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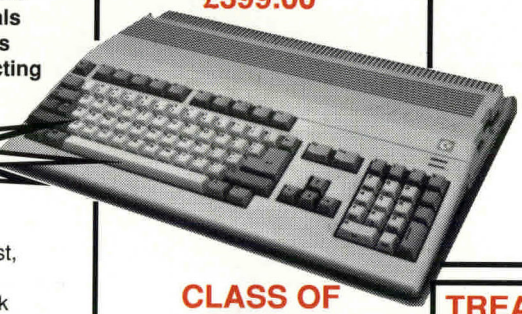

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THE AMIGA DIMENSION

Dear *AUI* Reader,

"Nothing" goes the saying,"is as strong as an idea whose time has come." As the problems of Mrs Thatcher have shown, nothing is so dead as a politician whose time has gone. Toshiba believe that like the ex-Prime Minister, the time of the desktop computer, specifically the MSDOS PC, has also gone. The Japanese electronics company predict its demise and replacment by the portable - notebook or even smaller computer, and they have just introduced a colour portable, priced at a still costly £6000 to prove it.

According to a delighted, very senior member of CBM UK's staff at the recent Commodore Show in London, the Amiga's time has also come too. By early this year, the 2,000,000th Amiga will have been sold worldwide and by that time, the "installed base" - whatever that may mean - in the U.K. will number 500,000. Yes, in spite of having under 60 million people, the U.K. will have absorbed some 25% of total Amiga world sales. This is an astonishing achievement for Steve Franklin's team which if it had been equalled in other countries would have brought Commodore vurtually domination of the "small" or even the desktop computer market. In the U.K apparently, we certainly know a great idea when we see one...

The Amiga,however, is a desktop of a very special kind and it is, in my view, very unlikely to fall in the category of standard PC that might indeed be made obsolescent by the "notebook". Home computing is also usually some way slower than the fast changing business market. Though, it would be very good to see the "notebook" Amiga on which Commodore must be working.

So should we bother what Toshiba says? Well, they practically created the portable PC market and continue to dominate it worldwide. And there is another reason; they spend about £1 billion a year on research and development and that is about what Commodore takes in total sales! Toshiba's own turnover is a stunning £15 billion, so they must be doing something right.

"We don't achieve these figure by copying technologies developed by others."They rightly boast.

The Amiga too has achieved its place in history - and with 2,000,000, history certainly is being made - mainly by being different from anything that went before. But why were those Japanese and American technologies succesful while that of the U.K. has languished? Did we have no ideas of our own whose time was to come? Yes, we have had. Look at Inmos and the transputer.(Now sold off to the French and Italians!). But over the last ten or more years - the period of the unlamented Mrs Thatcher - the U.K. has been locked in a backward-looking time warp of pseudo-Victorian ideology. What should have been encouraged: research and development, long-term technological thinking and planning, investment in creativity and ideas, has been discouraged, underresourced, even cut back.

This year the National Scientific and Engineering Research Council is £40 million short of the cash to pay for its projects. Nationally,in total, it spends less than Toshiba.

Perhaps with the going of a Prime Minister, shamefully a trained scientist herself, whose model of the nation's destiny was limited to that of her past in a grocer's shop in Grantham, we shall again start to look forward. For we need a vision of the 21st Century that will offer not an emphasis on greed and small-minded, short-term thinking as in the Thatcherite era but of the kind of society which encourages creative science and technology, in which the Government does not sell off its family silver nor surrender the unstoppable ideas to others for want of the imagination to see that in those ideas is where the future success of the country lies.

Antony Jacobson
Managing Editor and Publisher

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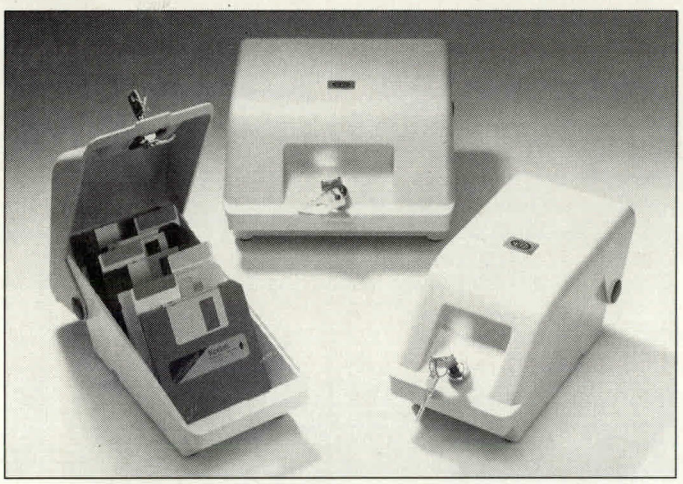
NEW DISKETTE STORAGE BOXES.

The new ABA Flipper range of lockable diskette storage boxes, say Action Computer, features high-tech styling and colour designed to compliment the modern office or home.

For 3 1/2 -in diskettes, Action offers 40-capacity boxes at £16.75 each, and 80-capacity boxes at £21.75 each. For 5 1/4-in diskettes Action offers an 80-capacity box also at £21.75.

Contact Action Computer Supplies, Alperton House, Bridgewater Road, Wembley, Middlesex HAO 1EH Tel:0800 333 333.



Hire Your Virus Killer

A hire package to clean up floppy disk viruses has been announced by Softwarebuilders and Alan Solomon.

A special version of Solomon's Anti-Virus Toolkit runs on a portable PC linked to a Mountain Desktop Autoloader. Softwarebuilders claims that as many as 300 floppies an hour can be processed using a 286-based PC. Operation is automatic.

After disks have been checked, a summary report is produced noting number of disks checked, and viruses discovered and eliminated.

Viruses on floppy disks are more difficult to locate, identify and cure than those on networks or hard disks, said Solomon.

"I would guess there are between 100 and 200 floppy disks for every business PC" he commented. "Some of them will be in the briefcase, some on loan elsewhere in the organisation, some will have been taken home. Rounding them all up is complicated enough, but the prospect of then checking perhaps 10,000 disks is really daunting."

The company offers the option of installing a CHKVIRUS program on all corporate PCs. An alarm is sounded when one computer is infected. A system that checks incoming disks is offered as an alternative.

The product can be hired for £225 per day.

MEDIAPHILE 2.0 DESKTOP VIDEO SYSTEM

Interactive microsystems told *AUI* that desktop video production with consumer video decks and camcorders has arrived with the introduction of complete edit control systems from $320. The system works with any VHS, SVHS, 8mm, Hi-8mm or Beta video deck or camcorder that has infrared control.

The MediaPhile system supports A/B- roll editing from two player decks to a recorder, insert editing, genlock and switcher control, and animation and title recording. Edit decision list script commands display title and animation graphics, control genlocks, switchers and special effects devices and send infrared commands. Mouse and keyboard deck control make editing easy. You can select any deck function including freeze-frame, single-frame step, and digital effects from a screen control pad. ARexx compatible programs like Amiga Vision and Can Do control video decks, laser and compact disc players and other devices through MediaPhile controllers to give multimedia presentations. Linking libraries are available for control from C-language and BASIC programs.

MediaEditor 2.0 (edit list) - No Stops Active, Put Deck In Play-Pause

	TITLE	IN	OUT
☐	Joni steals home on a wild pitch	00:14:20:05	00:14:31:17
☐	Bad Guys score two run tripple	00:45:01:00	00:46:49:08
☐	Jim ties the score in the eighth	01:02:45:13	01:04:07:00
☐	Rich wins the game in the ninth	01:01:16:23	01:19:00:05
☑	Score 2-2	01:03:55:00	01:03:59:12
☐	Score 1-1	00:46:31:21	00:46:35:00
☐	Score 1-0	00:14:01:00	00:14:09:29
☐	Score 1-2	00:46:42:28	00:46:49:08
☐	Score 3-2	01:16:53:04	01:17:05:00
☐			
☐			
☐			
☐			

Contact: Interactive MicroSystems, 9 Red Roof Lane, Salem NH 03079. Tel (603) 898-3545.

8 CITIZEN 4Mb FLOPPIES

Citizen has pressed ahead with production of 4Mb floppy disk drives in the belief that the format is set to become the new PC standard.

The 1in high drive will be fully compatible with existing diskettes. PCs supporting 4Mb drives would be the norm by the end of 1991, the company said.

Citizen said that it saw the future of high capacity drives in densities of 20Mb and above. The 4Mb drive was therefore a stepping stone towards volume production of its 20Mb drive. The 20Mb version - promised for early 1991 - will retain downwards compatibility with 2Mb and 1Mb media. Interquad already produces a 25Mb floppy while Cristie has a 20Mb product.

SORTING OUT THE CABLE MAZE

Do you have trouble identifying the maze of cables under your desk?

Kroy are offering a solution. The company is selling a range of adhesive backed identification labels. The labels are printed out on Kroy's own portable machine. Text is entered on a standard keyboard then instantly printed out on "scratch resistant" tape ready to be wrapped around the cable.

The product Duratype 240SE costs £595. Wow ! That's about £25 per cable!

Contct: Kroy (0734) 861411.

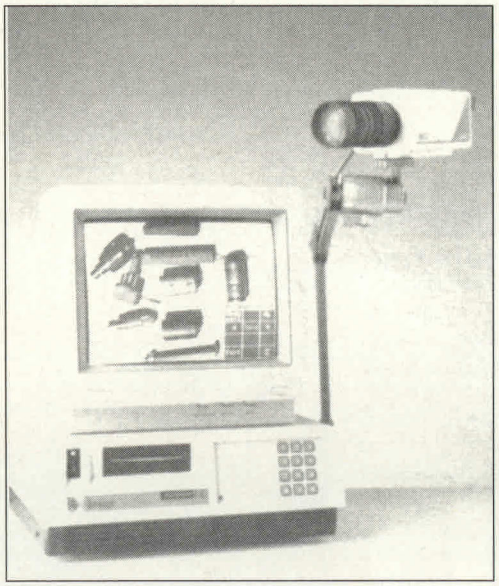
2.4 Gigabits a second

MCI Communications Corp. and British Telecom, plan to spend up to #300million to build a high-speed trans-Atlantic fibre optic cable.

MCI and BT say the cable, called TAT-X and planned to begin operating in 1993, will be able to transmit at 2.4 gigabits per second and handle 150,000 simultaneous calls per fibre systems.

The planned trans-Atlantic TAT-10 and transPacific TPC-5, due to start operation in 1996, are intended to achieve 2.4-gbps speeds using optical amplifiers. These boost the light signals without converting them into electronic pulses and back, as electronic repeaters do.

PHOTOPHONE IMAGE TRANSMISSION SYSTEMS



Photophone Image Transmission systems operate on conventional telephone lines or similar voice communication systems, and allow users to transmit high resolution colour still frame images in as little as 30 seconds. These can be manipulated on screen once received. The system has a 21 Mbyte hard disk and accepts 3.5 inch floppy disks.

SEAGATE'S 2 1/2" HARD DISK

Seagate has entered into the fast - expanding laptop/notebook market with a 2 1/2 - inch hard disk drive.

The company is offering 20, 40 and 80Mb hard disk drives to OEM customers, for between $325 and $585 each. The drives will ship early next year.

The new release reflects Seagate's determination not to be late in entering any market - as, by its own admission, it was with the 3 1/2 - inch hard disk drives.

But Seagate does not believe the 2 1/2 - inch hard disk drive will encroach deeply on the 3 1/2 - inch market, which will continue to make up 80% of the company's sales.

Bob Maeser, Seagate's vice president of product line management and marketing, commented : We have seen a shift from 20Mb to 40Mb over the last year, and now it is only a question of time before there is a shift towards 80Mb."

The company sees the reduced size of hard disk drives opening up new markets - for example , it envisages uses for the 20Mb drive inside font cartridges and fax machines and with telecommunications products.

16-Bit Budgets Coming

Two major games software companies have announced plans to enter the budget maket for 16 Bit games. Psygnosis, longtime Amiga games creators - in fact they clai to have produced the very first game on the Amiga, Brataccus - are to release some of their back catalogue of quality games at a budget price shortly.

They are to launch a new label, Sizzlers, which will also carry games licensed from other software houses.

Games will appear at £7.99 or £9.99 depending on the number of disks and the quality of product. They may also release some £9.99 pack containing two games.

They intend to launch the Sizzlers label

with about ten titles including Blood Money, Menace, and Baal.

Jonathan Ellis, Psynosis Marketing Director commented "We think the time is right for a budget label. We've been sittig on our back catalogue for a while but now the new higher prices make this venture much more worthwhile."

U.S. Gold has also announced a 16 Bit budget move. They are going to use their 8 Bit budget label Kixx as the marketing base. They will release it as Kixx Gold at price level of£7.99.

The first releases will Barbarian II (not the Psynosis version no doubt!), followed by such titles as Thunderblade, Blasteroids and Outrun.

Jonathan Ellis budgeting

NEURAL NETWORKS ARE COMING

A US Satellite company has been issued a copyright on its neural networks program.

This is believed to be the first such copyright for neural networks - the computer technology that mimics the operations of the brain's neurons. Instead of simply doing numerical calculations, neural networks can recognise patterns, like speech or handwriting.

The Los Angeles - based Hughes Aircraft Company has developed a program for recognising sonar images which can distinguish one kind of underwater object from another. A Hughes attorney, said copyrights for neural networks programs are rare because "People haven't been exactly sure how to protect them."

Though commercial use is uncommon, some US airports are using a security system for checked-in luggage developed by California-based Science Applications International using a neural networks program.

PALMSIZE COMPUTER IN COLOUR

The Computer of the future will fit into your hand , have a flat LCD colour display, respond to your every word, and even decipher your handwriting, according to Dr. Hartwig Westphalen, Sharp Germany's deputy general manager for electronic components.

"All these technologies will be integrated into a single machine eventually," he said, adding that the weight of such a PC would be less than one pound.

He also said that speech and handwriting recognition may come sooner rather than later."Limited voice and handwriting recognition could be offered very soon. So smaller machines are a very realistic dream by the end of the century, perhaps even the middle of the decade". But he said the one-pound palmtop was further away.

Sharp already has the technology to build small LCD colour displays. Westphalen said that colour LCD would not be limited to small notebook PCs. "We already have a prototype ten-inch LCD colour screen, which we will have in production next year."

Sharp's LCD colour screen uses "active matrix" technology so screens will be less than 1cm thick, said Westphalen.

He said active matrix, or thin film transistor (TFT) technology, vastly improves the definition and resolution of PC displays compared with the more traditional passive matrix technology. "The definition will easily be good enough for Cadcam applications", he added.

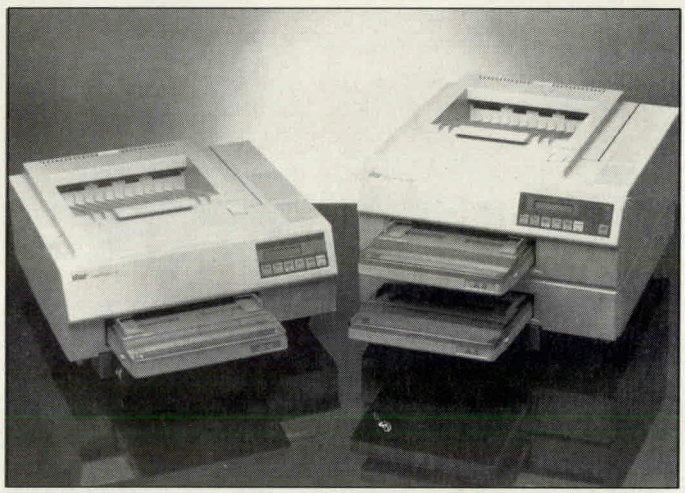
Toshiba have also moved into colour "notebooks" and have announced their first will be available shortly at £6000.

CHEAPER LIFT OFF

Space Agengy NASA came up with a means of reducing the cost of getting essential spacecraft service documentation into space on the recent Discovery space shuttle mission, by loading it on to a compact disc read only memory (CD ROM) drive attached to a battery powered laptop.

The shuttle requires 500lbs of paper documentation with payload cost at $1000 per pound, while the computer and drive weigh a mere 18lbs. Each drive holds around 275,000 pages of A4 data.

Someone ought to get a bonus for having thought of such a simple way of saving so much weight and cash.



NEW STAR LASER PRINTERS

Two Star laser printers now available - the Laserprinter 8 II and the Starscript Laser, both provide full HP Laserjet Series II emulation, and are offered substantially below MRP including Action's two year warrenty. Both print at up to 8ppm, and have 200-sheet input trays.

The laserprinter 8 II (left) has an unusually large 1-MB RAM as standard, with upgrades available, and features eight resident fonts. Price from Action is #1195.00 (MRP #1889.00). The Dual-Bin Laserprinter 8, shown on the right, is available from Action to special order.

Action Computer Supplies, Alperton House, Bridgewater Road, Wembley, Middlesex, HAO 1EH. Tel: 0800 333 333

GUI GOOD ! CUI BAD !

The use of graphical user interfaces (GUIs) results in faster and more reliable work, requires less training and support, and leads to less frustration and fatigue than traditional character user interfaces (CUIs).

These are the findings of a twelve month research project conducted by Temple, Barker and Sloane for Microsoft. The study showed that experienced GUI users completed 35% more tasks than CUI users in the same period of time and that graphical users completed 91% of the tasks they were set compared with the 74% managed by those using CUIs.

This would seem to confirm recent market trends which have seen a sharp rise in the number of graphical environments released in the last year.

GUIs allow users to select software commands by recognising and choosing symbols from the screen by pointing and clicking with a mouse. (As if you as an Amiga User didn't know that!) CUIs require the entry of preassigned commands by using the keyboard.

The study tested the responses of both new and experienced users of GUIs and CUIs in clinical tests, attitudinal surveys and focus groups using similar hardware but different interfaces. They could just have asked us, couldn't they?

Commodore Training

Commodore Business Machines has announced the launch of a regular series of training courses as part of their continuing dealer support programme.

The courses are held at the London College of Printing (LCP) in Central London - Europe's leading training centre for young designers.

An entire floor of the College has been fitted out with both PC's and Amiga workstations, and the two day course allows delegates plenty of opportunity to gain hands on experience working with PC's on a database programme and the Amiga multi-tasking environment.

The course also includes a visit to the school of design where delegates will learn about video editing, animation and sound systems to help their understanding of the potential of multimedia techniques.

Delegates are tutored by Tim Stevens a senior lecturer at LCP and representatives from Commodore.

Says Barry Thurston, Commodore's technical services director : the programme is designed to help our dealers gain maximum sales benefit from all Commodore's products as well as having the opportunity to learn more about the full capabilities of the machines on offer."

The course runs over two days, is non-residential and costs #150. It is free to Commodore Premier Dealers. Courses will run every two weeks through 1991.

For further information and an application form contact: **Andrew Ball, Commodore UK Ltd, Commodore House, The Switchback, Gardner Road, Mainhead, Berks SL6 7XA. Tel: 0628 770088**

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Why did you buy an Amiga 500?

Of course, because of its superb graphics, music and animation capabilities. However if you want to get serious, you soon realise that it is distinctly lacking in memory and professional software.

Well - they said it could never happen - but it's here at last!

You! In your own home can transform your Amiga 500 into a real IBM compatible with Amiga memory expansion to ONE AND A HALF MEGABYTES.
It's simple - no screwdriver, no soldering iron and no technical knowledge required. Just turn your Amiga over, open the cover, slide the Power PC Board into the connector, close the cover and your Amiga PC/XT is ready. (In other words, no loss of guarantee).
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Compatibility is excellent but no-one can guarantee every single program available, therefore if your purchase depends on a particular program, please ask us first or send in a copy of the program. (With suitable S.A.E if to be returned). Price subject to change without notice.

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KCS Power PC Board AMIGA 500

THE BEST OF BOTH WORLDS

What the critics say

INDEPENDENT EDITORIAL REVIEWS

"Standard XT/AT software runs with no foreseeable problems and 704K at its disposal. All normal PC function keys are also emulated, so you can run through all those bewildering Word Perfect key combinations. . . So, if its a cheap PC you're after, don't buy one. Buy the KCS Power Board instead"

Amiga Format Oct 1990

What our customers say

KILOWOOD LTD

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Electrical & Mechanical Engineers

Tel: (0793) 875735
Fax (0793) 871277

36 Ashburnham Court
Swindon
Wiltshire
SN5 8RA

23 Aug 1990

Bitcon Devices Ltd
88 Bewick Road
Gateshead
Tyne & Wear NE8 1RS
England

Dear Sir/s,

Ref: KCS Power PC Board

As someone who has used the Amiga 500 for both business and pleasure applications and who is aware of the limitations on the availability of suitable business software, I was immediately interested in the above product. It seemed like the ideal solution: no second machine to take up valuable space, retention of the superb graphic and video capabilities of the Amiga, needed for part of my business and the chance to make use of the huge range of business software available for MS-DOS machines.

Too good to be true, I thought, especially as the price is quite a lot less than even a DIY PC-XT alone!

Your advice and assistance on the telephone, prior to placing an order, was certainly of a standard that most companies have long since forgotten and the speedy dispatch of the goods was most impressive.

I fitted the board within 5 minutes and then spent a further 15 minutes reading the manual. A further 30 minutes was then spent on setting up the software to suit my particular requirements. This process was simple and trouble-free.

Hey Presto! – an IBM compatible machine sprang to life. Now for the acid test – the software.

A collegue with many years experience in the PC world had brought his disk collection along and we started the process of trying to make the board fail! No chance – we ran all sorts, amongst the programs tried was Autoroute 1.2, Word Perfect 5.1, Norton Utilities, PC Tools and Flight Simulator 4 (latest version). We also tried many PD and Shareware titles. Everything functioned perfectly, including the disk drives, video and printer ports. We then loaded Procomm, connected a modem and proceeded to download more PD software from various bulletin boards.

All in all, I can only say that I am more than satisfied with this superb product and I would recommend it to anyone who requires MS-DOS on their Amiga 500. You may use this entirely unsolicited letter for any purpose in connection with the promotion of your product.

Yours most sincerely
Nell Bristow

Greensborough
Victoria, 3088
Australia

11 Aug 1990

Bitcon Devices Ltd
88 Bewick Road
Gateshead
Tyne & Wear
NE8 1RS
England

Dear Sir/Madam

I would like to thank you for the delivery of the KCS PC Power Board. It has been installed in my computer and is working satisfactorily. It has allowed me to have the best of both worlds at a very cheap price.

I am looking forward to the upgrades in software as they are developed. I am looking forward to the hard disk software.

I was a bit apprehensive about importing goods from overseas suppliers but your prompt service is appreciated and I thank you for that. I am looking forward to hearing from you again.

Yours Faithfully
BS

31 Dale Walk
Hay Mills
Birmingham
B25 8NH

Bitcon Devices Ltd
88 Bewick Road
Gateshead
Tyne & Wear
NE8 1RS
England

Dear Sir

I am writing to ask if it would be possible for you to send me a registration form for the PC board, as I seem to have misplaced mine! Otherwise, thanks very much for an absolutely fantastic product, one which has, in the space of only two weeks, proved its worth. Other programs not on the list which work are: Quattro, Fleet Street Publisher and Printmaster Plus. Once again, thanks very much.

Yours sincerely
K Whitchurch

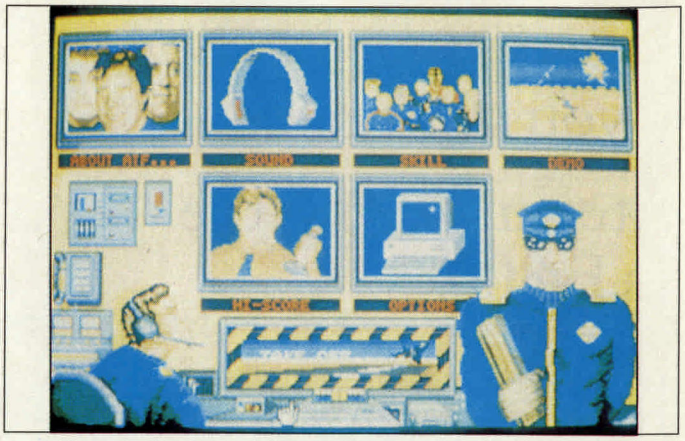
Bitcon Devices Ltd, 88 Bewick Road, Gateshead NE8 1RS England
Tel: 091 490 1919/1975 Fax: 091 490 1918 Helpline 091 490 0202

TRANS ATLANTIC ATF II

Digital Integration's next release , ATF 2, is to be sold by Cinemaware in the United States under the title Air Strike USA. Cinemaware are highly regarded on both sides of the Atlantic with a reputation for high quality movie-style software.

ATF 2 claim D.I. has a certain movie feel to it. The credit screens have digitised images of the developers, (Which is something all game players really want, isn't it?), a great deal of action happens off screen and , although what the player does with his aircraft will determine the ultimate course of the game , much happens in parallel to the activities of the player.

Digital Integration boss, Dave Marshall said "Cinemaware are well known for their well presented products with their movie atmosphere. ATF 2 is not a flight simulator but it would be an appropriate description."



CUMANA'S TWO-IN-ONE INTERFACE CARD

Cumana has announced an Amiga 500 RAM and hard disk interface, a two-in-one card which fits into the A501 RAM expansion slot beneath the computer giving MFM ST506 hard disk interface and 512K bytes system memory expansion. Cumana told ***AUI*** that such a card is 'unique'.

Designated COM201, the card is claimed to have more features than competitive boards and dispenses with the need for a separate hard disk interface unit. It provides all the features of a RAM card and can support a hard disk drive.

With no soldering required, the board offers these features:- MFM ST506 hard disk interface; 512byte system memory expansion; battery backed realtime clock and calender; on/off switch; DMA (Direct Memory Access) support; full auto mounting; fast floppy boot software; auto RAM configuration and supports; drives with up to eight heads.

A modified expansion slot cover enables the hard disk cables to come out without difficulty and allows easy access to the memory ON/OFF switch. The recommended retail price EX VAT is £139.09, with VAT£159.95. The board is available from all Cumana stockists.

Contact: Cumana 0483 503121

NO MORE FAX?

Alfa Systems has announced a product which it claims will revolutionise the way business communicates large amounts of data.

Diskfax enables easy transmission of text, graphics and software. Using standard telephone lines, the standalone desktop unit transmits and receives disk-to-disk information at 20 times the speed of a fax machine and five times the speed of standard modems.

Data received is immediately available for manipulation on a PC or for printing. Forty pages of A4 text and graphics can be sent in a little over a minute. Diskfax is as easy to use as a fax machine and claims to offer savings in terms of time and money. The product can also handle large paper formats.

Peter Burton, Alfa's Chairman said that he saw the product being bought by companies with a need to send disks by courier or post and companies which need to send large documents. Publishers, advertising agencies and lawyers are prime targets.

"Diskfax won't replace the fax but it will sit next to it in the office of the future," Burton said. "It offers confidentiality and security as well as speed and ease-of-use."

Diskfax costs £995 for the floppy disk version and £1495 for the hard disk version.

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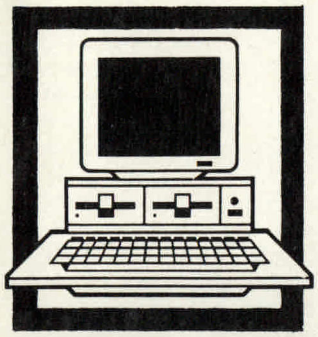

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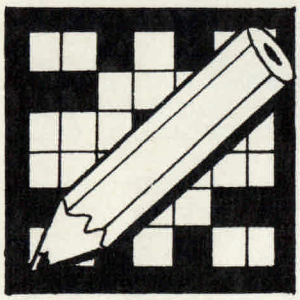
Adventure challenge



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NEW HORIZONS INTRODUCES QUICK-WRITE

New Horizons Software have announced "Quick-Write", a new entry-level word processor for the Amiga.
Quick-Write, say New Horizons, provides high performance and advanced features in a program that runs on minimal Amiga systems. "Quick-Write packs a lot of power into a small and affordable package, and is ideal for people who don't have the expensive hardware that higher-end word processors require," said James Batless, President of New Horizons, "and as with all of our products, Quick-Write is exceptionally easy to use".

In addition to basic word processing, says New Horizons, "Quick-Write adds many features that are unexpected in a product at this price". There is a fast WYSIWYG display, an advanced mail merge facility, a spelling checker with a 50,000 word dictionary, macros, an AREXX port, and automatically updated date and time markers. Quick-Write also provides complete control over printing, including support for custom paper sizes, and the ability to print in Pica, Elite, or Condensed pitch.

Quick-Write is also able to export and import text files in the format recognised by Professional Page, allowing Quick-Write to be used as a front-end for composing articles that will be placed in a Professional Page document.

Further adding to Quick-Write's usefulness is its file compatibility with ProWrite, New horisons' well known word processor.

Documents can be transferred from Quick-Write to Pro-Write without any loss of content or formatting.

"Since Quick-Write is file-compatible with Pro-Write, you will never be forced to retype or re-format your documents should you later discover that you need the capabilities of a high-end word processor," said James Bayless. "All of the documents you've created with Quick-Write will be immediately recognized by Pro-Write. File compatibility also means that any program that can import ProWrite files will also handle QuickWrite files."

QuickWrite suggested retail price of $75.00. it will require 512K of memory and Kickstart 1.2 or later.

Contact: New Horizons Software Inc. P.O. Box 43167, Austin TX 78745 Tel: (512) 328 6650

INOVAtronics' Hyperhelpers

INOVAtronics has announced the release of "HyperHelpers", a trio of "Ground Breaking" programs for Amiga users , DosHelp, online help syste,m for AmigaDOS version 2.0 marks, say Inovatronics," the debut of the first serious hypertext application "on the Amiga. Running in a small window DOSHelp provides a list of available topics including C: commands is displayed. Click on the one you want information on (like "info") and fully cross-referenced help appears at the window, including command syntax and a list of related terms and topics for further study. DosHelp, the first online reference guide for DOS 2.0 can also provide help for version 1.3 DOS dependent on which version it is running under.

Also included in the package are two utilities: Run-N-Play and Launch Pad. Run-N-Play is an ingenious program that looks like a standard file requester but performs a number of functions. If you select a file in Run-N-Play's requester, and the file is a IFF pic, it is displayed; if it is a executable, RNP launches it (and if it happens to be a CanDo deck, RNP runs it). All these abilities in this one single program.

Launch Pad is a small window on workbench which contains a single menu. this menu is user-configureable to contain the names of the user's most frequently used software. When an item from this menu is selected, the program is executed, run time parameters and all thus eliminating the need to sort through various drawers on Workbench to find and run your favourite software.

HyperHelpers is aimed at any and all Amiga users and should have a very broad appeal. the package retails for $59.95 and will be released 11/1/91.

Contact: Innovatronics Inc, 8499 Greenville Avenue, Suite 209B, Dallas, Texas 75231. Tel 214 340 4991

New Horizons' Graphic Designer

New Horizons Software have announced "Graphic Designer" a new structured drawing program for the Amiga. Graphic Designer promises to bring the powerful capabilities of structured drawing to a much wider audience, say New Horizons "Graphic Designer is for people who need to create detailed and precise drawings, from the simple to the complex, but who don't have time to grapple with slow and difficult-to-use programs," James Bayless, President of New Horizons told AUI, "we designed it to be fast, intuitive and affordable".

Structured (or object-oriented) drawing programs differ from paint-type programs in their method of handling graphic elements. Rather than treating a graphic element as a collection of screen pixels, structured drawing programs treat them as independent objects that can be arbitrarily modified and arranged. This gives greater control over precise positioning and appearance, and makes it much easier to later modify the drawing.

"Existing structured drawing programs for the Amiga have either been designed for professional engineers, in the form of engineering CAD programs, or are slow and cumbersome programs designed for single page illustrations " said James Bayless, "Graphic Designer overcomes these limitations with an elegant design, a responsive interface , and a feature set designed with the non-professional user in mind".

Most notable of the many features of Graphic Designer are "smoothable" curves using a Bezier smoothing algorithm, multiple drawing layers, a very flexible text handling system permitting the use of any Amiga font, size and style and an unlimited number of user-definable multi-colour patterns. Graphic Designer also includes an AREXX port with a complete macro language, which makes it possible to automate the creation of drawings, and to interact with other AREXX-compatible programs.

Graphic Designer also provides comprehensive control over printing, providing options for reduction and enlargement, sideways printing, and adjustable print density. If a drawing is larger than a single page in size, Graphic Designer will automatically divide it into several separate pages and print them in sequence, which can then be assembled into the complete drawing. Drawings of over 64 square feet in size can be created in this manner.

Graphic Designer will be available in early 1991, and will have a suggested retail price of $125.00. It will require 512K of memory and Kickstart 1.2 or later.

Contact: New Horizons Software Inc. P.O.Box 43167, Austin, TX 78745. Tel: (512) 328 6650.

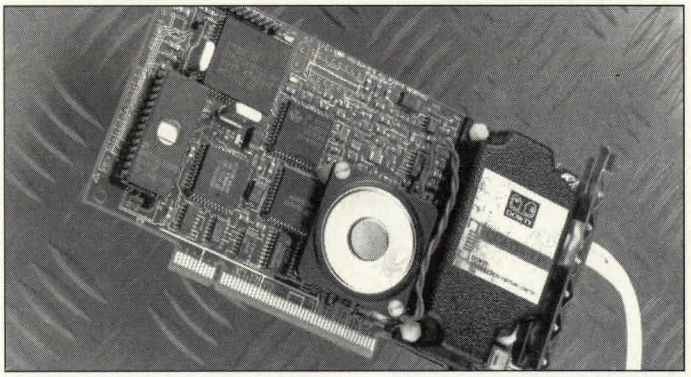
BT's GIVING ME GOOD VIBRATIONS

British Telecom has, we hear, a pocket vibrator with a built-in sound generator. The product was, according a BT spokesman, "developed in response to our customers' needs". (Who are these customers and how do they express their rather strange needs, I hear you cry. Well don't ask us!)

He continued : "At work and in social situations, a noisy bleeper can be intrusive. We have solved this problem at a stroke. Now our customers can be paged without anyone knowing about it. (If you see someone looking rather excited with his hand in his pocket, now you will know why! He's being bleeped - and vibrated)

HALF-CARD MODEMS

Dowty's Quatro PS (above) and Quatro PC, now available from Action, are half-card, quad standard modems suitable for use in either laptops or desk-top computers. They have been designed for PS/2 (MCA), IBM PC/XT/AT and compatibles, or machines where only a half-card slot is available. They are Amiga cvompatible.



Both offer full quad functionality, with V22bis, V22, V23 and V21 compatibility, and use V42 and NMP class 5 error correction. Operation is fully automatic, and full duplex capability permits communication at up to 2,400 bps over the public switch telephone network.

Action Computer Supplies, Alperton House, Bridgewater Road, Wembley, Middlesex, HAO 1EH

COLOUR FAX

Within six months the Sharp full-colour facsimile machine should be available in the UK, enabling colour proofs to be faxed.

Claimed to be the first small desktop colour fax and able to use the normal public switched telephone network, the target launch date is April/May 1991, and price is estimated at £12,000, against, claim Sharp, £100,000 of any existing machine.(Is that what you paid for yours?)Data-compression techniques, combined with the use of a high speed 14,400 bps (bits per second) modem, enable an A4 colour page to be transmitted in three minutes. The previous highest speed, say Sharp, was about 12 minutes.(Can't wait that long,can we?)

It offers full colour RGB scanning, 64-graduation sublimation printing (Freud would have loved it!), 200dpi colour image resolution, CCITT error-free transmission, between 25 per cent and 200 per cent scanning zoom and 80Mb hard disk which is capable of storing up to 80 full colour A4 images.

It can be made compatible with the existing G3 facsimile standard and used as a normal fax.

ICD'S ADSPEED ACCELERATOR

ICD has expanded its line of enhancement products for the Amiga with the introduction of Adspeed, a full featured 14.3 Mhz 68000 accelerator which they say is, an inexpensive way literally to double the speed your 68000-based Amiga.

ICD's AdSpeed is a full featured 14.3 MHz 68000 accelerator that works with all Amiga personal computers built around any 68000 CPU.

ICD claims AdSpeed differs from other accelerators by using an intelligent 16K static RAM cache to allow zero wait state execution of many operations at twice the regular speed. To achieve this level of performance, AdSpeed uses 32K of high speed static RAM - 16K of data/instruction cache and 16K of cache tag memory. A separate read and write-through cache ensures maximum speed.

AdSpeed also has a software selectable true 7.16 MHz 68000 mode for 100% compatibility, letting the computer run as if the stock CPU were installed.

Any program running on an AdSpeed-equipped Amiga will show improvement say ICD. Not only will AdSpeed make the Amiga run faster than any 68000 or 68020 accelerator without on-board RAM, it also works on all 68000 based Amiga computers - including the Amiga 500. 1000, and 2000.

Installation, say ICD, is simple and requires no soldering. Just exchange the existing CPU with AdSpeed and replace the cover on the computer.

AdSpeed is priced at $349.95 and comes complete with setup software and a full one year warranty.

Contact ICD Inc. 1220 Rock Street, Rockford, Illinois, 61101-1437. Tel: (815) 968-2228.

Get touchy in a hostile environment

Microtouch has announced the EL Touch Monitor. An integrated flatpanel unit includes an EGA compatible electroluminescent display and a high resolution capacitive touch screen. The monitor is designed for use within industrial and difficult environments, as well as space constrained applications. It is compatible with EGA software and sells for 50% less than similarly configured units, claims MicroTouch.

The unit is based on the MicroTouch analog capacitive touch screen and the Finlux ELM 640.350 flat panel.

The touch screen sensor which comes with a five-year warrenty, and is constructed from solid glass making it resistant to wear, scratches, and abrasion.

Displayed images offer true EGA-correct aspect ratios and may be seen across a viewing area of 140o. Reverse video and half intensity display modes are available in addition to the standard amber on black mode.

The EL Touch Monitor has an active display area of 8x5in equal to that of an 11in Crt.

KCS Power Board Update

K.C.S. have updated their MSDOS power board. They told AUI that it now supports the A590 hard disk; supports non-MSDOS disk formats, thereby supporting most copy-protected software. It has a disk cache system which speeds up disk access considerably. It includes a mousedriver and has improved serial port emulation; it has full support of the (Big) Fat Angus and improved Hercules display (with Big Fat Angus).

The updated version has an expanded installation program making it even more user-friendly and more settings and improved colour settings in the Amiga-Help menu in PC mode. It has up to 16 colours in CGA mode and the Power PC Board works with every Kickstart version. It will show Track display of all disk drives on your screen but this can be disabled if not wanted. It has a graphics refresh-rate maximum 3.5 million pixels per sec. and gives full support of external memory expansions.

***Contact*: Bitcom Devices Ltd., 88 Bewick Road, Gateshead, Tyne and Wear, NE8 1RS. Tel: 091 490 1919.**

GOLDEN IMAGE NOW IN UK

Golden Image is the name of a successful range of computer supplies from Taiwan. Until recently this range has been unavailable in Britain but now that has been changed.

The range of products consists of only peripherals and is, so Golden Image told AUI, constantly growing in number. The main product line is mice.

Awkward rodents, say Golden Image, will be a thing of the past - their mice eat very little, do as they are told, and, say Golden Image, don't leave nasty little deposits. They also have disk drives - drives for Amiga, drives for PCs and drives for Toshiba laptops.

The Golden Image RC500 is a A501 alternative and also has RAM works. But the RC-2000 is a full size card which will move memory from between the populated 2Mb and 8Mb and is user expandable.

Golden Image scanners offer Amiga and PC compatibility at 400 dots per inch. Styled as hand held devices, these units are supplied with software and power supplies.

Contact: Golden Image, Golden Image House, Fairways Business Park, Lammas Road, London E10 7QT. Tel: 081 518 7373.

DOCTOR AMI . . .

Doctor Ami is an Amiga memory and hard drive diagnostic utility that performs low-level tests using an elegant interface with simple controls and displays. Doctor Ami consists of two programs, Memory Doctor and Drive Doctor.

Memory Doctor scans all system and expansion memory, locates and identifies bad memory locations, and creates an error file that can be used to automatically map-out bad memory locations.

Drive Doctor will read all disk sectors, locate and identify sectors with errors, and automatically map-out bad sectors. Boot Block and Root Block tests can also be performed.

Contact: Free Spirit Software, 58 Noble St., Kutztown PA 19530. Tel: (215) 583 5609.

Pre-Formatted Diskettes

In a new promotion designed to promote the advantages of pre-formatted diskettes, 3M is offering a pre-formatted diskette free with every box of 3 1/2-in DS, DD diskettes, 3 1/2-in DS, HD diskettes, 5 1/4-in, 48 tpi, DS, DD diskettes, and 5 1/4-in DS, HD diskettes, all in either unformatted or pre-formatted versions.

In addition, a space pen as used on board the Space Shuttle will be presented by 3M with every five-box order for 3 1/2-in pre-formatted diskettes and every ten-box order for 5 1/4-in pre-formatted diskettes.

Prices range from $5.85 for ten 5 1/4-in DS.DD (360/500 KB) diskettes to $18.64 for 3 1/2-in DS.HD (1.44/2 MB) diskettes.

Contact: Action Computer Supplies, Aperton House, Bridgewater Road, Wembley, Middlesex HA0 1EH. Tel: 0800 333 333.

ICD'S FLICKER FREE VIDEO

CD has launched Flicker Free Video which, they claim, is the first flicker free video card to work with all Amiga 500, 1000 and 2000 computers.

Designed for use with any Amiga equipped with a standard VGA or multi-frequency monitor, Flicker Free Video delivers a high quality display, free of interlace flicker and visible scan lines.

Flicker Free Video requires no soldering or advanced technical knowledge to install, and it doesn't occupy the video slot in your Amiga 2000 - which keeps it free for other uses.

Flicker Free Video is compatible with all Amiga software, creates no genlock conflicts. Both PAL and NTSC are automatically recognised and fully supported.

It works in low and high resolutions - interlaced or not - and supports full overscan, not just a limited overscan. Three megabits of random access memory are used to ensure compatibility with overscan screens as large as the Amiga can produce.

Based on a multi-layer circuit board with surface-mounted components, Flicker Free Video, says ICD, uses the latest technology to pack a lot of power into a very small space.

Flicker Free Video carries a retail price of $499.95. Like all other Amiga hardware from ICD, the Flicker Free Video board comes with a full one year warranty.

ICD Inc. 1220 Rock Street, Rockford Illinois, 51101-1437. Tel: 815 968-2228.

MUSICAL GAJITS

Gajits Music Software, has announced a music program for the Amiga. "Seqencer One" is professional quality MIDI sequencing for Amiga owners.

Sequencer One has 32 tracks, real and step time music entry, high resolution recording, helpline support, and graphic displays and editing facilities. Based on the popular ST sequence, Sequencer One has been fine tuned especially for the Amiga, with new features.

Gajits Music Software also produces a range of editor/librarian programs for the Amiga which can work in parallel with Sequencer One, forming a complete computer music environment.

Contact: Gajits on 061 434 2768

Quote of the month
The Dying Desktop

According to Toshiba Marketing Manager, Nick Hall, the desktop market will grow

"only 50% over the next five years, while the postelle sales will increase by 100%. The desktop is about to become obsolete".

Can something that grows die out? Sounds like he's still selling Commodore 64.

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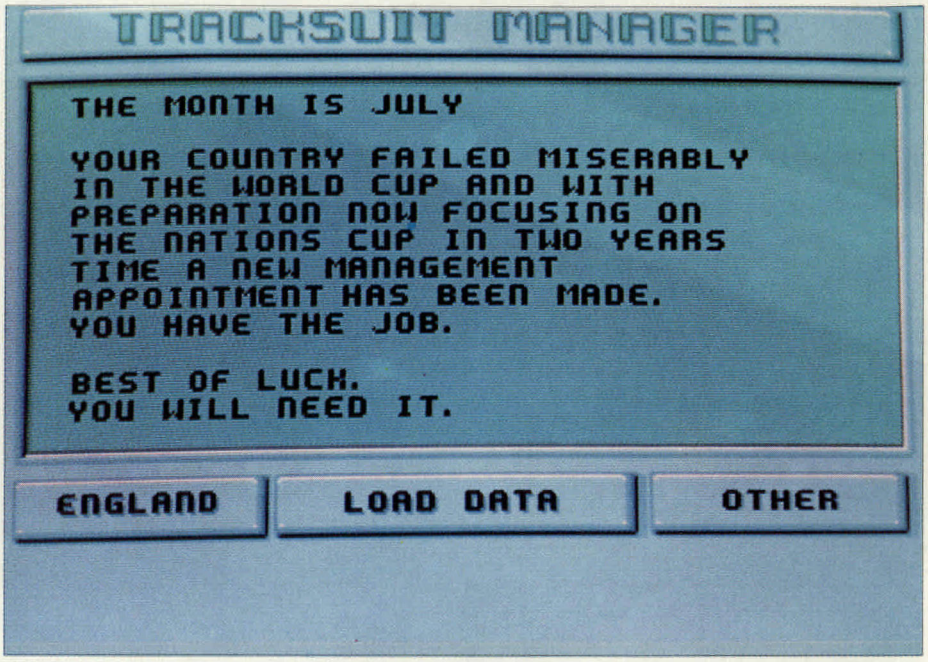
ELECTRONIC ZOO's TRACKSUIT

A new completely updated version of one of the best known football management games, is soon to be available on 16 bit at the budget price of #7.99. This price also applies to a new PC version although the original Tracksuit Manager has not been available on that format before.

The game is Tracksuit Manager '90 from Goliath Games, but released by Electronic Zoo.

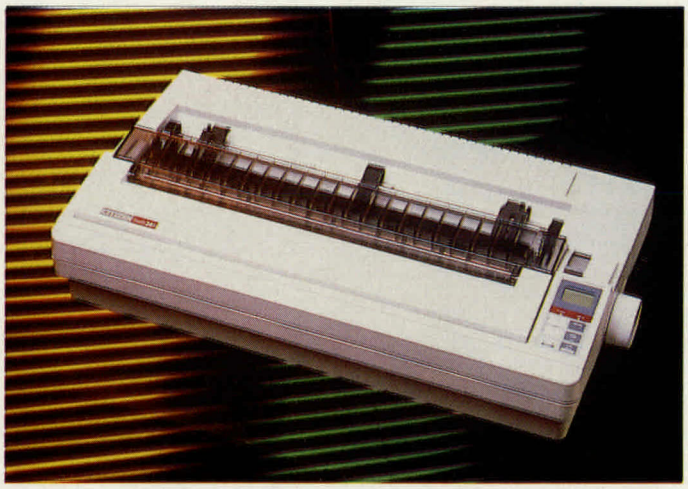
Tracksuit Manager 90 centres on the ups and downs of an international football manager. It features new graphics and a completely updated database of players. As the manager, the player selects his team and decides upon tactics. The manager also has control over how many friendly matches his team plays. Clearly the more matches played, the more the manager knows about his players and the greater the team spirit and fluidity. Unfortunately, these advantages must be balanced against the risk of injury.



Once the manager has selected his side and tactics he must, just as in real life, experience joy or despair on the bench while his side competes. His burden is relieved somewhat though. Each match lasts no more than a few minutes, instead of the 90 minutes when it is for real. The manager can also speed up the game.

The ultimate objective in Tracksuit Manager 90 is winning the European Nations Cup and the World Cup.

CITIZEN'S SWIFT 24X



Citizen have recently launched a wider carriage version of their highly successful Swift 24, which has sold over 80,000 printers in Europe within a year. The wider carriage version - the 24X - is intended to appeal to those who require high quality wide-format printing, for example forecasters, financiers (of whom there must be many among the AUI readership) and spreadsheet users. Contact: Citizen Europe, Tel: 0985 72621

1/2 Million Amigas

Commodore UK has revealed that it has sold 500,000 Amigas in the U.K. This is 25% of the total worldwide sales of around 2 million.

To commemorate both the U.K. and the worldwide achievement of these figures Commodore is producing two special "gold" Amiga complete with plaques celebrating the events. The two machines will probably be auctioned off for charity.

Steve Franklin, CBM UK's Managing Director, is regarded in Commodore as the most successful country manager for he has almost certainly achieved for the U.K. the leadership, at least in terms of numbers, of the Amiga world.

The successes of Commodore UK, however, do not end with the Amiga for the oft-predicted death of the C64 has been somewhat exaggerated, especially in view of the fact that the end of year sales for the 8 Bit machine in the U.K. are thought to have topped 200,000.

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In addition, a space pen as used on board the US Space Shuttle will be presented by 3M with every five-box order for 3 1/2-in pre-formatted diskettes and every ten-box order for 5 1/2-in pre-formatted diskettes.

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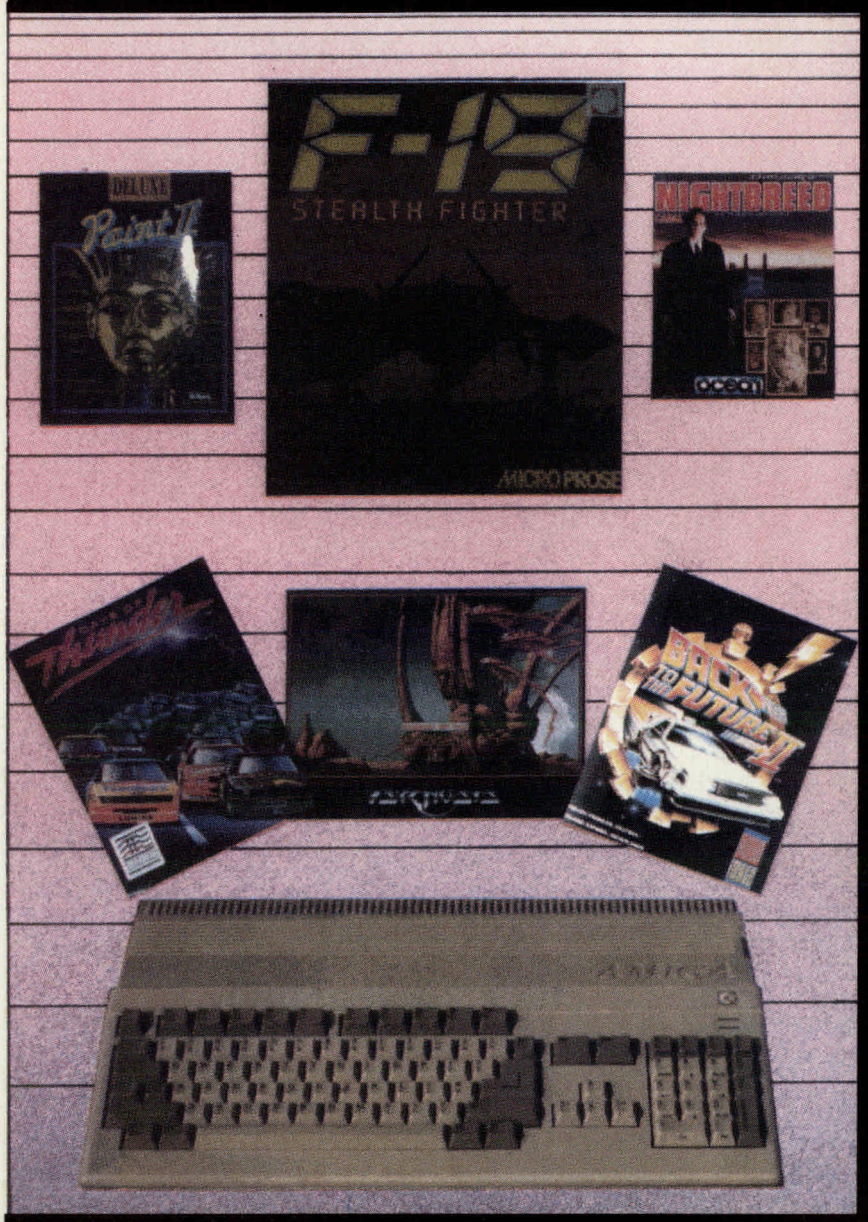

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Saxon Publisher

The much-heralded new top-level DTP program is, according to John Walker, AUI's award-winning desktop publishing journalist, like the curate's egg, good in parts. His review explains which is which

Saxon Publisher, the latest desktop publishing program aimed at professional users, has been launched with a fanfare. Blowing his own trumpet, the publisher declares, "It represents a new standard in DTP software and finally provides Amiga users with a highly efficient and truly professional alternative to higher priced IBM and Macintosh based desktop publishing systems. Its unique design and its extensive capabilities provide users with a powerful tool for creating high quality documents with a minimum input of time and labor".

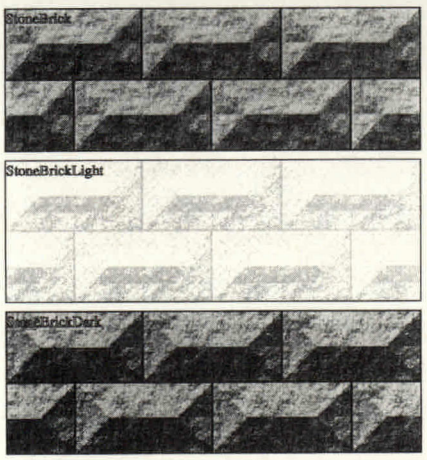
The program overcomes "the numerous deficiencies found in existing high-end desktop publishing programs," he goes on to say. "From its inception, Saxon Publisher has been designed with professional users in mind. We have encouraged input from Amiga users throughout the development cycle, and have, whenever possible, tried to accommodate their requests. After all, who would know better about the desired attributes of a professional desktop publisher than its end users? The result of our work was the creation of a desktop publishing program like no other. Uncompromising attention to detail and quality is evident throughout this exceptional program. Every effort has been made to maximize the program's efficiency, flexibility, and ease of use."

Unfortunately, it doesn't live up to this advance publicity, nor to the excessive claims made for it. It is innovative, but for every step forward, the program also takes a step back into the dark ages of desktop publishing.

Saxon Publisher requires 1 meg of RAM and two disk drives to run, although considerably more memory will be needed to create any document with graphics that extends over several pages. It comes on two disks together with an adequate, but not always very informative, 172-page manual.

Four Modes

The screen display resembles most DTP programs. It shows a representation of a page, which can be any size up to 20 x 20 inches, with a toolbox down the lefthand side. Text or graphics are contained in boxes drawn on the page. The toolbox display changes according to which function you are using. There are four modes of operation: cursor, for manipulating boxes and pages; text, for entering or controlling text processing; paragraph, for changing the appearance of a paragraph of text; and drawing, which is used to create structured graphics.



-6 —APPENDIX A—

Preparing a page is a clumsy business. First you have to draw a rectangle that marks the margins of the page. Within it, you then draw boxes to hold the columns of text or graphics. These operations cannot be carried out numerically, by typing numbers into a requester, but must be done manually with the mouse, which is a crude approach.

I did find one feature that is undocumented in the manual - by clicking with the right mouse button when the pointer is on the margin, a requester does pop up on the screen. In it you can enter the top left hand position and the bottom right hand corners of the box, putting in two co-ordinates for each - the distance from the left of the page and the distance from the top of the page. It would be much easier if, in the usual DTP manner, you could enter the actual width of the box, without having to work out the position of its corners on the page each time.

One useful gadget is the ability to measure the distance between two points on the page. Another is being able to assign pages or boxes to function keys so that they can be recalled with one key press.

A page can be seen at various magnifications: twice its actual size, as a full page shown in miniature, with its full width displayed, or with its full height shown. You can also specify your own magnification, ranging from a third to three times of its actual size.

Saxon Publisher is neither fish nor fowl. On the one hand, it's too clumsy for professional use. On the other, it is too limited in its display and printing requirements for personal use - that is, it uses an interlace screen which is bearable only if you've either a high persistence monitor or a

Continued from page 21.

Flicker Fixer. And its output is restricted to PostScript compatible laser printers.

Great Potential

Saxon Publisher has great potential, though. It could, with more work, be the best DTP program available for the Amiga. But it gives the impression of being half-finished, as if it were released too soon - though, in reality it seems to have been published long after it was first announced.

Those who are ignorant of history are condemned to repeat its mistakes. And Saxon Industries has ignored what has happened in Amiga DTP to make several unnecessary errors of judgement.

Use of an interlace screen and PostScript-only printing was a feature of the first release of Gold Disk's Professional Page. Gold Disk learned quickly that there just aren't enough Amiga users out there with the right equipment and produced a version of Professional Page that could be used on a non-interlaced display and would print to any Preferences printer.

I don't know who the end users were that Saxon consulted. But any halfway decent graphic artist or designer should have told the company that the basic unit of design in publishing is two facing pages.

Saxon Publisher allows you to see no more than one page at a time. It is a mistake also made by Gold Disk who at least will be rectifying it with its forthcoming Professional Page 2.0. That lack alone renders Saxon Publisher unsuitable for professional work. How, at this late stage, Saxon could make such an elementary blunder I do not know. There iss not one PC or Mac DTP program - and Saxon brought up the comparison, not me - that does not let you see at least two pages at a time. Most, too, allow you to open more than document at a time. Saxon limits you to one.

The program will not flow text automatically from one page to another. You can only achieve it manually as you move through your document. Also missing are automatic page numbering and templates for master pages. Text can be imported as ASCII files from any word processor, but if you want formatting included, then you must use WordPerfect, which is another needless restriction. Embedded commands can be added in a WordPerfect file to control various aspects of the finished document.

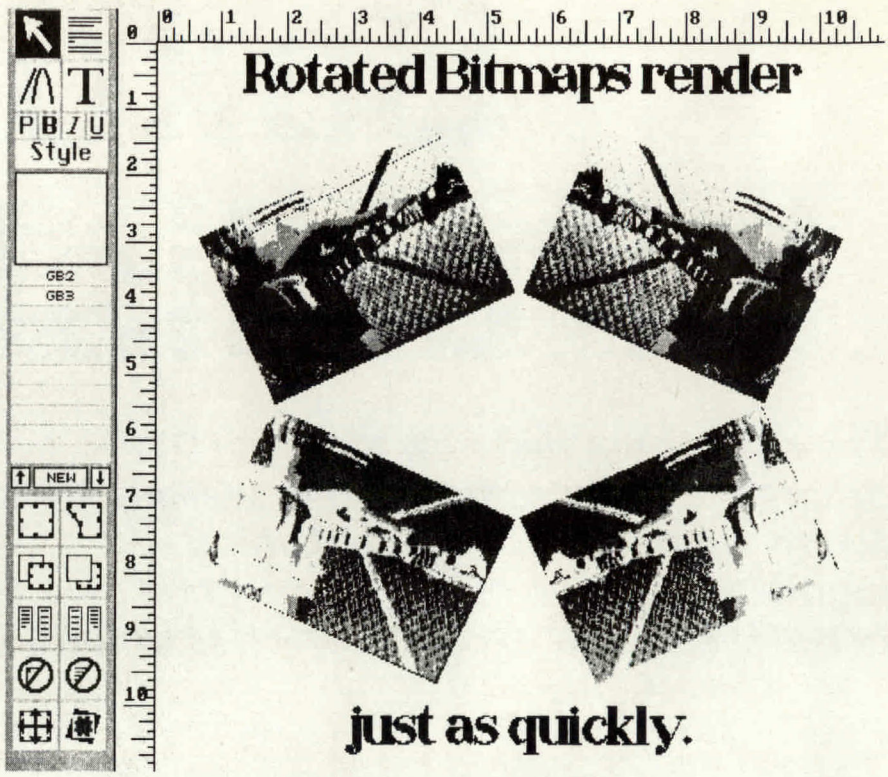
The program also lacks the more specialised functions found on high-end Mac and PC packages, such as spell-checking, indexing, contents page creation, and the anchoring of graphics to specific text in a document so that when the text moves, the illustration goes with it.

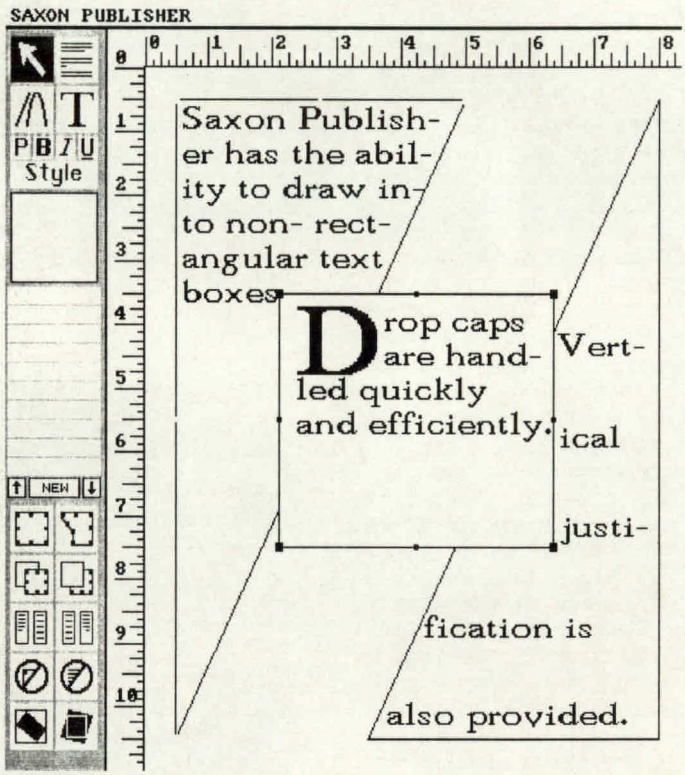
No Zapf Chancery

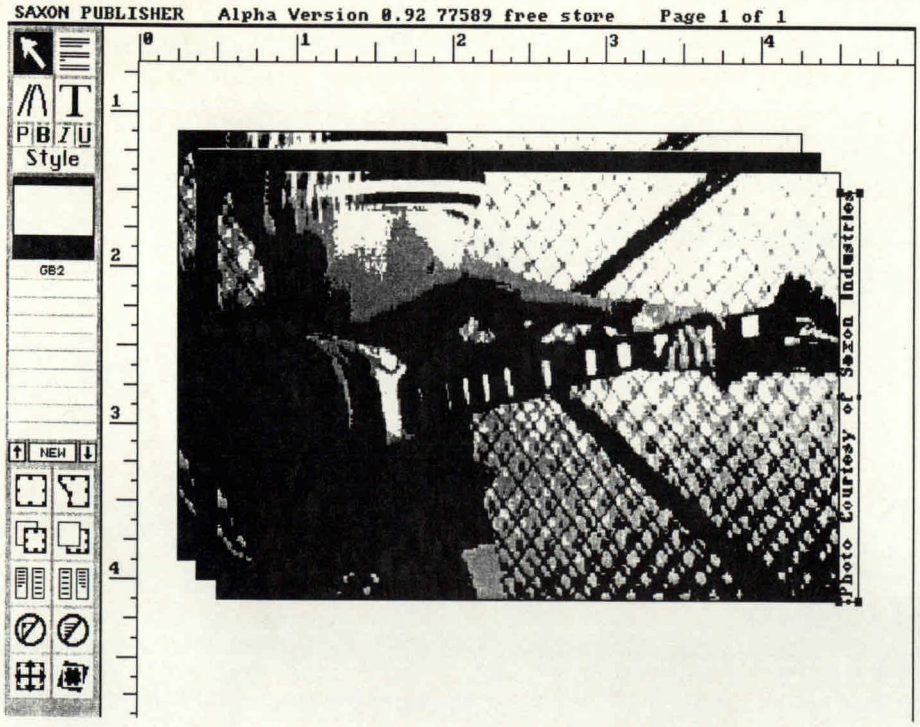
Saxon Publisher, I understand, is on the verge of making another serious error. It is developing its own outline font technology for a future issue of the program. Again, that is not what is wanted, least of all by professional users. More important is better support for PostScript fonts, which are the standard not only in laser printers but in typesetters such as the Linotronic.

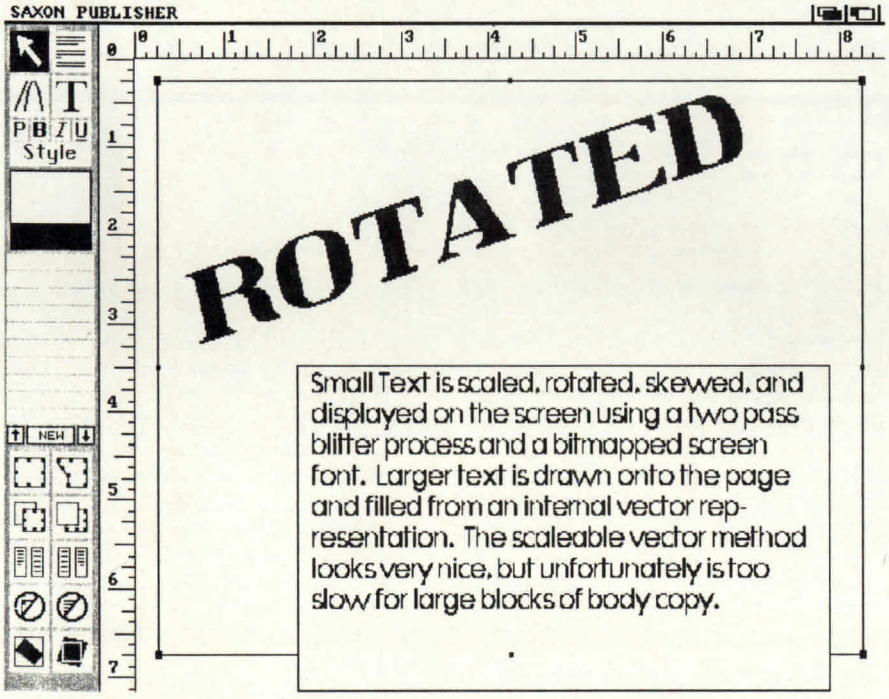
Saxon Publisher could once more learn from the mistakes of others. Creating proprietary outline fonts was a cul-de-sac explored and abandoned by Soft Logik with PageStream. The forthcoming PageStream 2.0 will not only support PostScript properly, but also AGFA Compugraphic's Intellifont system of outline fonts, as first licensed for the Amiga by Gold Disk, which has been used for years in the printing industry and is becoming an Amiga standard, too.

Considering it will output only to PostScript printers or imagesetters, Saxon's support is not all it should be. It does not allow you to use Zapf Chancery,









a style that is built in to most PostScript laser printers these days. Apart from the standard typefaces supplied with PostScript lasers, you seem to be limited to adding Benguiat and Lubalin.

Although the package claims that downloadable fonts can be used, the manual contains no reference as to how that can be achieved. When printing, the options are limited to outputting a single page or an entire document. You can't specify a range of pages, another awkward limitation in a program aimed at professionals.

The program's on-screen representation of fonts is crude, although an HQ (High Quality) option allows you to see headlines displayed as filled outlines. Using it slows down the program to a crawl.

That's most of the bad news. What is the good?

Saxon Publisher has an excellent system of style and paragraph tagging for documents. Styles for headings, subheadings and the body text can be defined in great detail and saved to disk and recalled.

These cover the font used, its size, justification, kerning, tracking and linespacing. The toolbox down the left hand side of the screen contains a listing of the styles in use.

When you first try Saxon Publisher, it takes a little while to create the styles you want. But once they are defined, the predefined style sheets speed up typsetting and make the program easier to use. As a result an expert could create the stylesheets and a novice could apply them to a document. They can be added at the word-processing stage of creating a document, providing that you are using WordPerfect.

A paragraph can be reformatted immediately by applying a different style tag to it. Such changes are global. Redefine the body text for one paragraph and you redefine it for all body text paragraphs in your document.

Saxon's style tags have one limitation. You can use only one font for a paragraph so it would be impossible, say, to add a word in Helvetica in a paragraph set up to use Times Roman.

Graphics handling is good. You can automatically resize graphics to fill the box you have drawn, which is a time-saver

In order to flow text through a document, you have to attach the same text tag to each box you want to flow the text through. There is, unfortunately, no automatic way of doing this.

Tags can also be applied to graphics. The program is compatible with bitmapped graphics and also structured graphics from ProVector (a program I confess I've never seen, or even heard of, before). You can also use graphics in EPSF (Encapsulated PostScript Format).

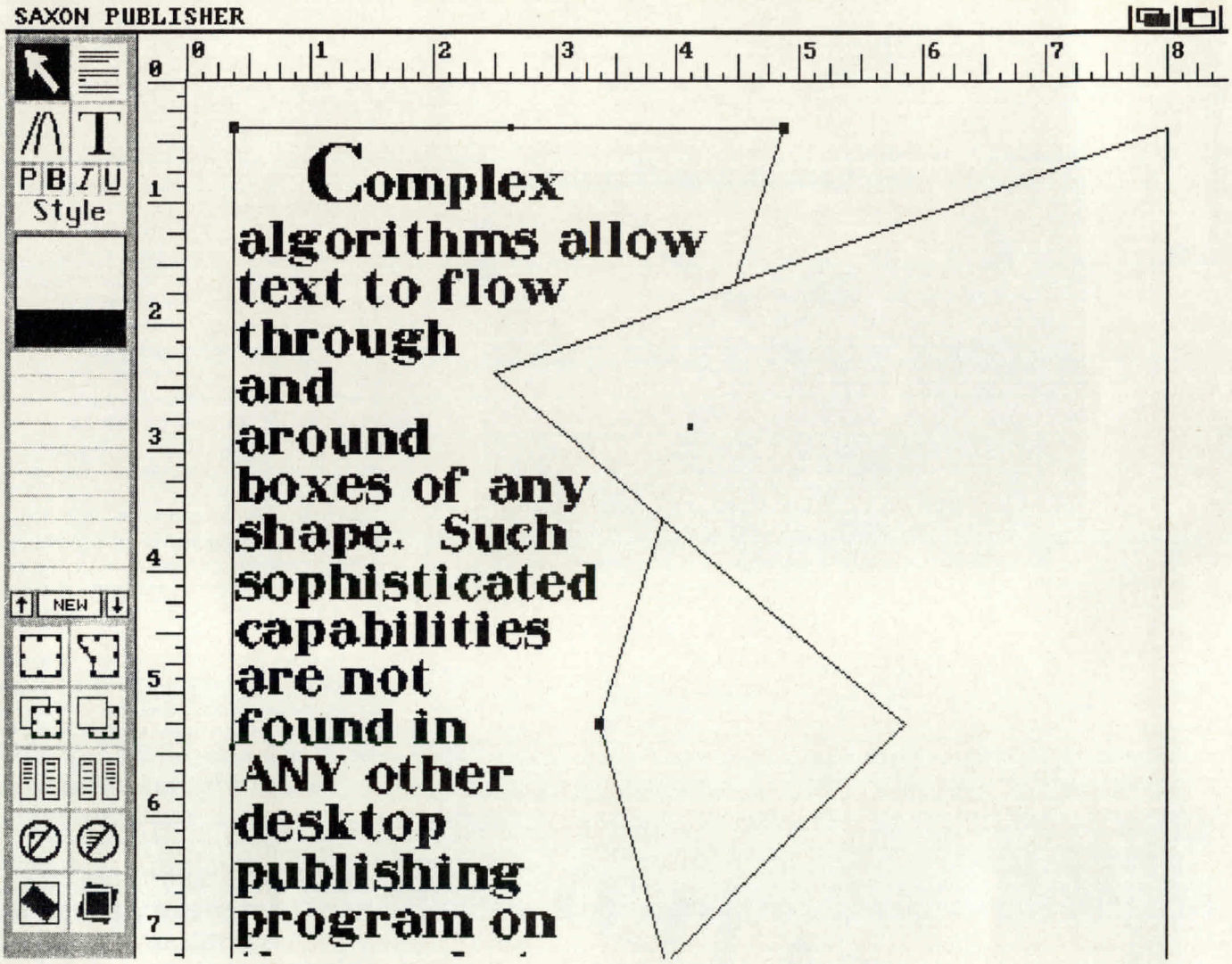
Graphics handling is good. You can automatically resize graphics to fill the box you have drawn, which is a time-saver. Saxon's structured drawing tools cover lines, and filled or unfilled polygons, rectangles and ellipses. Its Bezier curve tool is easier to use than the equivalent in either Professional Page or Professional Draw.

You can also double or quadruple the resolution of graphics in IFF format with resolutions of 640 x 400 or less, though this significantly increases the time they take to print.

Irregular Shapes

Boxes containing text or graphics can be rotated at any angle, a useful and

Continued from page 23.



advanced feature that can be achieved with Professional Page 1.3 only by using its companion program Professional Draw. You can also alter the scaling of the contents, including text, of the boxes.

Text can also be made not only to flow around other boxes but around irregularly shaped objects. Saxon Publisher is the first Amiga DTP program to handle this function well.

Drop capitals, too, can be more easily created than in other Amiga programs. Once a style for Drop caps has been set up, it is simply a matter of a quick mouse click to form one.

The program has a selection of bitmapped textures which can be placed in boxes, or on structured drawings, pages and text. These can be fades, which are graduated fills between two colours or shades of grey, bands, or radials, which are circular fills. There are also some brick effects of less value.

Saxon Publisher handles colour well, and can display 262,000 hues on-screen, though a colour display slows down its rather sluggish speed. It can produce four colour separations with undercolour removal, but cannot print Colour PostScript.

It can print to a Linotronic imagesetter, though, when the program automatically adjusts the output page size to match the page being printed, leaving room for crop and registration marks.

Part of my irritation with Saxon Publisher is caused by the exaggerated claims made for it - and its high cost when compared to rival Amiga programs. It asks to be judged by the highest standards. And by those standards, it falls far short of the ideal at the moment.

The program has a selection of bitmapped textures which can be placed in boxes, or on structured drawings, pages and text

Its use of style sheets and tags is excellent, as is its ability to rotate and manipulate boxes. Despite these good qualities, Saxon Publisher's curious mix of advanced features and primitive ones and its often clumsy interface makes creating documents a chore rather than a pleasure.

With support for other printers and improved PostScript handling, automatic page numbering and text-flow, and a display that allows two pages to be designed at the same time, it could be a serious contender. For the moment, though, Professional Page, despite its limitations, remains the best DTP program available and the enhancements announced for the imminent version 2.0 will put it further ahead.

I'll be very interested, though, to see version 2.0 of Saxon Publisher. That may be something really worth writing home about - or using for serious desktop publishing.

J.W.

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PHILIPS CM88

The top name in monitors have released one with a sleek design that was built to top people's specification but at an affordable price. Pat Kelly looks hard at it

The Philips range of personal computer monitors are no doubt the most popular in Europe. When the Amiga A1000 was originally sold Philips produced the Commodore-badged A1081 stereo monitor to accompany it as the A1000 had no TV modulator. When the A500 became popular, Philips were selling the A1084 monitor, but it soon became known that this model did not feature stereo output. The A1084S emerged soon to be replaced by the even more popular CM8833.

"Initially, the monitor need only be compatible with the computer, but over the last few years monitors have not only been the domain of the computer user"

The major developments have been in the compatibility area. Initially, the monitor need only be compatible with the computer, but over the last few years monitors have not only been the domain of the computer user. The TV, video recorder, and other visual units have needed a display unit capable of receiving and displaying pictures.

"With 1992 and the single European market looming, Philips have decided to base its standard to those adapted by corporate business VDU manufacturers and has created a monitor which will work with most personal and mainframe computers across Europe"

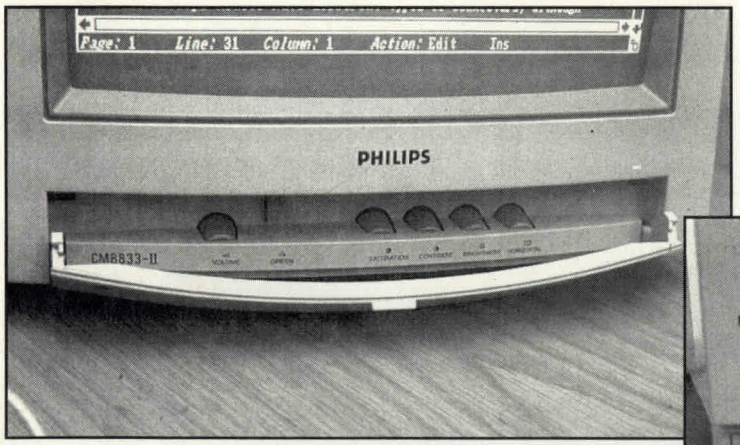
Most people today own a video recorder and use their television set to display the video channel only, with the video recorder's TV tuner receiving the broadcasting stations. With the new technology of stereo television broadcasts and NICAM stereo video recorders, a stereo monitor such as the CM8833-II may be a much better buy than a conventional TV set for some.

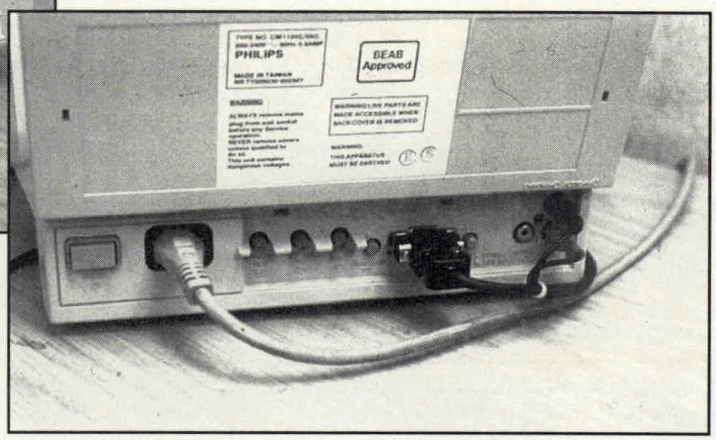
By far the largest problem for monitor manufacturers and computer manufacturers is the connector compatibility. Most of the Philips models have different types of connectors, although they are all made for the same market. This is probably due to the lack of a proper standard agreement between the monitor manufacturers.

With 1992 and the single European market looming, Philips have decided to base its standard to those adapted by corporate business VDU manufacturers and has created a monitor which will work with most personal and mainframe computers across Europe.

The CM8833-II has a much improved design over its predecessor the CM8833. The monitor's design is more akin to that of the computer terminal display found on workstations and large networks, more

33-II MONITOR





commonly used in corporate businesses. The unit is deeper due to the longer CRT tube which is capable of much sharper displays and gives a flatter screen. The unit is more aesthetically pleasing than its predecessor which has a more complicated and outdated shell.

The power lead can also be detached from the monitor and while this may not be an important feature it is a standard being adopted for most electrical appliances. The on/off switch is positioned at the rear of the casing and is big and easy to operate. Apart from the changed switch position all other controls are at the front,

"The default monitor tilt has the flatter screen displayed at a 5 degree angle toward the user rather than flat and there is also an in-built adjustable stand which provides a total of three viewing angles of 5, 10, and 15 degrees"

hidden under a panel. These controls use knobs which are easier and more accessible than those on the older CM8833.

The default monitor tilt has the flatter screen displayed at a 5 degree angle toward the user rather than flat and there is also an in-built adjustable stand which provides a total of three viewing angles of 5, 10, and 15 degrees. There is an optional swivel stand available which actually clips into position rather than merely having the monitor sitting on top, as is so with most other monitor configurations.

The CM8833-II's similarity with more expensive terminal displays doesn't end there because in addition to ordinary use, it can also be employed as a terminal for machines such as the IBM mainframes, DEC, and Hewlett Packard as it has the ability to display TTL RGB signals. The Amiga and other home computers use analoge RGB, whereas TTL RGB does not allow for colour and uses less memory to display a screen full of information. Large number crunching and data intensive mainframes therefore use TTL RGB VDU's. The main connector at the rear of the unit is now a 9-Pin D-shell which is also an industry standard for terminal VDU's.

The monitor is supplied with a CVBS, Composite Video Signal connector for video applications. This allows the monitor to be connected to a video recorder or a remote TV tuner, thus allowing use as a TV screen.

The main attribute of this monitor is its design which, although featuring a deeper Cathode Ray Tube, has a flatter display screen. The inclusion of the TTL RGB facility will not mean a lot to most users, but it opens a new use for the monitor amongst the business community and may be a reason for the well-designed sleeker look, which is an advantage for everyone. Overall, this is a very attractive and highly efficient monitor, and must be considered a leader in its class.

P.K.

PHILIPS CM8833-II: £230.00+VAT
Contact: See Special Offer Page 107

TECHNICAL SPECIFICATION

Picture Tube	: 14 inch, dark glass, 90 degree deflection, slotted triplet pitch 0.42mm, 29.1 mm neck diameter
Line Frequency	: 15625 Hz
Raster Frequency	: 50 Hz (47-62.5Hz)
Mains Voltage	: 220-240VAC
Power Consumption	: 75 Watt
Resolution	: 640x200pixels (RGB)
Audio output	: 1 Watt 5% distortion Stereo
Character	: 2000 (80x25 rows) (RGB)
Output type	: Analoge RGB, TTL RGB, CVBS
Dimension	: 326x352x376 mm
Weight	: 11 kg

Programmers at Work

Susan Lammers – Tempus £7.95

Martin Witton reads of algorithms so beautiful they could be framed and hung on the wall

Lotus 123 and Basic are familiar names to even the most casual of computer users, but how many people give any consideration to the authors of these programs? Programmers At Work offers a fascinating insight into the minds and lives of 19 of today's most notable conceivers of well-known programs and an intriguing picture emerges.

The book concentrates on the chosen subjects by devoting a chapter to each individual. Each programmer was asked similar questions which included the personal development that influenced their eventual career and how they saw the computer industry moving forward. This approach allows the reader not only to gain an overall picture of the character of the programmer, but also provides a view of the history of the development of the computer industry itself. The programmers were all asked to submit samples of their work so that the reader could have a glimpse of his style when the ideas started to be put on paper. Some apparent doodles have historical value.

Shallow Discipline

Many programmers have had a background of physics and mathmatics. Butler Lampson (founder of the Berkeley Computer Corporation) said that they require people to think clearly to succeed which is why many successful computer people come from these fields. He thinks that it is harder to start in computer science and stay in it because it is " a very shallow discipline". He says it doesn't really force you to exercise your intellectual capabilities enough. "From mathematics you learn logical reasoning, to prove something as well as how to handle abstract essentials. From experimental science such as physics, or from the humanities you learn how to make connections in the real world by applying these abstractions".

The future of the computer industry should be the most fascinating question posed to all the programmers, but here the author comes unstuck, either because of the way the question was asked or because of the narrowmindedness of the programmers researched. Most of the programmers said that PC's would become more accessible and smaller, and that communications would become faster and cheaper. Very profound and original...

However, no one developed the theme into specifics that would enrich people's lives such as the vast difference computers have made for people with physical disabilities who now have scope to achieve more and overcome difficulties that have severely restricted their lives.

Big Lens

Michael Hawley (who has been involved in Sound Droid, an all digital sound studio in a box) came nearest,touching on development into psychology. He has been charged as an affiliate of Lucas Film Ltd. with the monumental task of computerizing the film making process and has been working with a cognitive psychology group researching the problems of communication between people and computers. He said that psychologists are particularly excited about computers because "It's like having a big lens you can use to zoom in and see what is going on in people's minds".

"Computing is just beginning to become a significant part of the economy and it is just starting to affect peoples lives"

Some of the programmers mentioned developments such as in the publishing industry where technological innovations have been so rapid, or the development of music, but generally the answers were disappointing in their banality. Lampson likens it to the industrial revolution which took at least sixty years from the time it started until it had a major impact on people's lives. "Computing is just beginning to become a significant part of the economy and it is just starting to affect peoples lives". But reading all this one still hungers for more, to be given much greater insight into research that is being carried out now, and to longer term effects.

But if delving into the future was disappointing, the sense of fun and enjoyment in creating a program is very evident in these dedicated programmers. Perhaps what is important to them is the here and now, getting it so exactly right that a sense of the aesthetic is achieved.

Gary Kildall, founder and chairman of the board of Digital Research, finds programming in LISP language aesthetically pleasing. He says "there is a concise form of LISP called the M expressions. When you write an algorithm using M expressions, it's so beautiful you almost feel it could be framed and hung on a wall. When a program is clean and neat, nicely structured and consistant it can be beautiful".

PACMAN Pizza

Pac-Man game designer Toru Iwatani had a strong concept about what a game designer is - someone who designs projects to make people happy. He got the idea for Pac-Man from ordering a pizza and taking a wedge. From this came the Pac-Man shape.

One of the thoughts that this book provokes is why are all the programmers it includes men. Is computer programming something that women are not fitted for? That certainly can't be the case because many programmers are women and it is thought that their puzzle-solving minds may be well suited to the demands of programming. Indeed the company F International was set up and employed some 500 women, mostly ex-IBM programmers on a freelance basis but perhaps for a programmer to reach the "genius" level there requires a dedication and commitment that is less likely to happen if women suffer all the normal disadvantages of career interuption that family life often brings.

Whatever the outcome, the book records what has happened to date, and can be used as a useful reference. It brings to life the software industry for those who are curious about what goes on behind the scenes. The book can be dipped into or read through. Either way it is thought provoking.

M.W.

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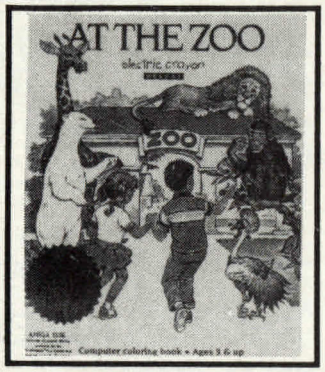

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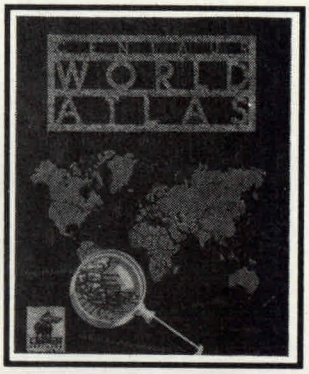

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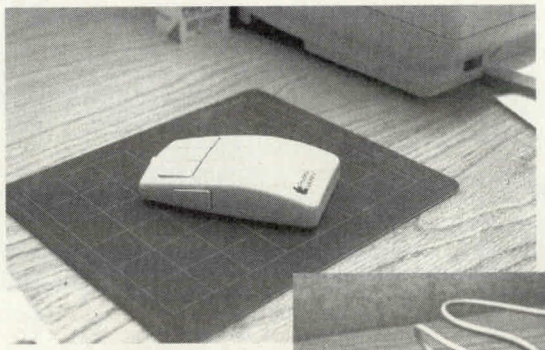
WHERE'S THAT MOUSE?

Q When is a mouse not a mouse?

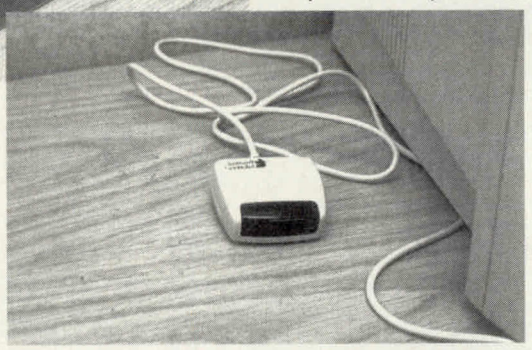
A When it runs out of batteries as Pat Kelly duly found out!

The concept of cordless appliances isn't new. For example you have the cordless iron, the cordless kettle, and even the cordless radio. Remote control systems have also developed and many other household appliances have used the technology to full effect. So why should householders have all the fun and convenience associated with the latest technological advancements?

The rumours of a cordless mouse being developed have been around for some years, but now infrared signal transmission technology has improved to such an extent that it is claimed that the cordless mouse is just as good as a cabled mouse.



The Amiga mouse isn't the easiest of rodents to get along with. So most of us at some time or another will seek a replacement, due to necessity and not through greediness. Many users of applications and graphics packages who are serious about their work regard the standard Commodore supplied mouse as clumsy and awkward and would not be able to tolerate it. However, Practical Solutions have now released the Cordless Mouse and although it may not suit everyone's taste it does have its good points.



"The controller works at an angle of up to 45 degrees from the receiver, so it is quite possible to place the receiver anywhere in front of the mouse for good results."

The mouse package consists of an infrared receiver unit which plugs into the mouse port, a piece of double-sided adhesive tape to stick the receiver in a convenient position, and, last but not least, the mouse controller.

The mouse controller, which is a three button unit, requires two 1.5Volt AAA batteries, which, of course, are not included. The mouse automatically disables itself after 10 minutes of non-use and is also equipped with a button on its left side which 'enables' operation. This saves battery power and along with the use of CMOS technology, which reduces power consumption, the unit is very efficient. It is claimed that the batteries will last two weeks under intensive use, and up to 6 weeks for limited use.

The manual states that the mouse can operate up to five feet from the receiver, but under normal working conditions it was found to work reliably at a maximum of two/three feet. This is probably due to signal loss and other electro-magnetic interference. The controller works at an angle of up to 45 degrees from the receiver, so it is quite possible to place the receiver anywhere in front of the mouse for good results.

"So why should householders have all the fun and convenience associated with the latest technological advancements?"

An annoying feature of the package is that the receiver LED flashes when it receives a signal from the controller, but it is possible to place the offending unit out of sight. I found that by sticking the receiver onto the side of the monitor not only gave good reception, but also hid the flashing LED.

The Cordless Mouse isn't supplied with a storage pocket and I wouldn't like to misplace the controller, it may be lost forever!

The mouse operates well, much better than the standard Amiga mouse. There are only two drawbacks, the first is that if you are not careful, or if someone kindly places a cup of coffee on your desk you may momentarily lose control - Not much use if your at a critical stage in saving data! The second is when your mouse controller runs out of battery power leaving you mouseless. So it would be wise to keep some spare batteries or a back-up mouse handy.

P.K.

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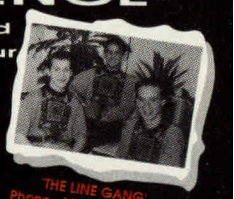

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Computer Graphics are not only turning into more and more a part of our everyday lives, they are also becoming easily accessible both from lower priced machines like the Amiga and from software and hardware that is easier to manage and obtain.

At the recent Computer Graphics Exhibition in London, there was a widening range of mind boggling electronic wizarding with CBM playing a leading role in offering the Amiga as the computer to provide professional standards at reasonable prices.

Commodore launched a series of new products and applications at the Computer Graphics Show.

For the first time Amiga workstations demonstrated the multimedia package AmigaVision, in a networked enviroment. The ethernet network was running a Unix file server. Working via TCP/IP, this allows the multimedia workstations to call on the system libraries and files from the other workstations, providing a series of simple and cost-effective solutions.

3D CAD

Applied Vector Technology launched a true 3D CAD package. Running on the Amiga 3000, this 3D database has powerful modelling feature, including project and spin commands, planner surfaces and dynamic views.

CHARTSCREEN

The Amiga's high resolution graphics capability was shown using high resolution graphics by Chartscreen. Based on the Texas instruments 34020 card, the cards run at up to 32Mhz with 2Mb of video RAM, which is enough for 2 frame buffers. There is up to 4Mb of DRAM for programs and data storage as well as a maximum 2Mb of Flash EPROM or EPROM. A resolution of 1024 x 1024 with full overscan is available from a palette of 65,536 colours. The high performance of 20MIPS Peak and optional TMS 34082 Maths Co-Processor creates a fast and highly effective solution for graphical displays.

IGOR

IGOR, the latest broadcast quality, 3D modelling and animation package by Palace Software was on show on the Amiga 3000.

VIDEO DIGITISING

Commodore showed, in conjunction with Canon, a video digitising suite. This comprised a Canon digitiser stand and Rendale digitiser used with an Amiga. At £5,500 for the complete package, not only is it a portable, high quality solution for the audio-visual industry but one that is at a lower price than similar systems.

LINE TESTER

A line tester by Chromocolur, the top animation industry supplier, was on show. This digitises each shot so the flow of the animation pictures can be tested prior to shooting.

LONDON COLLEGE OF PRINTING

Broadcast quality graphics, holographic images, and video admatics were demonstrated by the top design college, London College of Printing. Independent consultants showed how and why they have used the Amiga on specific projects for major TV stations.

DTP

Desktop reprographics on an Amiga 3000 will be using Professional Page and Professional Draw. This is the first time the new beta release of Professional Page 2 had been shown.

Commodore put together a new Desktop publishing solution consisting of a PC50, a high definition monochrome Wyse monitor, Windows 3, Aldus Page maker, Microsoft mouse and an Oki postscript laser printer.

Two Amiga workstations demonstrated AmigaVision and multimedia whilst a third talked you around the entire Commodore stand. An interesting and properly creative use of Amigas in multimedia.

ON THE ROAD TO VIRTUAL BRUTALITY?

Paul Marks reports from the UK's first conference on virtual reality, the TTechnology that creates artificial worlds in which the user can be totally immersed . . .

CAN you imagine wearing a TV on your head? That, believe it or not, was the vision of virtual reality (VR) systems that early pioneers of the technology foresaw, way back when colour LCD screens were less than a twinkle in the eyes of Hitachi's research scientists.

It was in 1965 that a technological visionary by the name of Ivan Sutherland published a paper referring to what he called "The Ultimate Display" - his idea of how man-machine interfaces would ultimately be implemented. The paper is widely accepted as being the germ of the idea that started the VR technology we know today.

In his paper, Sutherland proposed a headmounted cathode ray tube system for relaying images to a user - a thought that horrifies today's researchers in the genre. The high voltages and the sheer weight of CRT based vision systems would be a health and safety officer's nightmare

Continued on page 51

The Virtuality 1000 SU designed for a user standing or moving within a scanned area, with the Vlsette visor providing an interface with teh virtual world. Interraction with the virtual world is provided by a hand-held unit.

CBM Finds The Missing Number

Is Commodore UK's new baby a new Amiga? John Collins has his doubts, but likes what he sees.

Commodore has launched the Amiga 1500 Personal Home Computer. So, is this a new Amiga? (Or the number Commodore missed as we called it in September 1990?) The answer is 'No'. It is a marketing exercise on the part of Commodore's UK subsidiary, designed to fill a perceived gap in the Amiga product range between the 500 and the 2000.

That the gap exists is shown by the continuing popularity with many early Amiga users of the long discontinued original Amiga, the 1000, the large number of A500 users who took advantage of last Spring's special offer to upgrade to a 2000, and the recent launch by Checkmate of their A1500 upgrade kit for the Amiga 500. The principal features that distinguish the Amiga 1000, the 2000, and Checkmate's A1500 from the Amiga 500 are that the keyboard is separate from the main computer box and that this box has a flat top suitable for standing a monitor on.

The Amiga 2000 appears in Commodore's Autumn 1990 Recommended Retail Price List at #1130.00 (excluding VAT) for a machine with 1 Mb RAM and a single 3.5" floppy drive. Compared to an Amiga 500 with an A501 512K RAM expansion, taking it up to 1 Mb, costing under #500 (including VAT) the 2000 looks very expensive. Is one paying two and a half times as much just to get an Amiga in a larger box with empty internal expansion slots?

What Commodore (UK) have cleverly done is take the existing Amiga 2000 and, through repackaging it, create two different products. The first to appear is the Amiga 1500. This is really an Amiga 2000 with a second internal 3.5" floppy drive fitted as standard. However, it comes bundled with an A1084S monitor and eight software packages. This entire bundle costs £999 (excluding VAT), so it is clearly much better value than the A2000 used to be.

"The software is an interesting selection of the serious, the graphical, and the entertaining - aimed at what is thought to be Commodore`s main target market, families with children in their early teens."

What is not so clear is whether it is a low enough price to represent good value in comparison with an Amiga 500 system. The Amiga 500 computer, A501 RAM expansion, A1011 external disk drive, and A1084S monitor cost under £800 (excluding VAT). So the bundled software and the possibility of future internal expansion are costing over £200. But many will consider that extra potential well worth it.

So, what software is included? The software is an interesting selection of the serious, the graphical, and the entertaining - aimed at what is thought to be Commodore's main target market, families with children in their early teens.

The Works! (Platinum edition), from Micro Systems Software, is a fully integrated word-processing, spreadsheet and database package.

Deluxe Paint III, from Electronic Arts, is the latest version of the paint package which, more than any other, established the primacy of the Amiga as a graphics machine. In the 1990 European Computer Leisure Awards it won Best

Product for the Amiga and Best Graphics.

Battle Chess, from Interplay via Electronic Arts, goes beyond ordinary chess programmes by exploiting the Amiga to provide 3D graphics and digitised sound effects.

Their Finest Hour, from Lucasfilm Games via U.S. Gold, is a flight simulator based on the Battle of Britain.

Populous with The Promised Lands, from Bullfrog via Electronic Arts, won Most Original Game, Best Strategy Game, and Game of the Year in the 1990 European Computer Leisure Awards.

Sim City with Terrain Editor, from Maxis via Infogrames, lets you create and determine the destiny of your own city, encountering all the problems that trying to run a city involves. It won Best Educational Program in the 1990 European Computer Leisure Awards.

Given the inclusion of this remarkable collection of software, the Amiga 1500 turns out to provide very reasonable value for anyone who is likely to want to make use of its expansion possibilities.

It has an 86-pin coprocessor slot, for which 68020 and 68030 boards are available; five 100-pin Zorro slots, for which a variety of Amiga boards are available - hard disk controller, modem, RAM expansion; two IBM PC/XT slots and two IBM PC/AT slots which, with either the A2088 XT bridgeboard or the A2286 AT bridgeboard installed, allow the Amiga to include an industry standard PC; and a video slot, for which boards such as the A2300 genlock and the A2320 flicker-fixer are available. Genlocking allows Amiga generated material to be laid on top of video from an external source.

The flicker-fixer, which needs a more expensive monitor than the bundled A1084S, allows the Amiga to be used comfortably at its highest resolution with Computer Aided Design or Desktop Publishing programs.

So, what of the Amiga 2000? In early 1991 it is also likely to be repositioned in the market. It should have the A2091 hard disk controller and a SCSI hard disk fitted as standard. Both the 2000 and the 3000 will have Commodore's multimedia authoring software, Amiga Vision, bundled with them; and both will have on-site warranty, as befits a more up-market graphics workstation.

It shows a lot of initiative from Commodore UK to have brought the interesting Amiga 1500 to the market and it may, we hear, yet be taken into other countries around the world.

J.C.

"Is one paying two and a half times as much just to get an Amiga in a larger box with empty internal expansion slots?"

LINE CLIPPING

Cohen-Sutherland, names to conjure with if you want to solve a problem set by your Amiga's memory. Mike Nelson tells the secrets

The Amiga ROM kernel is jam packed with useful functions for drawing lines on the various types of screens, but the graphics primitives do not perform any kind of clipping should the coordinates of the line exceed the window. The way in which memory is organised on the Amiga means that this will potentially crash the machine, because the function Draw() will instruct the blitter to render the line anywhere in memory, according to the coordinates it receives from your calling program. There are many instances when you are not able to guarantee that the line will only fall on the visible area, and if, for instance, the coordinates are negative, the blitter will draw through memory which is not allocated to the display. At best, this will just result in unused memory being written to, but it is far more likely that something important like your program code, or operating system data structures gets wiped out. Invariably this means a visit by the Guru.

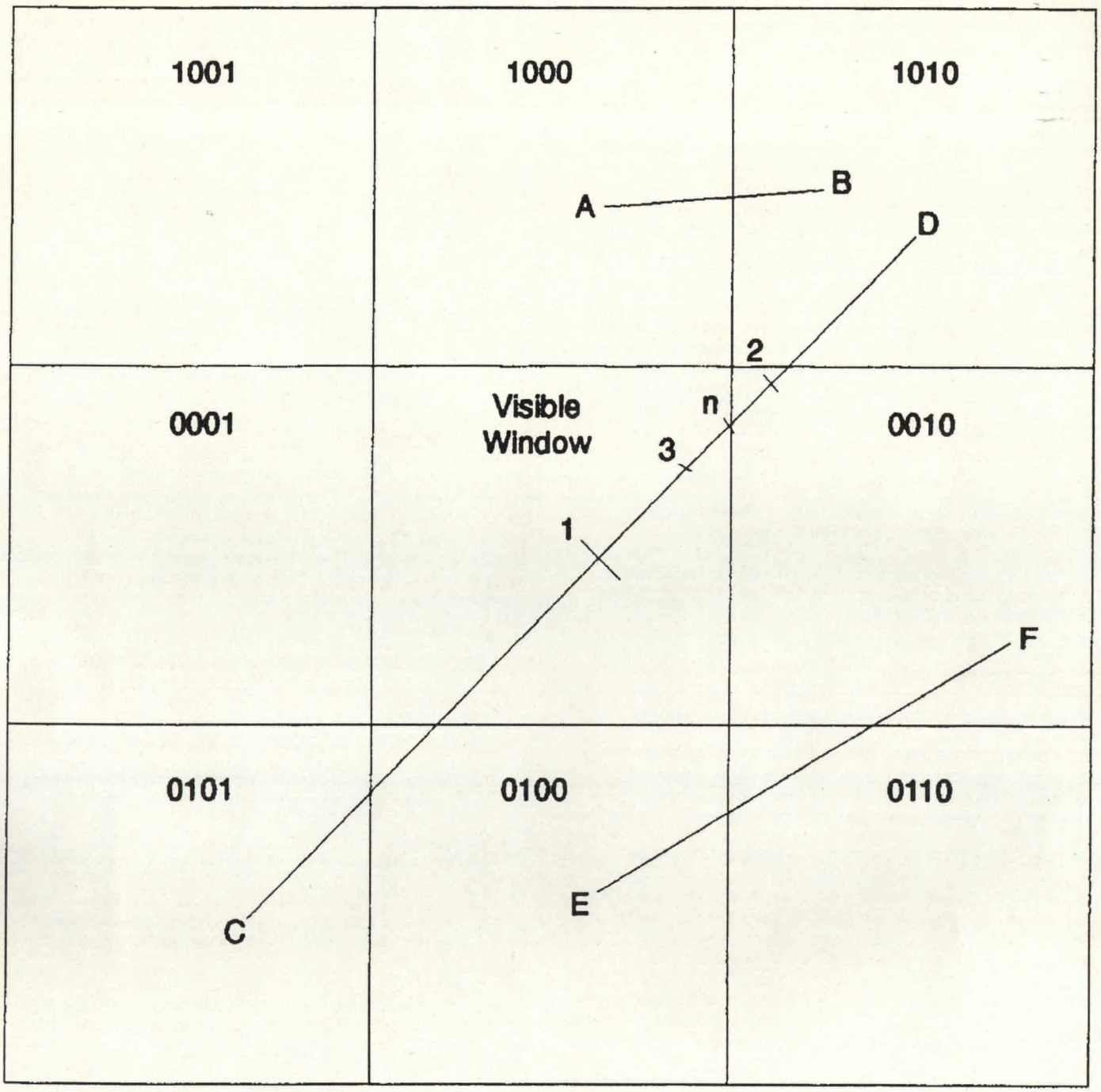
The layers library contains clipping routines, but there is a lot of hassle involved in using them, particularly if you don't really want the rest of the layers functions. One way around the problem is to test the coordinates to see if they are out of bounds, and if this is the case, simply don't draw the line. The disadvantage in this method is that if only a part of the line is offending, and some of it crosses the display, none of the line gets drawn. Another alternative is to resort to a mathematical solution of the line's equation (remember all that y = mx + c stuff from school?), but this involves solving quadratics and floating point calculations, and so should be avoided for both convenience and speed in C or assembler.

One of the most efficient algorithms devised for line clipping is the Cohen-Sutherland method presented here. It gains its efficiency from the fact that no floating point calculations are needed; instead we use simple addition and binary rotation to simulate division by two, a common technique in assembler. In effect, the routine does a binary search along the line until it coincides with the limit of the "window". I use the term window in a general sense, rather than directly related to Intuition, but this is one obvious situation for clipping, as it is easy to draw all over title bars, if you are not careful. Another advantage of this routine is that you can define the clipping area to be a rectangle in the middle of the screen, and not necessarily taking up the whole screen. Finally, the rendering of totally invisible lines is avoided so the Guru is not disturbed and the program can run at full speed ahead.

```
/* Shows how to use the Clip() function */
#include "exec/types.h"

struct line {
  SHORT x0;
  SHORT y0;
  SHORT x1;
  SHORT y1;
  UBYTE flag;
};

void main();
extern void Clip();

void main (){
  struct line line;
  struct line *lptr = &line;
  lptr -> x0 = 320;
  lptr -> y0 = 250;
  lptr -> x1 = 900;
  lptr -> y1 = 160;
  printf ("Before :x=%d, y=%d, x1=%d, y1=%d, flag=%d",
    lptr -> x0, lptr -> y0, lptr -> x1, lptr -> y1, lptr -> flag);
  Clip (lptr);
  printf ("After :x=%d, y=%d, x1=%d, y1=%d, flag=%d",
    lptr -> x0, lptr -> y0, lptr -> x1, lptr -> y1, lptr -> flag);
}
```

How does Cohen-Sutherland clipping work? A quick look at the diagram will explain all. The visible portion in the middle of the nine squares is the screen, anything outside of which is effectively out of bounds and liable for clipping. We code both of the points which define the line, according to which region they appear in, a simple process accomplished in lines 100-103 of the program. As you can see, this is a few statements which compare the points with the clipping window coordinates. Anything with a negative Y-value has bit 3 set, a negative X-value has bit zero set etc. A simple check will reveal that if both points are off screen, in the same general area, the line does not pass through any of the visible region and may be safely ignored, as does line A-B. The code for this is around line 51.

The line C-D is going to cause us more of a problem, as some of it is off screen and so it must be clipped to fit exactly into the window. We call the function ClipEdge() (line 62), which works like this: Firstly the centre of the line is located (this is where the bit rotation comes in as adding the X-values and dividing by 2 yields the LineCentreX value; the same goes for the Y-coordinate). We then find out which quadrant this lies in, and discover it's in the visible window (point 1 on the diagram). We can now substitute this for the "left point", i.e. C, and repeat the last steps, again finding the central point (2) resolutely out of bounds so it becomes the "right point". The next time we do it,



point 3 is in the window, and so becomes the new "left point". Eventually as the line under test gets smaller, and smaller, it will be a single pixel long, starting and ending on the right border of the window, point n. We test for this occurrence in lines 133-4 and then break out of the loop.

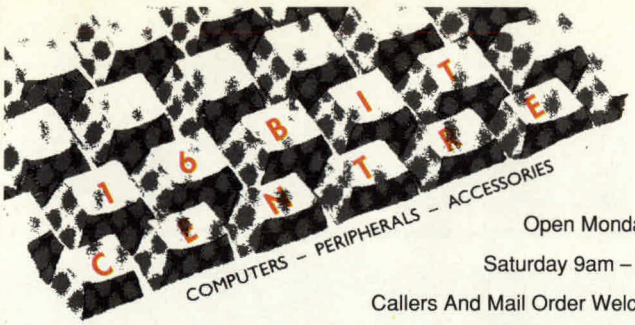
Line E-F is a special problem which arises because of the logic of the various test procedures outlined above. The test at line 51 fails because E-F crosses into another side of the window, and the mid point lies outside the visible region so this is detected in line 136, and a signal to ignore the line is made. If you fancy sussing out the exact mechanism of this failure, you may spend a fair few hours with a piece of graph paper and a binary calculator!

So much for the theory, but how about the programming? The first point to mention is clip.c is not a complete program in its own right but is designed to be compiled and linked in when you need it. The program clipdemo.c gives you some idea how to do this. Next, please don't type in the line numbers; they are there for descriptive purposes only, and the compiler will only make you delete them. Maybe I should have told you earlier!

I have used macros for defining the window, but you can easily substitute global variables if you want to alter the dimensions of the clipping window, perhaps if the resolution of the screen is changed. To simplify the parameter passing, I have declared a line structure which has the flag member for indicating if the line is totally off screen. You pass a pointer to a line structure to Clip(), which then fills in the flag member, and alters the coordinates as, necessary. The macros DRAW and NODRAW are self-explanatory, like all good macros!

I don't really want to go into a line-by-line account of how the program works, and it is not as ruthlessly efficient as it may be, partly to make it more readable. There is an abundance of comments in the listing, so it should be pretty obvious what's going on, if you can speak C. Translation to assembler should be fairly straightforward, and is ridiculously simple if you own a compiler! *M.N.*

```
/* Clip function will clip line so that nothing dire will happen
   if your program decides to draw parts of the drawing off screen.
   Resurrected by Mike Nelson in October 1990. */

#include "exec/types.h"

#define LEFT  0       /* These are some meaningful macros which   */
#define RIGHT 639             /* represent the borders of the "window"   */
#define UP    0       /* in the general sense. Note you can       */
#define DOWN  199     /* modify them to avoid the Intuition       */
#define NODRAW 1      /* border, or if the resolution is different */
#define DRAW  0       /* Only draw if "flag" is set to DRAW       */

void ClipEdge (), Clip();     /* Just to keep compiler happy */
UBYTE Quadrant ();            /* This function actually returns something */

struct line {         /* This is my own line structure, and simply contains */
  SHORT x0;           /* the four coordinates which represent the line, and */
  SHORT y0;           /* the flag member is set to NODRAW if the Clip()     */
  SHORT x1;           /* function decides that none of the line lies in the */
  SHORT y1;           /* visible portion of the screen. Ignore this at your */
  UBYTE flag;         /* peril as the OS Draw() will not do any checks.     */
  };


SHORT LineX0, LineX1, LineY0, LineY1;  /* Global variables */
UBYTE CodeP1, CodeP2, NewCodeP1, NewCodeP2;

/* This is it! Clip() will take a pointer to a line structure, and operate
 on the points to ensure the line does not go out of bounds, or if you
 can forget about it altogether */

void Clip (lptr)
  struct line *lptr;
{
  SHORT x1temp, x0temp, y1temp, y0temp; /* Local variables */

  LineX1 = x1temp = lptr -> x1;       /* Keep copies of these so */
  LineY1 = y1temp = lptr -> y1;       /* we can mess around with */
  LineX0 = x0temp = lptr -> x0;       /* them without doing any  */
  LineY0 = y0temp = lptr -> y0;       /* long-term damage.       */

  lptr -> flag = DRAW;                /* Draw unless told otherwise */

  CodeP1 = Quadrant (LineX0,LineY0);  /* Which quadrant are these */
  CodeP2 = Quadrant (LineX1,LineY1);  /* points in? I dunno! */

  /* If both codes are in the visible area, then just draw it */

  if (CodeP1 || CodeP2){              /* if either code is set need to clip line */
    if (CodeP1 & CodeP2){             /* if codes are equal then ignore line */
      lptr -> flag = NODRAW;          /* as it doesn't intersect window area */
    }
    else {                            /* Codes are different, do something */
      if (!CodeP2) {                  /* Try point (X1, Y1), if we get here */
        lptr -> x1 = LineX1;/* it's in the drawing window */
        lptr -> y1 = LineY1;
      }
      else {                          /* Boo Hoo! We must see where it hits */
        NewCodeP1 = CodeP1;           /* right edge of screen */
        NewCodeP2 = CodeP2;
        ClipEdge ();                  /* Tries to find a point of intersection */
        if (NewCodeP1 == 255){        /* Special case of failure, see text */
          lptr -> flag = NODRAW; /* Give up on this line */
        }
        else {                        /* We've sorted out one of the points */
          lptr -> x1 = LineX0;        /* so we preserve them */
          lptr -> y1 = LineY0;
        }
      }
      LineX1 = x0temp;    /* OK. Now sort out the other point  */
      LineX0 = x1temp;    /* so we swap the coordinates around */
      LineY1 = y0temp;    /* and X0 becometh X1 & vice versa   */
      LineY0 = y1temp;

      NewCodeP1 = CodeP2;     /* Must swap the quadrant codes as */
      NewCodeP2 = CodeP1;     /* well. */

      if (!NewCodeP2) {             /* It's too much to hope that the point */
        lptr -> x0 = LineX1;        /* is actually lying in the visible bit */
        lptr -> y0 = LineY1;        /* but you never know */
      }
      else {
        ClipEdge ();                /* Just like startin' over, but with the */
        lptr -> x0 = LineX0;        /* other point instead */
        lptr -> y0 = LineY0;
      }
    }

  } /* Phew! x0 etc should contain the co-ordinates of the line plotted */
}

/* This function returns the quadrant in which the point sent to it is
   located. The code contains 4 bits */

UBYTE Quadrant (x,y)
  SHORT x, y;
{
  UBYTE code = 0;             /* Local variable, only exists in Quadrant() */
  if (x < LEFT ) code |= 1;   /* I used macros for the window,  */
  if (x > RIGHT) code |= 2;   /* but your application may need  */
  if (y > DOWN ) code |= 4;   /* to vary the clipping area, so  */
  if (y < UP   ) code |= 8;   /* global variables may be better */
  return (code);
}     /* End of Function */

/* Now we jump around on the line until we hit the clip window */

void ClipEdge(){
  SHORT LineCentreX, LineCentreY;
  UBYTE code, flag = 0; /* flag is an internal thing used to break loop * /

  LineCentreX = (LineX0 + LineX1) >> 1; /* Rotating bits right 1 place */
  LineCentreY = (LineY0 + LineY1) >> 1; /* is like dividing by 2 */

  while (!(flag)){
    code = Quadrant (LineCentreX, LineCentreY); /* Where's middle? */

    if (!(code & NewCodeP2)) {      /* Compare right point and middle, */
      LineX0 = LineCentreX;         /* got  here so different codes: */
      LineY0 = LineCentreY;         /* set left point to LineCentre */
    }
    else {
      LineX1 = LineCentreX;         /* middle and point  same quadrant */
      LineY1 = LineCentreY;         /* so lose point 2 and use middle  */
    }

    LineCentreX = (LineX0 + LineX1) >> 1; /* calculate new LineCentre */
    LineCentreY = (LineY0 + LineY1) >> 1;

    /* Now check to see if we're complete, setting flag to quit "while" */

    if ((LineCentreX == LineX0) && (LineCentreY == LineY0)) flag = 1;
    if ((LineCentreX == LineX1) && (LineCentreY == LineY1)) flag = 1;

    if ((code & NewCodeP1) && (code & NewCodeP2)) {
      flag = 1;                     /* This is a check for a special case, see text */
      NewCodeP1 = 255;
    } /* end of special case if... */
  }   /* end of while statement */
} /* end of function... and also end of file */
```



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Pro 24 Amiga

Paul Overaa checks out Steinberg's all singing, all dancing Amiga sequencer...

Amiga owners have, since the Steinberg Pro 24 Amiga was first announced, waited over a year for the package to be released. At long last I can now tell you that not only has it arrived but it looks as though the wait will have been well worth it.

Why is this particular sequencer important? It's a long story but here's a brief account of the position of the Pro 24 in the music world...

In 1985 Steinberg introduced an Atari sequencer called the Pro24. It was good, well ahead of it's time in some respects, and to it's credit it rapidly gained professional acceptance. To this day the Pro 24's reputuation has remained essentially intact but with newer offerings, such as Steinberg's Cubase and the like, arriving it is now felt to be rather 'old hat' in the ST music world. That, for Amiga users at least, is neither here nor there. The Amiga is still desperate for better quality music software and a Pro 24 type offering is going to be very welcome indeed.

The fact that Steinberg have released a Pro 24 version on the Amiga is significant in several respects not least in that it indicates that Steinberg are now prepared to take the Commodore Amiga music market seriously. Make no mistake... the Amiga, from a technical viewpoint, can run rings around the ST but because of the lack of music software many musicians had, until fairly recently, been wondering whether professionally useable packages would ever arrive.

"The Amiga version of the Pro 24 is not a direct port of the original program - it's a complete re-write."

The Amiga version of the Pro 24 is not a direct port of the original program - it's a complete re-write.The aim was nevertheless to produce an enhanced look-a-like, as opposed to an identical one, and this is something which has clearly been achieved.

Pro 24 Amiga comes supplied on a single disk and as expected there's a 'Steinberg key' (dongle) with the package. The manual deserves a mention - it's well written, has good introductory and 'easy start' tutorial material, and it's informative.

One piece of good news is that the program will run on an unexpanded, ie a 512K, machine. I doubt whether 512K use is to be particularly recommended but the package can do quite a lot to make 512K use possible - if memory runs low the program can switch to less memory intensive graphics, and less frequently used program sections can be removed from memory and brought in only when required.

"The Pro 24 program is, conceptually, like a sophisticated 24 track tape recorder whose tape can be moved forward, rewound, played back etc."

Pro 24 Amiga boots automatically, displays an intro page and then (after a click of a mouse button) displays the main sequencer page. The top half of the display contains the track indicators, track selection, record pointer gadgets and below this there are 24 'activity bars' - one for each of the 24 tracks. These provide a visual indication of incoming data.

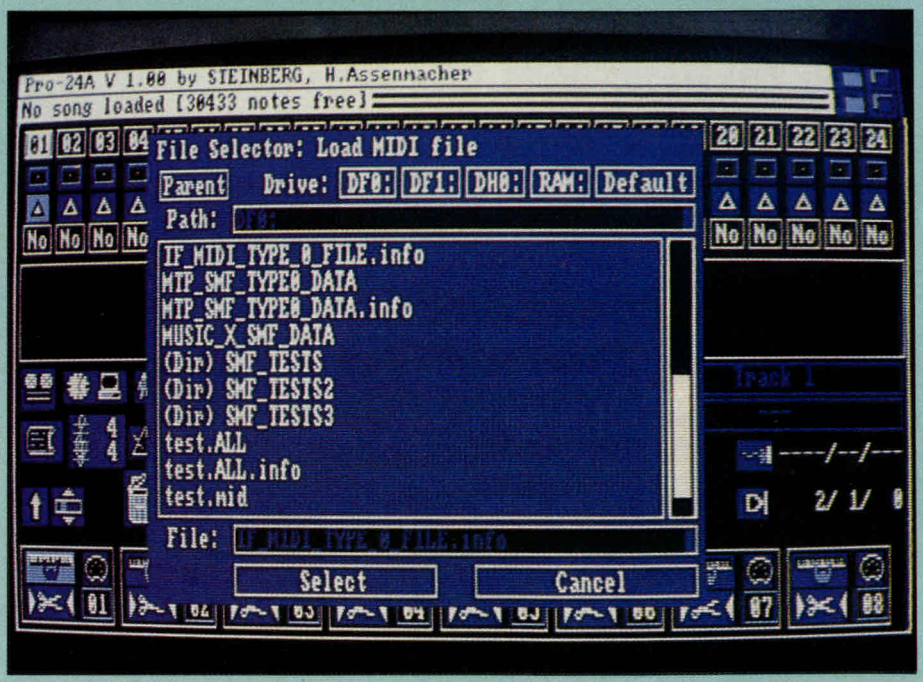
The lower part of the display contains the tape-deck look-a-like transport controls plus a mass of other gadgets. The purpose of the tape transport section is obvious enough but there's loads of other gadgets whose purposes are less obvious (although they are well explained in the manual). Gadgets with text labels would have been nice but clearly space limitations prevented this.

The Pro 24 program is, conceptually, like a sophisticated 24 track tape recorder whose tape can be moved forward, rewound, played back etc., using gadget controls which look much like those found on a conventional tape recorder. On top of this come some highly sophisticated facilities for editing and modifying sequences.

With Pro 24 Amiga all of this is taken one stage further because the program runs in the standard multi-tasking Amiga environment. Whereas machines like the ST are struggling to provide the sort of environment in which several programs can run simultaneously the Amiga does it as standard !

Each of the Pro 24's 24 tracks can contain data from any of the 16 MIDI channels. Track have separately modifiable playback parameters which determine whether output is transposed, quantized, delayed, filtered or even played at all. As well as a 'tape' mode there is a

Continued on page 45.



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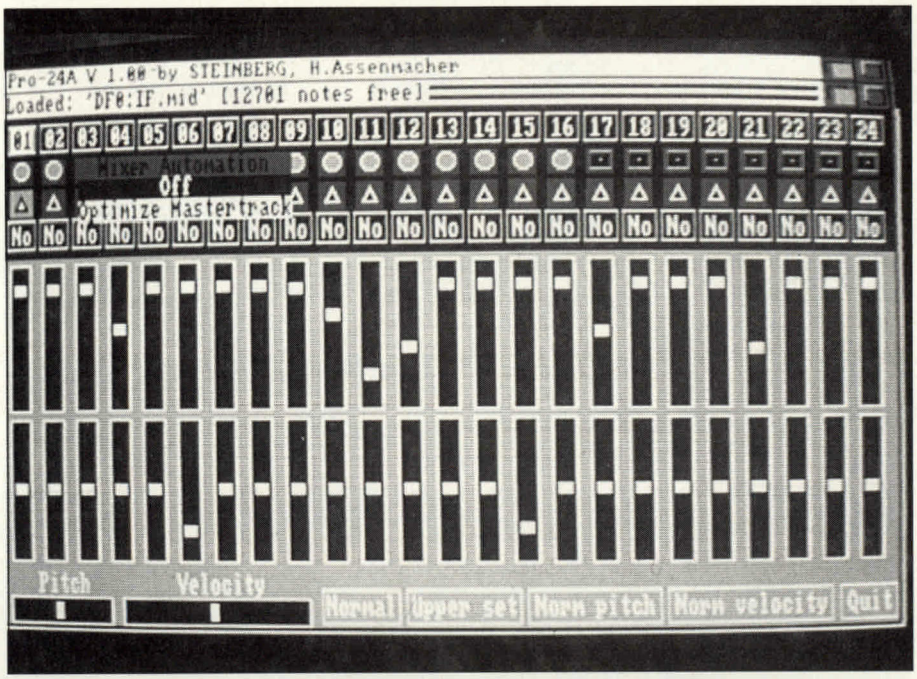
Continued from page 42.

'sequence' mode for creating repeating sections etc. Pro 24 Amiga supports MTC and SMPTE as well as internal and external MIDI clock timing. Metronome/count-in options include the sending of tempo click MIDI notes.

Playback parameters all have one thing in common - they do not affect the stored track data. To make permanent changes to the data the Pro 24's real track editing facilities are used. As with most large sequencers there are a lot of options available.

"To start with, anything you do via the playback parameters can be made permanent and it's possible to work on tracks, current patterns or sections marked out using location markers."



To start with, anything you do via the playback parameters can be made permanent and it's possible to work on tracks, current patterns or sections marked out using location markers. You can split multi-channel tracks, re-direct the data to alternative tracks on a channel by channel basis and remove 'empties' and 'doubles' (duplicate events which often occur when combining sequence data). There are sophisticated cut/expand, pattern split, track mixing, tempo change, and step-input options available and all usual copy, move and delete block operations. Editing can be achieved by both graphic grid editing techniques and detailed event-by-event list editing.

There's a nice system of location markers which make it possible to modify specific areas of a sequence and a 'subtrack mode' which enables incoming data to be split and redirected as it comes into the sequencer.

A track survey window enables a visual overall picture of the data to be seen and a track content display provides detailed event-by-event info. A 'MIDI-Monitor window shows the events as they arrive and of course all the usual things (like channel reassignment on output, punch-in/punch-out etc.) are available.

Like the ST counterpart, Pro 24 Amiga has it's own grid-style drum kit editor. It operates on notes defined in a 'drum map' and up to three such maps can be defined. Pro 24 Amiga also includes a powerful 'logical edit' facility which allows sophisticated event-translation functions.

Comprehensive Sysex facilities, MIDI file load/save options, SMUS support,echo effects, undo-nesting, and velocity fader facilities... the list seems almost endless. You can even see track data displayed in notation form (it is however display only).

"A 'master track', quite separate from the 24 normal tracks, is also available and this is used for storing tempo changes, time signatures and other global characteristics"

(it performs the same sort of function as Master Track Pro's conductor track).

This is a good package but at £285 (including VAT) it doesn't come cheap. The big question is will it sell? A lot of ST users will say that Pro 24 is 'old hat', will take all of these Pro 24 facilities for granted and be used to, and expect, far more from any new package. That means that Pro 24Amiga is not going to impress ST users and certainly not going to pullST musicians away from their machines. For us musicians already committed to the Amiga it's a different story altogether and a Pro 24 offering is very welcome indeed.

Up until know I've felt that Dr. T's KCS package has been the best bet for general Amiga sequencing work. It will take a lot to make me move from this position but make no mistake... Steinberg's Pro 24 Amiga is a significant addition which is destined to do very well indeed!

P.O.A.

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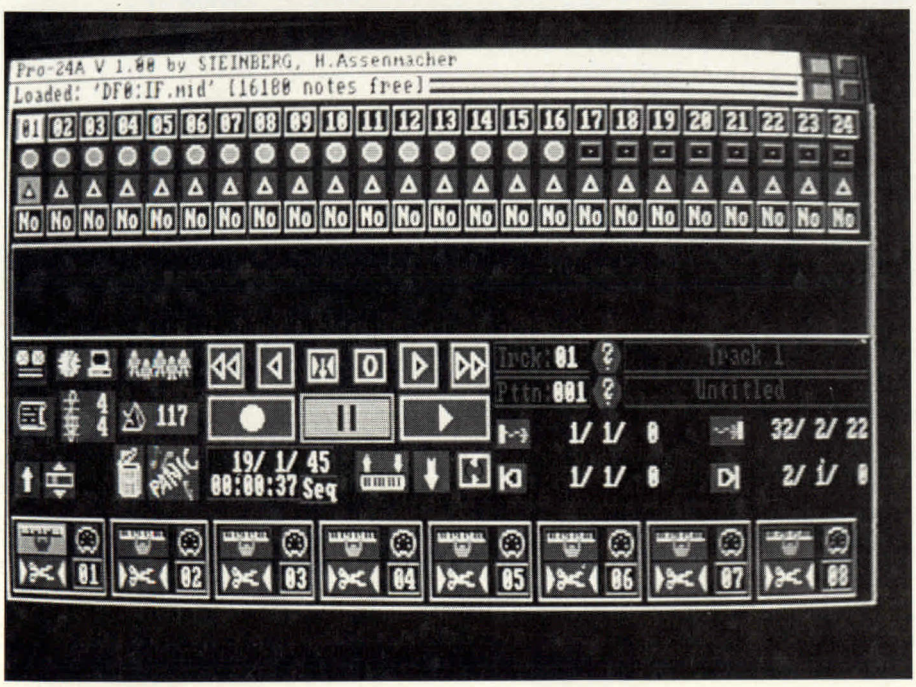


SCALA

Pat Kelly sees a stunning new display program still in Beta version

An interesting demonstration package is soon to be released for the Amiga from Scandinavia. SCALA, produced by the Norwegian Digital Vision Software Design Group, is designed to take the hard work out of producing professional information display systems.

Digital Vision's goals for SCALA were to create a fast and user-friendly presentation system. The three main criteria were; ease of use, fast updating of information, and a professional result. What they have produced, in SCALA, is indeed an easy to use package which encourages imaginative marketing ideas. The company told AUI "The system is designed to be used by people providing information rather than experts in graphics or computing. All technical expressions have been eliminated from the program, and choices on the screen are made as simple and direct as possible."

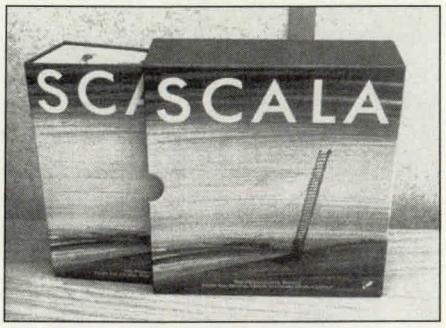
SCALA allows the user to create professional presentation systems using background patterns as the screen base and then adding text and animations to this. A sequence of high quality presentation screens can be compiled into a running slideshow, with the user having full control over the time each individual screen is displayed. The system is not only a slideshow however, many transition types are available, not only when changing screens, but also when text is added onto the screen.

An example of this would be, for instance, in a hotel foyer. A screen could present the hotel's facilities to its guests in the form of screens with suitable backgrounds to their subject, i.e water if the subject is a swimming pool, a digitised picture of a selection of drinks to signify a bar theme.

Scala's editing menu. All editing of tesxt and symbols are controlled from this menu. Submenues include typography, colour control, tnrasitions and text import.

Recently at the Amiga '90 Show in Cologne Digital Vision were running impressive demonstrations of SCALA on the Amiga 3000, but all that is required to run the program is a A500, or A2000, with a hard disk drive and over 1 megabyte of memory. The package is reputed to work on systems without these capabilities, but only with limited success.

The SCALA presentation system is currently supplied on six disks comprising of the main program disk, four background disks and a typefaces disk, and is provided with a program which automatically installs the applications and supporting features onto hard disk. There are at present over 30 supplied ready-made backgrounds ranging from brick effect to technical textures. Users can create their own backgrounds, or have them created by a third party, from digitised pictures to computer art. Digital Vision intend to build a complete system around SCALA, including more typefaces, backgrounds, and pre-made layouts.



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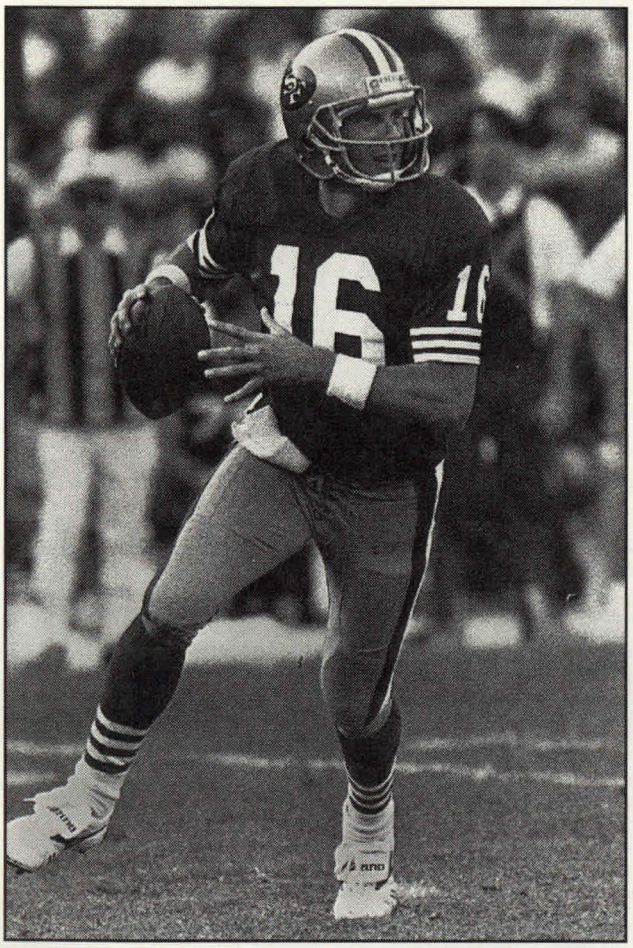

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Expert Guides

Mark Smiddy practiced bedtime reading with two new books on the 68000 series CPUs

PRINCIPLES OF COMPUTING ORGANISATION

This is another book dedicated to the 68000 processor; oh no, not another! What makes this one unusual though, is that it was typeset by its authors which has a great advantage over the conventional approach of paste and layout. Here, a skilled typesetter with no knowledge of such a specialised subject, prepares the text and then sends it to an artroom where more people prepare the final text. The pages are eventually passed back to the authors for checking and verification. This has two distinct problems. First, mistakes are easy to make and often tricky to spot; second, the layout must be less ambitious. This poses constraints on the authors in that they must describe a concept in detail - when a picture would do the job better.

What has let this approach down was the production quality after the typesetting stage - where the camera-ready artwork has been transposed to the finished pages. In the copy supplied for review the text was consistently slightly feint and emboldened references failed to stand out as they should. This was a pity since a lot of work has been put into the production.

Authors Colin Charlton and Paul Leng are lecturers at Liverpool University and their experience as tutors certainly shines through in the text. This book is aimed primarily at students currently training in the computer field, and as such requires a small amount of programming experience - specifically using the Pascal model. By definition this implies a rather dry text with little of the light heartedness one might expect to find say, in a book dedicated to a "home" computer. The text is well punctuated with diagrams and clearly written so students should have no trouble following it. The absence of a reference section such as found in the larger texts by Lance Leventhall and co. is a shame but helps to keep the cost below that of those conventional tomes.

The 68000 processor and its family are capable of some very serious applications and form the heart of extremely powerful systems. This book is concerned with introducing the user to the processor and to this end, the book achieves its goal. To Amiga users, it might be viewed as a business-like look at the 68000 CPU without clouding an already confusing and complex subject with specific examples.

Anyone considering programming the Amiga at machine code level will find it a very useful addition to their library. Nevertheless, it will need backing up with the appropriate references from Commodore-Amiga.

Principles Of Computer Organisation
Charlton and Leng
McGraw-Hill
£12.95
240 pages

68020/68030 MICROPROCESSORS AND THEIR COPROCESSORS

At the price, this is quite a remarkable book - because it offers an insight into the leading edge of computer technology - namely the 68020 and 68030. Yes, I know the 68030 might be rather old news now the 68040 is starting to appear in high-end workstations and it seems only a matter of time before Commodore announce a machine which utilises its phenomenal performance. The 68030 is here in the Amiga 3000; and, of course, those amazing accelerator boards which appear almost weekly and get faster by the day.

The point therefore, is every assembly language programmer must be aware of what makes these machines tick and, more to the point, how to get the best from them. For instance, there are cases on the 68000 where self-modifying code is the best option for outright performance. However, when such code is executed on a 68020 or '30 machine it will fail with a vengeance - or should that be a "guru"? The Amiga will tell you which one is fitted, so an intelligent loader can determine which code to use.

Also anyone writing code which requires multitudes of high-speed floating point calculations will need to know how to access the maths coprocessor, when fitted. The libraries can do this for you, but library calls are inherently slow and many programmers refuse, point blank to use them - if for no better reason than it makes the task of converting to a different machine that much harder.

This affordable reference book cover this kind of essential knowledge. It is well written and beautifully structured. By definition though, it should be viewed as an addendum to the existing texts on the 68000 - such as "Principals Of Computer Organisation" - not as a stand-alone guide. Two things let it down slightly, first the text looks as if it has been prepared on a typewriter (set in a courier-like font) and second, it is devoid of an index.

These are, more or less subjective cavils, which detract from the visual appeal - but not the content which is, on the face of things, excellent. As is typical with such references, no particular model has been used as an example, so Amiga specific problems like bus artbitration during blitter cycles will have to be discovered from Amiga specific texts. A great book; and for once, one which sells for a keen price.

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House Builder

Constructing your dream house is suddenly made easy with a neat clip art-based program. Mike Nelson gives you the picture

When was the last time you built a house from nothing? Thought so, but anyway, a new product from Diskotech (work that one out) called House Builder will allow you to design your dream home in Amigacolour, before you even dig the first spadeful of foundations. With interest rates set to tumble (phew!), this two-disk collection of clip art may precipitate the biggest exodus since Moses went into population dynamics, as people flock to the countryside in search of the quiet life. Is this gross optimism, above and beyond the call of duty, I hear you ask? Probably is the answer, but let's get on with the review.

"The package is comprehensively equipped with almost every conceivable type of brick, slate, thatch, wood and aerial and a good few I wouldn't even entertain on my house"

The package consists of over 750 items of clip art which were drawn in 32-colour lo-res mode, and therefore can be loaded into programs like DeluxePaint. The idea is to gradually design the exterior of your abode by pasting the various bits of a house such as walls, doors, windows, roof, garage, satellite telly dish (honestly), catflaps, etc., into your picture to give you some idea what it will look like when it's built.

The package is comprehensively equipped with almost every conceivable type of brick, slate, thatch, wood and aerial and a good few I wouldn't even entertain on my house, but there's no accounting for taste. Everything is stored in a logical filing system so you can access the different components reasonably quickly. All the art is drawn to the same scale, so the average house fits on an average screen.

The applications for this art are not limited to the people thinking of building a house, which is probably just as well, as extensions to existing dwellings could be planned. Game designers may like to pinch a few of the pictures for detailed backgrounds, but you'd have to check on any copyright details first.

"Game designers may like to pinch a few of the pictures for detailed backgrounds, but you'd have to check on any copyright details first."

The manual supplied with House Builder is about as simple as you may expect it to be, but does throw a few interesting ideas into the arena, including how to animate your garage door using perspective tools, and adding three dimensional views or shading.

The quality of the artwork is certainly up to scratch, being detailed enough to make the product worthwhile, but not excessively so to prevent easy merging of the different designs. The screen shots show just what you can do, if you try.

It is difficult to envisage this package (and remember you must have an art program to get any use out of it), appealing to the masses, but the concept of specialised clip art is interesting, with potentially wide-ranging educational possibilities. Interior design of kitchens, bathrooms or bedrooms could be simulated in the same way, and who knows what else? How about customising your car, or maybe the wife? (or how about her customising you?)

Contact: Discotech, Melyn-Y-Garth, Builth Wells, Powys LD4 4AW Price: £30

single chip computers (like transputers and Intel i860s), dedicated graphics processors and high density memory chips have made putting together an "affordable" VR system a reality (rather than a virtual one) - though prices are still way out of the reach of most consumers.

small but innovative outfit has developed a system called Virtuality - an entertainment-oriented VR system for use (in one of its forms) in arcades and leisure complexes, and which the firm claims will have many other applications - in Computer Aided Design and medicine - as

comprises a chair unit (see picture) in which the user can pretend to fly aircraft, drive trucks or ride just about anything that in the real world would require the user to sit down and move a vehicle of some description.

Continued on page 53

Virtuality 1000SD, a high quality, sit down console which enables the operator to drive his "vehicle" in a virtual world.

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Access

VISA

Continued from 51

Both Virtuality systems include a helmet/visor arrangement called a Visette, which feeds information to the user's eyes and ears, describing the computer-generated world. Powering this is an Amiga 3000-based computer system called Expality, running 3-D environment software developed using a multi-media programming environment called Animette.

While Amiga buffs will no doubt be pleased that Commodore's micro plays a part in this innovative system, it is not being used here for its graphics - the Amiga is simply an input and output port to an incredible customised multiprocessor system, says W Industries' boss Jonathan Waldern.

The real business of providing full motion 3-D graphics is done by two custom built single board co-processing computers working in parallel - one for each eye - which provide the viewer with slightly displaced stereographic images.

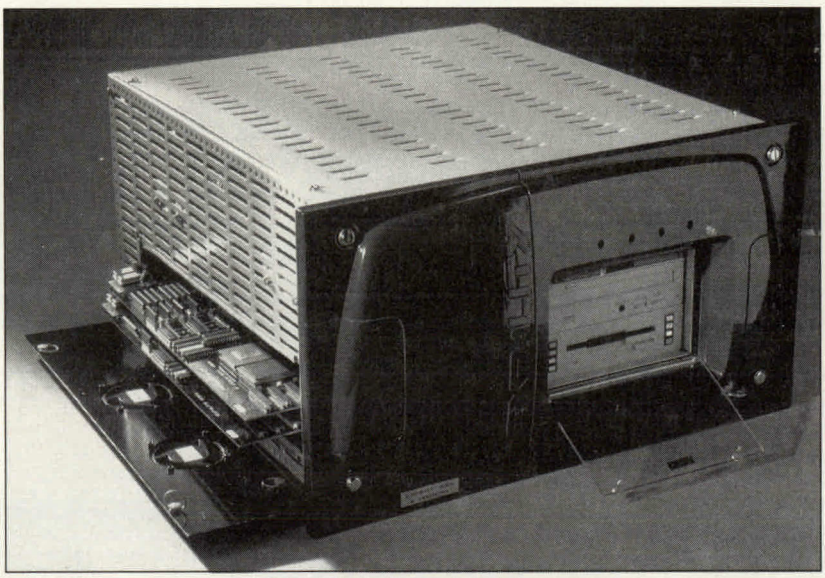
Another computer - Expality has five in all also runs the sound generation algorithm that provides the Visette with a quadrophonic "sound image". This allows the system to know where the user is looking and so determine the position of their ears in relation to the virtual sound source. The software automatically alters the volume and frequency of the (digitally sampled) sounds, so that noises reaching each ear are in the right proportion to the users orientation.

Software is loaded into the system via a Hitachi CD-ROM drive built into the Amiga 3000 chassis within the Expality enclosure (see picture). Available right now are packages that will allow the Sit Down Virtuality to emulate a generic Vertical Take-Off or Landing (VTOL) aircraft such as a Harrier jump jet. You may have seen this demonstrated on the BBC's Tomorrow's World programme. Using the ruggedised viscosity-damped analogue ticks developed by W Industries, which are fixed to the arms of the console, the "pilot" can fly over mountains, coastlines, the ocean, various towns and even some military installations. Other projects for this version include simulated bob sleigh runs, hover bikes and starships: "Many others are planned with ideas only limited by the imagination." says Rowley.

The Stand Up version has a program that allows you to explore strange new worlds, to seek out new life and find aeroplanes stuck in your surreal living room wall! It's basically a high resolution freescape-style environment for you to explore - very much a demonstrator of VR's potential rather than great fun. But then, this is only the beginning.

W Industries is planning a vast "leisure launch" for the Virtuality range in January, at which time more details on applications software will be available. But judging by its first showing at the Computer Graphics Conference and Exhibition, where queues to "have a go" on Virtuality snaked around the exhibition hall, WI is onto a winner.

The only complaint I heard was that some people felt the graphics resolution of the Visette LCD screens was low - and not as good as the pictures seen on the external monitors supplied with both versions of Virtuality. The picture is generated by Panasonic liquid crystal displays with 340 x 256 pixel resolution, Waldern told ***AUI***, and that is apparently the highest density LCD available anywhere today.



Right: A3000 embedded in expality enclosure, showing customies vision processors on the left.

W Industries has gone to great lengths to ensure that its VR system is ergonomic and does not risk the health and safety of the user. The weight of the helmet system must not place any undue strain on the neck of the user yet has to contain four speakers, two LCD screen units, a magnetic head tracking unit and some kind of system that allows the user to get it off his/her head in a hurry. WI's Visette includes a special system called Ergolok, which is a fast release mechanism, which for instance, could be used to free a panicking user from the headset, or somebody who had undergone an epileptic fit while using it.

The psychological effects of VR are largely unknown, though WI wants to begin research in the area. Speaking at the conference, Allan Davison, a computer scientist from Queen Mary and Westfield College, University of London, said that some early psychological tests showed that virtual reality effected how some users saw the real world afterwards: "Some people stay in the virtual environment even when they come out it - it becomes superimposed on their own reality." said Davison.

It's fascinating to think that because VR is a total immersion technology, that the human brain cannot distinguish one "reality" from another. It raises all sorts of questions about what reality is any way... but that's another story. However, if Davison is right, then VR could be dangerous. Reality is hard enough to live with , which is why some people take refuge in mindbending drugs. VR too could become addictive to such personalities. Worries were also expressed by some delegate that VR looks like being put to militaristic uses such as the realistic dogfights in the VTOL simulation. While most 2-D computer games have been hijacked by the blood 'n' guts shoot-em-up brigade, is VR destined to become renamed Virtual Brutality? If the answer is probably 'yes' in terms of the entertainment applications arena - what else does Johnny Arcade-Addict like to play? - there are growing uses for VR systems in industry.

Representing the industrial research side of VR at the conference was Robert Stone, a project manager at the sensors and world modelling section of the National Advanced Robotics Research Centre, in Salford. He sees VR systems as extending the capabilities of current teleoperational or telerobotic systems to the altogether new field of "telepresence".

An example of a telerobotic system is the Jason Junior robot that found the wreck of the Titantic on the Atlantic seabed, under control of human operators back on the surface. Other telerobots include special fire fighting machines which don't mind toxic gases, and the kind of bomb inspection robots we've all become familiar through the TV news.

But with telepresence, says Stone, the aim is to present the operator with such a range of visual, audible and tactile feedback that they actually feel "present" at the remote, and most likely hazardous, worksite. Currently such operators of remote robots have to sit in front of cluttered CRT consoles and frequently suffer from information overload. It's much better, argues Stone, to develop interfaces that do not require operators to do so much "mental juggling".

What those interfaces will need in order to be effective are new front-end tools, like wholebody exo-skeletons, datagloves with tactile feedback, 3-D mice and stereo video image sensors. Next month, I'll be looking at developments in all these new computer interfacing areas, and how they could make VR a little less virtual and more of a reality.

P.M.

LOCK UP YOUR DATA

Viruses can kill - illegally - says Martin Witton, investigating the misuse of computers

The misuse of computer data is estimated to cost £5 billion a year. Storing information on a database with all its advantages is open to abuse by 'hackers' which is becoming of increasing concern to businesses dependent on security. There have been numerous and well-publicised cases of this including the `illegal' entry to Prince Charles' mailbox on Prestel.

Recent legislation such as the Data Protection Act which set up rights and duties in relation to computer-stored personal data, and the Computer Misuse Act 1990 are a step towards protection against the disruption or corruption of data which can cause immense difficulty and substantial financial loss to a business, or embarrassment, even harm to an individual. For example, the unauthorised entering into medical data may not only be be a breach of confidence but also cause danger to patients if the actual data is changed and treatment affected.

Modifying or copying computerised information is an offence against the 1990 Act and the Copyright Designs and Patents Act 1988 protects a wide range of copyright works such as computer programs, the contents of a database, the text of an EDI (Electronic Data Interchange) purchase order or invoice and the data a business sends to its bank to make payments. This Act also contains provisions designed to encourage businesses who publish copyright material to help themselves by applying their own security in the form of copy-protection devices to inhibit copying.

Data and Software protection is the topic of a new complimentary guide 'Protection against Hackers' produced by Titmuss Sainer and Webb – a City of London Law firm. The guide deals with security problems, responsibilities and options for prosecuting offenders which will be of interest especially to managers who are responsible for their company's security. The second section is aimed at software writers and publishers who are in the business of selling computer software ranging from technical databases to basic computer games.

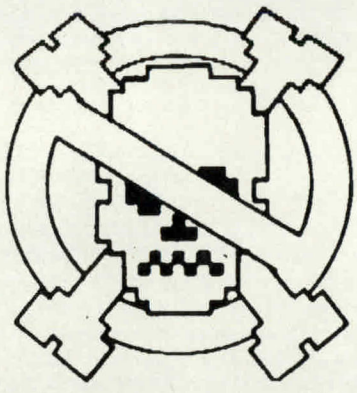
'Piracy is Theft'

The Copyright Designs and Patents Act 1988 is specifically geared to the latter group as it provides for civil sanctions against offenders. This can be in the form of making, importing, selling or hiring a device with intent to deliberately evade the copy-protection. It also covers the publication of information which will assist other people to avoid the copy-protection. Publishers are also liable if they publish such works.

There is a very grey area for copying devices themselves such as cartridges. For they have legitimate uses in copying originals so that you have a backup in case of need. But, of course, these devices can be employed for other purposes - hence the 'piracy is theft' campaign led by F.A.S.T. (Federation Against Software Theft). Whether they should actually be banned is a matter of controversy. Guns kill but people are still allowed to own them...

Viruses

But if copying a computer game is against the Copyright Act, it is the security of business computer systems which causes corporate concern. The increasing use of electronic data interchange in the commercial world means that a business must be able to rely on the accuracy and security of the data. For example, international



banking depends on networks for the transfer of funds and it is the security of the transit of data which is vital. (Remember the theft of the½ cents in the Superman movie?)

Equally the loss or corruption of data stored in a computer can cause financial damage, frustration and is time consuming. A virus infected disk can disable a firm's computers and in some instances has affected a whole network of businesses. Deliberate deletion of files is at best annoying at worst renders a firm impotent. And, as in the medical records example, can do untold harm as, say, in the loss of important and irreplaceable research data.

These concerns have become so widespread that courses are springing up faster than the rate of computer studies training. The Government supports this through the DTI-backed initiative - the I.T. Security Awareness Scheme with the National Computing Centre.

Companies are responding by setting up internal awareness training for managers, better systems of monitoring users of their computers and closer guidelines for all employees. The Computer Misuse Act 1990 can be used to prosecute anyone breaching computer security, but it is up to managers to be vigilant at all times.

The Act covers unauthorised access - applicable to anyone not authorised to retrieve data from a particular computer system, including the use of the data with intent to commit another offence; to unauthorised modification - where a person causes actual modification or change to a program or data. This latter section covers hackers or employees who deliberately plant a virus intending to destroy or corrupt data.

The Danger of D.A.T.

It is not only the computer industry which is concerned about 'hackers' - the recording industry is also facing financial losses with the imminent introduction of Digital Audio Tape, (D.A.T.) which can make a near perfect copy of a compact disc recording. In the same way that audio and video cassette recordings menaced the music and video industries so the ability of individuals to copy CD's provides a new threat.

It is impractical for companies to sue individuals who are copying discs on a small scale but commercial firms solely engaged in turning out cheap copy discs could well be prosecuted under the Copyright Designs and Patents Act. If however commercial records carry copy-protection then prosecuting owners of D.A.T. recorders will be unnecessary.

The use of legislation to prevent widespread disruption in the computer business, games or the C.D. industry is in its infancy. However tightly controls are introduced, there is always the danger of the smart 'Hacker' lurking in the background waiting to find a loophole.

Unless, of course, someone invents a computer that bytes the bugs before they can bite back...

For information on the guide 'Protection Against Hackers' Contact: Titmuss Sainer and Webb, 2 Serjeants Inn, London EC4Y 1LT. Tel: 071 583 5353.

M.W.

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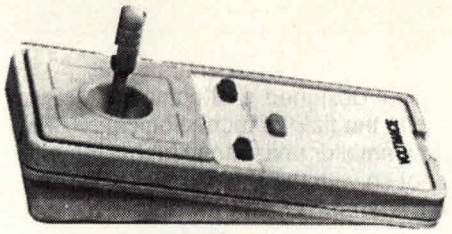

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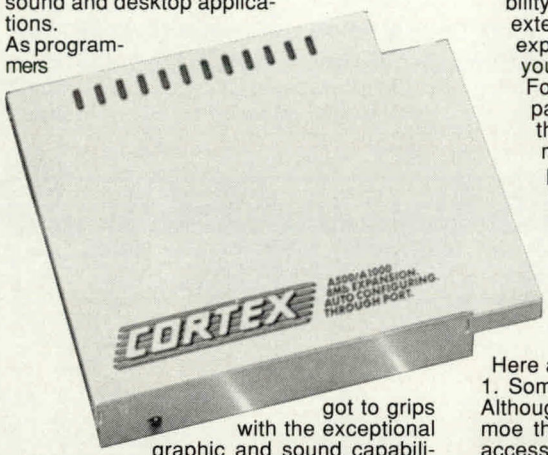
Cortex Memory Expansion

It lights the corners of your mind, says the song. John Kennedy delves into his memory for the joys and problems of expansion

Memory. That's what its all about. You just never seem to have enough, do you? When the Amiga was first launched. 512K seemed an awsome amount of RAM. How on earth could you possibly use more memory than ten and half ZX Spectrums?

The answer was fast in coming. Having such a powerful processor with stunning custom chips meant that the Amiga was a real power station of a micro. It was ideally suited to graphics, sound and desktop publishing applications - and if there is anything which uses up a lot of RAM its graphics, sound and desktop applications.

As programmers got to grips with the exceptional graphic and sound capabilities, even games startd to look for more memory. You'll soon be the minority if you haven't got an extra 512K stuck in your trapdoor, whether it's in the shape of the official A501 or a much cheaper third party device. With prices around the £40 mark, even Commodore are rumoured to be considering a new entry-level Amiga with 1Mb as standard.



However, once you begin to use your plastic pal for anything other than blasting or doodling, you start to get that old claustraphobic feeling again. The nagging voice starts pleading: perhaps just a teensy-weensy bit more memory?

This time you have a problem. Expanding beyond the 1Mb limit is a tricky and confusing business. With the (fairly) recent drop in RAM prices, and software that actually makes use of more memory, there has to be a rapid increase in the number of expansions available for the A500. Although the A2000 (and now the A3000 and A1500) were supposed to be the machines for 'serious users', the A500 is just as capable.

The only official way of expanding an already 1Megged A500 is to buy an A590 hard drive. With the recent prices cut. They are astounding value for money and even have more sockets for 2Mb of RAM.

You may think that you'll only need another meg or two. Fair enough, you may be right. But wouldn't you like some way of expanding your system, just in case?

Maybe your interested in DTP. Perhaps you want to start your own Amiga magazine (That's a new nasty suggestion! Ed.), produced on Amiga's with Professional Page or similar (I know you'd like to). Maybe you want to enter the next Amiga Centre Scotland Animation competition. If this is the case, you need memory and lots of it: 2Megs just won't be enough.

The Amigas designers were far-sighted enough to realise that this was a distinct possibility, so they provided the capability to add a total of 8Megs of RAM externally. Compare this to the pitiful expansion of the Atari ST range if you want to have a good laugh.

For some reason, the type of expansion boards which fits inside the case of the A500 are the most popular. Some of them plug into your trapdoor (so throw away the expansion that was there). And some just float about the circuit board on pieces of wire.

Now, this may just be paranoia on my part, but i don't like these internal expansions.

Here are my reasons:

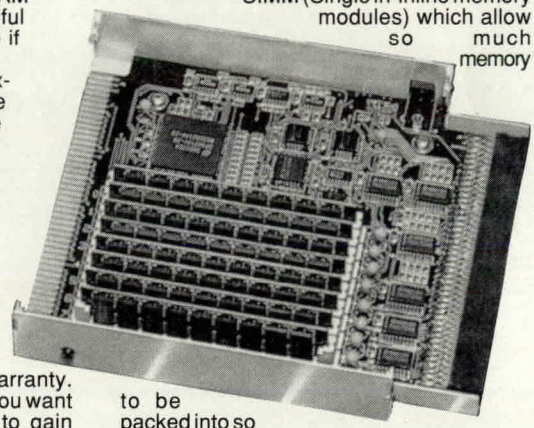
1. Some of them invalidate your warranty. Although somejust plug in and go, if you want moe than 1Meg you usually need to gain access to the 68000 or the custom chip Gary. To do this, you have to take apart your Amiga, open the RF shielding and spend a frightening half hour with a screw driver. Not my idea of a fun time.
2. Most internal boards take their power from the Amiga. Commodore have never had a good track record when it comes to FBU's. And i think that using it to power two external floppy drives is just about as far as I'd like to push it. If i had 8Megs fitted internally. I'd look forward to meeting the Guru more often than normal.
3. I haven't seen an internal board yet that is auto-configurable. If a memory board auto-configures. It patches itself into the Amiga memory map under it's own steam. If a board isn't, you'll need to add a new line to your start-up sequences, which can be messy.
4. Some boards interfere with external devices. This is a worrying concept, but real enough. Some memory boards will cause all sorts of hassle when you add a hard disk to your life. If you are buying a memory board for goodness sake check it out with manufacturers to see if it works with an A590 or whatever drive you're thinking of.

All these points were brought home to me when i was lucky enough to get hold of a new memory expansion called the Cortex.

This unit is an externally fitting board, which fulfills all my criteria for a memory expansion. alt can be expanded (in stages through 2Meg, 4 Meg and 5Meg), its externally powered (Via a supplies mains adaptor), it auto-configures and it's through port works with all the hard drives with which i could test it. It's a beaut. As they say.

It's about 15cm square, and constructed out of heavy gauge steel. Absolutely no danger of accidently standing on it and breaking it (although how such conditions could arise is a good question). It's painted that delightful shade of beige and it even has a little green light to tell you that everything is hunky-dory.

A peek inside showed the banks of SIMM (Single in-inline memory modules) which allow so much memory to be packed into so small a space. The other important chip is the large square custom device to handle the auto configure. All hte components used surface mount technology for extra reliabilty.



That's about all you can say about it: you just plug in and go. I had no problems with it all after comprehensive testing the 8Meg version with everything from DTP packages to raytracing software to C compilers. The diagnostic software supplied will pinpoint any snags if they arise. It even connected snugly to my checkmates systems A1500 box. Lovely.

The Coretx unit is the best that has ever passed through my (Statically un-charged of course) hands. The starting price is £299 for a 2 Meg unit, which is a little pricey. Remember, quality costs

This is THE Board for the A500 user whowants memory. It expands to the limit, and is reliable as they come

To end on a groan; Cortex - Thanks for the memory.

J.K.

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COMMODORE CHRISTMAS COMPUTER SHOW 1990

With Christmas looming ever so closer, Commodore continued the success of their Christmas Computer Show annually held at the Novotel Hotel, Hammersmith, West London. Pat Kelly popped along to see if the usual bargains were available

It has to be said that when Commodore organise a show you can guarantee that it will be the best that has to be offered. Last year Commodore's Christmas Computer '89 Show really became an event in the computer calendar, mainly due to the overwhelming success of the Amiga 500 in '89 and that Commodore organised the show themselves, bringing with them more prestige and glamour.

"The usual flogging of products at remarkably low prices usually makes or breaks a Christmas show as many people come armed with a fistful of cash"

This year the show had less emphasis on the Christmas scene than the last and was used, as most shows are, to promote products. Demonstrations are also a big part of any show and there was plenty going on, what with the special seminar centre, Roland Computer Music's demonstration on the Commodore stand's stage area, and many smaller companies demonstrating products on their own stands.

SEMINARS

Visitors to the show could spend all day, visiting the stands and attending the seminars without becoming bored - a feeling usually associated with such shows. The fact was that there was so much to see. The Commodore seminars were hosted by Softstuff Software who demonstrated their range of "Let`s Spell" educational software packages and were held on the Friday and Saturday of the show.

Psygnosis demonstrated their CDTV products in the future of games entertainment - the next generation. Various other software publishers demonstrated their wares and provided sneak previews of their future products.

Riverdene PDL have established themselves as one of Britain's leading Public Domain Libraries and gave a seminar explaining what to expect from the PD scene. The ICPUG, Independent Commodore Products Users Group, also supported the show by featuring a questions and answers seminar where teams of experts in the Commodore scene answered questions fired at them by the public.

All in all the seminars proved to be an important part of the show although not all who visited the show attended them.

BARGAINS GALORE

The usual flogging of products at remarkably low prices usually makes or breaks a Christmas show as many people come armed with a fistful of cash. I don't think that those seeking a bargain went away disappointed with anything from cheap Amiga 2000's to ten-for-a-penny 3.5" discs on offer.

Throughout the duration of the show I noticed hordes of new owners of Star LC-200 and LC24-200 printers both of which were picked up at unbelievably low prices.

After searching for the best bargains I purchased a Cortex 1/2 MEG A500 upgrade with a battery backed up clock. Although the unit is a Memory Expansion System unit Best Byte Software were selling it at £26, or £23 without the clock, with MES selling both units for £6 more. I also purchased a couple of spare printer interface cables, as I can never seem to find one when I need it most. The price? £5 each!

Disks and disk boxes are also big

selling items and with 25 disks being sold for as little as £9.50 and with disk boxes in every conceivable size and shape, including 3-digit combinational lock boxes, there was plenty to keep media fanatics happy.

"Throughout the three day event the halls were jam-packed with information and bargain hunters – neither of whom would have been disappointed"

There were certainly plenty of bargains to be had and none more so than in the area of entertainment software, otherwise known as games. The newest of titles could be purchased for as little as £15.00, some £10.00 less than RRP. Titles only a few months old were even being sold at £10.00, with some titles older than 3 months selling at budget prices.

AUI was present with a stand on the lower floor and participated in the spirit of the show by selling December's issue for a mere £1.50, and the November issue at £1.00. There was little surprise when jubilant rings of "Guess how much?" were passed between collegues.

TWO LEVELS

The show was, like last year's, held on two levels; the lower exhibition centre where most of the box-shifting bargains were taking place, and the upper Champagne Suite where most of the demonstrations were being held.

There were not any major launches of new products, except perhaps Amiga Centre Scotland's new Framegrabber, even if many exhibitors had interesting and diverse products. Most had been seen before in other guises, but a product which caught my eye was a colour print utility from Care Electrónics. The utility allows IFF graphic files to be loaded and manipulated before being output in 32 colours to the LC-10 Colour printer. By replacing a normal ink ribbon with a special wax ribbon graphics can be printed onto normal paper and ironed on to a T-shirt, or similar fabric.

The product is due to be released shortly for a Star LC-200 compatible printer driver version is being considered due to "high sales of the LC-200 during the show". As many graphics programs don't readily output to colour printers with such ease the utility will prove to be very useful.

AN AMIGA-ONLY EVENT

Casual browsers would have been forgiven for mistaking the show as an Amiga-only event, and only a few software houses and Commodore themselves promoting the C64GS and cartridge software prevented it from being so. Oh yes, there was the Psygnosis CDTV seminar, but that is an Amiga anyway, isn't it?

CBM were also proudly showing off their newest Amiga creation - The Amiga 1500 and its associated software bundle, as well as the A500 Christmas bundles.

Hisoft have always been stalwarts in the development of serious tools for the Amiga range of computers and were at the show demonstrating their newest versions of their popular BASIC and Devpac applications. They were also showing off the A3000 version of Devpac, a version which supports the 68030 instruction set.

GLAMOUR

Commodore persuaded the major software developers back to this event last year, and this year they did so again, bringing glamour with the might of Ocean, Mirrorsoft, Domark, Elite, Mindscape, Electronic Arts, and Psygnosis.

Ocean were one of the companies predominantly supporting the C64GS cartridge-based system, but also boasted that, for the first year ever to have their entire range of Xmas titles developed specifically for the Amiga.

The other companies were promoting and demonstrating the games which they hope will provide a successful Christmas for them.

Throughout the three day event the halls were jam-packed with information and bargain hunters - neither of whom would have been disappointed. The show was tightly laid out giving visitors just enough space to enjoy themselves and an interesting mix of hardware and software made the show more interesting and worthwhile than the massive Computer Entertainment Show held at Earls Court in September.

Commodore can, yet again, proceed into Christmas knowing that they have had another great year and another agreeable show endorsed by the high feeling of satisfaction from visitors and exhibitors alike.

P.K.

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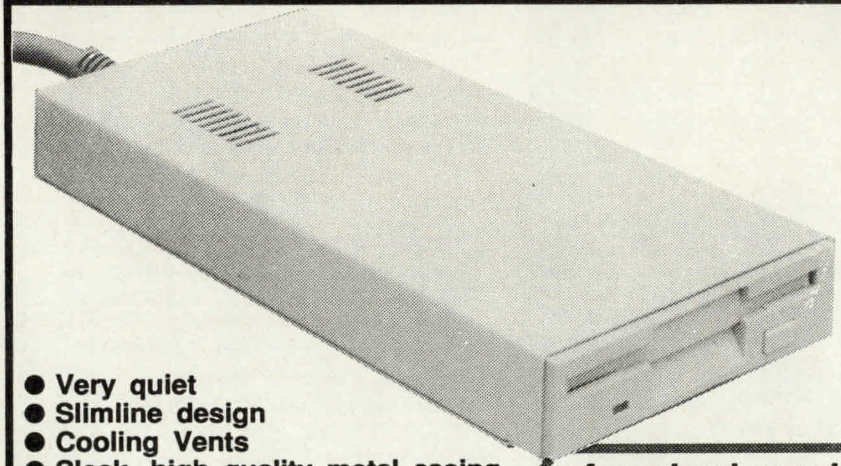

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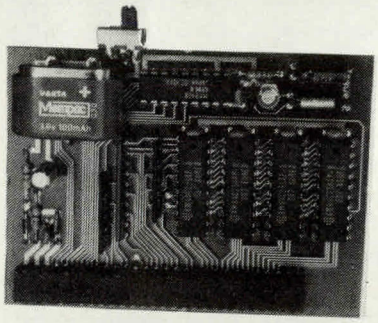

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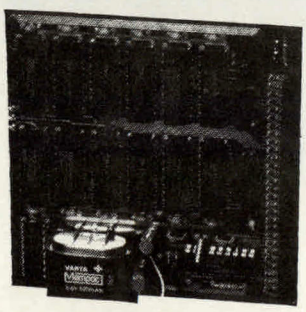

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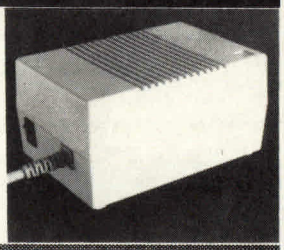

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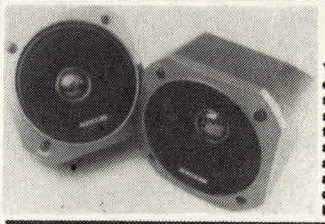

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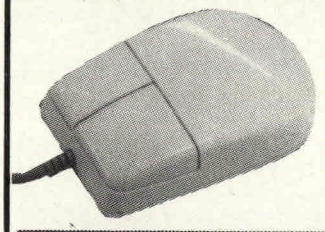

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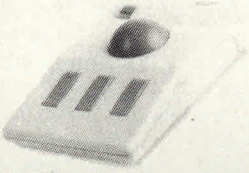

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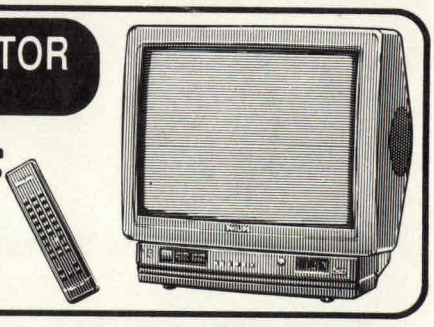

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The Biggest Amiga Show in the World

Bud Vennos goes to Germany to find the most powerful nation in Europe is treating his favourite computer seriously

Considering that the Amiga was created in the U.S.A., is manufactured largely in the Far East and is probably selling more successfuly in the U.K. than anywhere else, it might be regarded as somewhate ironic that the biggest Amiga Show on Earth takes place in Germany. For the second year, something over 40,000 Amiga users poured into the massive Fair site in Cologne . Although Amiga '90 - last year it was AmiExpo - occupied only a small part of the Fair site, the huge crowd confirmed just how powerful is the Commodore image in what used to be "West" Germany.

CBM's MSDOS computers are manufactured in Braunschwieg not far away from Cologne and for many visitors to the Show, Commodore is "echt Deutsch" - genuinely German. However, though CBM's market there is strong - they are number two to IBM in selling PCs - little of the inventiveness that creates the main thrust of software and hardware for the Amiga originates in Germany. The major part of the serious goodies at the Show came from the U.S.A. and for the games you did not have to look further than the U.K.

Yet here was this vast area rapidly filling with people over one weekend , in two huge halls, each about the size of Earls Court. One hall held the entertainment, largely games area; the other housed the more serious side.

While there were crowds in both, it seemed to me that the largest audience was in the "Serious" Hall. For a U.K. observer, no doubt influenced by the predominence of the A500 as a games machine in Britain, this was surprising. In fact the whole attendance at the Show seemed of a somewhat older age group than is generally seen at Commodore shows in the U.K. Either the Germans are a notably physically larger nation or there were few visitors under 18 and it looked like most were well into their twenties and beyond. That aspect alone gave the Show a more adult air.

The Toy Trade

There was, even in the Entertainment Hall, little of the raucous tinseled glitz that U.K. software companies seem to believe all important in hyping up the punters. There are few big German enetrtainment software companies, with only Rainbow Arts, Magic Bytes and Kingsoft bearing manes that would be internationally recognised. Even their Stands were restrained and tended to let the products speak for themselves without the need for neon lights and arcade machines.

I asked one leading German games boss why this was so. He smiled "All your games people like to pretend they are in show business. They want to be celebrities. But all we are really is in the toy trade."

The largest stands in the Entertainment Hall were those of the distributors - a group who tend to remain anonymous in the U.K. Leisuresoft, United Software and Rushware are names almost as familiar to games players in Germany as the international games houses they represent. Unlike in the U.K., they frequently advertise in their own right. Prominent on their stands were U.S.Gold, Microprose, Accolade, Electronic Arts and many others who populate the Charts the world over.

Nevertheless, it was all somehow a rather solemn affair. Perhaps because as in other activities, the Germans seem to take themselves seriously, as can be seen even in their Charts where shoot 'em ups and arcadey games rarely figure and brainpower entertainments like Pirates - currently Number One - or Sim City are the leaders.

Sexy Hand Scanners

The real excitement and plenty of action went on in the "Serious" Hall. It bubbled with the hot undercurrent of emotion that the fanatic emits when confronted with the object - objects - of his feverish desire. Ah those gorgeous, tremendously powerful, 8 meg boards...those hunky hard drives...oh those sexy hand scanners und all those so attractif add-ons...there they were, lit seductively, displayed like jewellery in glass cases...Underneath the lamplight, they seemed to whisper " Come up and buy me, Big Boy" in husky Marlene Dietrich tones. Yes, this was where the action was and there was a lot of heavy German breathing going on and a great deal of disposable Deutschmark income rapidly changing hands.

Even at the "Messepreise" - special Show prices - it was not cheap to speed your A500 up to 50 megaherz - yes, 50 megaherz - with the aptly named Stormtrooper - sorry, Stormbringer and the plethora of drives etc. What the German Amiga users were going to do with such speed and power, I don't know, but they seemed to put a heavy emphasis on things video. Naturlich, New Tek's Video Toaster, no longer a mirage but a dazzling reality surrounded by a forest of dropped German jaws, set the standard, perhaps an impossibly high one for it is a truly stunning device. It created effects that even to the non-expert were clearly as fast and as smooth as you see on the Box any night. Experts to whom I spoke had TV stars in their eyes. "I will buy a NTSC system just to get it!" One told me.

It seemed that Genlocks, video splitters, converters et alwere something that everyone needed to fulfil their Amiga dreams. And there were other high powered video gismos being presented too. One resembled the fabled Mandala (first reported in ***AUI*** from a night club called The Tunnel at the very first AmiExpo in New York back in the good old A1000 days in early 1988). It was on the stand of a company with the very German name of "Intelligent Memory" and presented by computer graphics experts CAS. It acted like the weatherman's chromakey as described by Jay gross in December ***AUI*** - though as usual for the Amiga at a fraction of the cost of chromakey.

A Norwegian video graphic titling package called Scala was also gaining a great deal of merited attention.

One of the very few U.K. companies represented was G2 who were showing their new high quality genlocks. And launched in continental Europe at the Show was Amiga Centre Scotland's impressive Harlequin 32 bit framebuffer which has a mere 16,777,216 colours. Martin Lowe assures me he has counted each one personally. Harlequin is a professional product of full broadcast quality.

U.S.Companies

One aspect confirming the seriousnes with which Germans take the Amiga was the quantity - and quality - of books in German on all Amiga activities. English speaking readers, of course, have a reasonable range but there were many more specialised books - such as on individual programs like Deluxe Paint or Sonix or on PD. It confirmed the view that Germans carry out their studies of the computer with the throughness for which the nation is renowned.

There was an interesting amount of educational of purely German interest. And what was also particularly noteworthy was the number of U.S. companies who have set up sales offices in Germany. Gold Disk, Great Valley (GVP), ICD, M.A.S.T., Pulsar were just a few of those who have crossed the Atlantic to benefit from the prosperous German market.

Another clear indication of the upmarket style was the prevalence of Amiga 3000's, almost every stand had them and reputedly over 700 were sold at the show.

One non-German exhibitor commented that "Germany is so rich... they have even

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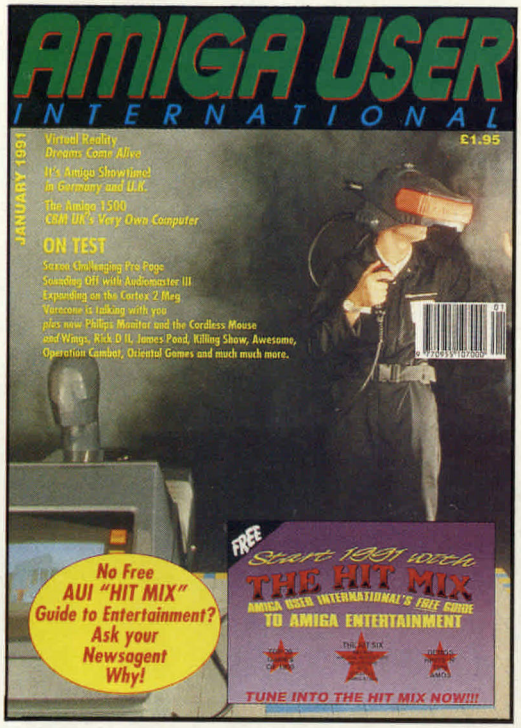

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The Biggest Amiga Show on Earth...Cologne Amiga '90...The Bi

1. A good idea, but the Amiga makes it possible. 2. United a top games distributor. 3. Accolade's UK Marketing Manager Nadia Singh tributer Rushware's stand. 5. Bernoulli style take-away storage. 6. "I couldn't wait to get home to upgrade". 7. CBM Deutshland. 8. Some itself. 9. There was strong U.S. representation. 10. 700 A3000s all with Amiga Vision! 11. Amiga style Chromakey from Cas. 12. At 50 video presentation tool - the box not the girl - the hit of the show. 14. G2's genlocked video team. 15. Art on the Amiga drawing the cated unique

just bought a colony.

Having attended this kind of Show in many countries - once even in Hungary - it was interesting to observe the differences. Cologne was more formal than the U.S. AmiExpos from which it originated but the products were mostly imported. At the parties the girls were more numerous and in general, better dressed. (And who was that delicious Miss Germany on the Amiga World stand?) The attendees were mostly older than at U.K. shows but less obviously "propeller heads" than in the U.S.

Though few of the products were original i.e. from Germany, it was the high quality, and in many cases, the high priced add-ons that sold best. People obviously wanted the "Messepriese" but it wasn't that alone that counted.

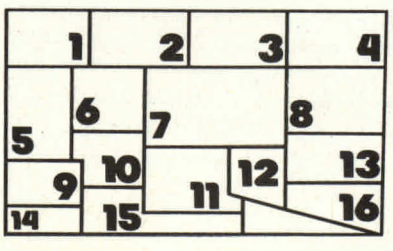
There was, above all, a responsible solid feeling about the Show. It made one feel that in Germany, at least, the Amiga is here to stay for a long time to come. "The

est Amiga Show on Earth...Cologne Amiga '90...The Biggest Ar

demonstrates. 4. A variety of names on disgames companies let their products speak for MHz a jewel of a board. 13. Newtek's slick crowds. 16. Exclusive mice each one certifi-

Germans" someone said, "like the Japanese, are serious, studious and industrious - but they lack a sense of humour." Well, maybe that's not a bad way to approach something you care about - and it was clear that the Cologne Show was attended by people who cared about their Amigas and were prepared to take them and the things that could be done with them very seriously. And indeed, why not? Isn't that what we all feel underneath? Why else would you be reading AUI? Perhaps AUI should be printed in German - or Germany, or there should be more Amiga like Cologne's Amiga `90.

B.V.



NITRO

Psygnosis

After years of turning out some of the best arcade adventures on the market, Psygnosis are now beginning to diversify their products. Nitro is one of the first of this new breed, and does nothing to dent their excellent reputation.

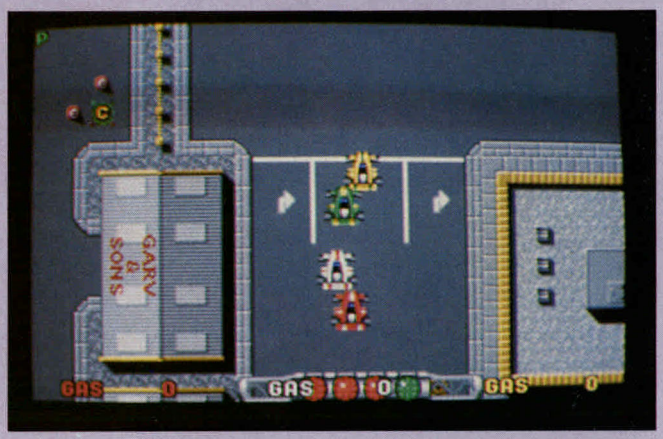
The game looks like a blatant copy of Sega's Hot Rod coin-op, but is a substantial improvement over Activision's Amiga version, with the help of a few new ideas of its own thrown in. Viewed from above, it's a series of thirty two races, in which up to three players can take part simultaneously, the third player using keyboard controls. Races are contested by four cars, and driven around circuits set in four different areas.

Viewed from above, it's a series of thirty two races, in which up to three players can take part simultaneously

Level one's races take place around the streets of a futuristic city. Markings on the road indicate the route, but there are plenty of short-cuts to be discovered. Qualification for the next race isn't directly linked to your finishing position. As long as you've got fuel, you'll go through to the next round. Extra fuel is awarded to the winner of each race, with lesser amounts given to the drivers in second and third place. So, if you come last in a few races, you're likely to run out of fuel and be forced to leave the competition.

Fuel pods are scattered around the tracks, as are nitro-boosts and cash canisters. Collecting the cash allows you to beef up your car between races. You can buy extra fuel, engine upgrades, nitros, improved traction, or you can repair your existing car or buy a new one. Traffic cones are laid out in some of the most awkward places, adding to the troubles caused by oil slicks and dead-ends. Occasionally you'll be directed over a verge and across a field, and left to find your own way to the finish. Night-driving stages black out the screen, giving each driver a spotlight a short way in front of the car.

I've always gone in for these overhead driving games, ever since Atari released the original monochrome Sprint coin-op. Although it's a little lacking in speed, Nitro

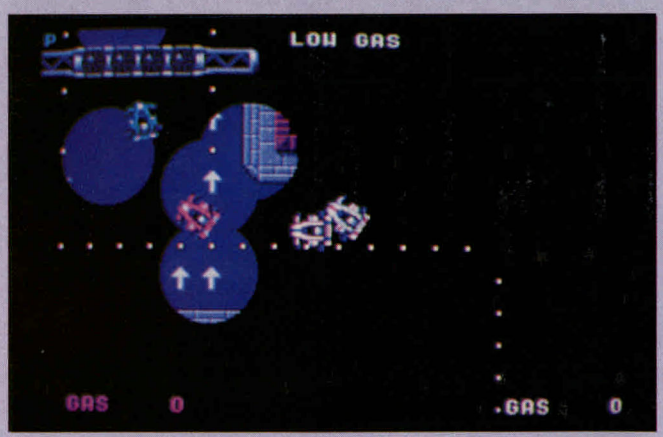


has managed to capture almost all the playability of its coin-op influences. The scrolling is smooth enough, and the cars handle well. It's a shame the sound effects don't amount to much, as the music begins to aggravate before long.

Night-driving stages black out the screen, giving each driver a spotlight a short way in front of the car.

With very few games of this type around for the Amiga, fans of the genre can't really go wrong with Nitro. A very playable, well presented cut 'em up that should go down well with all boy racers.

T.H.



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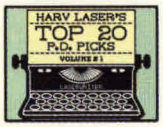

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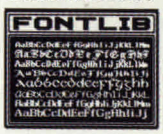

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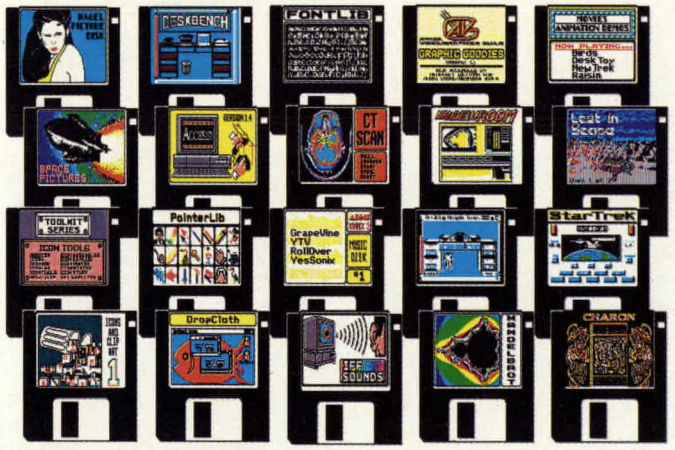

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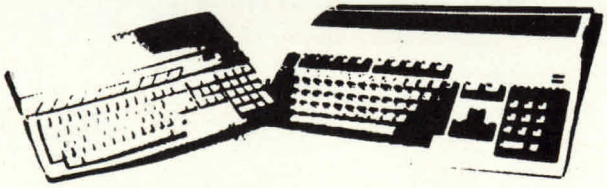

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ADVENTURE NOW!

BY ANDY MOSS

Welcome back one and all to another slice of strategy and adventure. This month's new releases are dominated by US Gold product, whose increasing interest in matters of using one's brain instead of merely one's reflexes, is very welcome, providing us with an embarrassement of riches which to plunder. And plunder them I will, with reviews of MEAN STREETS AND MURDER, with BUCK ROGERS following next month. Also reviewed this month is TEAM YANKEE from Empire and the long awaited PIRATES from Microprose, so with so much to get through let's go straight to the news . . .

ADVENTURE NEWS DESK

DELPHINE SET TO CINEMATIQUE AGAIN

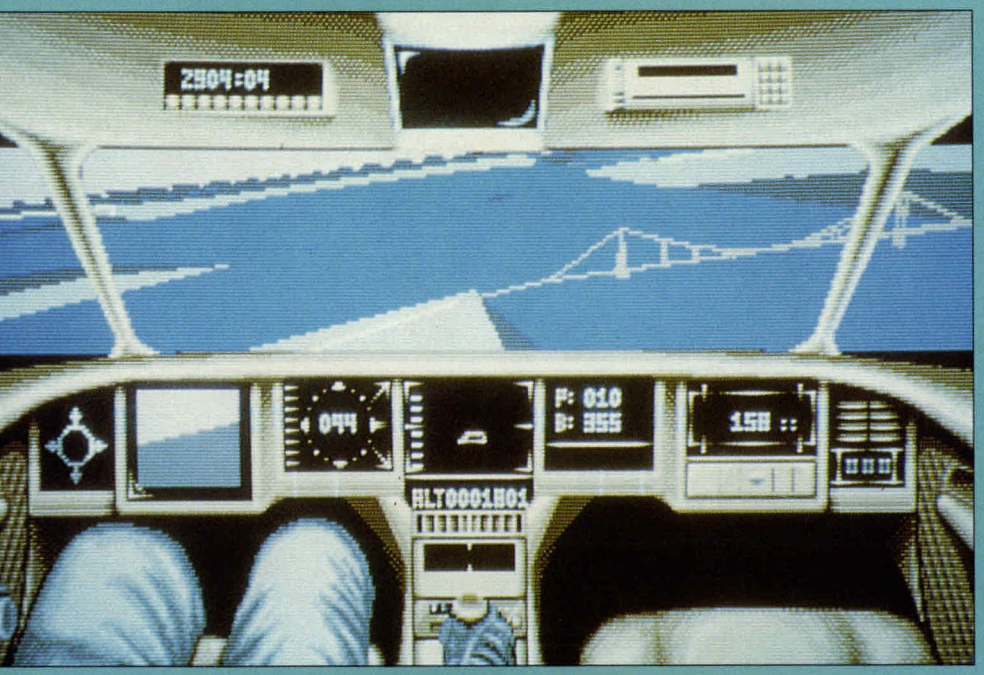
Following the success of Future Wars and Operation Stealth (see December ***AUI***) Delphine are soon to release CRUISE FOR A CORPSE. Set in the 1920's the new adventure takes place on board the sleek and sophisticated millionaires yacht belonging to Greek shipping tycoon Nikos Karaboudjan. You play the part of Inspector Dussentier, who has accepted an invitation from the Greek Tycoon to cruise the Med aboard the luxury yacht.
It doesn't take long, of course, for something nasty to happen, and happen it does with the foul murder of none other than Nikos himself. You go to examine the body, only to find it has disappeared! It's up to you to solve this mystery, because now there is a murderer on the loose and he could be prowling among the unsuspecting guests, planning another crime.
There have been some enhancements to the system since Stealth, for instance the size of the characters have been doubled, and now you can question, have conversations and listen in on other characters in the game to gain clues to solve the mystery. With Delphines usual mix of good music and humour as well, the game should be great fun, so watch here for an early look at it.

INFOGRAMMES EXPAND ON SIMCITY

With doubts surrounding just who will be handling Maxis' follow up to the Sim City concept, World Sim, (rumour has it US Gold have struck a deal) Infogrammes, who still hold the rights for the original have announced some expansion news with two new kits for the game. Architecture I gives you three different historical settings for your city building skills. Ancient Asia where, as Shogun of a thousand villages, you will have your work cut out defending them from Dragons and natural disasters; Medieval Times where from your castle dominating your town, you can try and explore the frontiers of your kingdom; and finally Wild West World

Murder.

where as mayor of your new mining town you have to keep law and order. Architecture 2 allows a foray into three graphic sets depicting cities of the future, USA, Europe and the Moon. As you can imagine, the possibilities are endless in these scenarios, space ships, interstellar diseases, monsters, aliens etc. Available before Christmas.



Mean Streets.

ELECTRONIC ARTS BOUNCE BACK

After a quiet period on the RPG front, EA bounce back with HARD NOVA, a mercenary adventure set in deepest space. The game sets you loose in the remote frontier of the Triangulum Galaxy, far from the bloated bureaucracy of the Core Worlds. An accident has robbed the good ship Nova of her last crew, and you must recruit a whole new team of gunners, programmers and engineers to make your new ship the best in the business. Missions will be offered by various characters, and as an unscrupulous mercenary only the highest payer will be heard. Lying , cheating, flattering or threatening, are all acceptable behaviour patterns in this game, that ultimately leads to a rather ingenious intergalactic plot which needs to be solved to win the game. More news as it happens.

ADVENTURE HINTS

OPERATION STEALTH

One puzzle after another assaults you after a rather benign opening that gives you a false sense of security. Be sure to buy the inflatabe rubber suit when it is offered to you, because when you are captured later on, it will prove very helpful stopping you ending up in a watery grave. If you are stuck in the cave, tied up with no apparent means of escape, 'operate ground' and you will find a sharp metallic object which apart from cutting your bonds will also prove useful in finding a way out.

CONQUESTS OF CAMELOT

Be sure to stock up with extra money AFTER you have visited the temple in the Castle, and paid the Gods tribute, as once you have left to find the Grail, you will not be allowed to re-enter Camelot. In the Holy Land, refuse the offer from the dodgy guide, and go with the boy, and whilst you are in a refusing mode, refuse also the temptations of Fatima, who will then test your knowledge of Roman Goddesses.

POLICE QUEST II

Do not forget to pinch the Dark Angels file from the file cabinet before you leave the station house. Your locker is in the top left hand side of the room. Always follow police procedure outlined in the manual otherwise you could be facing a swift exit from the force!

ADVENTURE REVIEWS

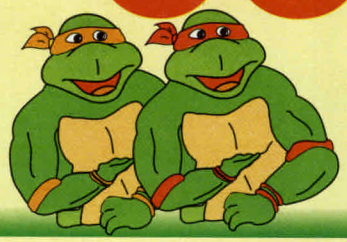
MEAN STREETS
US GOLD/ACCESS

The year is 2033 and you are Tex Murphy,a private detective in San Francisco. You have been hired by the beautiful daughter of a university professor to uncover the facts about his untimely death, which has all the hallmarks of a suicide, but she thinks different. What follows is a story involving the sinister bumping off of several prominent members of the scientific community, which the police refuse to believe are related.

If you are familiar with the Delphine cinematique system, then Mean Streets will appeal to you, as there are many similar elements in graphic style. Built in as an optional extra is a full 3D solid fill flight simulator, that acts as your 'Lotus Speeder' land and air vehicle that gets you around to visit the 27 characters that live in the game. But in reality Mean Streets is a detective story of question and answer, which leads you to new information on new characters with whom you can ask more questions and answers. The system used for this is very simple, because you can only ask questions about either other characters, or places that you have visited. There are some arcade sequences, which are gun battles where you have to fight your way to the other side of the screen, and places where you need to

Mean Streets.

GORDON HARWOOD



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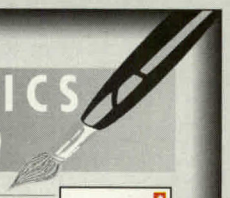

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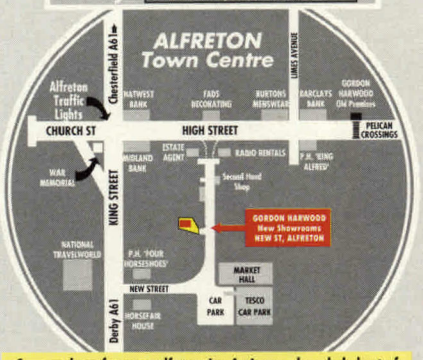

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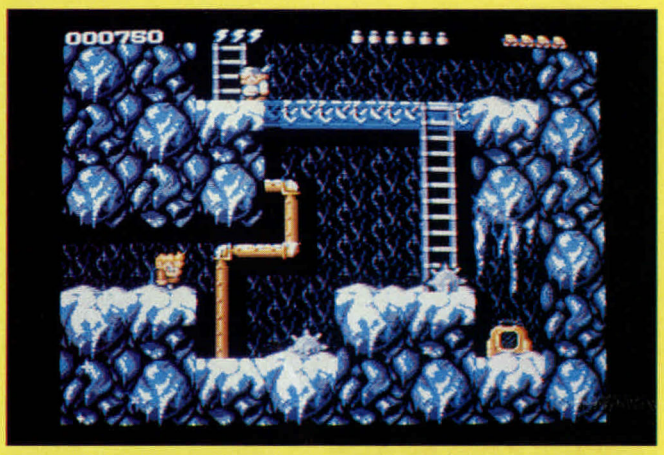
Rick Dangerous 2

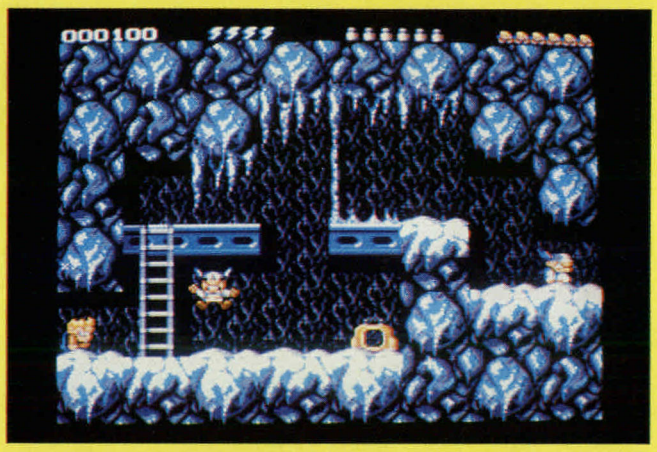
Microprose

Had enough of over-hyped sequels that fail to improve on the originals? Then take a look at Rick Dangerous 2, one of the few sequels that actually outshines its forerunner.

After leaving the Fat Man at the mercy of a hungry tribe of cannibals, Rick thought he'd be in for a bit of a rest when he got back to Blighty. How wrong he was! In fact the comforting sights of Trafalgar Square and Big Ben were tinged with terror, for hovering above the city were a fleet of alien spaceships! The aliens had enlisted the services of the Fat Man, plucked from the jaws of the cannibals, in a plot to dispose of Rick before invading Earth! Changing into his new Flash Gordon outfit, without even stopping for a bag of roast chestnuts from the lovable cockney street trader, Rick is on the case.



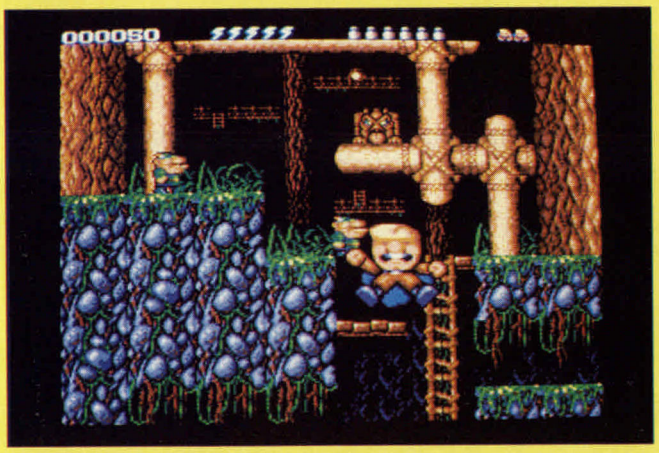
You can choose to play the four levels in any order you like. The first begins in Hyde Park, where the aliens have just touched down. Scampering under their laser fire, you guide Rick up into the mothership. Inside, the Tardis-like spaceship is a sprawling complex of corridors, shafts and chambers. All personnel on the ship have orders to kill



on sight, and the multitude of anti-intruder devices have been activated. Some of these traps can be deactivated, if you can figure out how. Some however, are only avoided with lightning reactions. A sharp eye will alert you to a few of these death devices, although occasionally it'll all be over before you know what's hit you. Still, next time you'll be prepared.

"Fans of the original should have no hesitation in splashing out for a greatly improved slice of tongue-in-cheek superhero adventuring."

As a rather super hero, Rick can run and jump around the platforms and ladders at a fair old pace. If need be, he can also get down on his hands and knees, not to plead mercy from the aliens, but to squeeze through some of those narrow gaps. He's also quite handy with his fists, able to stun just about anyone standing in his way. A limited supply of ammo for his laser gun comes in very useful, and if there's anything too substantial for the laser, there's always his stock of dynamite sticks. The wacky

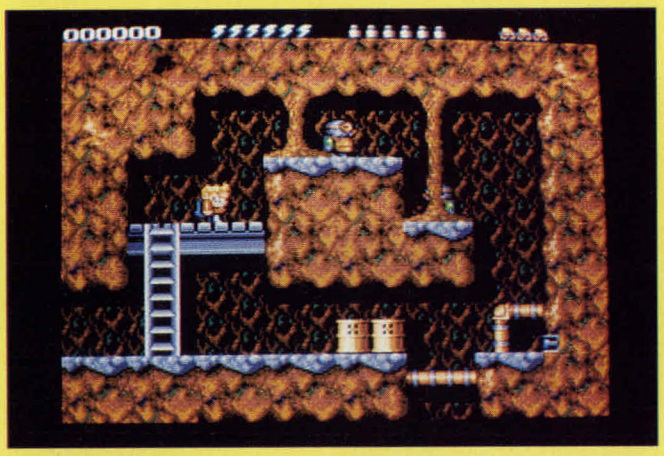


action continues in a similar vein through the remaining three levels, each with its own selection of enemies, traps and a whole new setting.

Humour plays a big part in the game. First there's the graphics. Rick himself is a stocky little character with a pearly-white grin from ear to ear. His adversaries are equally comical and very varied, including clockwork penguins, Alpine goat-herders, B-movie style robots and so on. Each new level is preceeded by a short cartoon animation telling of the story so far. Some of the best laughs come from the sound effects, which are superb across the board. The laser-zaps, screams of death, metallic clunks as robots are knocked off ledges, silly little fanfares and all the other sounds are excellently done, fitting the game perfectly. With visual gags scattered throughout the game (watch Rick skidding on the ice), you can't help but have another go, if only to see what's around the next corner.

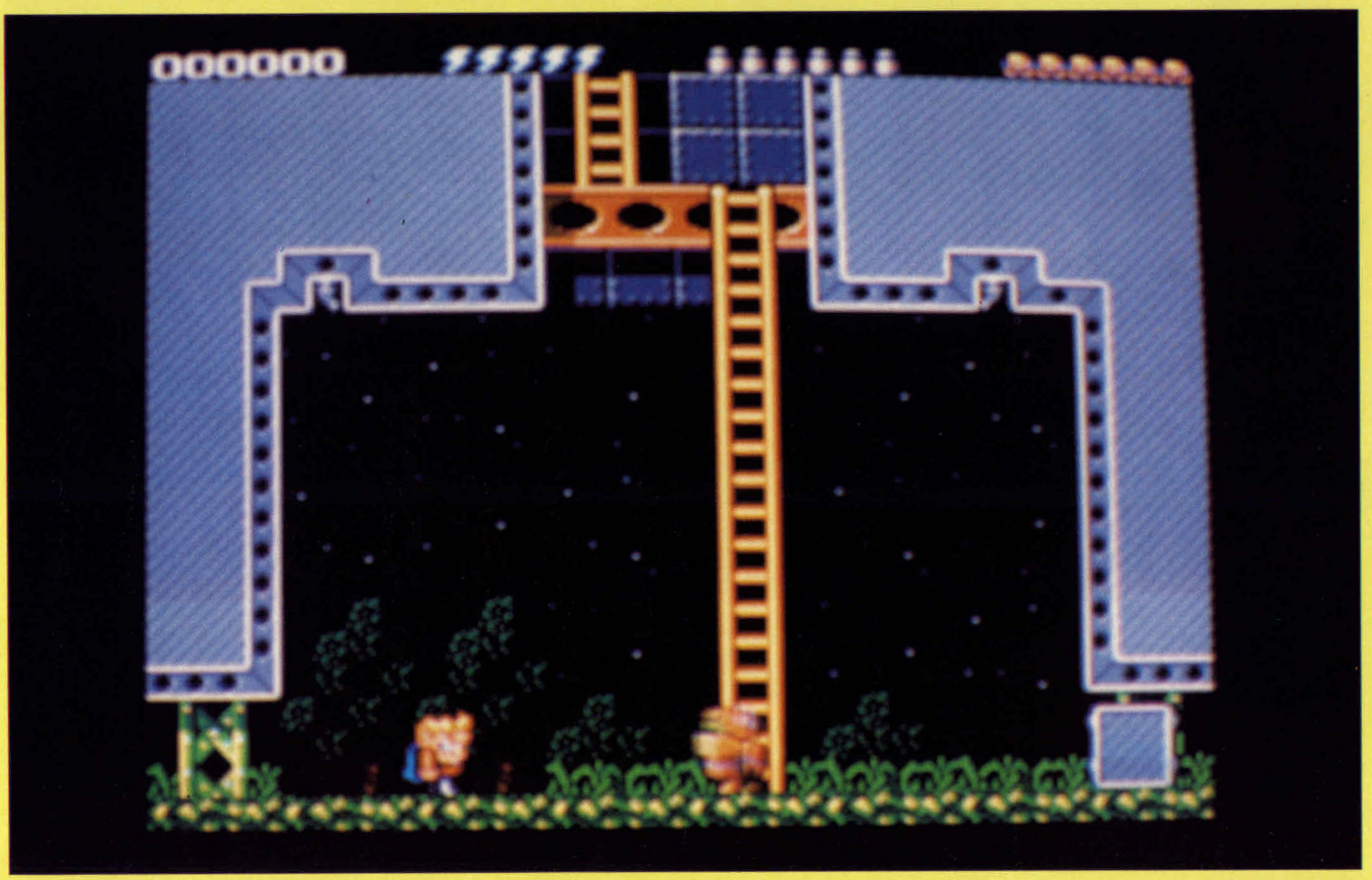
Even if you didn't get on with the first game (I didn't), Rick Dangerous 2 is well worth checking out. Fans of the original should have no hesitation in splashing out for a greatly improved slice of tongue-in-cheek superhero adventuring.

T.H.



Graphics: 90% Sound: 92% Playability: 90%

Absolute Value: 90% Price £24.95



THE KILLING GAME SHOW

Psygnosis

Imagine having your body chopped off at your waist, your lower body thrown away, your skin sandblasted off and replaced by armour. You'd have to bounce around on your arms with your head and upper torso parallel to the ground. Of course you would die nowadays, but in the future that is what happens to the contestants of The Killing Game Show.

These contestants aren't volunteers, but are criminals in the eyes of the corrupt "21st Century" Government. Half of them (excuse the pun) aren't really criminals at all, they're protesters against the system.....

"Welcome to the show of the universe, the one you've all been waiting for. It's the Channel KGS with what we do best IIIIt's The Kiiillliiingg Game Show. Tonight we've got some MUG's prepared to do battle in our 16 pits of death. Our laboratory has also been busy preparing new HALF's - that's Hostile Artificial Life Forms. These wicked beasties are out to kill the MUG's, and the scientist have told me that they're meaner and smarter than last week, when we had a MUG go all the way to pit 7 level 2."

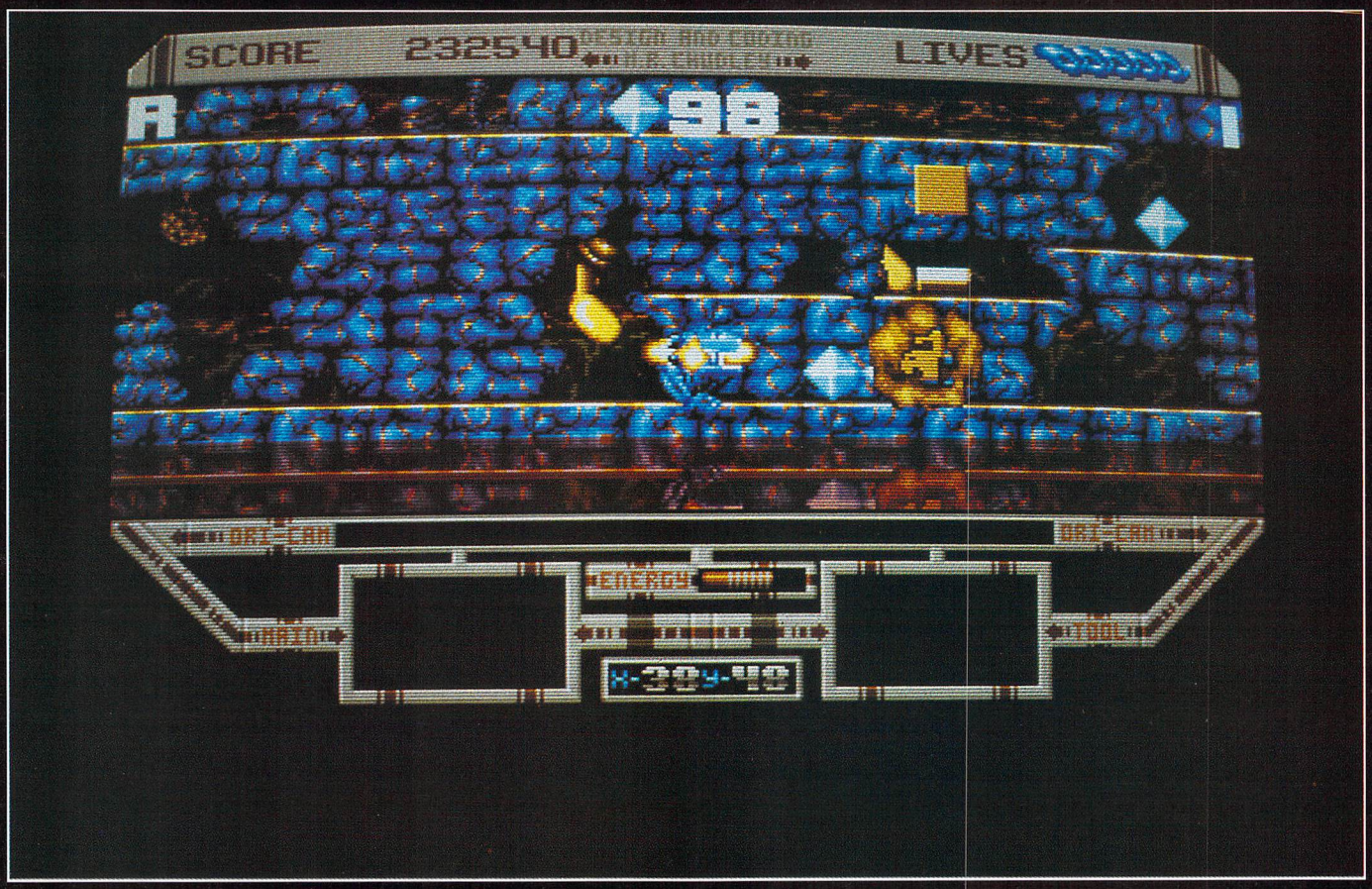
"For those who are new to the show we drop the MUG in the bottom of a cylindrical pit. The MUG must escape to the top before the Deadly to Organic Life Liquid, DOLL for short, rises to meet them. The HALFs will get in the MUGs way and try to kill it. We do help the MUG though - we leave special weapons, energy and keys inside the pit."

"Lets go over to pit one where contestant number one is starting on level one of tonight's game. Good luck to the contestants, they'll need it."

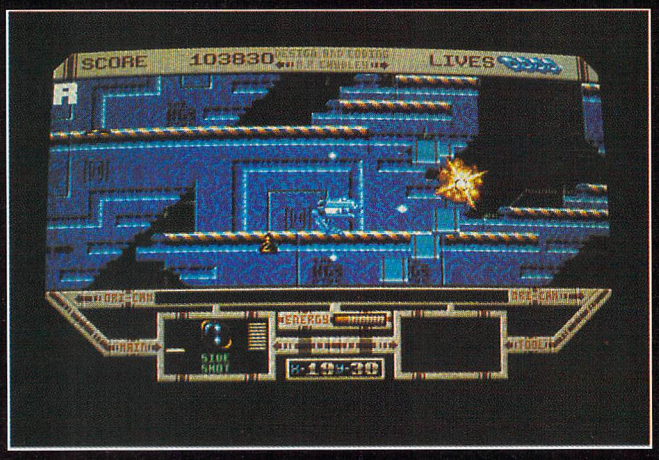
"The pits are cylindrical, but are shown as platforms on the screens 2-D view, and if you continuously travel in any one direction you'll be going round in circles."

And so starts The Killing Game Show which has 8 pits of death, each pit consisting of 2 levels. The pits are cylindrical, but are shown as platforms on the screens 2-D view, and if you continuously travel in any one direction you'll be going round in circles. The contestants must get to the top of the cylindrical pits, using walls to climb up onto higher platforms, and removing blocks of stones with shaped keys which are picked up along the way. In pit 2 the MUG must use switches or keys to lower the chains which can then be climbed - taking the MUG to a higher platform.

HALFs will continually erode the MUG's defensive armour unless they are shot down before they do any damage. For this purpose the MUG is initially equipped with a gun with unlimited ammo. During the game



different weapons, and bonuses can be picked up, but only one weapon and one bonus/object can be carried at any one time. Shaped keys must be found and used in the correct sequence or the MUG may find itself trapped on a platform with no way of escape. During this time the DOLL continuously rises at a steady rate. This acts as a timer - the MUG must get to a higher platform in as little time as possible. On harder levels the



MUG can pick-up and use liquid freezer which holds the DOLL at a constant level until the freezer runs out of energy.

MUGs have 5 lives and once a level has been completed the player can place another MUG on the start that level, eliminating the need to start from pit one every time you lose a MUG. There is a playback function which replays your last life up until the point where it was lost. This replay can be fast forwarded and the game continued at any time. Once you lose all five lives you won't be able to carry this feature on to your next MUG and must start at the last pit that was reached.

The Killing Game Show is supplied on two disks, the first is mainly used for the introduction animation sequence which must be seen. During the game you can have either sound effects or soundtrack music, but not both. Each are brilliant in their own right and depends on the players' individual preference.

The game has an air of class and the small details like "Mr. I ain't going to put no name in no highscore table" being displayed when no name is entered is innovative. Although the game is quite hard it's has a good learning curve which makes it very playable, fustrating, extremely enjoyable, and must rate as one of Psygnosis' best releases to date.

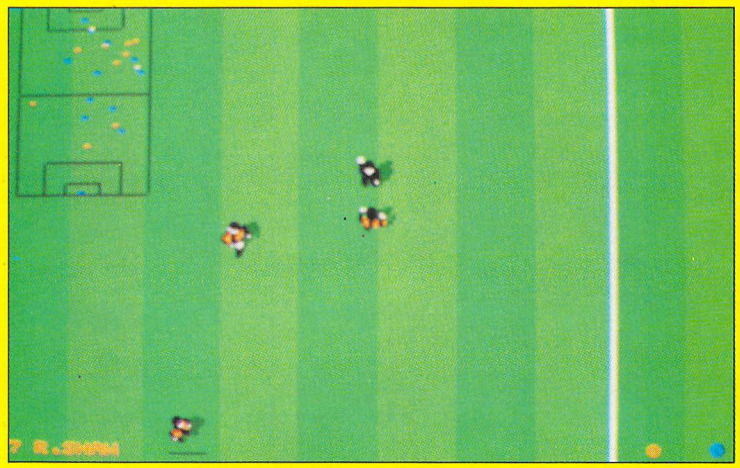
PK.

Graphics: 94%	Sound: 96%	Playability: 95%
Absolute Value: 94%		Price £24.99

SHORT REPORTS

Kick Off 2
(1 Meg update)
Anco

With dirt cheap memory expansions readily available, one megabyte machines are rapidly becoming the standard. In response, many software houses are beginning to release games that make use of that extra memory. Anco have done just that with the new one meg version of their brilliant Kick Off 2.



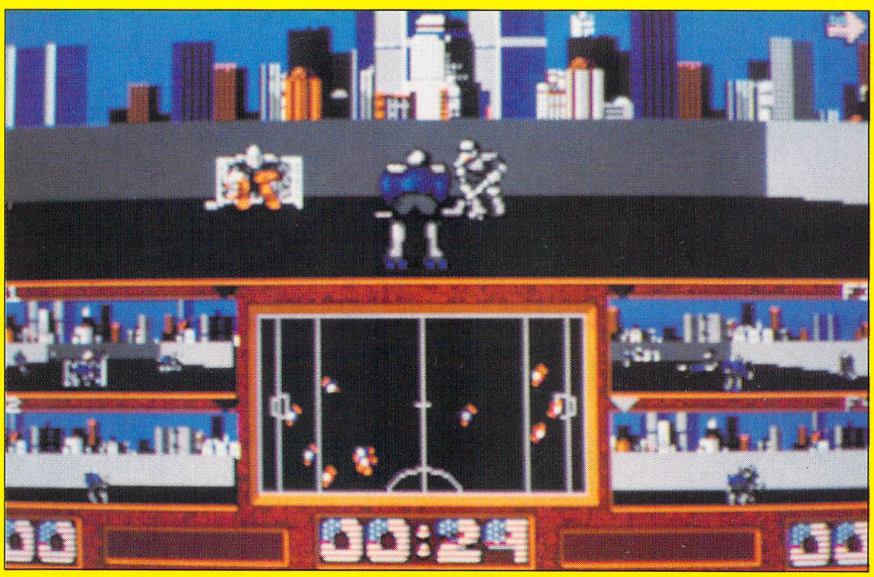
Most of the game is exactly the same as before, but now you get animated refs and linesmen, extra sound effects, and the overhead kick missing from the original game. The addition of the officials has been well done, with linesmen who flag correctly for throw-ins and corners, and refs who follow up a booking with a disapproving shake of the head, before showing you the yellow card, or even worse, pointing the way back to the tunnel! The overhead kick adds even more variety to the gameplay. If you don't already have the half meg version, but do have the memory available, don't hesitate in rushing down to your nearest stockist and picking up a copy now!

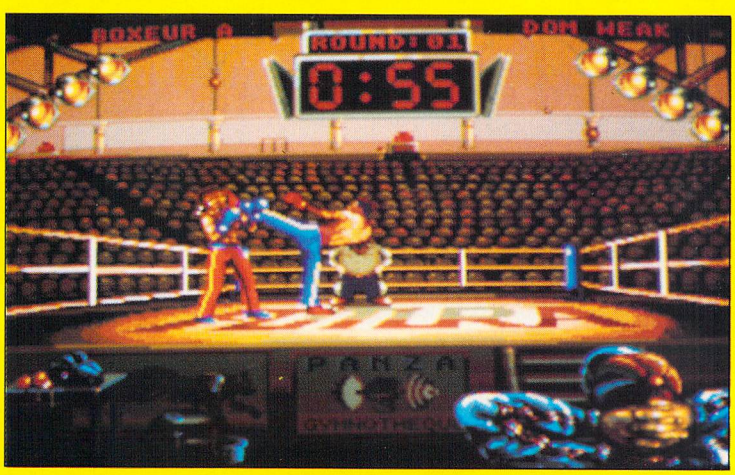
Rating: 97%
Price: £19.95

Panza Kick Boxing
Futura

From one of the world's hardest sports, Futura have managed to come up with an impressive alternative to the standard boxing simulation. The story's much the same as ever, casting you as a young hopeful with big time ambitions.

A side-on view is used throughout the game, with the usual combinations of joystick and firebutton giving access to the various moves. If you've had enough of unrealistic boxing games, in which fists miraculously fly right through opponents, you'll like Panza Kick Boxing. The animation of the characters is very smooth. Not only that, when you land a good blow, your opponent reacts just as he should. For example, hit his head and he'll reel about a bit. Sweep his legs and he'll trip or fall over. It may not sound much, but compared to what we've been offered in the past, it's a great improvement. The only trouble is that the repetitive gameplay of other boxing games is still present, but at least it's not nearly as prominent here.





Rating: 74%
Price: £24.95

Street Hockey
Gonzo Games

For anyone who doesn't know, street hockey is a variation on ice hockey. The main difference is that it's played outside on roller skates. The aim is simply to knock the puck into the opponent's goal. A mix of sprites and solid 3D vector graphics are used to portray the "action". Unfortunately this action is non-existent. You view the game from behind the player you're currently controlling. If the puck's out of sight, an arrow appears to direct you to it. There's also a small scanner at the bottom of the screen, but neither this nor the direction arrow manage to keep the player abreast of the game. The 3D update is so slow that it's hard to tell where everything's going, so you'll spend most of the time chasing the puck around the court. A nice idea spoilt by poor execution.

Rating: 32%
Price: £24.95

Continued on page 82.

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Continued from page 80.

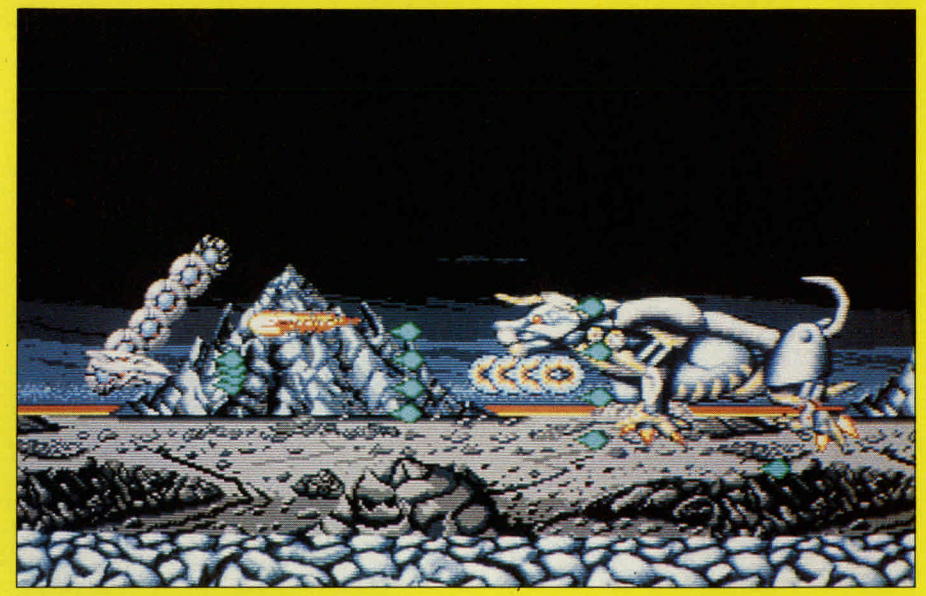
Saint Dragon

Sales Curve

Virgin-Sales Curve's Silkworm still rates as one of the very best shoot 'em ups available for the Amiga, so there were high expectations for Saint Dragon. Would smooth scrolling and powerful special effects make a second appearance?

Converted from the coin-op, Saint Dragon is a standard horizontally scrolling zapper in the mould of R-Type and co. One of the game's few new features is the main sprite, which takes the form of a swirling dragon, the tail of which can be draped in front of the head as a shield. Sadly, the quality programming of Silkworm has not been matched here. With a fairly empty screen, things move around smoothly enough, but once you pick up a few weapons and come across some of the bigger aliens, it all slows down and begins to jerk. This doesn't affect it to the extent of making the game unplayable, but holds it back nonetheless.

Rating: 71%
Price: £24.95



Flip-it and Magnose

Image Works

Flip-it and Magnose are a couple of beings from Mars. As you probably know, Mars isn't endowed with best water reserves in the solar system, so these two have come down to Earth in order to top up their supplies.

The game can be played either by one or two players, each taking control of one of the characters. With the screen split down the middle, there are two independant scrolling windows, so neither player is slowed down by the other. Each level is a collection of platforms, which are inhabited by various creatures. To clear the level, you need to pick up objects found lying around, and give them to the right creatures in exchange for water. Collect enough water and you can go on to the next stage. The graphics and sound are both pleasant, although some of the sprites are rather too small, but the basic platform idea combined with the simple object manipulation is without an addictive pull. Consequently it's not going to have too many playing till dawn.

Rating: 64%
Price: £24.95

T.H.

Legend of the Lost

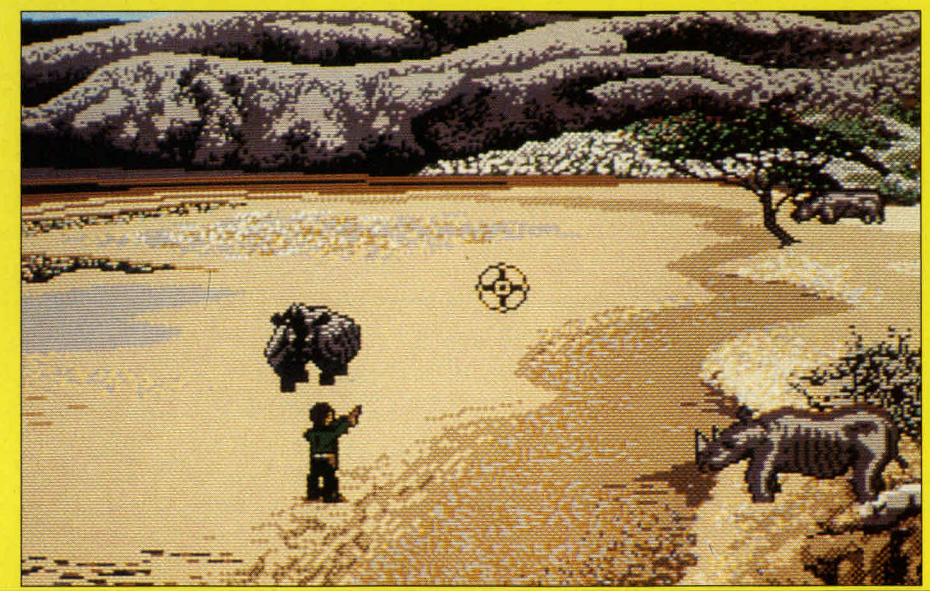
Impressions

Fantasy adventure is on the menu from programmers Vulture, this time via Impressions. When the girlfriend of a biplane enthusiast was kidnapped, he decided to rescue her at any cost, even if it meant playing through such a pathetic collection of sub-games as these.

The first stage has you flying your collectible aircraft over a jungle. Shoot down enough of the jets who also happen to be flying above the jungle, and you can parachute to the flora below. Once you're down, you're charged by a herd of rhinos. You now have to shoot each one in the head. Not really the done thing is it? Next you have to walk across a series of glowing paths, dodging falling rocks. A few more equally feeble stages follow those.

Legend of the Lost is one of the worst games I've seen in a long time, and would have given me quite a laugh if it wasn't for the thought of the few unsuspecting gamers who'll no-doubt buy a copy.

Rating: 10%
Price: £24.95



James Pond

Millenium

What is it about fish related subjects that tempts everyone to come out with the most appalling puns? Don't worry I'll refrain from boring you with reams of sub-aqua silliness, because, despite it's title, James Pond is one of the most seriously cute games to have appeared for ages.

Mr Pond is of course the fish worlds answer to our own James Bond, and beneath the waves he's much in demand. As soon as one crisis has been sorted, he's called off on yet another assigment. There are twelve increasingly difficult missions; are you fish enough for the job?

Your first outing has you releasing some poor old lobsters trapped in pots. You'll have to work fast, as the fishermen are already on their way, along with these, you'll have to contend with a bunch of fishy bullyboys. Fortunately Pond has learnt a trick from Bub and Bob of Bubble Bobble; he can trap most enemies by

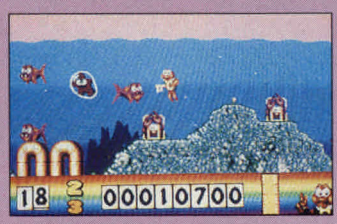
blowing a bubble at them. Once they're trapped, popping the bubble turns them into bonus items. Dealing with the nasty fish as they go, the lobsters can be released by picking up keys and unlocking their pots. With a sufficient number of liberated lobsters, you can either exit to the second or third level.

Level two introduces what are probably the cuddliest characters in the game. Your task is to save seven little fish from a polluted pond. The darlings are all pink, with such a dopey wide eyed expression you can't help falling in love with them! They have to be lead to the level's exit, but they're a bit dim, so you'll have to be patient and try not to lose them.

An oil rig is sepping oil into the sea on level three. James decides the best solution is to blow up the rig with the dynamite conveniently lying round on

the seabed. Further environmentally sound adventures pop up in the following levels, along with a few good old acts of derring-do. Some take place completely underwater, but occasionally you'll have to call upon your amazing amphibious abilities. You can only flap around on dry land for a few seconds though, so make the most of it.

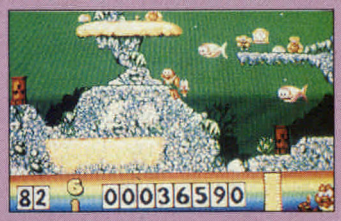
Some games have excellent graphics. Others have particularly well designed gameplay or slick programming. James Pond has all of these in one game! The first thing you notice is the game's brilliant colourful cartoon look. James is a modestly sized goldfish, neatly togged up in a waistcoat and bow-tie. Some of the nasty fish really do look wicked. Fat and ugly with dirty great fangs, they're some of the best sprites



the Amiga's ever seen. Along with these are scuba divers, star fish, crabs, frogs, octupus and a big supporting cast of minor fish who just swim around in the background.

On the subject of backgrounds, they're pretty good too, with smooth graduated colours and a second backdrop scrolling behind in parallax. Smooth scroll fans are going to like this one, everything moves around extremely fluidly, which of course it should do under the sea. The controls are responsive and there are plenty of examples of technical trickery to be found. Loads of bubbly, splashy sound effects have been included to give it that authentic briny flavour.

They've designed it well, but the designers of Pond are without doubt fans of Nintendo's Mario Bros. All the signs



of Marioitis are here: the secret invisible bonus blocks, the bonus rooms, the pipes, and, of course, the lovable turtles. That's not to say that Pond is a Mario Bros Clone, as it's far from it, but these little addition's all work in the game's favour. Furthermore there are a few good original ideas thrown in by the designers. Instead of a boring old lives counter, you get a little picture of James holding up the corresponding number of fingers!

James Pond is a massive improvement over Kid Gloves, Milleniums first attempt to board the cutey bandwagon, although it probably won't do as well as it deserves to, up against all the big names released for Christmas. The easy opening levels and superb cartoon graphics will make it a favourite amongst younger gamers, and there's enough in the gameplay to make it just as much of a success with just about everyone else. Get a copy now, it's fin-tastic! Whoops!

T.H.

Graphics: 94% **Sound: 89%** **Playability: 84%**

Absolute Value: 82% **Price £24.95**

search rooms for clues, but other than that it is pretty straightforward. Good graphical content, some neat digitised speech and keen music, make the game fun to play and I would recommended it for early adventurers. The fight sim is OK but you can nullify it by using the autopilot option, so why bother?

PERSONAL RATING 68%

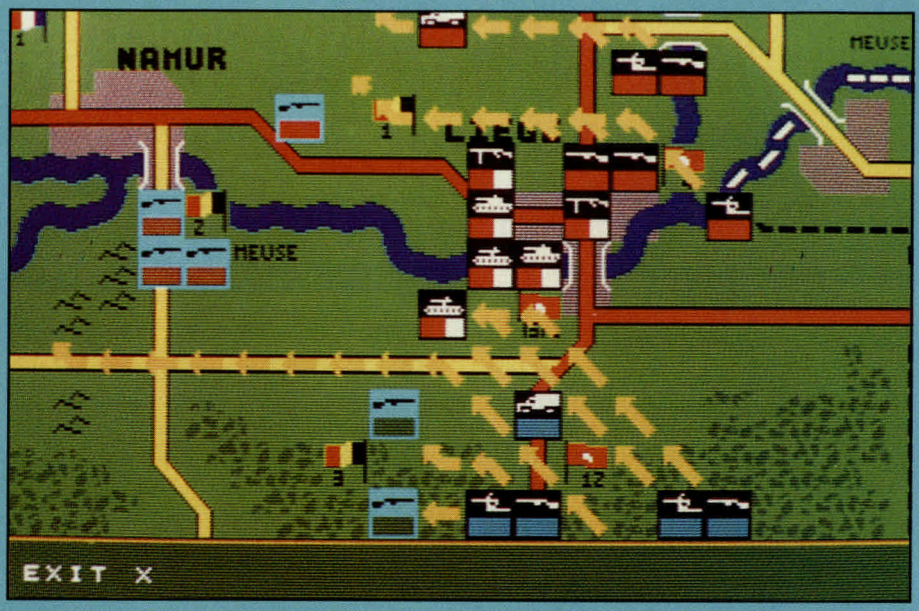
MURDER
US GOLD

The main selling point for this clever title is that there are nearly three million variations of possible murderer and weapon to be solved each inside a two hour deadline. If you have ever played Cluedo then you will realise just how similar the plot line is to this game, but of course under the Amiga, there are a host of extra options. You can personalise your own character, match fingerprints, cross reference file notes, and obtain evidence, and try and find your way through a maze of red herrings. The screen display is not dissimilar to the old ULTIMATE 3D isometric display where room and doorways are depicted in a kind of tipped up sideways view. The problem is that is all very well having so many murders to solve, it's just that I am not sure how long it will be before it all becomes a bit tedious because the question and answer format never deviates. There is no sound to speak of, and the play area is, in the main, black and white, so I suspect that what will happen is that you could end up challenging your friends to see who can solve each crime the quickest, using exactly the same starting parameters.

PERSONAL RATING 60%

TEAM YANKEE
EMPIRE

Based on the Harold Coyles book of the same name, the game is billed as being 'so real you can smell the smoke'. Well I don't know about that, but it is one of the best tank warfare games I have played. Taking the role of a US Army Captain in charge of four tank platoons in World War Three against the Russians, you have at your disposal a host of options that initially seem a bit daunting, but after taking time out to read the manual (something which we all only do as a last resort, right?) it really does become fairly user friendly. You are given a training mode to get you started and this should be attempted before anything else, to get the feel of your tanks and finding out just how to deploy the many different strategies needed to overcome the computerised Russian forces. Once you hit the battlefield for real, you are presented with a 4 quadrant display that gives you simultaneous control over each platoon. You can then go to a full screen display of a particular platoon and go in-tank for a seat of the action experience. There are some excellent



Above: Blitzkrieg. Below: Murder.

graphics and sound to get you in the mood, and a good deal of depth to the strategy, although I am sure wargame purists may find the 'arcade' element too much to stomach. With features such as night time fighting using thermal imaging, 3D battlefields using high definition bit mapped tanks, a multitude of differing ammo, plus laser range finders and even smoke screens, there is plenty there throughout the 25 battles to keep in the most demanding game player happy.
A really great war game.

PERSONAL RATING 95%

BLITZKREIG MAY 1940
IMPRESSIONS

It always amazes me that there is room in the market for so many wargames that are so alike in every department. SSI and to a certain extent SSG led the way for a long time dominating what was then a 'niche' market, with a whole series of famous battle simulations using a scrolling map display with little boxes showing where your forces were in relation to the enemy's. The games emulated the table top wargames of old retired generals still convinced they could have done a better job than Monty.

What then followed was a whole glut of programs from various software houses proclaiming themselves to be 'wargame specialists', PSS, CRL, Ariolasoft etc, using more or less the same technique, albeit with different levels of intelligence.

These games all sacrificed graphic and sound splendour to allow greater memory for all the algorithm calculations that the computer had to do to work out who was winning and losing. The same goes for this attempt by Impressions which chronicles Hitlers attempt to split the Allied advance in two by tricking them into defending Belgium, whilst the main weight of the German army swept through the Ardennes on a bee line for the Channel. This swift 'Blitzkrieg' more or less worked, as within a few days, the Allies were retreating to Dunkirk, and we all now what happened there.

Now comes your chance to rewrite the history books, and try to find a way around Hitler's strategy. All the usual game icons are present (your units have a number of different colours to distinguish each army's function i.e. armoured, artillery or infantry) and each unit has a percentage rating to calculate its value in a battle. Battle does indeed commence when two units are next to each other, and obviously the one with the greater percentage is victorious. Other features include a morale factor, supplies (providing there is a clear way through) reserves, and strategic movements.

The scrolling is smooth, the colours clear and the gameplay uncomplicated. I think in all honesty that this game will only appeal to the new wargamer keen to try out some new strategies, old timers will find it lacking cerebral strain because of the depth of real detail and difficulty.

PERSONAL RATING 60%

THATS IT FOR THIS MONTH, DON'T FORGET TO WRITE IN, I WELCOME YOUR VIEWS. NEXT MONTH WE HAVE GOT HEROES QUEST, CAPTIVE AND CODENAME ICEMAN.

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But Seriously

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AWESOME

Psygnosis

Once Psygnosis had taken the decision to price Shadow of the Beast at £34.95 (including the "free" T-shirt), they found that the inviting package sold like hot cakes. It was no surprise that the same idea was used for the sequel. Now they've done it again, with the third release from the Beastie Boys, or rather Reflections as they prefer to be known.

Ray-traced animation intros are flavour of the month at Psygnosis, with The Killing Game Show, Nitro and Awesome each kicking off with one. That of Awesome sets the scene well, hinting at the technical excellence that follows.

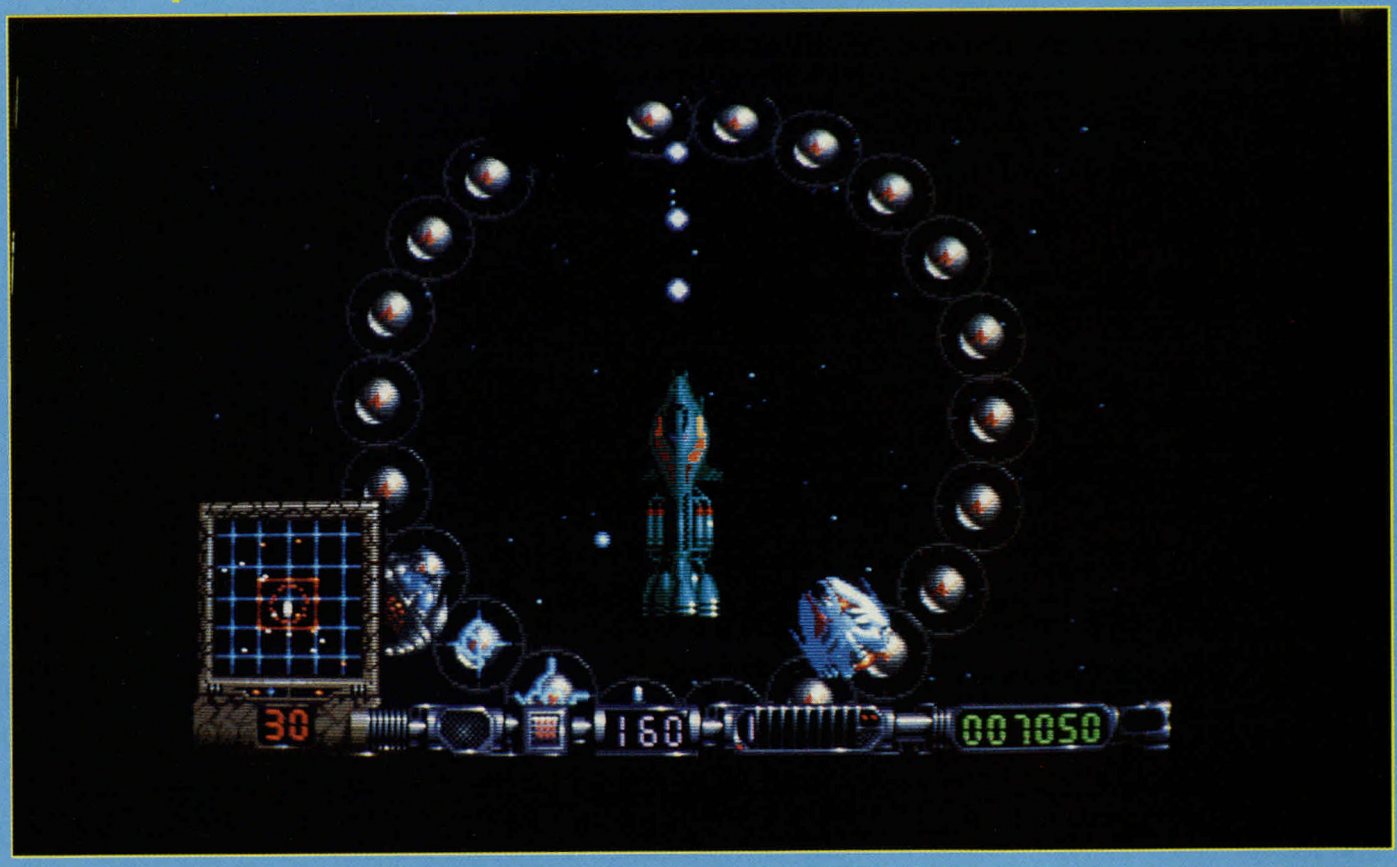
Space trading games usually fall into one of two categories. They're either variations on the Elite theme, or predominantly text-based with simple star charts and the like. Awesome on the other hand, uses the trading theme to bind together a string of shoot 'em up sequences. In a Mercenary-style scenario, you'll have to use both your business sense and your trigger finger to escape from the doomed Octaris solar system.

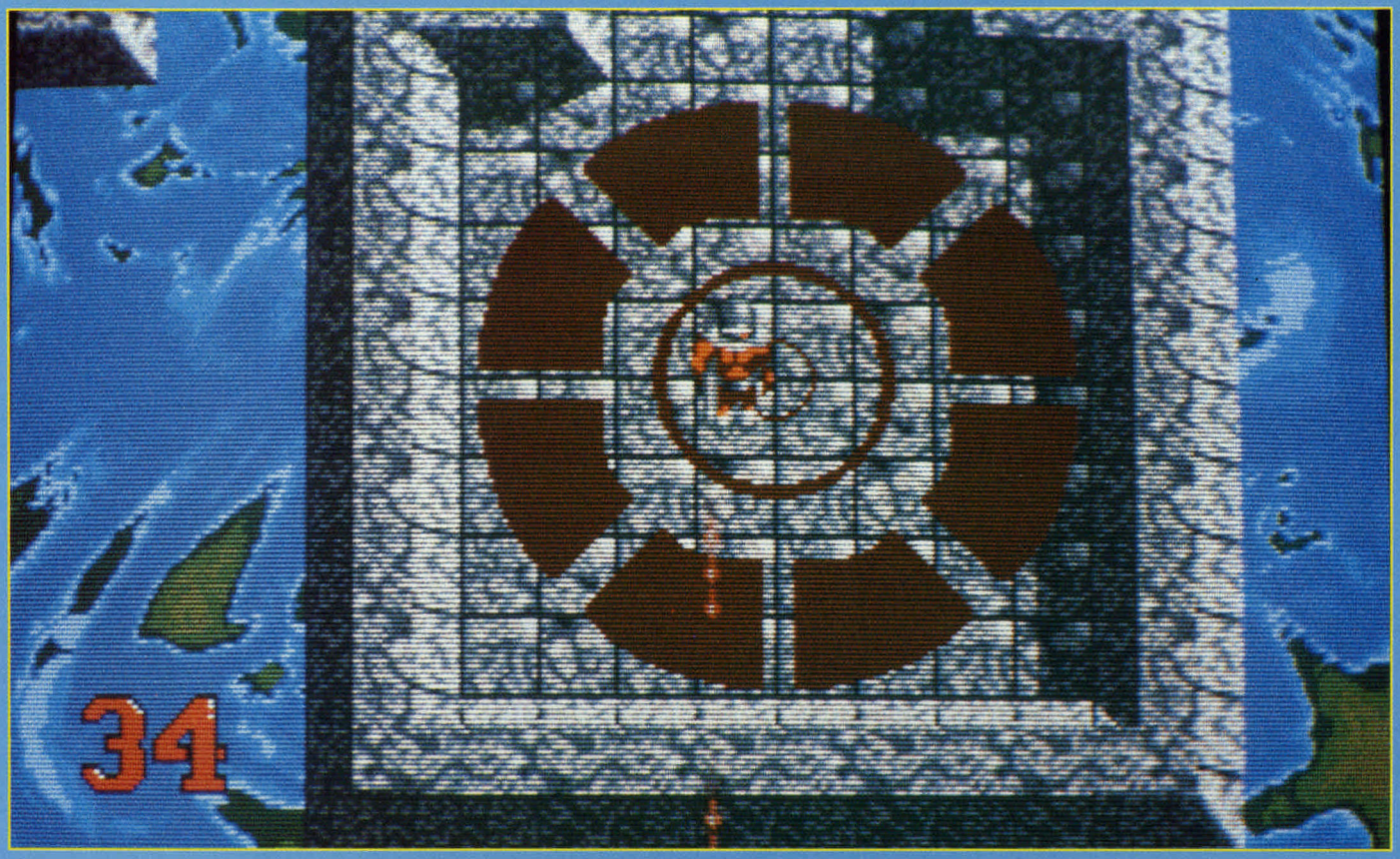
As the pilot of a pirate cruiser, you enter the game on your approach to the planet Aquoss. Your engines switch from hyperspace down to a more manageable rate as you encounter a bunch of alien ships. Here your ship stays in the middle of the screen while everything else rotates around it, giving a similar but superior effect to that of US Gold's Rotox. Once you've cleared the area of all enemies, it's back to hyperspace. Before long you run into another problem. This time it's a meteor storm. Asteroids now replace the aliens of the first section, breaking up into smaller rocks with each shot. Again the rotational scrolling is very neatly done, although your over-sized ship can be a problem when dodging asteroids.

"In a Mercenary-style scenario, you'll have to use both your business sense and your trigger finger"

Next stop is a short Space Harrier-style section, for which the view snaps through 90 degrees to replace the rotating starfield with a more familiar 3D variety. Technical standards refuse to drop, as a giant space dragon swoops in and out of the screen at lightning speeds. Even so, the impressive 3D is the main attraction here, so it's somewhat less exciting after you've played it a few times.

Finally you make it to the planet's atmosphere.





This section owes a lot to Sensible Software's C64 zapper Parallax, as you fly above the elevated walkways above the planet surface. The more aliens you shoot here, the more energy you'll have once you find the landing pad. Jump out of the cockpit and onto the walkways, and you'll have a limited time in which to find the entrance to the trading complex.

From here you can sell your cargo, tool up with some new weapons, and set up another contract. These mainly consist of delivering various items to the appropriate planets. Select your next destination from the navigation computer, and you're off into space once again. From then on you more or less get a re-run of the shoot 'em up sequences you've just survived, only this time you'll have different and more deadly adversaries.

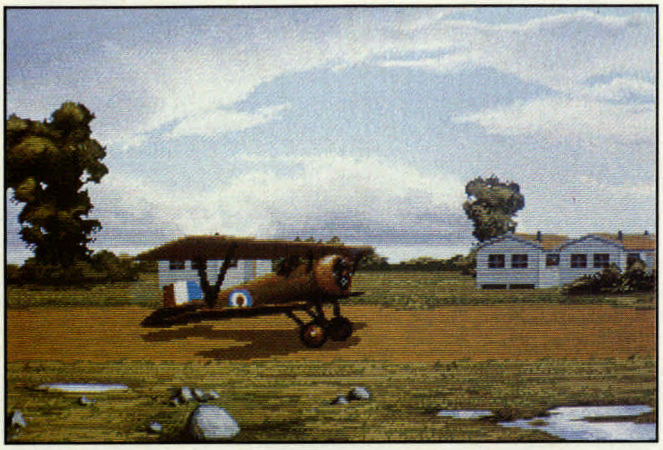
Lack of variety is not a problem with Awesome. The different stages do well in keeping up the player's interest, and with new aliens and attack waves introduced as you progress, there's still an incentive to keep going after the initial "honeymoon period". Compared to most other multi-part games (Ocean's film tie-ins for example), the stages flow quite neatly from one to another, without feeling like a muddled compilation of simple game ideas.

Awesome isn't going to appeal to all shoot 'em up addicts however. I still find the best games are those with a single concept running through the core of the game, which is developed and varied with successive levels. Anyone who agrees would probably do best to look elsewhere for a zapper, especially considering the high price. However, those with an itchy trigger finger and thirty five pounds doing nothing should check it out pronto.

T.H.

Graphics: 90% **Sound: 88%** **Playability: 82%**

Absolute Value: 78% **Price £34.95**



Wi

Cinem

The same as any other, for the men who fought it, The Great War was very short on glamour and glory. Spending months in a rat-infested, water-logged trench, before finally going over the top to be cut down by a wall of enemy fire was hardly the stuff legends are made of. What little glory emerged, was gained mainly by the newly formed Royal Flying Corps and its allied airmen. With Wings, Cinemaware have attempted to give the player an insight into the lives of these early aviators.

As manual says, Wings doesn't quite conform with Bob Jacob's previous interactive movies, but is nevertheless unmistakably from the Cinemaware stable. The year is 1916, and you're cast as a new pilot in the 56th squadron. With the life expectancy of a pilot estimated at around three weeks, the odds of your surviving until Armistice Day two years later are pretty thin.

"If you find yourself outnumbered, or your guns jam up leaving you with no defence, the alternative is to put the plane down on the fields below"

After a brief welcome from your Commanding Officer, Colonel Farrah, you're given your first mission without delay. Most missions are flown with a partner; go it alone and you're just asking to be shot down. With a brief scene-setting animation you find yourself cruising at around a thousand feet as your enemy comes into view. With the "camera" situated just behind the cockpit, you can see yourself and the barren countryside below drawn in 3D vectors. With simple machine guns as your only weapons, the dogfights take place at very close quarters. In fact, colliding with the enemy planes (or even your allies) is a real danger.

The simplicity of the planes means that all the controls can be handled by the joystick alone. As you don't have to juggle your mind between flaps, throttle, radar and all the

rest, you're free to get completely wrapped up in

"With the "camera" situated just behind the cockpit, you can see yourself and the barren countryside below drawn in 3D vectors"

the battles. As an enemy flies out of view, the pilot's head turns to follow him, so you're always informed of who's where. With the look-around views, it's easy enough to keep tabs on what's going on with your comrades. In the earlier stages, you can quite often leave the hard work to your partner. However, rely on him too often and soon enough you're likely to see him falling to earth beneath a shaft of black smoke. If you find yourself outnumbered, or your guns jam up leaving you with no defence, rather than fighting on in vain, the alternative is to put the plane down on the fields below. So you failed to complete your mission, but at least your alive.

These dogfight sequences are the core of the game, but occasionally you'll also have

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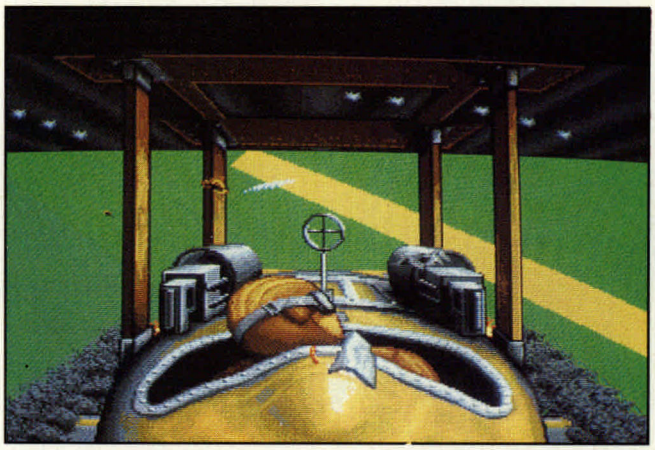
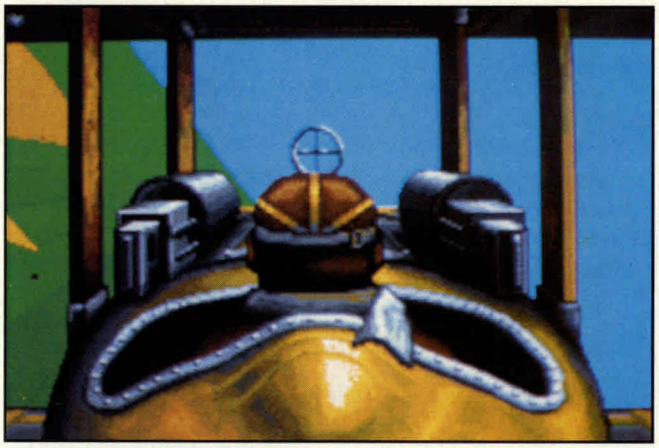
aware



to show your skills at strafing and bombing. Strafing involves mowing down infantry, blowing up fuel dumps and generally crippling the enemy's hardware in a diagonally scrolling isometric 3D shoot 'em up. Bombing runs are a similar affair, only these are viewed from directly above the plane.

"The machine gun fire and the drone of the engine alone are enough to draw you right into the action, but listen as the plane stalls when you attempt an over-enthusiastic climb"

As the days pass, your adventures are narrated by a diary, the installments of which are given added atmosphere by the accompanying music, ranging from triumphant marches to the rather more sombre, heaving accordion solos. The rest of the soundtrack is also well up to scratch. The machine gun fire and the drone of the engine alone are enough to draw you right into the action, but listen as the plane stalls when you attempt an over-enthusiastic climb, and wince at the scream as smoke pours from the engine and you plummet to your doom.



Even though Cinema-ware are newcomers to 3D vector graphics, those of Wings are easily fast enough to have you falling off your seat as you attempt that tricky Immelmann turn. The rest of the graphics have Cinemaware written all over them. While it retains the wartime look first seen in Rocket Ranger, there are also shades of Defender of the Crown's splendid visuals, which can only be good news. With plenty of superbly animated sequences, interspersed with silent-movie style speech and narrative boards, you can't help becoming totally wrapped up in your character.

Too often, games are padded out with booklets full of irrelevant information. The manual that comes with Wings is one of the few that's well worthwhile reading, with some fascinating facts and photos telling of hardship and horror of life and death in the trenches, along with profiles of some of the well-known and not so well-known aces of the air.

"Even though Cinemaware are newcomers to 3D vector graphics, those of Wings are easily fast enough to have you falling off your seat"

Wings is the first of a flurry of First World War flight simulations on the brink of release. Whether any of the rest can come up to these high standards I doubt very much. By the way, make sure you get hold of the right version for your machine. The only difference in the half meg version is the omission of part of the intro, so no-one misses out. Make sure you don't miss out. Get a copy now!

T.H.

Graphics: 94% **Sound: 91%** **Playability: 91%**

Absolute Value: 90% **Price £29.95**

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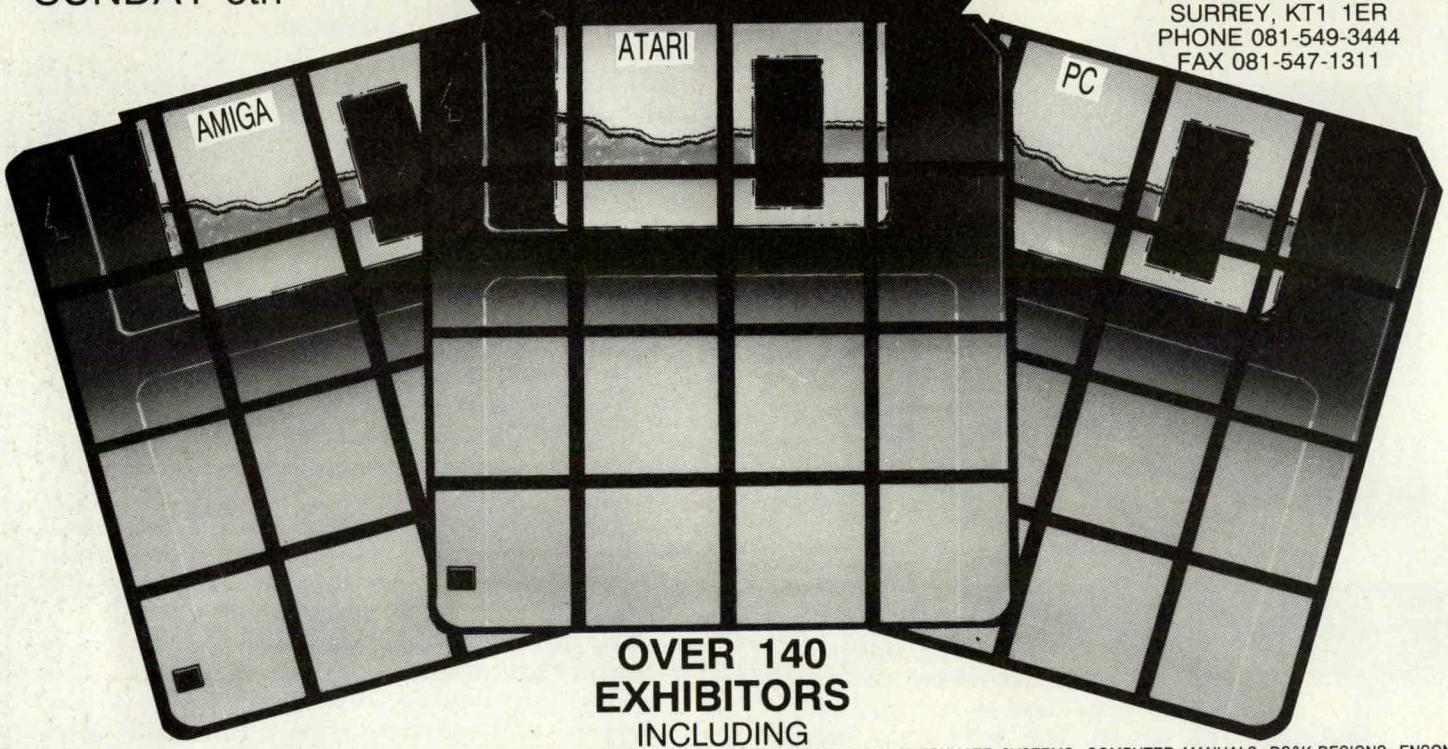

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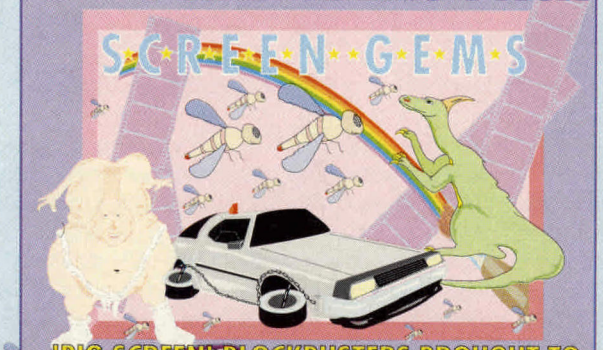

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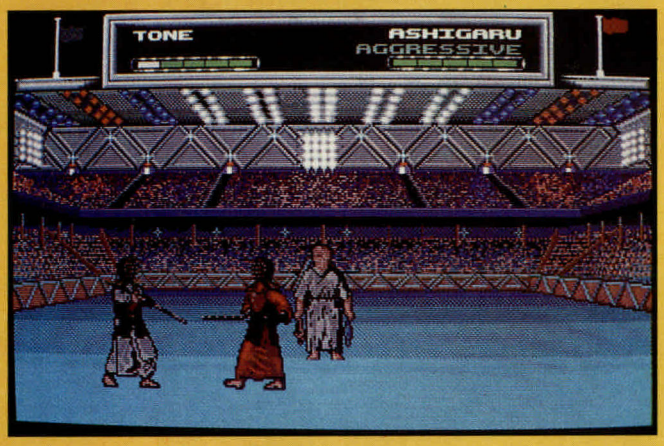
ORIENTAL GAMES

MICRO STYLE

Beat 'em ups have been around for years now, most examples of which have at tempted to put across as much excitement and action as possible, exagerating the moves and sound effects, with results not far off computerised Bruce Lee films. Electronic Arts took a slightly more serious look at martial arts with Budokan, and now Microprose are doing the same with Oriental Games.

Three martial arts are included in the

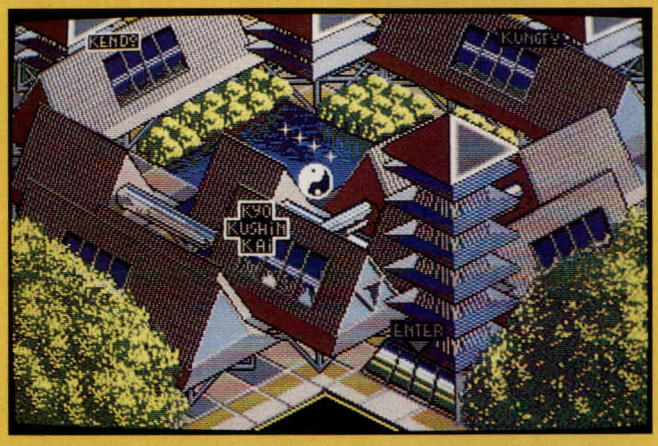


game. Good old fashioned karate, kendo and the virtually unpronouncable kyo-kus-hin-kai. The latter is a variation on karate, "the sport they tried to ban" according to the waffle on the box. You can either take part in single fights, with another player or against the computer, or enter the knockout competition. In the competition, you take part in three knockout rounds, with everyone's points total totted-up at the end of it all.

"In the competition, you take part in three knock-out rounds, with everyone's points total totted-up at the end of it all"

All fights take place against the drab backdrop of a crowded arena. There are no surprises as the two competitors square-up to each other and shuffle forward. The standard format continues with the control method, which uses all eight positions of the joystick and the fire button to give access to sixteen moves. Flying kicks, sweep kicks, punches and all your other favourites are here, with headbuts and a few extra punches available in the kyo-kus-hin-kai bouts. Kendo is less exciting. Two heavily armoured men whacking each other with bambo poles fails to get the adrenalin rushing.

If you find the controls are awkward, you can alter them with the "edit joystick" option. Most of the moves are placed around the joystick in a fairly logical position, so you shouldn't find the need. This, along with the knockout competition and the oversized manual, suggests that Microprose are hoping to appeal to the simulation crowd, offer-



ing more than "just a beat 'em up". In fact, all this exterior decoration is irrelevant when the gameplay is no good. Fights are all about aggression, speed and excitement. Those in Oriental Games are far too slow and unspectacular to get you going. The late-reacting controls don't help matters, and neither do the graphics, which look as if they've come straight off a four-colour PC.

"If you find the controls are awkward, you can alter them with the 'edit joystick' option"

A decent beat 'em up has to be hard as nails. Although on the highest skill setting, Oriental Games is difficult, it's still not hard because it's not convincing. If you don't wince as a fist connects with a jaw, there's nothing to drive you on to the next opponent. Archer Maclean's International Karate Plus is still by far the best game of this kind, and Oriental Games is nothing but a weak attempt to oust it from its perch.

T.H.

Graphics: 53% **Sound: 40%** **Playability: 57%**

Absolute Value: 55% **Price £24.95**

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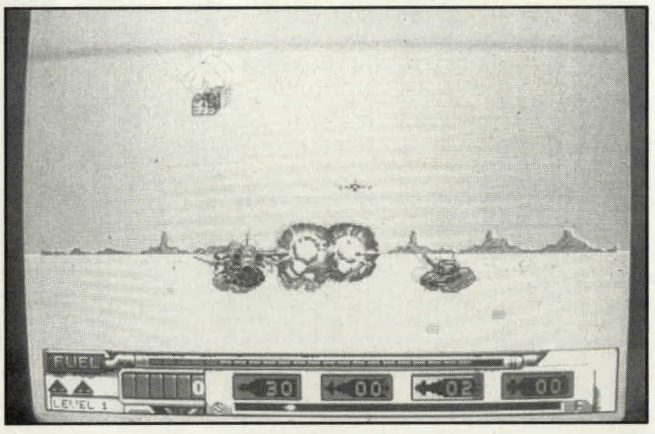
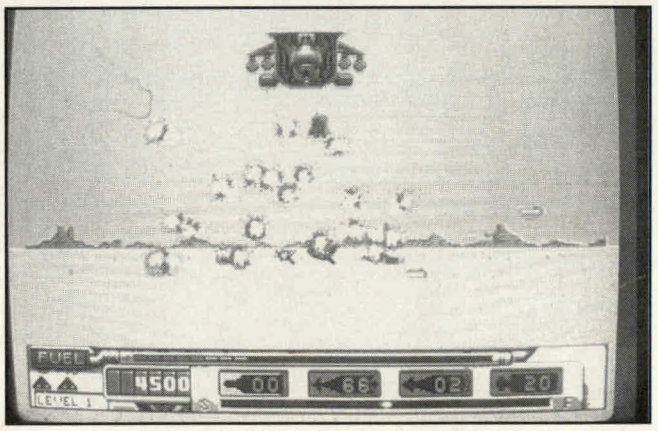
Mig 29

Soviet Fighter

Codemasters





Had enough of piloting Falcons and Hornets in battles against Eastern forces? Fancy getting to grips with controls of a Russian Mig 29? Well, your luck could be in, as it seems Codemasters are bored with simulating everything from scooters to powerboats, and have turned their attentions to more conventional simulator subjects. They have however, refrained from using their usual "simulator" suffix (or was it just a mistake, left off the cover by a forgetful art department?).

With a proper flight sim, you'd expect there to be some significant features concerned with your flying a Mig. At £6.99 however, you'll be lucky if you can tell the Mig sprites from the Concordes. So it's just a simple Afterburner clone, but there's nothing wrong with that, especially for the price and considering there's still no decent game of that type on the Amiga.

However, you may begin to get some idea of the quality of the game when you read the list of its features quoted on the cover. Apparently it includes "Actual military graphics", "Real 'Mig' engines and sound effects", and "Nuclear capability". That's got you foaming at the mouth I bet (if you can understand what it's all supposed to mean). Has your Amiga got "Nuclear capability"?

As you take off, it looks as if it may not turn out as bad as the package would have you believe. Smooth-moving blobs shoot beneath you as you climb to a low altitude. From here on things take a turn for the worse. Various examples of military hardware appear over the horizon, speeding towards you, firing missiles as they go. Unfortunately the program isn't capable of moving all these 3D sprites around very quickly, so smooth animation is sacrificed for speed. The enemy jets may only take a couple of seconds to get from the horizon to the foreground, but when they only use a few frames in the process, the effect is ruined.

So it's fairly cheap, but that's no consolation when you find you've just paid £7 for a virtually unplayable game. Obviously development costs have to be low for a budget game to make money, but surely the programmer's time would be better spent in creating a more enjoyable, maybe less adventurous game? If no-one can come up with worthwhile "original" budget software, then maybe the lower price range should be used solely for quality re-releases. Come on, Codemasters, sort yourselves out.

T.H.

Graphics: 40% **Sound: 71%** **Playability: 34%**

Absolute Value: 35% **Price £6.99**

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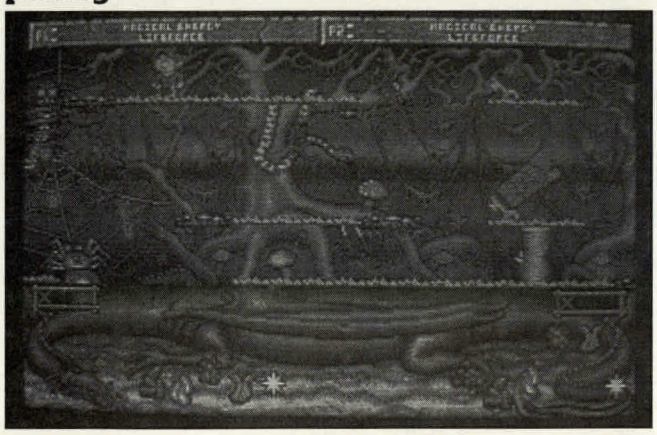
Spellbound

Psyclapse

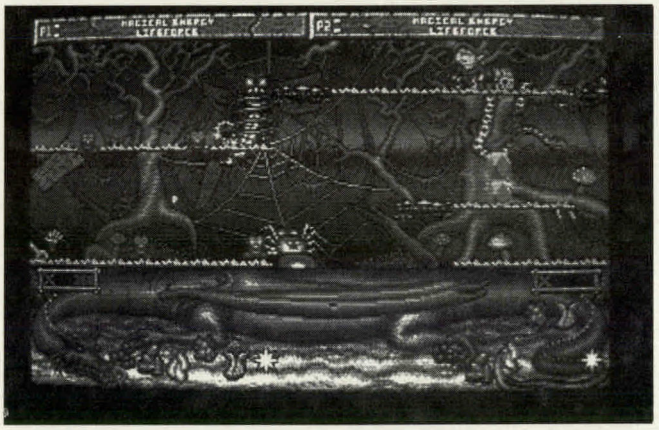
I bet you're all dying to know who's been kidnapped in this arcade adventure from Psygnosis. Could it be the US President, your girlfriend, your kid, your pet hedgehog? No, this time it's your wise old magic tutor. As the sorcerer's apprentice, it's up to you to get him back. Your rudimentary spell casting abilities are put to the test, as you work your way through eight lands to save your mentor.

To say that Spellbound is another typical Psygnosis arcade adventure wouldn't quite be true. Compared to their recent Beast II, and even releases as far back as Barbarian and Obliterator, Spellbound is nowhere near as extravagant. Instead it uses an "off the shelf" game design, which in itself is no bad thing, so long as it's backed up by some other redeeming features.

Your on-screen persona is a short, hooded figure with that increasingly popular oversized head. These worlds scroll horizontally, and are made up of arrangements of platforms and lifts. Your passage from one end of a level to the other is blocked by an assortment of monsters, along with a few static obstructions scattered around the place. Now and again you'll have to blow up a wall in order to continue. According to the instructions, the ALT key detonates a bomb. In fact you have to use the Amiga key, so the first few games are made extremely frustrating as you try to figure out why nothing's happening.



Depending on where you are in the game, you have various spells available. These boil down to a small collection of weapons, but I suppose calling them spells is going to appeal to a few RPG fans. Each level has a



different background behind the platforms. Rather than adding substantial interest to the game, they make it harder for you to pick out the tiny objects on the platforms. They don't seem have any relevance to the gameplay taking place in front of them, and look as if they've just been included to fill out the screen.

"Depending on where you are in the game, you have various spells available. These boil down to a small collection of weapons, but I suppose calling them spells is going to appeal to a few RPG fans"

There's a simultaneous two player mode, but it's somewhat misplaced in an arcade adventure. The sound is almost non-existent. The game is played in silence, which is very occasionally broken by the odd "ping" or "pop". With small sprites that are neither menacing nor cute, it's very hard to drum up any enthusiasm for the game. Above all, it's just not fun to play.

T.H.

Graphics: 47% **Sound: 10%** **Playability: 45%**

Absolute Value: 42% **Price £24.95**

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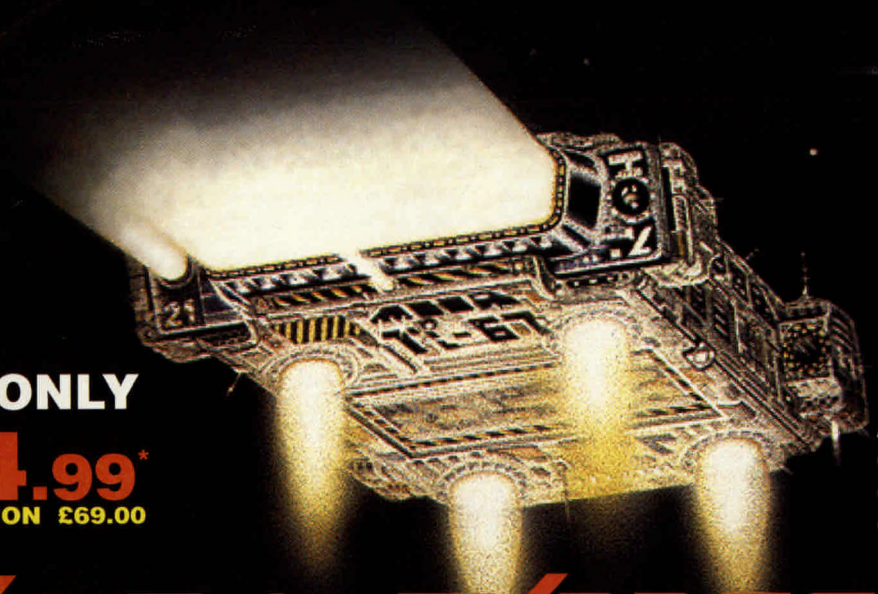

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STAR'S LC-200 AND LC24-200 DOT MATRIX PRINTERS

This month Pat Kelly test drives two of Star's new 200 series printers

Star Micronics entered into the now massive UK printer market about the same time as Commodore did with the Amiga 1000, and even then they offered a reasonable printer at a reasonable price. Five years on and the collective range of Star printers has grown enormously with newer models being given higher and higher specifications mostly at lower and lower prices. Their later models, the 9-pin LC-200, a mono/colour printer, and the 24-pin LC24-200, available with either mono or 7-colour capabilities are all competetively priced. It is somewhat surprising, however, to note that Star did not feel the need for a mono only 9-pin printer.

The 200 series of dot matrix printers look as if they have been designed for use on the open road rather than on the desktop with sleek aerodynamic curves more akin to that of an Audi than a Star, and while the 9-pin LC-200 is a smaller than its bigger brother, the 24-pin LC24-200, both look similar. If you ever feel the need to throw the "200" out of the window it is bound to travel further than any of its competitors.

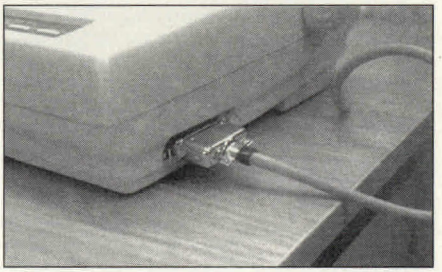
CONCISE INSTRUCTIONS

As expected from any printer manufacturer, the 200s are supplied with a manual giving concise instructions and illustrations to allow a quick and trouble-free start-up. The larger LC24-200 printer's manual is similar to that of the LC-200's except for descriptions of some extra functions associated with 24-pin printing. The colour printers are supplied with colour and black ink ribbons, while the mono version of the LC24-200 only has a black ink ribbon.

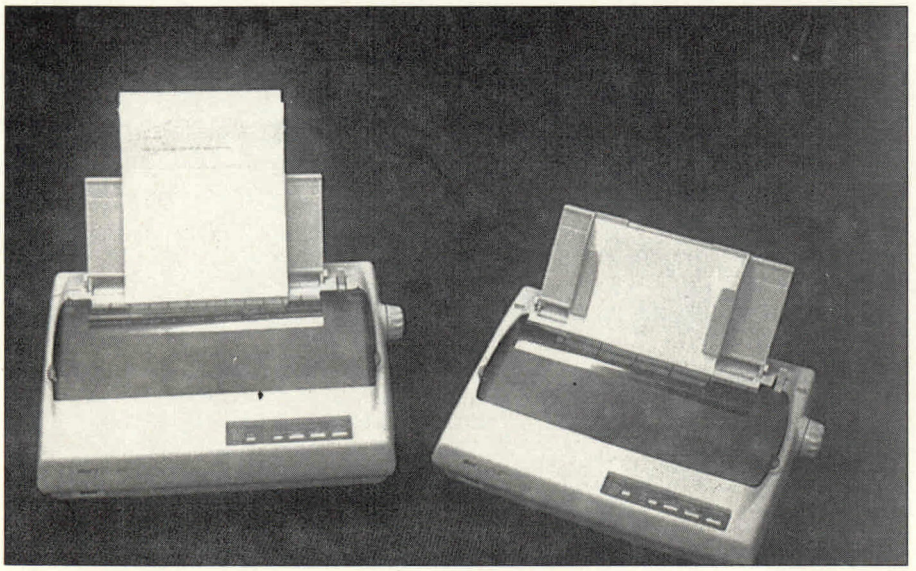
"Single sheets are loaded at the press of a button and an optional automatic sheet feeder is available to allow hands-free operation when printing larger documents"

There are two loading positions for continuous fanfold paper, from behind or from below, giving either push tractor feed or pull tractor feed respectively. Loading fanfold from below allows the printer to operate in confined space, although it will need a printer stand capable of allowing the paper access to its base, and is the best loading position for multi-part forms. When fanfold paper is loaded from behind it can be "parked" to allow for printing of single sheet paper without the need to remove the forms. The "park" function feeds the fanfold to the rear of the printer with the tractor feed. Single sheet printing mode is accessed by the release lever being switched from tractor to friction feed. Single sheets are loaded at the press of a button and an optional automatic sheet feeder is available to allow hands-free operation when printing larger documents.

On the LC-200 a five-position adjustment lever provides different distances between the platen (roller) and the print head to accomodate for different thicknesses of paper up to 0.30 mm and up to 4-ply multi-part paper. The LC24-200 sports a six position lever and accomodates up to 5-ply multi-part and a maximum recommended paper thickness of 0.35mm. The printers can cope with cut sheets up to 297mm wide and 305mm high, and continuous paper up to 254mm wide.

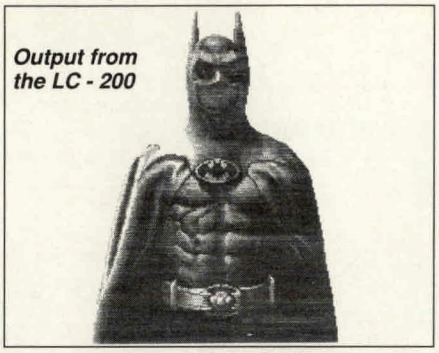


The parallel interface is located on the right side of the printers



LC-200 PRINT

The LC-200 print comes in draft, high speed draft and near letter quality. The draft mode uses 9 by 11 dots at a speed of 150cps Pica or 180cps Elite. High speed draft uses 9 by 11 dots at a speed of 200cps Pica and 225cps Elite. Near letter quality uses 18 by 23 dots at speeds of 37.5cps Pica and 45cps Elite. There are six different fonts; Draft, Sanserif, Courier, Orator, Script, and High Speed Draft. Character pitch can vary between between 10 and 12 characters per inch, which works out at a maximum of 80 and 96 characters per an eight inch line. Up to 160 characters can be fitted on to a line if the characters are condensed. Bit-mapped graphics images can be printed up to a resolution of 240 dots per inch at quadruple density.



Output from the LC - 200

LC24-200 PRINT

The LC24-200 print comes in draft, high speed draft and letter quality. The draft mode uses 24 by 9 dots at a speed of 167cps Pica and 200cps Elite. High speed draft uses 24 by 9 dots at a speed of 222cps Pica. Letter quality uses 24 x 35 dots at a speed of 55.5cps Pica and 24 by 29 dots at 66.7cps Elite. There are eight different fonts; Draft, Tms-Romn, Sanserif, Courier, Prestige, Script, Option (optional font cartridge), and High Speed Draft although there is an extra font cartridge positioned inside the LC24's casing which allows for more fonts to be added. Character pitch can vary between between 10, 12 and 15 characters per inch, which works out at a maximum of 80, 96, and 120 characters per an eight inch line. Bit-mapped graphic images can be printed at a resolution of 360 dots per inch at 24-bit hex output.

OTHER OPTIONS

Further print commands, listed within the manual, offer a host of other options including double-width printing, subscript and superscript, justification, emphasised and italic characters and so on.

There are eight different fonts; Draft, Tms-Romn, Sanserif, Courier, Prestige, Script, Option (optional font cartridge), and High Speed Draft"

There are five control buttons on the control panel which is located on the front right of the 200. The buttons directly control the on line, paper feed, set/eject/park, pitch setting, and font requester button. In addition a "Quiet" button is available when the printer is on line. This slows the printer down, but also reduces noise. These buttons are extremely easy to use and the font and pitch selections are displayed by a combination of LEDs. By using a combination of buttons top of form, form feed, forward micro feed, and reverse micro feed can be accessed amongst others such as selecting the printer colour, resetting the buffer, and storing macro definitions.

Macro definitions can be stored and will allow current savings to be start-up defaults. The settings which can be saved this way are; font and pitch, quiet mode, auto-loading amount for cut sheet, auto-loading mode for continuous paper, auto-loading mode in ASF (automatic sheet feeder) mode, and current print colour.

There are also other modes which can be accessed by switching the printer on with various buttons held down.

ELECTRONIC DIP

The front panel control allows access to all of the printers controls including the EDS, Electronic Dip Switch, system which allows set-up without opening up secret panels. To enter into EDP mode the printer must be switched on with a combination of buttons held down. Once the mode has been entered a combination of the "font" and "pitch" buttons allow access to the function and while the "font" and "pitch" LED`s highlight these the "Quiet" LED signifies On or OFF status.

FEW DIFFERENCES

There are three different models in the 200 series; the LC-200 colour, LC24-200 mono, and the LC24-200 colour. There are but a few differences between the LC and LC24 models themselves with the most noticeable being that the LC has a 9-pin print head while the LC24 has a 24 pin head. This difference means that the LC24 prints Letter Quality characters in 5 fonts while the LC can only print Near Letter Quality in 4 fonts and that it prints at a much faster rate. The LC24 also prints out graphics at 360 dots per inch,

Output from the LC - 200

rather than the 240 dots per inch of the LC.

Although both printers are well built the LC24-200 is the better built printer and the difference in cost between that and the LC-200 reflects not only extra printing capabilities.

LC24 prints Letter Quality characters in 5 fonts while the LC can only print Near Letter Quality in 4 fonts"

These models are so similar and the price difference between the 9-pin and the 24-pin models is not all that great that the purchaser of either of these excellent printers will have a difficult choice to make.

P.K.

Prices: These prices are RRP, but shop around

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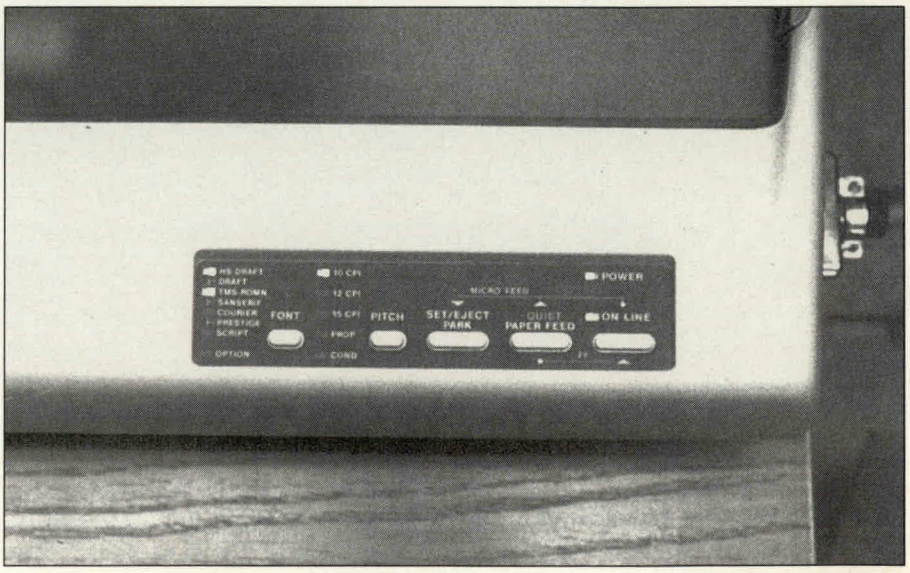
LC24-200: £319.00+VAT

LC24-200. Colour: £369.00+VAT

Contact: Star Micronics, Star House, Peregrine Business Park, Gomm Road, High Wycombe, Bucks. HP13 7DL.

Telephone: 0494-471111



AUI-SPELL part 1

This month Paul Overaa starts work on a useful new project - the development and coding of AUI SPELL, Amiga User International's very own spellIng checker program...

The great majority of Amiga books and magazines offer lots of programming hints but very little guidance on how to solve the problems involved with creating 'real' Amiga software. The object of this project is to put this right by taking you through the various stages involved in creating a working spelling checker program. During the coming months we will make some arrangements for providing ***AUI*** readers with disk copies of the source code, runable versions or the program modules etc. Before that however we have got quite a lot of groundwork to do – the problem has to be clearly defined and the main characteristics of the program need to be understood.

Even at this early stage there is a conflict of interests: On the one hand it is worthwhile trying to ensure that the main ideas can be understood by everyone (from beginners upwards). On the other hand, since the program is going to be potentially very useful, the development is worth taking seriously. That inevitably means there will be a couple of areas which use fairly sophisticated approaches, and these are likely to give the less experienced programmer more than a few headaches.

I am going to make a start by making what, to all intents and purposes, is an 'intuitive appraisal' of the problem at hand. During the initial analysis a lot of different steps will be identified. Words need to be separated from the text under examination, duplicates have to be eliminated etc. Rather than concentrate on building a single program to do everything be shall work, at least initially, on each of the identified areas there are. The benefit of this approach is that we will, be able to create a number of runable modules of general use at the same time as we are analysing and tackling the larger problem of creating a fully fledged spelling checker.

Before we do anything in code however we have to do some advance planning, i.e. produce an overall blueprint of the program. That does not mean things like which colour the display will be, or which Amiga system functions will be used, there are the fundamentals such as recognition of the basic steps involved, the choice of algorithms used and so on.

Firstly, let us get clear in our mind some details of the problem we are trying to tackle...

The Problems

A spelling checker is a program that will read a textfile and identify the words which are mis-spelt or otherwise unrecognized. In order to do this the program has to compare words in the textfile with correctly spelt words in some other 'dictionary' file. This implies that we can identify individual words in the textfile, so this is one area which must be looked at in detail.

Assuming we can get a suitable list of words the next step is to see whether they are present in the dictionary file. The brute-force approach of searching the dictionary every time a word is identified in the text file is not on. Why? It would be inefficient... you would end up searching the dictionary not just for every different word but for all of the duplicates that were present as well. Since words like 'the', 'of' and 'in' are likely to occur many times within a single textfile the program would end up wasting a lot of time with pointless searches!

Comparing words in a textfile with words in a dictionary file is typical of a class of search problems that is very well understood. Over the years highly sophisticated methods for efficient searching have been devised – be warned... some of the methods are rather complex.

One of the solutions to the word search problem is to sort the words into an alphabetically ordered list and then compare that list with a dictionary file that is also kept in alphabetical order. We need to do more than just create sorted word lists because some words in our textfiles will occur many times. The solution? We have to eliminate any duplicates from any lists we prepare.

So, we have already made some progress as far as recognising the various aspects of the problem: we need to separate words, alphabetically sort them, eliminate duplicates, and then compare a final list of words with a list of correctly spelt words held in a dictionary file.

That, as a preliminary analysis, gives us somewhere to start. What is useful to do now is create some sort of 'picture' of the problem as we see it, so that we can see clearly time various stages that have been identified. We shall be using a number of designs techniques but the data-flow diagram is well suited for describing these early ideas...

Data-flow diagrams

These program design diagrams have been around for years. The are a convenient way of producing a high-level description of the processing stages which a program must perform. The terminology surrounding the data-flow diagram (DFD) is not particularly consistent in the literature because different DFD schools have added their own special symbols. I am not going to mention all the variations and I will actually only be using these four basic DFD symbols...

★ Bubbles - These represent processes which are carried out.

★ Arrows - These represent the data flowing into and out of the various processes.

★ DataStores - Parallel lines are used to represent places where information is stored, e.g. they might be used to represent a disk file.

★ I/O Boxes - These represent data sources and destinations.

Continued on page 104.

Continued from page 103.

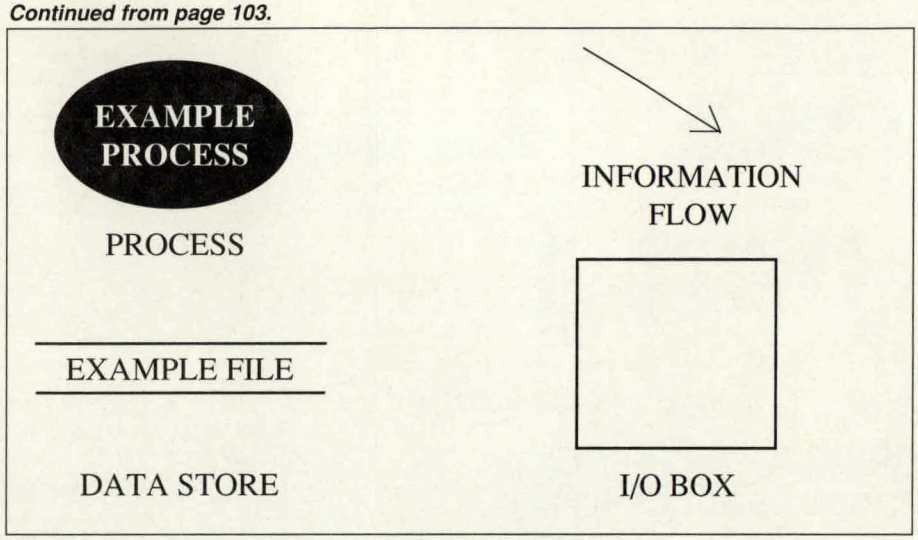


Figure 1: The four basic Data-Flow diagram convectionsz

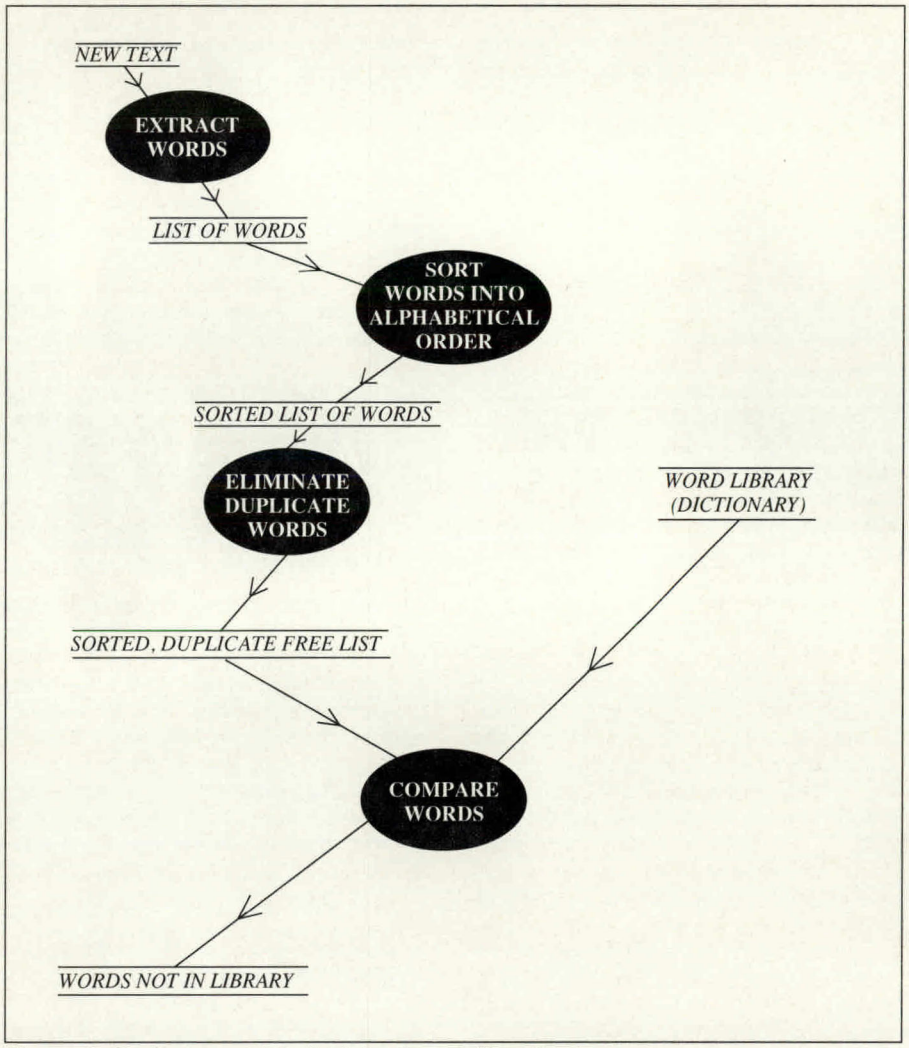


Figure 2: Preliminary DFD sktch for the spelling checker.

Our first DFD bubble happily talks about extracting words. But what do we regard as a word? It is fairly obvious that a word is a set of characters of the alphabet. Individual characters can be either upper or lower case and at the outset we are going to make the fairly reasonable assumption that, from a spelling checker's viewpoint, case itself does not matter. In practice there may be other things to consider at a later stage: Word-Break hyphens at the end of lines, proper hyphenated (double barrelled) words, apostrophe's etc. For the moment however a word will be regarded as a set of alphabet characters delimited by ANY other character.

Dictionary files tend to become large. They require a lot of space and, you only have to look at a set of words like be , beg, begin, begins, beginner, beginners, beginning, beginnings... to realize that somewhere along the line there should be scope for avoiding duplicate storage of common word parts.

I am certainly not happy that my initial ideas, namely to use a simple alphabetically ordered word list for the dictionary, is going to be satisfactory once the number of words present reaches the hundreds of thousands stage. On the other hand I am equally unsure that early commitment to any particular alternative scheme is a course of action that would be advisable.

To some extent the immediate problem concerning this area can be deferred because, irrespective of the detailed dictionary organization, we do at least know the type of operations that are likely to be needed. We will for instance, need to be able to add words, delete words, determine whether a word is in the dictionary, and carry out operations such as 'find the next (alphabetically ordered) word'.

How does this help? Well, these operations confirm that a 'list orientated' approach, at least as a logical scheme, looks as though it will be perfectly OK. That we need however is some way of isolating the bulk of the program from any physical representation we choose to implement. We can do this by using an approach based on an abstract data type (ADT). This is just an organization of data objects for which a group of operations is defined.

The dictionary operations that we have just defined, coupled with the concept of the dictionary appearing as an ordered list or words is in fact an example of an ADT.

Any program, use of our 'dictionary file' is therefore going to be done using a set of ADT access routines. If we want the next word in the file we might call a routine called GetNextWord(), if we want to add a word to the library we shall use something like AddLibraryWord("example"). The important thing is that we will NEVER access the chosen dictionary structure directly ! It will remain effectively 'hidden' behind those dictionary access routines. The benefit? We could at any time change the dictionary file organization simply by adopting a new physical structure and providing a new set of ADT access routines for the operations we had defined. To start with however we will be working with a list-orientated ADT that is actually physically implemented as a simple list!

Coming Next Month

The first routine that we are going to develop is for word-extraction. As mentioned earlier we are initially written and tested as a separate program which will scan a textfile and turn it into a list of words. The bulk of the code will be written in C but, since this extraction process needs to be as fast as possible, I will be using a little of 68000 assembler to speed things up!

To be continued . . .

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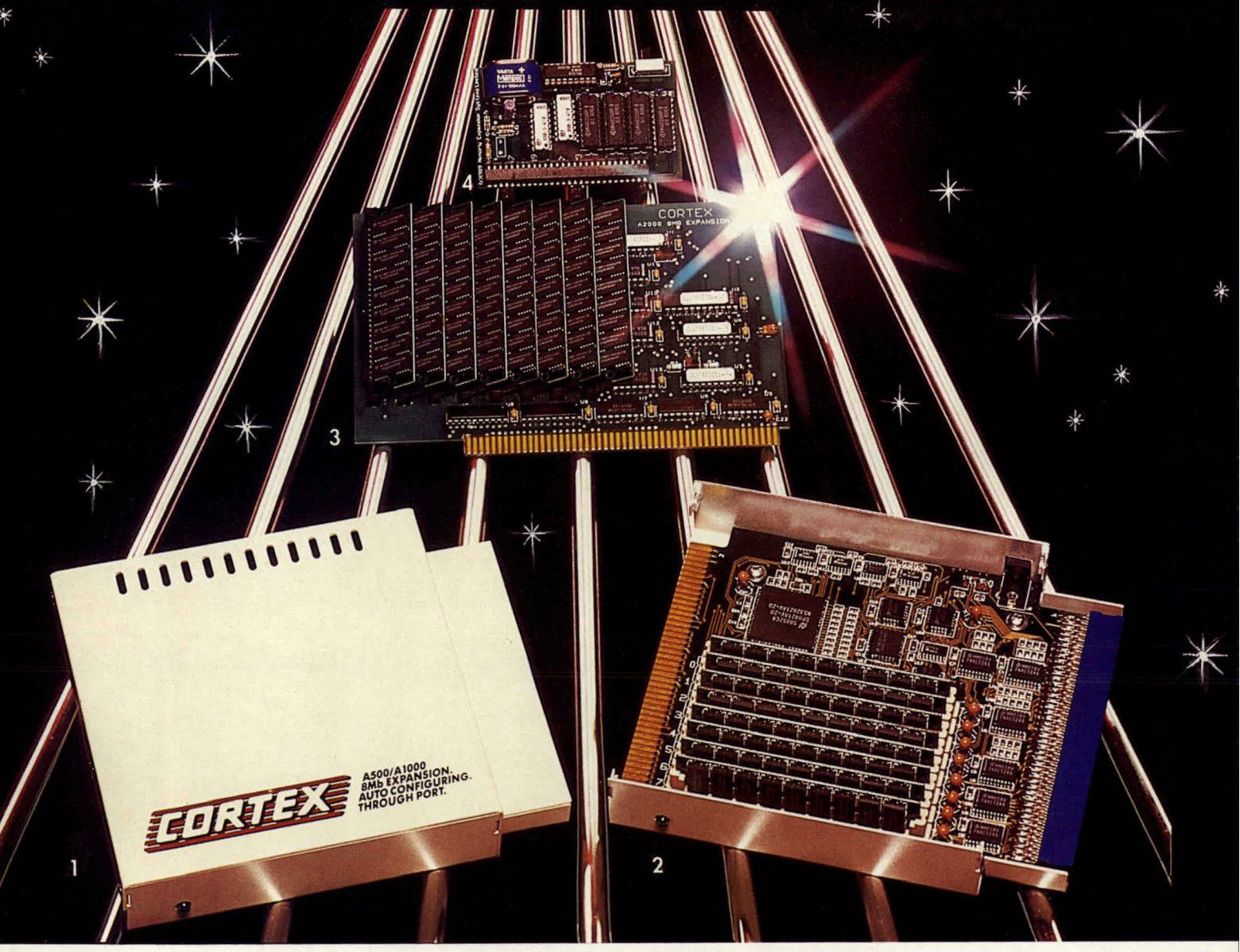

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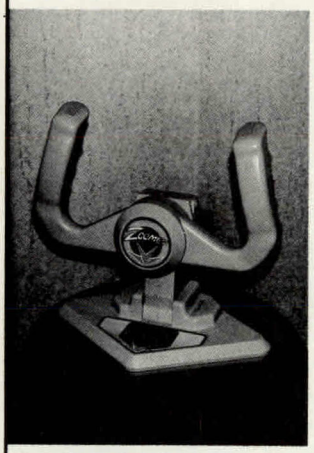

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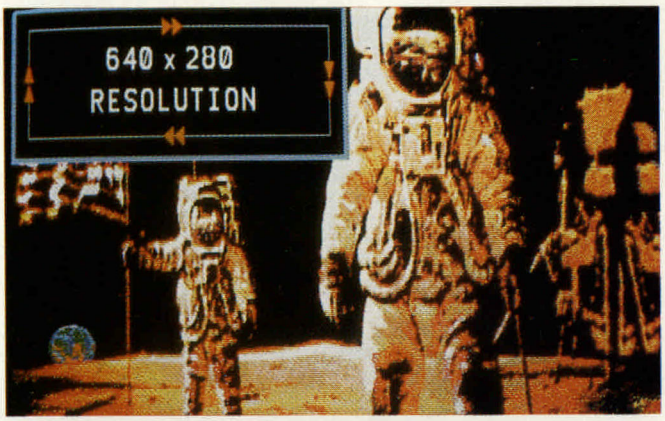

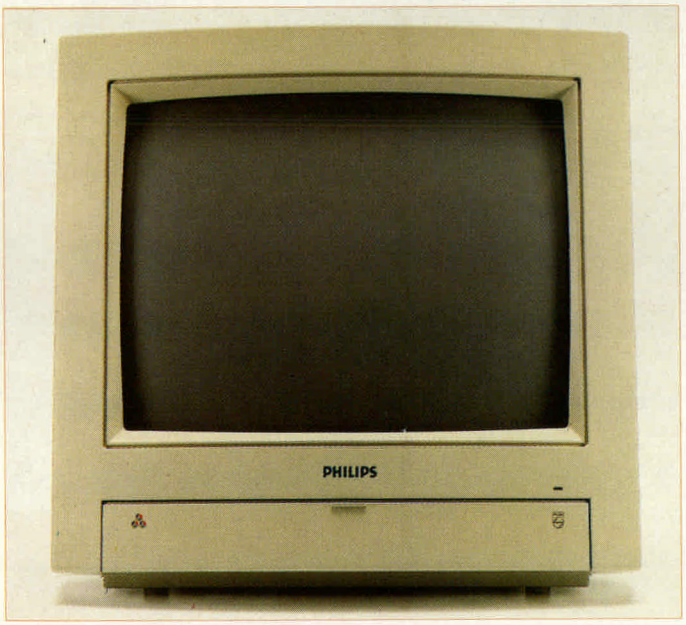

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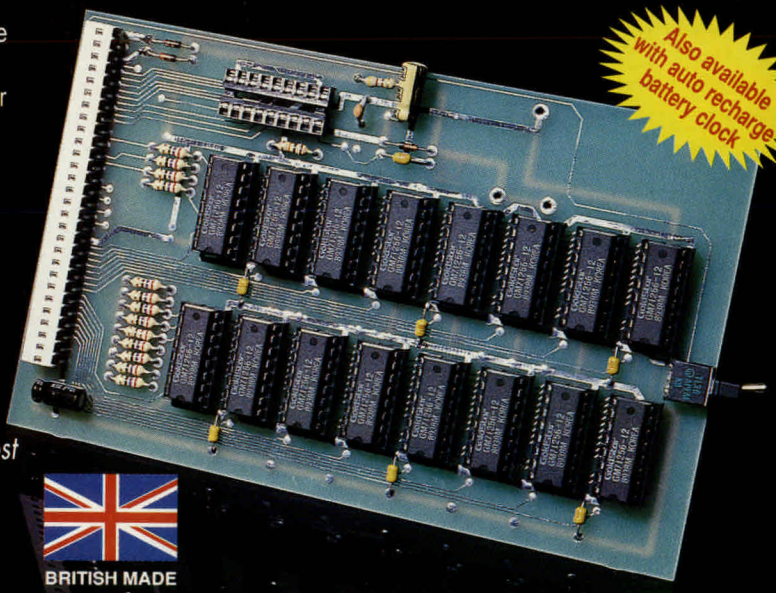

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MASTERING THE AUDIO WITH AUDIOMASTER III

Mike Nelson explains how sound is generated by the Amiga, and reviews an upgrade to one of its more famous programs

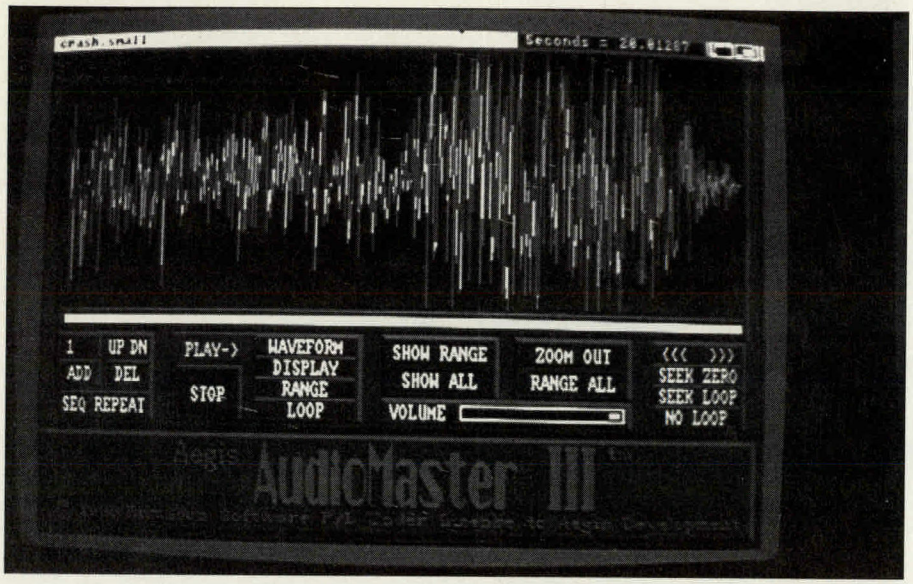
Anybody with even the most vague interest in chart music will have heard of the term "sampling", and its application in modern Hi-Fi such as compact disk technology. All you Amiga Users will also be familiar with the superb sound capabilities of your machine, but many may not realise just how closely the Amiga is related to Messrs. Stock, Aitken and Waterman and their various pop stars.

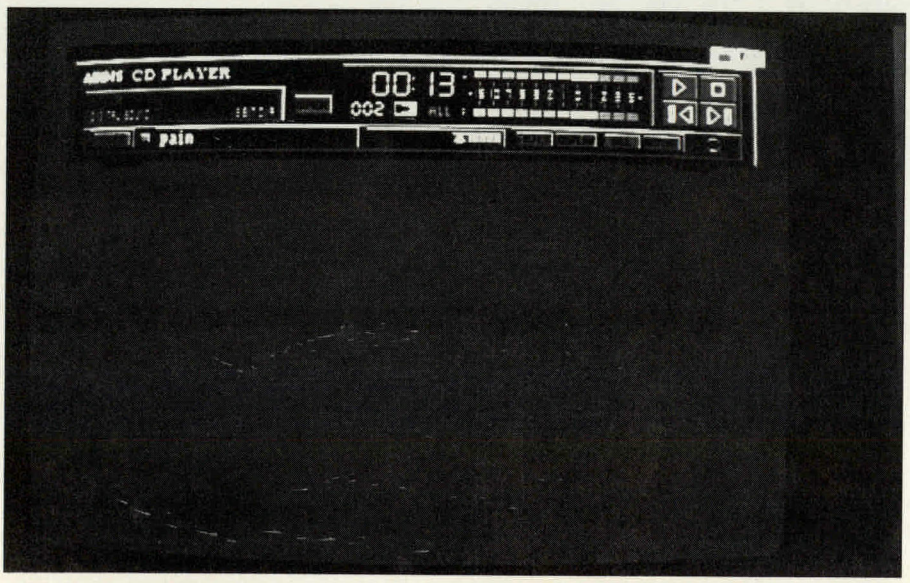
Graduates from the good old days of the '64 will remember the waveforms available to the programmer of the sound chip (SID) as being a sine, square, and sawtooth wave, or white noise (like an untuned radio). Figure 1 shows a graphical representation of how the amplitude of the wave varies in time, and before you go dashing off to dig up your old physics books, there is no need to panic as I shall limit the discussion to the bare minimum! The quality of the sound (or how it sounds to us) will depend on this waveform, and these characteristics were pre-programmed into the old SID chip. The Amiga is much more flexible in its approach to representing sounds in that you can specify any shape of waveform, and this is where the fun begins with regard to sampling.

OUR SOPHISTICATED TRANSDUCERS

In order to hear sound, we need to pass a voltage to some form of amplification system and speakers. This is an analogue system as the voltage varies according to the amplitude of the sound, and computers have major difficulties in coping with analogue signals, preferring the more convenient digital alternative. If we work our way back into the Amiga, we come across the "Digital to Analogue" (D to A) apparatus in the sound hardware. This converts a series of binary numbers from the RAM into a varying voltage which, when played through the speaker in the monitor, will represent the sound wave in a form we can appreciate using those sophisticated transducers we have located on either side of the head.

Now, how do we get the digital data into the Amiga? Enter the sampler, stage left. This, in effect, is the alter ego of the D





Continued from page 109.

to A device of the Amiga, in that it will convert an analogue signal from a sound source (and this can be almost anything from a microphone to a CD player) into the digital form stored in the computer. There are always alternatives and the other option is to calculate the data for the waveform in your program, but although this is really old hat nowadays, don't get the idea that the computer has no further role to play other than being an intermediate between analogue sound source and digital reproduction.

"The frequency of the wave is called 'pitch' by musicians, and we can easily manipulate it"

The essence of digital sound is no more complicated than already described and we can now examine the waveform in more detail to see the effects of varying different parameters. Firstly, the idea that the amplitude (i.e. height above the baseline, or physical loudness at that point in time) varies with time is central to understanding sound genesis, as the way in which this occurs will obviously effect what emerges from the speaker. The frequency of the wave is called "pitch" by musicians, and we can easily manipulate it to alter the sound's position on the musical scale. In fact, we have two frequencies to be concerned with, namely the recording frequency and playback, as they need not be the same.

The sampler takes a look at the amplitude of the waveform at regular intervals, and translates this voltage into a figure for the computer. This is represented by an eight bit number in the Amiga, between -127 and +127. The time which elapses before the next sample is taken is called the sampling period and you can see that the more often a sample is taken, the more accurate the representation of the sound, and also the more data is needed. For instance, if we wanted to get from zero (i.e. all quiet) to +127 (loud!), there a number of routes we could take, perhaps following the values along the sine curve, or going in a straight line as in the sawtooth. The ultimate in sawtooths (sawteeth?) would be the square wave where, for our purposes, the slope is vertical. The more data we can squeeze in between zero and +127 the better, particularly if we are not dealing with any of these basic waveforms.

DRUNKEN SPIDER

The beauty of sampling is that these constraining sounds do not limit us. Very few sounds in the real world consist of pure waveforms. Speech, for example, looks nothing like any of these (more like a drunken spider wandering over the page), but we've all heard the Amiga

Continued on page 112

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Continued from page 110.

speak, or sound like a violin, piano, trumpet, drum kit, aeroplane, racing car, Big Ben, Kylie Minogue etc. It all comes down to these simple principles, as does compact disc sound where the digital data is encoded on the disk; the player reads it and performs the same D to A maneuvers as the Amiga, albeit at a higher resolution so the sound quality is appreciably better.

"We've all heard the Amiga speak, or sound like a violin, piano, trumpet, drum kit, aeroplane, racing car, Big Ben, Kylie Minogue etc"

The limiting factors for sound quality on the Amiga are the playback frequency and the resolution of the samples. We usually talk about resolution with regard to graphics, and the term is equally as applicable to sound. A low resolution picture is not as informative as a high resolution one - lines, for instance, are obviously jagged as the computer must fill the pixels somehow. In sound, a low resolution will mean the presence of noise and distortion of the waveform, and there are many ways of reducing these to an acceptable level, at a price of course. The cost, just as with an increase in graphics resolution, is more memory to represent the increased data requirements. Thus, a balance must be struck between a readily recognisable sound and the memory used in storing it.

28,000 SAMPLES

It's now time to toss a few numbers into the arena, and we will start with 28,000. This is the maximum sampling frequency possible under normal circumstances on an Amiga. To translate this into English, it simply means that the hardware is capable of processing 28,000 samples every second, and passing them to the D to A converter. By way of comparison, a CD player works at a frequency of 44,100 samples per second (Hertz to be exact), but a CD player does not have to update a screen, look after disk drives, suss out what the mouse is doing, and so on. The limitation of the Amiga to eight bit samples also prevents it from matching the amazing sound quality of the CD player. Perhaps in the future this will be overcome and we can worry about taking on the Fairlight synthesizer with its 32-bit resolution.

We can see then, that every second of sound is going to take up 28K of memory at this frequency, and unless you have the new custom chip set with expanded CHIP memory, you are going to run into problems quite soon. Fortunately, there is very little need to use hyperspace as most sounds can be accurately represented at a fraction of this overhead. The problem of 28,000 being too slow can also be overcome by using specialist software and a processor accelerator board to increase the frequency to 56,000 Hertz, but this is clearly beyond most people, except maybe Jean-Michel Jarre!

AUDIOMASTER III

Having discussed what a sampler does, you may be forgiven for thinking that Audiomaster is some kind of sampler. Well, it isn't, but without doubt it is a most powerful tool for manipulating sound data to achieve some incredible special effects. Whilst not providing any hardware, Audiomaster will drive most of the samplers available, many of which are less than 30 to buy. The third release of Audiomaster represents a significant advance over the old version which has been around for some time. I am unsure about the current upgrade policy of the manufacturers (Oxxi), but I'm perfectly willing to go an ask them if someone will pay!

The screen shot shows the basic display of Audiomaster, and it is dominated by a graphical representation of the sound currently in memory. The obvious thing to do with this is to play it and this a simply a matter of selecting the appropriate gadget, drawn in the trendy, all-new, pseudo- 3D, Workbench 2.0 style. Nice, isn't it?

"A balance must be struck between a readily recognisable sound and the memory used in storing it"

Audiomaster III supports several of the main samplers on the market but is flexible enough to cope with virtually anything that plugs into either the parallel or joystick ports. It will power away at 56,000 Hertz, given a fast enough sampler and 68030 board; it worked fine with my 68000 and Sound Trap III sampler.

Editing facilities are both powerful and easy to use, the range function being particularly good in allowing you to effectively magnify the current area you are working on. You can then listen to this portion and the computer will move a cursor over the waveform as it is playing so you can pinpoint any part of the sound. You can then use the usual cut and paste facilities to edit out any unwanted bits, or add in samples from the copy buffer, rather like splicing tape, but slightly more precise.

The ability to play user defined portions of a sample over and over in loops provides an extremely simple way of lengthening your sound without incurring penalties of memory usage. You can define up to 999 such loops and turn perhaps 25 seconds of sample into a three minute song by playing segments repeatedly. It is a very effective addition to Audiomaster, and seems to be the mainstay of pop music so who knows, you could be up there on Top of The Pops with just your A500 and a few dancers!

"Audiomaster III supports several of the main samplers on the market but is flexible enough to cope with virtually anything that plugs into either the parallel or joystick ports"

The special effects department is where Audiomaster really scores, and the benefit of storing your sound as a sequence of numbers becomes really apparent. Numbers are amenable to manipulation by the computer, allowing echoes and delays to be added to the sample. You can easily define the number of echoes and how they decay to vary the effect.

The ability to re-tune the sample to another frequency is particularly useful if you are generating instruments for music programs like Sonix, and Audiomaster is well equipped to handle this job.

The volume of the sound can also be manipulated so that whilst maintaining the sample quality, you can fade in or out, without having to fool about with the hardware controls. Since the volume is coded into the sample, the big advantage is that any other instruments also being played are unaffected.

Mixing waveforms mathematically is an excellent way of freeing up sound channels, and as long as they were recorded at the same frequency, Audiomaster will do the job for you at the press of a button. You can even add a kind of "reverb" to give more depth to the sound, a sort of artificial cathedral echo!

Another new feature is the echo and delay in real time. As your sound is being sampled and played through the Amiga, Audiomaster will add in these effects, so you can experiment. This is more for fun than anything practical, but listening to your voice echoing does give you delusions of Divine grandeur. Adding a delay to the sound, whilst listening on headphones is quite entertaining as your brain gets confused by you trying to speak but hearing what you said two seconds ago. Eventually it gives up and the results are pretty amusing at parties.

Saving samples is worth a mention as Audiomaster supports a number of formats. On a computer with a supposedly

Continued on page 120

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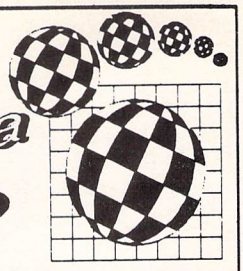

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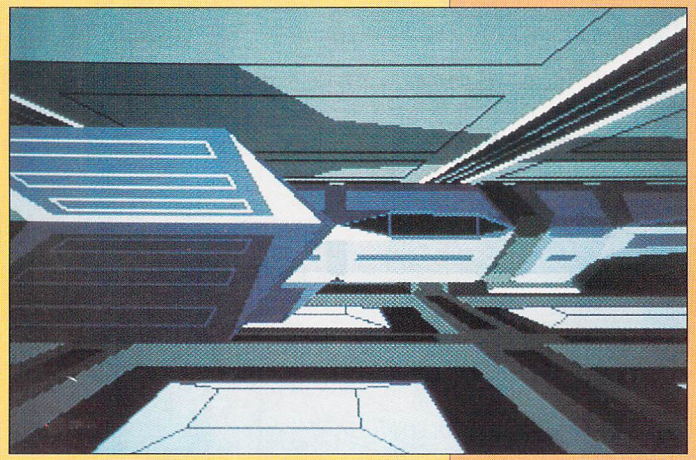
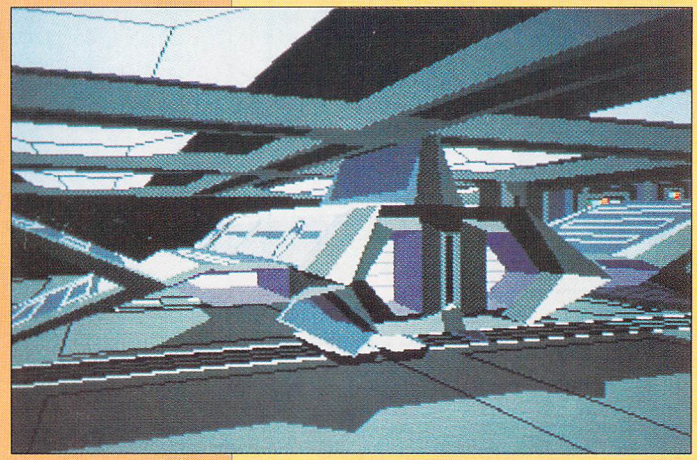
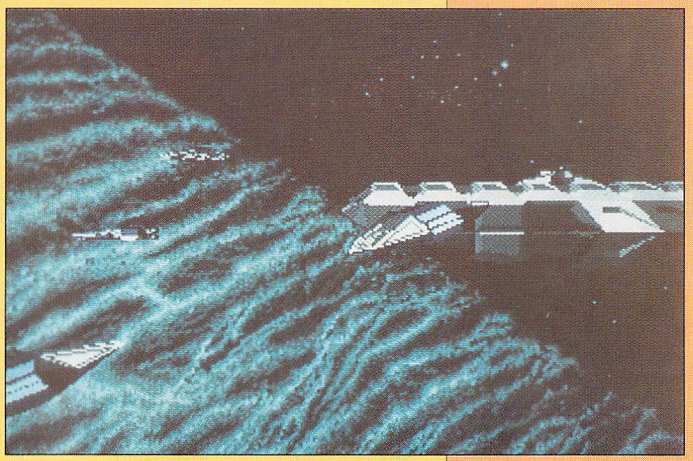
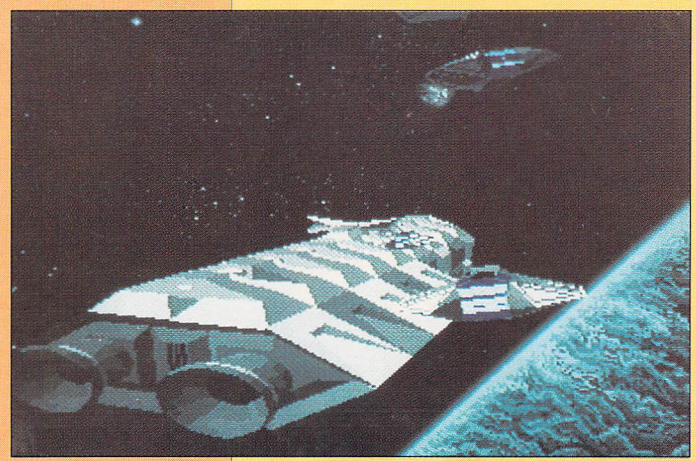




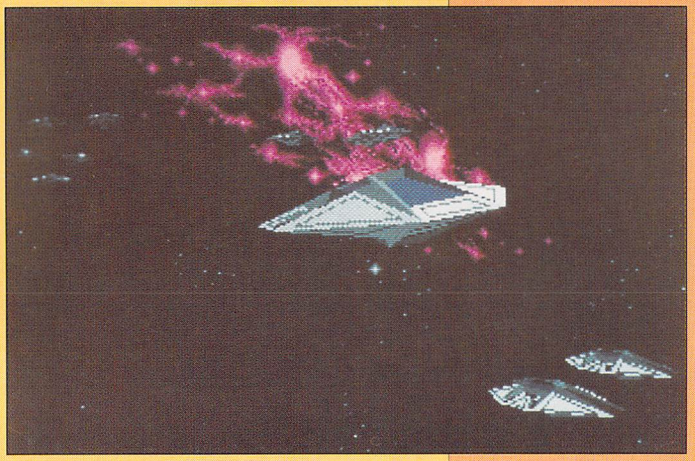


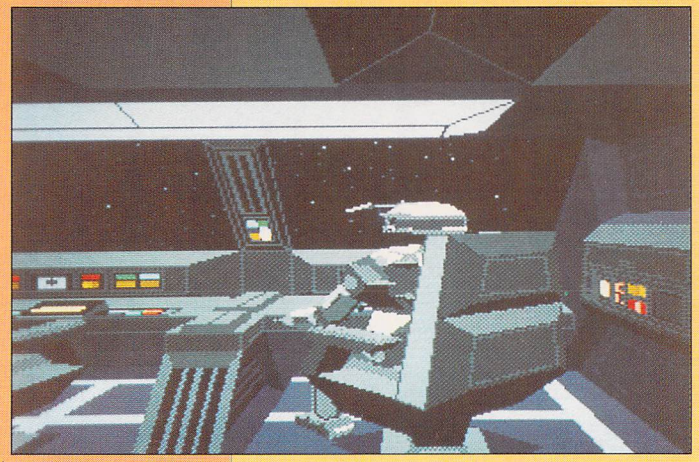


DEMOS — The Amazing Brilliance of James Robinson

When the Amiga came on the scene in the mid 80's it became the obvious machine for all us budding video artists, musicians and anyone else interested in the arts. Its fantastic graphical ability never ceases to amaze and our constant appetite for the amazing is satisfied by some very clever programmers who keep on producing amazing demos!

One such clever gentleman is James M. Robinson from across the 'pond' who has produced two demos of outstanding quality and atmosphere. The first is called AUTOMATED LIGHT, but it is on four disks and requires a three (yes 3!) Mb amiga to run it. Being lucky enough to have such a machine, you will be treated to a scene reminiscent of 'Battlestar Galactica' with fully rendered 3d ships flying around with incredible speed. The scene then changes to inside the mother ship with a brilliant robot falling back into his chair and spinning round. I won't tell you the whole scenario but if you get a chance to see this one don't give it a miss.

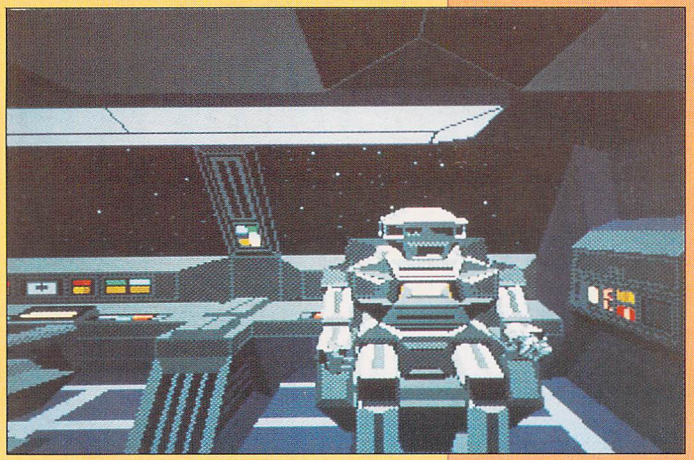


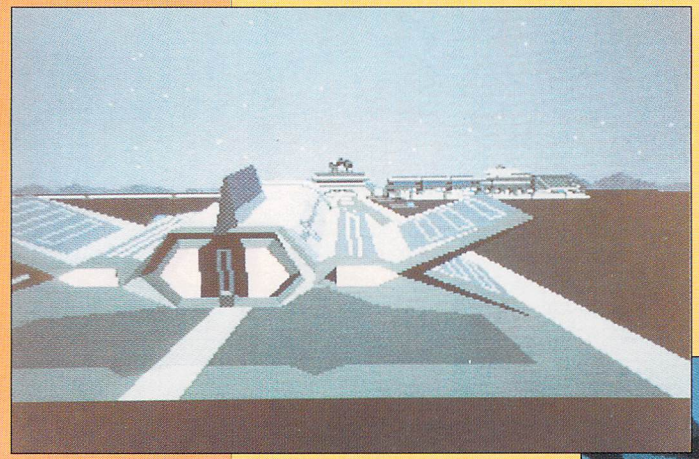


The second demo from James Robinson is called KHERIN, and from what I can make out seems to be a continuation of Automated Light. This starts on a planet surface with mining ships patrolling about a landing area. With one of the ships from 'AL' coming into land. This demo isn't quite as long as Automated Light and comes on three disks, but you will still need lots of memory to see Kherin.

Both demos were created are not very long but what they lack in length they gain in quality. They were produced using a combination of Dpaint 3, Sculpt Animate 3d and some serious number crunching! If James Robinson could produce a game of to this quality and depth, with this kind of atmospheric scenery you could want for nothing else. So if you are reading this James Robinson - Get Cracking!

R.G.





These P.D. demos come from
Premier Software, P.O. Box 3482
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Amiga Answers

Andy Eskelson searches out the answers to your tough technical questions

Dear AUI,

I am a fairly dedicated Amiga user, and having ungraded from a Commodore 64 I can now see exactly how much of a bargain it was that I got.

I have recently begun leaning C from a book by Abacus, called Amiga C for Beginners, and I am processing slowly, and I have had an idea for an animation, which uses IFF pictures.

I am fairly well acquainted with the Delux Paint series and own all three, and these are what I am using to produce the screens, and I have found that 1 megabyte of memory is not enough for me to be able to use the animation on DPaint III. I have however tried using Fantavision to do the animation, as I had intended adding sound to it, and this works well as I have friend with Mastersound and I can get him to do all the sampling that I need, but the problem still lies with the memory, I will need to fit about 60-70 DPaint screens into memory, or at least onto a disk if I use the animation from DPaint II, but if I use Fantavision I have to draw all the objects by hand and just load in the backgrounds from DPaint, which is a slow and inaccurate process as I cannot get the detail I require.

So after that long piece of text I shall cometo the point of the letter.

What do you think I should use to do the Animation, as I find Fantavision a bit too limited?

I would not mind buying a new program, but I cannot afford to spend too much on it.

I was also wondering if there is any good PD animation packages as I am on a bit of a limited budget!

The animation by the way is of a skydiver, but his drop goes horribly wrong!

Daniel Lyon,
Over,
Cambs.

Dear Daniel,

Mmm digitising a sticky splat should be interesting!

I do not know of any PD animation programs, but there is a lot of PD disks about, a look at some of the catalogues might turn up something.

Graphics and memory are always a problem. You really need a hard disk to do anything serious. The 'normal' way to do things is to record your animation on videotape frame by frame.

There are several cartoon drawing programs about, if your project cam make use of that then that will use less memory.

It might be worth looking at Photon Paint II. This is an excellent paint package that has its own Anmi. system built in. The demo file of a running horse (10 frames) takes 10K of disk space, so you might be able to fit 30 or 40 frames into memory, remember that you will need to fit the sound in as well. The Photon Paint Anmi. system uses a compression system to reduce the memory requirements, the only problems is that I do not know of stand alone player program.

One other program to have a look at is Real-Things, unfortunately I do not have any information to hand, but it has been reviewed by several mags. including AUI so look through your back issues.

Dear AUI,

I was interested in your test of the Okimate 20 in Vol 4 No 6. . . could you please help me?

I have a Tandata TP20 (an Okimate 20 with a different label on the front) supplied with a Tandata TD 4000 viewdata terminal. I use this printer with both the Tandata terminal and the Amiga 500 with the preferences set for the Okimate 20 very successfully.

I would like to know:

1) if I wish to print in colour would I require a different control module for the printer and where would I get one?

2) The instruction manual supplied with the TP20 has only 16 pages and is very basic, where would I get an Okimate 20 manual?

3) Is there any software so that I can use the Amiga with the Tandata TD 4000 modem?

Chris Redfern,
Fornham St Martin, Suffolk.

Dear Chris,

Providing Tandata have not had a 'special' made of the printer then all that you need is the colour ribbon, and to select the colour option in the preferences printer option screens.

Try Diamond Computer Systems Ltd they may be able to get hold of a manual.

The TD 4000 normally runs at 1200/75 bps, about the only software that I know of that runs at this speed is the Rubyview software by Y2 computing. That is a Viewdata package. Also note that many BBS systems do not support 1200/75. I do not know if the TD 4000 modem will run at 300/300, again it depends if it is a special build.

Dear AUI,

When I try to make a colour Print of a picture with a white background using DPaint II my LC10C printer insists on also printing the red green and blue dots on the monitor. Is there any way I can stop this and just print a picture in the middle of a white piece of paper.

Mr D Bosomworth,
RAF Wildenrath.

Dear Mr Bosomworth,

I can't see any reason why that should happen, Photon Paint works fine with the LC10C, without the RGB dots appearing. Make sure that you have not got any of the fancy Prefs. options turned on as these can sometimes cause problems.

Also check that you are really painting onto a WHITE background, a slight shift in shade away from white will create the problem that you have.

Dear AUI,

I am in the process of trying to evaluate a fascinating business project for a client which is based around an application for high resolution computer graphics, but I seem to be thwarted by lack of information and I'm hoping that you of a member of your staff may be able to assist with the provision of some!

The particular application, which may well be interest to AUI when up and running is to be able to produce computer art of high enough quality, especially in terms of resolution, to be able to print and sell framed copies without it looking too obvious that it has been produced on a computer. A Quantel Paintbox is out of the question costwise, hence the Amiga.

We wish to be able to digitise full colour images from a broadcast quality PAL video source (preferably, although at a push S-VHS resolution will just about do) into an Amiga B2000 computer which is fitted with the latest chip set, * meg of ram and a 68030 co-processor, display the frame grabbed image on a high resolution monitor and then manipulate the image using some form of paint software, perhaps after mixing with stored images from disk.

The resultant image then has to be converted to the NTSC format, which I

believe can be done on the latest version of the Amiga, for sending to the output device, which will only accept NTSC signals, for printing by a high resolution 400 x 400 dpi colour printer, which is in fact a modified Canon CLC500 colour laser copier, which can itself perform some very high quality graphic and colour manipulations.

I have approached both Commodore themselves together with several of their approved dealers for information on suppliers of suitable hardware in the shape of digitisers, hi res video boards/monitors and compatible software, but to little or no avail! Whilst verbally everybody agrees that technically there should be no problems and that suitable equipment is manufactured, trying to get hold of specific product information, suppliers and literature has proved seemingly impossible,

What I'm therefore after, if indeed you can help, is some information on the makes and sources of real time colour digitisers which have a resolution at least that of S-VHS and preferably broadcast quality, which I can use to input the signals to the Amiga suitable High resolution, at least 1000/1200 x 7/800 pixel video cards and monitors on which to display the image and suitable software with which to manipulate the image id indeed normal painting software such as DigiPaint 3 won't work with such High res images and external video boards and monitors.

If this business becomes established I'm sure that many of your readers would perhaps be interested in a article on the project and I'm sure my client would have no objections to that.

Ian W. Sawyer,
Birmingham.

Dear Ian,

Well good luck with that project! I can understand your problems, many suppliers would not understand S-VHS quality, let alone Broadcast quality! Now if I remember my TV correctly isn't the standard something of the order of 400 black/white transitions per line and 312.5 lines vertically (625 lines interlaced)?

VERY few digitisers will meet this standard especially the odd frame corrections that must be inserted to meet the PAL standard.

NTSC only has 500 lines or so vertical resolution, so I think that you might be stretching the spec a little to get the final resolution that you want.

There is only one product that I know of that will meet your main requirements and that is the Video Toaster by NewTek, the first units should be shipping about now. It is expensive but it is broadcast quality. The only problem is that it is NTSC so you will need a PAL-NTSC converter. This one product has the paint package and works with 24 bit colour (16 million colours) with a resolution of 768 x 480. The screen is a virtual canvas so you don't have to have a really expensive hi-res monitor to do the editing on. The full display can be shown on a separate monitor once it is transferred to the frame buffers on the Toaster.

This hardware/software is NEW, but it has been making rumours for about eighteen months or so, and by the look of things it is every bit as good as predicted.

Dear AUI,

On September 1988 you did a program of BOBs These BOBs are only 16 pixels of width BOBWIDTH = 1. when I tried to do bigger the computer switch off I change the BOBWIDTH = 2 and I change the datas (I put double of datas) whats wrong? please tell me how I can put a bigger bob.

My other question is how can I change the fonts in the Amiga? There is the structure TEXT FONT but there are a lot of things I don't know. After that what instruction I have to use. Put me an example of this instruction, is it setfont?

Andres Valles Botella,
Spain.

Dear Andres,

I've looked through the September 1988 issue of AUI and I can't see anything that refers to BOB's, not anything with the variable BOBWIDTH. However that issue has the very thing that you are looking for. Page 62 has an article by Giulio Zicchi about the blitter complete with a machine code example.

Your second problem is not an easy one to answer. There is a large number of things that you can do with the fonts, there are the romfonts and the diskfonts to consider. Pages 395 - 491 of the Rom Kernal Manual Libraries and Devices (ISBNO-210-18187-8) will give you all the information that you need. Briefly you need to set up an IntuiText structure, which has a pointer to a TextAttr structure. You can also use the OpenFont (), SetFont (), CloseFont (), and OpenDiskFont () routines.

Dear AUI,

Congratulations on being the best Amiga magazine in the world (probably). Well, that is the crawly bit out of the way, now I wonder if you can help me? Its my wife, she doesn't understand me, or more to the point she doesn't understand how I could persuade her to sell our little citizen dot matrix printer and shell out over £1700 on the latest Rank Xerox 4030 laser printer. At this point I must add that her indoors runs a business printing & photocopying and buys all her office equipment from Rank Xerox hence the discount on the 4030 (RRP 2100 + VAT).

Now to the real point of this letter (written on kindwords 2 and printed using the EpsonX driver) as you can see the quality is fairly decent. I can use Dpaint 2 and Photon Paint 2 and understand the more basic operations of the Amiga (I had to copy the driver for HP Laserjet from Workbench 1.3 to Dpaint 2). The reason for purchasing a laser printer was to use the power of the Amiga & the quality of the printer to expand into graphic design and DTP Shock Horror – try to print in anything other than its resident fonts and the result is typically dot matrix awful blocky lines (except horizontal or vertical) if you want to print out the printer in 16 shades of gray the result isn't so bad, in fact it is more rewarding, however fine lines.. forget them. Could you answer the following questions for me bearing in mind that my system consists of an A500 Dual 3.5 inch drives 1/2 meg memory expansion:

1. Is it worth investing £350.00 for a memory expansion for the printer (for full page bit map facility, whatever that is!)
2. Am I trying to push the Amiga too far.
3. Is the software too limited and if so what kind of package do you recommend.
4. Would a better printer driver help, if so do you know where I can get one.
5. Is it time to chuck out the A500 and get an apple mac or something.
6. What am I doing wrong.

Andrew O'Rourke,
Haydock Merseyside

Dear Andrew

You have got a nice bargain there!

Lets take the blocky text first. . .

There are several fonts in the Amiga, all of them bit mapped. That means that they look like dot matrix fonts. There is nothing that can be done about that. If you print with these fonts then you get exactly those fonts, so there is nothing wrong there.

The printers memory: well if you are going to print a COMPLETE page of graphics, the printer MUST have the memory to hold all of the graphics before it prints them. That is a fundamental of laser printers.

Smaller graphics will fit into the memory without any problems so for the odd logo you will have no problems.

You should be able to answer the memory expansion question yourself now.

You are not pushing the Amiga at all, its your software that you are pushing.

The driver could be a problem, laser drivers float about the PD libraries from time to time, and the best way to find out is to keep up to date with the catalogue disks. It all depends on what emulations the Xerox has. If it works as an HP Laserjet, leave it alone, that's a fairly good driver.

Don't chuck the A500, macs have a serious problem, they cannot emulate Amigas! but Amigas can emulate macs and do it faster!

Your real problems are with the software. What you need is a professional DTP package. Look at Pagestream, Professional page, and professional draw. That will cure most of the problems, however you do have a lack of computer storage and memory. To overcome this problem investigate the 590 20 Mbyte hard disk unit. This can also be fitted with 2 Mbyte of expansion memory.

Another thing to investigate is the postscript system. This is a means of sending the data to the printer in a format that is not limited by the resolution of the output device. Postscript printers are expensive, but there are a couple of postscript drivers about that put the postscript power into the computer and allow the use of any laser printer.

If you want to have a play about get a copy of Pagesetter 2 its fairly cheap and it will run within limits on your system, and it does produce some very good output. I use it with an Epson SQ2550 24 jet printer and the quality is almost print quality on that! and it will give you an idea of what can be done.

VORECONE IMPULSE

Talkie-talkie-talkie Happy-Talk is what Bloody Mary says in Bali Hai. But, not quite so friendly, the Amiga finally tells Pat Kelly where to get off!

During the early to mid-eighties the movie Firefox introduced the concept of voice recognition systems to the then ignorant public. The Firefox was a fictional state-of-the-art Soviet fighter aircraft which was stolen then flown to the United States by, the boys' own hero, Clint Eastwood. The storyline of the film was based on the aeroplane's reaction to vocal commands, and, so, its pilot had no need for physical control over the fighter jet. The impact of the movie was intensified as Clint calmly ordered the fighter to "raise gears", "speed 500 knots", "altitude 20,000 feet", "arm missiles", "lock on target", and "Fire!".

Other futuristic fantasies have also made us aware of what is in store for us in the future. Imagine homes of the future where vocal commands such as "Lights On, 70% bright", "TV on, BBC1 until 7.00pm, then BBC2", "Heating 18 degrees, boost for 10 minutes" will be used. These are concepts that we, and our homes, are going to have to get used to if we are to keep up with technology.

Voice recognition is not a new concept in the field of micro-computing. The technology has existed since the late seventies, but now from the States comes VoRecOne - Voice Recognition One, for the Amiga. VoRecOne has been designed by Impulse, a company who have brought this future technology within the grasp of many Amiga users.

SOFTWARE DRIVEN

The VoRecOne package comprises a small "black box" which plugs into the joystick port, a microphone which plugs into the "black box", a system disk, and an eighty-page tutorial and reference-guide manual.

VoRecOne initially gives the impression that it is a hardware addition for application software, and once set-up can be implemented into the necessary application. However, it is not only hardware orientated, and is mostly software driven via the Voice language, which runs as a background task while other applications run under Voice commands and supervision.

Sound passes through the microphone into the analog-to-digital converter (the black box) and finally into the joystick port as a digital signal, i.e. a sequence of numbers. The VoRecOne Voice software runs off interrupts, as is all multi-tasking programs, and during its allocated processor time is constantly scanning the joystick port for recognisable signals. All signals received must be compared with pre-defined sound signals and if the input signal matches a signal which is stored in Voice's vocabulary then a sequence of actions/commands, which are associated with that signal/word, are executed.

SETTING UP

The set-up could not be easier - plug the hardware into the joystick port, switch on your Amiga, boot with the system disk, and activate the "Voice" icon to run the program. The tutorial explains what is required to install the system program onto hard disk, and VoiceRec can also be entered from the CLI.

The Voice program is an icon-based driven system with six primary commands in the main menu. These commands are; **LOAD, SAVE, EDIT, TRAIN, TEST, and USE.**

LOAD and **SAVE** are self-explanatory, both refer to the pre-defined vocabulary/database of words, their sounds, and the actions to be executed on recognition.

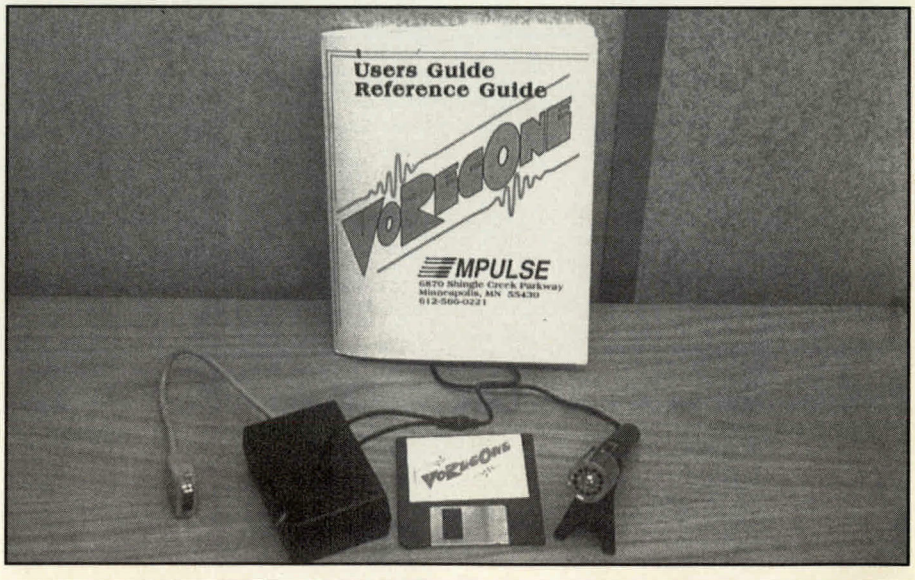
EDIT allows words to be entered on the left portion of the Voice window and their corresponding actions to be entered on the right portion of the window. Words can be nested similarly to directories where recognition of a word allows the user to action a specific set of words. As many actions as required can be associated with a word, and it is easy to start a sequence of events using one word. Actions make-up the VoRec programming language and allow most of the Amiga's functions, including simulated keyboard and mouse input, to be accessed.

All voice recognition systems rely on comparison between known words or sounds and the spoken word/sound. Each word which is to be recognised must therefore be **TRAIN**ed. When using the **TRAIN** function the system asks for the user to "say" the required word twice. Once for recognition, secondly for validation of continuity.

Voice will save the sounds, that relate to the word, in a vocabulary database which will also contain the list of actions for that word.

TESTING ONE-TWO..TESTING

Very rarely will all the words that have been trained be instantly recognised by the system. In anticipation of this, Impulse have included a TEST function which allows the user to speak into the microphone while the system highlights which word it thinks has been said. This function is very useful and highlights the words which sound too alike and need re-training. In

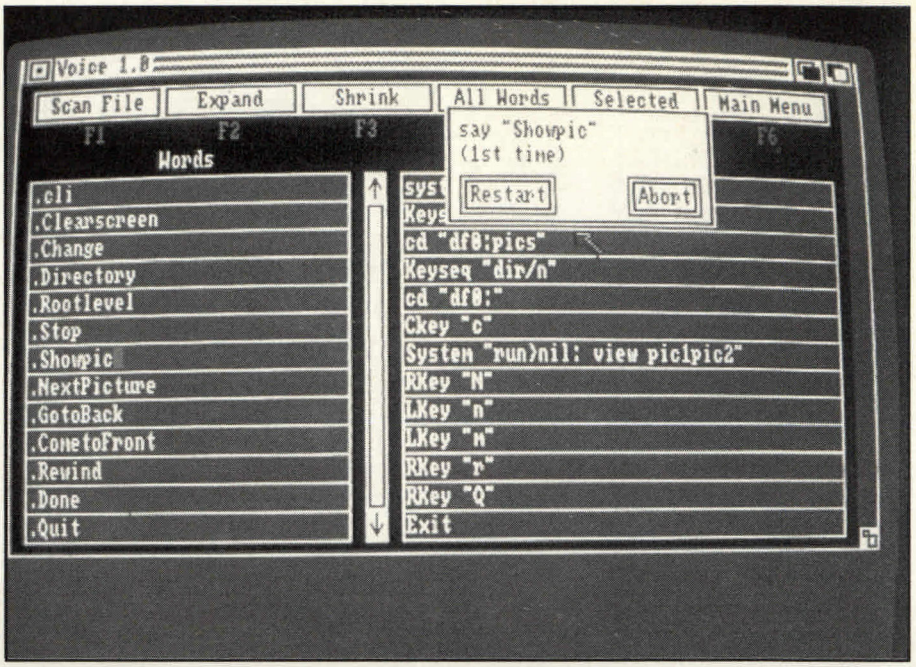


some cases it was found that some words had to be changed completely i.e. from "stop" to "halt" in order for them not to be mixed up with another similar sounding word e.g. "flop".

Although it initially proved hard to train a large number of words, the ease of the system allows re-training of any word in a matter of seconds and it is relatively easy to build up a large vocabulary of recognisable words which will not become misinterpreted.

Once the final word vocabulary has been trained and saved the system is ready to run. An example taken from the manual was to open a CLI window and to control the disk directory by using the vocal commands "CLI", "Directory", and "Rootlevel", with "Quit" being used to `endcli` and EXIT, which returns control to VoRec. A picture slideshow was activated from the CLI example with the commands "ShowPic" and "NextPic".

The procedure of **EDIT**ing and **TRAIN**ing needs only be set up once for each application as the next time VoRec is used with an application ready-saved parameters should be available.



EXTRA MEMORY

Bearing in mind that VoRecOne must be run from the Workbench or CLI, and any application which uses its functions must be run from Voice, the system software, extra memory will be required to run applications such as wordprocessors, art packages, databases etc., etc.. Although, with extra memory upgrades available for as little as #25.00 then those seriously interested in VoRecOne should not be too inconvenienced.

VoRecOne's biggest asset must be that of its concept. It is by no means a necessity, but it can be regarded as a pleasurable extra luxury as well as being state-of-the-art technology. For instance, while using an application the vocal command "Save" can diminish the need for mouse control. How many would-be pilots are put off flight simulators because the keyboard controls are too complex. Commands such as "Gear up", "Flaps down", and "Increase power" to name but a few can save the user much complexity.

To be as useful as it is Voice incorporates a language similar to that of the AmigaDos commands. It is therefore quite possible to write custom-made applications which don't require the use of other applications software and subsequently do not require extra memory.

IMAGINATION

The developers claim that the only limitation of VoRecOne is that of the user's own imagination. In theory, VoRecOne can do almost anything that the standard Amiga interfaces are able to achieve.

If VoRecOne is purchased with the knowledge that it is basically another interface, similar to the keyboard or mouse, and that it will not always be suitable, but may always be useful, then it will provide hours of discovery and convenience for many Amiga enthusiasts.

P.K.

Price: About £80.00
Contact: PULSAR,
Erlanger Str. 8-10, 5000 KOLN 91
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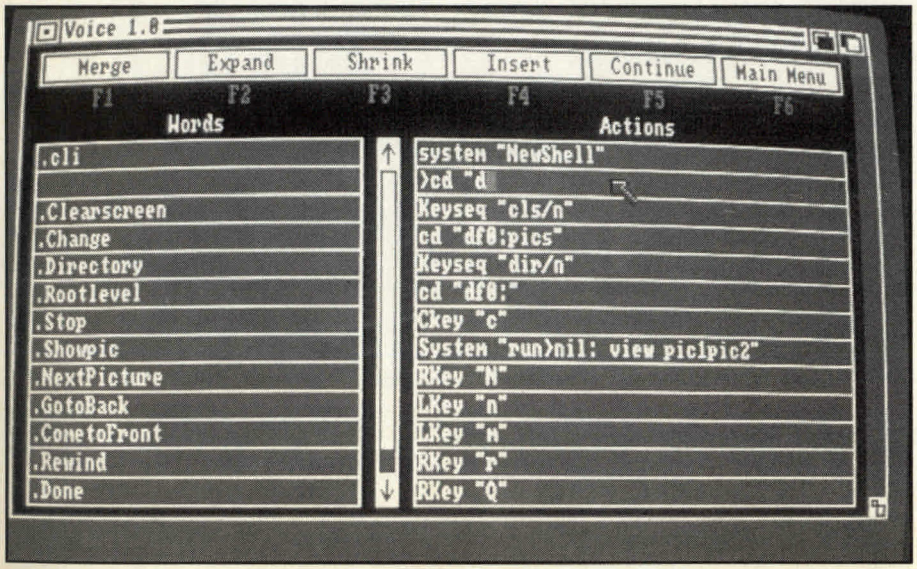
Fax: (022)87 41 89



SPEAKING TO THE VIRTUAL FUTURE

When the term Virtual Reality is mentioned most people think of equipment associated with sound and vision, namely the cyber-helmet which provides simulated real-life environments. Many people may also be clever enough to think of the cyber-gloves which respond to the hands' movements to interact with the display helmet. Not many consider the ability to speak to the environment in which they can do everything else as normal.

In the early days of adventure gaming and system controls the text parser used was limited to one or two words - similar to the current ability of Amiga voice recognition. Text parsers are now very complex and allow for whole sentences to be understood and converted into computer commands. The ability of voice recognition systems to recognise verbal sentences is not far away and the text parser will eventually be used to relate to voice inputs. It is because of this that text adventures, such as Magnetic Scrolls' Wonderland, which use complex text parsers not only be regarded as mere games, but also as examples of forward moves in the progress of computer technology.

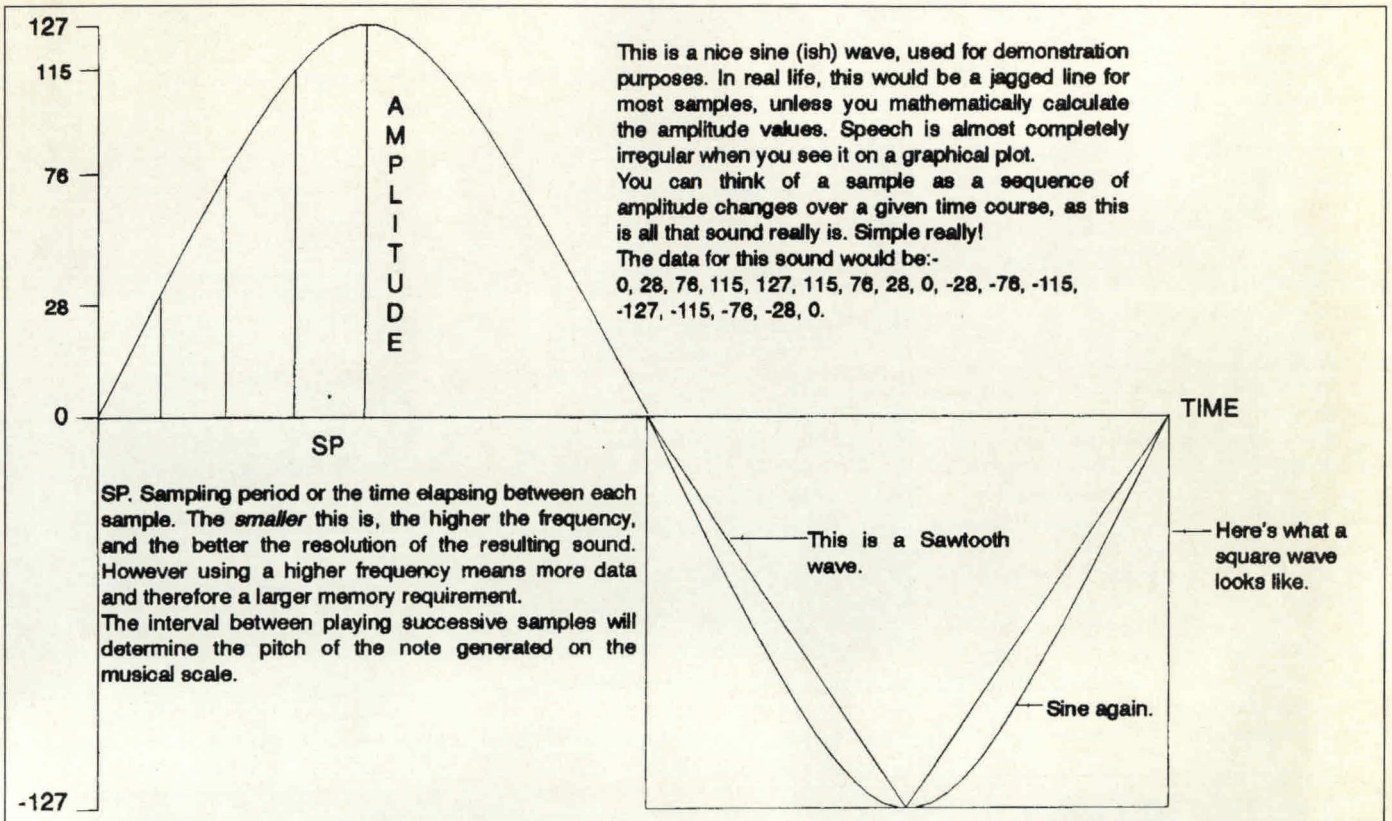


Figure 1. A diagram to show how a waveform is composed of a series of amplitude changes that build up into a sampled sound.

Continued from page 112

standard file protocol, it may seem strange to require different save options. For some reason Sonix, one of the more popular music programs, uses its own data formats for samples and music scores. Since Aegis supply both programs, Audiomaster will read and write both Sonix and standard IFF files, a handy means of converting data between software as many other programs (especially PD stuff) use the Sonix format. Audiomaster also supports file compression to effectively halve the storage requirements for the data, and a special Hi-Fi mode which preserves the quality of the sample when saving different octaves.

"You can even add a kind of "reverb" to give more depth to the sound, a sort of artificial cathedral echo!"

The manual is very good indeed, a veritable gold mine of useful information about how to get the best out of your hardware and Audiomaster. One or two of the features are not particularly represented in the manual but on the whole, it seems comprehensive.

Also included in the two-disk package are some nice examples and a few useful utility programs. The CD simulator is a fancy way of playing samples, although it is fairly limited to just cycling through up to twenty sounds. There is very little control about how this occurs and the delay between selecting a sample anything happening precludes its use for the live work I talked about last month, but it is quite a neat program.

"You could be up there on Top of The Pops with just your A500 and a few dancers!"

Audiomaster III is a superb product offering a wide range of useful, powerful functions for manipulating samples. It is easy to use and capable of handling large amounts of data without waking the Guru, and will be invaluable to both professional programmers/musicians and amateurs who just like messing around. Highly recommended.

M.N.

Contact: Oxxi, Inc.,
P.O. Box 90309,
Long Beach,
California,
90809-0309.
Price: £65.75

MASTERING THE AUDIO WITH AUDIOMASTER III

WRITE TO REPLY

This is where you get your chance to speak – or write – your mind about what's bugging you – or your computer. Bud Vennos fields the bouquets and the brickbats.

Dear AUI

My 9 year old son has an Amiga A500 and Star Micronics LC10 colour printer I understand that the two have to be "set-up" to work properly, which from the manuals has defeated me. In addition, he is not sure what to do to progress beyond playing the games that come with the starter pack.

In summary, I am trying to find someone who can come round to the house and as a one-off set up the Amiga/printer and then on an on-going basis come round say for a couple of hours a week to give tuition on the whole Amiga system.

Hours etc to suit, and it will be on a payment basis – it would suit a local enthusiast who fancies some beer-money.

I very much hope you can help.

John Reynolds
London

Dear John Reynolds,

We would recommend you contact the Amiga User group or ICPUG. These are both groups whose knowledge and helpfulness is outstanding. Their telephone numbers are Amiga User group 0533 510066 and ICPUG 081 346 0050. If anyone else is interested in aiding John Reynold's son, please write to AUI and we will pass the correspondence on.

Dear AUI

I've owned an Amiga for around two years now, during which time my old C64 has been sitting quietly in the corner, in retirement as it were. A couple of weeks ago I had it fixed, and ever since it's taken over as first choice whenever I fancy a decent arcade game.

One thing that struck while I've been using the 64 is how conveniently compact the tapes and their cases are. Most of the older games are single tapes in the kind of cases used my music tapes, no bigger than necessary. A few of the less-crumbly 64 games are in double-cassette cases, but even these are relatively compact when compared to my Amiga games. Although Amiga disks are roughly the same size as tapes, the boxes they come in are ludicrously over-sized. Fair enough, some of these come with bulky manuals or novellas, but these are usually just a way of fooling the customer into thinking he's getting better value for money than he really is.

As there's no standard size box, you can't even stack them properly. The computer set-up takes up enough space as it is, so I find there's no alternative but to bin the boxes, leaving a mess of homeless manuals and instruction cards. Obviously the idea behind the big boxes is that they attract your eye from the smaller packages on the shelf. Maybe the chain stories could introduce a policy of not stocking games with boxes over a certain size. Something needs to be done, as the whole thing is getting out of hand.

Robert Holdsworth
Manchester.

Dear Robert

We know just how you feel. These boxes have a tendancy to accumulate on any horizontal surface, on the floor, the desk, the monitor, the printer, the list is endless. Before you know it you're snowed under with empty boxes. Part of the problem seems to be that there isn't a widely used compact case for 3.5 inch disks. If someone came up with a decent design, and used the compact size as a selling point, things may begin to change. Funny, we always though computer development was all about miniturisation.

Dear AUI

The piracy debate has been going for years, but there's one vital point which seems to have been missed by all who've had a say. There's a belief among software houses it seems, that there are two types of computer games those who only buy original copies, and pirates. In my many years of computer gaming, I've never once met anyone who fits into either category.

It sounds stupid, but I believe software houses actually benefit from piracy. The vast majority of European software houses produce games for computers rather than consoles. Home computer owners far outnumber the console-users, even though the console games are generally of a higher quality than those around for computers. One of the major factors that swung the balance in favour of my buying an Amiga in preference to a Sega Megadrive or PC Engine, was the availability of pirated software. Buy a console and you're limited to one game for every £30-£45 you spend. Buy an Amiga and you can spend that same amount on an original copy of a game (with a fair bit of change), and stock up the rest of your collection with pirate copies.

If myself and my many computer gaming friends are anything to go by, people will spend what they can on originals, and then gratefully accept any pirate copies that come their way. If this is the case, which I'm sure it is, then the software houses aren't losing any money. Someone may acquire five pirate copies every month for example, but there's no way the average man in the street (let alone a school kid) could afford to buy that many.

With extremely tight controls enforced by the likes of Sega and Nintendo on who can and can't develop software for the big consoles, without the home computer market, 99% of European software houses wouldn't exist. Of course I don't expect them to admit to the public that piracy helps keep them afloat, but nonetheless they should admit it to themselves.

Nigel Langford
Dorset

Dear Nigel

The idea that the computer user-base would be far smaller than about piracy is really not that far-fetched. With software released on floppy disks, piracy is never going to be completely unpredicted, but it much be kept down to reasonable levels, otherwise it could work the other way, killing off the industry altogether.

Dear AUI,

I have had an Amiga 500 for several months and have enjoyed the superior graphics and sound capability which it has over all other personal computers. I write to ask your view on the new "super" console the market. They seem to be taking the UK by force and all of the software houses seem to be dropping "conventional" computers for consoles.

Peter Clarke
Manchester

Dear Peter,

*Although consoles seem to becoming the rage I don't see them becoming such a force that software developers will drop development of Amiga products. You wrote your letter useing a wordprocessor and must have access to a printer, you may even own one. This typifies the current growth in computer usage, and as any **AUI** reader will tell you games are not the only reason people by their Amigas. While consoles may kill lesser computers – used only for playing games, the Amiga should be around for many good years to come.*

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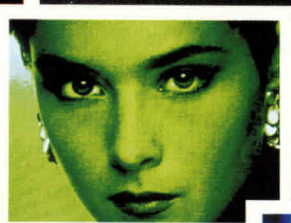

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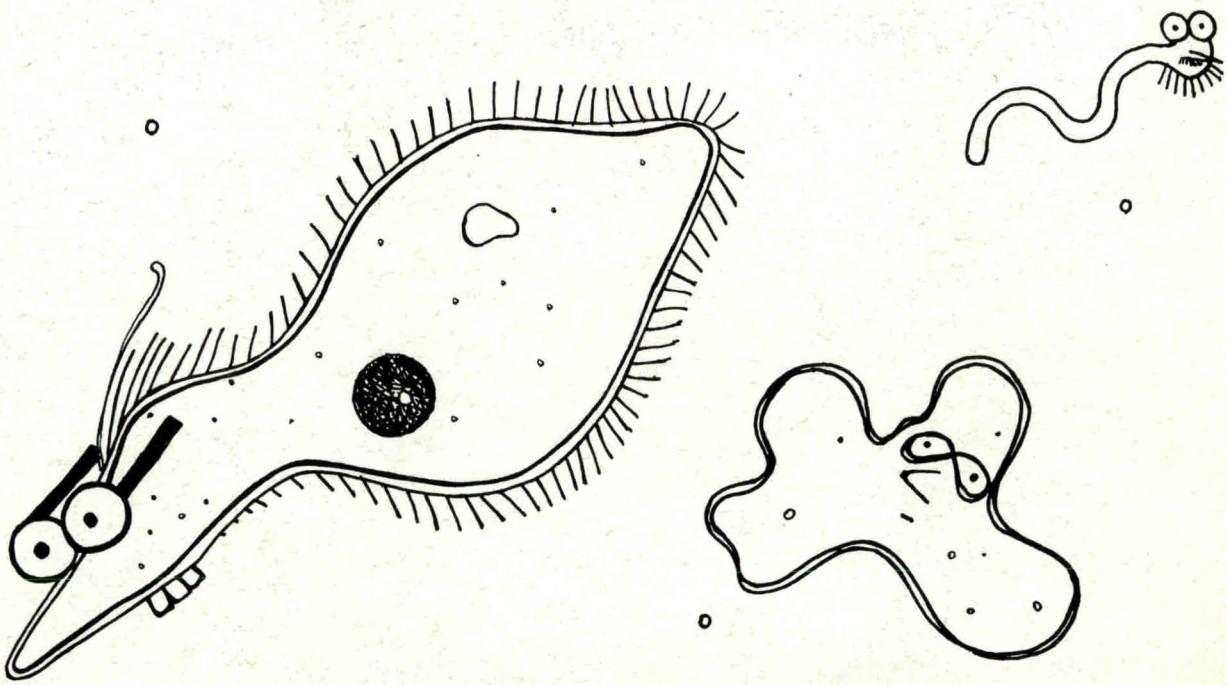

Protozoa, for example, have very little need.

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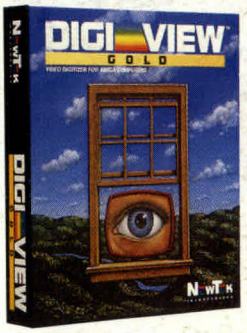

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