressions is closely tied in with the development of software science, and there is a lot of literature on the subject - anyone who wants to find out more should consult a book on compiler fundamentals or lexical analysis.

Every computer programming hobbyist will gain from a study of regular expressions - but the good news is that you do not have to understand any of the theory in order to use the system effectively.

Well then, why not combine the best of both worlds? It would seem that AReXX and regular expression have a lot to offer each other. This idea prompted me to action. I knew that there were quite a few freely distributable function libraries to handle regular expressions, so I set out to see if I could adapt any of them to AReXX.

# Advanced

I didn't need to go far before I found that this had already been done: On Fred Fish disk number 444 I found Stephen Mochlie's *regexp.library*, which has a ready-to-go AReXX interface.

This neat little library adds five new functions to the system, the two main ones being *REIndex(string, pattern)* and *RESubst(string, pattern)*. These do almost exactly the same job as AReXX's built-in *Index(string, pattern)* and *Subst(string, position)* functions, but instead of specifying a fixed pattern or a position, you specify a regular expression, as defined in the library's documentation.

As always, please remember that before you can use any external AReXX library you must first add it to the system, either by issuing the command *rdlib xxx.library 0-30 0* at the Shell, or by using the *AddLib()* function in the same way in your program. If you want the library to be available at all times you should add the "rdlib" line to your user-startup. To

.	any character except newline
\$	the end of a line
:	whitespace
a	any alphabetic character
d	any digit
[...]	any of the characters ... in the brackets
[^...]	any of the characters ... not in the brackets
+	one or more occurrences
*	zero or more occurrences
\	takes the next character literally (used for symbols)

Diagram 1: Some regular expression symbols



give you a quick taste of what this is like, we will look at some examples. Diagram I gives a brief summary of the main elements of regular expressions. Note that it is by no means a complete list! In the examples that follow I have tried to strike a balance between simplifying the ideas as much as possible so that they are readily understandable to newcomers, and not to be too repetitive.

There is an important advantage when using regular expressions to parse a string of characters. The standard ARExx technique of parsing a string with patterns, returns the first string that matches the pattern.

## Loopholes

However, there might have been a more general instance that also matched the pattern, in which case it would have been truncated and lost. For instance, suppose we are searching a text for words beginning with the letters "pr" and ending with "es", using some code like:

```
PARSE VAR text bitbefore 'pr' xxx 'es' bitafter
word = 'pr' || xxx || 'es'
```

If the word "processes" was encountered, the resulting word would be "proces", as the last "ses" would be cut off and lost.

Using regular expressions along with ARExx gives us a neater way to do the job, and the resulting code is much faster.

```
pattern = '[Pp][r]{1,}[^es]*[es]';
DO FOREVER UNTIL text = ''
  word = REsubstr('||' || text || '||', pat-
  tern)
  PARSE VAR text bef (word) text
END
```

The regular expression pattern above is explained in Diagram II. Other than that little explanation is needed. A blank is added in front of the string each time - this is necessary because any trailing whitespace or punctuation is removed by the last `\\n|\\t|\\p` pattern.

It also takes into account the case of the first word in the text. Note that the word will still have to be stripped of the



# string handling

There is also the problem of ensuring that only single words are checked (avoiding multiple word combinations, where one word starts with a "pr" and a subsequent one ends with "es", such as "prime fees").

We could specify blank spaces in the parse string (before the "p" and after the "s"), and this would work fairly well, except it would still not take account of punctuation marks, tabs, newlines and so on.

In fact, the "formal" way to do this under ARExx would be to parse the text word by word, strip any extraneous characters and check whether each word meets our requirements. The code for this would be a few lines longer, and it would run a much slower, but it would work correctly. Notice that if we had to allow for capitals, we would need an extra check.

```
DO FOREVER UNTIL text = ''
  PARSE VAR text candidate text
  candidate = Strip(candidate, "\\n|\\t|\\p")
  /* the next two lines check our conditions */
  IF Pos('pr', candidate) > 1 AND LastPos('es', candidate) > 2
    THEN word = candidate
  END
```

punctuation marks.

Another useful example is the parsing of a full pathname in order to extract the actual file name. Suppose you have a pathname such as "D:\\H0\\subdir1\\subdir2\\dir\\myfile". In the past we have dealt with this situation in two ways. The more common alternative is to find the position of the last slash, and then parse by position to get the file name.

```
n = LastPos
PARSE VAR pathname n filename
```

The other alternative is to parse the name recursively using the pattern `"/"` until you get to the last one. This is more involved, but can be useful if you also want to know how many levels down you are.

The regular expression that deals with this problem is simply `"*/"`

```
location = REsubstr(pathname, "*/")
PARSE VAR pathname (location) filename
```

Obviously this example is trivial, but it illustrates the point very clearly. Regular expressions will return the longest possible string that matches the pattern, and not the first occurrence.

I am sure that if you do any sort of utility programming, you will find `regexlib` a very welcome addition to your `lib` drawer. I must point out that this implementation is still a bit weak, mainly because it does not allow for bracketing and repeated patterns.

I hope the situation will be remedied soon. After all the code is freely available - all that is needed is to convert it into an ARExx library.

● Next time we will look at a very simple and easy to use graphics library that will let you add impressive interfaces to your utilities.

```
'[Pp][r]{1,}[^es]*[es]';
```

First character is a blank

[Pp] Second character is "p" (upper or lower)

r Third character is "r"

{1,} Any number of characters but no whitespace

es followed by lowercase "es"

[\\n|\\t|\\p] A full stop, comma, exclamation or whitespace (one or more)

Diagram II: Regular expressions are easy to understand if you break them down!

One of the main strengths of ARExx is the ease and elegance with which it handles strings of characters. But even here there is room for a lot of improvement, as Alex Gian reveals



## PowerBase v3.30



**T**he cast and crew have been chosen. You've given the script to the actors and the storyboards to the camera operator. In bed at night, you lie awake tossing and turning, juggling queries and doubts about the video that want to be answered.

Where should I place the mike for optimum sound quality in a four-way, one shot conversation? Am I good enough to direct a team of 20 people? It's four o'clock in the morning and I still have a day job to get up for. The answer to your worries is to keep organising. Next up on the list of priorities is to call a production meeting. This involves the crew but not the actors. At the moment, props and set dressing lists, scheduling and location hunting involving a recce are probably your main concerns. Remember to delegate – don't try to do everything yourself, your crew is there to help.

With amateur videomaking, relying on people's goodwill is very important. Laying your hands on props and items for the locations can be difficult but you'll be surprised at how interested and generous people can be when asked for a favour concerning a film.

Start with either a letter or phone call to the shop or owners of a particular location or prop you want to use and explain your situation and needs in straightforward terms emphasising that the video is non-profit making but you intend to enter the film into international competitions.

Offer them a chance to see the final result and ask if they would like a credit in the end titles for their troubles. Also promise to send the exact times and dates of when and where you want to shoot in writing.

When permission is gained, make sure it is given in writing (people can 'forget' especially if shooting in a pub, club or shops) then the next step is the location hunt or recce.

This is used by the director, camera operator and PA to take a look round various possible settings for the video.

## EXPERIMENT

Try to take a camera or camcorder with you to get some shots of the location to take back and study in more detail. While there, discuss with the camera operator what ideas you have for the shooting of the scene. Storyboards can be altered or completely changed so don't be afraid to experiment.

Give him or her space to express their ideas as well which, like the story creation stage, can help to trigger more ideas and form a better working relationship – show people at this early stage that you trust and respect them and their own opinions.

If you do, they'll enjoy working for you and that means they'll work harder, producing better results over the rest of the shoot.

Check out how practical it will be to set up lights, tripods, sound equipment and so on. Count the amount of power points there are in the place – you may need extension leads and four-way adaptors.

Another important point often overlooked by amateur crews until it's too late and the entire buildings fuse box is blown, is to remember to calculate the amount of electricity being used by all the equipment – lights in particular can have a nasty habit of overloading and shorting the system.

Above all, be practical first and creative second. Assess what is available to you and work from there. If the ground-

## Calling all the heroes

Once everybody has agreed to the schedule, the next stage is to create call sheets. These document the exact times, locations and people that will be needed on each day.

Distribute them to everyone involved either at the beginning of the shoot or, more practically, the evening before each shooting day so that the information or any changes are up-to-date and accurate.

# VIDEO

work is done then the inspiration will grow from it.

On successfully attaining the basic tools for the film, the next and probably most difficult stage especially with an inexperienced PA, is to sit down and sort out the scheduling for the entire shoot.

## PLANNING

If this is your first time then it is still important to have a tight if lenient time structure. Firstly, it will make yourself and the crew more motivated and focused.

Secondly, if you turn up at a location and the owner see a slack and decidedly demorganised mass of disorganised people then they may well change their minds and kick you out of the building. You may be an amateur videomaker but act in a professional manner.

It is very unlikely and often impractical to shoot a script in order. Time, access and



# Managing your time

How to keep your head when making a film – all is revealed in the third instalment of Adam Phillips's video making story

the hassle of shifting gear back and forth to certain locations are usually the main reasons for shooting out of order.

Break the script down into each scene and work out through the storyboard and shooting script (a list of all shots used in the video where each is numbered) and estimate as accurately as you can with the PA how long each one will take to film.

If the shots in a particular scene are relatively difficult to achieve, such as a moving shot with the camera operator using a wheel chair, try and take any difficulties into account.

Once decided, take a lump of time needed to shoot the entire scene and organise it into the overall shooting day. Do this with all the scenes and arrange them into schedule with dates and times. Try and give yourself emergency space in case of going over schedule.

When completed, call a meeting for both crew and cast to check that there will be no problems with dates clashing and to inform everyone of exactly what is going on to avoid confusion later.

If it all seems like a huge and monstrous amount to think about, remember to take everything one step at a time and you'll find that all the pieces of the jigsaw will slot into place.



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**W**hether you're a dedicated muso or just an interested bystander with a shiny new machine, getting into Amiga music can be much cheaper and simpler than you might imagine.

To start we'll look at the market from the bystander's position, highlighting the cheap and cheerful products which for as little as £2 will allow any beginner to create music on a par with that found on commercial games software.

As you've probably guessed we're talking PD and more precisely MED – a program that's been the premier PD soundtracker clone for longer than most Amiga musos would care to remember.

Due to the prolific success and countless updates – courtesy of its creator Teigo Kinnunen – the PD libraries are literally fit to burst with countless revisions of the aforesaid MED.

However, if you're after the very latest offering – alias OctaMed v5 – Seasoft Computing is the first place to look, primarily because they have managed to obtain exclusive rights to distribute the eight-track licenceware version which comes in at a full package price of around £30. For more information contact Seasoft Computing on 0903 850578.

Although eight channels may sound more attractive than the four track shareware alternative, the additional tracks do not play samples but merely sequence Commodore 64 style synth sounds.

For the beginner these additional tracks aren't essential, and as a result, the four-track PD program is perhaps the ideal choice for testing the water prior to the larger investment in the licenceware

alternative. Almost all the major libraries carry the four track version for around £2. When ordering be sure the software on offer is at or around v3.20.

Like all the soundtracker clones, MED employs standard 8-bit samples as its primary sound source. These can be either created yourself or alternatively there's a wide selection of pre-recorded effects and instruments that can be bought direct either on disk or CD from PD libraries or dedicated sample suppliers.

If you're happier with pre-recorded sounds, quality commercial sources include the Zero-G Datafile which carries both CD and disk-based collections, and is available direct from Tune and Space at PO Box 306, Herts HP4 3EP. Tel: 0442 870681.

Although excellent quality the vast majority of the Zero-G samples are heavily dudded with assorted scratches and popular hook lines. For any would-be DJs or rave

## MUSIC



# Sound advice

## The ultimate band

If you're still undecided as to the filling for your post-Christmas musical stocking, Blue Ribbon can supply an intermediate package which allows the user to employ their own or pre-recorded samples as part of an automated six-part accompaniment.

The software, entitled SuperJam1.1, allows you to begin building a bridge between the internal sounds of the machine and the world of MIDI.

It works by allowing you to assign any one of numerous styles which then form the framework within which your five automated musicians will literally jam along.

All you need do is add the basic melody and play your part as the lead soloist. No matter what chord progression you add the other members will automatically play a suitable accompaniment.

## PURPLE POP

For example, if you specify a rock-style with a chord progression of say E minor, G and A, your automated bass player is almost certain to rip straight into Smoke on the Water!

OK, nobody said the package is perfect but with a bit of practice you can generate perfectly acceptable lift music easily, which can then be worked into a pseudo-original or perhaps employed directly as backing music on various multimedia exploits.

Besides the fun and functionality of the package, the beauty is that SuperJam1.1 is equally at home with MIDI information as it is with converted Amiga samples. If you're looking for an affordable and interesting introduction to composition plus both an educational and speedy production tool, SuperJam1.1 is ideal.

fans the collection is ideal; however if you're planning to build original tracks from the ground up, the next collection is probably a more attractive proposition.

If you fancy an alternative to rave tunes, the Sample Series from those lovable Mancunians at Software Technology could have an ideal alternative. Unlike the Zero-G collection the Sampler Series is comprised entirely of sounds borrowed from the latest synths. If you're interested in a more purist's approach to audio plagiarism, you can get the aforesaid collection from: Software Technology, 1-Mex House, 40 Princess Street, Manchester M1 6DE. Tel: 061-236 2515/4.

## Easy Midi

If you're looking to side-step the internal talents of the Amiga altogether, there are a whole selection of budget conscious sequencers waiting in the wings.

Although all of the programs listed are primarily aimed at MIDI, they also all fully support the machine's internal talents with equal enthusiasm.

Although not a particularly strong selling point in the eyes of serious users, it does mean that if MIDI music is your goal but finances mean a wait for the necessary hardware you can still come to terms with the software thanks to inexpensive Amiga samples.

Ideal choices for any potential investor include Sequencer One Plus, MusicX, B&BPro2 and TigerCub, the first of which is perhaps the ideal choice boasting an extremely user-friendly editing system and intuitive design.

On the downside, Sequencer One Plus isn't the cheapest, as the now rather elderly

but still usable MusicX easily lays claim to that particular title. MusicX was, in its day, easily the hottest item on the Amiga music scene, and it still remains a viable option especially if you're prepared to shop around – although it has been superseded by the others when it comes to ease of use and added features.

The final option is to throw caution to the wind and invest in Bars & Pipes Professional v2 – which although far from cheap offers a degree of expandability only equalled by KCS 3.5.

The reason for the B&BPro2 bias as opposed to KCS is simply that although the two are on a par for power, B&BPro2 is much easier to master for the outright beginner.

If you think that in time you may be in the market for a real power package, it could be worth tracking down a copy of TigerCub. This is basically a very cut-down version of the bigger KCS sequence. However it does provide a great opportunity to familiarise yourself with the KCS environment prior to taking the plunge into KCS 3.5.

**Paul Austin  
points out the  
best selection of  
software for the  
musical beginner**







**F**irst this month a look at some of the boards I've been visiting recently on my travels around the globe via modem. I used to have a phone book on my comms program which stretched from the top to the bottom of the screen, exotic numbers from far flung places.

Then I settled down, like you do if you're a comms head, into visiting only the boards I used regularly. I visit CIX and The Direct Connection, I popped into other sites via Internet, but that has been it. But then I remembered what all those other names on my phone menu were for.

A quick dial-up produced a depressing result. It must be only the best part of six months since I was on all of these boards and almost all of them have vanished, or at least are not on-line most of the time.

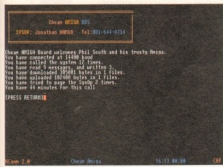
Of the ones which were still operating I have chosen a couple which I particularly liked this time around, and they are Cheam Amiga and Essex Amiga.

## Cheam Amiga

Although not very strong in the graphics department, this is a good solid board with lots to recommend it to the casual network surfer. The file area is particularly good, and if you're local to Cheam then this is one of the fastest and cheapest ways of getting your Fish Disks or the more recent demos.

Some file areas and message bases are better supported than others. I don't know what kind of system the board is run on, but it may not be very large. But, the board is well organised, and has a number of feeds from outside to bring things up a bit.

There's a lot of new games and demos, which seem to be a popular hangout for uploaders as well as downloaders. Some people seem to not care which area they upload to either, so keen are



## Internet corner

Here's a nice, out of the way place you can visit on the Internet in an idle moment:

[ftp.eff.org](http://ftp.eff.org)

Home of the Electronic Frontier Foundation, or EFF, who are a group of very high ranking old computer heads like Steve Wozniak who invented the Apple II, John Barlow, Mitch Kapor and many others.

They champion the rights of all computer people to inhabit the electronic frontier, and vigorously oppose any wrongful arrests, like Steve Jackson Games for example.

The FTP public folder is full of very interesting stuff, like electronic magazines and archives of very hard to obtain facts and figures, plus articles and whole books about famous coders, hackers, court cases and so on.

A one-stop resource for the person who's writing a book about computer crime or hacking in the old sense of the word.

# COMMS

they to get on-line... As well as a healthy sprinkling of BBS software there's also a special area for Jolyon Ralph. Hmm, why does Jolyon need his own file area?

Still, what with the text files, fonts and CanDo support, this is a healthy board with a lot going for it. All it needs is a graphics overhaul and a bit more attention paid to updating the file areas from time to time and it'll be a great little board. Nice one.

## Essex Amiga

Next is the Essex Amiga board, which has better graphics and a lot more going on, although better is a relative term. There is more of everything although as ever I'm not sure if this is necessarily a good thing. I got lost and spoilt for choice on more than one occasion. But having said all that it's a neat and tidy board with lots to look at and bags of stuff to download.



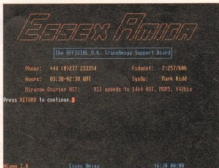
# A brand new friend

**Phil South looks at a couple of Amiga-based bulletin boards**

The incentive to upload as well as trough your way through the piles of files is that you have to keep up a respectable upload/download ratio, and the more you take the more you have to give. This is a good way of doing it, and it obviously pays off given the size of the file areas.

As well as all the usual graphics, demos and games, there's also an Imagine support filebase, plus a load of Fidonet software and the UK BBS Newsletter. One of the most popular areas is the Transamiga filebase, as this is the official Transamiga support BBS. It's run on the program and it tells other people how to run it too!

This is a nice, easy to use, good looking and full BBS with loads to read and lots to download. The electronic equivalent of a well run public house.









One of the hardest things to get to grips with in Amos is the difference between hardware and screen co-ordinates. This still causes me no end of trouble, and for beginners it must be sheer hair-shirt and back-whipping purgatory.

So in a fit of pique I wrote this program to show up mouse co-ordinates. Load an IFF picture, preferably the one you want to locate the mouse over, and then just read the figures (and write them down) as you move the mouse over the screen.

```

Run * Mouse Co-ords Tool. .Amos *
Run
Curs Off : Paper 0 : Cls 0
Curs Off
Screen Open 0,640,512,16,8192

```

So, we start by adding the usual. I've opened a screen here which is hi-res, but you can use the size of screen that your IFF screen is set to. Don't use:

```
Load Iff "",0
```

as this will cause problems with Limit Mouse. Next load a picture into your screen:

```
Load Iff "Iff_picture.iff",0
```

The reason you might want to do this is that perhaps on the screen you have an object and you want to accurately check out where it is so you can match that to a limit mouse or Set Zone command.

The next bit sets out and prints out the title and the co-ordinates, or at least where they will go:

```

Locate 0,0
Print "Mouse Co-ords Tool v1.2"
Locate 0,1 : Print "X" : Print "Y"
Locate 0,0 : Print "CTRL-C to stop"

```

So that's how our screen will look.

Now we're into the loop. This is where all the work gets done. First, notice how the variables Y1 and X1 are used. They are loaded with the location of the mouse in the X and Y co-ordinates.

These are of course hardware co-ordinates so we have to convert them to screen co-ordinates. This is done by loading Y2 and X2 with the product of the conversion using X and Y Screen.

```

Do
  Y1=Y Mouse : X1=X Mouse
  Y2=Y Screen*11 : X2=X Screen*11
  Locate 0,1 : Print Y2," "
  Locate 0,2 : Print X2," "
Loop

```

And finally, the current screen locations are printed out on the screen at the same spot. Each time the numbers are printed a few trailing spaces are printed too, so that the numbers don't leave behind any confusing extra numbers as they increase and decrease in size (see what happens if you leave out the trailing spaces!).

So the thing to bear in mind with object control is the difference between hardware co-ordinates and screen co-ordinates. The X MOUSE and Y MOUSE commands return a hardware co-

## Write a program!

Co-ordinates are a right nuisance and no mistake. This month's homework is to create a program which allows you to store screen co-ordinates as mouse co-ordinates and vice versa.

Or how about a program to design new mouse pointers? You will need to know all about mouse co-ordinates and also be able to store the new designs as mouse.abk. Send in your best efforts and we'll print them in a future issue.

# AMOS

ordinate so you have to convert that to a screen one for the position to be right.

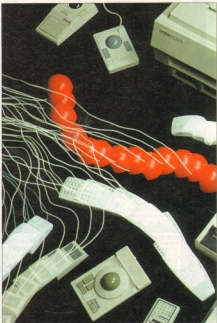
It's the same with LIMIT MOUSE. In order for the co-ordinates from X and Y MOUSE to be correct you have to convert them using X and Y SCREEN respectively.

The old Limit Mouse problem is a knotty one. If you create a screen by default by loading in an IFF file, then the screen seems to go all sorts of odd sizes, at least as far as the mouse is concerned. Omit the Screen Open command and see what happens.

This is something which makes you come a-cropper a lot in Amos. Not open screens before you load something into them. It's a lazy programming habit to get into and causes all manner of problems when you want to go back to a bit of code and compile it. So always set up your screens precisely before you do anything with them, and you'll save a lot of grief later on.



# I saw a mouse...



Where? There on the stair.  
Phil South looks at Amos mouse co-ordinates

## Write stuff

If you have an Amos question, then please write to Phil South, Amos Column, Amiga Computing, Europa House, Adlington Park, Macclesfield SK10 4NP.



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**B**et you'd like some professional-looking disk labels. Think how envious your mates will feel when you hand them a disk with its own custom label, personally designed.

They'll probably be so envious that they'll pay you to make some disk labels for them as well. Could be the start of a whole new venture.

But like any new project, you have to approach the creation of labels with a clear idea as to the steps involved, and in what order to do things. No good creating the labels before you have the type you intend using in your hand.

You could work with a known standard, but you can be sure that your supplier will throw a spanner in the works and present you with a sheet of labels that is another standard, different to that of your artwork.

When I rang various suppliers and copy shops I was presented with a few different sizes, in the end settling on the most common size of 68mm by 68mm, giving 12 labels per sheet.

But don't use that as the basis for your layout because you will also need to know exactly where on the sheet the labels sit before you can design your grid.

Once you've got a sheet of labels in front of you, the design process can begin, with the most important part being the setting up of a grid. Get that wrong and you'll waste a lot of time later. A point to watch out for is the positioning of the labels on the hunking paper.

Some sit butt to butt, while on other sheets they sit apart from each other. Check, and measure your sheet of labels carefully before designing the grid.

Once the grid is done you can turn your attention to the content of each label. This will depend on the purpose of the disk, but I find the minimalist approach is best. Less is more. Too much information in such a small space can be difficult to read at a glance.

Sketch out on paper the type of information you want on the label and give each piece of information a rating. You can now design each element of the label in relation to its importance. And don't forget about the part of the label that folds over the top of a disk.

It's also a good idea to leave a margin of 3mm or 4mm within the label itself in case the sheet of labels is not properly aligned when it goes through the printer.

When laying out your labels it will save time if you first create the one label which contains elements common to all your labels, and then duplicate it until the page is filled with the correct number of labels. You can then add any other elements that differ from label to label.

Once you have all your labels on the page it might be wise to do a test print to make sure they are in the right position, comparing closely your artwork with a sheet of labels.

You can then proof read each different label. The reason for the care is that sheets of labels cost a pretty penny. A pack of

## PUBLISHING

100 quality labels will cost around £25, although there are cheaper brands.

After the checking process you'll be ready to print the labels, or the artwork to be used for the labels, the difference being that if you own a laser printer you can print your labels direct from your publishing program, if not you will have to produce artwork which a copy shop can use to print or photocopy on to your labels.

Another option, the one I prefer, is to find a laser or copy shop which has a 600dpi laser printer that can print from PostScript files.

This enables you to cut out having to print the artwork, and because the printing process is coming direct from your PostScript file, the quality will be better than when reproducing from a hard copy of your artwork.

As to the cost of the printing, I found



# Sticky business

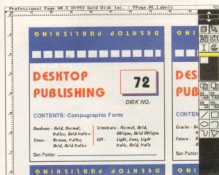
that when you supply the labels, copies are costed at normal photocopying prices. Multiple copies from the one piece of artwork are cheaper than if each sheet of labels has to be copied from a different piece of artwork.

If all your labels are the same, and you want better quality than a copier can produce, it may be worth having them reproduced on a printing press.

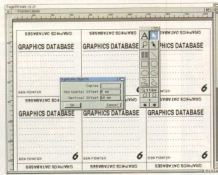
Many copy shops are willing to take artwork in PostScript form and reproduce them for around £30, plus the cost of the media (the blank labels). For a little more money you can change the black ink for a colour. If you feel very rich you can have two spot colours, red and blue for example.

To produce 1,200 labels you will be looking at £25 for the media and between £10 (photocopying) and £80 (spot colour) to have the design printed on to the labels.

Ordinary disk labels aren't good enough for Ben Pointer, so he shows you how he designs his own



Think very carefully about which is the most important element on your label, and size it appropriately so that it is visible at a glance



In PageStream you can group all the objects within a label so that they appear as one object. This can then be duplicated easily to create a sheet of them



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This outrageous collection of utilities includes the very latest and best shareware compiled within a smooth and simple user friendly interface. No more CUI or Shell, a simple point and click is all you'll ever need.

This is just a small selection of the tools and utilities on offer. Others include ScreenSet and GPMem.

For the artists out there, Icon Edit adds to produce customised icons, while NickHeft adds the option for a 16 colour designer backdrop.

Animated pointers and non-clicking Resizers. Screen blaster provides a laser mouse function and transforms the appearance of your Workbench screen forever.

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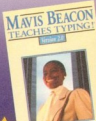


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Videomaster features a sound sampler as part of the hardware, through the software can be used with external sound samples. This is supported by a full feature sound recording and editing program within the videomaster software. The videomaster system also features a video sequencer.

The complete package contains the Videomaster video digitizing and sound sampling hardware unit, TB-Colour filter for colour camera use, comprehensive user guide and full system software.

Videomaster only works with Amiga 500 and 500 Plus models.

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The MINI MODULE enables samples to be played on all 4 audio channels from a MIDI keyboard, Drum box or External Sequencer. (Midi Interface required).

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X-COPY PROFESSIONAL cares for all your needs, included in the package is a small hardware interface that plugs into the external disk drive port at the back of the Amiga and your external disk drive (if you have one) plugs into the back of the interface. This allows the Digital Disk Image Copy Mode to use the Adaptive Run/Write Modulation routines to backup virtually all known disks.

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The facilities offered by X-Copy Pro are essential to backup user's own software, CD software, or other data programs, where permission had been given. It is illegal to make unauthorized hard disk images without the permission of the copyright owner.

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## CLARITY 16

At last from Microdeal comes the first ever low cost Stereo 16 Bit Sampler for the Amiga. Contains two 16 bit analog to digital/digital to analog converters to allow stereo sound digitising. The system can record sound from suitable equipment such as CD players, cassette recorder or any 'AUX' or line level signal source via the stereo phone sockets provided. Stereo phone outputs are provided for connection to an amplifier or mixer. The hardware plugs into the serial and printer ports and so can be used with the whole Amiga range of computers. As if this is not enough, Clarity 16 also contains a Midi interface for use with a Midi keyboard or similar, which is compatible with major commercial software.

The Editor program provides the user with the ultimate in power and sophistication, packed with features which appear for the first time for any home computers. The fully multi-tasking, window styled editor allows individual samples to be loaded into the computer and edited separately.

TMS files is recommended.

**ONLY £129.95**

Product	Price	Order No.
Clarity 16	£129.95	0077

## TURBO TOUCH JOYPAD

This is a radical new style of hand held controller. Just pass your finger over the sensor - No more finger fatigue or blisters. And thanks to better diagonal and circular (MO?) control, the newest and most challenging games are easier to control and more fun to play. The Turbo Touch 360 brings a new dimension of control and comfort to video game play.



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Wouldn't it be good to really "draw" when using paint and graphics packages? Well now you can, by plugging the amazing Light Pen in instead of your cumbersome mouse. It comes with a specially designed drawing package, Kwildraw, as well as compatibility software for most Workbench-run programs.



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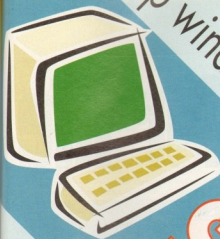
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# AMIGA MARKET

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Simple video editing with EditMate,  
Noddy's Big Adventure and Vidi Amiga 12  
(RT) under test

## **Software Spotlight..181**

Buying tips on leading Amiga software

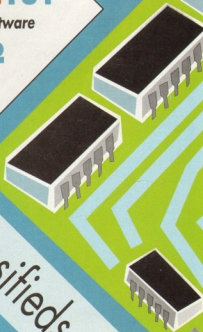
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classifieds







Shop Window

Easy and affordable video editing system

Supplier: Meridian Distribution

Phone: 081-543 3500

Price: £199.95

**A**lthough the Amiga has been synonymous with video production since its inception, the editing of live footage has always been a grey area best left to the experts.

To be fair the problem wasn't caused by the Amiga but rather the myriad of proprietary timecodes, connections and control protocols which have made an automated editing process difficult at best.

As a result Amiga-based video editing systems have largely remained the domain of pro and semi-pro videographers who can both afford and apply the power features which such systems provide.

In addition to the cost and complexity of the hardware and associated software most of the serious editors demand at least some form of modification to one or more of your VCRs - if you won't be avoiding a generation when adding timecode to your original recordings.

Fortunately with the arrival of Edit-Mate such problems can now be avoided. No timecode is required and better still there's no need for modifications to your existing equipment.

However as you've probably guessed much of the power offered by products such as Videopilot has been inevitably sacrificed - but with a saving of approximately £1,200 it's a price many home users will be more than willing to make.

Although simpler than most systems, Edit-Mate isn't without the usual array of cables and connections, along with a single programmable infra red. Of course CamLink - the creators of Edit-Mate - will be more than happy to supply additional cables as required.

## CONNECTIONS

In order to connect to the Amiga a special parallel port D-ring plugs into the rear of the machine enabling the edit control cables to link the Amiga with the play and record VCRs.

Like the majority of basic edit systems the video signal is passed directly between the two VCRs/camcorders, and as a consequence Edit-Mate is left free to control the transport of the two machines.

As mentioned above the number and variety of video control protocols is quite literally vast and because of this Edit-Mate concentrates its efforts on Panasonic and to a lesser extent Sony.

In the case of Panasonic you're provided with a five-pin DIN while the Sony offering takes the form of linc cable with a 3.5mm jack. Of course if your VCR isn't either of the above you can always fall back on the aforementioned infra red. Please bear in mind both players need some form of remote control so ensure you order enough cables...

Thankfully audio also has its place in the Cam-Link system courtesy of a small mixer which comes as part of the Edit-Mate package. Although a creation of their own making it must be said the mixer is more than a little reminiscent of Tandy's legendary four channel microphone mixer.

However considering the Tandy version retails at around £25 while the Cam-Link comes in at £200 with a few VCR

# Mate for life



Can you really be another Spielberg for only £200 with the CamLink video editing system?

files, a D-ring parallel connector, a mic and some software, it does seem Edit-Mate is a tad more expensive than it should be.

As for build quality there's little to complain about - as long as you don't have an aversion to moulded plastic. Along the rear of the unit awaits the usual array of phono/RCA inputs which can take a stereo signal from the source VCR, a CD player or tape deck.

On the other side of the coin output is handled by two more phonsos destined to transport your original audio, backing music and freeze-over to the target recorder.

On the top of the unit sits the essential master volume plus the three faders to control the internal mix between the elements. Other than that there's the ubiquitous on/off along with a toggle switch to alternate between the CD or tape player. The only other I/O options sit on the front of the

mixer in the form of twin quarter inch jacks for the headphones plus a single stereo quarter inch jack for headphones. In short, it looks simple and indeed that's exactly how it operates, just switch it on and you're off.

In keeping with the tradition of simplicity the software is blissfully simple thanks to a very straightforward point and click interface which even makes VCR selection a doddle.

Like any self-respecting package hard disk installation is catered for via the usual icon-driven script. In fact icons play a big part in the Edit-Mate set-up procedure with individuals offering access to the main program, hard disk install, infra red programming and finally burned-in on-screen timecode.

This final option shouldn't be confused with timecoding the tape itself. In this case timecode simply refers to the ability to generate an on-screen timecode read-out which can be burnt onto the output with the assistance of a genlock. Although a





## Shop Window

seemingly strange option for home users it's been added to allow semi-pro videographers to add timecode to rough creations which can then be sent to the client for evaluation.

The idea is that the client can then make a note of the scenes and their locations, these can then be relayed back allowing you to make the necessary adjustments to your edit script prior to compiling a finished master.

Assuming VCR selection, infra red programming and cabling is complete it's time to enter the software itself and begin to build your masterpiece. At the risk of repetition life just keeps getting easier.

After rewinding both recorders and resetting the counters for each selection can begin. Of course, now thanks to the program's remote control for each player, the buttons need never again be touched by human hands.

In order to add scenes to your masterpiece you simply click on Edit-in and Edit-out in succession. This process is then repeated throughout the tape until all your favourite scenes are selected – paused can be used for greater accuracy – rather than constantly selecting shots on the fly.

Once all your scenes have been captured you can begin fine tuning. All edit points are kept in memory and are displayed in a list showing their in/out times and scene duration plus the total elapsed time for the entire production.

At this stage you're free to cut, paste copy and duplicate to your heart's desire – and to make things even easier you can also add comments to the various scenes. The numerical parameters for each scene can also be adjusted by simply highlighting the appropriate line and typing in the new figures at the desired location.

## POINT-AND-CLICK

If you're happy with your edit decisions or simply wish to save out in case of disaster, committing your creation to disk is another point-and-click procedure – and of course, loading up an existing file follows the same format.

Any pre-roll problems that may arise can also be solved by the delay option which allows for the idiosyncrasies of your particular VCRs transport to be compensated for – thereby making edits as accurate as possible.

Assuming all the editing is complete, the only thing left is to click on the perform edit button, follow the prompts and sit back as Edit-Mate puts your masterpiece together.

As you've probably noticed, Edit-Mate is a blissfully simple system that's ideal for the home user who simply wants to condense hours of Camcorder footage into a concise and potentially stylish production complete with sound and vision.

However, Edit-Mate does have one drawback, namely its cost. Although cheap in comparison with other pro systems, £200 is still a bit pricey. If Cam-Link were to release a cut-down version at a better price minus the mixer and mic it would be a sure fire success.

As it stands, the system still remains very attractive in relation to the opposition, with the only challenge coming from similar tape counter edit systems from the various VCR manufacturers. For home users it's a friendly if perhaps a little basic answer while professionals could find it invaluable for rough edits and general pre-production.

Educational Software package for 3-7 year olds  
Supplier: The Jumping Bean Company  
Phone: 0602 792838  
Price: £24.99

## Noddy's Big Adventure

Noddy's Big Adventure is the sequel to Noddy's Playtime. It is an interactive educational and creativity package designed for three to seven-year-olds.

A large range of subject areas are covered within the game, some covering early aspects of the National Curriculum, and incorporates different levels of difficulty so all levels of intelligence are catered for.

Every aspect of this package has been carefully designed with children in mind. The controls have been made as simple as possible, even the numbers on the disk have been enlarged to make disk accessing easy for young children.

However, with all the interlinking screens and levels it might prove to be a bit taxing and frustrating for younger children to find the particular activity they want.

The graphics are bright and colourful and remain true to the original Noddy storybook illustrations. This, along with the realistic sound effects, is guaranteed to keep children amused.

Each of the different programs have a fully interactive scene at the beginning and if a certain object is clicked on it will either animate or make a sound which is likely to appeal to a child.

The game is cleverly interlinked by a map which Noddy can drive round to each level and can be controlled by the child which forms a driving game in itself. They may end up enjoying this section more than the actual learning activities which would defeat the whole object of a learning package!

The separate word processing section of the package at first seems to be an excellent idea. A child can acquaint itself with the basic functions of a

Would you pick up a strange grumpy-type fellow in your car? Hmmm



Where do these animals come from? Oh no, lengthy explanations time

"grown up" word processor while increasing its vocabulary through the various word games and stories. However, the range of icons to choose from is a little confusing for a child and their concentration may easily wander.

There are a wide variety of activities included which range from Tricky Trees, a memory game where children must repeat sequences of notes, to Beach Sorter, where the aim of the activity is to place objects or animals into groups.

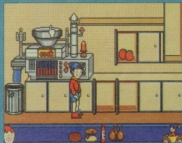
These are varied enough to keep a child's interest for quite a while but some levels may need lengthy explanations from a parent.

How much of a learning aid Noddy's Big Adventure actually will be is questionable. Although many parts of a child's early education are covered in this package, the way in which a child finds out whether they have successfully answered an activity is unhelpful.

Instead of pointing out why the child has got an activity wrong it, will simply say "No, listen carefully" for example, which may be quite disconcerting to a younger child. They may also become distracted by the not so educational features such as the driving game and the interactive screens.

Parental assistance may also be required for younger children to explain why they may be getting something wrong and to help them find the activity they want.

It's worth noting that Noddy's Big Adventure does require a minimum of 1Mb to run (2Mb if run from hard disk).



Is Noddy a new man of the 90s, tied to the kitchen sink? I think not





## Shop Window

12-bit real time video digitiser with editing software  
 Supplier: Rombo  
 Phone: 0506 414631  
 Price: £199

### Vidi Amiga 12 (RT)

The latest digitiser in the Vidi Amiga family offers a built-in VRAM buffer for real-time image capture in full 12-bit or 24-bit with additional VRAM modules at interlaced resolutions of up to 720 x 576. It is a solid development of the popular Vidi Amiga 12 AGA model we reviewed earlier this year.

As with other Rombo equipment, the 12(RT) hardware is crammed into a small plastic casing and attaches to the Amiga's parallel port. Two composite video inputs and a single five-pin mini-DIN I/C socket on the rear of the unit give the user software control over the video source used, and there's an optional power supply.

Vidi Amiga requires 500mA from a 9V DC supply, but this information is only to be found on a slip of addenda put in the box with the manual. Users must supply their own PSU and ensure that it is of the correct type, and if they use the information properly there should be no problems.

It would have been better if Rombo had at least indicated the required polarity on the casing of the unit, as plugging in the wrong polarity PSU can destroy a piece of equipment, but most battery-eliminator PSUs will work so there should be few problems for new users.

Once the hardware was connected using a small extendable cable to attach the unit to the Amiga A4000, software installation was easy, although the installation program still insists on using the SYS partition. On booting the main program, everything is at once familiar as this is basically the same software supplied with Vidi Amiga AGA.

Split into four main sections, it offers video grabbing, mixing, editing, and a carousel animation feature, all of which combine well and add to the package's usability. The *raison d'être* for this package is grabbing, so it is as well that the grabbing section comes up to standard.

A preferences screen allows for full control of the grabbed image, including saturation, brightness, contrast, and file format. The only limitations are those imposed by the machine and which version of Vidi Amiga (RT) used. Non-AGA Amigas can display a basic 16-colour preview of the image stored in Vidi's VRAM, but A1200 and A4000 users can take advantage of the excellent 256-colour screen.

When grabbing, the user can switch between the three



Set the best display mode for your Amiga



video sources by clicking a selection of radio buttons, and the controls for brightness and so on are duplicated. There is also a slider to enable a delay to be set and the number of frames grabbed in a sequence can be altered to suit the user's RAM or hard drive space.

Grabbing itself takes place instantaneously and the incoming video signal is stored in the on-board buffer. This is a 384k buffer in the case of Vidi Amiga 12(RT) and makes possible the grabbing of true 12-bit images in lo-res interface full overscan (360 x 576), but the 24-bit version has a full 1Mb allowing 24-bit images at 720 x 576.

Users of the 12-bit version can upgrade their hardware for an additional £99, but the 12-bit grabs are so good that many will not feel the need. Clear and sharp with little or no movement blur, Vidi Amiga 12(RT)'s performance is a definite improvement over earlier models.

### QUALITY

When the full 24-bit unit is used, the picture quality of the finished grabs is as good as any other unit on the market and the only feature now separating Vidi Amiga from V-Lab is the latter's infra red-controlled automatic grabbing software for capturing complete sequences of video.

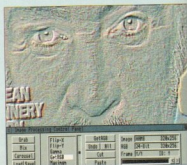
For static grabs, Vidi's quality cannot be questioned, and as there are 24 image processing functions built in to the edit section, there are as many ways to save a grab as one could wish.

All grabs taken directly from video are stored as RGB data and the image processing features can be applied immediately. However, images imported from other sources or already saved out are also catered for because the edit section also has a Get RGB command to analyse any image and break it down to its three component colours. Images can be given the negative

treatment (useful if you want to scan a colour negative and output the processed print), embossed, quantised, pixelated, sharpened, blurred, and just about anything else you fancy, but Rombo have dropped the Psychic filter (boof) so beloved of rave fans will have to look elsewhere for comfortably chaotic graphics.

In all, this is a very impressive piece of equipment which works well, offers a fair degree of flexibility, and falls point blank to crash or cause unnecessary problems.

As an evolutionary step it would have been a good enough development of the Vidi range, but on its own as a product to compete with V-Lab, Frame Machine and others, it is a strong contender with a good right hook and a neat line in combination punches.



Do strange things to Sean Connery. Etc...







# The magazine...

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# Software Spotlight

With so much attention being lavished on Lightwave, Paul Austin redresses the balance with a round-up of the opposition

**W**ith the huge array of renderers and ray-tracers flooding the market, picking the right package has become increasingly difficult.

It's a factor that's been compounded further by the degree of excellence inherent within all recent releases. In this month's

column the aim is to side step the technicalities and concentrate on practical application – hopefully targeting the perfect solution to your particular video-graphic problem.

Now before hundreds of irate punters put pen to paper extolling the virtues of the old

guard – Videoscape, Sculpt and others of that ilk – it must be stressed that the aim here is to highlight the best choices for those who've evolved from such software and are planning to compete with the latest 3D creations within corporate and broadcast productions.

## Real3D Classic

Formerly known as Real 3D Turbo, Real3D Classic was the main contender against the onslaught of Imagine. Being a convert from Real3D to Imagine I can see the relative benefits of both systems.

Although both are employed by professional artists with equal relish, I'd say that Imagine would be more to the taste of the purist who wants believability and doesn't mind investing time and effort to get it, while Real Classic provides an easier method of producing very high quality corporate logo material – which although excellent, can lack the subtlety of a similar Imagine image.

The primary cause of this slightly artificial look is Real's dependence on primitives which tends to lend to a slightly Lego-esque look to the final image or animation – a factor which isn't helped by the relatively basic mapping options which don't allow the multiple maps of Imagine, Aladdin 4D or Real3D v2.

Animation is again slightly lacking in comparison to Imagine primarily due to the added flexibility offered by the rather idiosyncratic Cine editor within Imagine.

However it must be stressed that Real Classic is by no means basic and when this is combined with the best anti-aliasing on the market the program's appeal for corporate applications is pretty hard to ignore.

## Caligari 24

Unlike the other packages, Caligari is a renderer and not a ray tracer. This simply means objects will reflect the sky and the ground but not other objects in the scene. In practice the end result is that real world simulation doesn't match

up to the others, but to be fair that isn't what Caligari is intended for. In short, Caligari is the ultimate corporate anim generator. Thanks to the program's relatively basic rendering and mapping options it will never match up when it comes to clever images.

However that's probably a fair price to pay for one of the best modelling and animation environments on the market. If you're purely interested in graphics that will animate beautifully but always look computer-generated, Caligari is the perfect combination of ease of use and power animation – and all at an unbelievably cheap £99.95.

## Imagine2

To be honest I must admit to being slightly biased towards Imagine courtesy of prolonged use. However being aware of the problem is half the battle. As a result I'll endeavour to curtail my enthusiasm and maintain AC's usual high journalistic standards.

Although admittedly my favourite package, it must be said Imagine isn't without its faults, most obvious of which is the program's relatively poor anti-aliasing.

In addition, its accompanying manual is disappointing to say the least – pottering along in a narrative rather than informative style that lacks comprehension of this complex and somewhat idiosyncratic package even more daunting than it can be.

Still, even with these drawbacks the program nevertheless offers a degree of modelling and mapping freedom that can only be matched by Real3D v2 – a program which is at least three times as expensive and arguably even more difficult to master. Another minus in the Imagine column is the program's approach to animation. Although reasonable, it's by no means as intuitive as programs such as

Caligari which use real-time hierarchical animation with on-screen paths and graphical motion paths.

In its favour, Imagine boasts ever-increasing third-party support which includes the excellent *Understanding Imagine* reference manual, which for around £20 will solve the aforementioned manual problem instantly.

In a nutshell, Imagine is best described as the ultimate enthusiasts' package, capable of startling photo-realistic imitation of either the real or virtual world. However be warned, there's a steep learning curve which demands dedication but can return award-winning results.

## Aladdin 4D

Although very respectable as an all-rounder it must be said that Aladdin doesn't really justify its rather inflated asking price.

In addition to the financial problem, modelling is fairly basic in comparison to the others although the latest 3.0 version does promise some major improvements – which include Lightwave-esque lens flares.

On the animation side it's pretty much the same story with good but not spectacular results which lack the intuitive touches offered by Caligari and to a lesser extent Real and Imagine.

Having said that, Aladdin isn't without strong points with the most notable being the generation of gases, a feature which can produce very impressive static and animated images.

However, as seems to be case throughout Aladdin, there is a compromise – which in this case takes the form of very slow rendering.

All in all, the bottom line points to a pretty good package which unfortunately suffers badly when it comes to value for money when compared to the majority of the opposition.

## Real3D v2

Although the package is easily the most powerful program around, it's very much an acquired taste, which beginners especially may not find very palatable.

If you have the £400 asking price and the six to 12 months needed to master the package, it simply outguns the opposition. The question is, do you really need that kind of power? And if so, how long will it be before the program let you apply it?

In short, a truly professional program that demands as much time as it does hard cash.





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