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ST AMIGA FORMAT
ISSUE 6
DECEMBER 1988

PUBLISHED BY
FUTURE PUBLISHING LTD
4 QUEEN STREET
BATH
AVON BA1 1EJ
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Fax: 0225 446019

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Portishead, Bristol,
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Telephone: (0272) 842487

PHOTOGRAPHY
Ashton James, 4 Saw Close,Bath

PRINTERS
Chase Web Offset,
Plymouth

DISTRIBUTORS
SM Distribution, 6
Leigham Court Rd,
Streatham SW16 2PG

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ST AMIGA FORMAT

The complete package for Atari ST and Commodore Amiga owners

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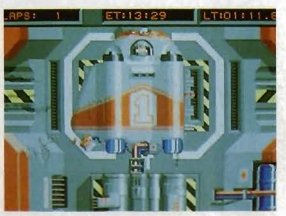

News of what's coming, Format Gold raves of *Powerdrome* and *Rocket Ranger*, the knockout challenge between *Battle Chess* and *Colossus Chess X*, plus reviews of *Speedball*, *Driller* and *SDI*.

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IMAGE MAKERS

How does a company market itself? Take Commodore and Atari at the PC Show. Commodore's stand, they said, was bigger than any other at the show, and was part of a much-heralded £6M promotional campaign to persuade us of the company's size and importance. It coincides with the launch of... Er... Well, the... new Amiga TV modulator.

No one in the computer industry doubts the value of marketing if you want to shift micros in large numbers (Commodore are aiming at 40,000 new sales by Christmas). Surely, though, you need something new to sell if you're going to invest heavily in advertising. Where were the 68020 machine, the new KickStart chips, the 1 megabyte Amiga 500, the Commodore hard drive and the new high-res monitor?

Atari again turned their stand into an 'Atari Village', so there was no shortage of new products, but not much room for Atari. When you did find Atari's bit, there were conspicuous absences. This year the company has announced more new products than most, all of which have been covered by *Format*, but few have seen the light of day. The laptop ST was originally scheduled for launch at the PC Show, but there wasn't even a model of it. The Abaq made a showing at last, but only as developers' kit in old Atari PC cases. There was no preview of the pocket PC, due for launch in January. No news of the Super ST.

We're as keen as anyone to see new products (probably keener as we're trying to pass the message on). We are also sure that Atari and Commodore are among the most innovative computer companies around. Surely, though, a show the size of the PC Show is the ideal place to demonstrate new ideas and keep us coming back for more.

Simon Williams
Ben Taylor

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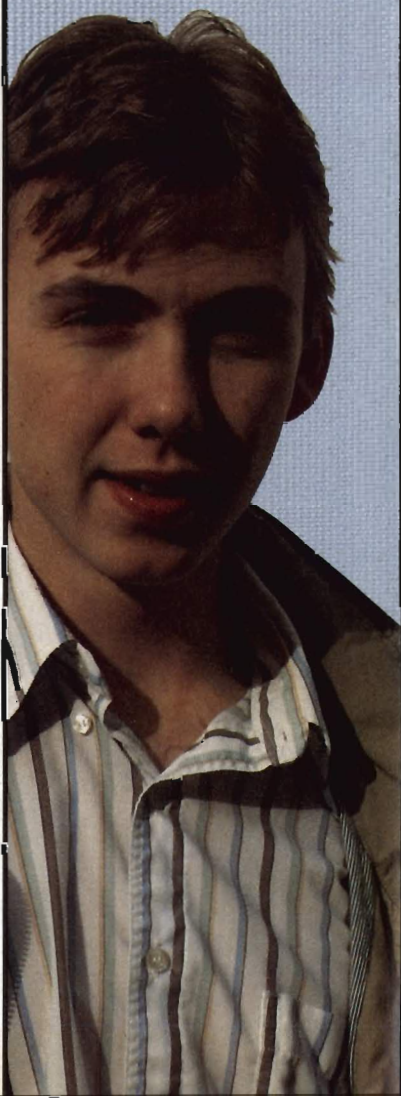

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NEWS

NO OUTRUN UPGRADES

US Gold are releasing a revised version of the top-selling ST game *Outrun*, but only for new buyers. Owners of the existing version will not be able to upgrade, though many ST owners have been disappointed with the conversion, though, claiming it is slow and too easy to complete.

US Gold, the marketing force behind *Outrun*, have now decided to update the existing version of the game for distribution in the US. According to Fergus McGovern of Probe Software, the software house which wrote the game, they "felt that certain changes were necessary for the US market." McGovern wouldn't specify what the changes were, but insisted they were "very minor".

Steve Fitton of US Gold disagrees, and says the changes actually involve "much better graphics, faster gameplay and tighter timing to make the game harder.

In the UK, the new version is likely to be distributed as *Outrun – US Special Edition*, priced at US Gold's standard £19.95 price mark and shipping from November. This leaves existing owners wondering how they can get the new version. After a disappointing change of heart, Danielle Woodyatt of US Gold's PR Department finally explained that there would be no upgrades available. The original version will be phased out when the US Edition comes on stream.

Probe are currently working on yet another variation of the game, *Outrun Europa*, in which players will be able to race across Europe in a variety of different cars. Amiga owners can also look forward to the original Outrun on their machines "very shortly."

68030 LAUNCHES AT COMDEX

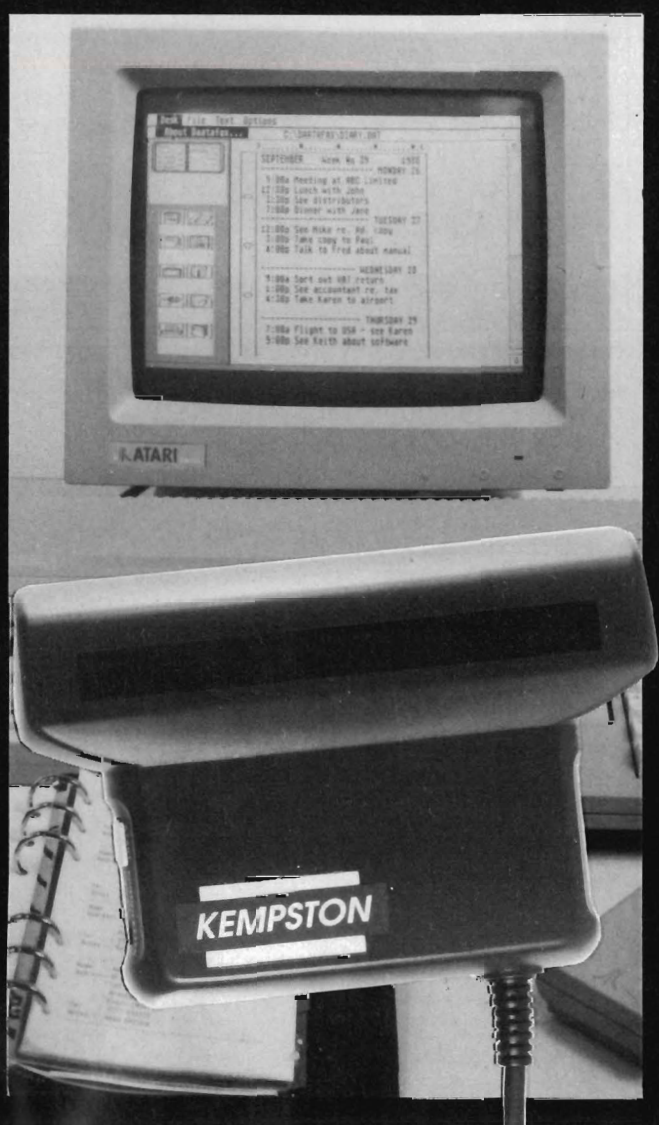
Both Commodore and Atari are expected to launch 68020 or 68030 based micros at the Comdex Fall exhibition in Las Vegas this month. Both machines will run the Unix operating system, both will have ultra-high resolution screens, several megabytes of main memory and substantial hard disks. Prices are likely to be high, well over the £3000 mark, and release in the UK is not expected before the middle to end of next year.

The Atari machine, known as the UXE, is intended for the general Unix environment, but with a tilt at the graphic workstation market. It will have the same graphics capabilities as the new Atari Transputer Workstation, née the Abaq. The UXE will run Unix Version 5 with XWindows on top to provide a friendly working interface. The 68030 processor is set to run at 16MHz, and a 68881 maths co-processor will be fitted as standard. 2Mb of memory is provided on the entry-level machine, which also supports a VME bus for connection of expansion cards and a SCSI port for hard disks. The spec includes three RS232 ports, MIDI and stereo audio!

Information coming out of Commodore is a little more hazy, but they're known to be working on a 68020 Amiga-style machine which will also run Unix Version 5 and sport 4Mb of main memory and a 100Mb hard disk. Price could be as much as £20,000. There are also continuing rumours of a 68030 machine on top of this, but no firm launch date has been decided.

Back with Atari, the ST Plus is due to be released to software developers at the end of November, in the hope that they will start writing programs with the machine's extra graphics and sound features. The Plus is due for release to everyone else early in the new year.

YUPPIE LOVE



Kempston, the well-known peripheral suppliers have just released two new goodies for the ST, with Amiga versions to follow. The £275 *DAATAscan* is a 105mm wide scanner with accompanying software, which is all you need to scan drawings and pictures directly into your machine. The scanning width is nearly double that of earlier scanners, so you can scan wider pictures in a single pass. They can then be transferred from disk file into a graphics program, Desktop Publisher or into DAATAfax, the second new release.

DAATAfax is a complete ST based personal organiser system, offering diary, phonebook, notepad, calendar and graphics import. All the data you enter into the system can be printed out on special Filofax-style paper, and you can still keep a backup in case you loose the paper copy. A binder is not included in the £49.95 price tag, but if you can afford both products you could be the first in your street with scanned photos of your loved ones in your organiser.

■ *Kempston Data, 21 Linford Forum, Rockingham DRive, Linford Wood, Milton Keynes MK14 6LY (0908 677886)*

■ Kempston's DAATAfax organiser, and their hand-held scanner. Digitise the one you love for posterity.

THE WORD ON DISKS

There have always been a wide variety of applications for ST's, and now you can add Bible

replacement to them. South West Software Library have added a complete transcription of the classic King James Version of the Bible to their PD lists. The compressed files fill six 3.5" disks and include every book from Genesis to Revelations, at an all-in price of £12.00. Once decompressed, the text is in straight ASCII files, one per chapter, with an average length of 7K.

South West Software Library says the disk version of the Bible is ideal for text processing practice, printer evaluation, speech simulation and linguistics, as well as its more obvious uses for switch-on clergymen. While this may be stretching the imagination a little, it's certainly true to say that the text is out of copyright (by about 4950 years), and it would be hard to know whose copyright it would be, anyway!

■ *The South West Software Library, PO Box 562, Wimborne, Dorset BH21 2YD*

DTP SHOW DISAPPOINTS

The International Desktop Publishing Show was held in the very civilised setting of the Business Design Show in Islington, October 13th-15th. All kinds of BIG names were there, including IBM, Hewlett Packard, Canon and Rank Xerox. You may notice that none of these names are well known in the ST or Amiga worlds and, in fact, the show was based heavily around IBM-compatibles and, to a lesser extent, Apple Macintoshes.

However, SDL, the distribution arm of Silica Shop were trying to sell STs into large companies and had had considerable success with ICI, who have recently bought 50 for a control project. They also claim to be doing well at selling Mega ST/laser printer packages for one-off DTP 'cells' within large organisations. SDL were also showing an early copy of *Page Stream*, formerly *Publishing Partner Professional*, which at long last looks near to completion. As soon as there's a version which can stay on its legs we'll bring you a review.

Mirrorsoft was consolidating its position as a leading producer of DTP software in the budget sector. Though it had no new products to promote on ST or Amiga, it was pushing the new book by Ian Sinclair entitled *Desktop Publishing on a Shoestring* (£9.95), which is in effect a set of extra tutorials on using all varieties of *Fleet Street Editor/Publisher*.

Not to be outdone, AMS were showing off their PC *Finesse* product, together with their hand-held scanner. It's likely that a version of the scanner with suitable software will be released for the ST at some time in the future, but no dates were available. *Flair Paint*, their desktop accessory DTP-compatible painting program previewed at the May Atari show, was 'just round the corner', but though we rounded plenty, we again left empty-handed.

Xerox had a juicy printer on show which could reproduce all 4096 of the Amiga's HAM mode screen colours. The 4020 ink jet printer does a lovely job, and silently, but costs over £1000 so won't fit everybody's budget. We hope to carry a review soon.

■ ***The airy surroundings of the Business Design Centre, home of this year's DTP Show.***

DOWN TO THE C AGAIN

Lattice C, the top-flight C compiler distributed in this country by Metacomco, has undergone another revision and ended up as version 5.0. This new compiler fully supports the 68020 and 68030 processors and maths co-processor chip, uses faster, machine-coded library routines and is closer to the existing ANSI C standard.

The *Lattice Screen Editor* is now included in the package (an omission we noted when version 4 was reviewed) and is integrated with the compiler so that compilation errors are automatically highlighted in the source code. The package also includes a source-level debugger, *CodeProbe*, with symbolic and current-process support. Other improvements include a new global optimiser and a code profiler which will let you know the efficiency of various parts of your program. Enhanced versions have enhanced prices, and version 5.0 is £241.

■ *Metacomco, 26 Portland Square, Bristol BS2 8RZ (0272 428618)*

HAWAII LIVE-O

Worried about your weight? – now your ST can tell you exactly what you're doing wrong. Well, an ST with a copy of *Diet, Version 2.0* ($25), anyway. Diet is one of several programs marketed by Schaefer Supergraphics of, wait for it, Honolulu, Hawaii. It's written by a qualified MD and provides a complete nutritional analysis with suggested diet and bodyweight recommendations.

Also available are *Longevity* ($39.95), which discusses various factors affecting life-span, and *Gas-Lyte* ($25), a laboratory analysis tool working on mineral disturbances and blood gas analysis. Send money orders in US Dollars – those of a nervous disposition are advise not to read Escape Sequence for further information.

■ *Schaefer Supergraphics, 1201 Wilder Ave #1801, Honolulu HI 96822 (010 1 808 523 3353)*

AMIGA BOOSTER

Bored of waiting for your Amiga to calculate your latest expense claim? The Amiga Centre Scotland have come up with an Amiga Supercharger kit to help you out. The kit replaces your 68000 central processor with a 14.34 MHz double speed board.

The booster board works with all standard Amiga software, but some programs (games, for example) which rely on accurate timings may baulk at the faster speed. There is a software switch to revert to 7.14MHz operation if need be.

Cost of the basic unit, which nets around 25% speed increase, is £179. If you need real number-crunching power, you can add a 68881 co-processor: 12 MHz at £103.50 extra, 16 MHz at £150.65. The 16 MHz option claims to run about three times faster than a standard Amiga – but remember these figures will apply to processor-intensive operations, not graphics functions.

■ *Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh, EH1 3RN (031-557 4242)*

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QUICKIES

■ *Addictive Games* have come up with a new line in games marketing. Rather than releasing *Football Manager 2 Plus* or *Football Manager 3*, for ST and Amiga, they have put together *Football Manager 2 Expansion Kit* which gives you all the fun of the field, but with the existing program. You can now change the colour of your team strip, choose alternative sponsors or alter the name of the cup you're playing for. There are many more useful amendments available to the footer addict for a mere smackerel of £12.99.

■ *Soft Bits* (01-836 2533) would have you consider *Sprite Master* for the little wiggly things in your next ST game. Their sprite designer can handle sprite sizes up to 144 x 84 pixels and has all the usual manipulation routines, plus some. It's compatible with most BASICs, C and Assembler, and also with Degas, Neochrome and several other art packages. Price is £24.95.

■ *Kuma* (07357 4335) have upgraded their GEM resource editor to *K-Resource 2*. This utility handles all the GEM calls in a high-level program in any of the leading languages, and works with medium and high resolution screens. You can buy it for £39.95 or upgrade from the original for a paltry £15.

■ *Digita International* win this issue's *Silly PR Photo of the Month* award. Jeremy Rihll, he of the cheery face and visually confusing shirt, would like us to tell you of their Home Account program which is now available on Amiga as well as ST. If you read our review of the ST version in issue 3, you'll be pleased to know we got the prices wrong. They are, in fact, £24.95 on the ST and £29.95 on the Amiga. Phone 0395 45059 to order. And does the bow tie rotate, Jeremy?

■ *Eidersoft* have merged their operations with Power Computing. The new address for all enquiries about ProSound, Mouse Music, PC Ditto and their other products is: Power House, 44 Stanley Street, Bedford MK41 7RW (0234 273000)

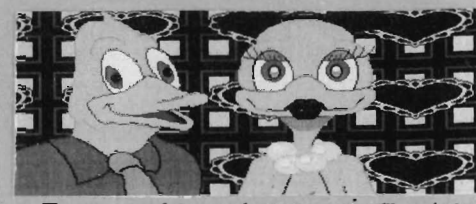
PICTURE THIS!

Norfolk-based Graphix have come up a the solution to the problem of printing out the full 4096 colours of a HAM mode Amiga picture, without spending £5000on a special printer – use theirs instead!

They are offering a postal printing service for high quality hard copy of your gems. Having installed a 300 dots per inch thermal printer themselves, they can print any Amiga picture file (so-called 'IFF' format) from disk, including HAM images from Photon Paint at up to A3 size.

Prices range from £6.50 for a low or medium resolution screen, to £10.50 for an A3 print of a HAM picture, including VAT and return postage in a stiff envelope. It sounds a good way of starting your own art gallery.

■ *Graphix, 141 London Street, Swaffham, Norfolk PE37 7DW (0760 24947)*



■ ***The results of Graphix's Amiga paint file printing service – in 4096 shades of grey. Sorry this isn't a colour page, but the real things do look very good.***

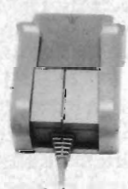
Printer makers Citizen have decided to follow up last year's World Wide Fund for Nature competition sponsorship with another, called Datachase. The contest is designed for schools, who will devise environmental projects of their own, which can be tied in with GCSE extension work. The winning project in each of four categories (three age groups and one for groups with special educational needs) will receive £2000 of computer equipment, with six Citizen printers for runners up in each category.

The closing date is 26th May, 1989, and the winners will be announced by 30th June. Application forms can be had directly from: The Education Department, WWF United Kingdom, Panda House, Weyside Park, Catteshall Lane, Godalming, Surrey GU7 1XR

ADD-ONS AVALANCHE

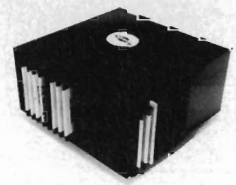
Microdeal have released even more add-ons for the ST this month than there have been revelations about how boring *Spycatcher* really is.

■ ***4-player joystick adaptor***



■ ***Wherever I hang my mouse, that's my home.***

To take a brief run-through: Cartridge port adaptor (£12.95) to allow electronic hobbyists to connect extra wires to the ROM port; Internal and external real-time clock cards (£27.50); Disk library holder with space for 80 disks (£24.95); Mouse bracket for, um..., well hanging your mouse on after use (£5.95); Adaptor to allow two joysticks to connect to the printer port for those increasingly popular four player games like Leatherneck (£5.95); Extension lead to bring the mouse and joystick sockets out from under the keyboard (£5.95); and the obligatory disk cleaner and anti-static mouse mat (£5.95 each).



■ ***80-disk swivel library***

■ *Microdeal, Box 68, St. Austell, Cornwall PL25 4YB (0726*

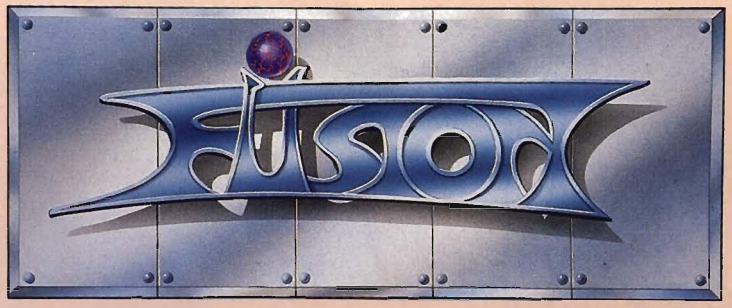
■ ***Mouse/joystick extension leads***

GETTING FRIENDLY

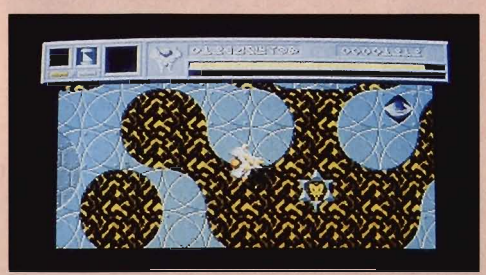
Our tame Amiga expert, Jason Holborn, likes to keep up to date with all new Amiga software, so you can imagine his delight at hearing of a new virus. a sample for research was kindly supplied by the Amicable Amiga Club for further study – watch next year's Nobel Prize nominations.

In the meantime, it seems only fair to mention that said club can offer System Z's *Virus Protector III* which will find, kill and protect against all known Amiga viruses. This disk, like all others offered by the club, costs a very reasonable £2.00, or 50p if you send your own disk. Seems like a good deal, and free membership is thrown in with your order.

■ *The Amicable Amiga Club, 125 Arnold Road, Beswood Estate, Nottingham NG5 5HR*



13 Levels of Arcade-Action . . . seeing is Believing!



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REVIEW

VIDI ST

Real-time frame grabbing on the ST is no longer a rich man's sport. Rombo, best known for their Amstrad-computer peripherals, have just introduced a budget video digitiser. Richard Monteiro grabs some pixels.

£99.95 ■ ST version reviewed, all models; Amiga version due ■ Rombo Productions, 107 Raeburn Rigg, Livingston, EH54 8PH (0506 39046)

AMIGA VIDI

Sometime around Christmas or early next year Vidi will make an appearance on the Amiga. The hardware is ready – it's identical to the ST version. Rombo will start work on the Amiga package once the ST software is out of the way.

Not another video digitiser! Yes, but this one's different. It's cheap and it offers real-time frame grabbing. Something ST owners do without unless they can afford a ridiculous £250 for Start's SAM. Rombo Productions aren't a household name in the ST and Amiga world, but – as any Amstrad CPC, PCW or PC user will tell you – their products offer performance at a very reasonable price.

The digitiser box, which plugs into the ST's cartridge port, features a phono socket for video input and brightness and contrast controls. A connecting lead with male phono and male BNC plugs is provided. Although this may not suit your needs, it's encouraging to find something provided. Like other digitisers, Vidi requires a video camera or recorder as a picture source.

The accompanying software uses pull-down menus and icons at the bottom of the screen to control the hardware, but the default settings are sensible and you can digitise as soon as you've got the system running. The digitiser will display screens at up to 25 per second – fast enough to grab rapid-action pictures from video cameras and recorders without any loss of image clarity on the micro's screen. You don't get any image 'tearing' with Vidi.

The review system was at an advanced stage of development but expect further enhancements and additions in the production version. Check the panel for what is promised.

Grab 'em

Digitised images are displayed on screen in 16 colours, but these are used as a form of grey scaling, not true colour. Four palettes are provided which range from murky whites to pale blues, and a user palette can be applied if you're unhappy with the predefined colour schemes. Changing the user palette is far from satisfactory; you have to load a Degas or Neochrome picture file containing the particular selection of colours you want in your palette. You need your own copy of one of these graphic programs to prepare the picture file.

Incoming grabs are displayed on screen and stored in memory. When memory runs out, the first grabbed image is replaced by the most recently grabbed one. This guarantees that the last few seconds of action will always be in RAM. An ST520 can store eight frames, a 1040 24 frames, a Mega 2 56 frames, and a Mega 4 120 frames. Each frame is 32K long. Frames can be saved and loaded, in either Degas or Neochrome format and you can use either of these programs to tidy the images.

Brightness can be set to any of eight digital levels from within the software. This doesn't alter the video signal, but modifies it within the machine. Analogue contrast and brightness adjustments are also possible through the hardware controls. The advantage of using analogue controls is that the results can be seen as the frames come in. With software controls you have to keep going through the 'set controls, grab images, set controls' cycle until the picture on screen is acceptable.

Other grab options let you digitise single or multiple images, alter the time between grabs in 25ths of a second and set up an interrupt screen. The most interesting of these options is the interrupt. You specify how often an image is to interrupt real-time frame grabbing (and remain on screen). This is useful, presumably, in displays when you want advertising hype to appear every now and again.

Through the square window

You can grab to the screen through a predefined window. Mark out a section of the screen – anything from a few pixels to its whole area – and hit the digitise button. Unfortunately the software doesn't automatically store

▼ *The good: Vidi ST. The bad: Vidi ST manual. The ugly (from left to right – top row first): Jason Holborn, art supremo Gordon Druce, Richard Monteiro, Mark Higham, Ben Taylor, Agnes the Armadillo (Glyptodon actually – Ed) and Simon Williams.*

■ *Hook the camera to Vidi and start grabbing.*

■ *Several grabs and palette changes later, the final picture.*

grabs taken through windows; you must save each frame individually or paste the important bits of it to the clipboard. Neither technique is ideal. It would be useful if Rombo changed the software to allow you to animate window-grabs from your own programs.

The fun really starts once you have a memory full of digitised pictures. RAM contents can be displayed on screen at almost any rate. Screen flipping auto-repeats so once all screens have been shown, it goes back to the first. 'Bounce' and reverse animation are not supported. Images can be placed in a carousel and viewed, though – the effect is similar to various image slideshow programs.

Screens can be sent to a printer using the GEM screen dump routine – though a decent printer driver system should be installed in time for the Atari show. This will allow you to dump full screens and the contents of windows.

Vidi verdict

A machine-code file is provided which allows simple access to the Vidi hardware. You could use this in your own programs to grab screens – or even write your own frame-manipulating software.

Although Vidi isn't 100% complete, it outshines any other digitiser available for the ST. The software is friendly, easy to use and powerful – and that's in its pre-production state. Grabbing through windows is tremendously useful. Hopefully utilities allowing you to animate window-grabs will come with the release software. The manual is awful so it's just as well the software is intuitive.

Vidi offers much for comparatively little cash.

■ *Captured, the Format office. And, window-grabbed, Jason (the guy who makes the office look a mess) and Richard (who helps him).*

TECHNICAL DETAILS

Vidi requires a 1V composite signal which it samples to 4-bit resolution at 6Mhz. The result is a 320-line, 16-shade image. A line-selection algorithm chops the image into a displayable 200-line affair. The complete picture is grabbed to an internal frame store (32K RAM) in 20 milliseconds. The interface can detect and lock onto either even or odd frames. This avoids frame jitter during continuous grab sessions.

WHAT'S TO COME

Vidi isn't in its final form yet. It should be finished shortly before the Atari Show. According to Marcus Sharp at Rombo these are the features you can expect in the final version:

- ***The box housing the hardware will be reshaped. Presently Vidi only fits into new 520 and 1040 cartridge ports; the port in Megas and old STs is inset too far.***
- ***A new option will allow all grabbed frames to be displayed on screen at once, in a much reduced format, and the required frame displayed full size simply by clicking on the cameo image.***
- ***DTP fans will be pleased to know that monochrome software support is pencilled in along with GEM .IMG file handling.***
- ***A perspex wheel containing red, green and blue filters may be provided for grabbing frames in full colour.***
- ***Printing facilities will be similar to those in Vidi PC; any portion of the screen can be marked and dumped in any size from a dot across by a dot high to A4 dimensions.***

Other additions include grabbing images outside windows as well as inside, changing palette colours via sliders, date/time setting and help options.

for

- **Real-time grabbing**
- **Images can be grabbed into user defined windows**
- **Neochrome and Degas file formats are supported**

against

- **Terrible manual**
- **No picture-editing tools**

features 0 1 2 3 4 5

performance 0 1 2 3 4 5

ease of use 0 1 2 3 4 5

manuals 0 1 2 3 4 5

format value 0 1 2 3 4 5

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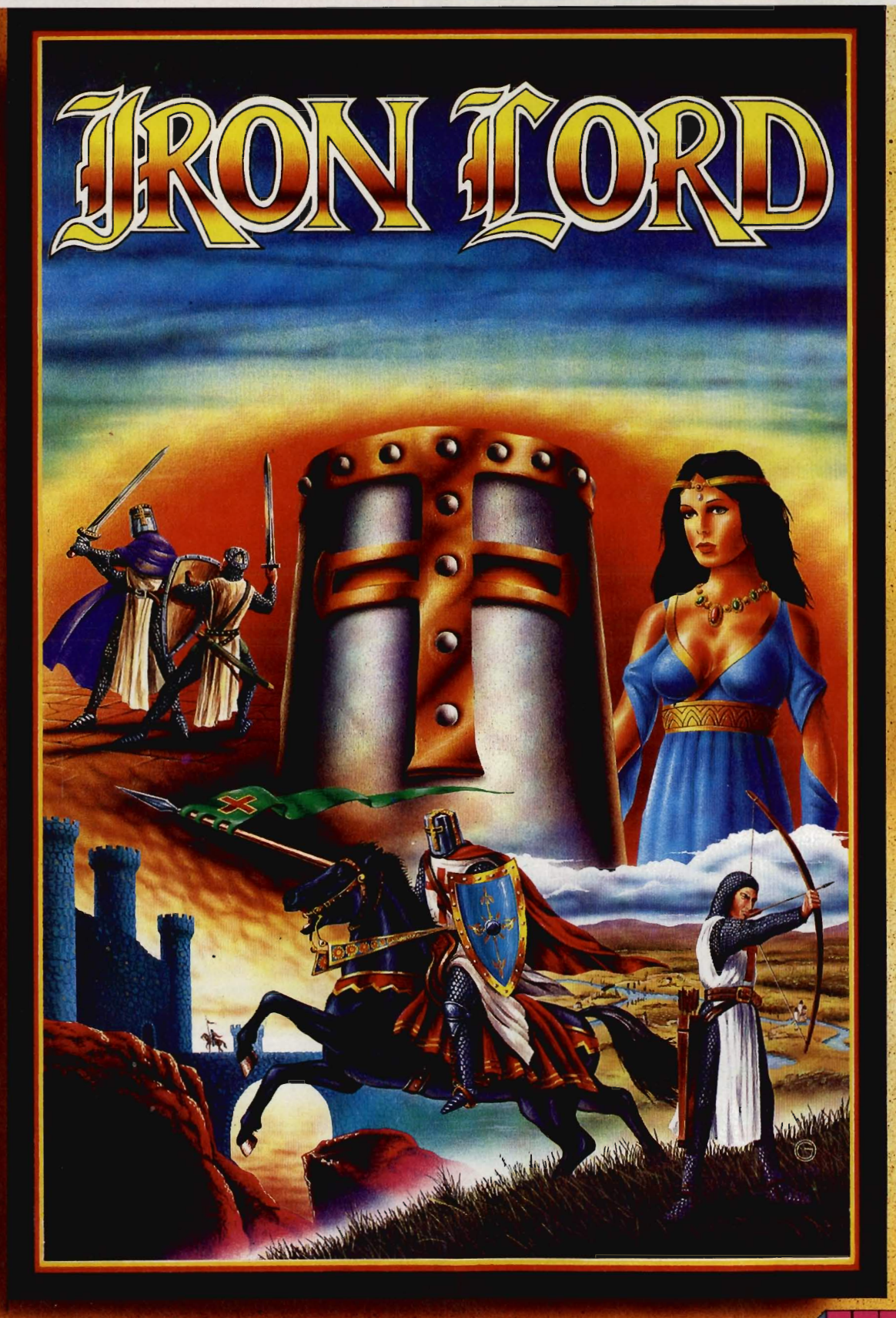

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Screenshot on ST

Screenshot on C 64

Screenshot on Amiga

Screenshot on ST

Screenshot on ST

Screenshot on ST

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UBI Soft

REVIEW

HYPER PAINT

Atari have set out to create a line of integrated 'professional business software' worthy of official approval for the ST. *HyperPaint* is the first of the series to emerge – Ben Taylor assesses the Hyper series hype.

£24.99 ■ All STs ■ Atari UK, Atari House, Railway Terrace, Slough, Berks SL2 5BZ (0735 333444)

Atari ST owners aren't exactly starved of art packages. There's *Degas Elite* (commonly accepted as the current 'standard'), *Neochrome*, *CyberPaint*, *Spectrum 512*, *Quantum Paint*, *Easy Draw*... the list goes on. So where does Atari's offering fit into the scheme of things?

HyperPaint aims to provide Degas-beating painting functions, and can work on any model of ST from a 520 to a Mega, in low, medium and high resolution modes. The version reviewed by *Format* was a pre-release copy – there was no manual nor any of the traditional glitzy sample screens that traditionally accompany art packages, but nevertheless the menu system proved simple to fathom.

All formats

The screen layout has a menu bar with three headings along the top, and a toolbox strip down the left side. The colour palette (16, 4 or 2 colours depending on mode) runs along the bottom of the screen. All this reduces the actual drawing area, but the [Help] key will hide the menus and reveal the whole canvas.

To keep screen clutter down, there aren't many menu headers or icons visible. Rather than 'Draw', 'Fonts' or 'Brushes' in the menu bar all the functions are lumped together under one 'Options' menu. This runs counter to the WIMP philosophy, and more meaningful menus would have been nice.

Similarly, there is only one 'Draw' tool, with which everything from lines to circles, rectangles to Pac-Men are created. Double-clicking on the Draw icon brings up a menu, and you click on the kind of object you want to draw.

You can alter the format of a picture file at any stage. HyperPaint can store data in Neochrome, Degas and Degas Compressed format, or the GEM 'IMG' format. This last category is used by PC GEM programs like GEM Paint, and since the ST can directly read PC 3.5" disks it may be useful to you. It is perfectly feasible to load a compressed Degas picture and save it out as a Neochrome image, or any of the others, so you've got a complete format conversion utility built in for virtually any image file you may find on a public domain disk. The only exception is Amiga 'IFF' format – you can't directly tap the large body of high quality artwork created on Amigas.

Screens and brushes

HyperPaint has several different screens you can work on. A 520ST can work on up to three different pictures at once, 1040s and Megas can have ten. Each picture is independent, and has its own palette. A touch of the cursor keys will flick between the screens, forming a simple animation.

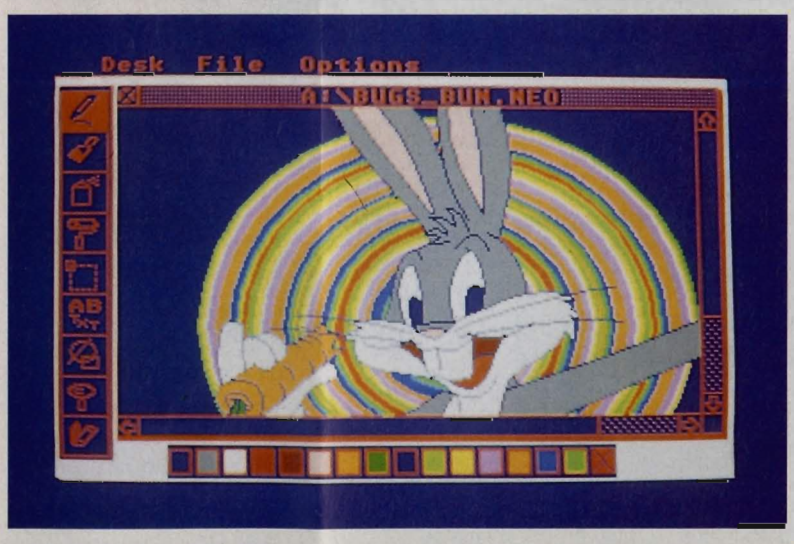
Another animation effect is possible by using colour cycling. This is the now-standard technique of rotating the colours in the palette – you can choose the number to be cycled, and how fast, and if chosen properly you can make a waterway 'flow' as the colours shift.

.IMG FILES

'IMG' files are a little-known but increasingly important picture format. They are the GEM standard picture files on IBM PCs, but since GEM Paint was never released on the ST the format never took off.

The virtue is that the data is stored in a format independent of the screen size. You can have images bigger than the screen and only the pixels used are stored, so small images take only a couple of K of disk space, rather than wasting 30K on a blank screen.

With the advent of laser writers, IMG files are becoming popular, since they can store pages of data at 300 dots per inch – far too many pixels for a Degas or Neochrome screen.



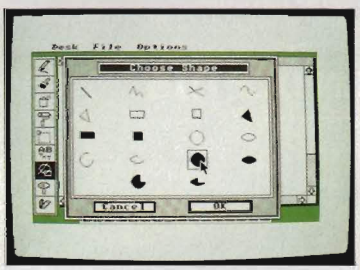
■ *HyperPaint can read and edit files in Neochrome, Degas, Degas Compressed or 'IMG' format as used by GEMPaint in PCs. Here are three classic shots from such packages, including the GEM Tiger.*

■ *You can zoom in to a picture at any magnification from x2 to x16*

Hyperpaint's range of Brushes is good. You're given eight standard brushes for drawing lines and shapes with – small dot, cross, vertical bar and so on. You can edit any of these and save them for later use. The most powerful feature is an Amiga-like brush for block copying. You can mark any area of the screen – rectangular or hand-clipped with the 'Penknife' tool – and use that area as a brush. This means that clicking the mouse button pastes a copy of the block at the current screen position, and also that sweeping the mouse around with the brush active creates a long prism of the chosen area. Drawing a line with a custom brush like this is pretty jerky on a 16 colour screen, although it becomes smoother in medium-res and is nice and smooth on a hi-res mono monitor.

If you change to a different work-screen, the current brush stays active, so this is a neat way of cutting and pasting between pictures.

HyperPaint has the full range of standard features. You can rotate, enlarge or reflect any area of screen, you can adjust any of the colours on the palette and the [Undo] key performs wonders with inadvertent fills that go wrong. These operations all work quickly and efficiently.



■ ***The variety of shapes available to you is displayed on a selection sub-menu, rather than as a series of clickable icons on the main drawing screen.***

■ ***Any part of the screen can be picked up and used as the drawing brush. This can create interesting prismatic effects.***

Zooming in

You can work on your screen in any magnification from normal to 16 times. In low resolution and highest magnification this means the screen is filled with only 20 pixels, so it's pretty detailed! The reason for the massive zoom is that with .IMG files you might be editing a 300 dots-per-inch image destined for a DTP package and output to a laser printer. This high resolution editing is a major advantage of HyperPaint.

One annoyance is that when working on a zoomed screen you can only draw in pen-mode. The other paint operations can't be accessed as the menus are no longer on the screen. It would have been nice to be able to use the enlarged view to clip a block very accurately with the free-hand cut tool.

The word

To put text on a picture, you click the text tool, choose a font and type. A selection of fonts are supplied on a separate disk, and a utility program lets you add any other GDOS fonts you may have from DTPs, word processors, PD disks and so on. GDOS is simply an extension to the ST's GEM operating system, which among other things allows you to access a variety of new fonts.

Once you've typed your text, it isn't immediately fixed on the screen. Instead, the text becomes the cursor (much like a brush) so you can accurately position it (or change your mind and use a different font) before clicking the mouse at the required insertion point.

Conclusion

So does HyperPaint offer anything new to the ST art community? To the person who wants to knock up a colourful screen, probably not; it doesn't offer the range of colours that Spectrum 512 or Quantum Paint does, although it certainly has all the features of Degas.

Where it does score is in being able to handle GEM-standard IMG format files – this makes it the best paint package for taking input from other programs like scanners and video digitisers. The high magnification zoom lets you edit 300 dpi pictures intended for high resolution laser printing.

With this extra facility, and pitched at the same price as Degas, HyperPaint looks a very good buy.

HYPER SERIES

The other packages in the Atari Hyper series will be: Microsoft Word word processor and HyperDraw drafting package (both due in November) and HyperChart presentation graphics manager (due in December). These will all be able to share fonts and data.

QUARTS AND PINT POTS

HyperPaint is a true-to-GEM paint program, which is to say it can display 16 colours in low resolution mode, 4 in medium and 2 in high. Compare this to Spectrum 512 with its 512 colours, or Quantum Paint with a staggering 4096, and it looks fairly humble.

However, unless you are into art for art's sake, there is only a limited point in using a package with so many colours. Because the ST's hardware only directly supports 16 on screen at once, you can't display the resulting pictures outside the particular paint package. Having more than 16 colours is useless, IF you are preparing images to export to other software.

Getting those extra colours is extremely difficult. Consider how a picture is displayed: a beam of electrons scans across and down the screen; one frame consists of 200 lines of pixels, and 50 frames a second are sent to the monitor. That means one complete line of pixels is drawn every 1/10000 of a second (every 100 microseconds).

The trick that these clever programs employ is to synchronise themselves with the scanning speed of the display. You can only have 16 colours on screen, OK. But when the electron gun reaches the end of one line it flies back to begin drawing the next line down, so there's a very brief period during this flyback (a few microseconds only) when nothing is actually being drawn. The secret is to change the ST's colour palette during the flyback. So, one palette of 16 colours is being used to draw one screen-line, then an entirely different palette can be used for the next and other screen lines. You can only have 16 different colours per line, but you can change which 16 they are for every line.

for

- Handles Neochrome, Degas and IMG formats
- Simple animation between 10 screens
- Brushes can be any screen block

against

- Can't read Amiga IFF files
- Maximum 16 colours
- No font editor supplied

features 0 1 2 3 4 5

performance 0 1 2 3 4 5

ease of use 0 1 2 3 4 5

manuals Not seen

format value 0 1 2 3 4 5

Commodore Amiga

The Knight one of three character classes.

Atari ST

Converse through simple commands and menus.

DISCOVER AN ARCADE ADVENTURE WITH HIDDEN DEPTHS

Discover Times Of Lore, Origin's first adventure on cassette. Acclaimed British designer Chris Roberts has taken the best of arcade and adventure – fast and furious combat, stunning graphics and animation, unrelenting danger and challenge – and introduced the depth of a classic fantasy role playing game.

Entirely joystick driven, Times Of Lore continuously tests your combat skills while you gradually become involved in a compelling plot. With 13,000 screen locations, a powerful but easy-to-use menu and icon interface, scores of interactive characters and music by Martin Galway, it ventures further than other arcade adventures.

Origin have broken new ground in Times Of Lore. Isn't it time you did too? Available for: C64/128 Cassette £9.95, Disk £14.95, Spectrum 48/128K Cassette £9.95, Spectrum +3 Disk £14.95, Amstrad 464/6128 Cassette £9.95, Disk £14.95, Atari ST £24.95, IBM/PC & Compatibles £24.95, Apple £19.95, Commodore Amiga £24.95.

C64/128

Spectrum

Amstrad

Journey through an immense world of cities, dungeons, and a stunning variety of natural terrain.

ORIGIN

Origin, MicroProse, 2 Market Place, Tetbury, Glos, GL8 8DA. Tel: 0666 54326

REVIEW

CHERRY GRAPHICS TABLET

Mice are nice, but graphics pads are better. Or so Cherry would have you believe. The company has now produced software drivers for ST and Amiga. Simon Williams doctors his mouse.

CHERRY GRAPHICS TABLET
£632.50 ■ via HB Marketing, Brooklyn House, 22 The Green, West Drayton, Middx UB7 7PQ (0895 444433)

The computer mouse is a great step forward in controlling the software on a computer. It circumvents many of the longwinded typed commands that used to be essential for operating programs on micros, but there are still some areas where the mouse falls down. One such applcationis tracing – when you need to copy an outline or line drawing, a mouse is of no real use. This is because the mouse obscures the image it is over.

To the rescue

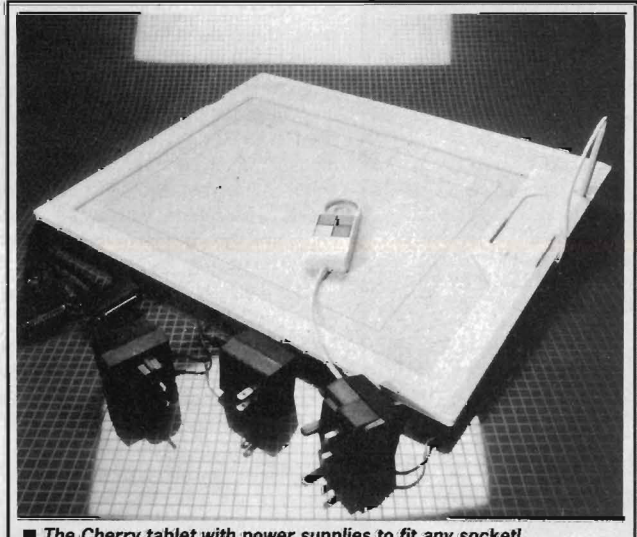
A graphic tablet gets over this problem by providing a puck, or a pencil, which can be accurately positioned on the paper and made to follow a line. The Cherry tablet, first released on the IBM PC, connects to the serial port of an Amiga or ST and takes the place of the mouse in any cursor-control operations. The puck or pencil (you choose which by a dip switch atthe back of the pad) is moved around a large tablet with an A3 working area and a large plastic surround.

The tablet itself works on an induction principle, with small coils embedded in the tip of the puck and the pencil barrel producing flux changes which can be translated into x and y coordinates via driver software. The pad has a higher resolution than a mouse, in the sense that full screen movement of the cursor can be mapped onto the entire pad, allowing more precise positioning of the cursor.

The tablet has a series of selection areas set into its surface, labelled 'circle', 'arc', 'copy', 'pan' and the like. These are a remnant from its initial purpose as a IBM PC peripheral, and refer to one of the main CAD programs available on that machine. There is currently no ST or Amiga software that supports them, which is a shame as it expands its potential.

A general manual is supplied with the pad, but the only extra documentation is a single photostated sheet for ST installation. Documentation files are provided on disk, but at the price it's not too much to ask for a supplement to the manual.

The Cherry pad is certainly good, but it will probably be outside the price range of most people. For non-drawing functions the mouse is more natural to use anyway.



■ *The Cherry tablet with power supplies to fit any socket!*

ST AND AMIGA DRIVERS

The ST driver takes the form of a GEM Desk Accessory available from within any program supporting GEM, so you can toggle between the mouse and the pad at any time. The driver runs happily from within graphics programs like Neochrome and Degas, though we did have some trouble switching between the control screen and drawing screens in Degas. There's also a slight niggle in the drivers when you load an application, as the operating system automatically reverts back to the mouse for cursor control. You have to reselect the pad driver to switch back again.

The driver for the Amiga is a program which sets up a small separate task displaying its own control window for adjusting the sensitivity of the pad and its priority as a task. This can be accessed at any time through the Amiga's operating system, so you can make adjustments while running painting packages and the like.

When running any Amiga program you need to use both left and right mouse buttons. The graph pad pencil only provides one, which can be awkward, so it's just as well that the pad control task runs continuously. There's an icon within the control window which lets you switch the function of the pencil tip-button from left to right mouse buttons.

The pad itself works well on the Workbench and from DPaint II and the pencil certainly proves more natural for drawing and tracing than the mouse. For general work, though, the mouse was still favourite.

for

- Ideal for tracing drawings or other artwork
- Both puck and pencil supplied as standard
- Interchangeable use of pad and mouse

against

- Single button on pencil a problem in Amiga programs
- Takes a lot of space on desk
- Very pricey for home use

features 0 1 2 3 4 5

performance 0 1 2 3 4 5

ease of use 0 1 2 3 4 5

manuals 0 1 2 3 4 5

format value 0 1 2 3 4 5

FUTURES

INSIDE INFO

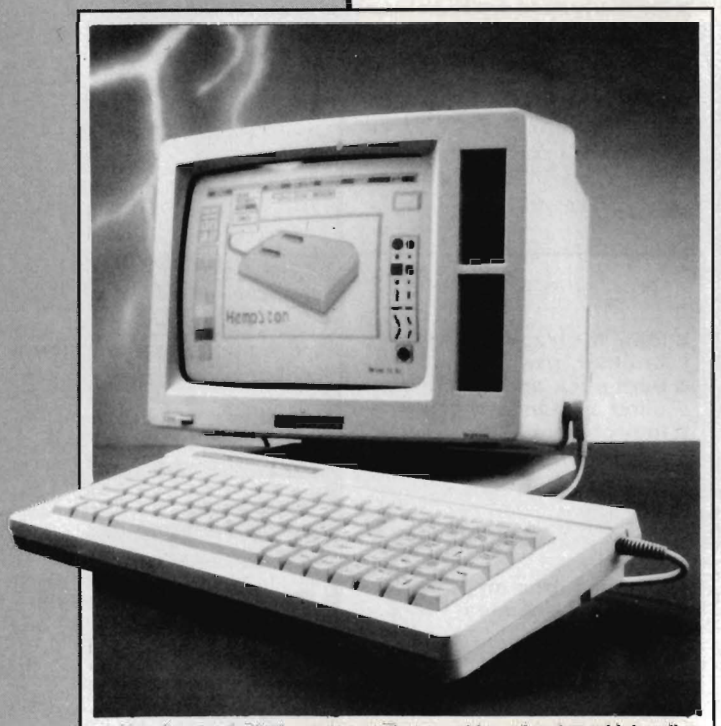
At the heart of a computer is its operating system, the bit that determines how flexible the machine *really* is. Commodore are soon to release Workbench 1.3, and Atari are working on a new GEM – Mark Evans looks at the past, present and future of it all.

Ever since the days of large, mechanical valve driven computers there have been operating systems – albeit very simple ones. Basically, an operating system can be described as a computer program which does the housekeeping on the computer's hardware. It checks for key presses, displays the mouse cursor, stores files to disk, scrolls the screen and so on. In most cases, every time you switch your computer on it starts running its operating system (O/S).

In early 'home' computers, the operating system was usually combined with a BASIC interpreter, so you could directly type and run programs. This had the advantage of giving a user an 'up-and-running' system as soon as the machine was switched on – necessary because of the usually scarce and expensive disk drives.

A BOOT UP?

'Booting up' is the jargon phrase that computer boffins use to mean starting the computer running. Far from being a complex tech-term, it is a relic of what passed for humour in the early days of computing. To be able to run programs, computers had to load a special program containing the operating system – reminiscent of the phrase "pulling yourself up by your bootstraps.". Hence 'booting'.



■ *The Amstrad PCW – a top-selling machine of today which relies on the 10-year old CP/M operating system. Oldies but goldies.*

WIMP v CLI

Back in the good old days, people did not really worry about how 'user friendly' their O/S was, as most tended to be hardened hackers. Because memory was scarce (8K was a luxury!) these operating systems users were often faced with just a flashing cursor for a screen! All O/S's of this period had a simple 'Command Line' where the user would type in their command, and the machine would act upon each of these appropriately. Hence the name 'Command Line Interpreter' or 'CLI' came into fashion.

As memory became cheaper, system designers could do more and more with fancy graphics. WIMP (Window Icon Mouse Pointer) environments became available in the early '80's, developed by Rank Xerox at their Palo Alto Research Centre and pioneered commercially by Apple Inc. on their *Lisa* range (named after the boss's daughter!). The Lisa could only be described as a 'concept computer': the user was strongly discouraged from typing, and thinking of disks and files, but instead brought into a more interactive relationship with the machines. Programmers ran for the hills, but businessmen ran to their dealers.

In fact, the Lisa was not a phenomenal success, eventually being redesigned and relaunched as the Apple Macintosh. Despite its relatively high price, the Mac managed to get quite a grip on the market and the imagination of other manufacturers. It still leads the field four years on, especially in Desktop Publishing. The latest Macs (the Mac II series) feature stunning speed from a powerful 68020 processor and boast advanced graphics.

GEM and Workbench

GEM – Graphics Environment Manager – was developed by American software giants Digital Research Inc. and was modelled around other WIMP systems of the time, notably Apple's. (So closely was it modelled that Apple sued D.R. over the early versions of GEM for infringement of copyright!). GEM was, of course, adopted by Atari for use on what was at the time their new 68000 based super-micro: the Atari ST.

However, GEM is only part of the ST's O/S. Because GEM is designed to run on PCs, STs, and any machine you care to name, it can't handle the low-level running of the hardware. The second part of the STs O/S comes in to do this – TOS ('The Operating System' or, depending who you believe, 'Tramiel Operating System' after the Atari Corp's president Jack Tramiel.) TOS was actually vaguely based upon a much older 68000 operating system, CP/M68K.

Commodore's O/S on the Amiga really consists of several parts parts – 'Kickstart' is the system software, which is held in ROM on the A500 and A2000, but needs to be loaded from disk on A1000s. This is the equivalent of TOS on the ST.

'Intuition' is the higher-level general operating system with the multi-tasking control, equivalent to GEM on the ST. Finally, 'Workbench' is an Amiga program, just like any user program which controls the icon user interface, equivalent to the Desktop program which characterises GEM's familiar icon interface.

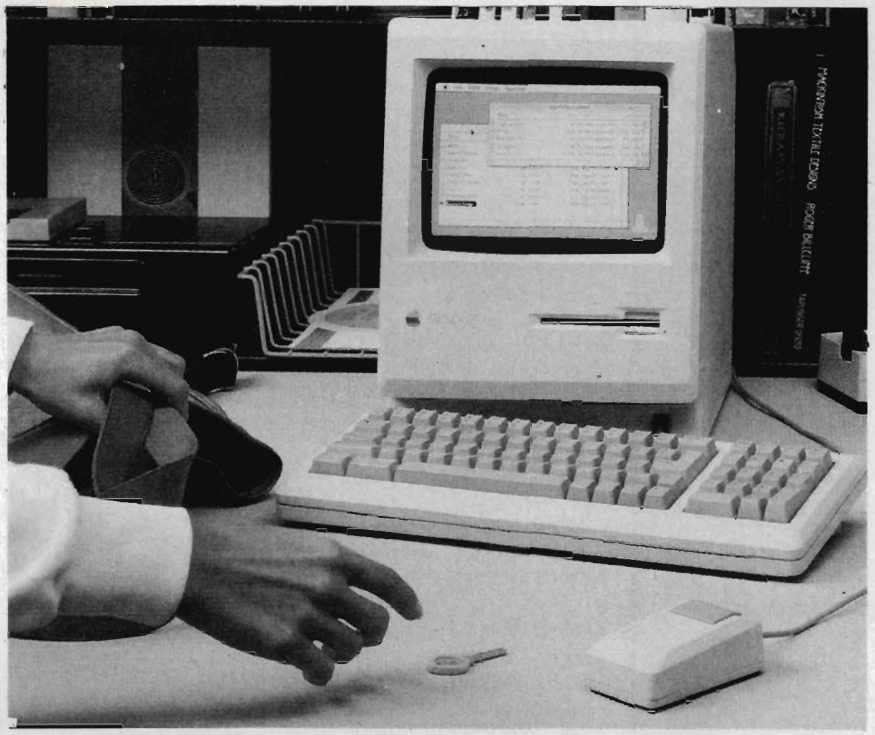
The reason Amigas have the bulk of their system on disk is to allow easy fixing of bugs and development of upgraded versions – see the box for details of proposed future improvements.

ST multitasking

When it comes to multi-tasking (see box), the ST falls down because GEM doesn't support it directly. However, there are third party O/S's available for the ST that allow multi-tasking and multi-user situations. The most notable are Sahara Software's *Mirage* and Microware Systems

■ *The IBM PC – or clone anyway. It introduced PC-DOS to the world in 1981, a mould-breaking (or should that be mouldy, breaking?) 16-bit O/S.*

■ *Your old friends – GEM and AmigaDOS aren't that new really, they have roots going back to the early days of micros.*



■ *The Apple Macintosh – maybe Xerox did the research, but Apple were the first to make WIMP systems commercially successful.*

Corporation's OS/9. Both these only run software written for their specific O/S – you can't have 'off-the-shelf' GEM or games ST software running on them.

The Amiga, as well as its own Intuition multi-tasking, can also run these extra O/S's. Mirage in fact runs on quite a few systems including Hewlett Packard, Stride, Sage, Pinnacle, U-Micro, MicroAPL, Newton, Gemini, Atari ST, Commodore Amiga and other 'computer-on-a-board' systems.

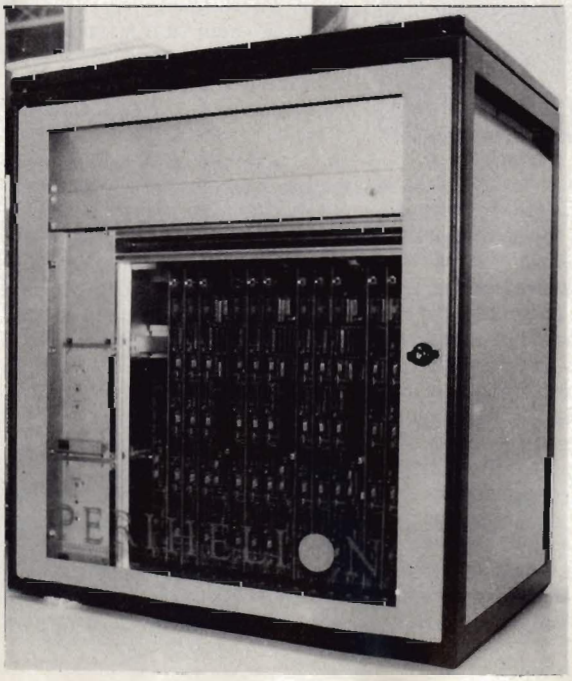
Apart from its multi-user/tasking facilities, Mirage also offers a host of other features such as its small workspace, the need for very little disk storage, networking (via MIDI and RS-232 on ST and Amiga) and the ability to run software on a variety of computers without re-compiling it.

OS9 is similar to Sahara's Mirage in many forms, and even as a ROM-based system for Mega STs.

The female Unix

Unix is one of the 'buzzwords' associated with operating systems at the moment. Unix is a massive and very powerful O/S capable of creating a full multi-tasking and multi-user environment. It was originally written by two researchers at Bell Labs (America's version of British Telecom), and given away free to universities, which explains its predominance. It's usually only run on main/mini-frame sized machines, but now that 'micros' like the ST, Amiga and IBM PC are coming along with several megabytes of RAM and superfast processors, micro-Unix is becoming feasible.

Atari are planning a Unix workstation to be released in the near future, possibly at Comdex in Las Vegas in mid-November this year. The system will run Unix release 5, and will have the following hardware configuration:



■ *The Polyhedron workstation, a network of transputers running Perihelion's Helios parallel processing operating system of tomorrow.*

THE FAMILY TREE

The operating systems of the world are all subtly intertwined. Although Unix had been around for some time on larger machines, CP/M was the real microcomputer ground-breaker back in the 70's, developed by Gary Kildall, founder of Digital Research.

The first 16-bit micro was the IBM PC, for which IBM employed Microsoft to write PC-DOS. Reportedly they wanted to use a version of CP/M on the PC, but they went to the wrong company by mistake. Of course Microsoft didn't let on!

CP/M meanwhile evolved into CP/M68K for the 68000 micro, and inspired Atari's TOS, which linked up with GEM on the ST.

AmigaDOS comes from a 68000 multi-tasking command-line system called Tripos, developed at Cambridge University, England. This was hastily adapted for the Amiga when a previously planned operating system failed to materialise.

Unix (1971) (multi-tasking)
CP/M ('75) (single-tasking)
PC-DOS ('81) *CP/M 86 ('81)*
MS-DOS (") *CP/M 68K* *Apple Mac ('83)*
TOS ('85) *GEM ('84)*
Tripos ('82)
AmigaDOS ('85) *Amiga Workbench*

THE DOSH FACTOR

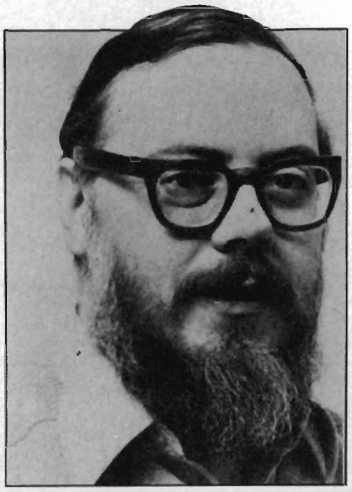
If you're interested in Mirage or OS9, try the following for size:

■ **OS9** – Compusense Ltd, Dept STU1, 68A Willoughby Lane, London N17 0SP (01-885 3300). Cost is £497.95 (!!), but that includes a developer's programming kit too.

■ **Mirage** – Sahara Software, Unit 5-11, Bondway Business Centre, 69-71 The bondway, London SW8 1SQ (01-735 3806). £99.95 inclusive of a screen editor and other goodies.

SWALK

Not all operating systems are as innocent as you might think. Some developers have been a touch naughty in the past by incorporating little 'messages' hidden deep in their machines. About the most famous example is the Amiga (the Amiga Corporation programmers having a four-letter dig at Commodore, who bought them out) but other machines have similar things. The Apple Mac SE has four digitised pictures of the development team in ROM – trust them to be one-up!



■ *Dennis Ritchie*

MULTI TASKING, MULTI FACTS

One of the main claimed advantages for the Amiga over the ST is its ability to 'multi-task' – this means running more than one program at a time.

In theory, all computers can multi-task using 'time slicing' techniques. Time slicing involves a computer performing certain tasks for pre-determined time intervals. If done fast enough – one slice is a mere fraction of a second – this gives the illusion that the machine is actually carrying out more than one task at once. In fact, every computer ever created multi-tasks, although it is usually only with functions such as keyboard scanning or refreshing the video display.

The Amiga allows user programs to be run concurrently too. However, this is only quite a simple multi-tasking environment, nowhere near the complexity of systems used by larger machines. For example, on mainframes, if one program crashes it doesn't affect the rest of the machine; on the Amiga the whole system tends to go down with monotonous regularity.

NEW VERSIONS OF WORKBENCH

By the time you read this, Workbench 1.3 should be available for the Amiga -- although it's been 'just a few weeks away' for several months now. At the time of writing the developers version consists of the actual Workbench 1.3 disk, utilities, manual as a text file, and complete source code. This little lot is packed onto five floppies! Actually, WB 1.3 has been delayed because it has ended up as is a merger between the originally planned v1.3 and some of the features of the next planned revision, v1.4.

Commodore plan to offer users the upgrade at a fairly nominal cost – like £15 for the disk set and a good sized manual (with even an explanation of the CLI in it!). If you have a hard disk you will need to replace your Kickstart ROMs as well as Workbench disk, so that will work out a little more pricey.

NEW VERSION OF TOS

Atari are set to launch another version of TOS, v2.00, fairly soon. Atari's UK HQ already have the gear, and it is just a matter of time before the end-user will be buying machines with the new ROMs fitted. Hopefully this won't cause the chaos their last upgrade (v1.9) did in by introducing incompatibility between versions.

You'll be able to to buy the new ROMs to fit to your old STs to upgrade them – but only recently made machines (those made since October last year) will be able to handle the new ROM set due to a change in chip structure. Expect to see versions around next year:

- *Improved disk copy functions, including single-step 'move' function. This will allow a user to copy and delete all in one. Copying too will be speeded up, by using more of the ST's memory as a transfer buffer to cut down on disk swaps.*
- *Disk file format is closer to proper MFM standard used by MS-DOS. There should be no need to use adaptation programs when transferring data between PCs and STs.*
- *No 400 file limit. Previous STs will not allow more than 400 files on any one disk.*
- *Use of 'Hot Keys'*
- *All data separators are now '/'*

This should provide a much easier to use, and 'cleaner' TOS!

– MC 68030 processor running at 20MHz
– Abaq-standard graphics, but no blitter chip
– 4Mb RAM
– 2 x RS232 ports
– 1 x Parallel port
– MIDI (music with Unix!?)
– VME compatible Bus
– Commodore are also planning a Unix system based around the Amiga, but with a much more powerful processor than at present – probably a 68030 again. Like the Atari, the machine will also run the latest version of Unix, release 5, and have a strong graphics flavour.

Hello Helios

One of the most exciting operating systems to be proposed recently is the Helios system by Perihelion Software. Unless you've had your head in an armadillo for the last six months, you can't have failed to notice that Helios is the the intended O/S for Atari's Abaq transputer workstation (now called the ATW rather than Abaq). It promises to be the first operating system to really take advantage of transputers, primarily their multi-tasking and multi-user capabilities. Transputers have the ability to multitask by virtue of their custom-designed processors, not just bolted on software. You can have several Transputers in one machine, each can either run an individual task or multi-task several on one processor, and the speed of the whole system multiplies up the more transputers you have linked together.

Helios takes advantage of all this, allocating tasks to between however many transputers happen to be around, and will probably become the equivalent of Unix for transputer based machines.

Looking ahead

Speculating on what will happen in the micro computer industry is always a dangerous thing. Helios apart, operating systems are not likely to change dramatically in the next few years, but after that?

One recent development is the *Linus* computer system which allows a user to communicate with the machine completely by writing commands onto a special 'pad'. The machine is fully portable, very user-friendly, and requires no keyboard at all. An icon of a standard QWERTY keyboard can be called up and each key pressed with the stylus! Because of its rugged nature (no fiddly moving parts), the machine is very useful for 'in-the-field' work such as nursing or construction applications.

Voice recognition has been speculated upon for many years, but there is still no system available for use in an everyday environment. Maybe with the advances in parallel processing and artificial intelligence, a system that can understand the spoken word might appear. At the moment, you can train a system to one person's voice, but recognising different voices, or even the same person with a cold, is nigh on impossible.

As for the hardware that these new operating systems will run on, you can bet a lot of machines will be switching to multi-processor (but still primarily single user) systems. The Amiga already has this in some ways – it's graphics are effectively handled by a co-processor for speed.

In the final analysis, the truth is always stranger than fiction. We'll all just have to wait and see.

STARGLIDER 2
Ugh!
A little more desirable than "FOUR CALLING BIRDS" don't you think?
VERMINATOR
CORRUPTION
Game of the year
RAINBIRD
Please send me further information on these Rainbird products.
NAME
ADDRESS
POSTCODE
Telecomsoft, First Floor, 64-76 New Oxford St, London WC1A 1PS.
Rainbird and Rainbird Logo are trademarks of British Telecommunications PLC.
Telecomsoft, First Floor, 64-76 New Oxford Street, London WC1A 1PS

SAMPLE CITY

Forget noises made by the ST's and Amiga's sound chips – they just don't deliver. What you need is something that can record and replay everyday sounds. The sonic equivalents of video digitisers are sound samplers. Richard Monteiro listens to the best of the latest bunch and provides tips for getting decent results from such packages.

The beeps and squeeks offered by most micros' sound chips (ST and Amiga included) are laughable. This is why musicians and game programmers have turned to alternative methods of sound production. You've played games that scream and groan, listened to demos with radio-quality sound tracks and used talking educational packages. Now you're dying to find out how it's done. Die no longer.

The kit that grabs everyday noises is known as a sound sampler. There's no magic to it; analogue sounds (that's sounds on a recording medium like record or tape) are shunted through a piece of silicon called an ADC (analogue to digital converter). You don't need to worry about the mechanics of the process, suffice to say that sound waves are translated into numbers. Once in this form, the computer can perform all sorts of operations on the sound – speed it up, slow it down, play it backwards, cut and move portions, add echo effects, filter certain frequencies...

There's plenty that can be done to digitised sound. Enough waffle though, find out what particular packages offer and decide which is best for you.

PRO SAMPLER STUDIO

£69.99 Amiga only ■ Datel Electronics■ 0782 744707

Although Pro Sampler can replay samples on two separate channels, all three input sockets – microphone, line and DIN – are mono. True stereo sampling just isn't possible. But what you can do is sample a drum beat on one channel and add miscellaneous effects on the other.

Rather than using frequency (in kHz) to measure sampling rates, Datel use something called DMA playback. The non-standard measurement ranges from 124 to 998 and increments in steps of two. Low values of DMA signify high sampling rates. Sampling rate is actually the DMA number divided by 3,580,000. Maximum and minimum sample rates are 28.9kHz and 3.6kHz respectively. Why make things difficult, Datel?

The software looks good and performs well. All the usual record and replay features are present... in duplicate – one per channel.

Block operations allow you to copy, cut, move and save portions of sample data, though you can't load blocks. Oddly, samples load into the start of the sample buffer regardless of block marker positions. This effectively prevents you adding one sound

MONEY FOR JAM

Datel provide an extra program with their sampler software, in the form of *Jammer*. This lets you play IFF8SVX format sound files at various pitches. Compositions can be created using any of four samples held in memory. Three-note chords are allowed, together with a drum track. Best results are obtained when the samples are very short – a single piano note, a blast from a trumpet, a drum beat or even a screeching human voice.

to the end of another.

Functions other than block manipulations, recording and replay are controlled from pull-down menus. Notable items include Octave, Phaseshift and Mix. Octave lets you choose the number of octaves saved from the sample in memory (saving multi-octave files eats disk space rapidly). Phaseshift, which can be used to create pseudo-stereo from mono signals, works by moving the left channel waveform 128 bytes forward in memory. If you copy the same waveform into both left and right channels and then use the phaseshift function, one channel will be delayed very slightly giving stereo-like sound. Mix works similarly to copy, except that one waveform is combined with the other. This can be used for adding voice-overs or for giving the impression of several instruments played simultaneously.

A three-dimensional display of the waveform in memory can be called up – totally useless, but interesting to look at. More useful are the functions providing an oscilloscope trace of any incoming sound, sample editing and sound monitoring. Most important facilities are present, with the exception of envelope editing and sample merging. No complaints with the price.

features	4.0
performance	4.0
ease of use	4.0
manuals	3.0
format value	4.0

PRO SOUND DESIGNER

£49.95 ST, £59.95 Amiga
■Power Computing/ Eidersoft ■ 0234 273000

All *Pro Sound*'s circuitry for converting analogue sounds to the digital equivalents is situated in a mouse-sized box – impressive compared to other manufacturers' offerings which house the same technology in a unit four or five times the size. The sampler fits in the micro's parallel port and draws its power from there. ST Pro Sound has an additional wire for connecting into the joystick port as the Atari printer port lacks power lines.

Perhaps most irritating is the 3.5mm Walkman-style socket, used for interfacing to audio sources, embedded in the Pro Sound box: most leads, hifi equipment and microphones feature the larger 6.3mm (.25", in case you're wondering why 6.3) jack.

The software is the most visually attractive of all sampler software with metallic-grey icons representing options. Two windows also exist; one for displaying the incoming sound signal (which produces an oscilloscope pattern when active) and the other for graphing the sample in memory.

Several decisions must be made before capturing a sound; the length of the sample (in memory terms), sampling rate and – for the Amiga version – whether the sample is mono or stereo. A grabbed sound can be played backwards, have sections cut, copied, moved and merged, replayed at any rate and played in a continuous loop.

Amiga and ST versions differ. Amiga extras first. Due to the Amiga's powerful sound processing hardware, up to four samples can be replayed simultaneously. The output is astounding when the Amiga is connected to a Hi-Fi. Sampling rates range from 1kHz to 28kHz, with playback between 1kHz and 35kHz. Eight samples can be held in memory, four if stereo sampling is selected, and each can use any amount of memory. Anti-aliasing circuitry in A500 and B2000 computers can be switched off to give a greater audio range. Samples can be compressed to half their original length and replayed at half their original playback rate. The resulting sound loses little quality, but takes up a lot less memory. An additional package is required for incorporating the samples into your own programs.

Two versions of the ST software exist: monochrome and colour. Both are present on the same disk. The colour version includes a sound chip editor while the mono version boasts similar compression techniques to the Amiga software. Sampling rates and playback rates for both packages range from 3kHz to 30kHz. Routines are present for adding samples to your own BASIC, C or assembler programs.

■ ***Pro Sample software looks lovely and works well. Left and right channels are completely independent - altering the sample rate for one channel won't affect the other.***

AMIGA	
features	4.0
performance	4.5
ease of use	4.5
manuals	4.0
format value	4.0

ST	
features	3.5
performance	3.5
ease of use	4.5
manuals	4.0
format value	3.5

DESIGNER EXTRAS

Pro Midi and Pro Light are available for the ST. Both cost £19.95. Pro Midi Plus and a Programmer's Toolkit are coming soon for the Amiga. Each will cost £34.95. Pro Midi allows samples to be used as instrumental voices on MIDI keyboards. Pro Light simply colour cycles in time to samples and music. The Toolkit lets you incorporate digitised sounds into your own programs – something ST Pro Sound can do without a backup package. All products are sold by Eidersoft.

MIDI KEYBOARDS AND SAMPLED SOUNDS

Contrary to popular belief, sampled sounds played across a MIDI synthesizer's keyboard do not emanate from the keyboard itself. MIDI is used simply to transmit 'play note at this pitch' messages between one MIDI instrument and another – in this case between MIDI keyboard and computer. Pressing a key on the synthesizer causes a sample held in the computers memory to play at a pitch relating to the key pressed. The sound comes out of the computer's monitor.

There are several packages for playing samples across a MIDI keyboard. *Pro Midi* ***(add Plus to the Amiga title) available from Eidersoft on 0372 273000 is one. Several libraries of samples, ranging from the cry of the Blue Whale to Bulgarian bagpipes, come on the disk. The software allows your MIDI keyboard to be divided into a number of segments with different sounds allocated to each segment. The Amiga version is four-note polyphonic which means four keys on the synthesizer can be struck to play four discrete sound samples.***

Aegis Sonix, ***£57.50, available from HB marketing (0895 444433) and*** *Deluxe Music Construction Set,* ***£69.95, from Electronic Arts (0753 49442) allow samples to be played from a MIDI keyboard as well as providing full composing, editing and MIDI control features.***

IS Midi Sample Player ***is a £29.95 extra for use with samples created by Innovated's ST sampler.***

Velocity testing, sample filtering, fading and pitch-bend effects add to the software's effectiveness. Even a two-note polyphonic mode is possible. IS Midi is certainly more powerful than Eidersoft's Pro Midi, but lacks friendliness.

Digisound ST software already has features for playing samples across a MIDI keyboard – no need to splash out extra cash.

SAMPLERS GALORE IN STORE FOR THE AMIGA

Along with Mouse Music and MSS (see panel on forthcoming ST sound digitisers), three other Amiga samplers are due for release. Zen Computer Services of 2 Silver Birch Grove, Swinton, manchester, M27 1FS will be offering the DIY A/D3 sampler for the paltry sum of £16. An assembled version will cost £25.

AMAS – Advanced MIDI Amiga Sampler – from Microdeal is due around December. It will be an 8-bit stereo sampler with line inputs, microphone input and MIDI IN, OUT and THRU ports. The software is promised to allow left, right or stereo sampling; sampling rates up to 28kHz; dual real-time oscilloscopes and spectrum analyser; cut, paste, and mix; stereo pan and bounce. Four-voice polyphonic, frequency shift and keyboard splits are pencilled in on the MIDI side.

Real-Time 16 Bit Sound from Adept, Switzerland, might be distributed by the Amiga Centre Scotland. This professional piece of equipment offers over CD quality sampling (45kHz maximum) and sits in Paula's socket. Paula must be moved onto the new board. No price as yet, but it ain't gonna be cheap. More from the Amiga Centre Scotland on 031 5574242 or Adept on 010 4121 233172.

DIGISOUND

£89.99 ST only ■ Siren Software ■ 061 228 1831

What a whopper! The *Digisound* hardware, that is. Moulded in the image of the ST casing and almost matching the Atari colour scheme, the sampler's only other distinguishing features are a 3.5mm socket for audio input and an interface for connecting to the ST's cartridge port. Opening the sampler reveals little more than fresh air and barren circuit board. That's because a 'professional' version of Digisound is due later this month which will use the empty bits of the board. More on the up-market model in the margin.

Unless you pay several hundred pounds, even thousands, it's unlikely that the sampler hardware will contribute much to the outcome of the digitised sound. Generally the software provides the perks.

The software doesn't look impressive, but boy does it perform. Options are picked in typical GEM-Desktop fashion, although several icons located at the bottom of the screen allow quick selection of more common functions.

Sample rates are fixed: 5, 8, 10, 16, 20, 25, 32 and even 40kHz – an odd restriction. Before sampling takes place, a requester pops up informing you of the maximum sample length (measured in seconds) that will fit in memory. You decide how many seconds of sample you need.

There are plenty of effects and editing features for performing on grabbed sounds. For instance, squeezing or stretching enables single-note pitch changes to be made; sounds can be forced to repeat over and over again; stunning echo effects can bring the sound alive by controlling the decay time, loudness and length; parts of a sound can be copied, cut and even mixed; sections can be faded in or out to remove defects; volume can be increased or decreased and the sound can be played backwards. All these effects can be applied to all or part of the sample. If you have a MIDI-equipped synthesizer attached to your ST, you can play sampled sounds across the keyboard's range.

The Digisound software is good; not easy to get to grips with quickly, but it has many excellent features. Effects can be added in real time (while the sound is being grabbed) or after. Most edits for the three highest sample rates can only be made during sampling – hardly surprising as the ST must work overtime to record or replay at these frequencies. More expensive than similar offerings, but then the software *really is* worth the extra.

features	4.5
performance	4.5
ease of use	3.0
manuals	3.5
format value	4.0

IS DIGITISER

£69.95 ST only ■ InnovatedSoftware/ Chips ■ 0903 700804

Like most ST sound samplers, *IS* slots into the computer's cartridge port. The hardware offers audio-in and audio-out phono sockets. Everything else of interest is supplied by the software.

Sample rates range from 1kHz to 31kHz plus an extra 48kHz. Anything sampled at 48kHz cannot be replayed through the ST's monitor speaker as the micro's output routines simply can't handle such high speeds. Remember, 48kHz translates to 48,000 samples per second. Instead a DAC (digital-to-analogue converter) on the IS circuit board sends 48kHz samples to the audio-out phono socket. By connecting an amplifier and speakers to the phono socket, high-quality samples can be

■ *Icons towards the bottom of the Digisound screen allow quick selection of commonly-used functions. From left to right: record, playback, play with pitch change, echo, scope, delete, cut, paste.*

PROFESSIONAL SAMPLING

Digisound Professional, which should retail at £139.99 when it comes out later this month, offers all the same features as Digisound plus:

Logarithmic Sampling – special hardware extends the dynamic range while reducing noise and distortion.**Internal Real Time Mixing** – two separate input jacks let you record from a powered source (tape recorder, CD player and so on) and an unpowered source (microphone) at the same time.

Playback Through External Amplifiers – sampled sounds can be replayed through the monitor or through a separate output jack on the sampler.

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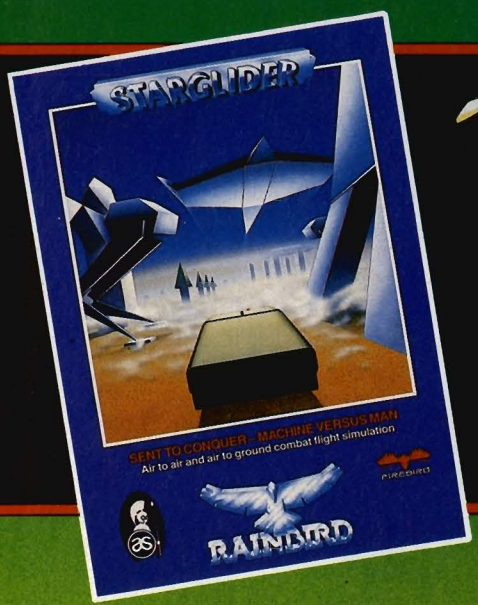
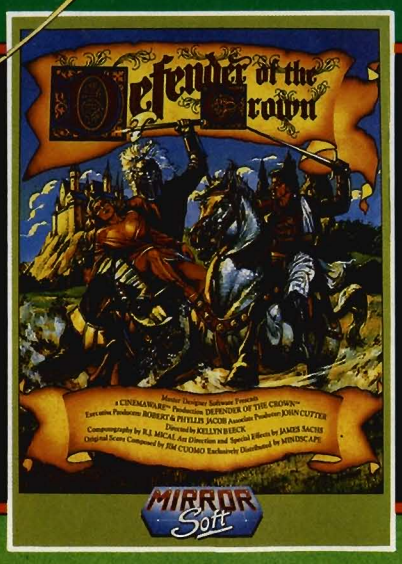
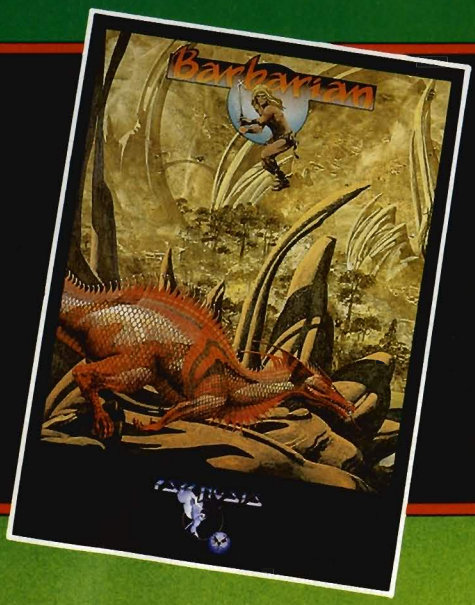
Atari ST screen shots

T'R I A'D

VOLUME · 1







A COMPILATION OF THE THREE CLASSIC 16 BIT HITS FOR THE ATARI ST & AMIGA

£29.99

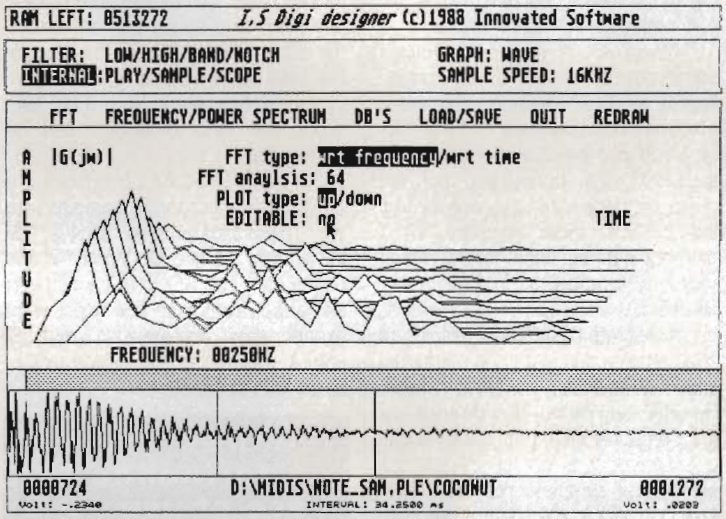
reproduced.

Extensive filtering can be performed on incoming (or outgoing) sounds. Filtering, incidentally, removes certain frequencies from the audio signal. The software filter is of the low-pass variety, and does what it says – allows low frequencies to pass unhindered to the speaker or audio-out socket, while leaving higher frequencies untouched.

Q-Factor, which can also be applied to samples, relates to the quality of the filter. A high Q-Factor gives a sharper cut-off at a specific frequency than a low one. The factor alters with sample speed and can be used on frequencies between 1kHz and 12kHz.

Special effects like Echo, Reverb and Mix can be brought into play on grabbed sounds. Echo does the obvious, Reverb gives replayed sounds depth and Mix allows a sample in memory to be blended with incoming sounds.

■ *Mixing incoming sounds with pre-grabbed sounds is great fun. Especially when you can change sample rate, effects and filtering at the same time. But then, that's IS Digitiser for you.*



■ *This is what Inovated's Digi Designer will look like when it arrives. Promised are options for enhancing, analysing and filtering captured sounds.*

The hardware can digitise sounds and output the data without storing any of the information – in other words you can monitor the sound before actually digitising it for real. The results of altering sample rates, reverb, echo and filter settings can also be monitored.

None of the common features expected of sampler software are missing, and the IS software provides many innovative functions. In addition to the excellent features already mentioned, waveform editing, oversampling, 4-bit, 7-bit and 8-bit sampling are possible.

On the IS disk are source listings in C, 68000 assembler and various dialects of BASIC for adding sampled sounds to your own programs. Many programs offer this, but none allow you to replay samples as a background task. And there's more: other source files let you mix Neochrome or Degas pictures with digitised sound. These can be modified to produce impressive slideshow programs.

With IS's impressive software, ample manual and easy operation, it sadly fails in one important area – volume. Unless the sound source is very loud (which tends to result in distortion), grabbed noises are replayed curiously quietly.

features	4.5
performance	4.0
ease of use	4.0
manuals	3.0
format value	4.0

SOPHUS S5

£148.35 Amiga only ■ Sophus/Amiga Centre Scotland ■ 031 5574242

For your money you get a box which accepts both mic and line level signals. That means you can plug a microphone straight into the sampler and record your voice – assuming your mic has a male phono plug. The S5 plugs into the parallel port; an additional lead must be fitted to the second mouse socket if you have

DIGI DESIGNER

Innovated Software are working on Digi Designer – a package that will enable you to synthesise your own 'sampled' sounds. Designer will work with either IS Digitiser software, IS Midi software or any package that allows you to sample and playback sounds. Sampled sounds can be enhanced, analysed and filtered with Digi Designer. FFT (fast fourier transform) analyses up to 256 steps. IS promises everything for the complete breakdown of sampled sounds and construction of others.

LET'S GET TECHNICAL

When a signal in a recording medium – record groove, magnetic field, electric voltage – varies in proportion to the sound wave that caused it, it is termed an analogue signal. In other words it is analogous to the original sound. It is very difficult to get a recorded signal to correspond exactly to the original sound as components can resonate, add harmonics and favour certain frequencies. These effects all introduce distortion.

Digital recording, or sampling, is an alternative method of storing sound waves. The process involves measuring the wave and accurately storing the measurements. Numbers don't grow or shrink on their own, so the process is extremely accurate – hence the sound quality of compact disks. Problems can occur, though, if some measurements are lost or not recorded in the first place. There must be a sufficient number of readings or samples to ensure the waveform is properly defined. Nyquist's theorem states that the sampling rate must be at least twice the highest frequency to be represented, for the reconstructed sound to be authentic. Compact disks store sound samples at 44.1kHz – this is enough to describe a wave of 20kHz (the highest frequency audible to humans).

The higher the sampling rate, the better the representation of the sound. But a higher sampling rate requires more memory to store the sound. Sampling rate also limits the highest recordable frequency.

Each sample is represented by a whole number, so the larger the number of measurable levels the more accurate the sample. Sounds stored on CD have 65,536 measurable levels. 65,536 levels because the largest value that can be stored in a 16-bit number is 65,535 (remember zero counts as a level in binary). That's where the term 16-bit sampling comes from. Most sampling hardware for the ST and Amiga offers 8-bit sampling, which gives 256 recordable levels.

COMING SOON TO AN ST NEAR YOU

First, news of Microdeal's Replay Editor Version 4.0. All the original features of Replay remain: medium and high resolution screens, 5kHz to 31khz sampling and replay, output to monitor speaker or Replay socket, mixing, cutting, copying, reversing.

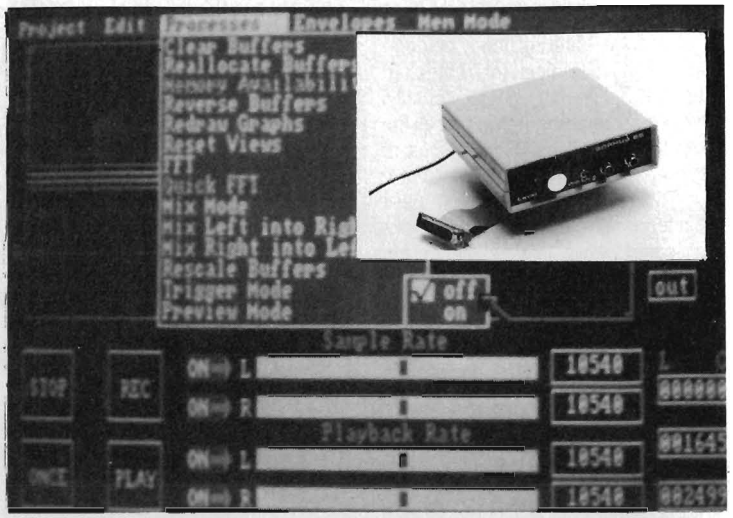
New facilities include proper WIMP control (mouse and drop-down menu selection), extra sampling frequencies at 50kHz and 61kHz which can only be replayed through the Replay socket, trigger, real-time oscilloscope with freeze frame, selectable waveform display style and up to ten preset samples on one-touch recall. MIDI is also supported. £79.95 for the new package. £10 and the old package to upgrade. More information from Microdeal on 0726 68020.

Due to Eidersoft's recent move, Mouse Music, the most exciting sampling board yet for ST owners, just missed making an appearance in this issue. Still, drool over these facts. But make sure you wipe the mess afterwards:

- *8-bit stereo or mono sampling up to 44.1kHz.*
- *Up to four channels can be replayed simultaneously. Each up to 44.1kHz.*
- *Samples can be replayed at 12-bit resolution. Again up to 44.1kHz and again up to four channels at the same time.*
- *Separate volume control on all playback.*
- *Software in ROM.*
- *MIDI compatibility.*
- *Library of 12-bit sampled sounds.*

Price will be £179 or £249 with a keyboard. Amiga owners watch out for a version which will sample on eight channels!

The Modular Sampling System mentioned in issue one is still going ahead, but it's unlikely Eidersoft will sell the final product. Instead parent company PCML is likely to set up another company to look after the product. The reason is that Eidersoft are seen as leading the entertainment market, rather than the professional market at which MSS is aimed. Exactly what the system will comprise is unknown, but sources say it'll probably offer 16-bit sampling, RAM and open architecture for expansion. An ST model will be out first with an Amiga version following fast.



■ *Sophus S5 stereo sampling software with hardware (inset). The hardware features two phono inputs which can accept either low or line level sound inputs.*

FILE FORMATS

Officially there is no standard Amiga IFF file format for stereo digital samples, however, IFF8SVX is supported by most Amiga sampler software. Also in use is a 'raw' format which is binary data with no header information.

either an A500 or A2000.

The software has two audio-input meters which bob up and down according to the noise level. An angry PEAK icon flashes if the level gets too high. There are two meters because S5 has dual inputs for stereo sampling. Sampling rates range from 50Hz to around 33kHz. That's for stereo sampling. Mono sampling can be up to 60kHz. It's all very well talking big numbers, but the Amiga can only replay sounds up to 30kHz.

Amiga sound hardware requires sound data to be in the 512K region known as CHIP memory. Expanded machines normally have FAST memory which can be used for programs and RAM disk operations, but not direct memory access as required by the custom sound circuitry. FAST memory can be used for recording very long samples, but not for replaying them. .

A Discrete Fast Fourier Transform of a sampled sound can be computed and viewed in graphic form. Unfortunately it's not that discrete, as the computer will come back with an out-of-memory error for all but the smallest of samples. You can forget fast, too – the calculations involved on a 1K sample will keep you waiting more than 70 seconds.

Envelope control is excellent. And the results of altering the envelope can be really spectacular. The volume and pitch of a sound can be shaped for either channel. Amplitude modulation (AM) varies volume while frequency modulation alters pitch (FM). Like sound samples, envelopes can be filed to disk.

A good selection of routines are provided to incorporate samples into your own programs in BASIC, CSI Multi-Forth, Lattice C, Modula-2 and Assembler. The S5 software features just about everything you might want except data compression routines and a monitor option. Pricey compared with the opposition.

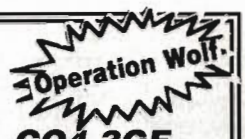
features	4.5
performance	4.0
ease of use	3.5
manuals	3.0
format value	3.5

SAMPLERS SAMPLED: THE FACTS

	Digisound ST	IS Digitiser ST	Pro Sample Amiga	Pro Sound Amiga	Pro Sound ST	Sophus S5 Amiga
Price £	89.99	69.95	69.99	59.95	49.95	148.35
Sample rates kHz	5 to 40 ①	1 to 31, 48	3.6 to 28.9	1 to 28	3 to 30	0.05 to 33
Sampling resolution	8-bit	4,7,8-bit	8-bit	8-bit	8-bit	8-bit
Filters		Q factor	hardware	aliasing		
External output	pro only	yes		yes	yes	
Microphone input	pro only		yes			yes
Compacting		yes		yes	yes	
Echo/reverb	yes	yes				
In-built MIDI software	yes	③		③	③	
Mixing	yes	yes	yes	yes	yes	yes
Connectors	3.5mm	phono in/out	6.3mm, din	3.5mm in/out	3.5mm in/out	phono * 2
File format	Digi/data ②	IS	IFF8SVX, raw	IFF8SVX	Pro Sound	SOP, IFF8SVX
Oscilloscope	yes	yes	yes	yes	yes	
Wave/envelope editing	yes	yes	yes			yes
Monitor	yes	yes				yes
Reverse	yes	yes	yes	yes	yes	yes
Fade in/out	yes			yes	yes	
Undo	yes					
Alter volume wave	yes					

① *Sampling rates in kHz are 5, 8, 10, 16, 20, 25, 32, 40.*
② *Data files compatible with Hippo and Navaronne samplers.*
③ *Available at a price.*

SOFTSELLERS



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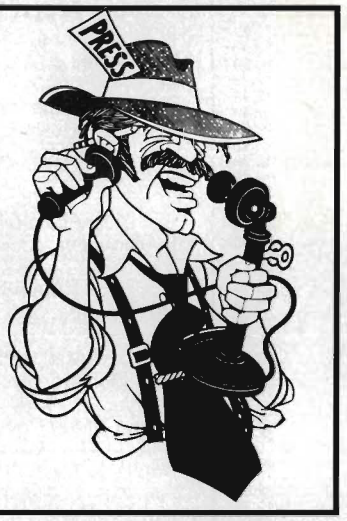

"I couldn't have put it better myself Lou. Just one point to add! These guys are the originators of good PD on quality Sony disks. You may see libraries such as TBAG and AMUSE advertised later by others, but remember, you saw it here first! And Lou did you know they'll be on stand 32 at the Commodore Show *in November?*"

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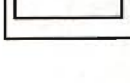

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DISK EXTRA

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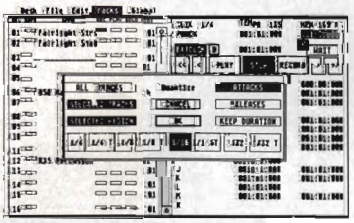
ST

34 COLOSSUS CHESS X

Possibly the strongest chess game there is... CDS's newest combatant certainly gave the Format team a good hiding. Check out its features and strategy in this tempting demo.

34 CHEATS!!

Virus and *Carrier Command* may have baffled you in the past, but these pokes with lay those levels open at last. High-five some high scores!



36 MIDI SEQUENCER

So the ST's got a MIDI port, but what can you *do* with it? At last we've found a program worthy of the Format cover disk with this real giant killer of a sequencer. Transposition, quantising and up to 32 tracks make this a must for all MIDI musicians.

36 DIAMONDS

OK, mono monitor users, think we've forgotten you do you? Not us, matey! Diamonds is a great little *Boulderdash* type game that even includes its own screen designer... just for mono users.

36 ACCOUNTS

Get the better of your Bank Manager at last. *Accounts* is a simple but full-featured money management program that will let you see at a glance the state of your overdraft.

36 FORMAT 11

Let's face it, the ST's 720K maximum disk capacity is puny compared to the Amiga's whopping 880K. With *Format 11* you can make Amiga owners jealous and make disks with over 920K on a double sided disk and 450K on a single sided.

AMIGA

35 PERFECT SOUND

Get involved in the latest craze to sweep the music world with the Perfect Sound editor. Perfect sound lets you cut, paste, reverse and perform a whole host of wondrous operations on standard IFF sound samples.

35 SLIDESHOW

Does a program exist on the Amiga that requires no annoying setting up and no complicated

mouse selection? It sure does! Enter SlideShow, a program that gets the *Format* prize for ease of use.

37 AC-WINDOWS

AC-Windows is destined to become one of those programs that no AmigaBASIC programmer would ever be seen without. Start using this program and you'll wonder how you ever coped without it.

37 HANDY ICONS

Load all your important programs without ever having to click on an icon or type a single character. Not possible you say! It is with Handy Icons. Handy Icons adds an extra menu to the standard Workbench screen.

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We're looking for good quality software to fill our cover disk each month. If you're a nifty programmer you could earn big bucks from your labours – games, business applications, utilities, or anything of general interest.

Turn to the end of this section for more details on how to get your software onto the Format cover disk.

DISK

WIN THE FULL GAME

So you reckon you're sharp at chess, do you? Here's a challenge then: in this demo version you've only got 15 moves, but it *is* possible to win. The so-called 'Fool's Mate' takes four moves, but needs a wilfully suicidal opponent! We want to know the best solution to beating Colossus Chess *on this demo version* – set its time limit to however low you like, then work out your winning strategy. Send your moves to us at: **Colossus Chess Competition, ST Amiga Format, 4 Queen Street, Bath BA1 1EJ** by Friday 16th December 1988. The best solution wins a copy of the full game, courtesy of CDS.

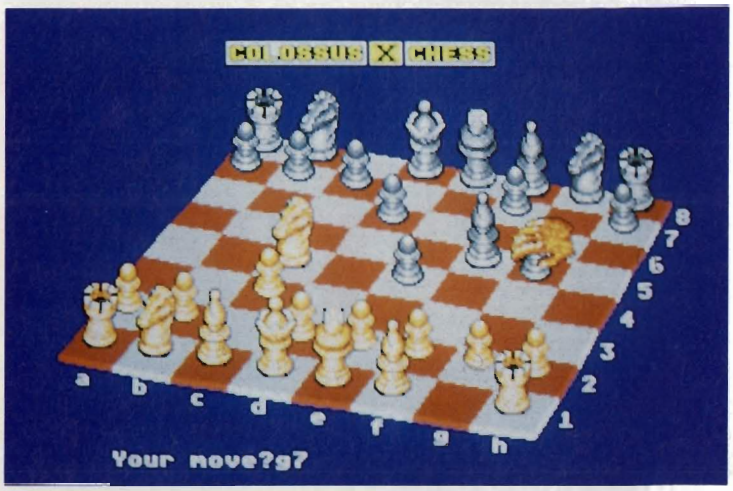
ST

First, copy and load the disk as described at the end of the Disk Extra section.

COLOSSUS CHESS X DEMO

Colour STs
Folders: ADVERTS, LANGUAGE, PIECES
Files: CC.PRG, COLOSSUS.PRG, COLOSSUS.SET

For chess players of all levels, CDS's newest challenger should prove a worthy opponent. Certainly the full version we reviewed this month reached the heady heights of Grand Master of the Format Offices with little difficulty. To get this exclusive demo version going, either use the CLICK_ME menu program or double-click on the COLOSSUS.PRG icon at the main window.



■ *Colossus Chess dreaming of Kasparov and Karpov*

The first thing to do is to set the level of play – you do this by specifying a time limit in which Colossus has to move. Move the mouse up to the top of the screen and from the 'Play' menu click the left mouse button on the 'Type of Play' option. Click on 'Average' in the box that appears, then use the up and down arrows to set the ST's time limit. As a guide, 10 seconds thinking time is an average game, 1 minute would be quite a strong play. Set it to 1 second if you want an easy win!

After this, you've got 15 moves to assert your mastery. The demo will end after this time, or if you enter an

AMIGA

First, copy and load the disk as described at the end of the Disk Extra section. These programs run on all three Amiga models. We have been unable to test them on the early version of the Amiga 1000.

PERFECT SOUND

Public Domain
All Amigas
Filenames: PERFECTSOUND, PERFECTSOUND.DOC

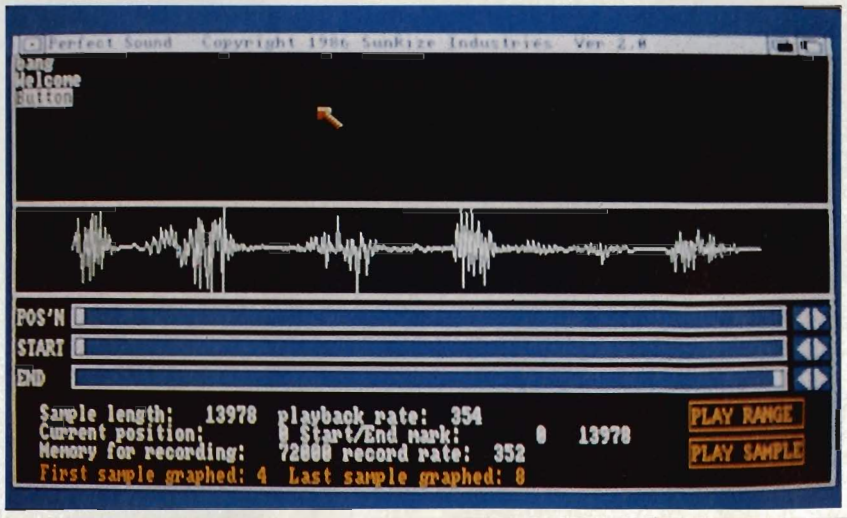
On your way to these pages you may have noticed that this month's *Format* features an in depth review of the latest and greatest sound samplers for both the Amiga and ST. So you can see what the fuss is about for yourself, we present the *Perfect Sound* editor.

Perfect Sound is a fully featured sound sample editor designed to complement the sampling hardware of the same name. We were unable to find a UK distributor for the Perfect Sound hardware mentioned in the documentation files, but any sampler that connects to the Amiga through the parallel port will work fine with Perfect Sound. Of course, you could contact the manufacturers, SunRize Industries in the States.

Even if you aren't the proud owner of a sound sampler, Perfect Sound is still both useful and above fun as the package works with IFF sample files. If you bought issue 4 of *Format* then you will already own a selection of suitable files for use with Perfect Sound. Just load any of the `.snd` files from that disk. If all else fails, we've included three sample digitised sounds for you to tinker with. These files, named `demo1` through to `demo3` can be found in a directory called SOUNDS (seems logical!).

Perfect Sound is operated through the use of both standard pull down menus and various on-screen gadgets. When loaded from drive DFO: (your internal drive), three demo samples will automatically be pulled into memory from disk. To play any one of them, just move the mouse pointer over the sample filename and click the left mouse button. Perfect Sound features some very powerful features such as the ability to combine two independent samples into a one stereo sample as well as the more conventional features such as cutting, copying and pasting chunks of sound sample. Experimentation is the key.

You can load Perfect Sound in several ways. Insert the coverdisk at the 'Insert Workbench' prompt when your Amiga is turned on or reset and Perfect Sound will then automatically



■ ***Perfect Sound lets your Amiga massage (or is that massacre?) respectably digitised sound samples. See what you can do!***

COLOSSUS CHESS X
THE ULTIMATE CHESS PROGRAM

THE FULL VERSION

So what's missing in this stripped-down version of Colossus? Well, obviously the full game has no limit to the number of moves for a start. The opening book has been removed too – usually the program has a library of hundreds of standard openings, which adds variety to the start. On the demo version, if you make a particular opening move the computer's response will be the same for every game you play.

You can't save or load a game, nor can you specify a particular opening position (handy for pondering newspaper chess problems) as you can in the full version.

■ For more details contact CDS Software, Beckett Road, Doncaster, South Yorks DN2 4AD (0302 321134)

'endgame' phase. The endgame happens if you spend all your moves frantically swapping pieces so that there are only a few left on the board, but that's unlikely to happen on the demo.

To move a piece, click on it and click on the square it is to go to. Alternatively, drag it to its destination. It is possible to win within 15 moves!

One nice feature is the ability to view the board from any angle. Using the *right* mouse button, just drag the board to the viewpoint you want and it'll be redrawn for you.

Have fun exploring the menus – you can have soothing background music playing, make the ST read its moves out to you, list your legal moves, have a simple 2D display, change the set pieces to mediaeval, oriental or futuristic styles, or even play blindfold!

CHEATS

Colour STs
Filenames: VIRUS.TOS, CCMCHEAT.TOS (Chris Kingsley); LOADS.CDR (D. Morgan)

OK,so you've been playing *Virus*, *Carrier Command* and *Elite* for a couple of months now. You've done the decent thing. No-one can say you didn't try. But it's time to indulge in some underhanded action-busting – get these cheats to work and get that high-score table rolling!

For Virus and Carrier Command, run the appropriate .TOS file by double-clicking on it, or by making the appropriate choice from thje CLICK_ME menu program. Follow the prompts and swap disks as instructed. These cheats don't alter the game disk, so you can play the uncheated version at any time.

LOADS.CDR is a special saved game for Elite which gives you loads of credits. Simply run the game and use the 'Load' option to load LOADS.CDR. Carry on playing with the extra credits.

For full instructions, see this month's 'Gamebusters' pages.

load. Perfect sound can also be run from both our cover disk menu program, Click_Me, and by directly clicking on its cassette recorder-like icon on the Workbench. Instructions can be found within the Perfect Sound drawer.

SLIDESHOW

Shareware – see margin note
All Amigas
FILENAMES: SlideShow,

It seemed impossible. The task, to find a program that is so blindingly useful but was so simple to use that even little Agnes our office Armadillo could operate it with ease. It was hard, but we did it. Enter SlideShow, the program that gets the *Format* prize for ease of use.

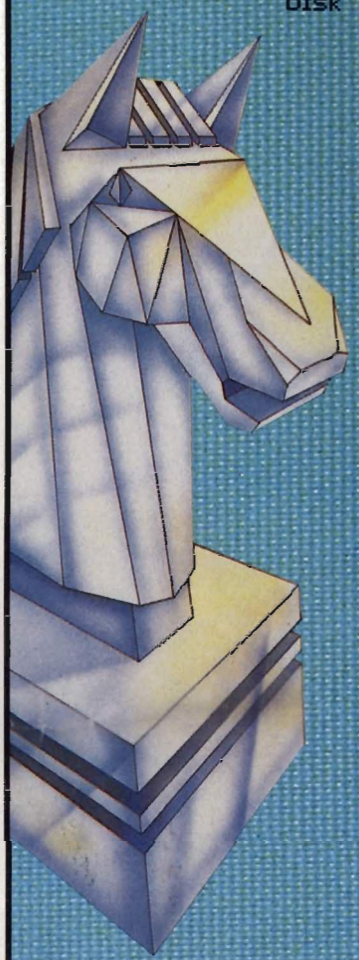
SlideShow, as you may have already guessed, is a program designed to display low resolution, IFF pictures with up to 32 colours. Nothing special there, you may say, but the wonderful thing about SlideShow is both the way it displays pictures and how easy it is to use.

SlideShow also employs a novel method of display pictures. Most other programs of the type display a picture, blank the screen then display the next but SlideShow uses a more impressive system of wipes, similar to those found in commercial desktop presentation packages such as Aegis' *Lights! Camera! Action!* reviewed last month. Fifteen wipes are available in all to give your slideshow that professional look.

All the pictures you want to display must be in the same folder as the SlideShow program. Simply double-click the program icon and it automatically searches through its directory for any low resolution IFF pictures and displays them. Once a picture is displayed, clicking the left mouse button will make the slideshow advance onto the next frame and the right mouse button moves back a frame. When you reach either end of your slideshow the screen will flash. Once you've seen enough, pressing Q will quit the program.

Full instructions are available in the SlideShow drawer.

DISK



SHAREWARE

The Amiga program SlideShow is the first shareware program we have used on our cover disk. Shareware is Public Domain with a difference – you can freely copy and distribute shareware, but if, after evaluating it fully, you feel it is useful then you are asked to send a donation to the author. He will often send you back a more up-to-date version of the program and printed documentation.

Please read the SlideShow documentation file for details of the author's address. He lives in the States, but even so we would urge you to do the decent thing and send him some money – only if you find his program useful though.

■ ***Strawberry fields forever. Slideshow (Amiga) provides a superb variety of wipes and picture fades in a simple to use program.***

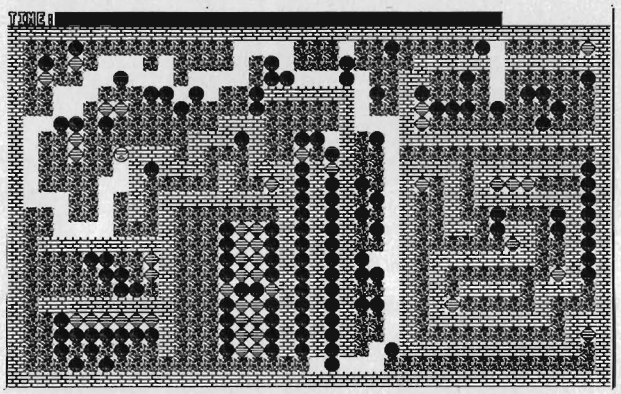
DISK

ST

DIAMOND

Public Domain
Mono STs only
FILENAMES: DIAMOND.PRG, DIAMOND.DOC

If you've got a monochrome monitor attached to your ST and feel like a change from the usual boring Word processors and Spreadsheets then look no further. Diamond is an excellent arcade game which betrays an unmistakable influence from the popular Commodore 64 game *Boulderdash*.



■ ***Bringing mono ST owners in from the cold – Diamond is a heart-warming version of an old favourite***

The aim of the game is simple. Using a joystick in port two, you must control our little hero by guiding him around a variety of different screens collecting the gems that are scattered randomly about. To make life harder, the ground in which you are digging is filled with huge boulders that if dislodged will come tumbling down upon your head. As if this wasn't enough, you can only stay underground for a short time before the air runs out and you suffer a terrible death by suffocation. The odds are stacked against you, but you're the only one who can do it...

Those of you with colour ST systems can of course still take advantage of this great program by first running the Mono Emulator program we featured on issue two's disk. Full instructions are included in the Diamond folder. Right, stop reading and get digging!

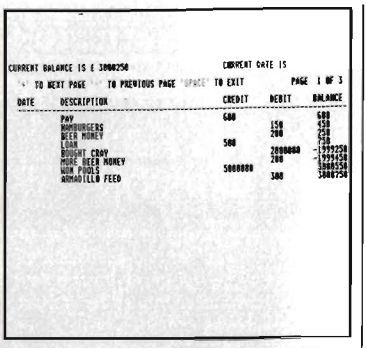
ACCOUNTS

By M. Wright
All Colour STs
Filenames: ACCOUNTS.TOS, ACCOUNTS.DOC

If you're just one of those people who, at the end of every month, always finds themselves with an overdraft larger than the national debt of Mexico then you'll no doubt be pleased to hear about this great little money management program, *Accounts*.

Accounts is a feature packed money management package that lets you keep a close watch on the old liquid assets without having to bother your bank manager. It provides for up to 54 transactions and 9 monthly payments such as mortgage and Bank loan repayments.

Accounts automatically stores all transactions in a file called RECORD.DAT which is read into the program when it first loads. If this file does not exist (as it won't the first time you use it) it will ask you if you wish to create a new file. All the features within Accounts are accessed through a nice friendly menu.



■ ***Look after the pennies and you'll soon be broke – unless your ST gets to grips with Accounts***

All Accounts' features are fairly self explanatory but for further information read the file ACCOUNTS.DOC.

FORMAT 11

Public Domain
All STs
Filenames: FORMAT_11.ACC, FORMAT_11.DOC

Every since the ST was first released, the major complaint of most users was the rather unimpressive disk capacity on single sided systems. As seasoned readers will be aware, we have already published a disk formatter on issue one's disk so why another? The answer is simple: we were so impressed by the increase in disk space available when you format a disk with *Format 11* that we are sure that you wouldn't want to miss out on this real gem of a program.

Format 11 increases the available disk space on a single sided disk to over 450K, and if you have a double sided drive then you'll be able to store almost a full Megabyte on a single disk. Format 11 works by increasing the number of sectors from the usual nine to eleven, hence the name.

Format 11 is an accessory program and therefore cannot be run in the normal point-and-double-click fashion. To load Format 11, copy the file FORMAT11.ACC to the top directory of your boot disk (A:\) by dragging its icon from the Format 11 window to the DRIVE A icon. Once the file has successfully copied, reset your ST with the boot disk in drive A and Format 11 will automatically be loaded. Once the desktop screen appears, drag the mouse pointer to the Desk menu at the top left hand corner of the screen and a menu will drop down containing a menu item called FORMAT_11. Select this and Format 11 will run. Further instructions are included in the Format 11 folder.

MIDI SEQUENCER

Public Domain
All STs
Files: MIDI.PRG, MIDI.DOC

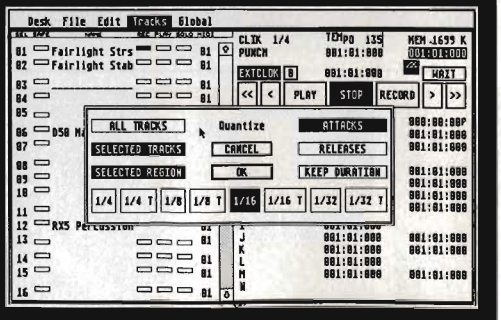
We at *Format* pride ourselves in bringing you the best programs for your ST and with MIDI Sequencer we think we surpassed ourselves.

A sequencer, in case you don't know, is basically a computer tape recorder. By connecting a MIDI compatible instrument to the ST's built in MIDI interface, it is possible to control it directly through your computer. Many top musicians including *Jean Michel Jarre* and the *Pet Shop Boys* use computers for this very reason. If you were lucky enough to see Jarre at his recent 'Destination Docklands' concert you would have witnessed a very vivid example of the power of MIDI sequencers.

The MIDI sequencer featured on this month's cover disk is a real giantkiller. Many of its features, such as transposition and quantising, you would normally only expect to find in professional packages such as the hugely popular *Pro-24* and *Dr.T's KCS*. Midi Sequencer even betters the king of sequencers Pro-24, in the number of tracks available. Pro-24, as the name suggests, offers 24 tracks where as our cover disk sequencer offers a whopping 32.

MIDI Sequencer offers a wide range of features including real-time recording and full aftertouch control. To take advantage of this power packed package requires a MIDI compatible device, preferably a keyboard of some description. If you've been considering moving into the exciting world of computer music then perhaps now is the time!

Don't worry if the program seems complicated, just take a look at the five pages of on-disk instructions for a full description of all MIDI Sequencer's features.



■ ***The ST MIDI Sequencer strutting its stuff***

AMIGA

AC-WINDOWS

By D. Marsh
All Amigas
Files: AC-WINDOWS, AC-WINDOWS.DOC

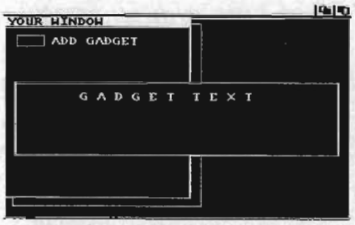
Calling all AmigaBASIC programmers! As you will all know, WIMP based programs are all very nice for the user but can be a real pain to set up for the programmer. No matter how many calculations you carry out before hand, something, be it a window or gadget, always seems to end up in the wrong place. Other programming languages on both the Amiga and ST feature what are commonly known as *Source Code Generators* which let programmers design their screen displays almost if they were drawing them and then have the finished screen saved as ASCII source code ready for inclusion in their own programs. You too can play the generation game with AC-Windows.

AC-Windows is a full-featured AmigaBASIC source code generator that will churn out the BASIC code for your program. Just design the window and gadgets you want your program to generate by using the menus, then select 'Generate' from the pull down menus and your screen display will be saved as a stand alone subroutine that only needs to be merged into your program and called using the *GOSUB* command.

You can load AC-Windows by clicking on the AC-WINDOWS icon on the Workbench. AC-Windows will not run from our cover disk menu.

Once AC-Windows has loaded, a blank screen will appear. A full tutorial detailing a sample work session with AC-Windows is included within the documentation but for those of you who are too impatient then here's a brief run down of what to do:

- Decide on what screen resolution you want your screen to appear in. The default resolution is medium res but by selecting SCREEN from the PROJECT menu the screen will change to low resolution.
- Place a window on your screen and then size if to your specification.



■ ***AC-Windows takes the pain out of AmigaBASIC programming***

By using the two menu items POSITION and SIZE from the WINDOW menu this can be easily achieved.

- Once your window is positioned to your liking, select KEEP from the WINDOW menu and your window is no in place. AC-Windows will now let you place both standard window gadgets and custom gadgets into your window.
- The final step once all your windows and gadgets have been placed is to convert what you have designed into useable source code for inclusion in your own programs. Select GENERATE from the PROJECT menu, enter a filename and your screen display will be saved to disk as source code.

HANDY ICONS

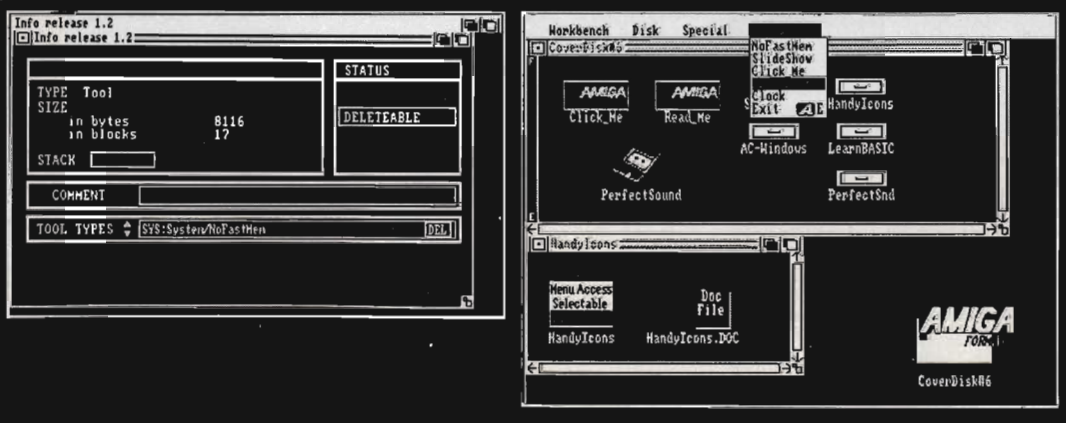
Public Domain
All Amigas
Files: HANDYICONS, HANDYICONS.DOC

Contrary to what both Atari and Commodore would have us believe, WIMP based systems can often be more confusing then the conventional command line interface as used by lesser (!) machines such as PC compatibles. Before you know it, the screen soon becomes extremely cluttered and trying to find a particular window can become an almost laborious task. Wouldn't it be nice if you could tell the Amiga to memorise a list of heavily used programs that could be executed from the Workbench menus? Yes, you've guessed it, Handy Icons will allow you to do just that.

Handy Icons adds an extension to the standard Workbench menu strip which will let you run programs by selecting them from a pull down menu. The number of programs which can be entered onto the menu list is limited only by the current font size and screen resolution. Using the standard Workbench resolution (medium res) it is possible to have up to 22 items within the menu list.

To add a program to the menu, click once on the HandyIcons icon and then, while keeping the right mouse button down, select [illegible] from the WORKBENCH menu. If you're using a single drive Amiga, you will be asked in re-insert your Workbench disk and after a few moments' disk access, a full screen window will appear. Somewhere within this window is a strip entitled [illegible] which contains a text gadget and two other gadgets entitled [illegible] and [illegible]. Click on ADD once then click somewhere within the blue text line and a cursor will appear at the beginning of the line. You must type the filename of the program you wish to be added to the menu including it's full directory path. For example, it you wished to run the slideshow on this month's disk you would enter [illegible] and press RETURN. You have now added a program to the menu list. Repeat this process until you've added all the required programs t the menu and then select the orange [illegible] gadget. Once this is complete it's time to run HandyIcons by double clicking on the HandyIcons icon.

If you are now completely baffled by the last paragraph then you will be pleased to know that full instructions are included within the program in HandyIcons drawer.



■ ***Handy Icons (Amiga) puts your favourite programs into a menu. Banish those icons for ever! On the left is the Icon Info editing screen – use this as the .DOC file directs to install your applications, then you get the modified Workbench screen on the right.***

DISK

HOW TO USE THIS DISK

DISK DOCUMENTATION

Many of the programs on *ST Amiga Format* disks are Public Domain. In such cases we've simply passed on their standard documentation files unchanged, as is required by the PD code of practice. Some of the phrasing is 'idiosyncratic', shall we say, so please don't blame us for misspellings!

The *ST Amiga Format* cover disk is a special format disk which both the ST and the Amiga can read. Even if you are a seasoned computer user, please read these instructions carefully or you could permanently damage your copy of it.

The first thing you must do is make a backup copy of the disk. Because of the special format, the normal disk-to-disk copying methods, as recommended in the Amiga and ST manuals, won't work. Instead you will need to format a blank disk and copy the files individually. Don't panic, this isn't at all difficult.

ON THE ST

(assuming a single drive machine)

1. Take a blank disk and format it in the usual way.
2. With the blank disk still in the drive, double click on the A: drive icon to open up the (blank) contents window.
3. Now drag the icon for drive B: into the open window of disk A. This will copy all the files one by one off the master disk to your new disk. *Make sure that the master ST Amiga Format* disk is write protected (the sliding tab should be back so the hole is open) and put it in the disk drive when asked for disk B.
4. You will now be prompted at various times to insert disk A and disk B while copying takes place. There will be a lot of swapping to do on a single drive ST! Disk B should be the master disk, disk A your newly formatted copy.

If you want to cut down on disk swaps, you can use a RAM disk program like the Eternal RAM disk program provided on last month's disk as an intermediate step.

ON THE AMIGA

(assuming a single drive A500)

1. Start your Amiga up with your normal Workbench boot disk.
2. Take a blank disk and initialize it in the usual way.
3. *Make sure that the master* ST Amiga Format *disk is write protected* and put it in the disk drive. Double-click on the disk icon that appears. Drag any icons you see in the contents window onto the 'RAM disk' icon.
4. When the disk activity light has gone out, put your newly formatted copy disk in the drive instead. Double-click on the RAM drive icon to open its window, and drag program icons from that onto the new disk icon. This copies the files one by one.

The programs may not all fit in the RAM drive at once on an A500 – do whatever will fit, then after step 3 delete them from the RAM disk by clicking once on each and, holding the right mouse button down, selecting discard from the Workbench menu. Repeat steps 2 and 3 for the rest of the icons.

Using the programs

ON THE ST

When you turn the ST on and put your working copy of the disk in the drive, you will see a window opened with the contents of the disk displayed.

One of the icons is called CLICK_ME.PRG – just do what it says, double-click to run it. Up comes a list of the disk contents. Type the number of the program you want to run, and you are asked whether you want to read the disk help file or not.

You will now be asked whether you want to run the program or not. As an alternative to using CLICK_ME.PRG, if you know enough about GEM you can click directly on the icons for individual programs. These normally end .PRG with their documentation files having the same names but with .DOC filetypes. Always read the documentation before running the program.

ON THE AMIGA

Most of the programs on the cover disk are run from the Workbench, which must be loaded first from your normal start-up disk, as described in the Amiga manual. Once at the Workbench, put the ST Amiga Format disk in the drive and double-click on its icon to open it.

You should find on the disk an icon for a program called CLICK_ME; do exactly what it says and after a few seconds the cover disk menu program will have loaded. If you own a single drive Amiga then your machine will prompt you to swap disks a couple of times before the menu is loaded. Just follow the on-screen requesters and everything should load fine.

Most of the programs on the disk can be executed from CLICK_ME by selecting them from the menu and choosing either to view the program's documentation or load the program. If a program fails to load from this menu (this sometimes happens through shortage of memory on unexpanded systems), you can load it from the Workbench instead, by clicking on its icon.

To load a program from the Workbench, you must first Click open the drawer which contains it. For detailed comments from the program's author click on the .DOC file icon in the same folder; to run the program click on the main icon.

When you click on a documentation file, a new window is opened and the text is displayed a screenful at a time. Press any key to move from one screenful to the next, or click on the close gadget in the top left-hand corner of the window to cancel the display.

HAVING TROUBLE WITH THE DISK?

We have done our best to check that the programs supplied on this month's disk are simple to use, error free and have no known viruses. However, we cannot answer telephone queries on using the software, and we do not accept liability for any consequences of using the programs.

If your ST Amiga Format disk is faulty – and out of 40,000 duplicated some are unfortunately bound to be – you should send it back for a free replacement to:

ST Amiga Format December Disk, DisCopy Labs, 20 Osyth Close, Brackmills, Northampton NN4 0DY.

AMIGA OWNERS: if your Amiga refuses to accept the disk, try using the DISKDOCTOR utility on your Commodore Workbench disk to rescue it before sending off for a replacement. We covered DISKDOCTOR fully on page 93 of Issue 1. Don't worry if every track gives you a 'hard error', this is the Amiga being unable to read the ST software on the disk.

WE WANT TO GIVE YOU MONEY!

If you've got any programs for either ST or Amiga which you think other readers would find useful, interesting or amusing, we'd like to know. Here's how to go about securing international fame for yourself:

1. Only send in programs on 3.5" disks; we cannot accept printed listings.

2. Make sure your disk is clearly labelled with your name and address and the program name(s), and is marked 'ST' or 'Amiga'.

3. Make sure there's a documentation file on the disk called README.

4. Enclose a clear covering note explaining what the program does, and if you possibly can please also send a printout of any on-disk documentation files. Remember your address and telephone number. Include a stamped return envelope for the disk if you want it back.

5. THIS IS IMPORTANT: there must be a signed statement that the program is yours and that you are prepared to assign publication rights to ST Amiga Format. Use the following wording:

The program/s (write the title here) is/are submitted for publication by *ST Amiga Format* magazine. It is my own work and has not been submitted for publication elsewhere.

Signed ...

If we accept your program, we will get in touch with you before publication to agree terms and payment rates. We will evaluate all submissions in a batch once a month, so please allow up to 40 days for return of your disks. We will only send back disks with adequate return postage and packing.

6. If you send us a disk with a virus on it, we reserve the right to send round the heavy mob in the small hours and do unspeakable things to your pet armadillo. Seriously, since we've already supplied Virus-killer programs (in Issue 1), do check your disks carefully.

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REVIEW

COMIC SETTER

£69.95 ■ Amiga only, requires 1MB ■ Gold Disk/HB Marketing, Brooklyn House, 22 The Green, West Drayton, Middx UB7 7PQ (0895 444333).

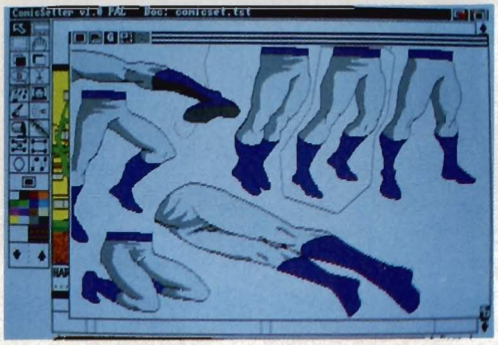
CLIP ART

If you want a quick way in to comic creation, there are three disks of Clip Art available at £25.95 each. These cover Science Fiction, Super Heroes and Funny Figures. They all have a selection of backgrounds, characters and effects for you to re-use. Of course, you'll have to draw your own in the end if you want to be original, but these disks show you what elements you need and how to draw them. It's great fun just to see a screenful of disembodied superhero legs!

There are many excellent art packages available on both ST and Amiga, but they all have the same basic flaw: if, after spending hours drawing a masterpiece, you change your mind and want to alter the background or enlarge one of the characters, then you're in for a painstaking session of pixel-punching.

The problem is that art packages treat the whole screen as just one amorphous mass of pixels – there is no way to make the software recognise a scene with a tree, a dog and a cat, for instance. It would be nice to be able to instruct the program to 'move the dog' and let it do all the hard work for you.

Comic Setter is the first art package to tackle this by taking an 'object-based' approach to what is drawn on screen. Don't be fooled by the name – although the marketing pitch and the clip art supplied aim it firmly at the comic artist community, Comic Setter is a powerful general art package



■ ***About to import some clip-art into Comic Setter. This set is from the 'Super Heroes' disk, which contains screenfuls of parts of the body. See your heroes as never before! The middle of the three sets of vertical legs has been outlined with the polygonal clipper, and is about to be taken into its panel.***

Bitmap graphics

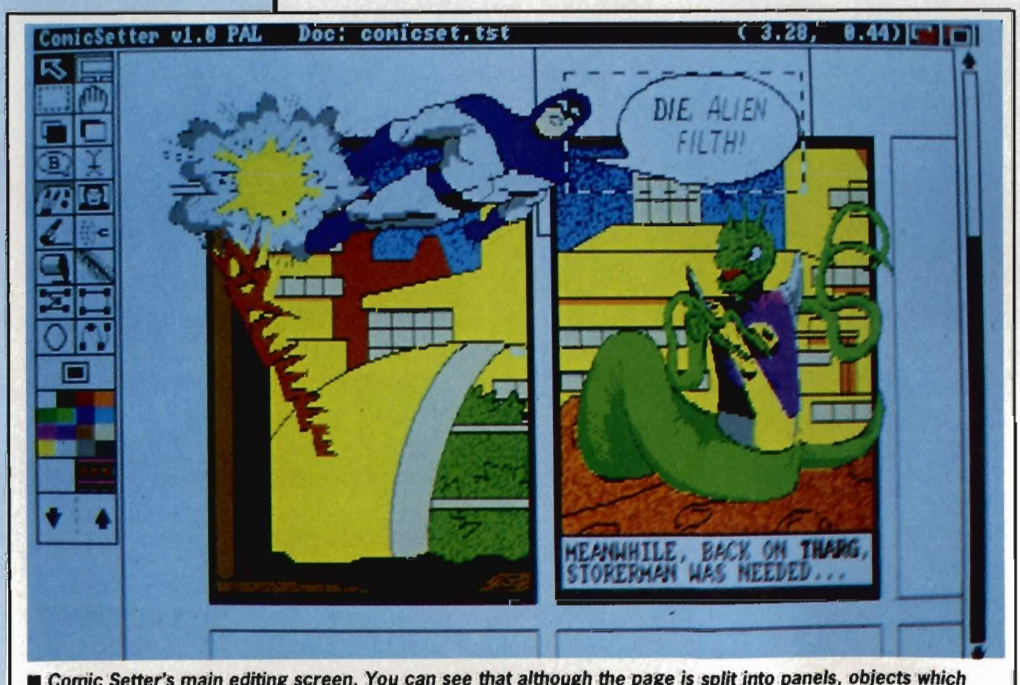
Comic Setter needs a megabyte of memory to run in. All work is in medium resolution, which means you have 16 colours to play with.

The drawing screen is based around the concept of panels and objects. Before you can put anything onto the screen you must define a panel to contain it; panels are rectangular boxes which limit the size of any graphic in it. The panel can then be moved around, and all the items within it move together.

You can create two different types of object: 'bitmap' graphics and 'structured' graphics. Bitmap graphics are the good ol' pixel images that any conventional art package produces. You can either import bitmap graphics from existing picture files or create them from scratch within Comic Setter.

To import a bitmap, you first select a panel for it, whereupon the full picture file is displayed in a special graphics editor window. The graphics editor shows you the size of the Comic Setter panel into which the graphic will go – you position this over the area of the image you want, and click the mouse button to clip and copy the section. Alternatively, you can use a special polygonal clipping tool – you draw a series of straight lines around the area to be clipped by clicking on points around it. There's no limit to the number of points you can define, so you can accurately clip a character out of a background by tracing around it.

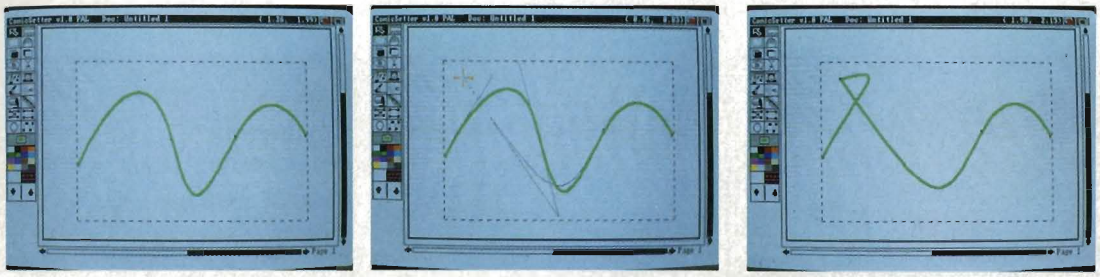
If you import a bitmap bigger than the panel you've defined, you can further clip or scale it within the main part of Comic Setter



■ ***Comic Setter's main editing screen. You can see that although the page is split into panels, objects which burst out of their panel can still be seen, allowing you to break the borders quite effectively. The speech bubble has a dotted rectangle around it – this means it is the 'active object'. You can edit the text in it or alter the bubble shape. The graphics were imported, not created within Comic Setter.***

Structured graphics

If you've ever used a CAD-type drawing package, you'll already know the basic principles of structured graphics. In a nutshell, Comic Setter provides polygon, rectangle, circle and curve drawing tools. Normal art pack-



■ *Editing a Bezier curve (a structured object) in Comic Setter. First, click on the curve to select it and show its control points; second, drag one control point to its new position; finally, release the mouse button and the new curve is drawn.*

ages also have these, but once you have drawn a polygon, that's it; it just becomes a set of pixels on the screen which you have to edit by conventional pixel operations. Comic Setter stores the shapes as objects; once you've drawn a polygon on screen, you can come back to it later. Little 'handles' appear at each of its corners and you can use the mouse to alter its shape by dragging a handle to a new position.

This shape-editing facility can be invaluable with curves, which are notoriously difficult to draw freehand. Comic Setter uses 'Bezier curves' – this isn't the place to go into the mathematics of these beasts, but in practice they are curves defined by four (or more) points. Two points fix the ends of the curve, and the others define its curvature. You can alter the shape of the curve by dragging its 'control points' around until it looks just right.

In addition to drawing circles and squares, there are a number of other CAD-type operations; you can collect several objects into a group (so they all move around together), or align them so their sides or centres line up. Objects can also be locked onto the page to prevent accidental movement.

There is no direct link between structured graphics and bitmap graphics. You can't use the bitmap 'Fill' function to colour in the interior of a structured graphic. However, one colour (you choose which) is deemed transparent, so it is easy to get any effect you want by laying a bitmap object over a structured one and masking or showing through the parts you want. Once done, you can save the composite as a pure bitmap and then reimport it. This might sound a stupid thing to want to do, but screen update is much faster when working with a single bitmap than a complex group of overlayed objects.

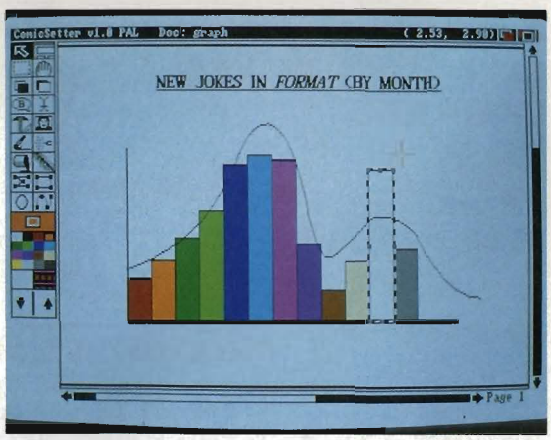
Paying the price

The virtue of all this object-oriented panel structuring is that you've got a tremendous amount of flexibility on the page. You don't have to get it right first time. When you move something, the background reappears, rather than leaving a hole that you've then got to refill.

However, there are a couple of drawbacks to Comic Setter. Most significantly, some of the basic pixel drawing functions (found in packages like Deluxe Paint) are sadly lacking. You can stretch and reflect bitmaps, but there are no rotate or shear functions. There is no concept of the editing 'brush' that most Amiga art packages have, where you can clip part of the screen and use it to draw with (very handy for adding textures to backgrounds).

You can work at varying magnifications, full page view up to 200% size, but this still isn't big enough for accurate pixel-work. The features it does have are really geared to touching up imported graphics; you still need a specialist paint package for major works.

One final aggravation is the 'Undo' command. This is a potentially invaluable way of recovering easily from mistakes, but for some reason the relevant menu option seemed to be permanently 'ghosted out' (ie. unavailable) on our review copy.



■ *Comic Setter's structured graphics extend to much more than comic art. Each of the bars in the graph can be dragged up or down to change their size (the dotted white one is currently active) and a Bezier curve can be flexibly fitted over the top by trial and error.*

COMIC FEATURES

So why is it called 'Comic Setter'? Apart from straight drawing functions, there are of course a whole host of features of special interest to the comic artist.

Most important are speech balloons. Comic Setter comes with three special comic text fonts – most comic text is done in block capitals, and the fonts look best used that way. Font sizes range from 10 to 18 point, so bigger headlines (Pow! Zap! etc) have to be created as bitmaps.

You can have six different styles of speech bubble, ranging from circular to explosion-jagged or cloudshaped. Balloons are structured objects and can be edited, so you can drag them to any shape you like and edit the text inside them. Background colour and line thickness are all adjustable.

When you create a new page, you can arrange for a default initial grid of panels to be set up for you – a four by four set on an A4 page, for example. Comic Setter tries to optimise itself for your printer when you start a new page by making its screen resolution match the printer's as defined in your Preferences. Circles may not look circular on screen, but they should when printed.

The clip art provided with Comic Setter (and the three extra disks available) is all straight cartoon material. Incidentally, Gold Disk deserve a big pat on the back for printing the clip art in the manual – you can see what you want without spending two hours searching disks.

The punchline

Comic Setter is an ingenious art package. The structured drawing features are an excellent innovation, and we can all hope that they'll become standard on new graphics software. The flexibility in trial-and-error positioning and sizing is fantastic. Despite the drawbacks in the conventional pixel-painting functions, it should certainly appeal to a much wider community than just comic artists.

for

- **Elements of picture are discrete objects**
- **Object shapes can be changed after drawing**
- **Good cartoony clip-art/fonts**

against

- **Weak on conventional drawing functions**
- **Screen update a bit slow**
- **Only medium resolution (16-colours)**

features 0 1 2 3 4 5

performance 0 1 2 3 4 5

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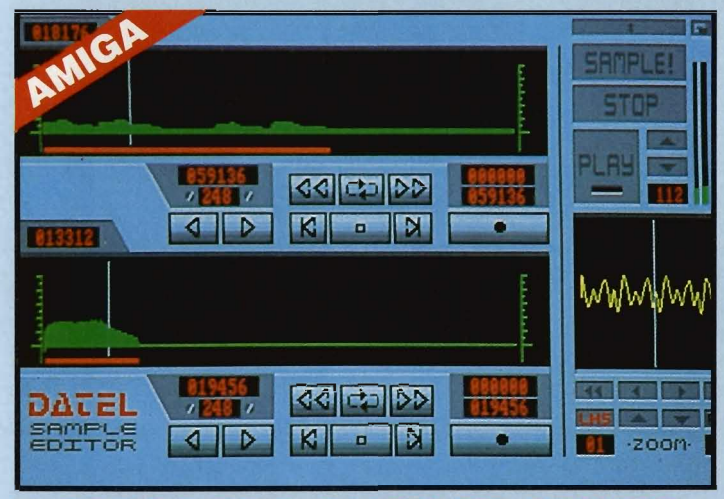

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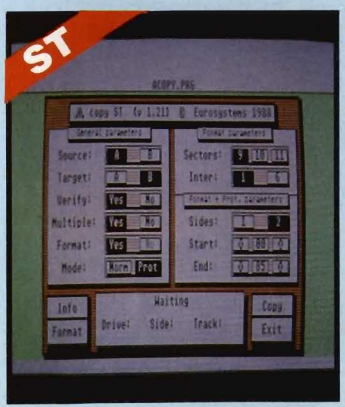

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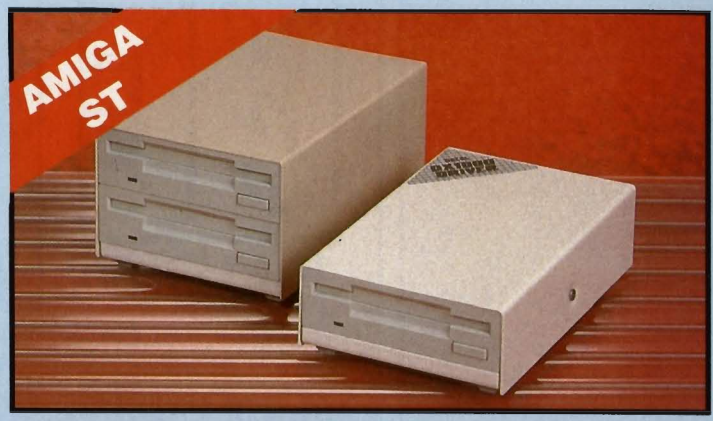

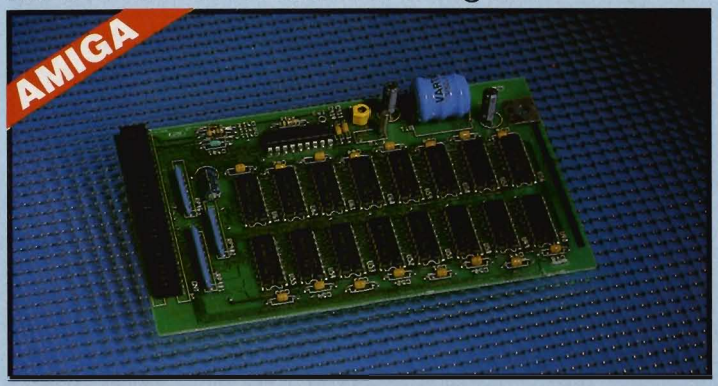

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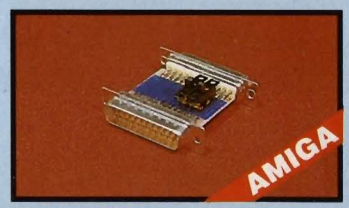

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AI AI O

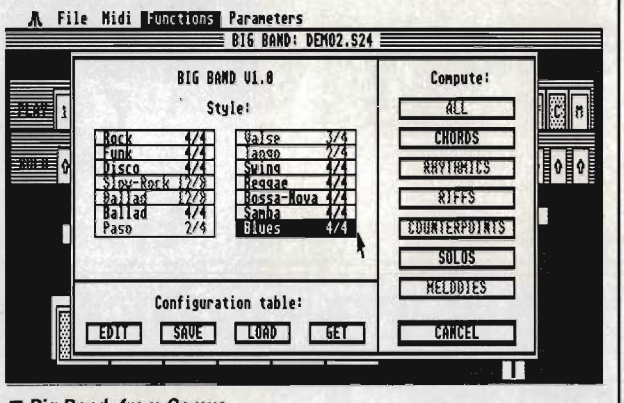
Tired of keying notes on your MIDI synth or letters on your computer keyboard? Nobody to play along with you? Both these problems can be taken care in software, by the new wave of 'intelligent' composition programs. Chris Jenkins pits his wits against the best.

SEARLY INTELLIGENCE

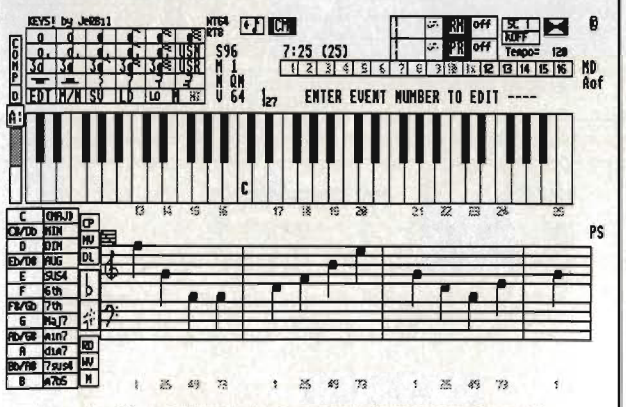
Music produced by machines or other 'artificial' sources is not that new. There were a number of Victorian sideshows, based loosely around musical boxes of various types, which confounded their audiences with shows of keyboard virtuosity of even violin bowing. None, though, had the same ability to extemporise on a theme as modern auto-composition programs do.

When computers and electronic musical instruments first appeared, it was a common complaint (especially from traditional musicians) that these new-fangled instruments would put them out of a job. When they realised that someone still had to program and operate the instruments, though, many breathed more easily. But now, with the universal acceptance of computers and MIDI in music making, it looks as if we might once again have to face the idea that computers can indeed make music without much help from us!

This is due to 'artificial intelligence' routines which are now built into many affordable music software packages. Western music, after all, consists of a generally accepted scale of notes, which can be grouped together into familiar progressions or chords, and played in certain rhythms. Teach a computer these basic rules, plug it into a MIDI synth, and you'll soon find it making up music all by itself!



■ *Big Band, from Comus*



■ *Keys, Dr. T's intelligent offering which should also be available for the Amiga*

In Harmony

Perhaps the most accessible of the auto-composition programs is *Studio 24* from Comus software. Distributed in this country by Soundbits/Musicsoft, it's a good general purpose sequencer for the ST, and costs £199.

Studio 24 has some similarities to the 'industry standard' sequencer, *Steinberg Pro-24*. It displays 24 tracks of music, each with Record/Play/Mute options, across the top of the screen, and has a 'tape transport'-style control panel which you use to start, stop and edit MIDI recordings.

Each of the 24 tracks can record eight-note polyphonic music data, but tracks 23 and 24 also have special functions. Track 23 (labelled 'C') can be used to store a series of chords of up to four notes, while track 24 (labelled 'M') can store a single-note melody. The clever bit is that given a monophonic melody, and a series of chords, you can use Studio 24's Harmonise functions to automatically generate a series of three complementary monophonic melodies.

Selecting the Harmonise option from the pull-down menu displays a dialogue box where you can specify the range of the harmonies (within one octave, or wandering about anywhere on the scale). The results will be different each time, and it's quite strange to hear your MIDI instrument playing music your computer has invented! Studio 24 also features music display and print-out to help you analyse what the computer has generated.

Strike up the band

The same idea is taken to greater lengths in *Big Band*, another Comus product at the same price, £199. Big Band can work as a stand-alone program, or as a desk accessory to Studio 24. The major difference is that instead of just two tracks being reserved for special purposes, eleven are put aside, while the remaining thirteen are used to store the results of your calculations.

Big Band can generate variations from all sorts of inputs: monophonic melodies, accompaniment tunes, bass lines, four-note chords, even drum patterns. Styles available include Rock, Funk, Slow Rock, Reggae, Blues, Samba, and dance styles such as Bossa-Nova. You can select what you want calculated; chords, melodies, counterpoints, riffs, basslines, rhythms, or everything at once. It takes a few moments for Big Band to do the work, after which it returns with all the required data tracks full of music.

If you play the whole lot at once, you'll normally get a terrible din; but when you start to mute, edit and assign the lines to different synth voices, you'll find that Big Band has created an entire accompaniment section for your original tune. It's magic!

Keeping in key

Another new program with auto-compose facilities is Keys from Dr T, for the ST and Amiga. This is primarily a musical notation package, and at £79.95 may well be the cheapest on the market.

Keys is written in GFA Basic, and doesn't use GEM, so at first sight it appears as a complete mess of grids, boxes and labels. Underneath it all, though, there's a step-time composition program capable of creating

pieces with up to 9999 events of eight-note polyphonic music. The resulting music can be played on the ST's sound chip – only three voices at a time, of course – so you don't actually need a MIDI instrument.

The AutoComposer functions let you enter values which define the type of changes the computer can make to your recorded music. Certain parameters can be 'masked' to leave them unaltered, while others are left open for the computer to play with.

Key Change Frequency works with the Scale Type selection (major, minor, fourths, blues or harmonic minor) to create chord progressions. Harmonic Tension varies the spread of notes in a chord, while Polyphonic Maximum sets the number of notes per chord. Note length variations, MIDI channels, tempo and MIDI velocity effects can be set on the main composition page, and computer-generated tunes can be saved to disk as SEQ files which are fully compatible with the popular Dr T Keyboard Controlled Sequencer program, available for both the Amiga and ST.

Later on this year we can expect to see *Tunesmith* from Dr.T. This is an advanced algorithmic composer, which hopefully will be a machine-code program using GEM, rather than a GFA Basic effort.

The M Factor

M, at £135, is probably the most powerful and intimidating computer composition package yet. The main display has five sections. The Patterns box governs music recording, while Note Manipulation is used to edit the results. MIDI Variables lets you choose the sounds and velocities you're going to work with, while Title lets you name pieces and control the overall tempo and synchronisation. Most important is the Cyclic Editor.

Like Big Band, the first thing M needs is some music to work on. These patterns of notes and chords can contain up to 8000 notes, and a variety of different time signatures. They can be recorded in real time or step time, but for some reason real time patterns can't be edited. You can also record patterns specifically to control drum machines.

By filling in blocks in the Cyclic Editor you can change the duration, articulation and accenting of each pattern as it repeats. You can also introduce a percentage chance that a pattern will play backwards, that an individual note will change to a random value within a given range, or that a note will not play at all.

You can define six sets of parameters, each of which can be saved as a Snapshot. By switching from one to another in real time, you can change the style of your computer-generated music as it is playing.

The main point to remember about M is that it uses no musical algorithms on the MIDI data, merely mathematical probabilities. You'll find it great for generating Terry Riley or Philip Glass-like pieces, but it's unlikely to write Kylie Minogue's next smash. The good thing, though, is that it can be used for live performances, rather like the huge Moog analog sequencers much beloved of Tangerine Dream and Klaus Schulze in the 1970's.

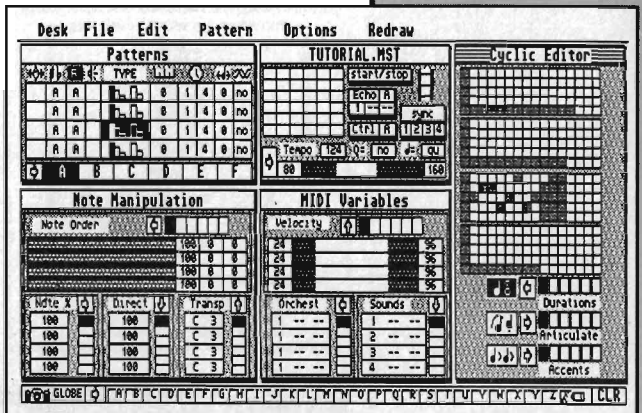
M can save patterns, or live performance 'movies' in standard MIDI File Format, so it's possible to transfer M files to more conventional packages like Dr.T.'s Keyboard Controlled Sequencer.

Future days

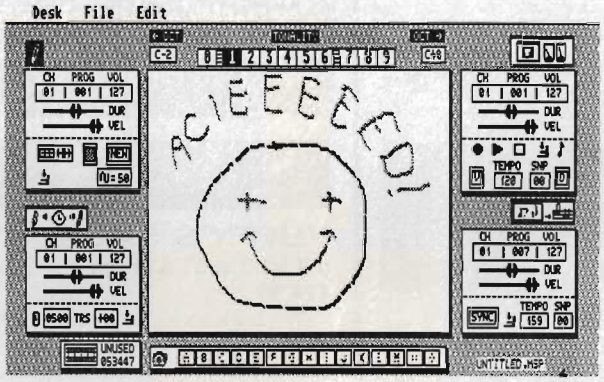
Next year we should see Hybrid Arts' contribution to the auto-composition market. *Ludwig*, as it's charmingly named, can generate music from absolutely nothing; you don't have to enter anything from the keyboard, just define the parameters you want, using the mouse.

Ludwig arranges music on eight tracks, each one of which has its own set of composition algorithms. These can define the type of chord, range of pitch, timing, note duration and so on. The MIDI data is stored in a buffer which Ludwig can use to play your MIDI synths Alternatively, data can be saved as a song file which can be edited and played using a Hybrid Arts sequencer such as *EZ Track* or *MIDITrack*. Using the *HybriSwitch* multi-program utility, you could even have Ludwig in memory at the same time as your sequencer program; so if you ever run out of ideas, you can just play with Ludwig until something good comes up, then shift the data back to your sequencer.

The important thing to remember about all these packages is that despite the tag 'intelligent', they depend entirely on the musical sense of the operator to come up with anything useful. It will be a long time before we actually hear a computer writing a symphony based on its own ideas.



■ *'M' – use maths to make your music*



■ *MIDIdraw from Intelligent Music converts your drunken doodles into symphonies*

SOURCES OF SOUND

SOUNDBITS/MUSICSOFT
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HYBRID ARTS
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INTELLIGENT MUSIC/DR T
c/o MCMXCIX, 9 Hatton St, London NW8, 01-724 4104

DISK FODDER

We'd be interested to see programs designed to show any signs of intelligence, whether in music, painting or writing, for possible inclusion on the cover disk. Music programs should be self contained, or at least have the option of playing back through the micro's own sound chips as well as through MIDI.

DRAWING THE LINE

One of the most unusual MIDI programs yet produced has to be MIDIDraw, at £89.95, from Intelligent Music. It's hard to say whether it qualifies as an example of computer composition; let's just say the music you get out doesn't bear much resemblance to what you put in. MIDIDraw actually allows you to draw on the ST's screen, using a mouse-controlled cursor, and to translate the scribblings into MIDI data which plays your synth.

The drawing screen consists of a blank square in the middle of the main display. Drawing on this plays notes via MIDI; pitch rises and falls as you move left and right, volume as you move up and down.

Four toolboxes let you alter the results. The Pencil option has a box for specifying the MIDI channel, synth program and velocity of the MIDI data, together with the duration and velocity of individual notes. You can switch sustain on and off and change the rate at which notes repeat.

The Delay panel lets you introduce an echo effect by repeating notes at variable delays and pitches, while the Recorder stores sequences and repeats them at different speeds and volumes. Finally, the Interpreter looks at the entire screen, and plays its version of your performance, again with variable note duration, volume and so on.

You can control which notes are actually played using the Tonality menus; these eight command sets define which notes in each octave (or which notes over the entire eight-octave range) can be played by the synth. You can translate even the most meandering drawing into a tuneful melody. Your performances can be saved to disk, and the files are compatible with Intelligent Music's other algorithmic composer, M.

SCREEN PLAY

NEWS

All the hottest news, views and reviews of the month from the ST and Amiga games scene – and after all, you wouldn't trust anybody else, would you? Mark Higham dons his white coat and administers the crucial testing in the Format laboratories.

■ *PUFFY'S SAGA*

PREVIEWS

PUFFY'S SAGA

UBI SOFT ■ ST & Amiga
£24.99

Puffy's Saga combines arcade action, exciting gameplay, digitised voices and two irresistible (so we're told) characters, Puffy and his girlfriend Puffyn. Just so as you don't think UBI Soft are sexist, you can choose to play as either Puffy or Puffyn; trapped in an alien world you must travel through mazes facing various enemies and try to solve clues which will enable you to discover weapons and escape deadly hidden traps.

TURBO CUP

LORICIEL ■ ST & Amiga
£19.99

Loriciel's answer to Outrun, Turbo Cup was written with the avowed intention of simulating a real race as closely as possible. The view of your car is an unusual one – you don't spend an entire race staring up the exhaust pipe, but nor are you looking at it from a bird's eye view; it's somewhere in between. You can take your car through practice sessions to get the feel of the controls before driving onto the track.

Loriciel have sponsored the famous Porsche rally driver René Metge (whadda ya mean, "Who's he?" He's *famous*.) in the Andros Turbo Cup and may well give away a model of his car with the game – the price may change if this happens.

■ *TURBO CUP*

GALACTIC CONQUEROR

TITUS ■ ST & Amiga
ST – £19.99, Amiga – £24.99

Brilliant graphics and an addictive shoot-'em-up gameplay looks set to make this an impressive Christmas release. In a remote corner of the galaxy, Gallion's surveillance units have detected what appears to be a small enemy invasion. Little do you realise just how dangerous this invasion could be. To protect mankind a defence must be launched, and guess what? – you are the only hunter capable of handling a strategic conflict on a galactic scale. Your mission: kill anything that moves.

■ *GALACTIC CONQUEROR*

OUTLAND

PANDORA ■ ST & Amiga
£19.95

Despite a plot involving a Titan Battlestar, peace talks between Earth and the moon and two MT-32R type fighters, there's no escaping the fact that this is another vertical scrolling shoot-em-up. However, with brilliant scrolling backdrops and a range of additional bolt-on weaponry this game has the addictive qualities which have made its forefathers such a success

■ *OUTLAND*

THE PEPSI CHALLENGE MAD MIX GAME

US GOLD ■ ST
£14.95

Advertising gets everywhere these days, dunnit peeps? Just 'cos Coke swiped the Olympics, Pepsi have hit back with Mad Mix. The action takes place in 15 pulsating levels which comprise the labyrinths of the Pepsi Village, a city where anything can happen, and normally does. As Pepsi-mad 'Mad', sporting a wide 3D grin, you venture through the maze gorging yourself on power pills in a bid to scare away your enemies.

Throughout the mazes you can pick up various Jeckyll-and-Hyde icons which give Mad the ability to change his persona into five different characters.

FRIGHT NIGHT

MICRODEAL ■ ST & Amiga
£19.95

Aieeeeeeeeeee! *Fright Night* should be able to make the Christmas stocking, just so long as Santa doesn't get carried away playing it and accidentally sucks the brains out of his reindeer. Fright Night is actually two games – the arcade and the adventure game. The adven-

■ *FRIGHT NIGHT*

ture is GEM-style mouse-and-menu game giving you screen after scream of competitive adventuring and digitised mayhem.

In the arcade game, the vampire bites back as you play the role of sinister neighbour Jerry Dandridge who wakes up for just twelve dark and bloodsucking hours. You have until 6am to vampirise everyone in the rooms of the Fright Night house, if you don't succeed they'll visit your coffin and stake you out!

THE MUNSTERS

AGAIN AGAIN ■ ST & Amiga
£19.95

■ *THE MUNSTERS*

Again Again are a relatively new label, but the Munsters comes from the team responsible for *Terramex*, *Pacmania* and *Blasteroids*. There's panic at the Munster mansion because Marilyn has been spirited away to Creepy Chateau. Lily is worried, but before she can rescue Marilyn she must first release Herman. And he can't be found without first locating objects hidden around the house and neighbouring graveyard. Supported by the whole Munster family (and a dragon under the stairs!) in 3D moving sprites as well as backdrops lovingly adapted and coloured from the original TV series.

THUNDERBLADE

OCEAN ■ ST & Amiga
£19.99

Ocean's great coin-op conversion looks set to see its debut on the 16-bit scene sometime in December, they promise.

Your mission begins in a heavily defended city. Weave through and the sky-scrapers as you endeavour to avoid the enemy bombardment. Once through the war torn city the real battle commences, as you fly out to sea

■ *THUNDERBLADE*

attacking and blasting a huge, heavily-armed military ship. Gunships constantly fire at you, their only aim is to send you spiralling down to earth in a cloud of black smoke. Life's hard for superheroes, isn't it?

F-16 FIGHTER ATTACK

DIGITAL INTEGRATION ■ ST (November) & Amiga (New Year)
£24.95

F-16 fighter simulations are nothing new but Digital Integration have written a version which doesn't fly like a

■ *F-16 FIGHTER ATTACK*

brick. With a cockpit based on the latest specifications, laser-targetting, 'lantirn target recognition' and a selection module to enhance night-vision, the intention is to produce as near-life-like simulation as possible.

But this is more than just another flight-simulator. With eight different squadrons, each covering an area of 20,000 sq. miles and a potential of 1500 targets, each mission is different. When you tire of flying around you can just zap the enemy.

SUPERMAN

TYNESOFT ■ ST & Amiga
£24.95

Fight a whole host of parademons, negotiate asteroid and Kryptonite storms, rescue Lois Lane and Governor Lee held captive by terror-

■ *SUPERMAN*

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ists. All this and more combines to make an action-packed game which will be enjoyed by all nascent Superheroes.

The story-line was written in the States in conjunction with Superman's creators, DC comics,and promises to be as near to the comic strip scenario as possible. The game comes complete with Superman T-Shirt and a giant A2 poster

LASERTRAIN

BIG APPLE ■ ST & Amiga
£19.95

Big Apple are releasing a host of US games this year. *Lasertrain*, scheduled for release in November, has you at the controls of the train of the future, navigating a system of randomly generated tracks and tunnels which inter-link eight space stations set in the stratosphere. Alien attack is imminent, of course, and The Safety Of The Earth is up to you.

ALMOST – BUT NOT QUITE

It's been a busy month this month. Format *celebrated when it received the 100th copy of* Mindfighter *in the post – you can always tell the bad games, you get 4,000 review copies. Well, as the old saying goes, if you can't sell 'em, give 'em away.*

With 24 releases this month for the ST, and 20 on the Amiga, as ever, only the best merit a mention in our illustrious pages.

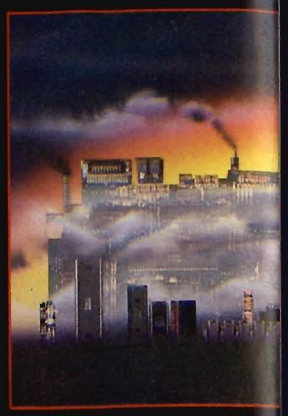
Domark made the decision less difficult by sending us two blank discs politely labelled Spitting Image *and* Return of the Jedi *– still, they should be good when the real things turn up.*

Cybernoid was one of the more impressive ST games but at the end of the day its flashy graphics just weren't enough – better luck with Cybernoid II, *due for release in the New Year.* Daley Thompson's Olympic Challenge *gave everyone in the Format office severe wrist pains with all the joystick waggling, and despite the fact that the digitised piccies of Daley Thompson were great we rejected it on health grounds.* Space Racer *and* Albedo *from Loriciel just didn't make the grade when the silicon chips were down.*

Despite all the action and hype, Hellfire Attack *was far from inspirational. Filled with square trees it is to the Supercobra Attack helicopter what the Sinclair C5 was to a Rolls Royce.* Major Motion *was as addictive as all killer-car games, but it's been done excellently so many times before that the 16-bit version wasn't worth reviewing.*

Finally, the Aussie Boomeraid *(star of last month's Escape Sequence) might make a good teaching tool, but as a game it fell far short. At the end of the day lots of digitised boomerangs and 'Strewths' just don't make a good plot.*

AMIGA
£24.95



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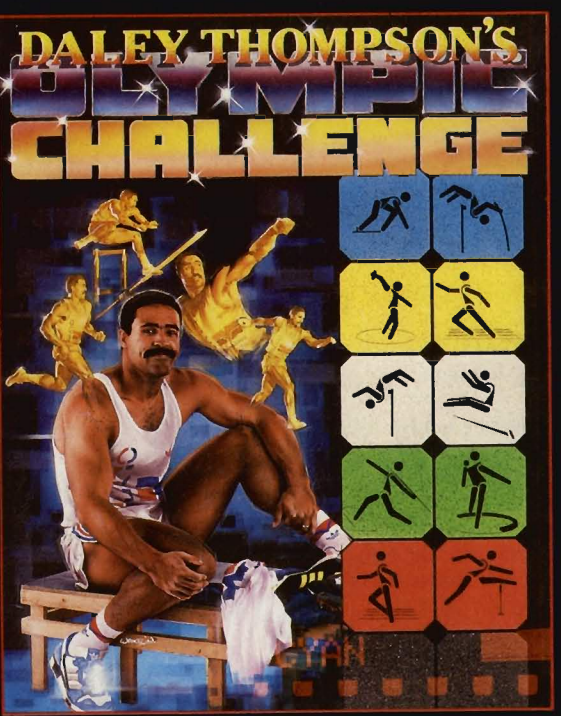
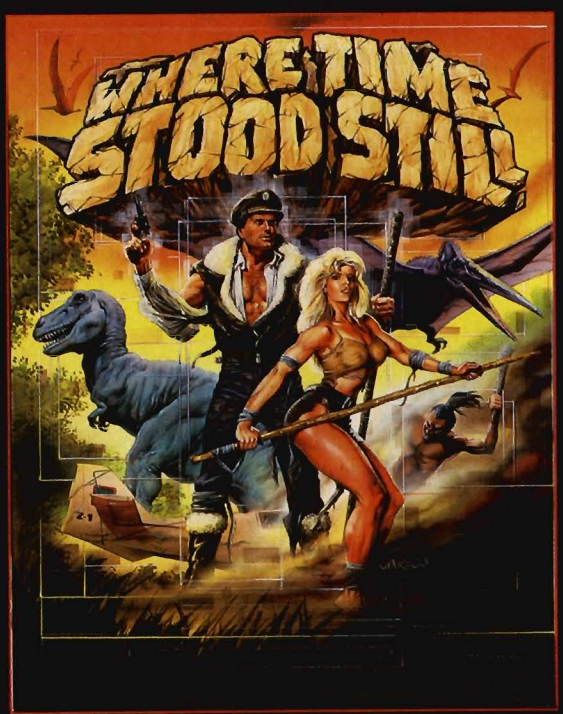


Ten Olympic events include Long Jump, Shotput, High Jump, 100m Sprint, 400m, 110m Hurdles, Discus, Pole Vault, Javelin and 1500m. You will need all your skills to build on what you hope was, an impressive workout, and, as is necessary for all top flight athletes, your judgement to select the most effective equipment for each event is now vital – a decision which can win or lose you a place on the podium. This isn't just another sports simulation, this is a Daley Thompson 'event' where all his talent and humour burst through to make a thrilling and entertaining game play for all the family. Go for the Olympic Challenge!

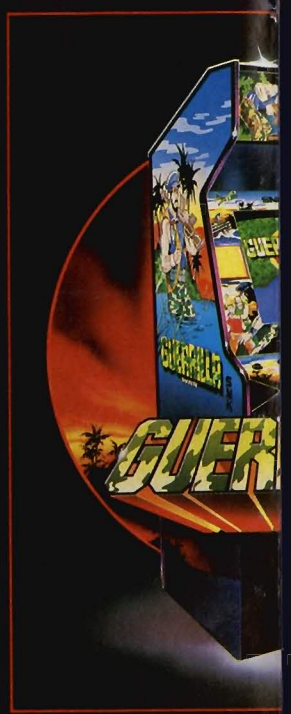
FROM ocean



Your plane has ditched on a mountainous plateau somewhere in deepest Tibet. You and your companions are alive. A large shape moves toward you, you rub your eyes in disbelief; a Dinosaur! – where are you ... and when? Stunning, monochromatic 3D graphics and 4 way scrolling, give that '50's cinema mood as you learn not only to survive, but also that your companions are not all they first seemed!

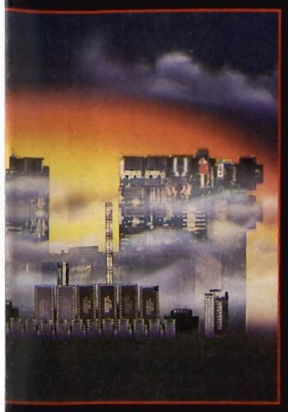
© 1988 Ocean Software

FROM ocean



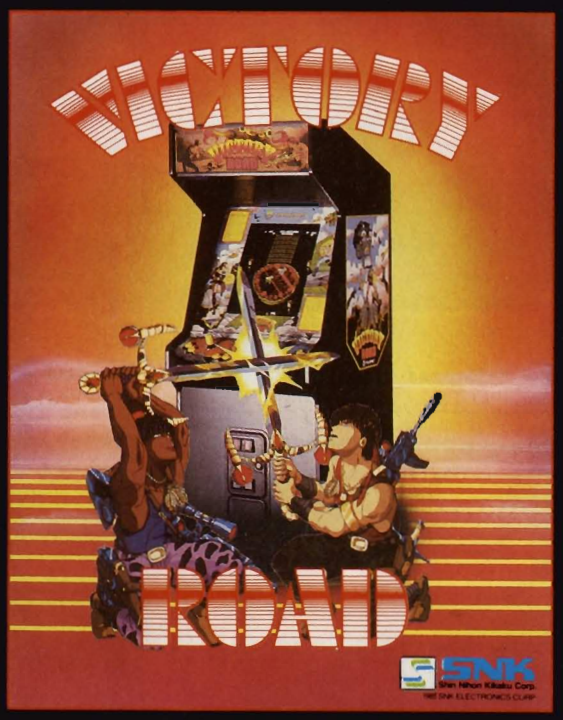
From the SNK stable, the coin-op smash hit now for your home micro. This multi-level, vertically scrolling arcade thriller throws you deep into the jungles and ruined cities of a nation held in the grip of a cruel oppressor. Freedom is your aim . . . Guerrilla War is the means!

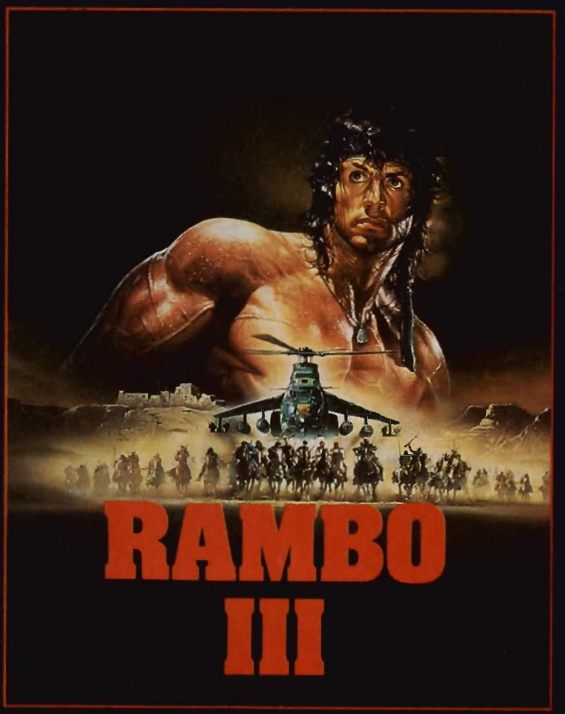
16 BIT STATE

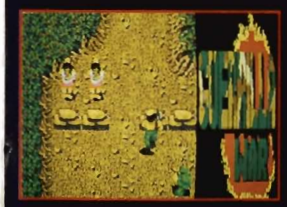


ATARI ST £19.95

TERTAINMENT







This is where the fun really begins. You will meet vampires, two and three headed monsters – the head will fly at you on its own, just when you think you are gaining the upper hand. Trapdoors and elevators transport you – sometimes to your surprise – inside ancient buildings and under lakes and oceans. Build up the firepower necessary to fight off your aggressors. Action and excitement all the way with this macabre and unusual game; which has that elusive extra something to keep you coming back for more.

© 1985 SNK ELECTRONICS CORP.

He's back and this time he's taking no prisoners. Colonel Trautman has been captured by the Russians in Afghanistan and there is only one person capable of freeing him. Negotiate the minefields, explore the Russian camp, lay boobytraps, avoid detection, free the Colonel and then ... move on to the explosive climax! RAMBO IS BACK!

Rambo III T.M. & © 1988 CARLOCO PICTURES INC. All Rights Reserved.

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the name of the game

FROM ocean

OF THE ART

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REVIEW

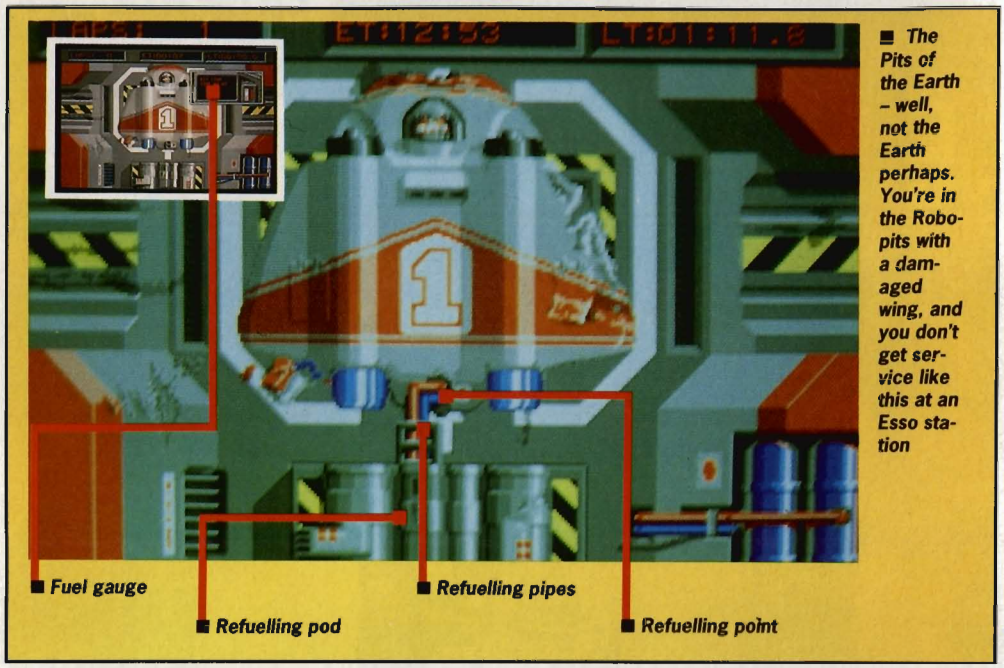
POWERDROME

FORMAT GOLD

ELECTRONIC ARTS

ST – Joystick or mouse. Reviewed. £24.95 | **Amiga – due out Jan-March. £24.95**

When the coffee machine starts dishing out hot water with strange ectoplasm floating around on the top and you get notes from Santa politely informing you that your request for a Mega ST has been turned down, you know it's time to go in search of the perfect racing machine. *Powerdrome* offers just that. Hop into your Typhoon, and fly around the track. With pit walls flying towards you at the speed of light all your troubles will soon seem like little ones.



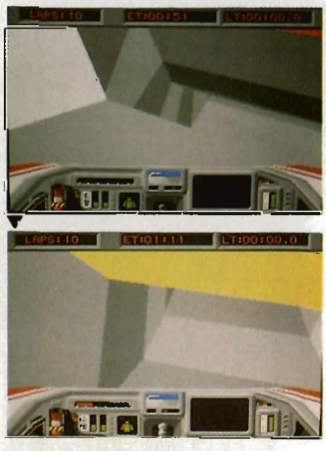
■ *The Pits of the Earth – well, not the Earth perhaps. You're in the Robopits with a damaged wing, and you don't get service like this at an Esso station*

GRAPHICS AND SOUND

Powerdrome might not win any prizes for its sound effects but with amazing graphics you soon forget any faults in this area (*Sounds a bit like a Jean Michel Jarre concert – Ed*). There is no opening music, and only the annoying rumble of an engine which sounds as if it came out of a 1950 Volkswagan Beetle accompanies your trip around the track.

However, the main graphics effects are high quality. The storms you fly through leave a lot to be desired, especially the snow-storm which looks exactly as if the brightness level has been turned up so far it's gone off the scale. But that aside, even with super-fast and super-smooth movement you'll be surprised at just how quickly everything moves. Switch on the after-burners and corners scream at you so quickly it's frightening. Powerdrome doesn't just move two walls and a floor at you with lightening speed. Bridges, doorways and all manner of twists, turns and hills keep Powerdrome alive with electrifying movement.

▲ *Flying round these corridors could even give an armadillo a brain-ache*



▲ *Ear-popping hills !*

AIM

Powerdrome gives you the opportunity to enter the electrifying world of the Typhoon pilot. Like a wombat out of hell you can race against four of the galaxy's most unflinching pilots to win the coveted Cyberneufe trophy. What, you've never heard of the Cyberneufe trophy? It's the one achievement which all great space racers long to get their hands on. Everybody knows that.

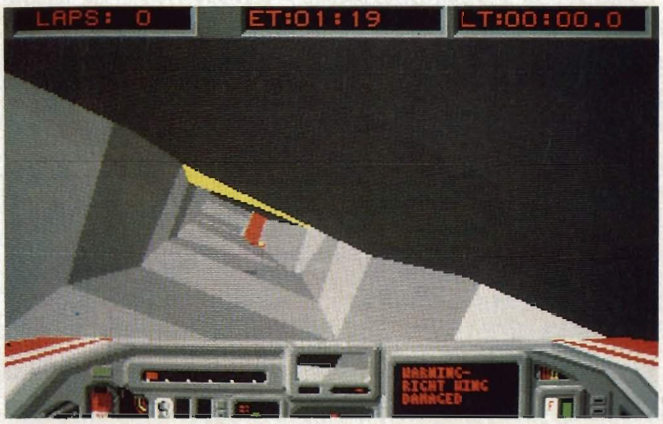
Don't expect to pick up the joystick and win the race on your first trip round the course though. Commanding a Typhoon is no easy task. This spectacular-looking squashed frying-pan is about as easy to control as a Lamborghini in the wintry frozen ice-fields of Dartmoor. Flying beneath bridges and between the rounded walls of the course is punctuated with more crashes than in an entire series of *Dukes of Hazard*.

The game is divided into three sections – practice, qualifying and race. The practice session gives you time to get acquainted with the track and adjust your Quad boosted turbo-rapide Typhoon so that you can get the most out of the different available settings. With six different tracks and five planets to compete on you regularly need to change filters. Alterations in braking speeds, aerofoil sensitivity and the roll-pitch bias are all essential if you're going to survive long enough to get round one lap.

In qualifying you are competing with the other pilots for the best position for the start of a race. You need to push your Typhoon to the limit if you're going to get a good place ready for when Pandora's box is opened as the flag goes down and the race begins.

Competition for the Cyberneufe trophy is fierce. Only if your Typhoon has been tuned to the optimum balance of speed and endurance will you survive. A Powerdrome race normally lasts for between 20 and 50 laps or between 40 and 180km depending on which track you are racing.

You regularly need to enter the Robopits for repair when your Typhoon suffers damage, your engines near melt-down point or you run low on fuel. Time spent in here is time away from the track and so you can soon lose a race if you don't trim your pit routine to be ultra-fast.



▲ *Take this corner steady...*

▲ *Must be a woman driver!*

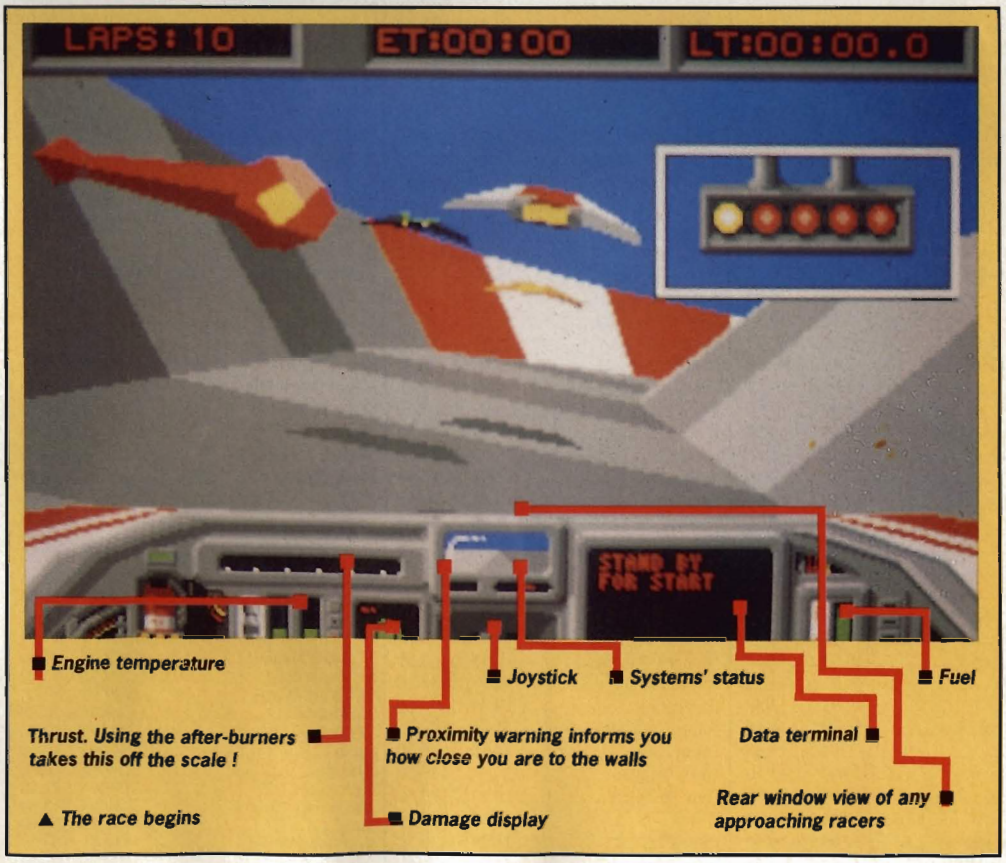
STRATEGY

Controlling the Typhoon is fraught with difficulties. In fact, the mouse offers a better degree of movement than joystick control – but one slight slip and your Typhoon soon learns the true meaning of Aldebaran strawberry jam. Horizontal movements control the roll whilst vertical movements dictate the pitch. With a test oval as one of the tracks, you are given as much time as you need to practise controlling the Typhoon, and believe me, you'll need it. An option to hold your pitch – the distance at which you fly above the track – gives you time to learn how to negotiate corners. You'll need to disengage the pitch-lock facility and still get round in one piece before you wander onto the track proper because you aren't so molly-coddled in a race.

Powerdrome isn't like the usual 'three-lives-then-you-die game'. In theory you could race round the track for as long as you like provided you make regular stops in the Robopits for refuelling and to repair your damaged Typhoon. Any injury you incur appears on an indicator panel. This panel displays an aerial view of your Typhoon and suffering areas change from green to red.

With audible warnings to inform you when the Typhoon nears the walls, and displays for engine temperature, thrust and rear view it's pretty easy to imagine that you really are seated behind the windscreen of a futuristic space racer. And boy, do you soon wish it had an auto-pilot!

One nice feature is that your racing adversaries needn't only be the computer's drones. With a data link provided, a second Typhoon can be a fellow console-pilot – Powerdrome may be linked either to an ST or an Amiga computer making competition for the Cyberneufe trophy a true grudge match. With other racers shooting past you as you take regular trips into the wall it can soon become disheartening but perseverance will undoubtedly reap rewards. Like maybe an Intergalactic BUPA membership.



▲ *The race begins*

▲ *The race control panel, from which you select your duelling ground*

CONCLUSION

The mouse control takes hours of concentrated play to master. There's no pulling this game from your Christmas stocking, loading it up and shooting round the track with after-burners blazing. It takes a lot of effort learning to master the controls no matter how experienced a games-player you might be.

Despite a gameplay which is incredibly addictive, at the end of the day there is still the feeling that Electronic Arts could have made better use of the Powerdrome effects. Admittedly it's filled with graphics likely to have your eyeballs rolling around in their sockets for a fortnight, but in the final analysis, Powerdrome is still just a racing game. But it's definately a great racing game.

still graphics 0 1 2 3 4 5

moving graphics 0 1 2 3 4 5

soundtrack 0 1 2 3 4 5

lasting interest 0 1 2 3 4 5

overall 95%

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REVIEW

ROCKET RANGER

CINEMAWARE/MIRRORSOFT

FORMAT GOLD

Amiga – £29.99. Joystick only, 2 disks. Reviewed | **ST version – £24.99. Christmas/New Year.**

You don't need a face like a walnut to remember *Rocket Ranger*, the hugely popular Saturday morning sci-fi series upon which this game is based. The hard work's been done by the guys who created *Defender of the Crown* and if you enjoyed that then you'll love Rocket Ranger. It's got the same blend of adventure and graphics sequences which have made Cinemaware products such a phenomenal success.

■ *It all starts here in the War Room – first you've got to find your agents and direct them to the action hotspot around the world.*

■ *Takeoff might look easy...*

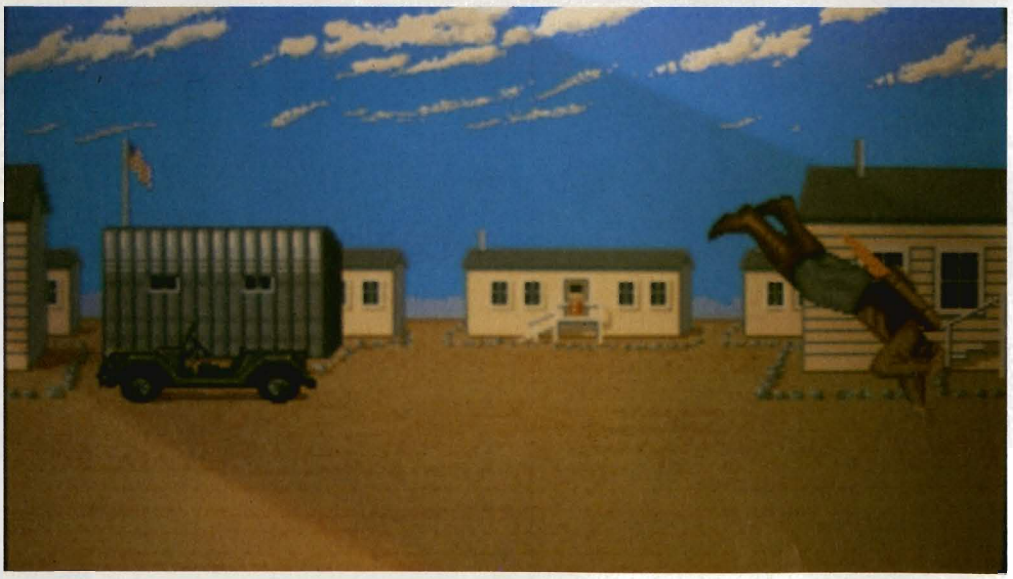
STRATEGY

Rocket Ranger is one of those games which has not been aimed at your average football hooligan. For once you don't need the IQ of a cheese sandwich and the neural responses of an SAS team in order to enjoy this game. Admittedly, if you have teutonic sympathies then you might not appreciate the finer points of RR, especially since the main objective is to obliterate the German war machine.

One of the first problems you encounter is mastering the takeoff sequence. As RR trots along the grass runway you have to press the fire button each time his foot hits the ground. As soon as a beeping indicates that you've reached the required speed you must push the joystick forward for takeoff. mess this up and RR soon learns the meaning of disaster. Assuming that you've put the correct amount of fuel into your rocket pack (get it wrong and there's a watery end for you in mid-Atlantic!) and you don't run into any Zeppelin fleets along the way you usually end up at your destination in one piece.

The first stages of the game are spent locating your five agents and waiting for them to respond with valuable information about the location of rocket parts. You have to acquire all five pieces of your rocket and 500 units of Lunarium fuel, then bring it all back to Fort Dix for assembly before you can take off for the moon. This is no easy task, especially as the indescribably evil General Leirmeister's Nazi soldiers are out to get you.

There's no place for wimps in this game – if you think you can skive the hard work and just hang around Fort Dix while the world goes to rack and ruin then you're likely to be arrested and dragged off to prison. Once there, you remain incarcerated until you hit the reset button.



■ *... but this Lunarium backpack fuel sure is heavy stuff*

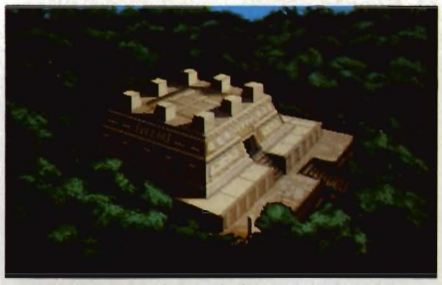
AIM

The Nazis have accomplished the impossible by landing a Zeppelin smack bang in the middle of Washington DC. This subtle operation was arranged to kidnap America's top scientist Otto Barnstorff (so why's he got a German name?), and his daughter Jane, then whisk them off by secret rocket to the moon to force them to help Hitler in his invasion of the world. And guess what? – it's up to you to rescue old Otto and his daughter.

This might seem like a pretty overwhelming task for poor old RR, but never fear, with five agents at your disposal the task becomes considerably easier. These agents can infiltrate countries and organise resistance. At intervals throughout the game they report back to you with valuable information about the state of Hitler's army and the location of rocket parts. You need to build your own rocket to follow Otto to the moon.

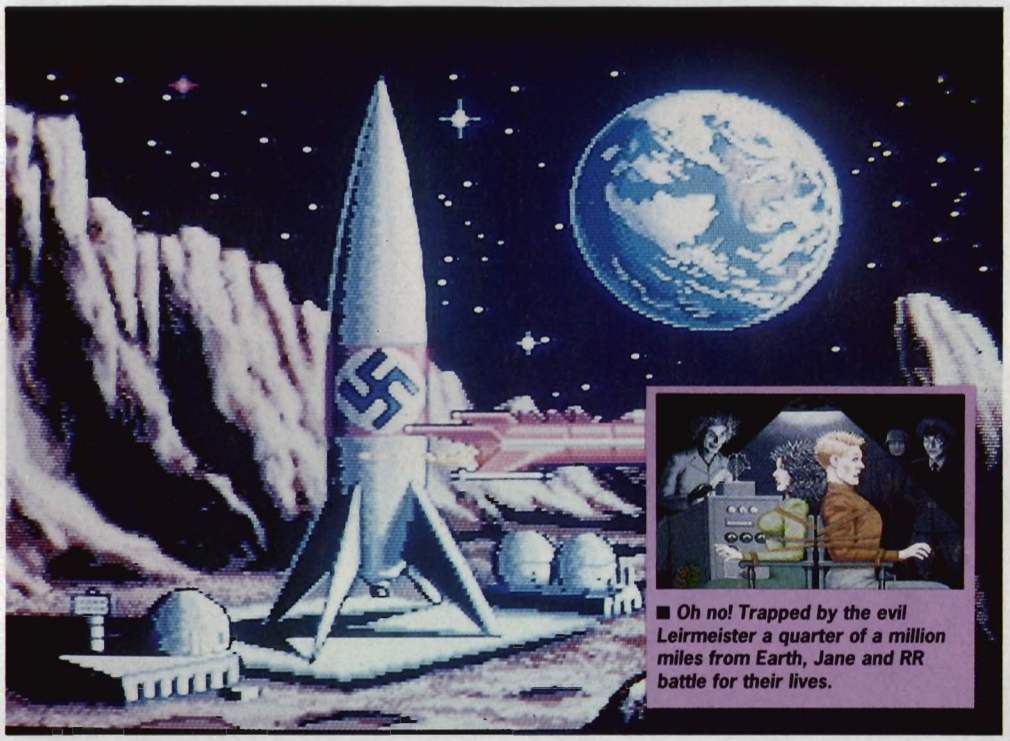
Once on the moon, it's plain sailing. A mere matter of outer-space fisticuffs overpowers the killer krauts, and the world is safe. The main challenge in the game is definitely assembling your rocket – apart from some stunning graphics sequences the lunar action is just end-play.

■ ... only to be disturbed by a giant flying sausage



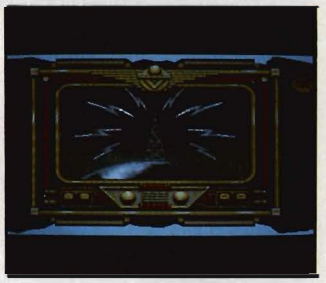
■ Hell, these Nazi scumballs have built a castle in the jungle

■ Put 'em up, you dashed bounder – show these Nazi swines who's boss with a bit of GBH



■ It's all up to you now, RR – the Nazi moonbase hoves into sight.

■ Oh no! Trapped by the evil Leirmeister a quarter of a million miles from Earth, Jane and RR battle for their lives.



■ Stranded in the middle of a jungle with half a rocket sure isn't fun. Better send out an SOS.

GRAPHICS AND SOUND

If you're used to playing Defender of the Crown then you'll know what to expect. Armed with a battalion of small touches to make each time you play slightly different, RR easily earns its place in the Format Gold gallery.

The 1940's Hollywood atmosphere is religiously maintained with the hand to hand combat routines looking as false as they ever did in the original films. Exchanging blows with the offending Nazi could be improved by a little foot movement – at the moment RR looks as if he's permanently glued to the floor, which is fine until you consider making a few below the belt knee-jerks.

Flying through the sky and shooting at a volley of depraved Zeppelin fighters armed only with your pitiful radium gun is an experience to be highly recommended to anyone with a kamikaze instinct. Looking up RR's trouser leg as he soars through the sky might not appeal to everyone but the 3D effect is superb.

The sound effects lack imagination – the theme music crops up with an astonishing regularity but even here there are enough small changes to make each game different. Digitised speech rears its head in the conversations with Otto and Jane; not a very fortunate addition for anyone suffering from heart trouble – Jane sounds like she's just come out of a screen test for a particularly salacious blue film.

GAME LAYOUT

The game is set out in a series of chapters. At the start of each one, a silent movie-style subtitle screen tells you all about Otto's location and the current state of Jane's brain. Her grey matter might not seem particularly enthralling to you, but old Adolf wants to carry her off to the moon with Otto and then subject her to a brain drain machine. It seems to be *de rigeur* that dumb blondes in movies are always called Jane – depressing if you're called Jane.

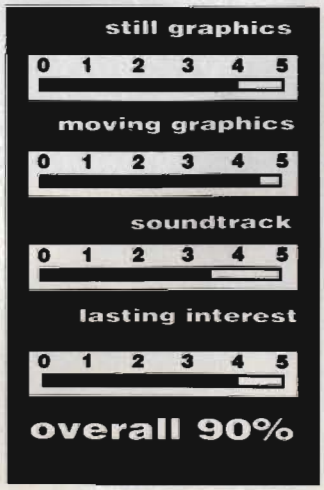
If you are fortunate to catch sight of Jane before her brain disappears up the back-end of an electroencephalogram, then you can conduct a conversation with her. You select a phrase from a speech bubble, and then she answers you accordingly. This might seem fine but if you give the slightest impression that you're either a male chauvinist pig or a Nazi spy come to kill them then Otto scowls, moves towards you and draws out his gun. Then it's Bye, bye RR.

CONCLUSION

Your average space game might well feature millions of galaxies for you to explore but space is space, innit? At the end of the day it still looks black! With Rocket Ranger there's actually an end; once you've found Hitler and put an end to the war you become a hero and you can feel you've actually managed to achieve something besides the largest high score number a computer could possibly think of.

Repeated disk accesses make it slow at times, and having to swap disks if you've only got one drive is tedious, but this is a common problem with Cinemaware products.

Those who like a good puzzle and a bit of strategy in between feeding lead to the Hun will find it compulsive.



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REVIEW

SDI

ACTIVISION

ST – £19.99, joystick or joystick and mouse. Reviewed.

Amiga – Some time away

■ *Getting totalled by fighters while trying to defend those ungrateful sods back on Earth*

Based around the Reagan Strategic Defence Initiative, *SDI* is supposed to be a preview of how warfare will be waged on tomorrow's battlefield. Great idea but it suffers in the light of recent disarmament plans . Nevertheless, being a conversion of a classic Sega arcade smash, it's still certain to be a hit.

■ *Wow! Where did those ruinous Russkies get all these rockets from?*

AIM

Your mission is to defend your country from the enemy's space weapons and save the planet from imminent devastation. Sound familiar? It's a glorified version of *Missile Command*, but that's unlikely to deter anyone with a fetish for space games. You are commanding a roving satellite which you guide through 12 offensive stages, each one becoming progressively more difficult. Should you fail to destroy any of the on-coming missiles you are forced into a defensive mode and have to protect your base from attack by destroying absolutely everything in sight *(There's a change – Ed)*. Should you fail at this point the game ends, irrespective of any lives you may have remaining.

GRAPHICS AND SOUND

SDI boasts over 300 different sprites to vary the game for hours of play. These would be perfect if they didn't all slow down when there are lots of them on-screen at once. Played against a background of revolving planets with smooth horizontal and vertical scrolling as well as a parallax scrolling starfield, SDI is more than just another space-game – it's an old man's dream. The seven different tunes on offer tend to become monotonous, especially if you choose to have them playing throughout the game, but at least they make a welcome change from white noise.

STRATEGY

Controlling the satellite requires a strange collaboration between mouse and joystick which is easy to manage until a whole squadron of enemy weapons decide your day has come. At this point it's a good idea to get a second player to take command of the joystick.

In between each stage of carnage, you can collect tokens which give you extra speed, firepower and targetting cursors. Unfortunately their appearance is usually accompanied by a line of satellite-seeking fighters which makes retrieving them pretty damn difficult.

Should you destroy everything in an offensive wave, you receive a perfect score. Along come thousands of bonus points, a dancing blue duck and a trip to the next offensive.

Each stage is fraught with missiles and freaky fighters. Collision with the fighters totals you, but at least you only lose one life. If you're unfortunate enough to let a single missile through, then you're bound for the defensive phase. Up comes a picture of your base – a grey slab with a bad attack of teenage acne – and down come the missiles, thousands of the wretched things, armed with more ammo than the Libyan embassy. Miss one of these and its straight back to the main menu.

CONCLUSION

There's loads of disk accessing when used with a 520 ST. You don't mind your high-scores being saved to disk when you know you've achieved something major, but when screens are loaded in between each phase it becomes increasingly annoying. However, it's nowhere near as annoying as being returned to the beginning of a phase when you've spent five minutes negotiating with a vengeful group of fighters and ended up in bits.

SDI is filled with brilliant graphics and is as addictive as it ever was in the arcades.

■ *Earth - the final frontier. Preyed on by evil enemies armed with every conceivable weapon, the future looks uncertain. But we are watched over by Reagan's SDI so maybe we stand a chance after all.*

On second thoughts, the world would probably be better off in your sweaty hands.

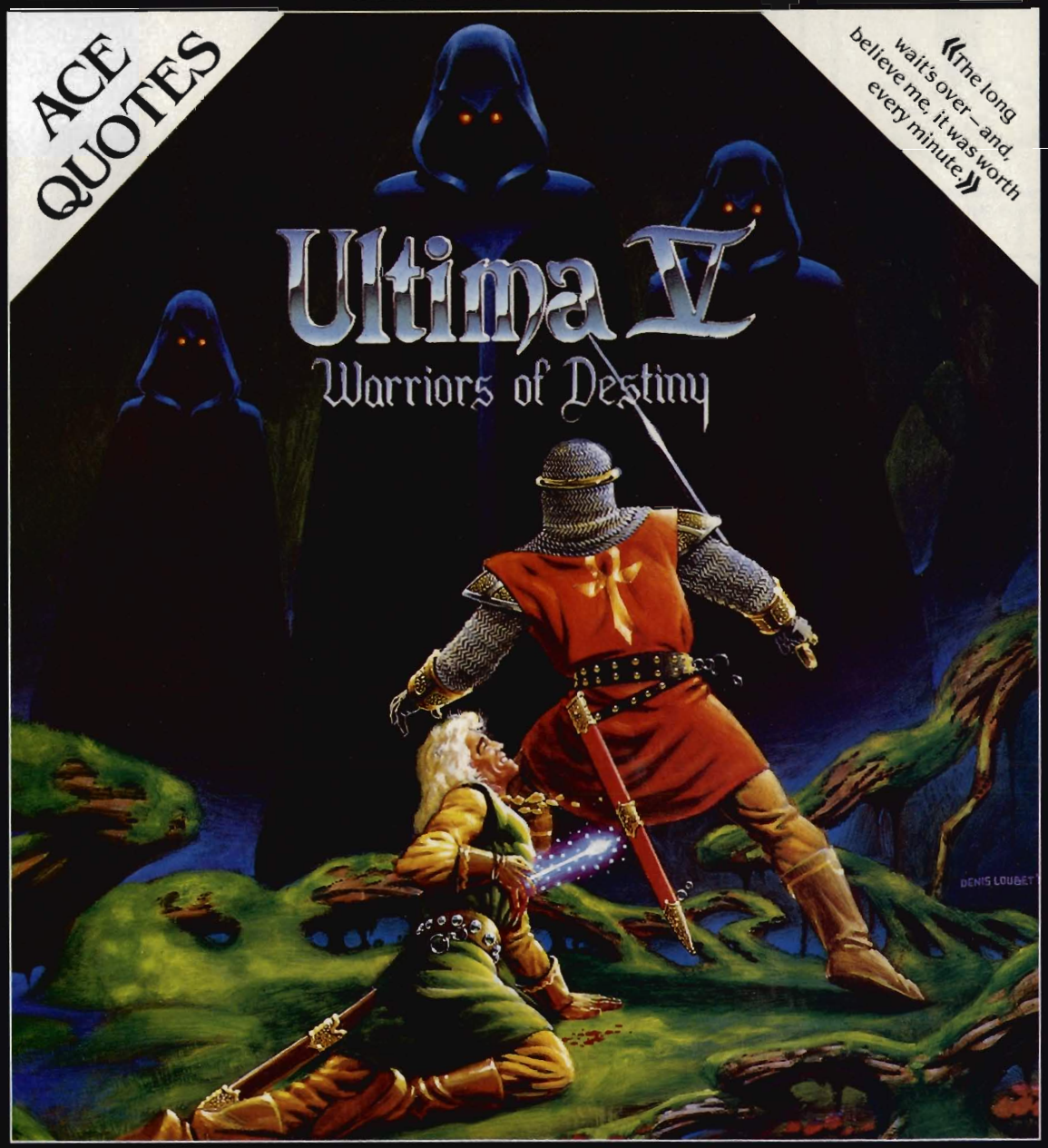
still graphics
0 1 2 3 4 5

moving graphics
0 1 2 3 4 5

soundtrack
0 1 2 3 4 5

lasting interest
0 1 2 3 4 5

overall 85%



Ultima V is Available Now

From Lord British, one of fantasy gaming's most imaginative authors, comes Ultima V, latest in the award-winning Ultima saga. More than four man-years in the making, a labyrinth of mystery and intrigue, Ultima V: Warriors of Destiny will be your greatest challenge!

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Available now for C64/128, Disk £24.95.

ORIGIN

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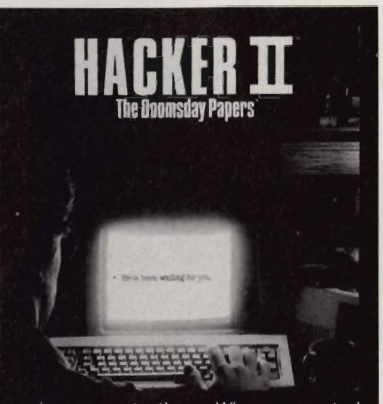
GAME BUSTERS

TIPS

When you lose control and your engine starts stalling; when the drum roll ends and the curtain starts falling; where ya gonna go? Gamebusters! More intimate shots than 'A Friend Of The Family's'.

HACKER II
■ Amiga



The object of the game is to secure four numbers from four filing cabinets. The numbers, when put in the correct order, make up the combination of the vault containing the 'Doomsday Papers'. When you have the document leave through the main doors. Beware of the sting in the tail!

Run in to the cabinets to gain access to them. When presented with the prompt 'MRU command', type ROA. You will be asked for a code. The four codes are: Red 7, Blue 1, White 6 and White 50. One for each cabinet. Filing cabinets are in room numbers 31, 33, 35, 37. Room 28 is a safe room.

The TGS or Telemetry Guidance system shows you your location within the building.

Beware of the Guard, he can see you if you cross the top of the corridor he is in, however, he can't see into any of the rooms. The rooms around the side of the building are safe and you will remain undetected in any of these; there are some rooms you cannot enter.

The order in which filling cabinets must be searched is left for you to discover.

Michael Stephenson
Barnsley, Yorks

SUPERSPRINT
■ ST

Here's a handy way of gaining lots of points. Start the game and turn 180 degrees so you are facing the opposite direction. When a drone passes, accelerate and push it into the bottom wall. Crash into the wall. When you re-appear move up again and into the next drone. Keep doing this until there are no drones left. Then collect as many spanners as you want.

Stephen McLaughlin
Glasgow

LIVINGSTONE
■ ST

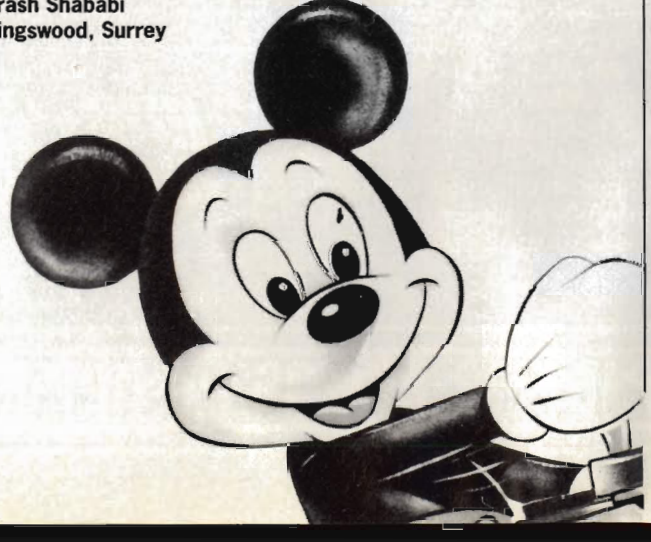
Type CHEAT while the title screen is showing for infinite lives.

R Henderson
Liverpool

MICKEY MOUSE
■ ST

During the game, press [Insert], type the numbers 61315688 and press [Insert] again. Hitting F3 then moves you to the top of the tower on each level.

Arash Shababi
Kingswood, Surrey



PIPE PANIC
■ ST

Following are level codes for the monster game given away on issue four:

Round 10 – JIP
Round 20 – IPO
Round 30 – KOP
Round 40 – KMS
Round 50 – ZVZ

Steven Dignan
Huddersfield, West Yorkshire

BMX SIMULATOR
■ Amiga

It is hard to get through with the one player option selected as the green computer rider is better than the yellow computer rider. Choose the two player option and make sure the green guy gets through. If you can get the yellow player through, so much the better. Course one: only brake on the last corner of the first lap for a very fast time. Course two: follow the arrows.

Course three: don't overtake your computer opponent immediately.

Course four: hit the accelerator hard at the beginning of the race and you shouldn't have any problems winning.

Course five: same as course four.

Course six: start well and race the computer rider to the first corner. At this corner you must overtake him on the inside. The computer opponent crashes twice and if you stick to the saddle you should be able to lap him.

Course seven: Don't crash during this course. Don't brake on the first corner, but instead brake on the fourth corner. Repeat five times. The computer bike crashes once – you must overtake him when he hits the dust.

Guy Allison
Elstead, Surrey.

UNINVITED
■ Amiga

Light the fireplace in the first room with matches from the pantry and place the box in the fire to get the pentagram.

Operate the amulet on zom-

MEGACHEATS FOR THE ST ON DISK

No longer do you need to worry about the Seeders, Mutants and Bombers in Virus or the enemy aircraft in Carrier Command as Chris Kingsley from Oxford has provided cheat routines that will allow you to live forever.

Inside the GAMEBUST folder you will find three files: GAMEBUST.DOC, VIRCHEAT.TOS and CCMCHEAT.TOS. Double click on the GAMEBUST.DOC file first to read the documentation and then double click on VIRCHEAT if you want to win at Virus or run CCMCHEAT if you want to live longer in Carrier Command. The cheat files can also be executed from the menu program.

The two cheat programs are written in such a way that they do not alter your original game disk. Just follow the prompts and choose the options you want selected.

bies in the maze. Say the words 'Instantum Illuminaris Abraxas' outside the temple to scare off the dogs.
D Wengrow
Elstree, Herts

SORCERY PLUS
■ ST

To become invincible, reach the plus part of the game and be able to open any door, press space and type GASMASK WHEELER WANTS CHEAT – include the spaces between words.
Graham Scott
Poole, Dorset

FLIGHT SIMULATOR II
■ ST

It is possible to take off and fly without any fuel! Switch the Engine on in the Realism menu so that keys 1 and 2 on the keyboard operate the magnetos.

Pressing 2 causes the magnetos box to momentarily read 'start' before flipping back to 'both'. If you get a 'lean' message, press 1 to go back to 'both'. By repeatedly pressing 2, the engine can be coaxed into life: engine noises start and then stop as the fuel-starved machine dies. With each stab of the 2 key the engine RPM increases then goes back to zero.

If you set full flap with enough Up elevator while dabbing away at

the 2 key, making sure the magnetos box never reads 'lean', the RPM will increase above the 2000 mark. Although fuel tanks read empty, oil temperature and pressure gauges will show normal readings allowing you to build up enough speed for takeoff.

Slowly reduce flaps, and when you get high enough raise the undercarriage, to aid ascent. When you get tired of pressing the 2 key, glide down and land again.

Stunt pilots try this. In the Lear Jet mode with Auto Coord off, select full right rudder, a lot of left aileron to hold the wings level and raise the elevator until the nose is level. You'll find that you can fly in very tight circles.
Antony Shepherd
Barnsley, Yorks

EMPIRE STRIKES BACK
■ Amiga

Hold [HELP] while typing XIFARG ROTKEV. Let go of [HELP] and witness the words 'Cheat Mode' appearing on screen. Pressing any key between 1 and – will play one of the following speech samples:

1. I want that ship and not excuses
2. Oh, thank goodness we're coming out of the Asteroid field
3. Oehrerrh
4. You are beaten
5. We must fight the imperial walkers
6. I'm not sure what C3PO is saying
7. He could destroy us
8. He will join us or die
9. That's it the rebels are there
0. The force is with you
–. Luke don't give in to Hate

For pictures of Luke, Vader and C3PO press L, D and C respectively, hit return to resume normal play.
Paul Reilly
Woodthorpe, York

STARGLIDER
■ ST & Amiga

Run into aliens rather than shooting them – you get nearly double the amount of points. This practice doesn't do much for your shields though.
John Costello
Dublin, Ireland

WINNERS AND THINGS

Game Busters needs you! If you have tips, hacks or maps for any ST or Amiga game then send them in. Share your knowledge with other enthusiastic 16-bit gameplayers. Come on! It's well worth the reward – a selection of the latest fabulous games. Don't wait around. Send your dodges to: Gamebusters, ST/Amiga Format, 4 Queen Street, Bath, BA1 1EJ.

Winners this month are:
GORDON KEENAN for his superb Starglider II cheat. Amiga games will be gliding his way.
CHRIS KINGSLEY gets a special prize of £50 plus a couple of ST games for his marvellous Virus and Carrier Command pokes.

STARGLIDER II
ST & Amiga

Listed below are the nine items required to manufacture the Neutron bomb, and their respective locations:

■ Case of nuclear fuel is located on Aldos planet surface.
■ Lump of mineral rock. Obtained by exchanging pyramid at main depot on Apex.
■ Crate of Castrobars. Exchange petrified tree at depot 2 on Castron.
■ Keg of Vistan Wine. Exchange bouncing ball at depot 1 on Castron.
■ Egron Mini-rocket. Located on Vista Planet surface.
■ Asteroid. Asteroid belt located between planets Apogee and Millway.
■ Flat Diamond. Exchange Egron mechanical whale found at main depot on Questa.
■ Cluster of Nodules located on Dance planet.
■ Professor Halson Taymar. Visit the main depot on Broadway and you'll be told that he is out burnin' rubber in his Emma 2. Just collect the whole car using your tractor beam. You'll know if you've got the right one as Time warp cubes will now be selectable on your weapon indicator.

Various objects can be obtained by shooting the Pirate Ships you encounter and collecting their cargo with your tractor beam. As for the petrified tree, bouncing ball, Egron mechanical whale and Egron duck, they're not too difficult to find. Reading the Novella will give many invaluable clues.

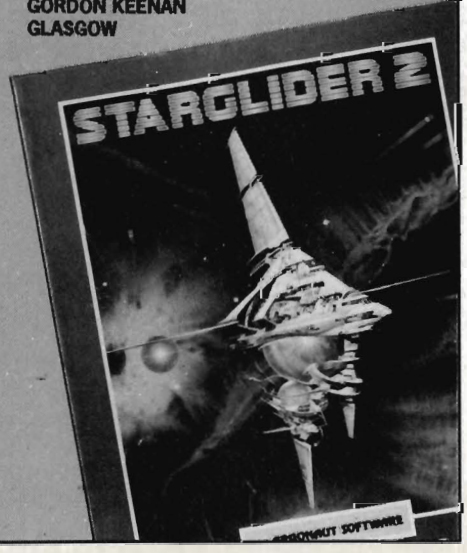
Once located, all objects should be taken to depot 1 on Apogee where the Neutron Bomb will be constructed. If time is not on your side, then destroying the Egron projector bases on the seven moons of Millway will slow down construction of the space station.

All that remains is to destroy the station's defences, which consist of seven projector bases (if active) and eight mini-sentinels. Once accomplished the Neutron Bomb can be launched and your screen will display the message: "Congratulations Icarus. Space Station destroyed. Novenia is safe for now!"
RAY GOMES
ASHFORD, KENT

Go to any of the moons around the planet Millway to get the 'Fire and Flee missiles'. The missiles are stored in tunnel depots. It's best to travel through the tunnel until you find a junction; turn right if there is an energy gate in that direction. If you keep going you will eventually come to a depot containing the missiles.

Asteroids provide the most useful means of refuelling. Trap them in your tractor beam and your energy will slowly be replenished.
It is frustrating to use Stardrive between Millway and
Apogee as asteroids keep getting in the way. To avoid these space rocks pull the ship upwards until the planet you are heading for disappears off the bottom of the screen. As soon as this happens push the ship's nose down until the planet leaps off the top of the screen. Keep doing this until you leave the asteroid belt.
NEIL MORRISON
CO DOWN, NORTHERN IRELAND

And now the ultimate tip. Load the game as normal and play a game. Press F for fixed sights, stop the ship and press the backspace (left facing arrow) if you have an Amiga or the [Delete] if you own an ST. This will pause the game. Now type WERE ON A MISSION FROM GOD making sure to include the spaces. Now hit 1 on the main keyboard; you will know if the cheat has been activated as shield and energy levels will drop to a fixed level. Simply press K to automatically get every type of weapon – that includes the Neutron bomb. Press k at any stage to top up your weapon store.
GORDON KEENAN
GLASGOW



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PACMANIA

GRAND SLAM ENTERTAINMENTS

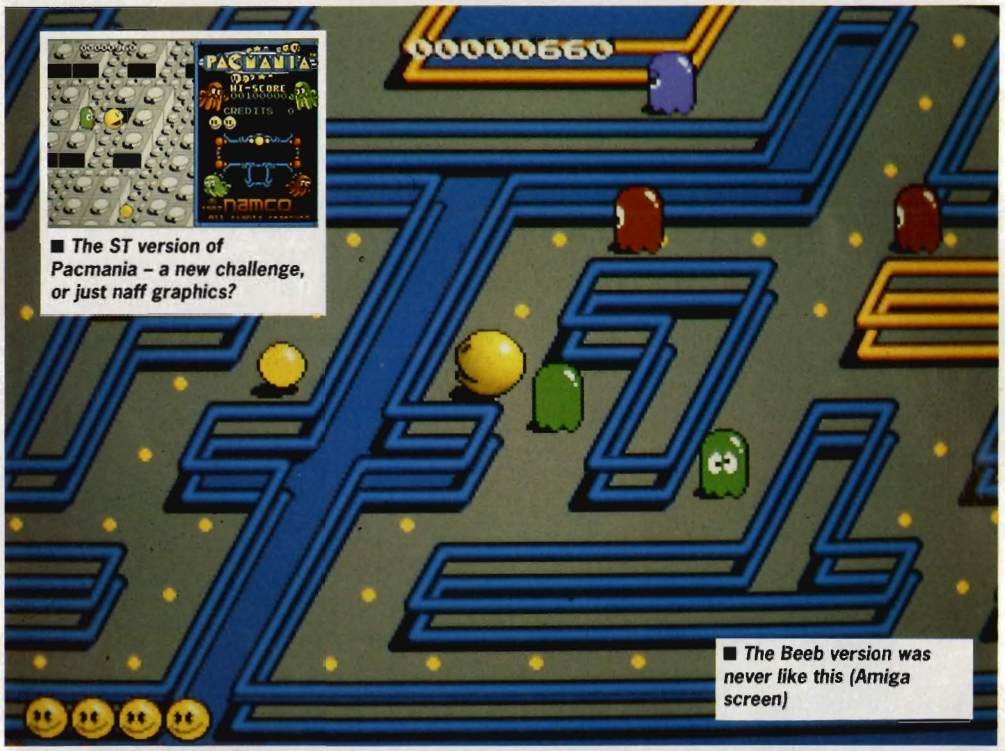
Amiga – Reviewed. Joystick or Keyboard. £19.95 | **ST – Also out. Joystick or keyboard. £19.95**

The coin-op version of *Pacmania* was responsible for denting the financial status of many arcade goers. At least Grand Slam's version won't cause any problems in that area, but with the same addictive qualities as rampant as ever it's certain to prompt a few late-nights.

PRE-PACMANIA

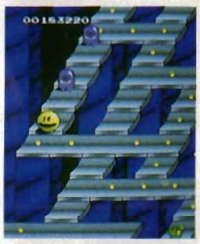
Human-kind once divided their span on the earth into two phases; these phases came to be known as BC and AD. As mankind developed he learnt to become the master of his Universe. He created such miracles as a machine with revolving blades which could be used to cut away the fluff on his face and a device to wake him up in the morning. But by far his greatest achievement was the creation of a piece of plastic filled with things called chips and buttons. A very special game was created and a new era in the reign of mankind was formed. It too was given a name. Once again man split his span into two phases, these were known as BP and AP – before and after Pacman.

For anyone who's spent a century with their head up the back end of a chicken, Pacman was the game in which you steered a filled circle around a maze, eating up the dots and being chased by ghosts. If you ate a power-pill you could run after the ghosts, eating them and seeking your revenge.



■ *The ST version of Pacmania – a new challenge, or just naff graphics?*

■ *The Beeb version was never like this (Amiga screen)*



■ *I don't know why he's smiling – he's been resurrected more times than Jaws (Amiga screen)*

CONCLUSION

Just when you think Pacman has finally died a death, up comes another version like a dose of glandular fever. Sometimes you wonder if anyone can give it a decent burial. However, Pacman was a phenomenal success in its day and the Amiga's graphics and sound offer enough variation on a hackneyed theme to make it an even greater game and almost more addictive than the original, if that can be possible. Mind you, the ST version fails to add much to original Pacman – we'd only rate it at 65% overall.

AMIGA VS ST

There are very major differences between the two games. The ST version does not have the coin-op graphics screens downloaded from the original game and the pills on the ST are black on a grey maze instead of yellow, which makes it extremely difficult to distinguish them. The musical tracks accompanying play are also not nearly as impressive as those in the Amiga version. Whereas the entire screen is scrolled on the Amiga, no such benefits are offered to ST owners, who'll have to live with a smaller window too.

PRO-PACMANIA

sThe gameplay of Pacmania has changed very little from the original versions. It's in the graphics where the changes have really been made. Instead of looking down at the maze as in the original versions of the game, in Pacmania you're looking at the Pacman from a front-on 3D view. This feature comes at a price – you can no longer see the entire maze which means that you don't realise you have the 9th battalion of ghosts on your tail until they suddenly engulf you.

Grandslam boast that the Pacman has been created using 16 shades of yellow. This might seem like over-kill but the resulting image looks very solid. A little more effort could have been made with the ghosts but this is only a minor fault. The mazes in the Amiga game have actually been downloaded from the original coin-op version, so they look excellent.

There are soundtracks playing throughout the games as well as gobbling sounds each time the Pacman eats a pill or a lump of fruit. These last-mentioned can grant double point scores for eating ghosts or make your Pacman move faster.

still graphics 0 1 2 3 4 5

moving graphics 0 1 2 3 4 5

soundtrack 0 1 2 3 4 5

lasting interest 0 1 2 3 4 5

overall 80%

REVIEW

BATTLECHESS vs COLOSSUS CHESS X

BATTLECHESS – ELECTRONIC ARTS

Amiga – £24.95, reviewed. Mouse.

ST – No version planned

COLOSSUS CHESS X – CDS SOFTWARE

ST – £24.95, reviewed. Mouse.

Amiga – £24.95 version due in the New Year

Finding even a half-decent chess-player in the *Format* offices is about as easy as tracking down the genuine Santa Claus. To get round this problem we considered playing *Battlechess* off against itself, but were worried that this might cause the Amiga to question its treasured superiority complex. Then *Colossus* appeared for the ST and a worthy opponent was found.

FEATURES

Battlechess plays an intriguing game, with such sights as the King pulling a Luger on opposition knights and the Queen flexing electrified fingers to liquidate the pawns. These comic scenes occur at every encounter between pieces. Unlike some other chess variants, you have no control over the battles, but can only watch as pawns, knights and bishops are pulverised in front of your eyes.

Battlechess might play a more humorous game, but it is severely hampered by constant disk accesses which make it extremely slow. When it comes to making a move, even at the novice level, the wait almost gives you pins and needles.

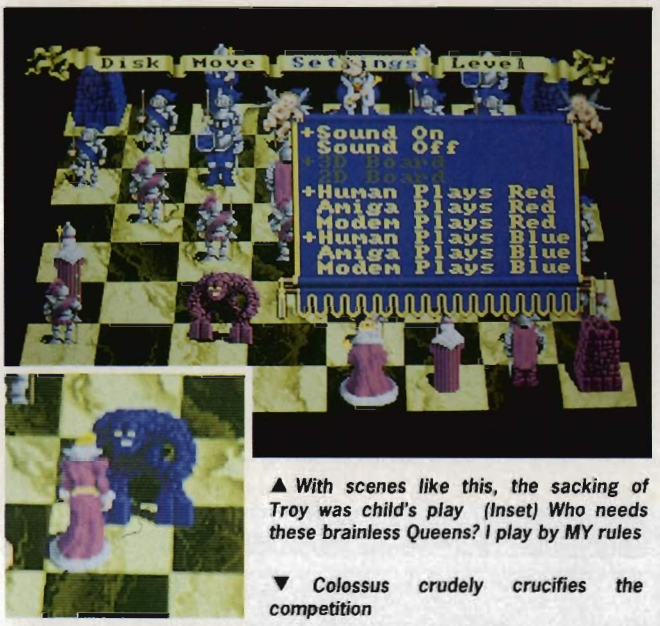
Colossus on the other hand offers a far more realistic challenge. While you're considering your move, Colossus is way ahead, has already decided your probable moves and is considering its own responses. This sort of approach is fast approaching reality; introduce a few burps and body odour and you could be sitting opposite the great Spassky.

In addition, both games offer a range of odd features, from playing blindfolded (Colossus) to playing over a modem (BattleChess). These gimmicks might appeal to a blind telephonist, but they have little use for the average chess player.

GAMEPLAY

There was a time when one chess game was much the same as another – whether your defeat was greeted by a strange beeping noise or digitised speech, the end result was still the same. *Battlechess* has put an end to that illusion. If you're playing chess as an escape from the blood and gore of 16-bit arcade adventures, then forget this one. In no time at all it turns the chess board into a blood-soaked battleground. Strategies resemble the planning of a full-scale war, rather than the innocent movement of odd little horses and castles.

When it comes to playing a good game of chess, however, the eccentricities of Battlechess mean little. Colossus may not offer any startling new graphics, but it does play a far better game. It almost reduced its rival to tears with moves which would upset many a Russian grandmaster. One superb feature of Colossus is the way it learns from each game. With an opening book of more than 11,000 moves, extending well into the middle and end-game, the traditional weakness of older programs is becoming a thing of the past.



▲ *With scenes like this, the sacking of Troy was child's play (Inset) Who needs these brainless Queens? I play by MY rules*

▼ *Colossus crudely crucifies the competition*

CONCLUSION

Battlechess is a fine program with attention paid to every detail, from the full-scale riots of a chess game to the creative display of its menu's. But give it a decent opponent, and you'll soon realise its shortcomings. It might well beat the brains out of your average player but when the chips are down, Battlechess crumbles. Colossus lacks impressive graphics but its gameplay is unbeatable.

Will chess ever be the same again?

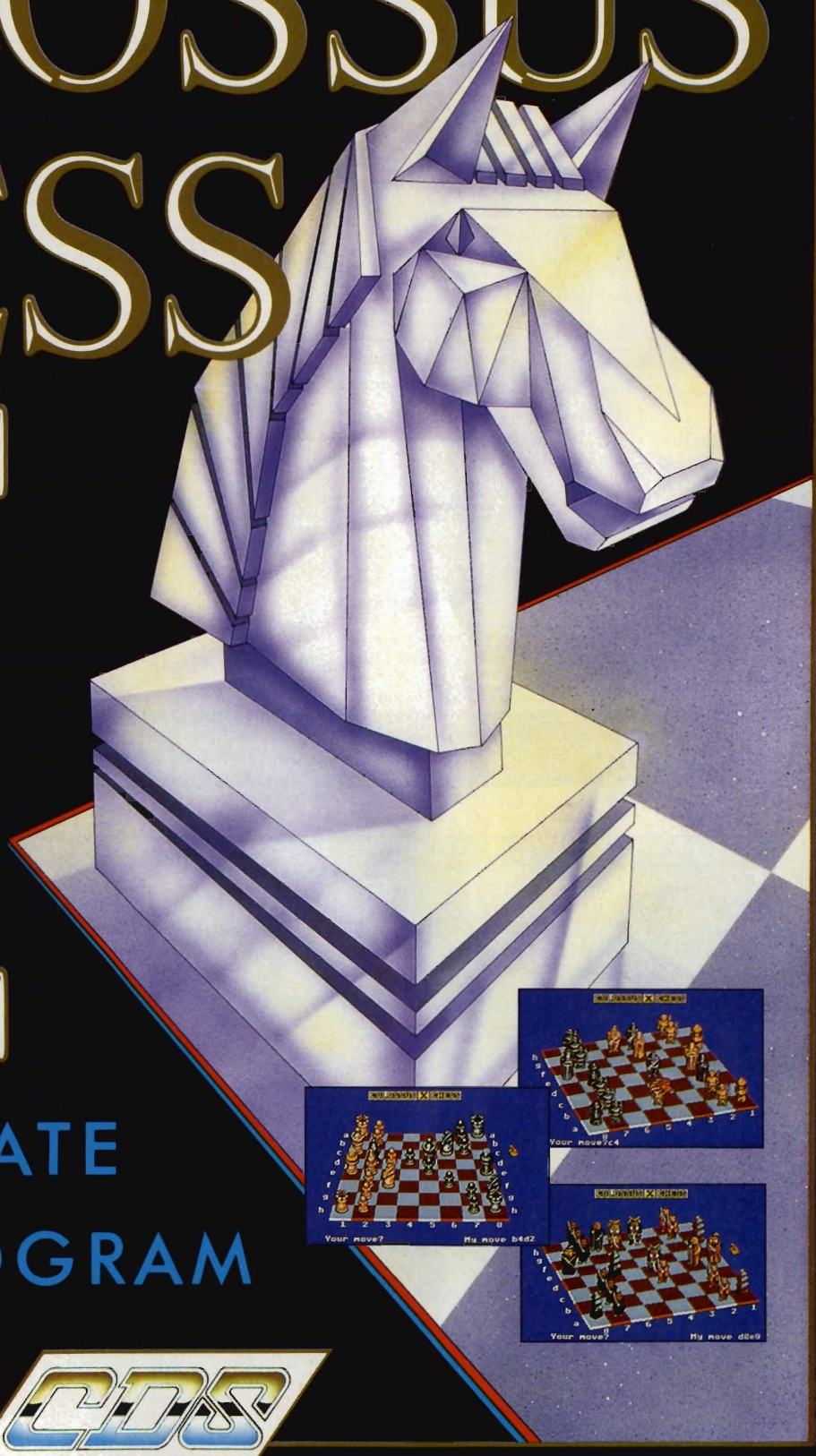
Colossus

still graphics 3.0
moving graphics 3.0
soundtrack 2.0
lasting interest 4.5
overall 87%

Battlechess

still graphics 3.5
moving graphics 4.0
soundtrack 2.0
lasting interest 4.5
overall 85%

COLOSSUS CHESS X



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SPEEDBALL

IMAGEWORKS

ST – Reviewed. Joystick. £ 24.99.	Amiga – Joystick. £ 24.99.

Xenon was an astonishing success when it was released by *the Bitmap Brothers* and *Speedball* looks set to follow the same course. Far from being just another sporting game, Speedball is a futuristic version of American footsie, played with a solid steel ball. With the US going head over heels trying to negotiate rights for the game, it looks as if they too see this as the direction in which American football is heading.

AIM

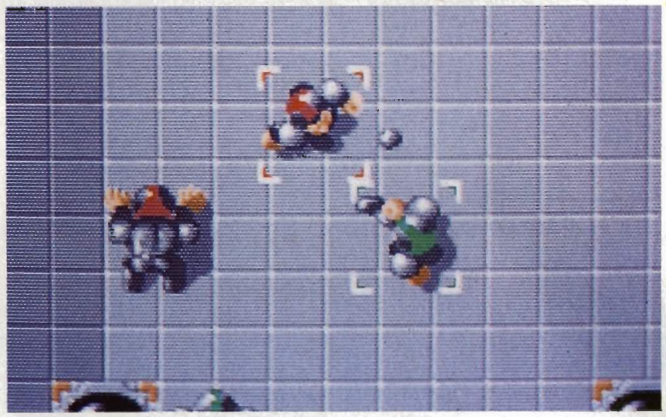
Played in a steel-clad arena between two 5-a-side teams, Speedball is one of those games which would see its debut on Channel 4 if it ever became a reality. It's labelled as a 'body contact sport' which is a nice way of saying that you go into the ring fighting and brawling to get hold of the ball and don't stop until you've scored a goal.

There are two levels of play – league and championship matches. In a league match each of the opponents have different ability levels which might be alright if you could distinguish one player from another bsut they all look like blobs from the aerial view provided. The knockout championship has the players becoming progressively stronger with each match making an already difficult game almost impossible towards the end.

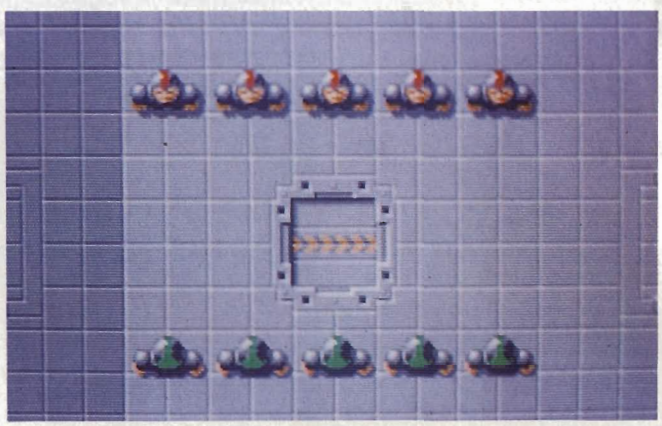
STRATEGY

The player nearest to the ball is framed by four corners. You can use him either to take the ball away from the red team, throw it to other of your team members or run with it up to the goal. This technique might seem like a good idea but it takes a lot of practice to learn how to manage your team, especially when control is transferred between players at inopportune moments.

Along the way you are advised to collect spinning tokens which can be traded at the end of a match to do everything from bribing the judge to protecting yourself from being tackled.



■ *Whoever said this was just a game ?*



■ *The team. Not a very attractive looking bunch*

■ *Solid steel balls make for an interesting game*

CONCLUSION

With digitised sound and addictive gameplay, Speedball might seem like the perfect game but it has its limitations. The layout of the screen means that you cannot see the entire arena at any one time. Consequently, this makes throwing the ball to other team members not only difficult but damn near impossible. Also, the way control switches between players can become annoying, especially when the ball nears the goal. But with an unusual variation on the football theme, it is certain to prove a hit.

GRAPHICS AND SOUND

A bird's eye view of the arena is the only one provided. As players move up and down the steel pitch the screen is effortlessly scrolled, responding quickly to your movements.

Speedball graphics have transformed the traditional football game out of all recognition. With solid 3D effects ranging from revolving tokens set in the floor of the arena to the individual movements of each player, Speedball looks startlingly realistic. The steel ball can occasionally be thrown up out of the arena with such incredible force that you almost move away from the monitor when you see it heading towards you.

With clever manipulation of the joystick you can have players performing sliding tackles, punching, diving and jumping. From an aerial view it is often difficult to tell the difference between a sliding tackle and ordinary running. There is also little variation between the jumping, standing and punching effects but with the end result being that you acquire the ball you can usually tell if your strategies have been successful.

still graphics 0 1 2 3 4 5

moving graphics 0 1 2 3 4 5

soundtrack 0 1 2 3 4 5

lasting interest 0 1 2 3 4 5

overall 80%

REVIEW

ZERO GRAVITY

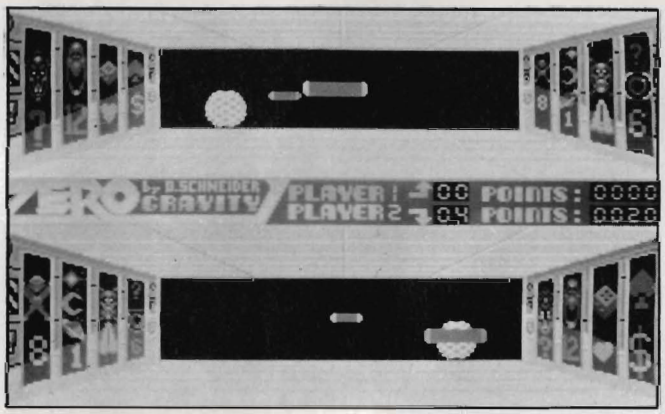
EAS SOFTWARE/LANKHOR

Amiga – £19.95, reviewed. Joystick

ST – £19.95, due now. Joystick

Zero Gravity is one of those incredibly addictive games which always looks boring on somebody else's micro but materialises on monitors with startling regularity. It might not offer any major advancements in the field of computer technology but it will keep your fingers vibrating on the old joystick for hours on end.

It's very much like a 3D computer tennis game, viewed from behind the bat. The screen is split in two horizontally, so you can see the 'court' from both ends at the same time. As you move your baton around the playing area you hit the ball back into outer space. With practice you can also put spin on the ball and increase your score by aiming the ball at the sides of the court. Points awarded for this vary with the position you hit the 'space walls'.



■ *So this is what those space invaders do on their day off*

■ *So who's this bald-headed guy anyway?*

If this is what happens to you when you play games of outer-space pinball then it must be good .... mustn't it?

The graphics in this German creation are impressive, if a little unimaginative, and the sound effects are punctuated with a range of mumbles, rather than true speech. At the start and end of each game the Amiga comes alive with music which might not go down particularly well at *Stringfellows* but would be enjoyed by an audience of Space travellers. The game could have been enhanced with the use of shadow, especially since learning how to repel the ball takes almost as much time as finding an armadillo's brain (not an easy thing to do since it tends to go into hibernation).

Zero Gravity is one of those 'just one more go' games. It's the small details which make or break this type of game and here they've not been forgotten. It may never make the top ten games lists, but it will definitely find it's way into Santa's sack many times over the Christmas period.

still graphics 3.0

moving graphics 3.5

soundtrack 4.0

lasting interest 4.5

overall 75%

DRILLER

INCENTIVE

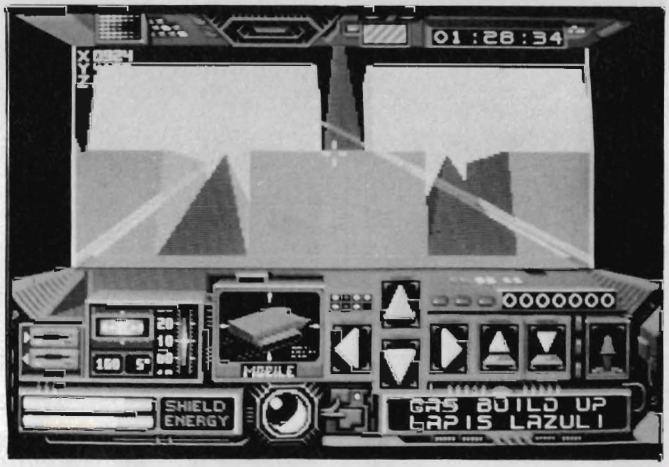
ST – £22.95, reviewed. Joystick, mouse and kbd.

Amiga – £22.95. Joystick, mouse and keyboard.

When *Driller* was originally released on 8-bit machines its use of *Freescape* made the game quite a graphical achievement. Freescape is the effect achieved by filling in the areas between wire-framed images with colour, obtaining solid 3D graphics. It heralded the start of a new era in games software. Incentive have now released the 16-bit version with Freescape as impressive as ever.

Before you can play Driller you're expected to acquaint yourself with a 32 page 'Federation Briefing', 23 pages of which could be summed up in one word – woffle. Section 2 of the manual – the origami instalment – involves assembling a 3D model which might well be more at home on *Blue Peter*. By the time you get as far as playing the game your brain is confounded by useless words and your fingers are covered in glue.

The gameplay has not altered from the old 8-bit versions. The objective is still to plant oil rigs on various plains of the Mitral moon and so rid the area of a gas build-up which promises certain destruction. Along the way you must gather Rubicon crystals to ensure your survival as well as destroying the laser beacons and scanners. Playing Red Adair on 18 sections of lunar landscape certainly has some appeal, but the addictive qualities of the old game have been lost somewhere in the conversion.



■ *Driller's Freescape system comes to the ST*

As ever, Freescape makes the scenario look impressive. However, the sound effects have changed little from the 8-bit days. Far more could have been done with Driller to warrant a conversion, but these possibilities seem to have been largely ignored.

still graphics 4.0

moving graphics 4.0

soundtrack 2.0

lasting interest 3.0

overall 70%

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REVIEW

PRINTS CHARMING

Most people's second purchase, after their micro, is a printer. There are many reasons for buying one, and as many printers to suit, from program listings to acceptance letters for HM's garden party. Here is a good cross-section of 9 and 24 pinners.

After your initial purchase of an ST or Amiga, the next piece of hardware on the list is nearly always a printer. It's all very well to have fancy text and graphics on the screen, but unless you can transfer them to paper, you are severely limiting the uses of your machine.

Which printer, then? There are hundreds out there – it really depends what you want to use it for, and also how much you can afford to spend. A 9 pin printer is more than adequate for printing listings and with two pass NLQ fonts is also suitable for the occasional letter.

If your main interest is in writing *per se*, then you will probably be better suited with a 24 pin printer, which can print letter quality a lot faster than the average 9 pinner, and normally comes equipped with three or four different fonts which add variety to your copy.

DON'T DISCOUNT DISCOUNTS

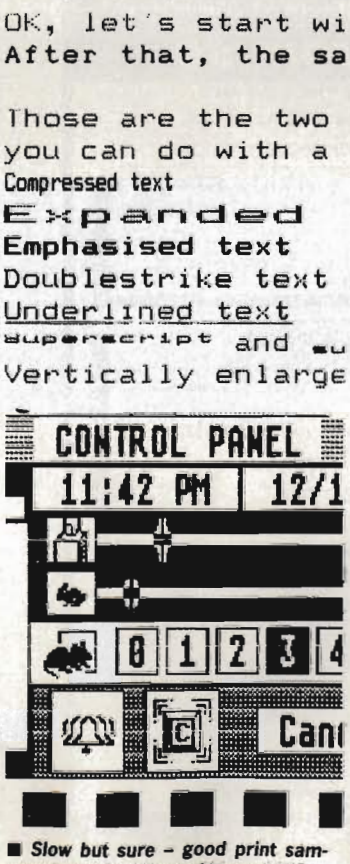
The prices quoted in this survey are the manufacturers recommended retail prices (RRPs), including VAT. Printers can be bought heavily discounted and you can typically expect to pay as little as 60% of the RRP. We have given a rough target price by each printer, at which discount shops ought to be able to supply. Don't buy direct from the manufacturer (most won't sell retail anyway).

■ *The Citizen 120D*

9-PIN PRINTERS

Citizen 120D ■ RRP £229, Typical £135

This is the cheapest 9 pin printer in the survey and the slowest, but the output is of a good quality, thanks in the main to a carbon ribbon which gives a good dense print. The printer is diminutive and looks a bit 'cut off' at the back behind the platen. This is partly due to it having only a pull-feed tractor which clips to its top. Two plastic paper guides clip to the tractor mechanism to guide the paper out of the printer and prevent the 'recirculation' problem of exiting paper feeding itself back in and jamming the tractor.



■ *Slow but sure – good print samples from the 95 cps Citizen 120D.*

The printer is supplied with a separate interface cartridge which plugs in at the side of the machine and includes the Centronics or serial socket into which you plug the connecting lead. There used to be a crafty wheeze conducted by printer suppliers where they would sell a printer of this type at what looked like a bargain price, but without any interface card. The printer is, of course, useless without an interface, unless all you want to print is the diagnostic test line! Thankfully the 120D is now priced with the Centronics cartridge.

Controls are pretty simple, with three spongy buttons providing on/off line, line and form feed, but the printer does do a neat single sheet load where the sheet is automatically gripped, fed through and aligned with its top at the print head. The manual is an elongated affair which you may have trouble fitting in your bookcase, but it's comprehensive with plenty of examples (though most are in IBM BASIC).

The 120D is pretty Epson compatible, and produces a decent graphics dump as well as responding correctly to most of the character style escape codes. It's a good budget printer at a reasonable price and may be available at further discounts as it comes to the end of its marketed life. A new model, the 180E is scheduled to replace the 120D in the near future.

Citizen 120D	
features	3.0
speed	2.5
ease of use	3.5
manuals	3.5
format value	3.0

■ *The epson LX800 9-pin printer*

Epson LX800 ■ RRP £279, Typical £210

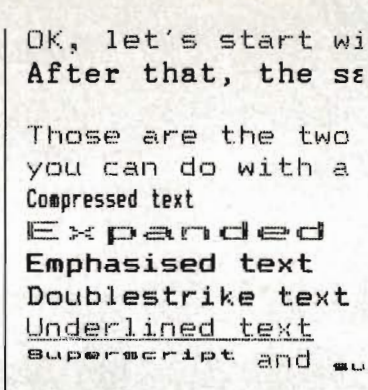
Epson compatibility is a big plus in both the ST and Amiga printer worlds, and the LX800 offers a decent package on top of its well-known name. It's fairly compact, rounded lines house a print mechanism which can produce nearly 30 cps in NLQ mode, though only 111 cps in draft. The printer offers two NLQ fonts, approximating to roman and sans serif characters.

The LX800 has a shelf at the back to guide paper over the mains and Centronics plugs, both of which project from sockets at the back of the printer. It also has a reasonable sheet feeder for single sheet paper, and a clip-on pull-feed tractor, though these two can't be fitted at the same time. The single sheet capability is improved by an auto-feed feature which takes in single sheets and aligns them at top of form. All in all, paper handling is well thought out for a budget printer.

The three touch buttons which make up the control panel of the LX800 hide more sophistication than first meets the eye, for they are, in fact, the only external manifestation of SelecType. This is Epson's 'control everything with combinations of three buttons' system of setting typefaces and certain type effects like condensed mode and elite type. You can select 11 different text effects, though the key sequences take a while to remember. They're well covered in the manual, which is nicely laid out and details all important elements of the printer's operation.

Print quality is fair, with the NLQ font having large, well-shaped letters. Reversed and double-height text is not supported but print dumps from the ST are more than adequate.with good grey tints.

The LX800 is a good solid machine with some handy value-added features, and is worth considering for more than the Epson name.



■ *Good NLQ mode and two quality fonts put the LX800 in the middle of the low-end 9 pin field.*

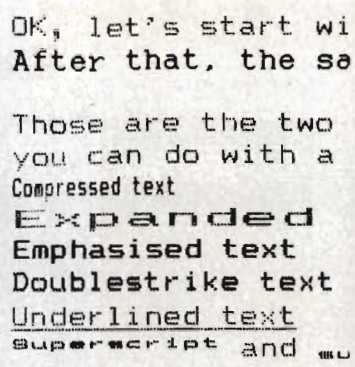
Epson LX800	
features	4.0
speed	3.5
ease of use	3.5
manuals	4.0
format value	4.0

Star LC-10 ■ RRP £298, Typical £195

The new range of Star printers confirms their place as one of the leading manufacturers in the budget and mid-range market. The LC-10, which can also be had in a colour version called the LC-10 Colour (snappy marketing there!), is a smartly styled 9 pin with a lot of value-added features.

To start with there are several little niceties that any printer user would tell you are needed, but which no other manufacturer has thought to incorporate. How about a mains switch at the front of the printer, where you can reach it? How about a Centronics port at the side where it doesn't foul continuous paper? How about being able to lock the font and style selections so that software can't override them?

Front panel controls are used in bizarre combinations *(This is Format, not Forum – Ed)* to control paper feed, style selections and paper parking, which takes continuous paper out



■ *Extra fonts give the LC-10 a lot of added value – a 7 colour version is also available.*

of the way so you can use single sheets.

Print quality is good, with three distinct fonts: Courier, Sans Serif and Orator. In addition, the Orator font can take two forms, using either upper and lower case letters or large and small capitals. The speed tests show the printer to be quite quick in draft mode, though slower than average in NLQ mode. Compatibility is reasonable, though double height again follows Star's own codes which aren't Epson-standard. The test graphics dump came out very clearly, though not that fast.

The Star LC-10 is a good, modern 9 pin printer, with the added advantage of a cheap colour version for those who need it. This emulates the Epson JX colour printer, so Amiga users should be able to install the JX driver for dumping. We'll be looking in more detail at this in a future issue.

Star LC-10	
features	4.5
speed	3.5
ease of use	4.0
manuals	3.5
format value	4.5

■ *The Star LC-10 Multifont 9 pin*

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MPS 1500C

MPS 1200P

MPS 1200P

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MPS 1500C COLOUR PRINTER

£199.99
+ £5.00 post and packing

A. TECHNICAL CHARACTERISTICS
PRINTING TECHNIQUE .....Impact dot matrix (9-needle print head).
DRAFT MODE ..... – matrix: 9 vertical dots x (5 + 4) horizontal dots; – print speed: 120 char/s, at 10/char-in
TABULATION SPEED .....2 char/s
PRINTING DIRECTION .....bi-directional, with optimised head movement
PRINT PITHES .....10 char/in to 24/char/in programmable from line, and in SET-UP mode
LINE FEED ..... – 1/6 in (4.23 mm), 1/8 (3.17 mm) and 7/72 in (2.4 mm); – n/216 in and n/72 in.
CHARACTER SET .....ASCII characters and special characters.
MAX. PRINT LINE LENGTH .....40 top 192 characters, according to print pitch selected.

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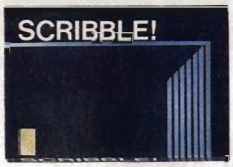

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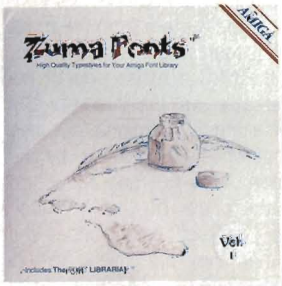

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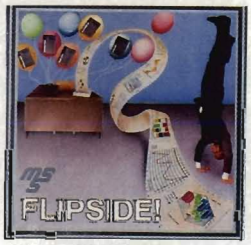

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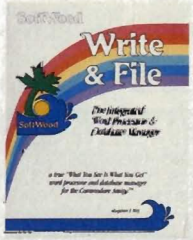

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£65.00

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Check and correct your spelling as you type

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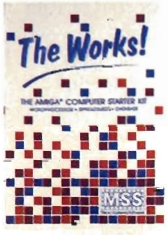

THE WORKS

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Citizen MSP15E ■ RRP £344, Typical £225

A wide carriage version of Citizen's mid-range 9 pin printer, the MSP15E is low to the ground but big in width and depth. There seems to have been a conscious effort to keep everything as flat as possible on this printer. There are no paper guides for single-sheet paper, but there is a separator for incoming and outgoing paper and a couple of smoked plastic covers for good effect.

Continuous paper is fed via a push tractor which is quite adequate in the forward direction but screws up all too easily if you try and wind paper back out (to reload with single sheets, for instance). Friction feed is also supported, but there is no autoloading – alignment of A4 or A3 sheets is up to you.

Dip switches, for all the normal setup configurations, are secreted under the top cover and you have to take the printer apart to get at them, which is a pain. This kind of silly was designed out of most printers several years back, but the MSP15E has been around for several years, as the 1985 copyright notice in the manual discloses. The manual itself is very similar to the 120D's, though a rather more conventional shape. It does its job without any particular flair.

Print effects are largely compatible with the Epson standard, though the sequence for double height characters is different from Epson's and the Citizen has its own sequence for reversed text, a feature Epson printers don't support. Our test file confused the MSP when switching from reversed text to double height and produced a weird variant, but both double height and expanded double height (effectively quad size text) printed on their own without problem. The internal printer software is clever enough to figure out how to swap sizes within a line and will default to standard line pitch with a single large letter in the top line. You can make use of this to produce simple dropped capitals.

■ *The wide-carriage Citizen MSP15E*

OK, let's start wi
After that, the sa

Those are the two
you can do with a
Compressed text
Expanded
Emphasised text

This text should b
and this

■ ***Double height, quad size and reversed text are special features of the MSP15E.***

A graphics dump produced from the ST Desktop had a peculiar dotted effect within the grey shading of the background. This could have been problems with a pin in the particular printer supplied to us, or some minor glitch in the printer software.

It's hard to get excited about the MSP15E. It's an adequate printer but has fallen behind on some of the intelligent paper handling features of its newer competitors.

Citizen MSP15E	
features	3.0
speed	3.0
ease of use	3.0
manuals	3.5
format value	3.0

24-PIN PRINTERS

NEC P2200 ■ RRP £454, Typical £315

This is an unusual printer in a number of ways. It's high and solid, uses a 24 pin head and has more paper paths than *Grasshopper* in an episode of *Kung Fu*. NEC has for many years been known for its Spinwriters (a cross between a daisywheel printer and a golfball typewriter) than for dot matrix machines. Recently, though, they've made serious moves into the dot-matrix field, producing only 24 pin machines but pricing the entry level printer, the P2200, very competitively.

The P2200 is a 10" carriage printer with tractor and single sheet feed. The tractor is push feed. The tractor is pull feed. Paper enters from the back. Paper enters from the front. All the last four statements are true, making the NEC machine one of the most versatile on the market. The tractor system is ingenious; a single pair of pinwheels positioned behind the platen can be persuaded to engage the paper on top or underneath. If you feed paper under the wheels then they effectively form a push-feed system, while feeding it over them gives you a pull-feed.

Both these methods of feeding continuous paper take it in from and deliver it to the back of the printer, but the P2200 has a further surprise. Flipping up a flap at the front and sliding it away like a garage door reveals a paper guide and a second entry path for paper, single sheets this time. A quick dab at two buttons on the front control panel and the pin-feed paper slides out if the way, but remains in the printer while the A4 sheets are printed – very cunning.

Print quality itself is very good, with four NLQ fonts as standard and a fifth available through a plug-in cartridge. Details of the chosen font and other character attributes can be printed out in comprehensible English

TRICKS OF THE MATRIX

It must have been some fiendishly lateral brain which hit on the idea of printing characters on paper by firing a series of pins at a typewriter ribbon, rather than using a complete character die, as in a typewriter or daisywheel printer. Nonetheless, the mechanism has proved extremely effective and the print quality of the dot-matrix printer has improved dramatically in the last couple of years.

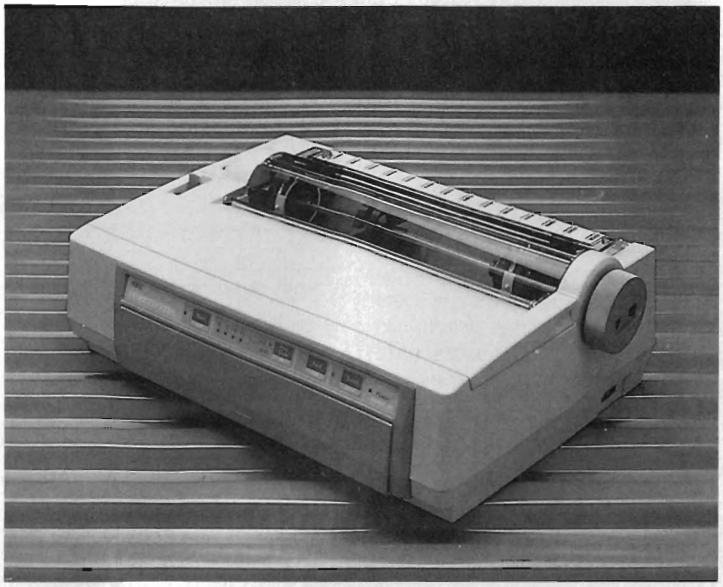
The earliest dot-matrix printers had only 7 pins, arranged in a vertical line down the print head, and used a 7 x 5 matrix of dots to generate each character. This lead to a number of restrictions, the most apparent of which was the lack of true descenders in their character sets. Descenders are the legs of letters like j, y and z. They couldn't produce underlines, either.

The next innovation was the 8 pin printer, quickly followed by the 9 pin, which is still the low-end standard for dot-matrix machines. 9 pins offer the chance of of true descenders and underlines on printed text. Not content with this, though, the ingenious Japanese hit on the idea of overprinting the initial line of characters, the second line offset from the first by half a pin-width horizontally, thus 'filling in' each character. This was termed 'near letter quality' (NLQ) – not even the Japanese had the nerve to claim any more than 'near'.

The third stage of development also came from Japan, and was a result of the major printer companies trying to address their home market and produce printers which could reproduce their own Kanji characters from a computer. A 9 pin head is not up to the task, and going for more and more, ever-thinner pins finally lead to the 24 pin head for the dot matrix.

In the West the need for Kanji is a lot less pressing, but the extra resolution could still be put to good use in printing high quality (now termed 'letter quality') characters in a single pass.

All these developments have lead to the premature demise of the daisywheel printer in all but a few specialist applications, as most computer users are happy enough with the output of 24 pin printers. Those that aren't happy look with avaricious eyes at the falling prices of laser printers!



■ *The NEC P2200, 24-pin efficacy*

OK, let's start wi
After that, the sa

Those are the two
you can do with a
Compressed text

Overnight express;
The photographer's
Cheque this one ou
A little memento c

■ ***The four distinctive fonts resident in the P2200 make a nice change from the standard Roman and Sans Serif offerings***

and then adjusted via a system of Yes/No push buttons on the front panel. This uses a bit of paper, but keeps the operation completely self-contained.

Epson compatibility is good, though double-height characters are selected through a non-Epson code. Graphics screen dumps from the ST using the [Alternate]+[Help] key combination come out severely squashed as the paper insists on advancing by a pin line rather than a character line each time. This seems to be a general problem with many 24 pinners, as the LQ850 exhibits just the same foibles.

The P2200 is a well constructed printer with a novel approach to paper handling and configuration which set it apart from otherwise similar machines. The price is good, leaving the NEC machine a strong contender in the 24 pin market.

NEC P2200	
features	**4.0**
speed	**3.5**
ease of use	**4.5**
manuals	**4.0**
format value	**4.5**

Star LC24-10
■ RRP £459, Typical £339

This is Star's main entry into the 24 pin printer market and is in some ways the big brother of the LC10. For a start it's the same shape as the 10, though bigger in all dimensions, and has the same sensibly placed sockets and switches. It also offers a paper parking system which takes continuous paper out of the way while you're printing single sheets.

There are four inbuilt fonts this time, though it's hard to think of a sensible use for the handwritten-style 'Script'. You can print in double height and width or quad height and width, giving you limited scope for page design using just the facilities of the printer. Paper can be fed forwards and backwards by increments as small as a single dot line and a 'Quiet' mode prints characters in two passes rather than one, taking twice as long and sounding little quieter to untrained ears.

An interesting innovation is teletype mode, whereby the LC24-10 feeds the last line of text far enough up that it can be read like a teletype. It does this when the flow of data stops, and rewinds the paper to continue where it left off as soon as it receives more data. Apart from impressing your friends, it's hard to think of this as an essential feature.

The LC24-10 has a slot at the front for an additional font card or a 7K RAM buffer expansion which should speed the return of control to your micro when printing long files. You can only add one font at a time, but with four internal ones, this is not unreasonable.

OK, let's start wi
After that, the sa

Those are the two
you can do with a
Compressed text
Expanded
Emphasised text

Overnight express;
For really classy
LOUD MOUTHS PREFER
Let the lines flow

■ ***The four internal fonts supplied with the LC24-10, though it's a bit cheeky to describe the variations of Orator as separate fonts.***

SPECIAL EFFECTS

The extra features offered by some modern printers are nearly always controlled by special escape sequences. Check that the software you want to use can send these codes. Word processors, for instance, vary considerably in the way they handle special effects. On the ST, *Word Writer ST* can embed any printer code directly into the text, as can *Protext*. *1st Word Plus* relies on pre-defined effects, though you can assign these to codes of your choice.

Scribble on the Amiga can embed codes much like *WordStar*, but several other Amiga word processors produce text as graphics dumps on the printer, effectively preventing the use of any special codes.

GETTING GOING WITH YOUR PRINTER

A. ON THE ST

The ST leaves it up to individual programs to control whatever printer you have, but normally everything is assumed to be Epson compatible so there's no trouble.

If you want to do screen dumps to your printer – by holding down [Alternate] and pressing [Help] – you may find that the image runs off the end of the paper on a 10" carriage printer. You can alter this from the 'Control' desk accessory. To get at this, make sure your boot disk has the desk accessory CONTROL.ACC on it (copied from the master 'Language Disk' supplied with the ST) and choose 'Control' from the Desk menu.

Change the dots-per-line setting to 960, and the dump should fit. If you want to save this modified printer setting, use the 'Save Desktop' function from the 'Options' Desktop menu.

We found that the 24-pin Epson LQ850 and the NEC Pinwriter P2200 could not print screen dumps properly at all.

B. ON THE AMIGA

The Amiga, in contrast to the ST, takes all control of printer specifics away from its programs and stores its printer information on your boot disk in a subdirectory called PRINTERS in the DEVS directory.

The version of Workbench bundled with current Amigas is 1.2, which has no 24 pin printer drivers. This is really annoying when doing graphics prints from art packages. The soon-to-be-released Workbench 1.3 rectifies this, but you needn't wait. Most recent programs sold already have the 1.3 Printer Drivers – to check, boot up your program and look in Preferences to see if 'EpsonQ' is on the list of supported printers. If so, it's 1.3.

If you only have the 1.2 drivers, all the printers here should work with the 'Epson' driver chosen.

If you have the 1.3 drivers, choose 'EpsonQ' for all 24-pin printers, and 'EpsonX' for all 9-pinners. The NEC Pinwriter has a specific driver.

If you want to copy the 1.3 drivers from a new package's boot disk to your own 1.2 Workbench boot disk, just copy the file with the name corresponding to the driver you want from the DEVS/PRINTERS directory of the 1.3 disk to the same directory on your 1.2 disk. You'll need to use the CLI for this, eg:

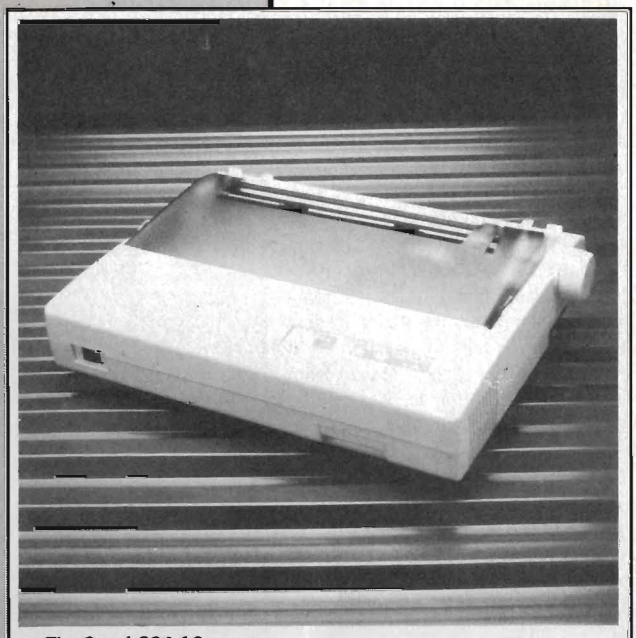
(put your 1.3 drivers disk in DF0:)

```
COPY DF0:DEVS/PRINTERS/EPSONQ RAM:
```

(put your 1.2 disk in the drive)

```
COPY RAM:EPSONQ DF0:DEVS/PRINTERS
```

Now when you reboot you should see the EpsonQ driver on your preferences list.



■ *The Star LC24-10*

The LC24-10 is an effective 24 pin printer with a lot going for it. The current trend is to add as many peripheral features to a printer as possible, and Star will certainly take some beating. In their case, though, they're not scrimping on print quality or speed to achieve this.

Star LC24-10	
features	4.0
speed	4.0
ease of use	4.5
manuals	4.0
format value	4.5

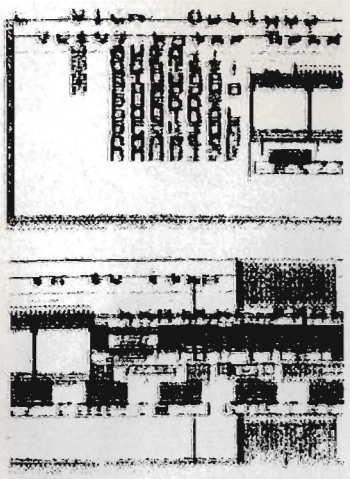
Epson LQ850
■ RRP £758, Typical £512

This is Epson's top of the range 24 pin printer (their lower priced LQ500 was unavailable for review because of a warehouse stocktaking check!) and is a big solid machine complete with sheet feeder, push tractor and cooling fan. The control panel uses a variant of Epson's SelecType to select font, pitch and condensed mode type and there are also controls for paper feed.

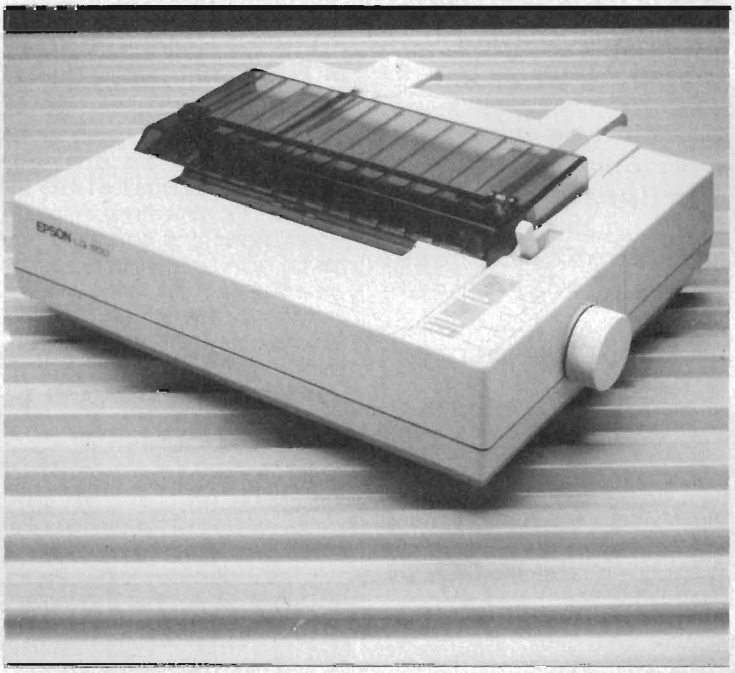
Like the Star and NEC printers, the LQ850 can park continuous paper out of the way while dealing with single sheets. It also has a semi-automatic loading feature which takes paper from the supplied sheet feeder and lines it up at top of form. The printer has a second tractor, using friction rollers, to help the paper out, and takes the novel approach of stopping printing while it clamps paper between the two.

The print quality is OK, though draft print is a bit more wiggly than most. There are two resident NLQ fonts, imaginatively named Roman and Sans Serif, but there's also room for two font cartridges which can carry any of four others. It's quite speedy in both draft and NLQ modes, but suffered the same problems with ST graphics dumps as the NEC. It would be interesting to know why this is?

Text effects like double height are included, but like other Epson printers, no reverse text mode is supported. All in all, though, a good office-quality 24 pin printer with very robust mechanics which should last years in normal use.



■ *The peculiar result of an ST screen dump on an Epson LQ850 – the NEC P2200 has a similar failing*



■ *The Epson LQ850. Its baby brother the LQ500 has much the same printer mechanism, but not such sophisticated paper feeding options.*

■ *In a future issue of Format we'll be looking at colour printers – which are the best buys and how to get the best out of them on your ST or Amiga*

Epson LQ850	
features	3.5
speed	4.0
ease of use	4.0
manuals	4.0
format value	4.0

SPEEDS AND SPEEDS

It won't have escaped the notice of the observant reader that the print speeds in our comparative table bear little relation to the manufacturer's quoted figures (other than being lower). This is because said suppliers are keen to show their products in the best light and time their machines printing a single line of text, normally 'i's. No carriage returns or other unimportant characters which might slow it down are included. Our tests take a typical line of text and repeat it till it totals 2000 characters, a more valid test, we feel, of typical use.

PRINTING SPEEDS ON TEST

	Draft Quoted	Draft Test	NLQ Quoted	NLQ Test
Citizen 120D	120	95	25	20
Epson LX800	150	111	25	28
Star LC-10	120	87	30	20
Citizen MSP-15E	160	100	40	26
NEC P2200	140	91	47	37
Star LC24-10	147	100	47	38
Epson LQ-850	220	105	73	42

Based on a combination of price, speed and features, here are the printers that the Format team reckon are the top buys:

BEST 9 PIN PRINTER
Star LC10

BEST 24 PIN PRINTER
NEC Pinwriter P2200
(Highly commended: Star LC24-10)

THE BEST REASON FOR BUYING AN ATARI
MAIL ORDER POOLS-SYSTEM !! (TM) TRADE WELCOME
INCORPORATING - POOLSBUSTER & POOLSPLANNER

OTHERS CALL THEIR POOLS PROGRAMS ULTIMATE, WE CALL OURS "THE" POOLS PROGRAM.

There were and still are a couple of pools programs for the Atari ST that guarantee to you performance better than chance (?) or promise to you power? to forecast the pools the way you want. Others are asking you for disk for free demos while weeks are going by and you are missing your chance for a dividend. Nevertheless **pools-system** still remains the only one in the market that delivers the goods. Lets have a look at some facts. **Fact** user friendly and still the only one that does not require you to be some kind of a football expert or hot shot system analyser. **Fact** pools systems is the only one that performed even slightly during the difficult & unpredictable Australian season. **Fact 13/8/88**. 4 aways out of the recommended first 6. 10 homes out of the recommended first 15. **20/8/88** Start of the English season, the system trapped 9 out of the 14 score draws & all 4 no score draws. **27/8/88** 9 out of the 12 score draws & 3 out of 6 no score draws. 4 homes out of the recommended first 6. **3/9/88**, 6 homes out of the recommended first 7, 4 aways out of the recommended 6. 5 out of the 7 score draws & 2 out of the 3 no score draws. 40 correct results out of the 58 possible. **Fact**, all forecasted printouts available at any time for any checks. So do not waste your time with any other programs or systems. They are not going to entertain your hopes or wishes. And to top all the facts, we guarantee the **Pools-System** performs better than any other pools program in the market on any computer, because we **guarantee** to you that using the **Poolsbuster in cooperation with Poolsplanner you are going to win the pools more than once a year.**

STOP PRESS!! What does the customer say: "I was very impressed with the general standard of the progams & their ease of use. I had a look around the program & worked out how to input the data without the use of the manual which shows just how good the program structure is set out. To get to the point, the very first entry I did came up trumps with 2 lines of 21 1/2 points. It brought me a win of £11.88. Not bad for a first attempt. Thanks for an amazing program. Regards P.J.L.Solihull. (Name & Address with held for obvious reasons.)

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PD UPDATE

Do programmers never rest? While most of us have only just got over Bonfire Night, the ST and Amiga PD libraries continue to grow at an astonishing rate. Jason Holborn searches the new disks for the latest and greatest.

Searching through the public domain libraries can be a strange experience, sometimes you feel like crying as the umpteenth clock accessory pops up onto your screen but every so often you find a real gem of a program which really makes the effort worthwhile.

Hidden among the plethora of Desktop calculators and Workbench demos, a treasure trove of software is just waiting to be discovered. If a software title appears within these pages then you can be sure it has passed our strict tests and is a must for your own collections. If the title has been awarded our coveted PD Platinum award then it's just too good to miss.

ST

PD PLATINUM

ST-TOOLBOX

WIMP systems like GEM on the ST are all very nice but can often seem limited compared to the kind of facilities that are available through the more conventional command line based computers. Amiga owners of course can fall back onto their machines standard Command Line Interface (CLI) but the solution is not so clear cut for ST owners.

ST-Toolbox is a fully featured command line interface that contains some powerful facilities. As well as the more mundane commands to copy, rename and delete files, ST-Toolbox features several Unix-like commands such as WC, DIFF and GREP. If you're a hardened Unix hacker then these should make you feel instantly at home.

```
type     - Show a file in chunks
copy     - Copy one or more files
join     - Join files together
wc       - Count the words in a file
find     - Find a text string in a file
freq     - Word frequency analysis
sort     - Sort a text file
dump     - Hex dump display of file to screen
check1   - Simple C checker
comp     - Compare two files (binary)
diff     - Compare two files (ASCII, line by line)
A>type sample1.bat
chrono
cp68 -I B: b:%1.c b:%1.i
c068 b:%1.i b:%1.1 b:%1.2 b:%1.3 -f
erase b:%1.i
c168 b:%1.1 b:%1.2 b:%1.s
erase b:%1.1
erase b:%1.2
as68 -l -u -F b: b:%1.s
erase b:%1.s
elapsed

--End of file---  Press a key...
A>
```

■ *ST Toolbox in action, displaying a list of all its commands.*

What makes ST-Toolbox so special is that it allows for the creation of *Batch files*. A batch file is best described as a program written using DOS commands to carry out a series of tasks by entering a single command. For example, if you wished to clean up a disk by erasing all .BAK files and then copy the remaining files to a hard disk, a batch file could handle this quite nicely. The example batch file would probably look something like this:

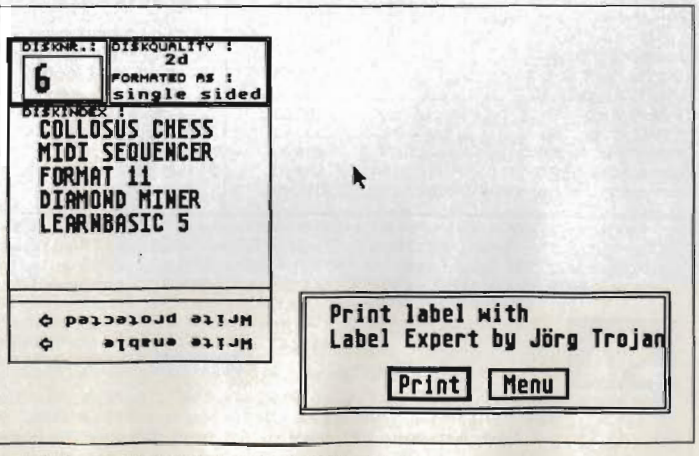
```
ECHO "Please wait...
   Cleaning up disk"
DEL A:\*.BAK
ECHO "Now transferring files
   to hard disk"
COPY A:\*.* D:
ECHO "Ok, Job done."
```

Once you've created your batch file, it can then be executed like any other program by simply typing its filename and pressing [Return].

SECOND ST MANUAL

Whether you're a dab hand at programming or you're still trying to figure out how to switch on your ST then *Second ST Manual* is well worth acquiring. Although not a program as such, it contains 252k of solid information that will help you uncover the darker secrets about your ST.

The Manual was written as a companion to the standard system guide that was bundled with your ST. Topics covered start from *What the Salesman didn't tell you* and *How to switch on your ST* right up to a



■ *Label Expert displaying your finished label as it will appear once printed.*

UNIQUELY UNIX

For the uninitiated among you, here's a quick run down of those rather peculiar Unix commands that seem to pop up everywhere these days.

WC – The standard Unix Word Count utility. Takes a standard ASCII text file as its input and counts the number of words within the file. Seems logical!

DIFF – Difference – Takes two files as its input and then compares them. Any differences found are then reported.

GREP – Global Regular Expression Search and Print (!) – The infamous Grep command takes a filename and an ASCII pattern and reports all instances of that pattern within the file.

ST – BEST OF THE REST

JUGGLER – Do you remember the now famous Juggler demo that did so much to promote the Amiga in its early days? Well, you've guessed it, the famous demo has finally made it across to the ST.

ATARI 800 EMULATOR – A definite must for those of you who still have software written for the 8 bit Atari. Claims to run all Atari 800 software. Humm... transferring the software to the right disk format could still be a problem.

MURRAY AND ME – A rather strange but fun experiment in artificial intelligence. Murray is a rather obscure fellow who enjoys a good conversation. Mono only.

detailed description of using GEM and the Desktop. However, if you're looking for a full micro code dump of the BIOS or an embarrassingly open look at the GEM code then you'll unfortunately have to look elsewhere.

LABEL EXPERT

If you've got a large collection of video or audio tapes then *Label Expert* will be an absolute boon to you. Running on a mono ST, it allows you to produce labels in various forms on your computer and then have the results dumped to your printer.

Label Expert produces a large range of different sized labels ranging from cassette inlay cards, two sizes of video cassette labels and disk labels for both 3.5" and 5.25" disks. Producing your labels is a bit like filling in a form; just enter text in the spaces on the label and that's it.

Label Expert works on mono STs only, but of course if you have the mono emulator by Nick West that we published on issue 2's cover disk then this shouldn't present too much of a problem. Unfortunately, no documentation is on the disk, but it shouldn't take too long for you to work out the finer details of this excellent utility.

AMIGA

All the programs listed within this month's Amiga PD update were taken from the Fred Fish collection of public domain disks. Most can also be found in other libraries but the disk numbers quoted refer to the Fish library.

PD PLATINUM

GUARDIAN
Disk 154

It's almost a year since the first Amiga virus from the now infamous SCA hit the headlines, and even now they continue to wreak havoc on the disks of unsuspecting Amiga owners. One of the best Amiga virus killers to date is *Guardian*.

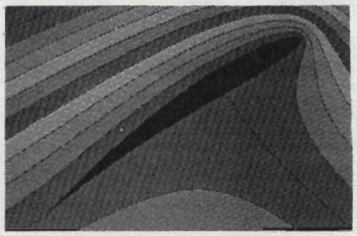
Guardian only needs to be run once and it then stays within your machine even after a soft reset or a visit from the Guru. Most viruses currently making the rounds on the Amiga only infect the host machine when you boot with the virus-infected disk; they then lodge themselves into the operating system and proceed with their evil work. Guardian works by lying in the background checking every boot disk. If a disk has a non standard bootblock, Guardian will halt the boot process and display the offending sector. Most virus programmers cannot resist the opportunity of boosting their ego and often leave text messages within the bootblock. If you recognise the sector as containing a virus, you can then replace it with a standard AmigaDOS bootblock and continue.

As Guardian looks at all boot disks and compares their bootblocks with the standard AmigaDOS bootblock, it should be able to trap both present Amiga viruses and any future viruses. Protect and survive!

AIRFOIL
Disk 150

Airfoil was designed to illustrate in a pictorial form, the flow of liquid across a airfoil section such as an aircraft wing. Sounds useful I hear you say, but even if you're not intending building your own jet fighter, AirFoil can still be a surprising amount of fun to play with.

Airfoil allows you to change the



■ *A sample graph displayed by Airfoil*

angle of elevation of the section, the windspeed and the thickness of the wing. Using these values, Airfoil then proceeds to calculate the flow across your wing section and the final results are displayed as a rather attractive graph that looks more like a Mandlebrot. While not of great use to the average Amiga user, Airfoil can produce some very pretty graphs.

PD PLATINUM

DOTIL
Disk 70

Along with Workbench clocks, DOS utilities seem to be all the rage with PD programmers at the moment. Although they exist in abundance, picking one that suits your needs can be tricky. *Dotil* is one the better offerings which may well be worth a look if the CLI is just too much for you to cope with.

Dotil is a full-featured file management utility that gives you all the power of the CLI while maintaining the ease of use and friendliness of the Workbench. Everything that you would normally only think possible by working through the CLI can be carried out from within Dotil. Many of the early Public Domain disks were iconless and therefore only accessible from the CLI, but by using a tool such as Dotil, even the most inexperienced Amiga user can take advantage of their contents.

Together with excellent documentation files, it is a worthy PD Platinum winner and a must for all frustrated CLI-ers.

A68K
Disk 110

Thinking about trying your hand at programming on the Amiga but can't afford the price of a decent assembler? Look no further than your local PD supplier. Several programming language compilers and assemblers are already available within the PD libraries such as implementations of Lisp, Prolog, C, but for the purists among you who like your programs to have that turbocharging that can only be achieved through machine code, A68K is worth a look.

A68K is a full Amiga 68000 assembler. A full range of commands such as macros and conditional assembly are available as well as a whole host of other features. While not quite in the same league as DevPac 2 reviewed this month, A68k is a must for the programmer on a tight budget.

■ *Dotil copying files from one disk to another.*

AMIGA – BEST OF THE REST

SPREADSHEET – Disk 53 – A nice little VisiCalc compatible spreadsheet. An ideal program for the money conscious.

SHANGHAI DEMO – Disk 55 – Demo of the excellent Activision game, play before you buy... you won't be disappointed.

PRO SUITE – Disk 107 – Written by the author of the Amiga's windowing system intuition, R J Mical. Pro Suite is designed as a tutorial on programming the Amiga.

MOVIES – Disk 116 – Real 'Knock your socks of demos' that show the Amiga at its best. Includes the famous Rocker *and* Kahnankas. *Produced using* Sculpt Animate 3D.

THE SUPPLIERS

In the UK, the following companies that we know of supply ST and Amiga PD software. To find their full addresses, just scan our Advertisers Index on page 113 this month.

When ordering, tell the library which disk number you want (Amiga) or just the program name (ST) – and remember to say where you heard it first!

Amiga
George Thompson Associates; Amiga PD Unlimited; Softville.

ST
The ST Club; Softville; Floppyshop ST; Page 6; The South West Software Library; Star UK

INTERVIEW

8 INTO 16

Code Masters have long been one of the leading budget 8-bit games houses, but until now they've been slow to take up the 16-bit challenge. At last that looks set to change – Richard Darling and Bruce Everiss talk to Format about the challenge of the ST and Amiga.

WHAT'S NEXT?

Next, recently announced, is the newest American wonder-machine. It's been designed by Steve Jobs, founder of Apple and progenitor of the Macintosh. Drool at the spec: 68030 CPU, 8MB RAM standard, 1MB of screen RAM, 'Display PostScript' video driver, 250Mbyte optical disk drive (no floppy disk) and a tasteful matt black case, all for $5000 or so. Jobs hopes it will out-Macintosh the Macintosh, and is aiming for education and corporate markets. Maybe it's not going to kill the 16-bit games machines after all.

There's a lot in the press about Code Masters being a true family business – how true is that?

The four editors, the project managers if you like, are David and Richard Darling – they're obviously best selling authors in their own right – Tim Miller and Mark Waldock. We have on our books in excess, way in excess, of 200 technical staff, plus musicians, artists and coders. At any one given time we have somewhere round about 100 of those currently actively working for us, usually in groups of two, maybe three.

Why have you taken as long to get into 16 bits as you have?

Yeah. We have moved into it slowly partly because we have been let down by some programmers in the past, but also because we wanted to establish ourselves as firmly as we can doing 8-bit games.

■ **Richard Darling, one half of the Code Masters dynamic duo. His brother David completes the team.**

Does the challenge of 16-bit programming daunt you?

The Amiga more than the ST. The ST does seem to be a lot more straightforward and easy to understand. Then again, from its specification, the Amiga seems capable of almost anything.

The encouraging thing is that in the last four years people have actually got the old humble rubber-keyed Spectrum to do some incredible things. I saw a demonstration by one of our programmers the other day – not in any game, it would take too much processor time – of sprites on the Spectrum which he couldn't produce on a 64; the quality, in colour terms, was getting close to something on the Amiga. It was incredible. On the face of it, the Amiga is that much more powerful and once you get that kind of programming effort put into it we'll see games getting better and better. That is true of all machines; the longer that they are popular and the more people that write for them, the more sophisticated software will become. The Amiga's unbelievable to start off with.

Suppose you were designing a 16 bit games machine, not a console but a machine that will run games, what would you put into it?

Steve Jobs' *Next* would do very nicely, thank you. The biggest problem holding an advancement of computer games at the moment is the delay in getting out CDI – interactive CD ROM – standards. As soon as Philips and Sony get their acts together on CDI that is going to allow a whole new expansion, an explosion in computer graphics. The sheer size of 550 Megabyte disks is phenomenally useful.

Since you began a few years ago, how has the cost of developing a game changed? And how will 16-bit games change that?

It works out at quite a lot. Even a couple of years ago it was not necessary to get professional graphics in a game or even professional music. Now it is essential. As competition increases all games are getting better gradually and we have to try to stay ahead.

In terms of man-years, *Skateboard* took roughly four and a half months programming, a couple of weeks for graphics and another week for music. During that four and a half months there was always somebody at Code Masters working on development and research.

What about prices? You're famous for the £1.99 8-bit range – are you going to offer a similar price on 16 bits?

We are actually going somewhere in the middle, £14.99. For the target

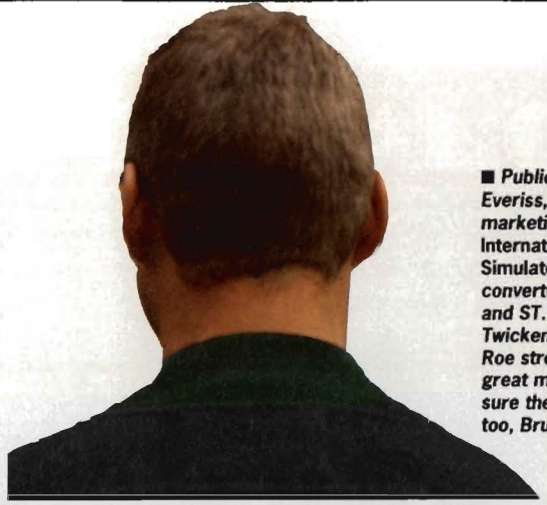
GOING TO MARKET

"The problem is someone goes into a games shop and there is a wall over there with 250 games on it. They're going to go for the one with the best cover and name. You've got to go for something which they are familiar with already, like US Gold do with licences. Things like 'Rambo'; and once you have caught their attention you can't really go wrong. We've learnt from the success of what we see as inferior quality products from rivals that packaging is all-important, and we're putting a lot more effort into names and covers now.

Licences are pretty expensive of course; thinking up commercial tie-ins that aren't trade names is much better – BMX is our classic example. The other useful trick is to add professional-sounding words into the title. So rugby is International Rugby Simulator and pinball is Advanced Pinball. 'Super' and 'Professional' in the name all help."

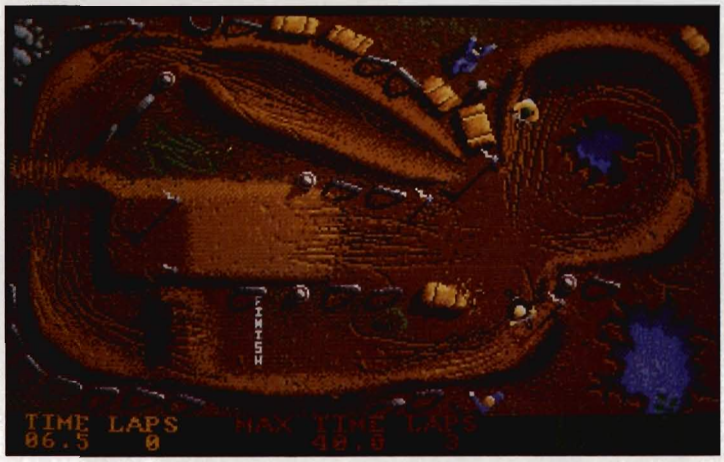
audience we're aiming at we will initially be re-writing £1.99 games. They will be converted and completely rethought. Really it's just the title of a known games style that is being promoted – the games are being redesigned.

We know that for a Spectrum game, unless we really screw up, we'll sell 100,000 minimum – which explains the price difference. Even by official estimates there are only 120,000 STs and 40-50,000 Amigas, so if you only sell 10,000 you've got to hike the price to recover your costs. And 16-bit development costs as we've said are higher anyway.



■ *Publicity-seeker Bruce Everiss, Code Masters' marketing supremo. International Rugby Simulator is now being converted for the Amiga and ST. "I was there at Twickenham the day Erica Roe streaked. It was a great match." And we're sure the Rugby was good too, Bruce.*

■ *Although Code Masters are only just embarking on their main 16-bit assault, they have had one previous success: Pro BMX Simulator. Here's a screen shot from the 8-bit Amstrad CPC version (left), and also the Amiga conversion (below).*



How can you actually code without knowing what it is you are moving on the screen? How do the programmers interface with artists and musicians?

The programmer would normally decide how big the main character can be, in terms of what is the biggest block of pixels he can move at the speed the game requires, given the complexity of animation. So the programmer produces a game which just moves empty boxes around as his first version.

Once that's done, you just tell the artist the dimensions of the box he's got, he sends you your sprites and you slot them into the boxes. End of game.

That's why James Wilson is so good with the Oliver twins. They just ring him up with their specifications and they get a tape back from James. The Twins load it and it works first time.

Music is much easier of course, since that runs as a background task, so the programmer doesn't need to know much about it as he codes.

How different do you find the ST and Amiga, to write for and to sell for?

We plan to sell the ST and Amiga games at the same price. Some companies feel that because the Amiga hardware costs more the software should also cost more. Our attitude is that in value for money terms it doesn't take that much more effort to program an Amiga game, even though the machine is graphically more powerful, so our price should be the same.

We've just released International Rugby Simulator, which is now being converted for the ST and the Amiga. In the 8-bit publicity, we say it's so realistic that the only thing missing is Erica Roe. Now, with the ST and Amiga versions... she's there! It's the extra memory, you understand. Erica doesn't appear every half-time though, once in 50 games or so. You'll just have to play it to find out how anatomically accurate she is!

We weren't sure whether it was worth doing an Amiga version because the Germans don't play rugby, and that's the main Amiga market. But look at Sumo, it isn't our national sport but there's plenty of interest over here. And Thai boxing too.

Do you find it hard to recruit ST and Amiga programmers?

No – quite the reverse. Many of our current programmers want to move up, but we have to have a continuous flow of 8-bit products. Our mainstay is £1.99 8-bit games.

Next year you'll see a clear run of ST, Amiga and PC releases. We've got 5 PC releases due out.

Finally the ultimate question, which of the ST and the Amiga do you see as being 'the winner'?

I have more confidence in the ST. That's from looking at the moves Commodore make, they seem to make the wrong decisions promoting the Amiga. One thing against the ST is that there aren't many in America. But it has strong points in other parts of the world. That seems to be the situation all over; some areas are predominantly Amiga based while others are ST based.

The Amiga seems to have better software out there, which runs in its favour – if you are buying a machine and there's a choice between buying one that will run Interceptor and one that won't, which do you buy? EA are the number one software house, and they produce on Amiga first of all. What they are doing will sell a lot of Amigas. Atari's albatross is their lack of American sales.

CODE MASTERING

"We have improved the way we developed games enormously over the last year. A lot of our development twelve months ago was done on the target machine, whereas most of our programmers have been converted over to using PCs with the target micro connected.

The system we use – it's no secret – is PDS, the Programmers Development System. It's just a plug in card for the PC that allows you to connect two target computers to it. One of the reasons why we haven't done so much Amiga and ST stuff it is because we haven't had Amiga and ST PDS available. There hasn't been a 68000 cross-assembler available, it's only been Z80 and 6502.

The assembler is very intelligent and knows the Target machine and its constraints very well. It's also got a split screen feature where you can have a left and a right screen, so you can do conversions very quickly or write for two machines simultaneously. Our Z80 programmers write for the Spectrum and Amstrad at the same time, whereas originally we wrote for the Amstrad and then converted to the Spectrum.

The system's pretty fast – on a powerful PC (we use Opus PC IVs) you can assemble 48K of code in couple of seconds. We don't actually hold object code on a target micro until we master the game – we just hold source on the PC. We can make miniscule changes to a game, press 'Assemble' and the downloader does the hard work for us in a couple of seconds. Using the native Commodore 64 operating system would mean waiting half an hour for the slightest change."

NEW FROM ROMANTIC ROBOT

MULTIFACE ONE, the MULTIpurpose interFACE, was a sensation when originally released for the ZX Spectrum four years ago. MULTIFACE TWO, for the Amstrad CPC range, followed 2 years later — same pattern, same success. Now the time has come for the MULTIFACE ST — the BIG brother to the MULTIFACE family. Same pattern? Yes, and with even more facilities! So, what can MULTIFACE ST do to make an ATARI ST owner's life so much easier?

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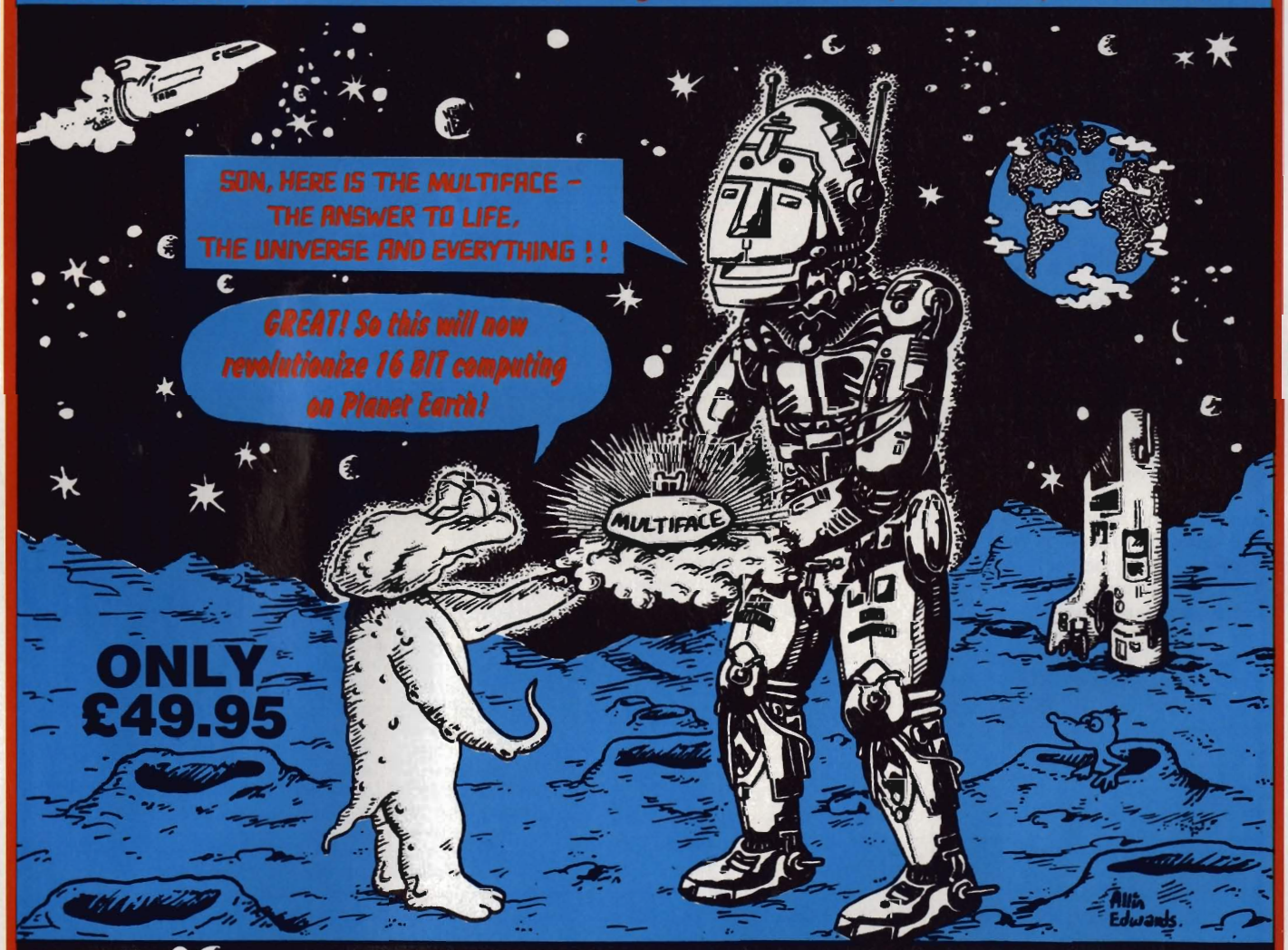
The MULTI TOOLKIT lets you inspect and change (in hex, decimal and ASCII) absolutely everything — including the protected RAM and 68000 registers! You can POKE infinite lives, customize programs, fill RAM, find/replace strings, even m/c instructions, etc.

Being a hardware device, 'a magic box' MULTIFACE can back-up whatever you wish, as many times as you wish. HOWEVER, to prevent any piracy, which is illegal, the MULTIFACE MUST be attached to run programs it saved! MULTIFACE will be available from November 1988, making it an ideal Christmas present for any Atari ST owner!



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REVIEW

SUPER TOOLS

Good news for all programmers – HiSoft's Devpac Amiga gets a thorough upgrade, plus a specialist technical editor and a font editor for the ST. The format boffins check them all out.

DEVPAC AMIGA v2

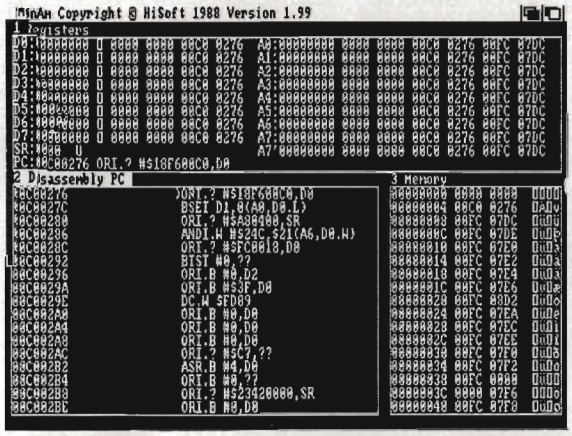
£59.95 ■ All Amigas (ST version also available) ■ HiSoft, The Old School, Greenfield, Bedford, MK45 5DE (0525 718181)

If there's one word that sums up HiSoft's program development tools it must surely be integration. Everything from editing to compiling (or assembling) to debugging can take place from one location – Devpac 2 continues the tradition. The greatest advantage of having an integrated system is, of course, speed. No need for hopping from one program to another.

Devpac Amiga is a fast (well it must be, there's a picture of a sports car on every page of the manual) assembly language development system for Commodore's 16-bitter. It includes all the various parts necessary for developing machine code programs, including a macro assembler, editor, linker and 'include' files for interfacing to the Amiga's operating system.

Programs start life in the editor. As with most text-only word processors, you can enter, edit, load, save and print portions of text. Features may be accessed in several ways: by using conventional menus or by a good range of key shortcuts using the right Amiga key. Cursor key functions imitate those found in AmigaBASIC while Control sequences are common to WordStar (*never heard of it – Ed*) and its various clones.

Tabs, text size buffer (from 4000 to 999,000 bytes depending on memory), file backups, auto indenting and numerous other items can be altered from the Preferences menu. The configuration can be saved and is automatically loaded every time Devpac is booted.



■ ***Devpac Amiga nosing through code. You can elect to save debugging information with an assembled file – this means procedure names and labels will appear during disassembly.***

Assembling tonight

Each assembly line has four possible fields or items, each is separated by at least one space. The format is:

Label	Mnemonic	Operand	Comment
lives	cmp.w	a0,d0	remaining lives

Labels are case-sensitive and significant to 127 characters by default, although this can be changed. Local labels, which are relevant only to a particular area of source, are permissable.

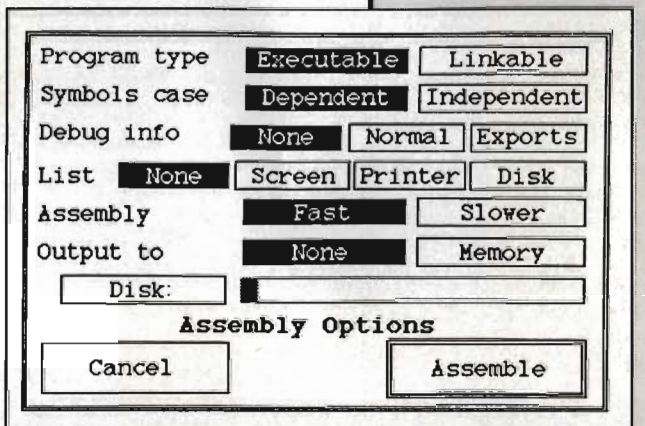
Constants can be in decimal, hexadecimal, octal, binary or character form.

Assembler-directives – which are not usually turned into machine code but are used simply to instruct the assembler to perform certain actions during assembly – are present in force. Some of the major ones are INCLUDE (reads header files from a disk and assembles them along with any source in memory), INCDIR (tells which directories should be searched when using INCLUDE) and REPT (repeats one or more instructions a given number of times). OPT is the most comprehensive directive with 12 possible settings. It lets you choose case-sensitivity and significance, whether to produced executable or linkable code and what sort of code optimisation should take place.

Add conditional assembly, code type selection (public memory, fast memory, chip memory) and macros to the above and you have a very complete and powerful assembler.

Bug hunting

The debugger, which is accessed via



■ ***Assembly output can be sent to screen, disk or RAM. Once in RAM, the code can be debugged or executed immediately.***

ST TOO

Devpac ST Version 2, £59.95, has been available since July. A full review appeared in Format issue 2.

COMPATIBILITY

Your version 1.2 files will probably assemble first time when using the new Devpac, but if they don't here's what to look for:

■ Symbols are case-dependent and are significant to the first 127 characters.

■ OPT N has been superseded by FORMAT.

■ BRA.W and BRA.B are now accepted.

■ \W and \L refer to macro parameters and not, as before, for denoting word or long-word expressions. Use (expression).W and (expression).L instead.

■ Several new directives could clash with your macro names. These are: COMMENT, DCB, ELSEIF, ENDR, FORMAT, IIF, INCBIN, OFFSET, OUTPUT, REG, REPT, RSSET, SUBTTL.

■ Three new reserved words – _LK, _RS, _G2 – have been added and could clash with your own.

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Any game not released will be sent on the day of release.
These are mail order prices only.
CASTLE COMPUTERS THE COMPETENT MAIL ORDER COMPANY

the editor, lets you examine programs and memory, execute instructions one at a time and trap processor exceptions. Although the debugger is of the low-level variety, displaying such things as 68000 instructions and bytes of memory, it can be used for debugging programs written with any compiler that generates machine code. If the compiler or assembler has the option to dump the symbols into the binary code, then you will see procedure and function names with the code. You will even be able to view your original source code. For really huge programs, symbolic debugging is a luxury.

A separate screen is used for debugging information, which means anything sent to the screen by the program being debugged will not be lost or corrupted.

Debugging on an Amiga is a hairy process due to the complexity of the multi-tasking operating system – protected memory locations and undocumented registers. Devpac's debugger does well, but as expected falls down if your program starts eating away at memory it has no right to or corrupts vital system pointers. Similarly it can't single step or breakpoint any code when executing in Supervisor mode. Any odd word or longword access to memory locations 1 to 7 will apparently crash the machine – it seems nothing can be done about this!

The verdict

Editing, assembling, debugging and even program execution from the same place – not fantasy, but something offered by Devpac.

Fast assembly speed, powerful directives for optimising code, extensive conditional assembly options, symbolic debugging... Devpac has it all plus a lot more. It is packed with features and has everything machine code program developers could want.

for

- **All parts integrated**
- **Code optimisation and conditional assembly**
- **Symbolic debugging**
- **Assembled programs can be executed from within editor**

against

- **Debugger doesn't work correctly with 68010-plus processors. Upgrade promised**
- **Manual has no glossary or index**

As HiSoft say, "There is no competition."

Richard Monteiro

features 0 1 2 3 4 5
performance 0 1 2 3 4 5
ease of use 0 1 2 3 4 5
manuals 0 1 2 3 4 5
format value 0 1 2 3 4 5

FONTKIT PLUS

£8.49 double sided disk, £9.99 two single sided disks ■ ST only, all models ■ The ST Club, No 9 Second Floor, 49 Stoney Street, Nottingham, NG1 1LX (0602 410241)

Fancy a font change? Or rather would you like to alter the characters that your printer prints or your ST displays? If the answer is yes then *Fontkit Plus* is probably what you're after.

Various types of screen and printer fonts can be altered: 8 by 8 and 8 by 16 ST screen fonts, Degas screen fonts, NLQ and draft downloadable 9 and 24-pin Epson-compatible printer fonts, GEM (or GDOS) fonts. Fontkit works with GEM fonts up to 160 by 160 dots, which is sufficient for editing 300 dot-per-inch laser fonts to a maximum of 36 points. A point is 1/72 of an inch; 36 points is therefore half an inch.

Fontkit's editing screen consists of a large grid split in several places by thick horizontal lines. These lines simply act as guidelines which mark the character's descent line, baseline, halfline and ascent line. As well as changing individual pixels in the grid, there is a line tool for rapidly marking edges up.

The character being edited can be moved upwards, downwards, leftwards, rightwards or aligned left, right or centered.

Many effects are available: Horizontal-flip reverses a character from left to right, Vertical-flip turns a character upside down, Mirror replaces one half of a character with a mirror image of its opposite half. More specialised effects are:

Outline – outlines a character with a specified pixel thickness between one and nine dots.

Inline – does the opposite of the above.

Shadow – draws a dropped outline to the bottom right of a character.

3D – adds a three-dimensional appearance to a character.

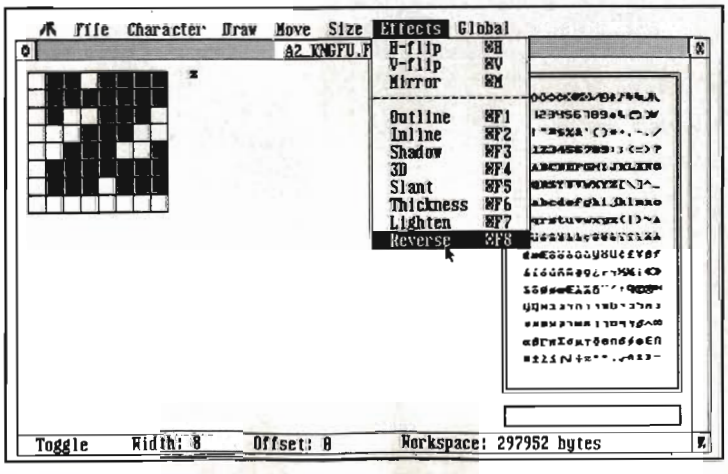
Slant – italicises a character by any of five possible angles.

Thickness – increases or decreases the thickness of vertical or horizontal lines in a character by a variable amount.

The main program accompanying Fontkit is a desk accessory called Fontswitch. This allows you to switch the screen font with an alternative font created using Fontkit, alter and access any character from the ST keyboard, and download and select new printer fonts.

Fontkit offers much; it is friendly (with help menus and Undo options), capable of performing just about any effect you could want on a character or the complete character set and comes with a detailed manual. Software like Desktop Publishing, document processors, word processors and any package that makes uses of GDOS, screen fonts or printed output will benefit.

Richard Monteiro



■ *Fontkit lets you design new GDOS, ST screen, Degas screen and donwloadable printer fonts.*

features	4.0
performance	4.0
ease of use	4.0
manuals	4.0
format value	5.0

ABOUT THE AUTHOR

By day Jeremy Hughes teaches Biblical Hebrew at Oxford university, by night he is a frenetic programmer. Fontkit grew out of Jeremy's need to display and print Hebrew characters during lectures. Fontkit Plus Plus (?) will be ready soon and promises to include 6 by 6 font editing and contain several new items in the Effects menu: shade, smoothing (removes jagged edges after enlarging) and pattern (for giving backgrounds or fonts a pretty appearance).

C-BREEZE

£29.95 ■ All STs ■ MichTron, PO Box 68, St. Austell, Cornwall PL25 4YB (0726 68020)

BEAUTIFUL C

Let's face it, writing completely incomprehensible programs in C is very easy. When this does occur, instead of having to reformat the code by hand, large computers often have 'C Beautifiers'. These are best described as source code formatters. No matter how badly laid out your program is, passing it through a C Beautifier will instantly convert it to standard Kernighan and Ritchie format. We don't know of any ST or Amiga C beautifiers so far.

MichTron's latest release is an editor designed with the C programmer in mind. As every programmer will agree, the key to rapid program development relies entirely upon your working environment. A fast compiler, a powerful debugger and a decent editor are all necessary requirements for any serious programming. Several language specific editors are already available for both the ST and the Amiga – C-Breeze is the latest contender for your money and is designed specifically at the C programmer.

Most ST users will already own a word processor or text editor so why buy a dedicated editor such as C-Breeze? The answer is simple. Most languages have their own individual and quite distinct source code structure. For example, with the C programming language, the brace symbols, { }, are used to block areas of code. An example of this would be a loop where more than one statement is executed as part of the loop. A dedicated Editor such as C-Breeze can recognise blocked code and therefore make sure it is displayed in the best way on screen so you can see them.

Breeze through it

C-Breeze includes all the features you'd expect to find in any run of the mill text editor, as well as a whole host of dedicated features specifically for C programmers. One particular note-worthy feature of C-Breeze is an online help facility that provides information on C conventions and syntax. While not particularly advanced (all it is doing is displaying a text file), many neophyte C programmers will find this a godsend.

You can have up to six editing windows open at once, which can be handy for copying and reusing chunks of text from your libraries of previously written programs. Another nice and potentially powerful feature of C-Breeze is the extent to which it can be customised. If you previously used a different editor, the transition to C-Breeze can be made a lot easier by configuring the keyboard through a keyboard macro facility. Several keyboard maps are included within the package to provide *EMACS* and *Calligrapher* command compatibility.

Fresh breeze

Other worthwhile features include three different text point sizes, which can be useful for viewing large sections of code on the screen at the same time. Also, when you double click on an opening brace, all code associated with that block is highlighted in reverse text. This is useful when attempting to remove a block of code that stretches over several screens: just clicking on the starting brace of that block and then select 'CUT BLOCK'.

Once you've finished writing your program, you can run your C compiler (not supplied as part of the price, unfortunately!) from within C-Breeze. This has the advantage of speeding up your work rate considerably. No longer do you have to constantly reload your editor each time an error crops up during compilation as everything can be carried out from within a single program.

The manual included with C-Breeze is a decidedly low-tech ring bound affair that is best described as adequate for the job. Every function is discussed in some detail but the absence of any screen shots makes the descriptions somewhat unclear.

Verdict?

So is C-Breeze worth purchasing if you already own a decent word processor or text editor? The program offers several very useful facilities for C programmers, but they alone are not enough to justify having to fork out for another text editor if you already have one. Because C-Breeze claims to be C specific, it would therefore have been nice to have seen features such as a C beautifier or a cross reference utility included with the package. If you don't own a text editor and you are interested in programming in C, then C-Breeze is a good enough tool for the job.

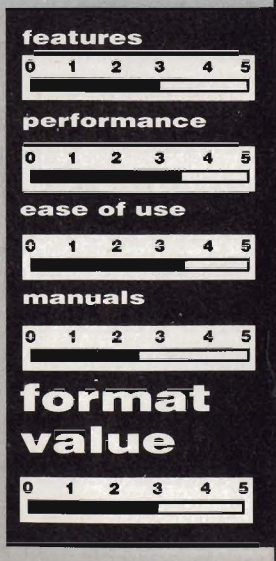
A LOOK AT THE COMPETITION

Unlike the Amiga, the ST does not feature a standard editor. Most programming languages are therefore supplied with some form of editor. Lattice C, for example, is actually supplied with a ported-across version of the Amiga's ED. Shocking but true!

C-Breeze's biggest competitors are probably Tempus *from EiderSoft and* Protext *from Arnor. Tempus includes features such as String Cross Referencing, an integrated programmer's calculator and line lengths of up to 255 characters. One of Protext's advantages is that you can run any ST program – such as your compiler – from within the editor.*

One of the most processor intensive functions carried out by an Editor is the copying of large blocks of text. In our tests, we got each editor to copy a large 48k text block – C the results for yourself (That's enough C puns – Ed)*:*

C-Breeze	Tempus	Lattice C Ed
12 secs	1 sec	2 mins 55 secs

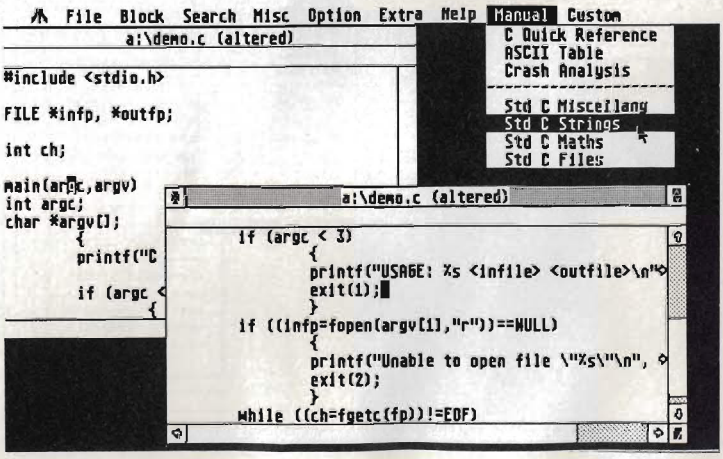


for

- Configurable to your own needs
- Automatic marking of C blocks
- Provides online C programming help

against

- Manual needs example screens shots
- You can probably get by with your compiler's own editor anyway.



■ *C-Breeze breezing through the code*

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REVIEW

ACQUISITION

Ron Massey gives the run-down an Amiga database with a difference. Forget boring old text – now you can store sounds and pictures, and get a power-user's command language thrown in. Is it worth the Rolls-Royce price tag?

£249 ■ 2 drives recommended ■ Taurus/Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh, EH1 3RN (031-557 3260)

Traditional databases are pretty good at sorting and retrieving text; but the Amiga's no ordinary machine and its sound and graphics facilities make pure text operations look a bit lame. Acquisition is a new era database, which in addition to the customary functions allows you to include images and tunes in your stored information.

Acquisition is a 'relational' database, meaning that you can correlate information stored in quite separate files on disk. It also claims a degree of flexibility previously unknown. Gone are the old days of laboriously setting up a list of fields and their lengths – you can adjust your screen layout as the data needs it.

Looking through Acquisition's manuals, it quickly becomes apparent that Taurus makes a strong distinction between having a database file and developing a file system as a 'project', where you will most likely link it to other files in a complete information system.

Between the covers

Taurus' current release, 1.3, of their database system certainly deserves full marks for a top-quality presentation, with three disks and professional ring binder. In addition to the massive Acquisition manual supplied with the program disks, new users can send for a free 140-page manual written in tutorial format, which includes several worked examples.

Project development facilities are provided across three system disks called Make, File and Extras. The Make disk is used to create files, 'bridge' data files and create your record displays and reports.

The File disk is the maintenance manager for the system and allows entry of data into projects, report design and output. The Extras disk includes several examples of different types of database applications.

The entire system is built around a modular concept and the system modules provide compartmentalised services with some apparently strange names:

- 'Settings' – Defining database defaults;
- 'Creating' – Defining database structure;
- 'Bridging' – Linking database modules by defining the relational link between different data files;
- 'Pasting' – Producing your screen layout and customised database presentations;
- 'Filing' – Database management;
- 'Reporting' – Defining output from your database;
- 'ACOM' – Acquisition's powerful dBase-like programming language, with over 200 commands in its repertoire. Structured like BASIC, commands take advantage of the Amiga's special chip set for graphics, animation and sound.

Easy as A, B, C

Looking at the specification list, a first impression is that everything contains an awful lot of zeros. For one thing, you can have a field size of 10 Megabytes. The program will accommodate ten million fields to a record and ten times that number of records to a file. With some rudimentary mathematics, this means that an Acquisition project can accommodate 1.024×10^{21} bytes. Put that lot on your floppy! What it means in practice is that the system is limited only by your hardware. The program will run on an A500, but you need two disk drives to avoid a lot of swapping.

Making a very welcome move away from rigid structuring concepts adhered to by more conventional methods of information processing, you are provided with a dynamic record system in which record fields expand to accept as much sound, graphics and/or document data as you may enter (always be careful of the upper limit of 10 Megabytes for each field, though!).

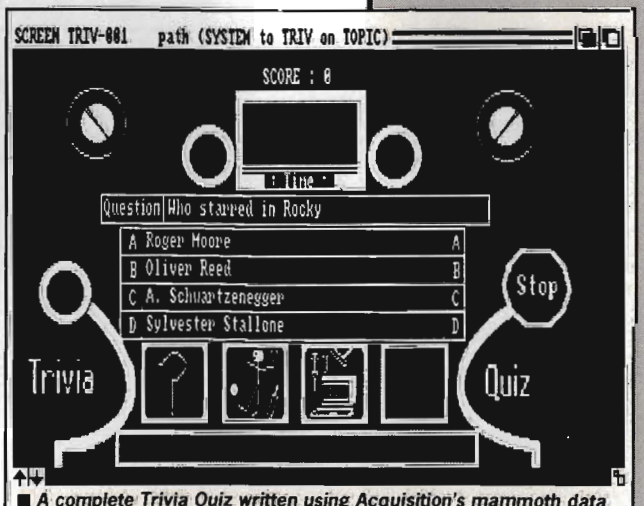
Graphics, in standard IFF format, and sound files may be linked to records. One of the demo examples supplied on the Extras disk illustrates the point: there is a complete Trivia quiz written using the ACOM command macro language. Apart from textual questions it displays cuddly Garfields for you to identify and even plays you tunes for you to identify.

Making tracks

The first step to setting up your own database is boot up from the system's Make disk which will also format a new disk, onto which the system will build file structures. Next, select the 'Creating' icon from Workbench.

The Creating screen is headed by a number of icon and dialogue boxes which can be used for input. Alternatively most of the input for file design can be made by typing text directly into one of the five columns.

■ *Guess who? You can even store piccies of your favourite cat in Acquisition's bowels.*



■ *A complete Trivia Quiz written using Acquisition's mammoth data banks and ACOM programming language.*

NEOPHYTE NOTE

Record – a screenful of data, analogous to one card in a card index.
Field – one entry in a record, eg. a person's name.
Database – either the program (Acquisition here) or the total of all the data stored, depending on context.
Relational database – a special kind of database program which allows you to use data in one file to refer to data in another. For instance, one file might contain a company's list of customer names and products they've bought, another file holding a list of company products and prices. The two could be used in a relational system to work out how much money a given customer had spent.

Although the field lengths are flexible, you are asked to give an initial 'average' length for each text item.

Select 'Quit' and, from Workbench, click on the 'Bridging' icon. This section of the program defines how a database relates to its other modules.

If you are developing a customer invoicing system, you may wish to be able to connect invoices to each parent entry. Setting 'paths' .between files will allow you to do so.

Once you have selected your bridging options, return to Workbench and click on 'Pasting'. This allows you to alter the default screen positions 'Create' had defined for your fields and to customise your record card design to make it more friendly. You can even use one of the graphics programs to make special backdrops for your file presentation. You can also add a limited range of graphics from within Pasting, such as lines, boxes circles, more informative screen field label names to provide more visual appeal or for additional file information or prompts.

ACQUIRING THE LINGO

Initial planning for the structure of a database using Acquisition's sophisticated features can often present a larger headache than simpler systems.

Relational databases, are by their nature, complex beasts. Effective use of your information requires that you have a clear concept regarding how your data interrelates before you start.

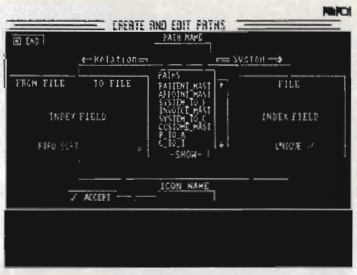
Acquisition supports three types of Relational paths:

UNIQUE ONE-MANY: where a Parent file exclusively relates to one or more Child files. Pedigree (genealogy) records are an example of this type of structure.

NON-UNIQUE ONE-MANY: whereby fields may linked from a Parent file to one or more Child files but may not link to Child files of other Parent files. This type of structure might be used in recording manufacturers and distributors: each manufacturer might have many distributors, but distributors aren't allowed to work for more than one manufacturer.

MANY-MANY: allows Parent access to all Child records and vice versa. An example of this is an parts inventory where a particular part may be supplied by one of several different manufacturers, and each manufacturer makes many different parts.

Another aspect of defining relational paths is that you can also specify access order of Child records as: First In, First Out (FIFO); Last In, Last Out (LIFO); or, Sort. The Sort option may be specified in Ascending or Descending order by any other field in a Child file.



■ ***A daunting-looking screen, but simple to use... you use this to specify that two databases (eg. 'Suppliers' and 'Parts') should be linked via a 'path'.***

Type away

To begin entering the data, click on 'Filing' from Workbench and select the name of the customised card layout from the directory.

Enter relevant data in each of the fields. As each record is completed, you can either click on the 'Save' icon, select 'Save Record' from the menu or input A S from the keyboard.

The next section to run is 'Reporting'. The report editor requires only that you build a sketch of the content of your report. Typically, the format for building a report consists of positioning the actual field names in the report in the same way and order they are to appear in the final product.

Any number of individual 'sketch' files can be saved for future use. Report files can also be edited for one-off use.

What's the use?

With all this processing power, you might reasonably ask what it can be used for that any other database can't.

If you only want to organise your records of knitting patterns, recipes and other similar relatively simple domestic affairs, then at an RRP of £249 (although you can pick it up from discount shops for much less) you would probably be best advised to look at something a bit less comprehensive.

But, if you have a mountain of possibly inter-related data which you need to use in a variety of unpredictable ways, Acquisition will provide you with a flexible and powerful means to process it.

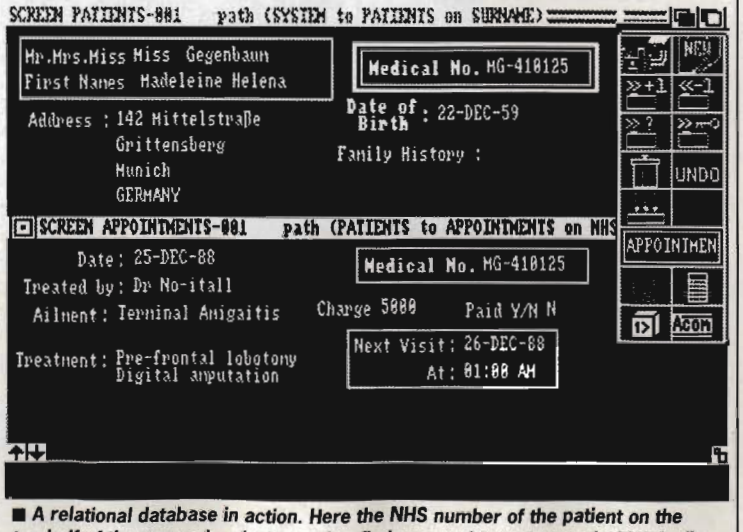
From all outward appearances, there are two broad areas which Acquisition will admirably satisfy: formal business requirements for a database system which are, almost literally, unrestrained by considerations of size or content. Typical applications include financial modelling, mailshots, personnel records, membership subscriptions, pedigree animal breed registrations (horses, dogs, cats, budgies, even armadillos) and stock picture agencies.

On the home front, a developing trend for home-based employment in areas once restricted to centralised access of office facilities makes the prospect of having a system like Acquisition quite attractive. With improved comms systems, processing data at home is becoming significantly more feasible (BT, are you listening?).

Conclusion

There can be little doubt that Acquisition is among the most powerful database systems available for any of the so-called 'home' micros, although it's unfortunate that not many home users will be able to afford the asking price.

If there is any room for complaint, it must be said that Acquisition's manual is section-numbered, not page-numbered, and nor brilliantly indexed either. Initially, finding specific entries in the 350-page manual and/or the 140-page tutorial manual, requires a pretty good memory. Overall, however, Taurus deserves top marks for a powerful product which is presented very well.



■ ***A relational database in action. Here the NHS number of the patient on the top half of the screen has been used to find an appointment record which is displayed on the lower half.***

features 0 1 2 3 4 5

performance 0 1 2 3 4 5

ease of use 0 1 2 3 4 5

manuals 0 1 2 3 4 5

format value 0 1 2 3 4 5

for

- Can store pictures and sounds as data
- Fully relational structure
- A powerful programming language
- Flexibility of structure as database evolves.

against

- Needs better cross-indexed manual and reference card
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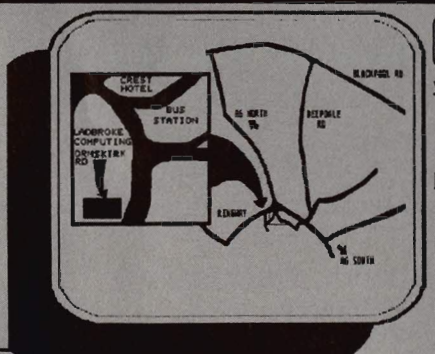

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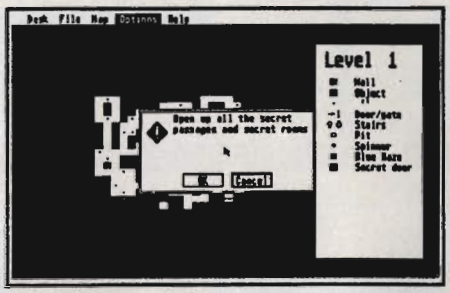

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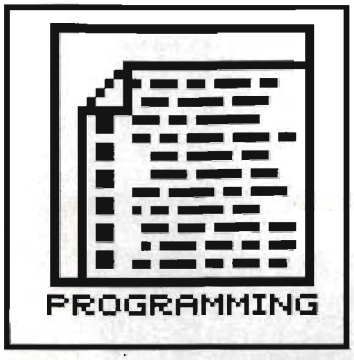

LEARN BASIC

Part five of our indispensable guide to BASIC programming covers the joys of file handling. Suss out sequential and random-access files, the various commands that let you read or write to disks and how to send data to the parts of your computer that other programmers can't reach.

When it comes to writing programs that manipulate vast quantities of data – be it colour palette information, telephone and address lists, sprite graphics, bank statements or species of South American animal – listing lengths can grow frighteningly fast if you try to keep everything on DATA statements as described last month. The alternative: store all data in separate files.

It's not as radical, or even as difficult, as it sounds. Rather than READing information from DATA statements within the program, you simply read information from disk. The reading process isn't as fast as having the equivalent information stored in memory, but the advantages outweigh the disadvantages. For instance, the data can shrink or expand without the need to edit the program.

Several BASIC commands must be strung together to create, read from, or write to a data file. The first instruction in the sequence is OPEN, which has the following form:

- `OPEN mode, [#]channel, filename[,buffersize]`
- `OPEN filename [FOR mode] AS [#]channel [LEN=buffersize]`

A file must be opened before any input or output operations can be performed – hence the OPEN in the first part of the command.

Anything in italics following OPEN is a parameter that needs to be supplied by you. Parameters in square brackets are optional.

The first version of OPEN must follow these rules: `mode` needs to be a single-character string, enclosed in quotes, which can be "A", "I", "O" or "R"; upper and lower case are acceptable. The letters stand for Append a sequential file, Input (or read) from a sequential file, Output (or write) to a sequential file and Random for manipulating a random-access file – we'll come on to which type you need.

The `channel` is effectively a unique number you use to identify the file with inside your program – it may be any integer between 1 and 255.

Next in the sequence is `filename` which is simply a string containing the name of a file, with its disk drive and directory path if necessary.

The last option, `buffer`, if used, specifies the length in bytes of each data record for random-access files, or the internal buffer size for other types of file. The default value is 128 bytes. This can be increased to a maximum 32,767. If you're not using random-access filing, then altering the buffer size probably won't be necessary. However, the loading and saving process of large files will be noticeably faster with a big buffer.

Here are typical examples of OPEN using the first syntax:

```
OPEN "I",#1,"LEARNBAS.006"
OPEN "R",#5,"DATA",256
OPEN "A",3,"HISCORE"
```

The second OPEN syntax is simply a verbose version of the first. Parameters are in a different order and extra bits are included – the result is the same. One form of OPEN is compatible with old Microsoft BASIC while the other is compatible with the new version – we'll standardise on the first version.

In and out

It's all very well OPENing files to work on, but to do anything useful (like store or retrieve information) you'll need to use other commands. Sequential and random-access files have different instructions for doing similar jobs. Sequential file handling first.

To read data use INPUT#, INPUT$ or LINE INPUT#. `INPUT #channel_number,variable_list` reads data from the device or file specified by the *channel_number* and plonks it into the variable_list. The *channel_number* is the value specified when OPENing a file. For example, `INPUT #1, string$, integer%` reads a string and an integer from file number 1.

`INPUT$ (n[,[#]channel_number])` reads *n* characters from the specified channel. An entire file can be read in one go using this method – assuming there's enough memory. `DATA$=INPUT$(10,#3)` is one way of using the command, to read the next 10 bytes of file 3.

Writing data to disk or another

LISTINGS ON DISK

The cover disk this month contains several demo programs to go with this tutorial.

ON THE AMIGA

Run AmigaBASIC from your 'Extras' disk. Go to the Project menu and select Open. Click on the drawer requester and enter DF0:LEARNBASIC. Click on the Filename requester, insert the Format cover disk containing the BASIC files, type in WORDGAME.BAS and press [Return]. The file will load. You may run it by clicking inside the BASIC window and typing RUN. Use the filename DICTUTIL.BAS instead of WORDGAME.BAS for the second program.

ON THE ST

(Applies to the demo version of Power BASIC supplied with Issue 2 only). The BASIC listings are loaded into Power BASIC by inserting the current cover disk into the drive and selecting Load from the File menu. Double click on WORDGAME.BA or DICTUTIL.BA when they appear in the selector box. The chosen file will load ready for running. Unencrypted versions of these programs, with .BAS extensions, are also on the disk. These are for use with the full version of Power BASIC, or for adaptation in other BASICs.

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OTHER OPENINGS

Normally the `filename` part of OPEN refers to a disk file, however, Power BASIC allows other device names to be used:

CON: – screen and keyboard
PRT: – parallel printer port
AUX: – RS232 port
LST: – printer port chosen with *Install*
MID: – MIDI port
KBD: – intelligent keyboard

For example, `OPEN "O",#1,"LST:"` will set file 1 up so that the results of all `PRINT#1...` statements go to the printer rather than the screen.

NAMING CONVENTIONS

Filenames can be preceded by an optional volume (or drive) name and several nested sub-directory names. The entire identification is known as a pathname. Pathnames can be from 1 to 255 characters in length, and can consist of either uppercase or lowercase alphanumeric characters. Each file or subdirectory name within a path is limited to 30 characters on the Amiga and eight, with a possible three-character file type extension, on the ST.

device is achieved using PRINT# or WRITE#. PRINT# writes data in exactly the same way that PRINT sends stuff to the screen. For this reason, care should be taken to format the data written so that it is recognisable for a later INPUT#. Strings written with WRITE# have quotes around them; numbers written with WRITE# don't have leading or trailing spaces. Syntax is similar to the standard PRINT or WRITE command: `PRINT #1, "STRING"` sends the results to file 1 rather than the screen.

Two final useful functions are EOF and LOF: EOF(#1) is true if file number 1 is finished (use this in IF statements like `IF EOF(#1) THEN...`), and LOF(#1) will return the length in byte of file number 1.

al variables in one record, as long as your total number of bytes allocated doesn't exceed the record length specified when opening a file (this defaults to 128).

LSET and RSET are used for putting data into a random-access file buffer. If you remember that variables in a record of a random access file are always fixed length, the LSET puts data into a variable at the left, padding out at the right with trailing spaces and truncating if necessary, and RSET does the opposite but with leading spaces at the left.

The random-access equivalents of INPUT# and PRINT# are GET and PUT. `GET [#]channel_number [,record_number]` is the formal syntax, so and `GET #1,2` would be

output to the specified file. CLOSE without parameters will shut all OPEN files and devices.

To illustrate all this techno-speak, here's how you might open a random-access file, write a few items and then close the file:

```
OPEN "R",#1,"TEST"
FIELD #1,20 AS name$,3 AS
age$
FOR t=1% TO 4
INPUT "ENTER NAME ",nm$
INPUT "ENTER AGE ",ag$
LSET name$=nm$
LSET age$=ag$
PUT #1,t%
NEXT t%
CLOSE #1
```

And here's how you would open the random-access file and retrieve the contents:

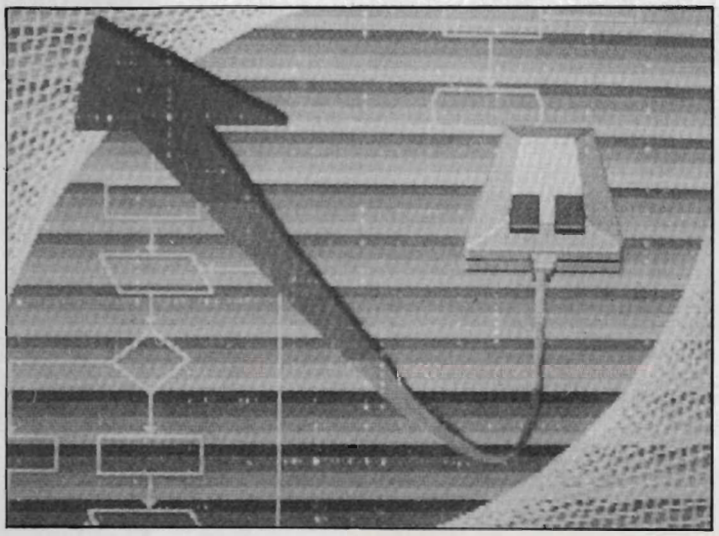
```
OPEN "R",#1,"TEST"
FIELD #1,20 AS name$,3 AS
age$
FOR t%=1 TO 4
GET #1,t%
PRINT name$;" ";age$
NEXT t%
CLOSE #1
```

Complementing this month's instalment on file handling we have two short listings on the cover disk – have a look at them to see how they work.

WORDGAME – simple Hangman-like game. You have 12 chances to input letters and guess the correct spelling of a word.

DICTUTIL – allows you to add words to the dictionary file used in WORDGAME. Also included is a WORDS.LST file which hold the dictionary. Check the appropriate box for your machine on loading listings.

Next month is the last part of Learn BASIC – don't miss it! There will be a brief round up plus a look at Amiga and ST functions; graphics, sound, accessing GEM and the Amiga's ROM.



Doing it randomly

Before reading or writing to a random-access file you must use the FIELD statement. This tells BASIC what format your data is going to be stored in, and has the following format:

`FIELD [#]channel_number, {field_width AS variable}...`

The *channel_number* is the one assigned to a file when it is OPENed and *field_width* is the amount of space allocated to a particular variable. The part in curly brackets can be repeated as often as you like on one FIELD statement, to set up several variables in one record, as long as your total number of bytes allocated doesn't exceed the record length specified when opening a file (this defaults to 128).

LSET and RSET are used for putting data into a random-access file buffer. If you remember that variables in a record of a random access file are always fixed length, the LSET puts data into a variable at the left, padding out at the right with trailing spaces and truncating if necessary, and RSET does the opposite but with leading spaces at the left.

The random-access equivalents of INPUT# and PRINT# are GET and PUT. `GET [#]channel_number [,record_number]` is the formal syntax, so and `GET #1,2` would be an actual example to get record number 2 from file number 1. PUT uses exactly the same format as GET; it writes a record from the random-access buffer to the designated random-access file. If a record number is not specified, the next record in the sequence is written.

Once you've completed any file operation – sequential or random-access, you must use the CLOSE command. This finishes any input or output to the specified file. CLOSE without parameters will shut all OPEN files and devices.

To illustrate all this techno-speak, here's how you might open a random-access file, write a few items and then close the file:

```
OPEN "R",#1,"TEST"
FIELD #1,20 AS name$,3 AS
age$
FOR t=1% TO 4
INPUT "ENTER NAME ",nm$
INPUT "ENTER AGE ",ag$
LSET name$=nm$
LSET age$=ag$
PUT #1,t%
NEXT t%
CLOSE #1
```

And here's how you would open the random-access file and retrieve the contents:

```
OPEN "R",#1,"TEST"
FIELD #1,20 AS name$,3 AS
age$
FOR t%=1 TO 4
GET #1,t%
PRINT name$;" ";age$
NEXT t%
CLOSE #1
```

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Next month is the last part of Learn BASIC – don't miss it! There will be a brief round up plus a look at Amiga and ST functions; graphics, sound, accessing GEM and the Amiga's ROM.

SEQUENTIAL AND RANDOM-ACCESS FILES

Two types of data files can be created and accessed by BASIC: sequential and random-access files.

Sequential files are the simplest to create, and are a sequence of bytes one after the other on disk. To get at byte number 4035 you'd have to read all the previous ones first of all. With a random access file, you could, if you had set the file up properly, go straight to that byte without messing around reading the rest first. Random access files are needed for picking particular facts out of a database, for example.

Another advantage of random-access files, as far as Amiga owners are concerned, is that data is stored in a 'packed binary format' on disk so take up less room than sequential equivalents.

GENERALISED DEVICE INPUT/OUTPUT

Amiga BASIC, and Power BASIC (dealt with in a margin note), supports input and output to various devices. This means you can access the printer or serial port in a similar manner to disk files. The following Amiga devices are supported:

SCRN: *data can only be output to the SCRN:. All data opened to it is directed to the current output window.*

KYBD: *files can be opened for input. All data read comes from the Amiga's keyboard.*

LPT1: *or* **PRT:** *output to the printer is possible. Data is sent to the printer.*

SER: *allows output to the serial interface as set up in Preferences.*

PAR: *provides output to the parallel port.*

COM1: *files can be opened to the serial port, and the baud rates etc. specified:* `COM1: [baud rate] [,parity] [,[data-bits] [,stop-bits]]]]`

For instance, `OPEN "O", #1, "COM1:9600,N,8,1"` *tells the Amiga to open file number 1 so that al output goes to the serial port. Regardless of what your Preferences settings are, the baud rate is set to 9600 with No parity, 8 bits per word and 1 stop bit.*

You should always check with the manual for the device receiving your serial transmissions what values to use here, otherwise you won't get any communication.

DESKTOP TIPS

The only place to be if you're after tips and tricks on using software, GEM or the ST. The £30 winner this month is Ian Miles for his great RAM disk and Fast BASIC dodges – you too could win big money by sending in hints.

RAM dance

Here's how to create a simple animation sequence. All you require is a colour ST, access to 200K of RAM disk, Neochrome SLIDESHOW.PRG and six Neochrome picture files.

Be sure to have the Neochrome slide show and six Neochrome files on one disk. For animation you would need pictures with slight differences in each frame. Install a RAM disk with a maximum of 200K on the 520. Copy the SLIDESHOW.PRG and pictures into the RAM disk. Note that picture files should be copied into the RAM disk in the order in which you want the frames to appear. Open the RAM disk and click on the SLIDESHOW program.

K K Cheung
Evesham, Worcestershire

That's clever

If you install the excellent ETERNAL.PRG PD RAM disk – given away on issue 5 – as drive C, then it will install as if it were a hard disk. This means that when you change resolution from the desktop, a soft reset occurs and any

RESOURCE FILES FOR FAST BASIC

One of the very few omissions to the GEM interface in FAST BASIC is the ability to load and use resource files produced by the likes of K-Resource or Wercs. The solution is surprisingly simple and consists of a small machine code patch. The required patch is produced by PROCassemble. After calling this procedure you can access any of the GEM functions (AES or VDI) simply by placing the appropriate values into the GEM arrays and then calling AES or VDI.

You can now forget about building dialog boxes out of DATA statements and get on with making your program work. A few examples are provided; with a little help from the GEM Programmers Reference book you cab call any GEM function from FAST BASIC programs.

Some of the routines are implemented as procedures, instead of functions, if they do not return a useful value. The error code passed back by GEM intout&(0) is better dealt with in the procedure itself rather than in the main body of the program.

```
DEF PROCassemble
\ Declare GEM parameter arrays
DIM intin&(128),intout&(128),ptsin&(128),ptsout&(128)
DIM addrin%(64),addrout%(64),control&(12),global&(16)
\ Declare GEM parameter blocks
DIM vdipb%(5),aespb%(6)
\ Initialise AES parameter block
aespb%(0) = @control&(0)
aespb%(1) = @global&(0)
aespb%(2) = @intin&(0)
aespb%(3) = @intout&(0)
aespb%(4) = @addrin%(0)
aespb%(5) = @addrout%(0)
\ Initialise VDI parameter block
vdipb%(0) = @control&(0)
vdipb%(1) = @intin&(0)
vdipb%(2) = @ptsin&(0)
vdipb%(3) = @intout&(0)
vdipb%(4) = @ptsout&(0)
RESERVE code, 30
FOR pass = 1 TO 2
[
OPT pass,"L-"
ORG code

AES                         \ AES entry point
MOVE.L   #@aespb%(0),D1     \ Address of AES parameter block
MOVE.W   #$C8,D0            \ AES library ID
TRAP     #2                 \ Do it
RTS

VDI                         \ VDI entry point
MOVE.L   #@vdipb%(0),D1     \ Address of VDI parameter block
MOVE.W   #$73,D0            \ VDI library ID
TRAP     #2                 \ Do it
RTS
]
NEXT pass
ENDPROC

DEF PROCrsrc_load(filename$)
\ This procedure reserves some memory and loads a
\ resource file into it. The name of the resource
\ file is given in filename$ (eg. "1STWORD.RSC").
control&(0) = 110           :\ Opcode
control&(1) = 0
control&(2) = 1
control&(3) = 1
control&(4) = 0
addrin%(0) = {@filename$}%                          :       \
   Pointer to filename string.
CALL AES
IF intout&(0) = 0 THEN PRINT "Resource load failed.":END
\ Or you could call your own error handling routine.
ENDPROC

DEF PROCrsrc_free
\ This procedure releases the memory reserved by rsrc_load.
control&(0) = 111           :\ Opcode
control&(1) = 0
control&(2) = 1
control&(3) = 0
control&(4) = 0
CALL AES
IF intout&(0) = 0 THEN PRINT "Resource free failed":END
ENDPROC


DEF FNrsrc_gaddr(type&,index&)
\ This returns the address of an object
\ in a resource file loaded by rsrc_load.
control&(0) = 112           :\ Opcode
control&(1) = 2
control&(2) = 1
control&(3) = 0
control&(4) = 1
intin&(0) = type&           :\ Type of object 0 to 16
intin&(1) = index&          :\ Index of object
CALL AES
IF intout&(0) = 0 THEN PRINT "Resource gaddr failed":END
= addrout%(0)
```

Ian Miles
Saffron Walden, Essex

accessories in the RAM disk will be loaded (very quickly) without activating the floppy disk drive.

If there are no accessories in the RAM disk then the resolution change will be almost instantaneous. If there is no DESKTOP.INF file on the boot disk, ETERNAL.PRG will automatically install itself as a hard disk regardless of the drive identifier you specify in CONFGRAM.TOS.

Ian Miles
Saffron Walden, Essex

No you can't!

In Issue 4 I Woods stated that in order to undelete a file all that need be done is to change the first character of the filename from $E5 to an ASCII value in the range 32 to 127. Unfortunately, this perpetuates a common misconception about how the ST deletes files, which can also be found in other magazines, including specialist ST mags who should know better.

The fact is that, as well as changing the filename so that its first character is $E5, the ST zeros all the entries in the FAT (file allocation table) that apply to that file in order to mark them as available for use. Hence, not only would you need to change the filename back to normal, but you would also need to know which FAT entries were affected (and what their contents were) in order to restore them.

The reason for the misconception arising can probably be attributed to users relying on GEMDOS behaving the same as MSDOS – it doesn't so once a file has gone, it has gone for good.

S A Collyer
Rugby, Warks

Stealing sound samples

Get a directory display of the game Xenon and locate the SPEECH.DAT file. Copy this file onto another disk, and rename the copied file to SPEECH.PRG. Double click on the SPEECH.PRG file and follow the prompts. You will be asked to press keys between Q and T – do so and you will hear the computer scream "Sector, one, two, three and four". These are the samples played at the beginning of each level during the game.

Pressing [Esc] will return you to the Desktop while [Tab] halts the current sound.

Paul Carley
Rushall, Walsall

Desktop no more

You can determine which icons are used for a given file type by editing the DESKTOP.INF file on your startup disk (you'll need a word processor or editor capable of loading and saving ASCII files.)

By inserting a line under the required PRG, TOS or TTP identifier, you can make any file behave like a program file. Look at the DESKTOP.INF file – at the end you'll see lines beginning #G, #F and #P – these determine the behaviour of PRG, TOS and TTP filetypes respectively. You could add an extra line as follows: `#G 03 FF *.GEM@ @`. This would have the effect of making all files with GEM extensions look like PRG icons (because of the #G), and behave like them when clicked on too. 'GEM' can be replaced with any extension of your choice.

The #D and #F statements in DESKTOP.INF can be changed to file names so that when a window is opened only files matching the pattern specified will be displayed – eg. *.PRG will only allow files with a PRG extension to be seen.

Paul Greg
Co. Antrim, N Ireland

BEGINNER'S CORNER

The last item in the menu bar is Options; a variety of useful desktop features can be accessed from here.

INSTALL DISK DRIVE...

A typical GEM desktop consists of two Floppy Disk icons. Each icon has a disk identifier (a letter) and an icon label. The 'Install Disk Drive...' option allows you to change the label name, remove a disk icon or add a disk icon.

Single click on any Floppy Disk icon and click on the Install Disk Drive... menu item. You'll get a dialog box that looks like this:

To install a new disk icon simply type in a drive identifier (A, B, C...) and click on the Install button. Point at the current name icon name and click the left mouse button if you want to alter the icon label. Press [Esc] to remove the old name completely, or press [Backspace] to remove characters individually, and then type in the new name. Click on the Install button when you're done.

Delete a disk icon by selecting the required icon from the Desktop, choosing Install Disk Drive and clicking on the Remove button.

INSTALL APPLICATION...

This has been dealt with extensively in issue 1. It allows you to determine which kind of data file will open an application.

SET PREFERENCES...

You can decide how the ST interacts with you through prompts and dialog boxes, and set the screen resolution.

Confirmation of deletes and copies can be switched on or off by clicking on the appropriate Yes or No box. Hitting [Return] or clicking on OK executes your decision.

One of three screen resolutions can be selected by clicking on the Low, Medium or High buttons. You can only select High resolution if you have Atari's monochrome monitor plugged in. Similarly Low and Medium can only be chosen if you have a colour monitor or television.

SAVE DESKTOP...

Any modification you make to the GEM Desktop with the above options can be saved using the 'Save Desktop...' option. The information that can be saved includes positioning and size of windows on screen, resolution, printer configuration (printer setup is done via the Control Panel accessory) and icon names and positions. The GEM Desktop is saved to the appropriately-named DESKTOP.INF. This means that if you boot up using that disk, all the changes you made will be used as the default – otherwise all your new options will be lost when you reset the ST.

PRINT SCREEN

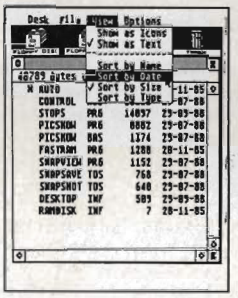
This option prints the current screen display. You must, of course, have a printer connected capable of graphic output. Make sure the printer is on-line and the appropriate printer driver has been selected from the Control Panel. Press [Alternate][Help] to stop printing midway.

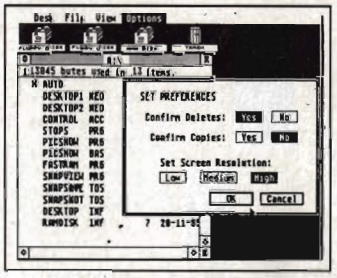
You can also activate the print Screen function by pressing [Alternate][Help] at any stage. Pressing the key combination again will stop printing.

The system will time-out after 30 seconds if you don't have a printer attached – in other words, control will return only after that time.

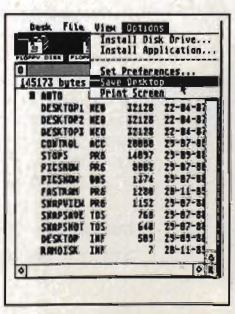
BLITTER

Only blitter-endowed machines will have this item in the Options menu. It allows you to turn the blitter on or off. Some software might complain if the chip is present, hence the switching function.





▲ ***Position windows and icons where you want them to appear every time you boot the disk.***



▲ ***Set preferences... confirm copies and deletes and choose resolution.***

■***Now hit the Save Desktop option. Window layout and other preferences will appear in the same format whenever you boot the disk.***

MONEY FOR NOTHING

Yes, you have the chance of getting your mitts on loadsaloot! And at what cost to you? A few lousy lines of hints on getting the best out of a software package, or a hardware modification, or how to use the Desktop more efficiently or anything you feel will interest other avid ST users.

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C TIPS WORKBENCH

All the top tips for all the top programs – two more pages of paradise for Amiga owners. Astound your friends with your new-found skills in BASIC, and learn how to recover from virus attacks.

Saving corrupted disks

DiskDoctor, as supplied on the Amiga master disk, is a very good utility, but there is a snag. If the 'disk validator' is kaput, then the Amiga refuses to have anything to do with the disk. This means that all data on the disk will be lost.

There is a way to cure this problem, but you'll have to use the CLI. Don't worry, it's not that difficult!

1) Start your Amiga with the normal Workbench disk, and enter the CLI by double-clicking on the CLI icon.
2) Type:

```
MAKEDIR RAM:L
COPY DF0:L RAM:L ALL
ASSIGN L: RAM:L
```

This copies the L directory (containing the disk validator) to RAM:. Next, the ASSIGN command forces the Amiga into using the valid validator in RAM: rather than the corrupted one on your bad disk.

You can now run Disk Doctor on your corrupted disk. Just type `DISKDOCTOR` at the CLI and put the bad disk in the drive when asked. After it has finished, make a copy of all the files on an undamaged disk.

If you've got a disk which refuses to load because the Amiga says it 'can't be validated', then you can fix this by copying the validator onto it. Assuming you've done the above commands to get the validator into RAM, then put your faulty disk in the drive and type

```
CD DF0:
COPY RAM:L DF0:L ALL
```

Now the Amiga should recognise the disk properly without needing any disk swaps.

Peter White
Sheffield

DOS COMMANDS FROM BASIC

Many AmigaBASIC programmers would like to be able to use standard CLI commands from within BASIC program, such as DIR to list files out. Although it's tricky, there is a way to do this.

At the start of any BASIC program in which you will be calling CLI commands, have the following lines:

```
DECLARE FUNCTION Execute%()
    LIBRARY
LIBRARY "dos.library"
```

Whenever you want to give a CLI command in your program, set up a string variable containing the CLI command text. The string must end in a 'null' character (ASCII zero) as this is an operating system convention. For example, to use the LIST command:

```
command$="LIST"+CHR$(0)
```

The variable name 'command$' is arbitrary – choose any you like.

To actually run the command, you need the following line of BASIC:

```
CALL Execute(SADD(com-
    mand$),0,0)
```

All output from the command will go to the CLI window behind your AmigaBASIC session – use the send-to-front/back gadgets to make the appropriate window visible.

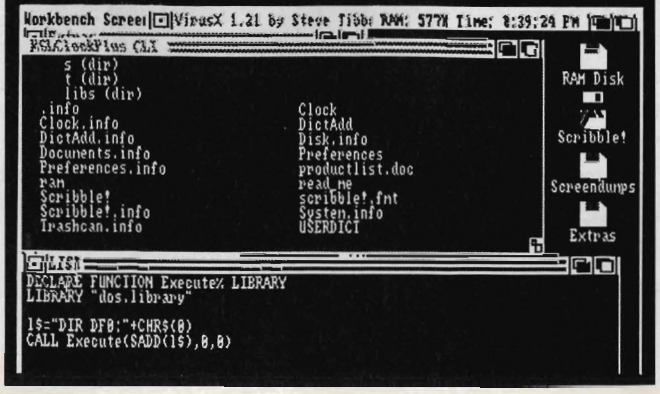
The text in the variable 'command$' is passed to the CLI for execution just as if it was typed to the CLI. You can enter entire command lines like `DIR S:` and it will list the contents of the S: directory. All the usual path-searching conventions apply, eg. commands reside in the C directory of the boot disk.

You will need to have the file DOS.BMAP in your boot disk's LIBS: directory – you can find it in the BASICDEMOS: directory of the AmigaBASIC master disk.

Finally, bear in mind that this process can be used to run other Amiga programs from BASIC control. Suppose you want to play a sound sample called BOING, and you have a sample player program called PLAY. Just use

```
command$="PLAY BOING"+
    CHR$(0)
```

▼*The CLI window at the top of the screen is displaying a disk directoy, as asked for by the program in the bottom window.*



AutoBASIC

This tip is geared for people who are starting to write in BASIC and would like a 'stand alone' disk on which to write their masterpiece to save disk swaps and more importantly save time!!

The sequence is easily followed and has been tested to ensure correct operation; the tip

THREE OF THE BEST

Quick Dpaint palette

On Deluxe Paint instead of pulling down the picture menu and choosing 'palette' here's a quick way to change the colour:

Click on the colour in the palette you want to change, then use the number keys on the numeric keypad to alter it. Pressing 7, 8, 4, 5, 1 or 2 change the RGB values of the colour – 7 increases the Redness, 8 decreases it, 4 and 5 alter the Green value, and 1 and 2 affect the Blue.

Pretty backdrops

Start the Amiga up and put the Defender of the Crown disk into your Amiga (don't click on the 'D' icon to load the game). Put in disk #2 of ST Amiga's cover disk. Click on the RSLClock icon to load the utility. In the pull-down menu, select 'Enable Backdrop Screen' and now take the disk out and insert the original DOTC disk. Click on the 'D' icon to load the game, now hold down left Amiga key and N and the WorkBench screen will go all together. Repeat left-Amiga N to get the Workbench back. I have no other games that load from WorkBench so I have been unable to actually do anything with this idea. But perhaps someone will find it to their advantage.

Just a word

If you'd like the Amiga to read Notepad files out aloud then try this; click on the 'Say' icon once then hold down [Shift] to enter extended selection mode and double click on the Note Pad file. The computer will take care of everything else and a Phonetic window should open.

A RISPOLI
BARNET

is written for single drive users and would be a good deal easier for users with 2 drives. Total time is about 3 or 4 minutes, and at the end of it you get a disk which will auto-boot into BASIC. 'Green' Amiga owners might also get some insight into altering the startup sequence.

– Insert WorkBench disk after turning on

– Once the screen goes blue, hold down [Ctrl] and keep pressing D until the CLI prompt '1>' appears.

– Type

```
FORMAT DRIVE DF0: NAME
    BASICDISK
```

(any name will do instead of BASICDISK)

– follow the prompts and disk swaps to format the disk you want to become your BASIC work disk. When it's finished put your Workbench disk back in the drive.

```
COPY DF0:C RAM:
ASSIGN C: RAM:
```

(Put in your newly formatted disk)

```
INSTALL DF0:
MAKEDIR DF0:C
MAKEDIR DF0:S
COPY RAM: DF0:C
```

– When drive light goes out, reset the Amiga. As before, when the screen turns blue hold down [Ctrl] and keep pressing D until the '1>' prompt appears. Type:

```
COPY DF0:C/COPY RAM:
```

(Put your AmigaBASIC disk in the drive now).

```
RAM:COPY DF0:AMIGABASIC
    RAM:
```

(Put your newly formatted disk in the drive again)

```
RAM:COPY RAM:AMIGABASIC
    DF0:
ED S/STARTUP-SEQUENCE
```

– A blank screen appears; you are now creating a new file: type

```
LOADWB
AMIGABASIC
```

then press [Return]. Save the file by pressing [Esc], then type X and press [Return].

– When the disk activity light goes out, reset the Amiga. It will 'boot' into AmigaBASIC for you. When you quit, you will have a fully functioning CLI. If you click the mouse on the Send-to-back gadget of the CLI screen you'll also get a standard Workbench icon screen.

Happy programming!

Peter Derrick
Harrogate, N. Yorks

CLI CLOCK

If you missed issue 2's disk with its invaluable little on-screen clock, you can still make do with the Amiga's own utilities.

Make sure that your Workbench disk has the Clock program on it – if not you'll find it on your main Workbench master disk, just drag the icon across.

Now edit the start-up sequence: you'll need to open a CLI window, then type

```
ED S/STARTUP-SEQUENCE
```

(move the cursor down to it is just before the line saying ENDCLI, near the bottom of the file)

```
RUN CLOCK
```

(press [Esc] X [Return] to save and exit from the editor)

Now when you reboot you should find the Clock is always in view on the screen. Invaluable if you accidentally forget to eat for four days during a heavy programming session.

Virus recovery

Both the SCA and 'Byte Bandit' virus have 'back doors' which the programmers put in for their own convenience (in case they were hoist on their own petard!)

For the SCA virus, hold down the left mouse button during a three-key reset. If the screen turns green, instead of white, before the 'Insert Workbench' screen appears then the virus is in memory and the last disk you put in the drive is definitely infected.

When the Amiga locks-up because of Byte Bandit virus, press and hold down the following five keys in the printed order: left-Alt, left-Amiga, Space bar, Right-Amiga, Right Alt.

After a couple of seconds the Amiga should recover from its attack, and you will be able to continue what ever you were doing before the virus struck. If it doesn't, try it again but this time hold down the left-Amiga key instead of the Right-Alt key.

Once either virus has been detected the boot sector should be cleaned by running the INSTALL command from the CLI: double click on the CLI icon (in the system drawer on the Workbench disk); put the infected disk in the internal drive and type `INSTALL ?`. Follow the disk swap prompts and when the screen prompts you to enter the drive to be Installed, make sure the infected disk is in the drive and type `DF0:`. Turn your machine off to make sure that if the virus was in memory it is erased.

NOTE – Never 'Install' master disks of commercial software, like games. You're likely to destroy them.

Andrew Davidson
Bournemouth

■ *Workbench editor adds: for those new to the 'virus' debate, the SCA virus manifests itself by displaying a message, "Something wonderful has happened..." on the screen. After half a minute or so it starts to do bad things to your disk, so if you ever see this take your disk out of the drive as soon as you can and turn the machine off.*

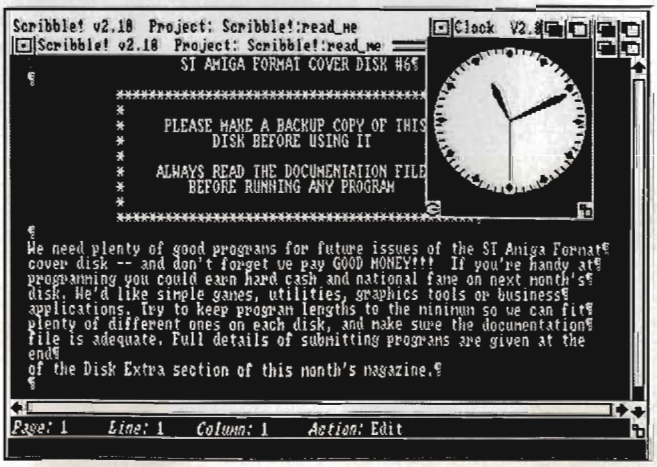
The Byte Bandit virus doesn't harm disks, but just blanks the screen and locks up the machine so you can't do anything.

Out the window

Basic programmers... Do you want a borderless window? Try this..

```
SCREEN 1,320,200,2,1
WINDOW 2,,,0,1          'plain window no gadgets
WIDTH 38
PALETTE 1,0,.3,.6       'set to Amiga Blue
PALETTE 2,1,1,1         'set to white for text
COLOUR 2,0              'foreground/background pens
Text:
LOCATE 6,2: PRINT "A borderless window?"
LOCATE 8,2: PRINT "Palette 1 is set to background colour"
LOCATE 10,2 PRINT "Text can be written using appropriate fore/background
   combinations"
LOCATE 15,2: PRINT "When done reset palette"
WHILE MOUSE (0)=0: WEND 'wait
CloseUp:
PALETTE 1,1,1,1         'reset palette
COLOUR 1,0              'reset fore/background colours
WINDOW CLOSE 2
SCREEN CLOSE 1
END
```

SJG Reeves
Solihull



■ *Once you've got the clock going, use the send-to-back or bring-to-front gadgets to show the time as other programs run.*

BE A SHOW-OFF AND NET £30

"Huh! Call those tips? I knew all that anyway." So if you really DO know it all, why aren't you writing to Workbench? As well as having your expertise paraded for the world to see, you stand to gain 30 Brass Margarets for the best monthly contribution. We want tips of all kinds: obscure CLI commands, neat tricks with the mouse, better ways of using your database, how to get a neat effect on your paint package – EVERYTHING!

Go on – be a show off! Send your tips to: WORKBENCH, ST AMIGA FORMAT, 4 QUEEN STREET, BATH BA1 1EJ *and wait for the money to roll in. This month's modest winner is Andrew Rispoli from Barnet, for his triptych of tidy tips on DPaint, Notepad and the Workbench.*

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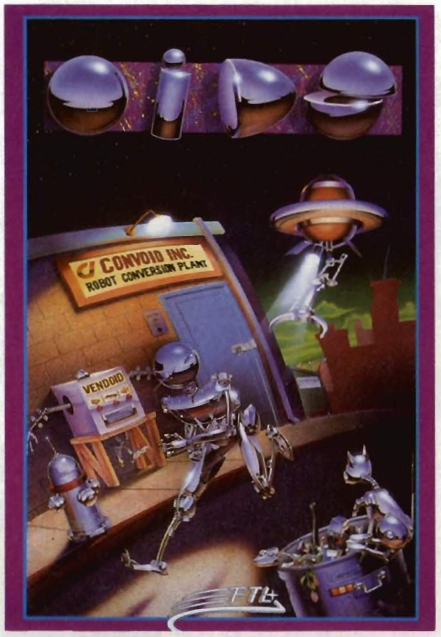

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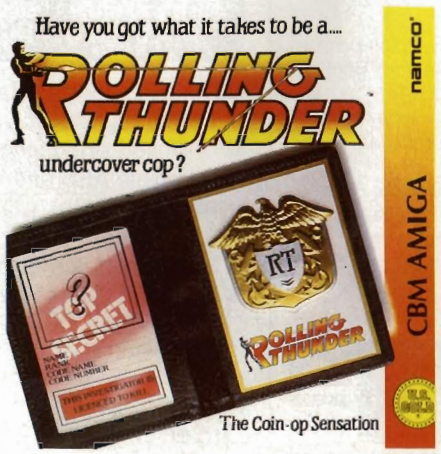

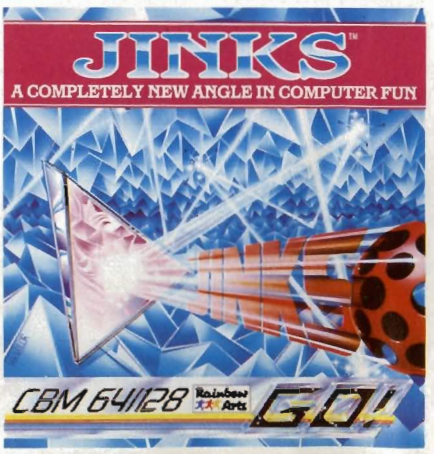

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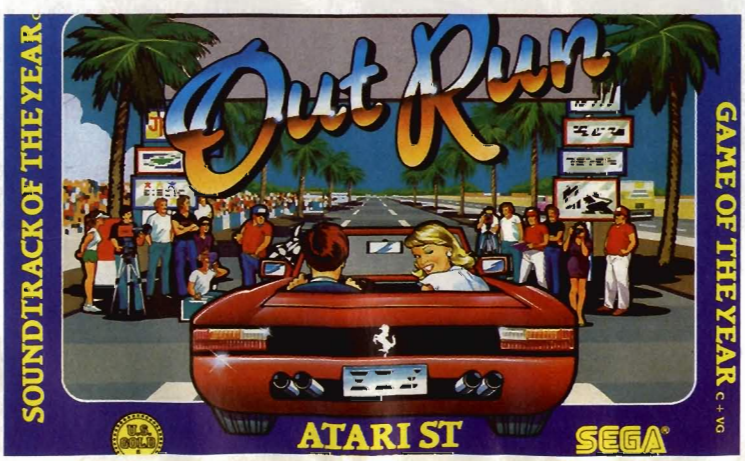

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GOLD DUST

Major U.S. computer trade showpiece Comdex is building up in Las Vegas – Steve Gold wrests the rumours from the wires, including Atari's 68030 would-be Amiga beater and Commodore's video disc secrets.

By the time you read this, Comdex in Las Vegas will have come and gone. The major event, which takes place during November, is traditional for major computer companies to exhibit their new and forthcoming products. I can reveal that Atari will announce its Super-ST at Comdex.

The Super-ST centres around a Motorola 68030 microprocessor and is capable of displaying up to 4,096 colours on-screen simultaneously. In addition to this – and contrary to my earlier information – the machine *will* support an Amiga-style multi-tasking environment, subject to memory-limitations.

Environment-wise, Atari-watchers expect the Super-ST will capable of running Unix as well as a new version of TOS, and will support the Ethernet networking protocol.

As well as the Super-ST, Atari will formally announce Stacy, its long-awaited laptop ST. Despite reports from Atari UK's MD Bob Gleadow in the Spring of this year, it now looks like we shan't see the ST laptop until at least the Spring of next year.

Oh, broder!

On the software front, keep an eye out for Broderbund Software. The company is expected to steam into the UK this coming Spring with a whole pot full of new ST software. Keep an weather eye

GENIE OFF-LINE

Following on from my mention of the ST Round Table on GENIE, the General Electric online system in the US, several ST/Amiga Format readers have contacted me to say that joining GENIE is rather tricky, since you must have a US address for mailing purposes. My apologies for this oversight, but it looks like the ST service on Genie is fading anyway.

■ ***Comdex – the major U.S. computer showcase fair***

open for their flagship product, *Fightertown USA*

Judging from reports on the US networks, this S27 program has stereo sound and is destined to become *the* flight simulation package for the ST. You can't wait for a UK release? I don't blame you. Call Joppa Computer Products in the US on 0101-301-679-5517 for air mail details.

Finally, in case you were thinking that Atari is a US-oriented company, think again. During an online conference on Compuserve during October, Sam Tramiel admitted that he was placing Europe at the head of the queue for new machine shipments. The admission caused quite stir amongst online conference delegates and – curiously – Sam departed very early from the conference. I wonder why.

Amiga vision

Commodore are planning a number of coups for 1989. One interesting project that Commodore US is working on is an interactive video disc system based around the old Laservision standard and – wait for it – the new Philips CDV standard.

CDV, in case you hadn't noticed, is the next stage on from those ubiquitous Compact Discs (CDs). In addition to high quality sound, the CDV discs, which come in 3, 5 and 12 inch sizes, can store a limited amount of digital picture data as well.

The Laservision technology has been tried and tested in the Acorn Domesday project, but it's a costly system. Ariadne Software in the UK has been selling bespoke Videodisc systems for some time with the Amiga, but the systems to date have not yet been standardised.

Sources suggest that Commodore is working on an Amiga-based CDV system for interactive video applications, in preparation for bidding for a major US Department of Defense project. It's ironic to think that interactive video was the mainstay of the Amiga 1000 system when Commodore MD Chris Kaday (remember him?) unveiled the machine a couple of years back.

Hyper intelligent

On a more general note, during a late-night online conference on Compuserve, Dave 'Magic Sac' Small announced his plans for a system called *Hyperweb*. The idea is that Hyperweb will be a plug-in device to allow software from any 68000-based machine to run on any other.

Hyperweb is still very much is the early alpha-test stages, but Dave expects the machine to span the Apple Macintosh, Atari ST and Commodore Amiga environments, among others. Central to the Hyperweb project is the Transverter software, which Dave is currently packaging with the Spectre 128 Mac emulator for the ST.

■ ***Laser discs – the key to the Amiga's stateside future?***

■ *Gold Dust is compiled from the US online services by Steve Gold, a freelance journalist specialising in computer communications. Email, industry tips and comments are welcomed on Telecom Gold 72:MAG066 or via the US E-mail networks: Compuserve 76011,1155, SGOLD (BIX & CIX), and The Source on IP2009.*

PAPERING OVER THE CRACKS

A lot of Atari-watchers have been surprised by the events of the last four weeks. Firstly, as I reported last month, came the shock news that Neil Harris, long-standing technical guru with Atari, had left suddenly and without warning. Then came news that other leading lights in the technical and marketing divisions were going their separate ways.

Harris, a long-standing associate of Jack Tramiel's from the earliest days of the ST at Atari, left with no public acrimony, and – to date – few people have been able to contact him. One of the few people who has was Dave Small, of Magic Sac fame.

Small left a series of messages and revelations on the US networks, which caused shock and consternation amongst the ST user community. Within a week, Small retracted his comments, which included the 'fact' that the Atari U.S. empire was collapsing and Harris had baled out before he got caught up with the problems of the company.

What now appears to have happened is that an Apple-style power struggle has been pre-empted within Atari. Unfortunately, Neil Harris was the Steve Jobs equivalent in the Atari episode.

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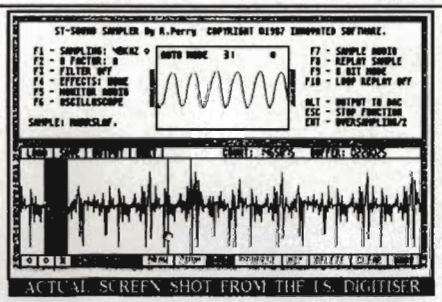

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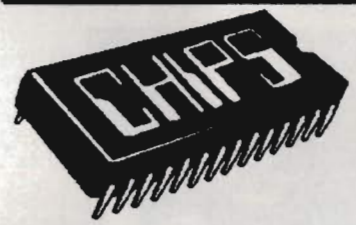

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FORMAT LETTERS

OK, so we asked for brickbats as well as bouquets, and this month we sure got 'em, courtesy of the Mailsoft Incident. But just to show there are no hard feelings, we've decided to instigate prizes for the best letters: we'll give an ST Amiga Format Organiser (see p102) to the two sharpest scribes each month, so get writing to: *Format Letters, 4 Queen Street, Bath BA1 1EJ.*

MAYHEM MAYHEM

I would like to comment on your answer to the letter headed 'Mail Order Mayhem' in the November issue. May I ask why if, as you state, it is against the law to advertise without a full address, your magazine accepts such adverts?

The reason I ask is because on the page facing the letter in question was a quarter page advert for Mailsoft, PO Box 589!!! Your comments please.

Mr D Clifford
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■ *Cor, what a bunch of wallies we are. Unfortunately the editorial staff don't know what advertisements are running until the magazine is printed, so we didn't realise the unfortunate juxtaposition.*

For some time this subject has been something of a grey area, but the Trading Standards Authority has reaffirmed that it is unacceptable for an advertiser soliciting for money (in this case offering goods by mail order) to use anything other than the full address from which the business is managed. All our advertisers have now been reminded of this fact.

Here's a reply to our comments from Mailsoft themselves:

Further to the letter published in your magazine in November, the particular computer game was ordered by Mr J Bell and not J Bett as you published in your magazine.

The computer game in question was ordered via a direct response to an advertisement placed in *Computer and Video Games* magazine. At the time, your magazine *ST Amiga Format* was not even in existence, and I do not see why you have taken it upon yourselves to interfere with a problem that does not concern Future Publishing.

Surely a company like Future should find out all the facts in a case, before going to press.

We have written to Mr J Bell on three occasions informing him as to the position of the software ordered, *Renegade* for Atari ST. The game was placed in our advertisement upon confirmation from Ocean Software that this game would be available on the Atari ST computer. We were later advised by Ocean that this product was not going to be published on the Atari at all.

We sent Mr J Bell a note to say he could either choose another product or he could have a refund; we have not heard from him since. He will not be able to purchase Renegade for the ST in his local Hull shop, as you suggested. Maybe you would like to ring Ocean to confirm this fact to your readers.

We are somewhat surprised and disappointed at the lack of professionalism shown by the editor and staff of this magazine. Can I remind you that in line with good journalistic practices, the editor should have pursued the facts and ascertained independently the accuracy of the letter before rushing to print. If, as you suggested in your comments, that the company 'looks suspect', can you then explain why you allow the same company to advertise in your publication. We have been advertising using a PO Box in Future Publications since your magazine *ACE* was launched over a year ago.

It is letters and flippant comments like yours which have given the software mail order companies the bad reputation it currently has. It is companies like ours who have been around for a long time and have been serving the computer users who are trying to change the image of mail order companies. One of our biggest problems is software houses not keeping to their release dates which they have given to the public. To change this image, we would suggest you divert your energy into the possibility of allocating some space to let the readers know what games have actually been released in the last month, as I am sure you must experience products being delayed by software houses in your own mail order operation.

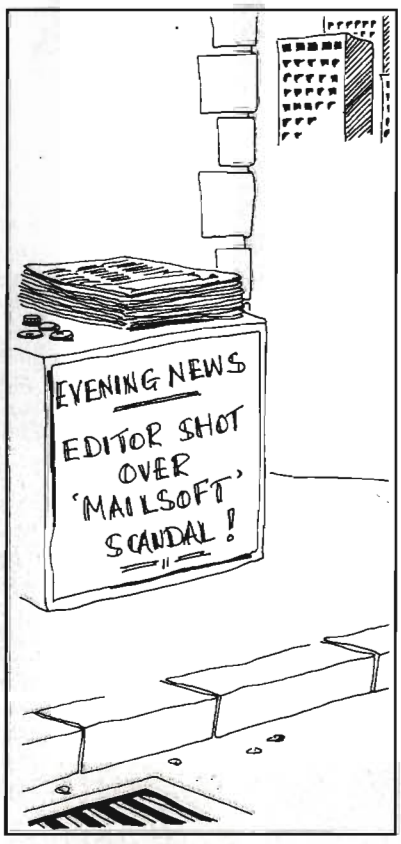
We are purely a mail order company employing several staff. If the customers want low prices on their software, we can only achieve this by keeping our overheads as low as possible, and one way is by not being on the telephone.

All letters are always dealt with in a correct and professional manner.

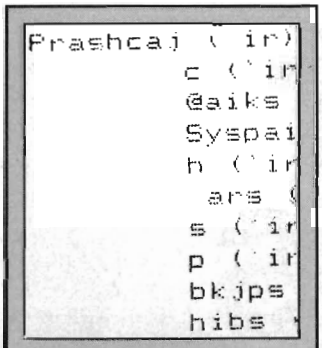
We are not totally satisfied with the manner this problem has been dealt with by Future Publishing and are at present seeking legal advice, on the allegations made by Future Publishing in the reply to Mr J Bell's letter. In the mean time we are sending Mr J Bell a refund for his money and let's see if he can buy this game.

We have only had 24 hours to reply to this letter, due to the copy date deadline for going to press.

Colin Jacobs
Mailorder Supervisor,
Mailsoft, London



■ We would like to apologise for suggesting that Mailsoft 'looked suspect' because it didn't display a full address.



fdgsoih ohjphjy

Could you please help me with a problem I have with my Commodore Amiga and MPS 1200 (Citizen 120-D) printer? I have set the preferences to Epson as stated in the user guide for the printer (it says Epson FX but there isn't one in preferences). The problem is that when I try to use 'notepad' it prints the correct amount of letters in each word, but the letters don't correspond with the ones on the screen making, the word gibberish. It also does the same with the CLI when trying to print out the contents of a disk directory.

I have tried the two built in self tests and they appear ok. I have rung Citizen printers up, and they think it's a software problem. To give you an example of the problem I have enclosed a copy of the printout of workbench disk.

All the DIP switches are in the 'Off' position. I would be most obliged if you could sort this problem out, whether it is software or a printer fault. I purchased it new just a week ago.

Mr G Durrands
Sheffield

■ *The Citizen 120-D we reviewed this month worked fine with Epson preferences, so there shouldn't be any inherent software fault. Are you using the serial or parallel interface for the printer? If the serial, then check that the baud rates as set in Preferences and the on printers switches match. This kind of gobbledegook is typical of wrong transmission rates. If you're on the parallel port, there is no reason why the printer shouldn't work. Take it to a local shop and ask if you can try it on one of their machines – that way you can see if it's your Amiga or the printer and take it from there.*

More ST MIDI

I was impressed with your Amiga MIDI interface. However, a similar project for the ST would have impressed me even more as I would then be able to use it. Could you have the circuit redesigned to make a box with one IN and four THRUs?

N. Eyles
Bristol

■ *Unfortunately we aren't hardware boffins here, but it doesn't sound too hard to convert the ST's single MIDI out into four THRUs. Can any bright spark out there come up with a simple circuit?*

One, two, three

1. I can program in Z80 machine language and I am struggling with 68000 machine language. Could you suggest the best assembler in your opinion, for not more than £60, on the market. Could you also mention where I could purchase it from.
2. How does the ST play samples without extra peripherals (as in the title tune to Captain Blood?)
3. What is Atari's UK address?

Richard Stoliar
Iver, Bucks

■ *In our opinion, the best ST assembler kit is Devpac 2 from HiSoft, which comes in at just under your budget figure.*

Many of the more sophisticated sound effects in games are digitised samples. Using the hardware described in this month's main feature, you can capture recorded music or effects and replay it through your ST. Digitised sound is simply a matter of playing the right sequence of notes (around 5000 or more notes a second!) through the standard sound chip, so you don't need any specialised peripherals.

Atari UK are at Atari House, Railway Terrace, Slough, Berks SL2 5BZ (0753 333444).

Four, five, six...

I am pleased to inform you that I am a new and proud Amiga user. I have several questions for you, which I hope you can answer.

1. Expandability of an Amiga 500?
2. What is an XT Bridge Board?
3. How many drives can you add to an Amiga 500?
4. What is Unix?
5. Can you run Unix on an A500? I know you can on a 2000. Is it because the 500 isn't very expandable? However, I believe there is some device out which plugs into the 500 and makes it almost as expandable as the 2000 – if you had this device could you then run Unix?
6. Finally, can you install a 68020 or 68030 processor in an A500?

Nicholas Philips
Llanellie, Dyfed

■ *If you're looking to expand your Amiga that much then you would be best advised to sell your 500 and buy a 2000. The 500 can take up to two extra floppy drives, a hard drive and 8MB of RAM, but you need extra power supplies and that kind of thing.*

The XT Bridge Board is effectively an IBM PC-clone on a board which plugs into one of the A2000's slots. It is intended for business users to get the best of both IBM and Amiga worlds.

Unix? Unix is a operating system – think of it as a replacement for the Amiga's CLI language. Unless you are intending to hook your Amiga into a university network, forget it. We don't know of any versions of Unix yet for the Amiga, although Commodore are working on a new machine using Unix.

The current 68020 and 030 add-ons are all designed for the Amiga 2000.

Panic panic

I have a problem with the game P_PANIC.PRG which appeared on disk with the October issue of ST Amiga. The program appears to load OK, but then the computer key board appears to be dead – no response. How do you control the drill?

Can you help please?

Alan Yeadon
Reading, Berks

■ *Pipe Panic only works with a joystick – sorry if we didn't make that clear.*

ST 68010 upgrades

After the article in issue 4 of ST Amiga Format about the Motorola 68000 series of processors, I am thinking about upgrading my 68000 in my ST to a 68010 but there are some questions I would like answered before I make such an improvement.

Are the commands that aren't available on the 68010 used often in commercial packages and what do they do?

Would the 68010 run my vast software collection of *Corruption, Dungeon Master, Xenon, Defender of the Crown, Leaderboard, 1st Word 1.06, Fast BASIC 1.05,* and *Personal Pascal 1.01*?

Would programs compiled

Private eye

Regarding your question as to the usefulness of the *Lens* program on issue 4's cover disk: Yes, there is a problem that it can solve. I find it so useful that it more than justifies my first purchase of your really great value for money magazine.

Because I use my Amiga with a TV adaptor and 12" colour TV set, an 80 character width text screen can be hard to read. Not now! With Lens loaded and its window placed at bottom of screen, its height at minimum and the text window raised to reveal it, those illegible characters reveal all. I have found this works with most programs, but not those where the whole screen area is wiped.

I hope that other TV users will try it and find just how much easier life gets.

An SOS to Format letters: What do I need to change in Printer set up to get my Star LC10 to fully behave. Epson in Preferences is not sufficient for 'The Works'.

Peter Mallin
Swansea, W. Glam

■ *It's funny how people find uses for things that the author never intended – nice to know it's handy.*

As far as we know, the Star LC10 is pretty much Epson compatible, and choosing 'Epson' from the Preferences menu is the right thing to do.

with Personal Pascal run with the 68010?

Would future purchases like *STOS*, *Elite* and *Federation of Free Traders* work with the 68010?

Where would I get the 68010? Would there be any noticeable difference to my 520STFM, new TOS, with the 68010 fitted?

I would be very grateful if you could answer these questions for me as it would vastly influence my decision of whether to upgrade or not.

Mark Weston
Melton Mowbray, Leics

■ *First, we must confess we haven't ever seen an ST running with a 68010, so these replies are hypothetical. In general, you would be unwise to try to fit a 68010 if you intend to play games much. The reason is that there are often delicate timing loops inside them which go awry if a faster processor is unexpectedly fitted. As to Pascal, 1st Word and so on, it should speed them up by around 10% – not all that noticeable, perhaps.*

Apparently Atari Germany have managed to fit a 68010 to an ST, but it requires you to change the TOS ROMs, so is not a simple operation.

To buy a 68010, try scanning a few electronics magazines for advertisers.

We'd be very interested to hear from anybody who has successfully fitted a 68010 to an ST – is it worth the hassle?

Educating remarks

I find your magazine very good, even with the price rise. No doubt you will have people complaining, but most magazines of your class are £2, so £3 and a disk (even at mail order shopping cost is £1.00) is great value.

I am writing to your letters page because I have discovered one thing your magazine does not have: a classified ads section. I have discovered this because I thought an ST and Amiga magazine would be a great place to advertise our club, simply because our club is ST-Amiga only. We meet in Camberley at the Adult Education Centre (Room 28) on the third Tuesday of every month. It costs 50p an evening, which covers coffee or tea and room rent. We welcome beginners or experts. In fact, about a year ago Jeff Minter came along with his multicoloured ST. More details can be got on 0276 685828.

Ian Munday
Whins End, Whins Drive, Camberley, Surrey, GU15 3EH.

ACE comments

I used to buy your sister magazine ACE every month to check out the great games for my ST, and I have found some contradictions in games ratings. I'll mention the most recent ones: in STAF you gave Super Hang On only 65% while in ACE it was rated 892! You think Outrun (71%) is better than Super Hang on? Come on! Look at the better defined graphics in SHO, the better game play, the speed impression, etc! You must be joking, right? Is it worth buying or is it just an ordinary game which doesn't deserve my hard-earned cash? You should take in mind that all games are much more expensive outside the UK and we buy the games only if they are rated... (narmean?) Does the mood of the reviewer influence the rating of a game? What about a second opinion besides the main reviewer?

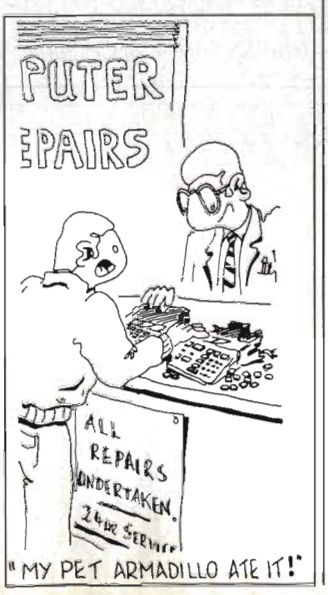
Jay Lee
Netherlands

■ *Although ACE and Format are sister magazines – we're published by the same company – we don't have any reviewers in common. I mean, have you seen their reviewers? (Sorry, lads.) Reviews are very subjective anyway; what one person likes another may not, so I'm glad you've got a choice of opinions between the mags.*

Dog eat mouse world

I would be most grateful if you could help me with the following problem. My dog has just chewed my mouse cable to bits and I wish to rewire it back on to the plug at the end of the lead but do not know which coloured wire goes to which numbered pin. The cost of a replacement mouse is out of my financial situation at present. I have re-wired the connecting strip inside the mouse using the same colour coding as original – could you tell me which colour goes to which pin on the nine pin plug?

Terry
No address



■ *You ought to trade in your dog for an armadillo – Agnes has never chewed any of our mice up. In fact, she gets on a chair and screams whenever they come near. Sorry, we can't help on the wiring, we can't get the moulded plugs of our mice apart.*

PRIZE LETTER

The voiceof reason

I know there is a lot of controversy at present about how good the ST and Amiga are, and although your mag seems to only show this in comic form (Superheroes, Inc) there *is* rivalry between owners, and confusion amongst potential 16 bit purchasers. Having owned an ST (for about a year) and an Amiga (for abut 3½ months) I feel I am in a position to put these machines in perspective, and with any luck put the minds of ST Amiga rivals, as well as potential customers, at rest. So here's a quick run-down of the good/bad points of both machines to the user.

Firstly for Word Processing, the ST undoubtedly outclasses the Amiga in quality of software. The combination of a 1040 ST mono monitor, Fleet Street Publisher and decent printer can produce brilliant results. Amigas are poorer, probably because wp programmers avoid using high-res mode (because of the flicker) and use low and medium res. There is also a lack of really good WPs apart from *Word Perfect* – and that'll set you back back over £200!

Secondly, games. Although broadly similar on both computers, Amiga games (often simple ST-port overs) are generally better because of the sound (stereo FX and music really beef up a game), hardware sprites and scrolling which make games like *StarRay* on the Amiga very difficult to reproduce on the ST. Although the ST owner has more releases, at £25 or so each neither owner will be buying many.

Thirdly, art. Again the Amiga has the edge over the ST, mostly be because of its blitter and co-processors. Compare the ST *Quantum Paint* with the Amiga *Photon Paint*, and you'll find that the former is much slower, has less options available and is more difficult to use – not because of the programmers but because the lack of specialised graphics chips in the ST.

Fourthly, the operating system on the Amiga. It is really designed for two drives (otherwise it is a real hassle to use), and everyone I know with an Amiga either has two or is saving up for another one, so be prepared to spend an extra £100. The Desktop on the ST is much faster and easier to use than the Amiga's Workbench, although it is far less complex and rather limiting. On the Amiga there is also the CLI – difficult to use, but once mastered it is *extremely* useful.

Fifthly there is MIDI. The ST wins hands down because of the MIDI port as standard, and excellent software support (although 1 Megabyte of memory is recommended).

For my opinion? Well as a games player 75% of the time, and using a word processor about 25% of the time, I prefer the Amiga, *personally*. However, no amount of arguing will tell us which computer is definitely the best, it all depends on you and your wants and needs. Remember, just because a computer seems to sport better specifications doesn't meant it'll be the best for you.

And with that in mind, I hope ST-Amiga rivals and potential buyers are now satisfied. Although I'll probably be slammed for Amiga bias, which I am of course as in my opinion it is the best computer for me. I hope you will respect my point of view.

N Owen
Havant, Hants

■ *Well, that seems a pretty even-handed summing up. You've perhaps forgotten one tiny point in the ST's favour – money. OK, so you reckon the Amiga just has the edge, but is that worth £100?*

We don't really want millions of letters saying, 'Naah, my machine's much better', so if any of you out there are going to write to us, keep your comments constructive.

Nyet!

Please put a stop to this armadillo madness. It's getting very boring.

R Tabard
Colchester, Essex

■ *Certainly.*

Worried of Byfleet

As an avid reader of your otherwise quite excellent magazine, I have recently noticed a worrying trend. Increasingly, throughout its pages references have been appearing to certain members of the anteater family, namely the Armadillo and the Aardvark. As a founder member of the 'Council for Rehabilitation of Armadillos and Pangolins' (C.R.A.P) I must complain in the strongest possible terms about such phrases as 'ugly creature with a face like an armadillo' and 'Shakespeare was an armadillo', amongst others.

Over many years I have forged strong links with the anteater community in this country and I can state, quite categorically that many anteaters do not take kindly to being used as figures of fun in a publications such as yours. They see it as an utterly reprehensible example of speciesism at its worst. It is the thin end of the wedge, they quite rightly say.

How many anteaters can afford even an Atari 520ST, let alone program one? Anteaters are denied education and ignored by society as a whole, consequently they face insurmountable difficulties in finding suitable employment even without the stigma of such disgusting insinuations. This is, I believe, an example of the extreme prejudice shown against ordinary anteaters striving to do the best for themselves and their families and should be treated with the contempt it deserves.

Julian Barkway
Byfleet

■ *Sorry, Mr. Tabard of Colchester, Essex. We lied.*

New Year resolution

I went to purchase a colour monitor for my Atari 520, and that was when my troubles started. Which monitor to buy?

I thought I had done my homework. My rough guide was high res: 640x400 pixels, medium res: 400x200 pixels and low res: 200x150 pixels.

Looking at the adverts you only get a choice of low, medium or high res, which isn't much help. What is the difference between a Philips 8833, Atari SC1224 or CM8852? If I bought a high resolution colour monitor would I be able to select all three resolutions from the Preferences menu? What is my best choice?

Jim McGilton
Bangor, N. Ireland

■ *The ST's screen modes are: high-res – 640x400 black and white; medium-res – 640x200 4 colours; low-res – 320x200 16 colours.*

It is generally not possible to get a monitor that can display all three modes. Only the Atari mono monitor (SC124) can display the hi-res mode, and all colour monitors (including a TV via a modulator) will only do low or medium. It is possible to get one monitor for all modes – such models are called 'Multisync' monitors and cost over £500.

PRIZE LETTER

Sharing a good thing

I have often seen the following phrase in magazines: "Half-brite mode does not work on early A1000s". Can anyone please tell me how one distinguishes between an 'old' A1000 and a 'recent' one. Also, is there a way of adding to the memory bank of an A1000 (beyond 512K) other than having to buy a board at £250 and then a bank of 512K RAM for £130? Every shop I approach seems to offer me this option!

Even though I know three assembler languages (6502, Z80 and 68000), Forth, Pascal, COBOL (ugh!) and FORTRAN, I still prefer BASIC (GFA and Fast BASIC to be precise) to any of the aforementioned languages. Most of the criticism about BASIC seems to come from people who've probably never seen a 'modern' version of the language (eg. Polytechnic lecturers). I think BASIC's biggest stumbling block is that people are ashamed to admit that they use it, or liked using it at one time. The latter probably follow up by saying, "Real programmers don't write in BASIC," an arrogant attitude to take in my opinion.

I've developed a switch box which allow simultaneous connection of an ST and an Amiga to an Atari SC1224 colour monitor. At the press of a button the display toggles from one computer to the other. I only made this box as a one-off, but met many people who like myself had bought an Amiga in addition to their ST and found they couldn't use the Amiga with the SC1224. When I initially encountered this problem I simply made a lead of which one end was plugged into an Amiga and the other into the ST monitor lead. This was obviously unsatisfactory, since if I was using using both computers at the same time, having to unplug one and switch the other in was quite a bother. When I built the box I decided to add another switch for the sound which allows the connection of a Hi-Fi as well, so that toggling this switch causes one computer to use the monitor's output and the other the Hi-Fi. The Amiga's left and right sound channels are separated for the Hi-Fi and combined when switched to the monitor's speaker. If anyone else has this problem then I would be only too glad to tell them how to build such a box, or to build one for them.

A.F.S. Alam
Manchester M16 0DY

■ *Half-brite mode on the Amiga is a way of getting 64 colours on the low resolution screen (usually 32 colours only) by making the second32 colours be the same as the first 32 but half as bright. This needs a hardware feature in the Amiga which wasn't in the first A1000s to roll off the production lines, but has been on all later ones, and the A500s and 2000s.*

The only reliable way of telling whether your 1000 has the hardware is to use an art package like Photon Paint *which offers you editing in Half-Brite mode and see if it works! We think that very few, if any, of the 'early' A1000s were ever sold in Europe, so it is highly likely you have a 'recent' one.*

And we couldn't agree more with your comments about BASIC – except perhaps the bit about Polytechnic lecturers!

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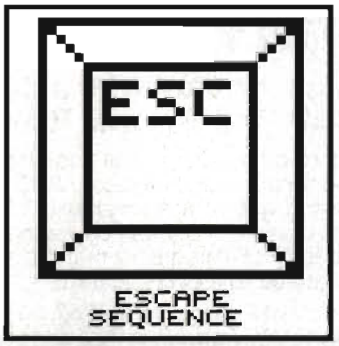


NEXT MONTH

Thursday 17th November – that's when issue 7 of ST Amiga Format piles onto the shelves. As well as the newest news and the handiest hints, you're in store for:

■ WHICH HARD DISK – The Format laboratories put these handy but pricy peripherals to the test.
■ COLOUR PRINTERS – Put those pics on paper
■ RIPPING REVIEWS – *Operation Wolf*, HiSoft's Amiga BASIC compiler, *Multiface* instant copier, Palace's *Shoot-'Em-Up Construction Kit*, *Sculpt 4D*, *K-Spread 3*, and all the hottest releases of the month.
■ ANIMATOR'S DELIGHT – Beginning a superseries on the secrets of animation. Make your screen *move!*
■ MUSIC ON THE CHEAP – Forget expensive synthesizers, get the best from your micro's sound chips.
■ SOFTWARE GALORE!!! – Don't forget the cover disk packed with amazing utilities, games, tools and info for your machine.

(Contents correct at time of going to press, but subject to Acts of God and the Queen's Enemies)

You want *what?*

Out there, in the wide blue yonder, are some marketing men with a weird sense of humour. Consider the facts, ladies and gentlemen of the jury. This month we have had press releases in for the following products; only the names have been changed to protect the innocent:

■ From Hawaii comes news of *Code Blue*, a Heart Attack simulator for the ST. Let me guess... it'd tell me it's erased all my disks just before the next issue of Format is due to go to press? That would do the trick nicely.

■ A Well Known Printer Manufacturer (cryptic clue: 'Backward Rats reach for it (4)') is selling a device for £55 which allows you to drive a parallel printer from a serial port. Brilliant. Now you can get back to the good old days of Baud rates, parities, stop bits and double-dutch printouts.

■ Does your mouse get restless at bedtime? Now you can buy a Mouse Park. Hang your mouse neatly out of harm's way.

■ And finally... wait for it... a typewriter simulator for the Amiga. For a mere £39.95, this 'revolutionary' program (we are told) puts your £400 of hardware back somewhere in the early '70s

Gor, issafunnyoworw, innit?

Quote... Unquote

Two of our favourite bits of PR-speak over the last month:

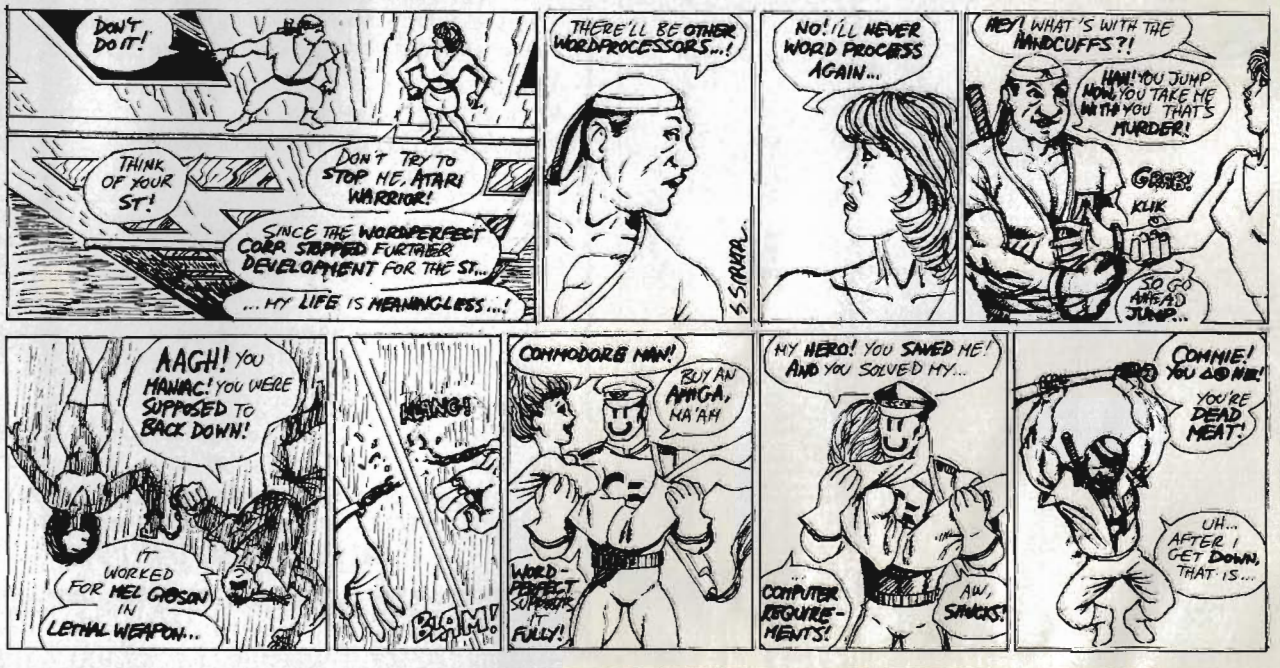
■ When asked to loan us a hard disk for next month's review feature, Atari commented, "We regret that we are unable to provide you with one" because "they are in full but limited supply." ?!?.

■ "It concerns me that some of the so-called captains of our industry continue to launch new products and make new promises without having the ability to deliver." Thus quoth Steve Franklin, MD of Commodore, in a big press release about their brilliance at advance buying RAM chips. OK Steve, we won't mention your AT Bridge Board, Workbench 1.3, the Enhanced Chip Set or the 2024 hi-res monitor.

BLESS MY SOUL

Seen at the recent Desktop Publishing show in London: none other than a pair of nuns. The two are pictured at the SDL stand eying up an ST DTP kit – in fact, they were asking some pretty good questions to a harassed salesman. All rumours that they were looking for a bigger Font size for their abbey are entirely untrue.

Superheroes, Inc. by Sarkar



ROBBEARY
Bertie, an agile and clever bear has targeted a famous 24 floors store for his last and most daring ROBBERY. With no alarms or visible guards and fabulous treasures, yet it has been avoided like the plague by the criminal fraternity. Bertie soon discovers why?
AMIGA £19.95

HIGHWAY HAWKS
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AMIGA £19.95 (2 DISCS)

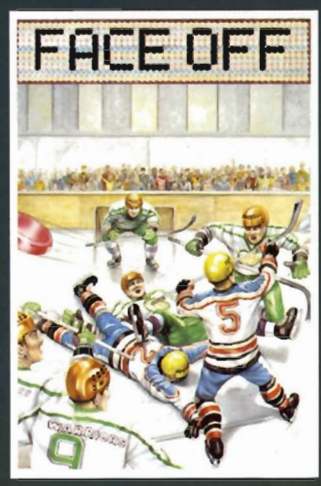
EMERALD MINE
A giant arcade adventure which has received rave reviews. Each level has its own unique solution and requires ingenuity and dexterity to complete. One player or two players TEAM action for added enjoyment.
AMIGA £14.95
CBM64-PLUS 4 £7.95 (D) £9.95

MANIAX
Maniax relentlessly pursued by the creature undertakes to clear the thick fog engulfing the world capitals. An addictive game requiring quick thinking and action.
AMIGA-ST-IBM £19.95
CBM64-PLUS 4 £7.95 (D) £9.95

STRIP POKER II PLUS
A sizzling evening with Sam & Donna
AMIGA-ST-IBM-ARCH. £14.95
SP-AMS-MSX-BBC-ELECTRON
CBM64-PLUS 4 £7.95

QUANTOX
Progress through 24 levels of this fast and furious action. Lightning responses are secondary to the strategic choices between better weaponry or better defence.
AMIGA £14.95

FACE OFF
Experience the sheer pace and exhilaration of ICE HOCKEY. Be prepared for the body checks, fouls and rough play. League competition, 1 or 2 player option.
AMIGA-ST-IBM £14.95



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