

**ONLY** ISSUE 405  
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 1990



● Sega's winners: (left to right) Derek Thomson, Paul Fawson, David Hammond and Daniel Allan.

# CHAMPIONS

**FOURTEEN-year-old Paul Fawson has trounced all comers to become Britain's first National Sega Games Champion.**

**By Marc Jones**

The sprite-blasting youngster (above, second from left) beat the other three regional champions in the final held on a Virgin Atlantic Jumbo jet, parked on the apron at Gatwick airport. The final was screened on ITV's Saturday morning youth show, Motormouth.

Battle commenced with

Sega versions of World Grand Prix and moved on to blistering deciders with California Games and R Type.

The three regional champs beaten by Paul, who hails from Camberley, Surrey, were Derek Thomson, 17, from Edinburgh, David Hammond, 13, from West Bromwich and

Daniel Allan, 13, from Guildford. All emerged from Virgin Mastertronic's 6 month nation-wide quest to find the UK's best Sega console players.

Paul amassed the highest score from the three games and was declared champion – the prize being a four day trip to New York and a 16-bit Sega Megadrive – when it is available in the UK.

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## ACORN'S A3000 BUNDLE

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## SOUNDCHECK

– PLAY THE CLASSICS THROUGH YOUR COMPUTER, P.23

## HOTLINES



ALL THE GAMES NEWS YOU NEED, SEE P.11

### AMIGA

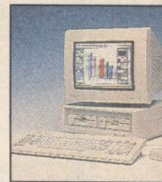
SOUND AMPLIFIER, SAMPLING, DOS 2.0 NIXED, ANIMATION, 3000 ON UNIX.

### ATARI ST



NEW SHAREWARE NEWSLETTER, ST TO SCART, CLOCKING ON, CD-ROM REVIVAL?

### PC CLONES



GO FASTER BOARD, FREE VGA CARD WITH PANASONIC MONITORS, NEW TAXANS

### BBC

DISC DRIVE ACCESSING ON THE BEEB, MULTITASKING ON THE A3000

### PCW

POOLS PROGRAMS, DTP UPGRADE, SOURCING SPARES

### SAM

SCREEN HANDLING FROM BASIC

### PLUS ...

ALL THE LATEST NEWS, PROBLEM PAGES, YOUR LETTERS, A PUZZLE FOR YOU TO SOLVE WITH A BASIC PROGRAM

**GAMESCAN**

ALL FORMATS  
TOP TWENTY

No.	Title	Last Week
1	Rainbow Islands Ocean	1
2	Midwinter Rainbird	12
3	Chase HQ Ocean	2
4	Black Tiger US Gold	8
5	Xenomorph Pandora	NE
6	Batman – The Movie Empire	3
7	Gazza's Super Soccer Empire	9
8	Ghouls and Ghosts US Gold	11
9	Ghostbusters 2 Activision	6
10	Four Soccer Simulators Code Masters	5
11	Operation Thunderbolt Ocean	14
12	Robocop Ocean	7
13	Turbo Outrun US Gold	4
14	Manchester United Chrysalis	10
15	X-Out Rainbow Arts	19
16	Boxing Manager Goliath	18
17	Untouchables Ocean	13
18	Player Manager Anco	16
19	Dragon's Dream Palace	NE
20	Dr Doom's Revenge Empire	NE

COMPILED BY GALLUP

# ACORN "JUSTIFIES" SKY HIGH PRICING

When Acorn kicked off its A3000 bundle presentation with market research stating that 1.8 million homes could afford to spend up to £1000 on a home micro, assembled computer hacks feared the worst.

Surely Acorn was not about to increase the price of the machine many people regard as already overpriced?

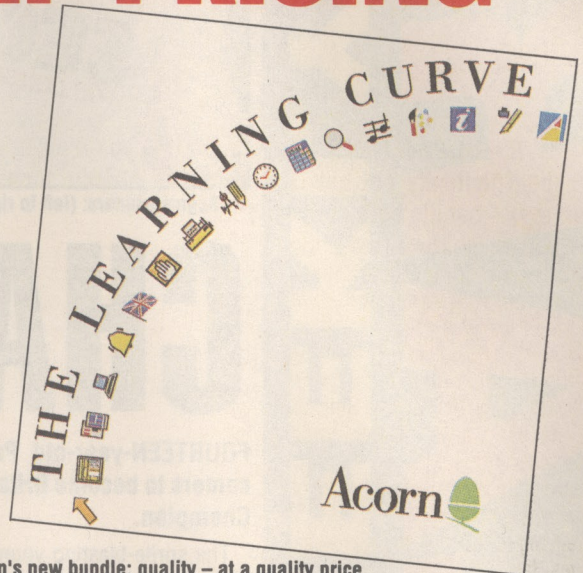
Not quite – but there is to be little financial incentive to buy Acorn's new Learning Curve home education package: the base A3000 unit costs £746, and the new bundle, which as we exclusively revealed last week includes a full function WP, DOS emulator and an applications generator, will cost £799 (and £949 with a colour monitor).

And although Acorn is a subsidiary of Olivetti, the firm also decided not to include a printer in the educational bundle.

According to Acorn's research, based on questions posed to tens of thousands of "persons-in-the-street" by the market research outfit MaS, high interest rates are not putting a brake on consumer electronics spending.

The data says that 27% of households with children "were expecting to make a single purchase to the value of £1,000" on consumer electronics goods. The 27% translates to 1.8 million homes, but curiously Acorn says its potential market is the 6.6 million homes in which the country's 9.2 million school children live.

If Acorn is targeting the 6.6 million, why set the price at the



● Acorn's new bundle: quality – at a quality price.

level 1.8 million can allegedly afford? It is Acorn's historic stance to maintain high prices for its goods – even if it is at the expense of market share. The firm sees the A3000 as a far superior machine to the ST and Amiga and sees no reason to get involved in lower price points. The consumer may see it differently.

On the issue of printers, Acorn says that the many different requirements users have obviate the need for a bundled printer. "The

strength of the Learning Curve bundle is the greater flexibility it lends the buyer to configure their own printing system," said one Acorn executive.

But in education, many teachers see no point in supplying word processors with no printer – writing and seeing the result printed out is a basic tenet of educational computing, one teacher told PCW.

The Learning Curve pack is available in selected branches of Dixons and John Lewis now.

**WHAT'S IN ACORN'S LEARNING CURVE BUNDLE?**

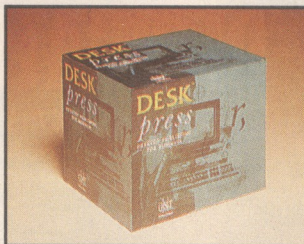
- FIRST WORD PLUS (word processor)
- GENESIS (DTP-based application generator)
- A PC EMULATOR
- DR DOS (Digital Research's version of DOS)
- TUTORIAL VIDEO
- "YOUR CHILD AND THE NATIONAL CURRICULUM"  
(Notes on computers in education)

PRICE: £799 or £949 WITH COLOUR MONITOR

## GST GOES UP MARKET

THE HIGHLY successful British DTP package *Timeworks Publisher*, from GST is to have a big sister in the form of *DESKpress*, a more substantial program which boasts a competitive price of £279.

A step above *Timeworks*, *DESKpress* contains more features including sophisticated layout tools, automatic paragraph numbering and auto text-flow. *Timeworks* has recently been updated and packaged with *Gem/3*. Version 1.2 was undoubtedly a serious contender in the value-for-money DTP market, but will *DESKpress* shape-up the same way?



DESKpress: a right GEM?

"With *Timeworks* we now have 34 percent of the budget DTP market in the UK and we don't want *DESKpress* to dislodge it. *DESKpress* is consequently aimed at the corporate user but remains competitively priced." Joanna

King, marketing manager for GST told *PCW*.

Digital Research is already distributing a DTP package in the same league called *GEM Desk Top Publisher*. King believes there is little threat of head-on competition: "GEM possibly tried to do what we are doing but came in too early. The market wasn't mature enough for mid-range corporate DTP."

*DESKpress* is due to be released by GST at the Which Computer? Show in April, where details of a "trade-up scheme" to *DESKpress* for existing *Timeworks* users will be made available.

# 32-BIT POWER FOR NOTEPAD!

**A POWERFUL 32-bit notepad computer that could make the Z-88 look distinctly old hat is destined to hit the shops this summer – but it's going to cost about £1000.**

The machine is called the *Active Book*, and comprises a keyboardless laptop computer the size of an A4 piece of paper.

The *Active Book* is the brainchild of former Acorn man Dr Hermann Hauser, a rival of Sir Clive Sinclair in the early days of the home computer industry when the BBC Micro and Spectrum were state of the art machines. A technology licensing deal signed last week gives Hauser's Active Book Company (ABC) rights to use Acorn's 32-bit Risc Machine (ARM) microprocessor technology to power the beast.

The ARM chips currently power the Acorn Archimedes range and the A3000 'BBC Micro', which while expensive are undeniably the most powerful sub-£1000 home computers currently available.

The claimed innovation is in the notepad concept which permits the user to control the word processor built into the machine using a stylus. Text will be hand-written onto an LCD screen and is saved as graphics rather than ASCII code – so the machine will need heaps of memory.

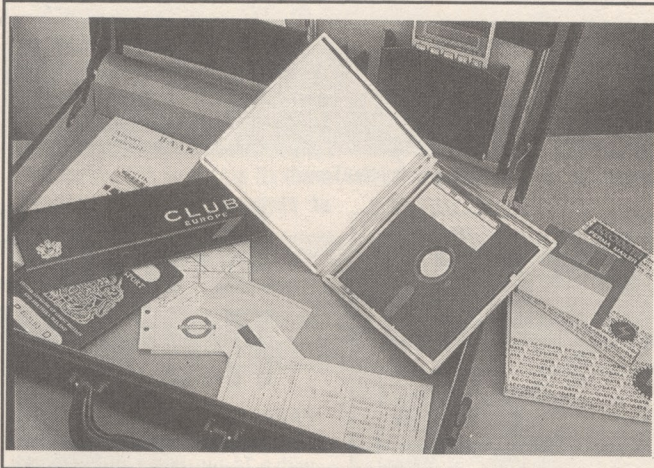
ABC does not believe this is a problem: "It's part of the reason why we use the RISC chip because it enables us to address large memories, run at high speeds and have relatively low-power consumption," says Chris Fox, spokesman for ABC.

Possessing all the attributes of a personal organiser, the Book will

point and write to use the features of the machine.

"The Active Book will be a computer designed for people and will not require people to be designed

By Marc Jones



► The £200 Z88: will the £1000 Active Book give it a run for its money? Or will it be Hermann's hermit?

also contain a built-in fax which could displace any possible opposition in the handheld computer market. The price is expected to be around £1000 as ABC believe that the Book will be "the most radical breakthrough in personal computers since the Apple."

Quite how ABC intends to handle conventional WP tasks remains to be seen – will there be an on-screen keyboard image to type on the screen? The firm isn't giving much away:

"It will have all of the features expected of an office computer word processor, spreadsheet, database, diary and so on. However one thing it will not have is a keyboard. The user will simply

for computers," ABC explains in a prepared statement.

In June, said Fox, the machine will be previewed to the press... we wait with bated breath.

## SOUNDBYTES

**"While the computer magazines have hammered out a style that would make the journalists on Jackie blush, too much of what's written on computing in education seems to suggest the subject is irredeemably dull."**

Arnold Evans, IT columnist, The Times Educational Supplement

## SEGA CHAMPIONS

◀ Continued from Cover

Virgin however, was so impressed with the high standard of the runners up that they decided there would be no "console-ation" prize – so they decided to fly the other finalists Stateside as well.

On arriving in the Big Apple, where said fruit was not on the menu, the gaming foursome wallowed in an orgy of junk food,

ketchup and mayonnaise at that bastion of North American culture, MacDonalds.

"They visited all of New York's sites," said a Virgin spokeswoman "and they sampled as many MacDonalds as they could manage – we did offer other food, but it got a big thumbs down!"

Expect to see a documentary entitled *Computer Games – The Deadly Link To Junk Food* appearing on your TV screens any day now...

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Typewriter maker Smith Corona has released a dedicated word processor laptop - with a printer! Leslie Bunder reviews.

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Bouncing cuties with Logotron's *Cloud Kingdoms*, Galactic space ships in *Xenomorph* and a tale of greed and woe with *Treasure Trap*.

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Direct access to the BBC, STE connections and more problems answered by agony uncle Kenn.

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Good old Professor Hex is back with another locker problem to torment the intelligence.



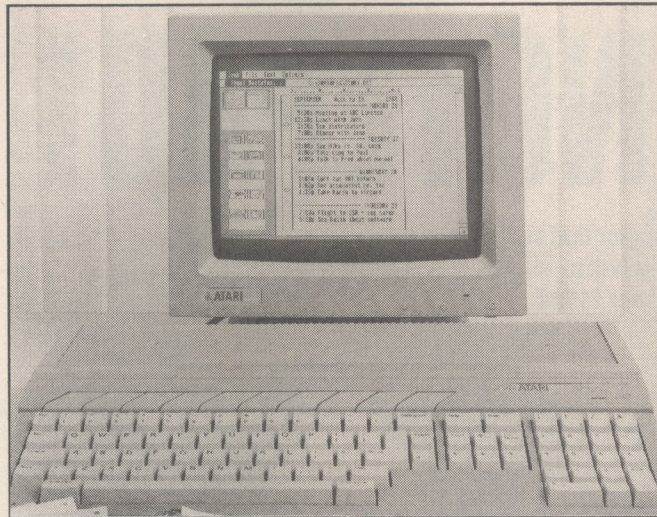
■ Paul Fawson: taking competition winners Stateside.

# FAX FOR 16-BIT MACHINES

IF YOU want to send one fax to hundreds of different people at the click of a mouse button on your ST or Amiga, MichTron UK has released *Fast Fax*, a combination of hardware and software which promises a "quick and reliable" faxing operation.

*Fast Fax* is not a new concept as it emulates PC fax card functions. Fax cards, however, cannot be fitted inside an ST or Amiga so *Fast Fax* contains an external modem as well as the faxing software.

The software has both a receive and send mode which can schedule the faxes to be sent at anytime of the day. A 1000-entry address phone book and a comprehensive storing system for



■ The Atari ST gets faxing with MichTron.

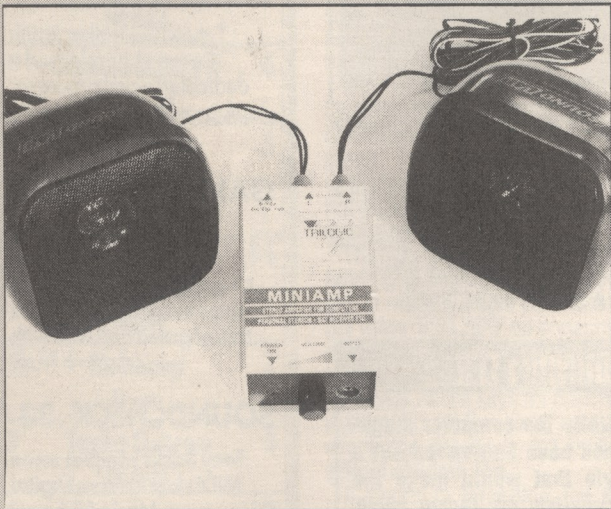
messages and documents sent are just some of the software capabilities.

Communicating with group III fax devices at 9600 baud, the external hardware connects to the computer via the RS232C Port supporting up to 19.2bps.

MichTron claims that *Fast Fax* will provide the user with the attributes of a Group III fax machine all for £690. An IBM PC version is due to follow the ST and Amiga formats.

● MichTron's brother-in-arms Microdeal, is releasing a midi interface for the Amiga 500 and 2000 for a mere snip at £24.95. Contact Microdeal and MichTron on 0726 68020.

## 5 WATT BOOST



GRAPHICS can make or break a game but sometimes jacking up the sound can add a new dimension. If you want a real sound blast from your micro's stereo channels, Trilogic claims to have the answer with its newly upgraded Mini-Amp 4, which delivers a sound power of 5W per channel (RMS value), roughly five times that of its predecessor – and all for just a 25 per cent price increase.

According to Trilogic's engineers, the new Mini Amp has two amplifier chips in a "bridge" circuit that cancels out distortion while at the same time using no more power than the old design. The MiniAmp will work with the Amiga, Atari ST (and STE) and Acorn Arc series in addition to your Walkman or music keyboard.

The new unit includes two twin-cone speakers normally found in car radio systems, which are made by Altai or Taiwan. Users can employ their own hi-fi speakers however, as the amplifier is available on its own.

Trilogic supplies all the leads necessary, a power supply and an adaptor for headphones. The price including speakers is £43.99 and £24.99 without. Trilogic is on 0274 691115

## ADVANCED 24-PIN FROM PANASONIC

PANASONIC Business Systems has updated its dot matrix printers with a 24-pin wide column model, the KX-P1624.

The new machine has five resident fonts in a variety of print sizes and a high speed draft of 192cps – and a letter quality at 63cps.

Panasonic claims the KX-P1624 is "unique" because it can feed fanfold stationery from the rear, bottom or front with push and pull tractors. It also incorporates con-

ventional single sheet feeding, paper parking and zero tear-off facilities, making it suitable for A4 and A3 cut-sheet paper and envelopes and labels.

The KX-P1624 includes a 12K text buffer, IBM and Epson emulations and a parallel interface. A 32K buffer and a serial interface are offered as optional extras.

The printer should be available now, priced at £525.00.

## MINDSCAPE'S WORD SMASHES WINDOWS

Sussex gamers Mindscape will launch *Windows Word For Word* at the Which Computer? Show. This add-in conversion utility has been designed for use specifically with Microsoft *Word for Windows*, and is supposed to increase document import and export options.

Mindscape claims *Windows Word for Word* has been developed from the original *Word for Word Professional DOS* utility, an

industry standard in document conversion. The latter translates document formatting commands between over 50 different word processing formats plus three types of ASCII and Lotus 1-2-3 worksheets.

*Windows Word for Word* will be available in dual disc format and will run on any PC configured for Microsoft Windows. Mindscape has yet to set the price, though.

## ST REBELS

HIP HOP dreamer Rebel MC, floating in the charts at number 20 with his hopes of a *Better World* has let slip that he uses an Atari ST to program his backing tracks.

The Rebel raps the words "programming my Atari" which is good

news for the ST's image as a streetwise and real rad machine.

● *Popular* has had its share of publicity as our famous rag appeared on a TV preview. However, none of the staff managed to glimpse a TV set, so if you saw Pop on TV, drop us a line and tell us which show it will appear in?

# POLICE EMPOWERED TO RAID 'BASIC' HACKERS?

MICHAEL COLVIN'S anti-hacking bill emerged from its committee stage in the House of Commons last week with a proposed new clause that could give the police powers of entry, search and seizure – to aid enforcement of the unauthorised access offence.

This new clause, put forward by the government, is aimed at relaxing criticism of the so-called basic hacking offence detailed in the Computer Misuse Bill.

The penalty of six months prison and a £2000 fine for simply "looking around" a hacked database was largely agreed upon as a good thing, but the fact remained that without powers of entry, the law was virtually unenforceable.

Other angles argued out by the MPs on the Committee involved the actual definition of a computer, for the purposes of describing in the bill what exactly had been hacked. In addition the compensation for hacking victims was discussed.

In all some forty six minor amendments were accepted by the committee, from a total of

By Paul Marks

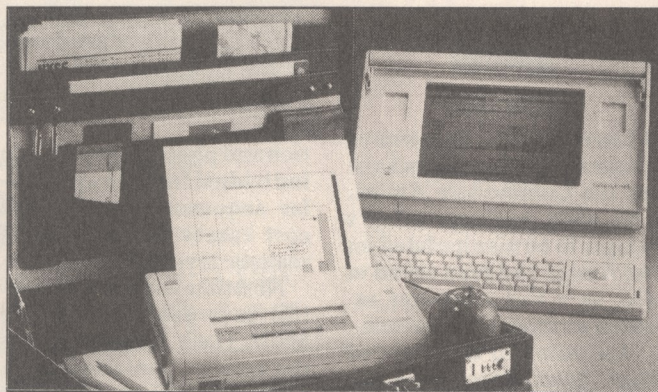
sixty originally proposed. All the amendments that were accepted were moved either by Colvin himself or the Government. At presstime (Monday) Colvin was unavailable to explain any of the other amendments to PCW.

The next step is for the amended bill to be presented to MPs in the report stage on May 4, when MPs not on the committee get a chance to air their views and propose new amendments. But for the bill to obtain its third reading, which it requires to

become law, new additions must be kept to a minimum – as the third reading will take place on the same day as the report stage.

Any MP wanting to "talk out" the bill could do so by delivering a lengthy speech – as has been the case with various private members bills in the past. But this bill appears to have cross-party support and looks likely to be on the statute book by the autumn.

● *Should the police have these new powers? Write to Postbag with your views, p.9.*



● Apple portable is supported by the Diconix M150 Plus printer.

## GAME SEQUEL IN HISTORY LESSON

RACING through time and space has always been a bit hairy as the adventure game Chronoquest proved with that trusty time machine Explora. Just like Hollywood, the sequel has arrived and *Chronoquest II* continues the hairy saga with the return journey to your family chateau in the year 1922.

The time machine Explora is playing up a bit, and sends you yet again into the unknown. To return to the warmth of your home you must face the "names" of history – such as D'Artagnon from the famous Musketeers and walk with the legends of Ancient Greece.

For the ST, Amiga and PC Chronoquest II is available now for £29.99 (ST and Amiga) and £39.99 (PC).

## CARRY-OUT PRINTERS

Following the success of its general purpose portable inkjet printer, the Diconix 150 Plus, Kodak has announced details of a dedicated Apple Macintosh portable printer. The Diconix M150 Plus, which weighs an amazing 3.1 pounds and has, according to a spokesperson for Kodak, "been designed as a travelling companion for the new Macintosh portable computer as well as the other Mac computers such as the Mac SE, SE 30 and Mac Plus."

Features of the M150 Plus are

### WRAP KEEPS DISCS FRESH FROM MAGNETIC RADIATION

IF YOUR discs suffer from magnetic disturbance they may be comforted by the arrival of Perma Mailer, a disc mailer which benefits from sophisticated hi-tech processes used in defence and aerospace.

180 cpm draft speed, graphics support and a rechargeable battery power supply giving 50 minutes non-stop printing.

The M150 Plus comes complete with the new Adobe Type Manager software which is a utility that builds type at any size from Postscript outline fonts. All 13 Postscript outline fonts provided with the original Apple LaserWriter are included with the ATM package.

The new Diconix costs £399 plus VAT – more details from System Connections on 0753 21610.

Discs are protected against magnetic radiation due to a revolutionary patented process called Permacac, which uses a thin film of a special four-metal alloy.

It is particularly useful in protecting discs from power surges on the Underground and from airport security systems. Priced at £2.95 for either a 3.5in. or 5.25in. disc size, Perma Mail is available from Accodata on 0732 885555.

## VOX POP!

ACORN'S consumer market philosophy baffles us poor simple Pop folk.

Bundles usually give you something for nothing – look at Atari and Commodore. Their machine prices remain at their base levels even when software is added: the ST is £299 in an excellent value package which includes a games creator and four games. The Amiga will have two bundled with it next month: F-29 Retaliator from Ocean and Escape From the Planet etc. from Domark – all for the same old £399 price tag.

Then Acorn comes out with its package, which costs £50 more than the bare system price of the A3000, involving a £799 shell out, or £949 with a colour monitor.

Now, this machine is a superb micro – few would doubt it's truly innovative architecture and resultant power, but it strikes us that Acorn could do with a haul up the Learning Curve itself. Wheeling on statistics that supposedly imply parents, students and teachers can afford £1000 for a micro is cynical in the extreme. Most people struggle to save for a £399 machine.

When the rest of your competition is selling at around half your price, and you are determined not to cut the base machine price, the very least you can do is offer a bundle at the same price – not add £50.

We asked an Acorn exec. last week why the A3000 price is so high. Surely, we asked, you have recouped the R & D costs on the ARM chips by now? The answer I received was that the ARM is the number two RISC chip in the world, behind the Sun SPARC. If it's that successful, a price cut should be on the cards. If not, Europe's premier home micro is destined to end up a minority machine.

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# \$ STATESIDE

BY STEVE GOLD



## AMIGA DOS 2.0 RUMOURS NIXED

★ Online rumours of a new version Amiga Dos - version 2.0 - have been squashed by Matt McNeil, editor of the *Amy* online newsletter.

McNeil reports that rumours of V2.0 of Amiga Dos have been floating around for a while now. He squashes such rumours by saying that v1.4 - currently under beta test - is the only version that is planned.

McNeil should know - he's a reliable source of Commodore information. Oops - I just gave away another one of my sources!

## SHAREWARE REVIEW NEWSLETTER

★ Commercial software for the ST is steadily reviewed in the pages of *Popular*, but what about the volumes of public domain (PD) and shareware packages appearing for the machine?

*PD-Quickview ST* is the an-

## AMIGA 3000 - UNIX FOR SURE

★ Details of the A3000 are now beginning to percolate down to grass roots level and, judging by what I've heard, the two computers are due to be shown at the Which Computer? show later this month (April) are definitely Unix machines and are aimed at home users.

Despite this, both machines will be very competitively priced, one with a 16MHz 68030 microprocessor, the

other with a 25Mhz chip at it's heart.

Both machines will come with 2MB of chip RAM and feature 32 bit expansion slots. As previously reported, the A3000 comes with the Amigas enhanced chip set (ECS) capable of displaying 1,280 x 400 pixels.

The A3000 will also be one of the first machines to come with Unix 5.4 as an option, placing it very firmly at the forefront of the Unix workstation market.

When you consider that traditional animation requires the painstakingly slow crea-

tion and photography of each individual frame in a particular sequence, *Journeyman's* cost comes down to more realistic levels.

Next time you fancy becoming your own Cecil B. De Mille, Hash Enterprises has the answer. Contact them at: Hash Enterprises, 2800 East Evergreen Blvd, Vancouver WA 98661. Tel: 0101-206-696-7443.

★ Obtaining all the latest shareware and public domain packages for the Commodore Amiga can get a little difficult, once you've exhausted the usual mail order routed in the U.K.

MGH Soft is an unusual stateside company in Bayfield, Wisconsin, which sells shareware and PD disks for \$2-50 a throw, plus postage. They even take Mastercard (Access) and Visa cards, so there's no problem with bank exchange costs.

The latest flyer from the company extols the virtues of the MGH games pack. For \$25 plus postage, MGH software will send you a ten-pack of disks chock full of PD/shareware packages for the Amiga. All of the disks are very professionally done, and auto-

# RETURN OF THE LESSER-SPOTTED PERIPHERAL?

★ Atari's CD-ROM player was launched at the old PCW show back in 1987 and, despite a host of publicity, it never appeared in the shops. The reason for the no-show was, if memory serves me rightly, the lack of software available for the unit.

That was three years ago. Now Atari is planning to relaunch its CD-ROM technology, which is embodied in the CD-AR-504 unit, according to Ron Kovacs' Z-net online newsletter.

Z-Net is published online on the Genie network in the U.S. Reader and contributor

Jon Clarke, who hails from New Zealand, says that CD-AR-504 is in production and has been supplied in limited numbers to ST users.

So when will it be launched to the public? I must confess I don't know - Atari US has a habit of keeping its jewels such as the CD-ROM player under its hat, as it has done over the past three years. This is a pity, but here in the U.K we might get lucky, as Atari UK's MD, Bob Gleadow, seems well aware of the industry and what is happening. Watch this space...

boot. It's worth calling the company for a copy of its free catalogue: MGH Soft, PO Box 654, Bayfield, WI 54814, United States. Tel: 0101-715-779-5600.

## GENIE COMES TO EUROPE

★ Following hard on the heels of *Compuserve*, which recently set up in Bristol, *Genie*, the online product of the Geisco network, has arrived in Europe. The service is initially available on a local dial-up basis in Austria, Germany and Switzerland, accessible via the international Geisco network.

Sign up costs vary, depending on who you sign up through, with online access costing \$27 an hour during office hours, \$18 an hour outside of these times, inclusive of switching costs back to the U.S.

Compared to *Compuserve*, *Genie* is a cheaper option for keeping in touch with the online world, once data switching costs are taken into account.

If you want to subscribe to *Genie* and can't wait until the Summer when the service will be launched in the U.K, then call *Genie West Germany* on 01-049-22-33-6091.

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## 2nd FAIR

SAT, APRIL 28th – 10 am-5 pm  
SUN, APRIL 29th – 10 am-4 pm

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## 3rd FAIR

SAT, JUNE 9th – 10 am-5 pm  
SUN, JUNE 10th – 10 am-4 pm

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### VENUE:

The New Hall of the Royal Horticultural Society, Greycoat and Elverton Streets, Westminster, London.

### NEAREST TUBES:

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Admittance £3.00

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John Riding: 0225 · 447453  
Mike Hayes: 0457 · 875229

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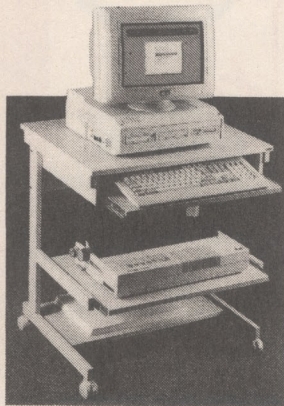
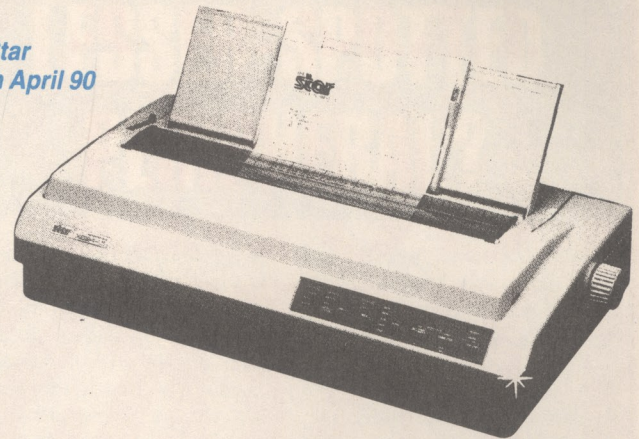
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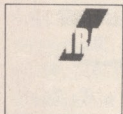


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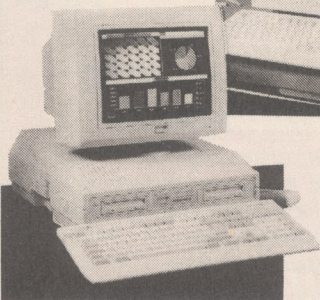
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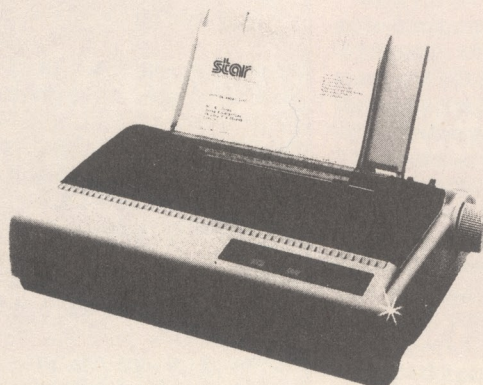
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# POPULAR POSTBAG



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## DIY guy

After Kenn Garroch's recent advice to upgrade my Commodore PC-1 to a faster AT 286, I recently almost fell into the trap of trying to make an upgrade piecemeal by keeping my Samsung mono monitor and 3.5in Cumana disc drive and asking a Motherboard mechanic to make up an AT 286 kit to replace the PC-1 CPU box.

It was proposed to have 1 parallel and one serial port (plus mouse), 1 Mbg RAM, a 16Mhz processor, a 5.25in internal drive and with my own 3.5in drive fitted inside as well and a suitable case.

There was also to be a hard disc controller for the two floppies and in preparation for the later addition of a hard disk. The price: £650 Vat inclusive, delivered.

It seemed like a good idea, saving on the cost of a new monitor and sticking to one I liked and being able to attach the existing 3.5in drive.

But on second thoughts, it means that the existing £360 system has to be counted in the total cost and, since the price for the new CPU board and case and fixing up was £650, allowing only £20 off for the PC-1 CPU box, I concluded that it was an expensive option and would amount to the same as paying for a brand-new proprietary PC if colour VGA and HD were added. And that the resale value of a made-up computer would not be much.

In consequence, I am still undecided but am tempted to buy the A590 HD for the Amiga 500 and

forget upgrading the PC until prices fall. They still seem to be expensive for what they are, don't they? (And so does the A590 HD!). But I don't think the Amiga is quite as good for straight DTP and B&W graphics dumps - I have seen the rings and edginess of the bit-mapped output even from good Inkjets, and *Timeworks* from a PC seems to win hands down.

John Gray, Eastbourne, Sussex

## Hand-me-downs

I am a teenage boy, 15 years of age and living in Zimbabwe. I am very interested in computers and I am a member of a computer club at Prince Edward School, where I am in the third form. I know the BASIC computer language and am learning PASCAL and I intend to learn COBOL and FORTRAN later on.

When I grow up I want to study for a BSc in Computing.

I managed to buy some of your magazines in a second hand shop - I couldn't find them anywhere else. I find it very interesting, informative and enjoyable to read.

I would like it very much if I could receive some magazines from you, since they are not available in Zimbabwe. I will not be able to send any money because I cannot get hold of any foreign currency!  
Hai K Ndoro, 98 Twentydales Road,

## Number knowhow

I am a student of Information Technology and Human Factors at Loughborough University. I am currently working in the Ergonomics Unit of the Ministry of Agriculture, Fisheries and Food for a one year placement as part of my course.

I have been assigned to investigate the different Statistical Analysis Packages available on the market which are suitable for the analysis of data obtained from surveys. After much work I have narrowed this wide field down to a small number of programs of particular interest: *Answers, Quest, Answer Tabs, Quanvert, The Survey System, RGSP, SAS, Item, USP, Quadrat, Snap2*.

I have written to all the companies concerned but have found, quite naturally, that they tend to be slightly more enthusiastic about their own package than perhaps an independent individual would be.

It is for this reason that I am writ-

*Hatfield, Harare, Zimbabwe, Africa.*

**Sorry, but we cannot hand out free subs - especially international ones. Perhaps readers with spare back copies will be kind enough to post you some issues**

ing to you. Have you carried out any tests on these packages? Or on other such packages that I may have overlooked? I realise you are probably not the right person to be addressing and it is not really high on your priorities to help me but I would be most grateful for any help you or your colleagues could give. If it involves the purchasing of backcopies then so be it. Unfortunately time is not on my side - I have 2 or 3 months at the most to complete and write up the project. Any assistance would be most gratefully received.

*Richard Williams, Room 240 Nobel House, 17 Smiths Square, London, SW1P 3JR. Tel. 01-238-5755*

**You're right - we know nothing about these packages. But no doubt there are those among our wonderful readership that have some experience with a handful of them. We've printed your work address and phone number so they can get in touch with you directly. Best of luck with the project!**

**they have finished with? You should be able to ask a major newsagent to order an airmail sub for you - they will pay for you and you pay them back in your own currency. (This issue has been mailed to this reader, just in case you were wondering how they would ever read this!).**

## Charting progress

I am writing to complain about the "Gamescan" in *Popular Computing Weekly* in the edition of February 15-21 1990. Number 1 was *Paperboy*, 2nd was *Fantasy World Dizzy* and in third place was *Chase HQ*.

Now the problems start on your 400th *Popular Computing Weekly*. At first place, *Chase HQ* had a "last week" rating of first, which to my calculation is totally impossible, whereas the week before it was in third position and not first, so please could you get the charts correct because I update a *Viewdata System* and I hate complaints about the positions which are WRONG!

*L Baxter, Peterhead*

**Firstly, you should not be entering Gallup's copyrighted charts into anybody's *Viewdata* system unless you have their express permission. We have to pay to reproduce the software charts - they are not just given to us.**

**Second, the problem you speak of arose because we accidentally ran an 8-bit chart in issue 399. As we normally run an all format top twenty, some of the games appear in both charts, causing your confusion. Sorry!**

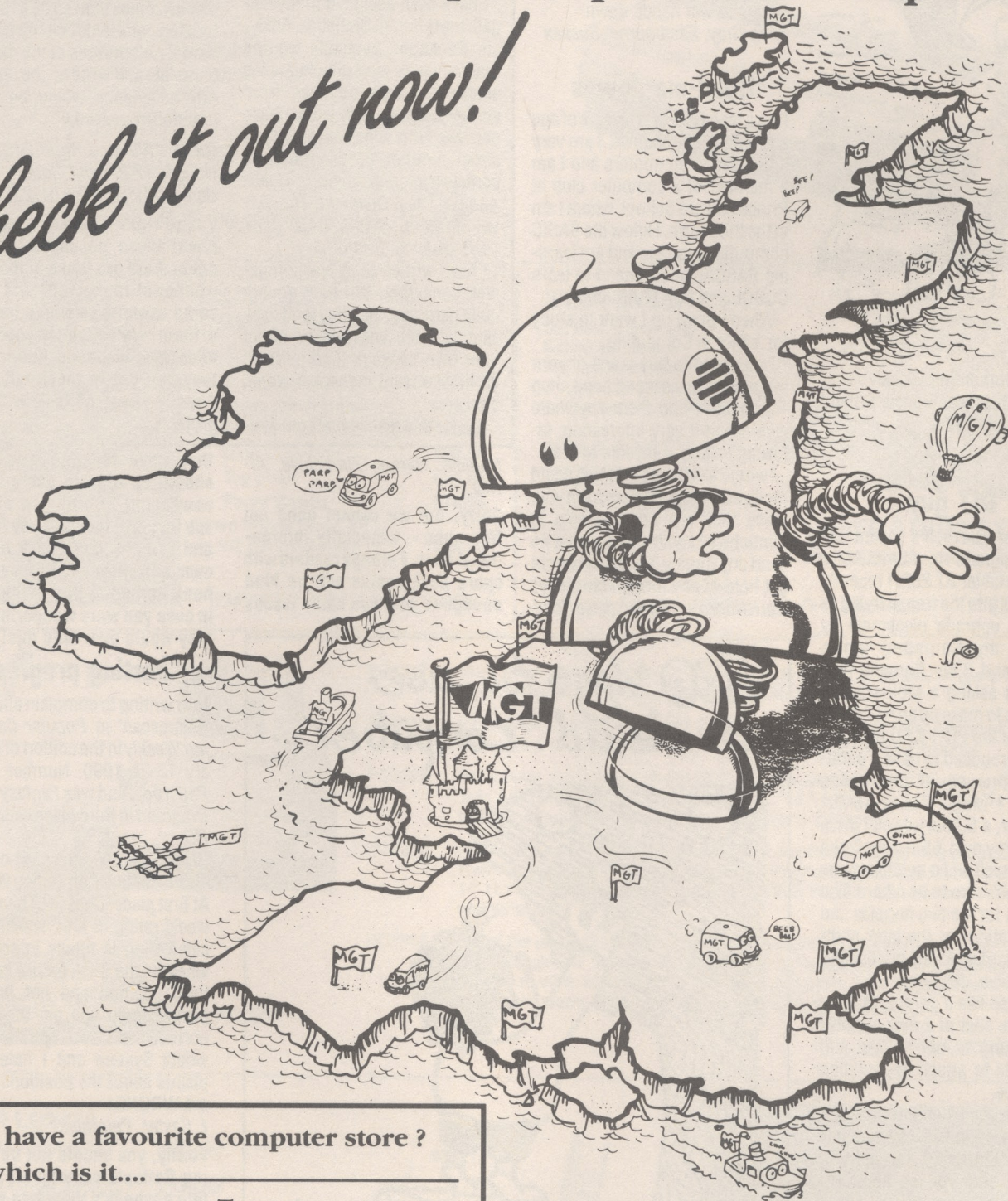
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MORE RANTINGS AND  
RAVINGS FROM OUR  
RELENTLESS REVIEWER,  
DUNCAN EVANS



sues affecting the environment. The game is set in the 21st Century and offers 150 screenfuls of information in the quest to solve the problems besetting the planet. Watch out IBM and ICI! Chris Crawford said in a press release . . . something quite worthy but not particularly interesting. Alas for you poor mortals its coming out on the PC and Mac first with other versions appearing later.

Hewson seems to be regressing with its software development. Its latest announcement concerns 16-bit versions of *Paradroid*, called *Paradroid 90*, which will be available sometime in the summer. Andrew Braybrook is hard at work on the conversion, though it's unlikely to cause him sleepless nights. What about 16-bit versions of Uridium then? Tart up the graphics and you'd still have a good game there. I think Hewson should jolly well convert it, don't you?

What about *F-29 Retaliator* then? Where is it you're asking yourselves. Well, as I write, the peeps at Ocean were swearing blind they

◀ **Bulletproof vest-less: Ikari Warriors**

in the bags by the end of the week," they muttered uncertainly. If true, and you never know, it might be, the game will finally be in the shops round about now! So get down to your local Software Supermarket and demand to know if they have it yet. Towards the end of the month (which one is anyone's guess) *The Lost Patrol* and *Ivanhoe* will put in an appearance.

What's really odd about *F-29 Retaliator* is that it's going to be incorporated in a new promo pack from Commodore. The *Flight of Fantasy* pack will contain an Amiga 500, *F-29, Deluxe Paint II, Rainbow Islands*, and *Escape from the Planet of the Robot Monsters* – another game which hasn't even been finished (never mind released) yet. The pack will set you back £399.99 and is available from mid-April.

Big news from the coin-op world concerns stalwart coin-op hoard manufacturer and distributor Electrocoin. Electrocoin Software is the somewhat obvious and lacklustre Moniker for the new home computer division. The first release is going to be *Time Soldier* which features two earth commandos battling through eras such as "Primitive", "Ancient Rome", "Medieval Japan", "World War III" and "Future World" before a final confrontation in the "Domain of Geylend." It's a Commando style game with lots of different weapons, hostages to rescue and an End level Guardian (TM). Amiga versions will sell for £24.99. ST goes for £19.99. C64 disc is £14.99 and C64 tape is £9.99. Watch out for it at the beginning of April.

**Duncan Evans**

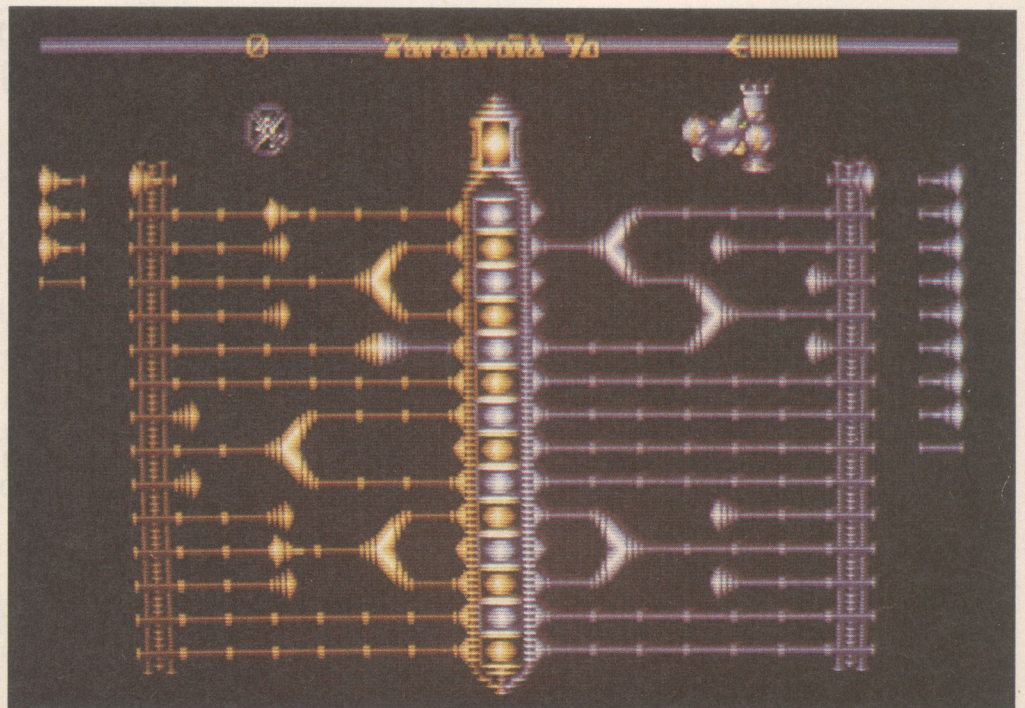
## SPRINGTIME STOCK TAKE

**T**alk about off-loading your old stock. An interesting subject I don't think, but would you believe that Elite is set to repack and re-release *Battleships, Ikari Warriors* and *Beyond the Ice Palace* again. After being released as original full price games this trio have been in two compilation packs and are now going to be available for the bargain price of £9.99 each on ST and Amiga. What value for money! The current budget price point is £4.99, not a tenner. And what will Elite come up with next? Releasing the games at full price in case you've managed to miss them so far?

Never mind, on to more palatable things. Just as we were drooling, waiting for *Guns and Butter* from Mindscape, Accolade has announced the very latest Chris "Balance of Power" Crawford game, *Balance of the Planet*. As the name suggests, this is one for all you greens out there (a special *Ruin the Planet* version will be made available to Tory ministers and big

business shortly). In *Balance of the Planet*, the player becomes High Commissioner of the Environment with the power to inflict taxes and grant subsidies for is-

were in the process of sticking labels on jiffy bags." "But what about the game?" I asked, or are we getting exciting new jiffy bags to review? "Er, um, the discs will be



▶ **Graphics inspired by the abacus: Paradroid.**

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**MODEM MAN MALCOLM  
ARNOLD GIVES AN UPDATE  
ON THE COMMS SCENE  
WITH NEWS OF A  
DISABLED PERSONS AID  
SCHEME. . .**

Chatback/ChatNet relationship can be confusing – I can confirm that Pete and Sandie Franchi are intending to act as a collection and distribution point for any unwanted equipment (modems and computers) which might help disabled users to get online. Donations can be made via TUG-2 (0905 775191 – HST – 24 hours) or FOCUS (0905 795002 – 24 hours – HST, V23 available between 08.00 and midnight), or by calling voice on 0532 606128.

Cliff also clued me in on the following: "I have started a Group for Disabled Sysops, called

Disabled Data Link Group.

"The DDLG will be retaining its link with the CHATBACK Access Centres (college-based boards) allowing users to send and receive messages to the educational establishments supported.

"Our aims in short are to provide the disabled with direct access to educational facilities, seek financial aid from individuals and organisations, to finance the provision of computer equipment for those who cannot afford it, to enable them to communicate, not only to these

# CHATTERING CLASSES

There seems to have been a certain amount of controversy generated by the ChatNet content of my last article! Cliff Jones of CLIFF'S CORNER (0502 518274 – V21/22/23/22bis – 24 hours) is a sysop who has been given equipment by the CHATBACK organisation to set up a disabled-support BB, and he takes the ChatNet echoes – so he is also a ChatNet sysop. Still with me? Well, he takes issue with my saying ChatNet had been previously called Chatback. In fact I am still of the opinion that Sandie Franchi's new network WAS originally called Chatback, and that it CHANGED its name in order that the new network could be seen to be a separate, and independent agency.

Cliff rebuked me with: "First CHATBACK is nothing to do with ChatNet. . . ChatNet is Sandie's alternative mail network, running alongside Fido in the UK. I myself collect mail through ChatNet." He also claimed my portrayal of ChatNet as being a disabled support network was inaccurate!

Though I would be the first to agree this is not the network's sole aim, I think it fair to say that disabled support is one of its main motivations. I asked Roy Peacock of CURE (0604 27865 – HST: ie all speeds up to 9600, EXCEPT V23 – 24 hours) – himself a ChatNet sysop – if Cliff was right in both of his assertions. . .

Roy's answer? "Well that's not true. ChatNet was set up under the auspices of CHATBACK by Sandie Franchi, myself, Clive Waller (of K-

**"OUR AIMS IN SHORT ARE  
TO PROVIDE THE DISABLED  
WITH DIRECT ACCESS TO  
EDUCATIONAL FACILITIES,  
SEEK FINANCIAL AID . .  
ENABLE THEM TO  
COMMUNICATE."**

WOOD BB) and a couple of others. Sandie set up the boards for the Chatback charity and sent them out. . . Now the colleges have a separate net in CHATNET."

Whatever the history – and let's face it, the



▲ Michael Colvin (MP) joins hands with industry to fight hacking.

education centres, but to others right across the world. . . There are thousands disabled in body, but not in mind. Others like myself genuinely imprisoned in their homes that so far have been forgotten by society as a whole and left to rot." A powerful case for Comms, there. If you're interested in joining this organisation, log onto Cliff's BB for more information.

And now for something completely different. A number of BBs whose specific appeal has been aimed at the Hacking fraternity seem to have recently faded back into the twilight from whence they came. One board which makes no

**"THERE ARE THOUSANDS  
DISABLED IN BODY, BUT NOT  
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MYSELF GENUINELY  
IMPRISONED IN THEIR  
HOMES THAT HAVE BEEN  
FORGOTTEN BY SOCIETY."**

bones about its SIGs (Special Interest Groups) is Leeds BB HACKERNET (0532 557739 – V21/22/22bis – Scrolling – 24 hours).

Though not exclusively catering for hackers, Hackernet has two special Closed User Groups (CUGs) for the subject. Entry into these areas is controlled by the sysop, Bauderline. This policy is apparently common amongst BBs carrying hacking CUGs, and requires some proof of understanding and 'technique' on the part of the prospective member before access is allowed. This – according to Bauderline – is to prevent 'rank amateurs' – who may inadvertently hang or damage systems by blundering in where practiced hackers might think twice before treading – ruining things for the rest.

An interesting BB; and its status – and that of others aimed at hacking – will become even more of a talking point if and when hacking is made illegal. . .

Last, but not least, remember my piece on Bertie Bassett's favourite BB? Well I got the area code wrong. LIQUORICE ALLSORTS can be called on 0633 244345 – HST – 24 hours. Contact me on THE OWL SERVICE (0532 605876 – V21/22/23 – 24 hours) or by Prestel MBX: 011112661 or Microlink ID: MAG33225.



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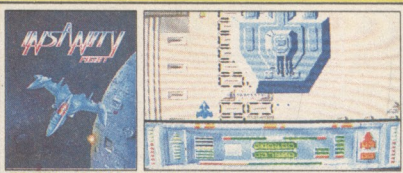
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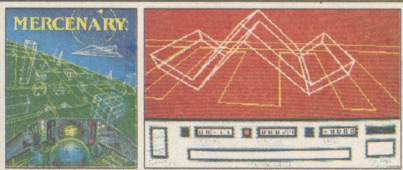
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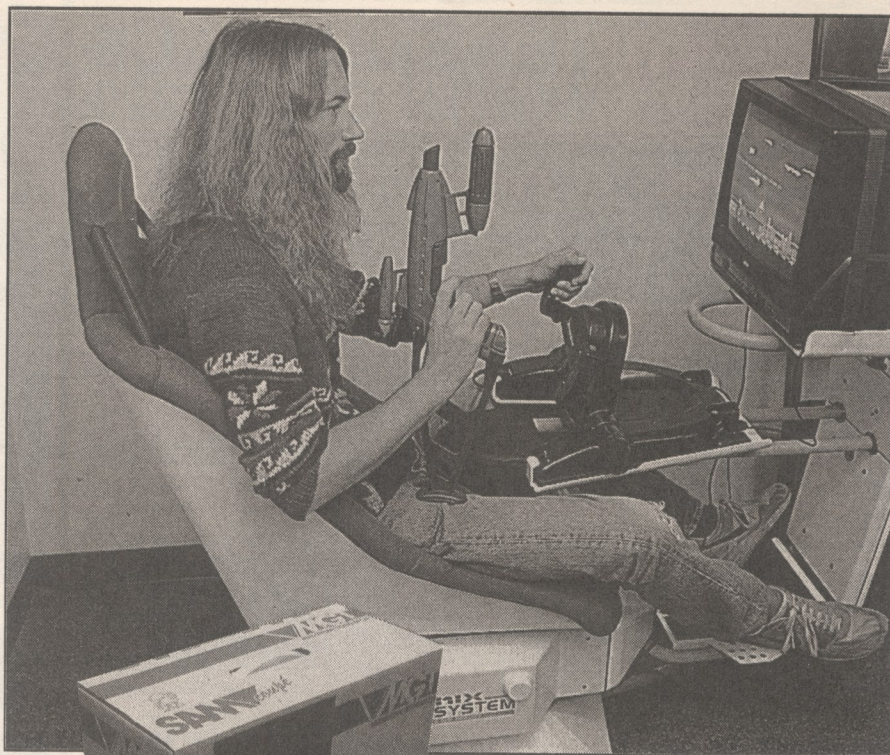
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# FLASHBACK

THE GAMES CONSOLES WERE ON THEIR MARKS IN 1989, AND SAM WAS THE SHY LAUNCH OF THE YEAR, WRITES TONY HETHERINGTON

This was the year of the console come-back. The Sega system already had a small but significant user base to build on and the Nintendo that had already conquered the US and Japan made plans for its invasion with murmurs about PC Engines and Gameboys.

- 36 people died when a plane crashed on the M1.
- EEC agreed to ban CFC gases. Thatcher jumped on green bandwagon by hosting an ozone conference.
- 95 Liverpool fans died at Hillsborough while watching an FA Cup semi-final.
- Thousands of pro-democracy protesters were massacred in Tianenmen Square as the Chinese hard liners clamped down on growing unrest.
- Just days after the Tory conference in which they claimed to have the "right team to meet the challenge" the "unassailable" Nigel Lawson resigned causing another reshuffle.
- The year and decade ended in amazing fash-



● Jeff Minter (above) defends the console market against Japan and the US from the pastures of Wales. The Sam Coupé (left) made the shops for Christmas.

## THE AGE OF HOME COMPUTING

ion when the Berlin wall crumbled and the Iron Curtain shattered as democracy swept through East Germany, Poland, Hungary, Czechoslovakia and Romania.

Other events to remember? In January, Konix released news of its Multi-system complete with swapable control device and plug-in hydraulic chair. By the end of the year it was clear there were serious problems as the Multi-system became the non event of the year.

The other hardware launch of 1989 and the last of the Eighties nearly didn't make it with flu and final debugging reducing the initial pre-Christmas ship-out to just 800. This was, of course, the SAM Coupé from MGT. In many ways this micro summed-up home computing in the Eighties. By using the Z80 it has links with the ZX micros that began it all in 1980, its memory and ST-style graphics illustrate the 16-bit revolution yet its Spectrum emulation mode shows confidence in the Spectrum. It was also bundled with software, a must for today's machines, and naturally suffered from delays.

1989 was an appalling year for the seemingly unassailable Amstrad that experienced a whole series of problems. The PC2000 range caused countless problems with faulty hard disc controllers and bugged operating systems and profits slumped confirming the city's worst fears as Amstrad admitted it had £300 million worth of stock in its warehouse.

Viruses remained a problem with the Friday 13th virus wiping out many files including the records of the RNIB but many feared that the media coverage was actually fuelling and encouraging the problem. Hacking should have been a big issue but the promised legislation

# THE 80s

never appeared. The new scandal was online pornography.

The big games of the year were both released on the Amiga illustrating its move to dominance as at last publishers began to use its features rather than just port over ST games. *TV Sports Football* set new standards in sports simulation and gave a boost to both Cinemaware and Mirrosofts 16-bit reputation. Electronic Arts followed with *Populous*, the game that gave you a chance to play God and turn mountains into lakes with a click of a mouse button. However, the big hit of the year wasn't either of these, not the game of the hyper hyped Batman but was the hardly original but super fast and smooth *Kick-Off* from Anco.

CD was going to be the new media but scare stories about CD's cracking and seemingly slow advances in technology left the CD as a gimmick to be used in demos and for a new way to sell old games in CD pack compilations.

The 16-bit machines were old enough to invade the budget market with EA launching its Classics and Kixx (US GOLD) its Klassics both for £9.99 each. Naturally, it was up to Mastertronic then Code Masters to decide that the budget price for Amiga and Atari ST games should be £4.99! Meanwhile, despite the quality of games and of 16-bit advertising for the machines of '82, the Spectrum and C64 still dominate hardware and software sales.

### NINETIES FAST FORWARD

Home computing has come so far in the Eighties that it's almost impossible to predict just how far it could go in the Nineties. But as the decade begins here are some widely inaccurate "but just might be true" predictions for the 1990s.

**1991** - C64 sells well over Christmas so Commodore launch attack on business market.

**1992** - Home computing chaos as Channel 5 broadcasts scramble computer TV displays. US Gold bundles adaptors with its latest game.

**1993** - MGT promises that SAM Coupé delays will soon be solved.

**1994** - Son of Sir Clive pioneers C5 mark two complete with inflight entertainment system.

**1995** - CD technology scrapped in favour of solid state memory offering gigabytes of storage.

**1996** - Japanese launch MSX III to try and establish a standard for PCs.

**1997** - Atari launches new micro featuring 64-bit technology, offering 16 million colours and "Philharmonic" sound.

The first games for this mega machine include Fruit Machine and Pacman.

**1998** - Ultima 12 launched and includes free sword, chemistry set and Encyclopedia along with the 35 game disks.

**1999** - Spectrum still best selling home computer.





# COMPUTER SHOPPER 1990

SHOW



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Lynne Evans

GST Software

"A great success. The show provided a forum for customers to buy different formats under one roof and in so doing proved extremely popular."

Roy Stoker

Silica Shop

"We were stunned at the level and quality of attendance."

William Poel

Paperback

Software

"People who came were definitely interested in buying and a lot of money changed hands. We will definitely be there this year."

Leslie Cupitt

Computer Express

COMPUTER SHOPPER JANUARY 1990

**F**rom the corporate point of view, Opus is just another clone maker. And, to the corporate buyer who still rests on big brand names rather than his own wits, Opus doesn't mean a great deal. Pity because as just another clone maker it has done so well for itself. Indeed, no doubt, the fuzzy British-built Opus has a board of customers ranging from the small businessman to a decent sized bag of well known institutions. Since forces, the Ministry of Defence, local health authorities and Opus landed a massive contract for 1,000 of its PCs for the Rail, (hope this is not a wash up, BR).

But it is a slow and grinding way to get the recognition that comes up at an angle, and it deserves a better angle. Now, it can offer IBA, ones which offer a virtually no flash on the front, a heat and extremely high degree of security built-in. With computers becoming more widely aware of the need for better security, not least because the law demands it, but also as we now have a population with a better understanding of

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Simply send for our information pack and book your stand now at the runaway success event of the decade. The 1990 **Computer Shopper Show**.

**CONTACT**

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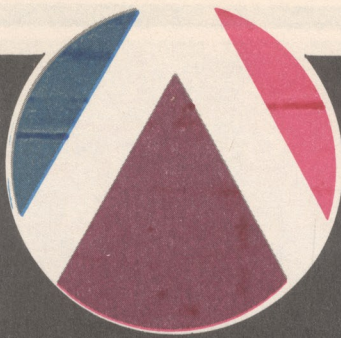
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◀ The Smith  
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word processor.

## SAT IN YOUR LAP

**A**ccording to a recent survey by typewriter manufacturer Smith Corona, 77 per cent of PC owners do not require the power of a PC because they mainly use them for just word processing and running spreadsheets. Over the last few years, the size of PCs has gone down from desk top to palm top, with every other conceivable size in between.

Poor old word processors have had to make do with just desk top word processors such as the ever popular Amstrad PCW. The only problem with these word processors is that because of size, they are not very portable. There have been attempts in the last two years to make the Amstrad PCW portable and even run off batteries, but its size and weight make it a very limited choice for the person on the move.

Cue, then, Smith Corona – and the release of the world's first dedicated portable laptop word processor. No more boring start up routines – as soon as you switch on the 7000LT you can then get into serious word processing.

On first appearance, the 7000LT looks exactly like any other laptop. You have a clam shell to open and once switched on there is a backlit screen to allow you to do word processing under nearly any type of light condition.

The display is 16 lines by 80 characters and the user RAM is 50K. Data can also be saved onto the built-in disc drive which allows 100K to be saved on each disc. The size of the disc is non-standard, but it is slightly smaller than a 3.5in. disc and also not as sturdy.

So what is the word processor like? It is, in fact, quite powerful, and offers a 90,000 word dictionary, a proof-reader which scans for in-

correct spellings, a word-counter which identifies over-used words and a built in thesaurus to offer a selection of synonyms in replacement of the original word used. The spell-checker is interactive and beeps when you type in the wrong character. You can simply carry on as normal if the "error" does not concern you. At times, it can get a trifle annoying having the machine bleep at you as you are typing along, especially when there is not a mistake being made. For example, the 7000LT does not recognise the names of most towns. But there is of course, an option to turn the checker, called *Spell-Right*, off, so that it does not bleep at you. There is also an option to add words to the built in dictionary. Of course, the 7000LT has such standard word processing features as BOLD, UNDERLINE, CENTRE, JUSTIFY and also a graphic page view like the Cambridge Z88, which shows you exactly what your article is starting to look like on a page.

As well as a comprehensive 137-page manual, there is also a tutorial on disc on how to use the machine – which is quite good for getting hands-on experience. One area in which Smith Corona prides the machine, is the portability and how one can use the machine anywhere. There is a rechargeable battery pack which takes about eight hours to charge up, and on the last count gave me over two hours of non-stop use – and I am still using it now. When the power is starting to drain, a warning will bleep to alert you.

The 7000LT has also got a built in RS232 port which will allow you to use a modem with it as well as connecting it to printers other than the one which comes bundled with it.

The bundled printer is a mains-powered

standard daisywheel, and as one can expect from a typewriter maker, offers a high quality print-out representative of its other electronic typewriters. Printing is not fast, but you do get the option of upgrading to other printers if speed is that important.

With a daisywheel printer, the nearest rival to the 7000LT becomes the Amstrad PCW 9512, which at £499 works out at £100 less than the 7000LT. But having said that, and having used both machines, the 7000LT comes out on top. Not only can you do word processing in your home or office, but also on the move. The print quality is slightly better than that of the 9512 and also because it is a dedicated word processor you can get into it much quicker and easily than the 9512. Those who are thinking of upgrading from a typewriter will find the 7000LT an ideal upgrade and one in which to gain keyboard skills as well. Also, Smith Corona has produced a spreadsheet, Coronacalc, for those who wish to use it for this purpose. Built in to the machine is a database which is quite plain and simplistic and ideal for taking down and using as a straight forward mailing list. The 7000LT as its slogan says, is exactly what you get, "an intelligent alternative to a PC." That is nothing more, nothing less. If all you are going to use a computer for is just word processing, then this is a very good option to consider and a machine well worth taking a look at. There is unlikely to be much third party software support, but because of what the machine is, there is really no need for any more software for it.

### Details

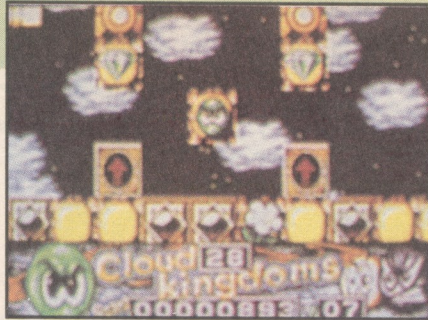
• Machine Smith Corona PWP700LT costs 3599 Telephone 0923 777111 for details.

# GAMES CLOUDED

**L**ogotron, once renowned for its innovative and strange games, appears to have been lured to the big bucks "Cute" market that is all the rage at the moment. This particular cutesy combines mazes, a bouncing rubber ball, lots of jumping and collecting, and 32 levels, most of them far too hard.

You play the part of Terry, the green rubber-bottomed ball. A rubber-bottomed ball that has had his magic crystals stolen by the mad and bad Baron von Bonsai (yep, you've just got to get that Japanese in there somewhere) and taken to the Cloud Kingdoms, where all the lovely liddle cloudy-woudy fairies have been turned into insect monsters and Giant Rolling Blackballs. Eek, I want my mummy, it's fright-ening.

The upshot of this is that you have to make



▲ Bouncy, flouncy, King of the Clouds.

your way through each kingdom, collecting the set number of crystals before a timer runs out. Should you lose a life – make that when you lose a life, you lose 10 notches on the timer (about 40 seconds) and are transported back to the beginning of the level. Everything else on the level is now incompletable you have to reset it, at the cost of another 5 timer units.

Keys are there to open doors, fruit restores an energy supply that runs out completely if you run over a blackball (Note to Logotron: you

should have made it half not all your energy), wings let you fly briefly over walls (but stupidly, if you land on a wall you lose all your energy – wrong again Logopersons). Paintpots that let you paint platforms over the great emptiness of space (alas you don't know when they'll run out so invariably you lose your life again) and shields which render you invulnerable to attack (but prevent you from going through doors while it lasts – another design gaff).

The blackballs are easy enough to jump over if you aren't moving very quickly, but when the timer starts to run down, you have to. The timer isn't reset for each level either. What makes it so hard in the pressure situations is that the graphics and objects are quite large, while the playing area is fairly small so you hardly have time to see anything coming.

For all this, Cloud Kingdoms is an entertaining game with good graphics and decent music and FX. It could have been very good had it been more extensively playtested. Some of the

## XENOMORPH

**D**eep in space, no-one can hear you snore. Onboard the supply ship Mombassa Oak, on its way to a new mining platform you were doing a whole lot of snoring. Three years in hyperspace meant three years in suspended animation – until the central computer woke you up with its dying message. The Oak's cargo pod had ripped loose in hyperspace causing serious trouble, half the ship's systems were shot to hell, and you were two days out from Atargatis with only a pizza and two tins of cat food left to eat. Lucky for you the cat hadn't survived the emergency defrost so you got the cans of Galakti-kat for yourself.

There was no response from the personnel on the platform, and as the crippled Oak slowly docked against it, you were faced with the excitement of finding out where everyone was and getting the big pile of junk repaired so you could go home again.

This is the scene set by the often amusing novella in *Xenomorph* from Interceptor. Like all the best games, *Xenomorph* has come out months late, but unlike some of the big names of recent times, this one is not a disappointment.

The Mombassa Oak is a rather large spaceship, covering four levels, and should be mapped out carefully. The 3-D graphics used make for easy mapping as you move forward in jumps of 10 feet. This can be confusing at times if the scenery is the same because you don't appear to have moved. When turning around, the screen scrolls, preventing confusion.

The only hazards roaming the ship, at least at the top of it, are security droids gone loco. These can be dispatched easily enough as they can only cause damage at close range. However, fun though it may be, running around wasting the droids is also a waste of energy which you will most certainly need when you get into the ten level station itself.

As a corporeal entity, you have status bars covering Health, Stamina, Radiation Absorbed Dose (one for the Sellafeld workers there), food level and water level. If you don't eat or drink, stamina and health decrease appropriately until you reach a stage, known in clinical circles, as dead. This being computerland, you should save the game at regular occurrences to forestall that eventuality.

There are a number of different pieces of equipment, including data discs, scanners and weapons. Most require battery packs to be added in order to be useful. Do you realise how frustrating it is to face a dozen aliens when you have a particle accelerator and no battery pack?



● Valeria's ill-fitting catsuit and some red-faced pursuers.

If it seems easy enough at first, blasting every wriggling little mother that shows its claws and tentacles into a bloody pile, by the time you start hunting through the third or fourth level of the actual complex and you're running out of grenades, power packs and homing mines, life starts to take on a decidedly uncertain demeanour.

*Xenomorph* certainly offers variable levels of interest and excitement. Getting lost on the second level of the ship is tedious in the extreme. Finding data discs which then reveal hurried notes from the mining station personnel add to the intrigue and generate further mystery. Finding an empty space suit in a bay surrounded by aliens wriggling out of cocoons induces a gut level feeling of nausea and horror as you attempt to scoop up the suit before they start wriggling after you. Being chased down a pipestewn corridor by a pack of aliens after your last power pack has run out is great for

*Captain Smirk... pokes his dongle!*



levels are easier than others, but the one that the manual recommends you start with should be the easiest of the lot – and it is far from that. The arrow kingdom is my personal nightmare – I never want to have to play that again.

## RATING

Program: Cloud Kingdoms  
Version: ST, Amiga, C64, PC  
Price: £9.95 – £24.95  
Supplier: Logotron  
Reviewer: Duncan Evans

Grafix: 80%  
Sonics: 82%  
Gameplay: 70%

Overall: 73%

sweaty unease, but then when you see three large red aliens coming the other way you'll start looking for a change of underwear.

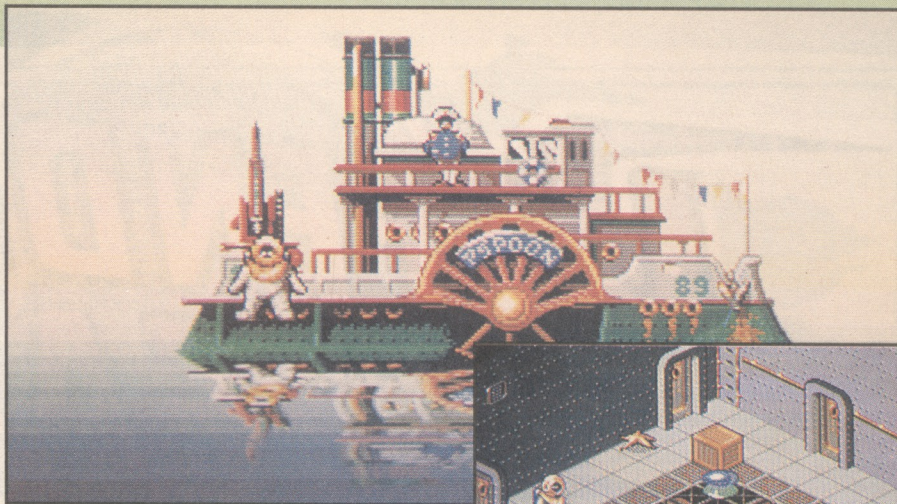
I escaped from the predicament by using my last grenade and sprinting desperately down a side passage, muttering the while about slime suckers getting theirs, just where was that console, and what had I done with my credit and ID cards? Play Xenomorph yourself and see what I mean. If you can, watch a video of Aliens while you're having your dinner. Start playing at about 8.00pm. Make sure you get all the equipment in the Oak, tedious though it may be, then turn down the lights and hit the lower levels at around ten. Get some coffee so when your character buys some from the Kopek Coffee machine you can really savour it. Stock up on burgers, ice a beer or two, get ready for a descent into hell and a gut ripping, panic strewn, nightmare adventure.

## RATING

Program: Xenomorph  
Version: ST, Amiga  
Price: £24.95  
Supplier: Interceptor  
Reviewer: Duncan Evans

Grafix: 78%  
Sonics: 70%  
Gameplay: 85%

Overall: 84%



● Steam paddling in the Treasure Trap.  
Weighed underwater with gold bars ▶

## TENDER TRAP

Now then laddies and lasses, d'you remember Grandpa' 'vans tellin' youse all about a company called Ultimate, and the isometric 3-D games called *Knightlore* and *Alien 8* that they produced? This was back in the good old days – you do remember don't you?

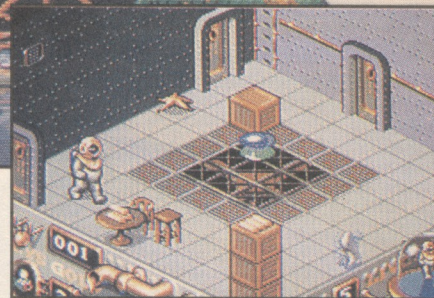
Well it was some years ago, and despite those games being a tremendous success there has been little modern interest in the format, save for *Airball* a few years ago, and more recently *Never Mind* (which was a different kettle of bananas altogether – it just looked familiar). Electronic Zoo has decided to take you back to those glorious days with *Treasure Trap*.

This isn't a simulation of a live role-playing game featuring 14-year-olds hitting each other with foam covered maces, but rather a tale of greed. Greed for gold, buried underwater is the driving force behind risking life and limb in over 100 peril-strewn rooms.

The game starts quite promisingly with a very attractive paddle steamer lowering you into the water to the accompaniment of a suitably nautical jingle.

In each underwater room there are a set number of bars which must be collected, the object being to collect every last gold bar down there. Some rooms don't contain any gold, while others just look like they don't. As in the good old days, you'll need to push crates, topple objects and generally think your way to the gold before attempting the hazards surrounding it.

For those truly tricky rooms, guarded by all manner of starfish, eels, and killer jelly's you have a secret weapon – hungry and waiting to



be unleashed! Instead of some boring smart bomb, you get the smart Piranha! Let this baby loose and every gill-laced water-guzzler on the screen can kiss goodbye to his mother as the ferocious fish explodes into a feeding frenzy. Alas you have a limited supply of these wonderfully humorous fish, though you can collect more.

Some of the puzzles in the rooms are fairly easy to solve, but others border on the fiendish (Fred). The one where you have to place an object to block a roving fish to push out the hidden gold is definitely not nice.

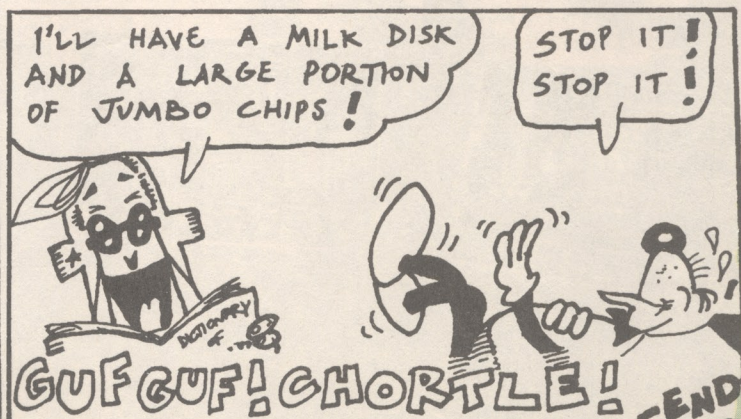
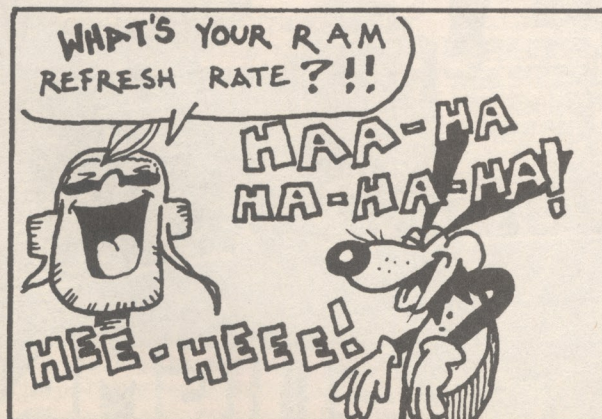
The graphics are all of a high standard, though I wish your diver moved less sluggishly. I know he's underwater but there is such a thing as artistic licence. That aside *Treasure Trap* is virtually faultless and offers splendid entertainment for peeps like you, and numerous chances to reminisce for old lags like me!

## RATING

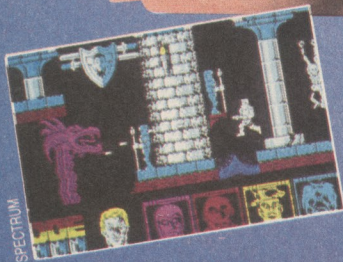
Program: Treasure Trap  
Version: Amiga  
Price: £24.98  
Supplier: Electronic Zoo  
Reviewer: Duncan Evans

Grafix: 84%  
Sonics: 85%  
Gameplay: 84%

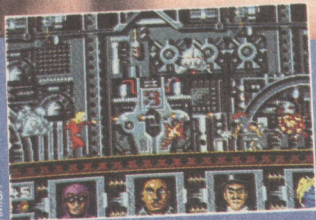
Overall: 84%



# DEFENDERS OF THE EARTH™



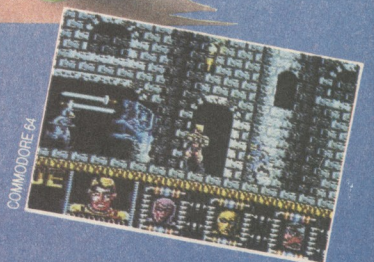
SPECTRUM



AMIGA



AMIGA



COMMODORE 64

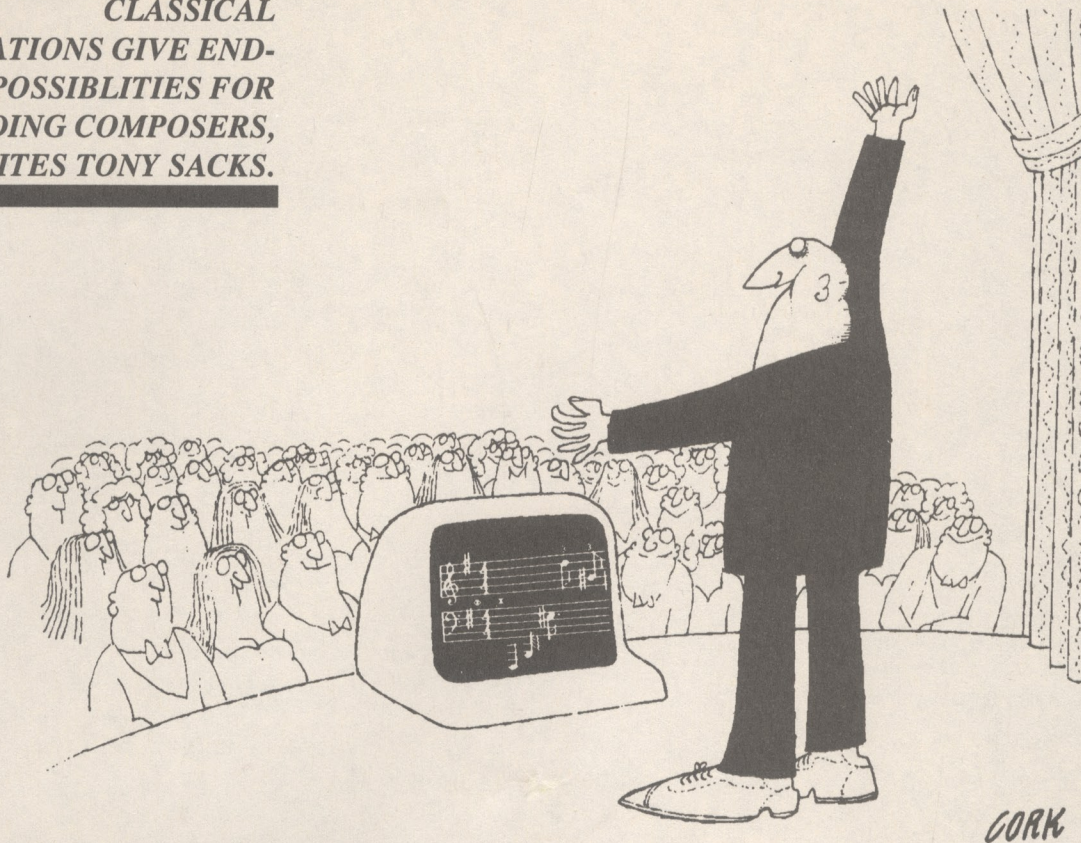
C64, AMSTRAD CPC  
AMIGA, ATAR ST SPECTRUM 48/128K

## ENIGMA VARIATIONS

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# SOUNDCHECK

CLASSICAL  
VARIATIONS GIVE END-  
LESS POSSIBILITIES FOR  
BUDDING COMPOSERS,  
WRITES TONY SACKS.



## A LITTLE MIDI MUSIC

**H**ave you ever wondered what Eine Kleine Nachtmusik would sound like if it was played by a steel band? Or whether a Bach keyboard concerto would work with a marimba taking the solo part? Or how Beethoven's Eighth Symphony would survive being transcribed from its original key F to, say, B?

Well, you can now discover the answer to these questions and many other musical conundrums in the comfort of your own home thanks to the miracle of MIDI and two years of painstaking work from the pair of classically trained musicians, Richard Gonski and Francis Monkman, who is a former member of the bands Curved Air and Sky.

The two musicians have translated more than a dozen well-known classical works into MIDI-data which can be played back by sequencer programs running on the Atari ST, Commodore Amiga and IBM PC. They have set up a company, Digital Music Archives (DMA), to market the transcriptions in floppy disc form.

### ● MULTI - TIMBRAL

All you need to play the discs on your computer are a suitable sequencer, a MIDI interface and one or more synthesizers – preferably multi-timbral. For baroque works with their limited orchestral requirements, a single synthesizer may do, but to do justice to a Beethoven symphony you are probably going to need an

arsenal of synthesizers.

What you hear depends on your synthesizers and how you have set them up. If your instruments can generate accurate orchestral sounds – either sampled or synthesized – and have sufficient polyphony, you can produce convincing renditions of the original works. Gonski and Monkman have allocated each orchestral instrument or section to its own sequencer track. You can either attempt a faithful reproduction of the original score or allocate any sound that your synthesizer has to offer to any track.

As well as the frivolous possibilities mentioned above, the DMA transcriptions could have more serious applications, especially for musical education. Soloists (or any other orchestral member) can practise their parts by muting their track and playing along with the remaining tracks. One advantage that this has over tape-based practise systems is that, for complex passages, playback can be slowed down without changing the pitch. Another is that difficult sections can be set to loop repeatedly.

### ◆ GOING SOLO

Perhaps the greatest value of the DMA transcriptions is that they allow you to appreciate how the composers marshalled their orchestral forces. The precise, clean sound of the synthesizer lets you examine the relationships between the various orchestral sections in a way

that is impossible when hearing the pieces played live. By muting unwanted tracks you can concentrate on orchestral combinations of particular interest.

If you have a score-writing program, you can use it to transcribe the music although DMA

### ■ KNOW THE SCORE

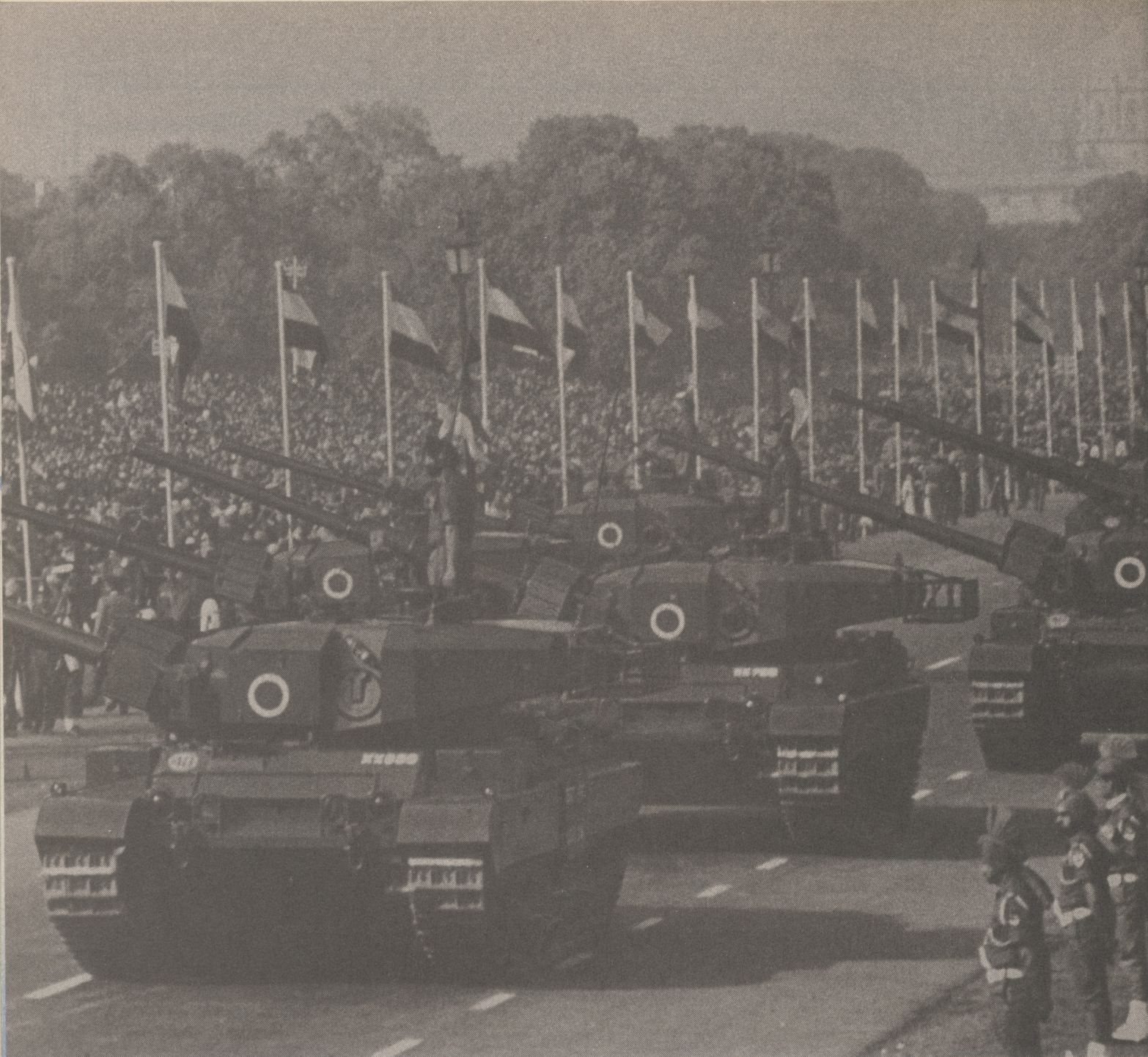
warn that, because of the imprecision of the conventional notation system, such scores are unlikely to be identical to the originals.

To date, DMA have transcribed eight Bach concerti (including Brandenburg and five organ works), Beethoven's Eighth Symphony and five pieces by Mozart including a piano concerto. Other works in the pipeline include Beethoven's Emperor Concerto Eroica Symphony.

Sequencers being supported include the Voyetra III for PC compatibles, C-Lab's Creator/Notator and Steinberg's Pro-24 and Cubase for the ST, and Music-X and the soon-to-arrive Bars and Pipes for the Amiga. DMA is also producing standard Midi File versions of its transcriptions for all three machines.

Each disc, containing one work, is supplied with a cassette recording of the piece using synthesizer voicings close to the original orchestration. The price per disc per disc is £19.95.

● Digital Music Archives, 46b Gascony Avenue, London NW6 4NA. Tel: 01-624 8774.



## There will be even more hardware at the Atari 90's Show.

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The Show's on from 1st-3rd June 1990. (Friday 1st and Saturday 2nd, 10.00 am-6.00 pm. Sunday 3rd, 10.00 am-4.00 pm.) It's at the Novotel Exhibition Centre, Hammersmith, London. (Nearest tube Hammersmith.)

Don't miss it, or you could miss out on a whole new decade of computing.

**ATARI**  
*90's Show*



# YOUR COMPUTER

If you have any news or queries about your computer, write in to the regular address: Popular Computing Weekly, Greencoat House, Francis Street, London SW10 1DG.

## BBC

When I first reviewed the Archimedes A3000, I mentioned the fact that it didn't multi-task properly. Under the RISC-OS Desktop, it is supposed to be possible to run more than one program at once. I have since had an opportunity to play around with the machine in much greater depth and have found that it is possible to multi-task, after a fashion.

Multi-tasking on the Archimedes uses a co-operative rather than pre-emptive system in that it is the responsibility of each program being concurrently run to allow others some processor time. Pre-emptive multi-tasking uses an overall executive controlling program that assigns a set amount of processor time to each program being run. When the allotted time runs out, control is passed onto another program which runs until its time runs out. This allows programs to run completely independently and because the amount of processor time given to each task is quite small, the switching between tasks is invisible to the user. The co-operative multi-tasking of the Archimedes relies on each program passing control back to an executive controller which can then pass control to the next program being run. This means that programs can take up large amounts of processor time where needed, effectively creating their own priorities. The advantage over the pre-emptive method are that, where necessary, programs can run at the full processor rate without having to mess around telling the control program that they require all the

processor time and then have to wait for it to be assigned. The disadvantage is that time dependent tasks such as accessing the disc drive tend to bring the machine to a stand still – which means that it is no longer multi-tasking. Another thing I mentioned in the original review was the difficulty in making Basic programs multi-task. Well, this is still quite difficult to do properly since a lot of window manipulation must be performed. However, the listing below shows a simple example which puts 1001 coloured dots on the screen.

To run the demo, type it in and save it to disc. Start up the desktop and open the disc and the Tasks windows and set aside 32K or so in the Next slider at the top of the latter. Now double click on the program file name and you should see dots start to appear on the screen and the task name PCW appear in the Tasks window. Double clicking again starts up another version of the program and so on, each taking up 32K of space. You can run any other multi-tasking program such as Paint or Edit at the same time – just to prove the point that it really works.

The crucial system calls are Wimp Initialise which takes the wimp version number, the 'Magic' number TASK and the tasks name as arguments. The task handle is returned in THAND (R1) and is used to close it down. Calling Wimp Poll with 0 and a pointer to some space allows the operating system to store the current program status and execute any other multi-tasking programs awaiting processor time. You can find more information in 'Archimedes Assembly Language' A Dabhand Guide by Mike Ginns (Second Edition) – Dabs Press, 5 Victoria Lane, Whitefield, Manchester, M25 6AL. **Kenn Garcho**

```
10 TASK=ASC" T "+(ASC"A" << 8)+(ASC"S" << 16)+(ASC"K" <<24)
20 WVERSION=200
30 SYS "Wimp_Initialise",WVERSION,TASK,"PCW" TO ,THAND
40 DIM BUFF 500
50 FOR T=0 TO 1000
60 GCOL 0,RND(255)
70 POINT RND(1280),RND(1024)
80 SYS "Wimp_Poll",0,BUFF%
90 NEXT
100 SYS "Wimp_CloseDown",THAND,TASK
110 END
Simple Archimedes Multi-tasking program
```



▲ Making music: give your Amiga CD-quality sound.

## AMIGA

The Amiga would seem to be the ideal machine to use for sampling and professional music production. Unfortunately, the ST quaffs this with its MIDI capabilities. These are easily overcome on the Amiga by buying a cheap MIDI interface for less than 30 quid. However, there are still few real professional sampling packages, despite the Amiga's stereo sound channels.

Trilogic launched a new stereo sampler a couple of weeks ago. Imaginatively titled *Stereo Sampler II*, the unit is apparently capable of near CD-quality sound. Ha! So it's a sixteen bit unit then? No. Well, fourteen bit then? No... Oh well, how the bloody hell can it be close to CD? Who knows – who cares. What we do know is that it costs £39.99 on its own and a

whopping £89.99 with *Audiomaster II* software. It plugs into the parallel printer port and has a through connector. If you want more info, I suggest you ring Trilogic or catch the Pop samplers buyers guide in a future issue.

Now for something really ridiculous – a ZX Spectrum emulator for your Amiga? It is said that the emulator will run most 48K Spectrum software including all those awful games. However, your 16-bit Amiga won't run your Spectrum software as fast as a real 8-bit, snail pace speccy.

So then, where's AMOS? That's what I'd like to know. Armed with just that question, I spoke to Database Software. "Who are you?", closely followed by the dial tone. Well, we're not sure when it'll be released but if it's got as many bugs as STOS, I'm not interested either!

**Andrew Banner**

## PCW

Last week, I mentioned that there were a number of software packages available for those PCW owners who are into horse racing. But what about those of us who like spending a few pounds a week doing the pools, is there anything for us? I hear you shout. Well, fear not as there are two packages currently available in order to help you win a million on the pools. In-traset Ltd (02572 76800) produce *Poolmaster* at £18.95. As part of its massive database, *Poolmaster* offers teams in both the UK and also Australia and then all you need to do is regularly update it so that all details are as accurate as possible. The next package is called *Pro-Pools* from DGA Software (061 330 0184). The program costs £44.99 and offers a more comprehensive database to all the various leagues that teams play in. It is very much a question of you picks your software and gets what

you gets. For more detailed information on both these packages take a look at the April issue of *Amstrad PCW* which contains a full and comprehensive review of both packages.

News reaches me from Creative Technology that they have just released an extra set of fonts for their rather brilliant DTP package *MicroDesign 2*. Also out from Creative Technology, is the second issue of their newsletter for *MicroDesign 2* users. For more details, give the folks at Creative Technology a ring on 0889 567160.

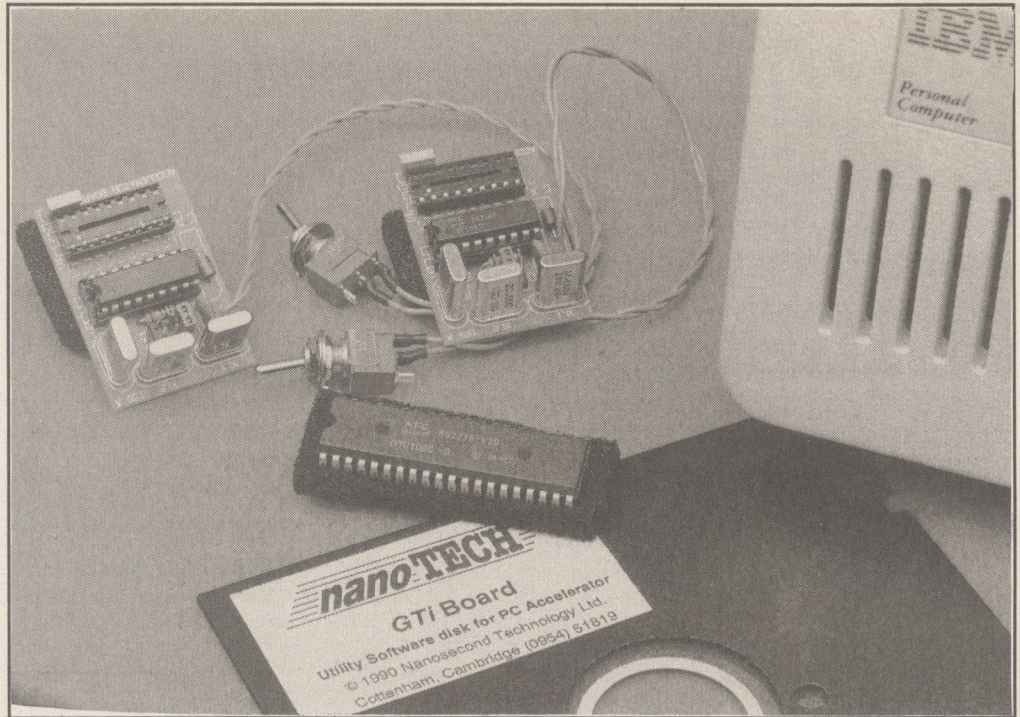
Looking at a good source to buy spares for your PCW. Need a new monitor because the old one is no longer working and out of warranty. Well fear no more. Isenstein Computer Systems has a vast selection of spares ranging from keyboards, monitors, disc drives and more. By the way, spare parts don't come cheap. For example, a new 8256 monitor with ramdrive fitted will set you back £205 plus VAT. For more information 0244 822768.

**Leslie Bunder**

## PC

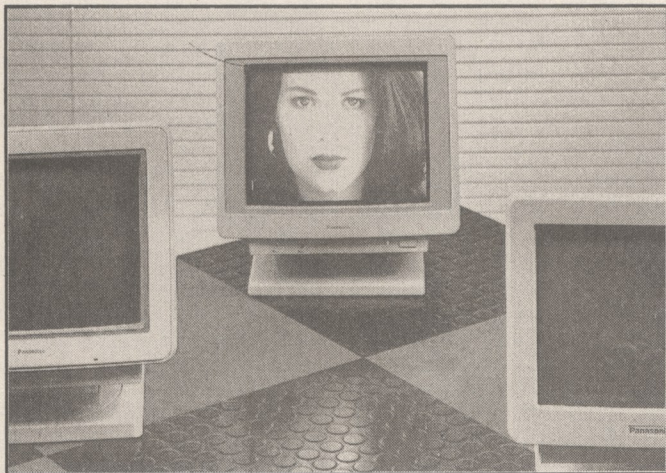
Everyone likes speed when it comes to computing but not everyone can afford the faster machines. If you haven't the extra cash to upgrade fully then perhaps £40 for a Go-Faster board is more up your street? The NanoTech GTI board is a breath of fresh wind to 4.77MHz IBM or fully compatible PCs pushing their performance towards the 80286-based machines.

The board sits in a chip socket in the motherboard which leaves an expansion slot free. The GTI will improve your PC performance by replacing the 8088 chip with a V20 processor which gives a typical performance gain of 10-15 per cent. The board also increases the clock speed of the PC up to 8MHz. A utility disc accompanies the



● Panasonic monitors: now offering a VGA monitor card.

▼ The go-faster stripes of the NanoTech GTI board dismiss the sluggishness of 8088 processors.



board which contains two programs for further performance enhancements. The SPEEDUP and SETDMA programs enable the adjustment of memory refresh cycles and delays.

The NanoTech GTI board including the V20 processor will cost the prospective speed merchant £39.95 plus VAT from Camtech Marketing on 0763 242938.

As well as speed, everyone likes a bit of colour too, especially the VGA kind. Delta West, an authorised dealer of the new range of Panasonic monitors is offering a free VGA card for every Panasonic monitor sold. The prices range

from £175 for a 14in. Paper white VGA mono to a 14in, VGA colour at £475 and a 14in. Variable Sync Colour at £540. Contact Delta West on 0743 236605.

While on the subject of monitors, Taxan has launched a new 14in. dual-scan colour monitor for SuperVGA graphics modes. Called the Supervision 790 the monitor offers a 0.28mm fine dot pitch for very fine text and graphics, minimal flicker and static electricity. For a totally compatible, high resolution, Super VGC multi-scan monitor, the Supervision 790 costs £549 from Taxan on 0344 867646.

Marc Jones

## ST

For some unknown reason the ST's internal clock is always set to a date and time when the ST was never in actual existence. Unless set otherwise, the clock settings are saved with every file and each appears to have been saved during some time in 1985. You may be happy with this, but I save so many files that I would like to know which was the latest.

There are various clock setting programs on the public domain, some even work well, but it should be noted that unless you have something special, you will have to place it in your auto folder and set the time and date every time you boot. This is time consuming, laborious and soon becomes bloody annoying. The answer is simple—either buy a Mega ST with

a built-in battery backed clock or buy a separate clock module for considerably less. In fact these retail at about £30.00.

There are many of these devices on the market and come in two forms:— as a plug-in cartridge or a small board that is installed in the ST. Those supplied on cartridge contain a lithium cell for power. The batteries last a long time and changing them is not a problem you will encounter very often. However, some of these batteries are soldered to the board and are damned awkward. The clock modules that sit inside the ST generally have a nickle cadmium cell which re-charges while the ST is switched on.

On the cartridge side there are two main contenders, the Microdeal offering and Forget-Me-Clock from Frontier software. Frontier's product is great. It's small, reliable and has a thorough

connector so that you may have both it and another cartridge installed at the same time. Microdeal supply a similar unit although it's larger and takes up more space. Unfortunately it has no through connector which I find is damned awkward (I own one.)

To my knowledge (someone is bound to prove me wrong), the only clock module for internal fitting is also by Microdeal. Being internal, it is unobtrusive and you'll soon forget it's there.

All the modules mentioned are supplied with software to set them and a program that should be placed in the AUTO folder of you boot discs to tell the ST to look for the correct time.

The two Microdeal clock modules retail at £27.50 each while the Frontier Forget-Me-Clock costs just £24.95. Microdeal are on (0726 68020) and Frontier (0423 530577).

Andrew Banner

## SAM

One of the nicest things about SAM is the ease with which the screen can be handled from Basic. Here's a little program which shows off SAM's colour and screen-handling abilities. It lists the short program in double height lettering, using a colour selected at random from the 128 available, and scrolls it up, off the screen, leaving behind an inverted mirror image.

10 REM INVERT SCREEN (REALLY)

20 PALETTE: CSIZE 8,18

30 PALETTE 7 RND (127)

40 LIST: PAUSE 50

50 CSIZE 8,9

60 FOR n=174 TO 1 STEP -1

70 ROLL 2,1,0,173,256,n

80 NEXT n: RUN

John Wase

# TEIFI COMPUTERS



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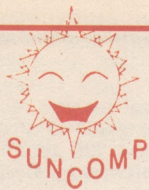
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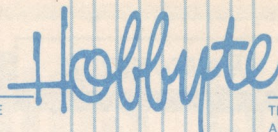
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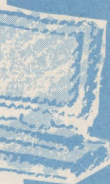
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DTP

# KENN GARROCH'S

## BBC DIRECT ACCESS

Alan James of New Brighton, Wirral Merseyside writes:

**Q** I am writing to you as PCW's BBC expert in the hope that you can help me with the following problem.

I would like to access the BBC disc drives sectors directly. I know that this is possible but I don't quite understand how it works. The OSWORD call is used (I think) but I don't know the arguments or other details. Can you help?

**A** A complete program would be a little long to include here. However, the procedure shown should do the trick. It uses, as you say, the operating system OSWORD (&FFF1) call with the accumulator holding &7F, and the X and Y registers holding the address of a parameter table, X being the low byte and Y being the high. The parameter tables should be filled with information about the disc before the call and is set out in the format shown in figure 2. The address pointer to BLK informs the routine of the area of memory to be read or written to the disc. After using the routine, any errors will show up in PARA+10 as non-zero values.

The following data areas must be set up at the start of the program:

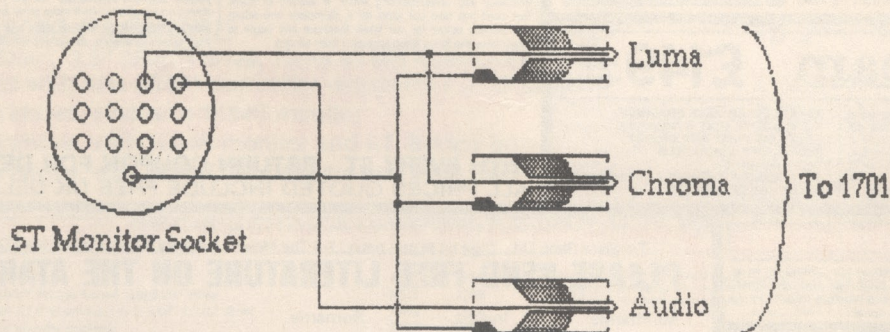
```

DIM PARA 10, BLK 255
And then the procedure PROCRWDISK(Drive, Track, Sector, Read/Write) can be used
700 DEFPROC RWDISK(D,T,S,RW)
710 REM WRITE IS 1 *****
720 LOCAL RDWT
730 IF RW=1 THEN RDWT=&4B ELSE RDWT=&53
740 ?PARA=D
750 !(PARA+1)=BLK
760 ?(PARA+5)=3
770 ?(PARA+6)=RDWT
780 ?(PARA+7)=T
790 ?(PARA+8)=S
800 ?(PARA+9)=&21
810 A%=&7F
820 X%=PARA MOD 256
830 Y%=PARA DIV 256
840 CALL &FFF1
850 IF ?(PARA+10) <> 0 THEN VDU:PRINT "RAW ERROR HERE"
860 ENDPROC
    
```

### BBC direct sector access procedure.

Address offset	Content
0	Drive number 0-3
1-4	Address of read/write data block, 512 bytes
5	The value 3
6	Read/write flag. Read=&53 Write=&4B
7	Track number to read/write
8	Sector number to read/write
9	The value &21
10	Error return code - 0 is OK

### BBC disk read parameter block.



STE to Commodore 1701 monitor connection

## STE TO CBM 1701

Mike Proctor of Crownmoor writes

**Q** Please help! I bought an Atari STE and have a Commodore 1701 video monitor. At present I can only use its "Composite Video Connection" but I want to connect to the rear of the monitor and I am stumped. How on earth do I connect to the three sockets on the back? I enclose photocopies of the data sheets for each to help you. At present I have connected pin 2 and pin 13 of the Atari STE moni-

# QUESTION TIME

tor socket to the composite video socket of the 1701 monitor. Could you please tell me what the Chroma input does and how I can create some sort of cable to use the "exclusive" C64 connection?

**A** I suspect that you won't get much of an improvement in the picture quality by connecting up to the rear connections of the 1701. However the diagram below shows the connections you should make to get a picture and some sound. Some CBM monitors have the colour and video signals separated (for some reason) into Luma (brightness) and Chroma (colour) though as far as the composite video signal from the ST is concerned, they both accept the same signal and extract only the data they need from it.

As far as I know, the connection on the front of the 1701 is identical to those on the rear when the latter are connected together. Because of this you probably won't get much of an improvement in picture quality. To get this you will need a higher quality monitor that takes RGB, ie, one that can display more dots per inch, and takes the Red Green and Blue signals as separate entities to stop them interfering with each other.

## CBM's CHARACTER

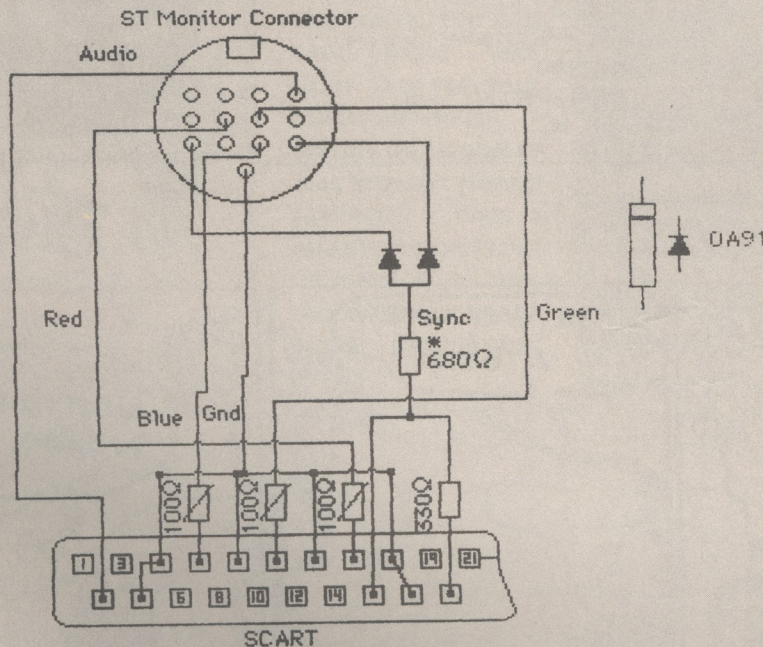
James Smith of Birmingham writes

**Q** I recently acquired an old second (or possibly third or more) hand Commodore 64 computer without manuals. I spend a lot of time just fiddling with it and getting to know its ins and outs. One thing I am having a little trouble with is which keys to press to obtain the graphics characters. I am writing to you to ask if you can provide a list of these along with the keys that have to be pressed to get them to appear. Your help is much appreciated.

**A** It looks as though the old 64 might be getting a new life if it is being sold third hand and is still working. The symbols are shown below along with the keypresses you require.

Shift + CLR/Home	↵	Ⓔ + 4	Ⓔ
CLR/Home	Ⓔ	Ⓔ + 5	Ⓔ
Shift CRSR	Ⓔ	Ⓔ + 6	Ⓔ
CRSR	Ⓔ	Ⓔ + 7	Ⓔ
Shift CRSR	⇌	Ⓔ + 8	Ⓔ
CRSR	⇌	F1	Ⓔ
CTRL + 9	Ⓔ	Shift F1	Ⓔ
CTRL + 0	Ⓔ	F3	Ⓔ
CTRL + 1	Ⓔ	Shift F3	Ⓔ
CTRL + 2	Ⓔ	F5	Ⓔ
CTRL + 3	Ⓔ	Shift F5	Ⓔ
CTRL + 4	Ⓔ	F7	Ⓔ
CTRL + 5	Ⓔ	Shift F7	Ⓔ
CTRL + 6	Ⓔ	←	←
CTRL + 7	Ⓔ	Shift ←	⇐
CTRL + 8	Ⓔ		
Ⓔ + 1	Ⓔ		
Ⓔ + 2	Ⓔ		
Ⓔ + 3	Ⓔ		

Commodore 64 Graphics characters and their associated keypresses



ST to SCART connection

## ST TO SCART

P J Ellis of Swindon, Wilts writes

**Q** I am after information and diagrams for the Atari ST520 to SCART connections. I have a Sony TV/Monitor KV-M14U/TU for which you printed a connection to the Spectrum +3 in the May 25-31 May 89 issue. I wonder if you could modify your connection to enable me to connect my ST to the monitor?

**A** You may find that the picture is none too good since the Spectrum uses digital RGC, ie the signals conform to set levels that define a particular colour. The analogue RGB of the ST uses continuously varying signals to produce the different colours. However, it may work - depending on the monitor - so you could try the connection shown which, incidentally, should give you sound as well. You will need two small signal diodes (eg 0A91) and the various plugs and some cables but it should be fairly simple to set up.

# TEASER

By Gordon Lee

Last week we were at the sports centre trying to find the number of Professor Hex's locker in the changing rooms. The lockers, you may recall, were situated along the wall of a long corridor adjacent to the changing rooms. There were 1001 of them in all arranged in 143 columns with seven lockers per column. These are numbered in sequence, lockers 1 to 7 in the first column, 8 to 14 in the second, and so on. Lockers 995 to 1001 will therefore be in the last column at the right hand end.

Fred, who supervises the changing rooms, has the job of cleaning out all 1001 of these lockers every

1	8	15
2	9	16
3	10	17
4	11	18
5	12	19
6	13	20
7	14	21

The professor's locker was number 331. This would be in the lockers numbers 330 to 336 inclusive which add up to 2331.

The lockers are arranged in columns of seven numbered in sequence. So lockers 1 to 7 are in the first column, 8 to 14 in the 2nd column and so on. In the listing the value of N in the loop in line 100 represents the number the number of the top locker in each column (hence the STEP 7 instruction).

# PUZZLE

so often. This is usually done during the week when the sports centre is closed for general repairs and decoration.

In order to vary the otherwise repetitive task of cleaning the lockers Fred tends to do the job in a different sequence each year. For example, this year he did it as follows:

On Monday he cleaned the middle row of lockers (i.e. those numbered 4, 11, 18, 25 and so on.)

On Tuesday he started at locker number 1 and then moved to every

fourth locker (numbers 1, 5, 9, 13, etc) Of course, any that he cleaned the day before were skipped.

On Wednesday he cleaned every locker situated immediately above any that had already been cleaned.

On Thursday he attended to all those that remained that had at least one '7' in their number.

Finally, on Friday he finished off all the rest.

Can you say how many lockers were left for him to clean on the Friday?

The first requirement is to calculate the total of the locker numbers for each column. This can be done algebraically as in line 110 by multiplying N by 7 and adding 21. This is because there are 7 lockers in each column, each having the number N, N+1, N+2, N+3, N+4, N+5 and N+6. This reduces to 7N+21.

Once this total has been calculated it is converted to a string variable for the next stage of the operation. The program then tests each number in the column against this total to see if the

number is 'contained' within digits. This is done with the INSTR function which tests a string for a 'target' string contained within it. The variable Z denotes the position of the target string (or zero if the target is not found).

Any non-zero result in this test is printed out. This result is the two possibilities mentioned in the question plus the answer given above. Note: The next number after 331 is 166669 - so it is as well that the lockers finish at 1001!

```

>
100 FOR N=1 TO 995 STEP 7
110 T=7*N+21:T$=STR$(T)
130 FOR M=N TO N+6:M$=STR$(M)
140 Z=INSTR(T$,M$)
150 IF Z<>0 THEN PRINT M$;" ";T$
160 NEXT M:NEXT N
    
```

## NEXT WEEK

YOUR NUMBER ONE COMPUTER NEWSPAPER IS OUT ON THURSDAY!

## NEWS

Exclusives galore in home computing's newspaper of record!

## STATESIDE

All the 16-bit news from America - the column ST and Amiga owners should not miss out on!

## SOLUTIONS

Your technical problems solved by Kenn Garroch - on any format.

## LEISURELY INTERESTS

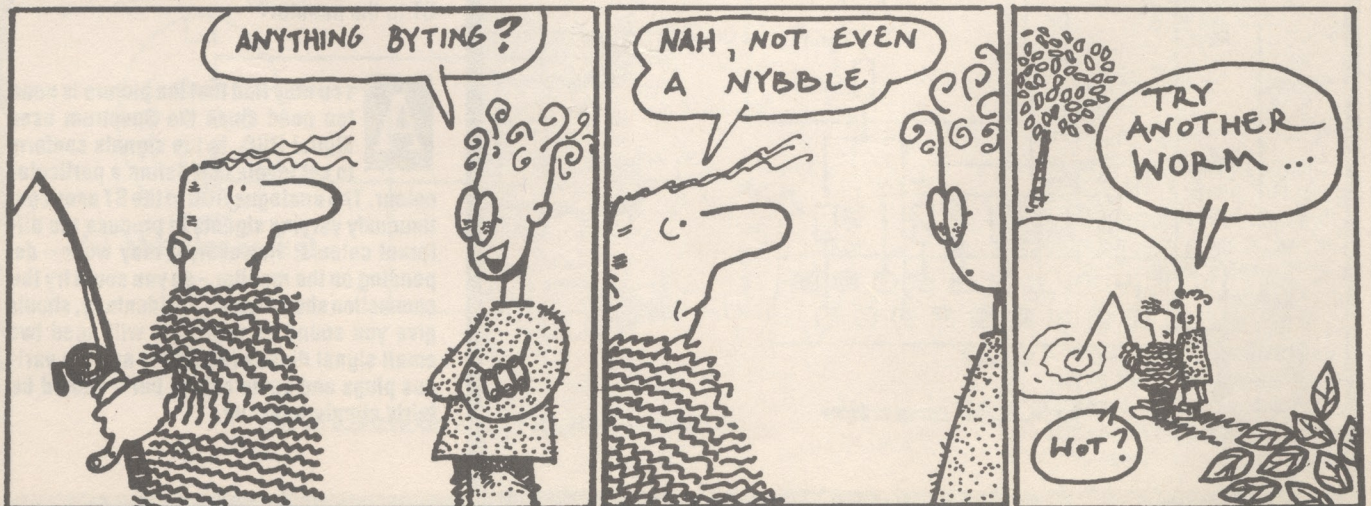
Duncan Evans acidic pen scribbles on the latest games releases.

ALL FOR JUST

**55p**

## Cosmo

by Jules



24 HOUR LIVE CHAT. 24 HOUR LIVE CHAT. 24 HOUR LIVE CHAT.

# PARTY LINES!

## NEW!

IT'S INSTANT! IT'S FUN!  
IT'S NEW FRIENDS-BY-  
PHONE, ANYWHERE IN  
THE COUNTRY! RIGHT AT  
YOUR FINGERTIPS. IT'S

## PARTY LINES!

DIAL. LISTEN IN. THEN  
CHAT TO AS MANY AS  
TEN PEOPLE. YOU CAN  
TALK MUSIC. TALK  
SPORT. TALK YOU. TALK  
ALMOST ANYTHING!  
GETTING ON ESPECIALLY  
WELL WITH ONE PERSON!  
FANTASTIC! - PRESS 0  
AND ASK OUR OPERATOR  
TO CONNECT YOU ONE-  
TO-ONE! SO PICK UP THE  
PHONE ... AND POP IN ON  
A PARTY!

L O N D O N  
0898 448 441

L O N D O N  
0898 448 442

S O U T H W E S T  
0898 448 443

W A L E S  
0898 448 444

M I D L A N D S  
0898 448 445

N O R T H W E S T  
0898 448 446

Y O R K S H I R E  
0898 448 447

N O R T H E A S T  
0898 448 448

S C O T L A N D  
0898 448 449

BOYFRIENDS

FILMS

FASHION

SECRETS

MUSIC

MONEY

CAREERS

CARS  
ROMANCE

SOAPS

HOBBIES

HOLIDAYS

BUSINESS

GIRLFRIENDS

SPORT

POLITICS

JOKES

GOSSIP

J.W. Nijholt (U.K.) Ltd is a member of the ITCA (Independent Telephone Chatline Association) and abides by ICSTIS regulations. Calls charged at 25p per minute cheap, 30p standard. A service from J.W. Nijholt (U.K.) Ltd. P.O. Box 418, Manchester M40 3BT. Due to regulations one of the elements in the Multilink is a recording.

ANNOUNCING THE NEXT GENERATION OF PBP GAMES

STEVE JACKSON'S

# GLADIATORS

## OF THE ROMAN EMPIRE

NOW WITH  
A WEEKLY  
CASH PRIZE!

*Your opponent falls!  
He's badly wounded!  
He can't continue!  
Yes! HABET!*

*He holds his finger up  
in a plea for mercy!  
The choice is yours.  
Spare his life?  
Or finish him off?  
What would YOU do?*



### FIGHT YOUR FRIENDS TO THE DEATH! USE MATCH-UP CODES!

If you wish to fight a friend through the *Gladiators of the Roman Empire* computer, you must first of all:

- Decide a 4-figure Match-Up Code between you. A number you will both remember.
- Arrange to dial in at the same time.

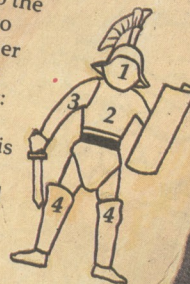
As you enter the game, you can enter your Match-Up Code. If you do so, you will ONLY fight an opponent with the same Code.

So settle your differences in the noble way in a battle to the death in the arena!

In this fast-moving interactive telephone game from Steve Jackson, creator of *FIST*, YOU control your gladiator in a kill-or-be-killed battle to the death. Your opponent? You may fight the infamous Spartacus (controlled by the computer), whom you will find to be a difficult opponent. You may fight another caller. Or, if you chose to create a Match-Up Code, you may even fight a friend who has arranged to call in at the same time! Your instructions - which body area you wish to attack and which you will defend - will be carried out faithfully by your gladiator. And you will HEAR the moans, the screams and the roar of the crowd as sword meets flesh! The game couldn't be simpler to understand. First choose your gladiator from an authentic list of real gladiators from history. Then enter the arena...

### COMBAT SYSTEM

Dial in two numbers from 1-4 each will attack and defend. 1-2-3-4 equals Head-Body-Arms-Legs. The computer does the rest. Listen to the commentary to find out whether your attack was successful. Hint: The area you choose to defend is not the only area you guard. You will also defend one of the two adjacent areas as well.



0898-800-891