POPULAR NEW COMPUTING WEEKLY

A FOCUS MAGAZINES PUBLICATION

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Atari glory in Vegas

by Andrew Kermath in Las Vegas

THE A's have it – but it was Atari, not Amstrad and its new portable, that stole most of the glory at last week's Comdex show to the press.

Atari chief Bob Gleadow

Comdex Fall, as it is more strictly known, is to microcomputers what Winter CES is to the consumer electronics industry. It's the biggest US show of the year, and although suits are more common there than at CES, practically everyone who's anyone is there, and in that sense Atari has arrived, complete with Saville Row tailoring.

The tailoring comes courtesy of British chip manufacturer Inmos and development house Perihelion, who have provided Atari with the wherewithal to launch the Abaq, a supermicro based on Inmos' transputer superchip, on the world. The prototype Atari which was showing at Las Vegas was by no means finished, but Atari expects to have it singing and dancing some more by its first European showing, currently scheduled for Hanover next spring, and we should be looking for first shipments towards the close of 1988.

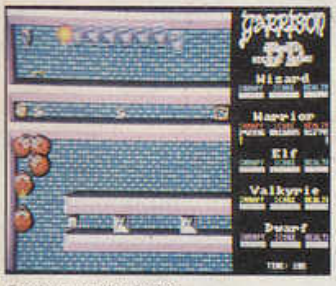
The basic Abaq comes with four megabytes of Ram plus another megabyte for the display, and allows up to four T800 transputers running at 10-12 mips (million instructions per second) to be connected together for parallel processing purposes. Its own operating system will be Helios, currently being developed by Perihelion, but Atari has also announced support for Idris, a version of the Unix operating system.

Pricing of the machine is likely to be on the end of the $3-5,000 scale. Inevitably a PC emulator for the machine is under development, but the transputer is so powerful this should actually be faster than the PC AT. Alongside the Abaq Atari beefed up its PC range, first shown last winter at CES, and was showing a PC/ST/Apple local area network, genlock for the ST and its laser printer.

The new PCs, the PC2 and PC4, should be shipping in the UK any time now, with the PC2 being a £499 8088-based machine with built-in EGA (Enhanced Graphics Adaptor). The PC4 uses an 80286, again has EGA, and has a VGA (Video Graphics Adaptor, IBM's new graphics standard) option. Barring the launch of another dozen STs at CES the next major move from Atari should be the 80386 machine.

The first public showing of this is scheduled for Hanover, with machines starting to ship next July. The spec of the machine is now starting to firm up, with Atari talking about optional 16MHz or 20MHz speed processors (this will probably firm up to 20MHz as the supply position on these chips eases).

This Week



Garrison on the Amiga

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LQ ball in Epson's court

AMSTRAD has made a detailed response to the legal action initiated last month by Epson over the use of the LQ designation on its new range of printers.

The affair has placed the Brentwood-based company on the receiving end of legal action itself – a strange state of affairs for a company which has embroiled itself in litigation against others several times in the past year.

Epson has produced its range of LQ printers for four years, and considers the letters are connected with Epson as PC has come to mean IBM-compatible.

An Amstrad spokesperson vowed that the company would continue to market the LQ3500 and would "strenuously defend" any action taken by Epson.

Epson public relations manager Tony Westray last week confirmed that Amstrad has responded point by point to each of the allegations levelled at the company over the matter.

"They responded to each of the points that we raised," he said. "Now we have to respond to each of the points that they've made."

A further announcement is expected later this week.

The controversial Amstrad LQ 3500 Printer

TRANTOR™

THE LAST STORM TROOPER

The order of the solar system as kept for thousands of years by the people of Zybor was coming apart. Growing dissatisfaction in outlying planet bodies increased as their technological achievements reached greater heights. Zybor reacted in the only way left to it whilst the technological advantage remained in its hands. And so Trantor was brought from out of the ranks of the warriors forces where a brutal streak and rebellious nature made sure his talents never realised their full potential. His credentials were perfect his mission was simple, to lead a band of outlaw mercenaries and smash the growing power of the New World NEBULITHONE before its atomic threat turned into an awesome cataclysm of conflict. But the Nebithons were not unprepared and when on return from a reconnaisance scouting, Trantor found the remains of his undercover force scattered amongst the alien landscape along with the last fragments of his battle cruiser, he felt the hate and rage surge through his body and within the ice cold compartment of his mind, he recognised the burden that now lay with him, that all now depended on he – Trantor, the Last Stormtrooper.

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AMSTRAD TAPE £9.99 DISK £14.99
CBM 64/128 TAPE £9.99 DISK £11.99
Coming soon on Atari ST £19.99

Screen shot from Amstrad version.

Screen shots from Spectrum version.

GO!

TOMORROW'S SOFTWARE TODAY

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probe™

Here's the new style again...

Yet another incarnation of *Popular Computing Weekly* hits the stands! Once again it's all change at Britain's only computer weekly – we've moved offices, there's some new additions to the team, and over the past few weeks we've been busy planning and preparing a new look, and dreaming up new ideas and new things to put in the pages of the revamped magazine. Now we can reveal the fruits of our labours in this week's issue.

Some of you might be holding your hands up in horror at the new style – but we think you'll find it better than ever before. The magazine might look different, but it doesn't stop there. There're also a lot of new things which will be happening in the future.

Important news

It's our intention to bring you the important news first – as we always have done. Whether it's new machines, company news, new software releases or just interesting stories from any area of computing, no other magazine can compete when it comes to finding out what's going on. But we think you deserve more of that news – and so do you, judging by the results of our last readers' survey.

We've also got a mixture of your favourite features – Kenn Garroch's still here, with a squeaky-clean new picture – and new ideas, starting today with more news and better games coverage. We also hope to bring you the return of the puzzle very shortly!

Please let us know what you think about the new-look *Popular Computing Weekly*, and what you would like to see covered. In the weeks to come there'll be even more happening than usual, with new machines, new software, price reductions, price rises – plus all the usual gossip from the computer industry. You'll read it all first in *Popular Computing Weekly*.

The perfect incentive

AS an incentive to buy Amiga for Christmas, Sentinel is reducing its *WordPerfect Amiga* word processor from £255 to £199.

According to Jags Alfred, sales director at Sentinel, there were two reasons for this decision: "Firstly, worldwide demand has enabled WordPerfect Corporation to exceed projected sales so that initial production costs have been reduced more quickly than expected."

Alfred then went on to say that Sentinel really just wanted to give consumers the chance to buy the best Amiga, if they wanted to get one for Christmas.

As well as the offer on Amiga, Sentinel is still offering *Scribble* owners a trade-in, this is with £50 off the *WordPerfect in* return for old master discs, the manual and a copy of the invoice for the *WordPerfect*.

CHARTS

Top Twenty

1	(1)	Joe Blade	Players
2	(4)	Soccer Boss	Alternative
3	(2)	Grand Prix Simulator	Code Masters
4	(5)	Indiana Jones	US Gold
5	(6)	Pro Ski Simulator	Code Masters
6	(3)	Renegade	Imagine
7	(10)	Back To The Future	Firebird
8	(8)	BMX Simulator	Code Masters
9	(11)	Dizzy	Code Masters
10	(14)	Paperboy	Elite
11	(18)	World Class Leaderboard	Access-US Gold
12	(35)	Game Set Match	Ocean
13	(NE)	Live Ammo	Ocean
14	(9)	International Karate	Endurance
15	(15)	Super Robin Hood	Code Masters
16	(7)	Fruit Machine Simulator	Code Masters
17	(19)	Uchi-Mata	Alternative
18	(16)	ATV Simulator	Code Masters
19	(34)	Comp. Hits 10 Vol. 4	Beau Jolly
20	(NE)	Six Pak 2	Hit Pak

All figures compiled by Gallup/Computer Trade Weekly

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Music Machine goes multi-track

By Tony Sachs

GOOD news for owners of the Amstrad CPC version of RAM's Music Machine package: you will soon be able to buy a software package that turns the CPC into a multi-track MIDU recorder using the Music Machine hardware as a MIDI interface.

When the £49.95 Music Machine made its debut last year it was widely praised for offering extremely good value for money. It includes a sound sampler, drum machine, effects box and MIDI interface in a single package.

But the software originally supplied with the package demonstrated only a fraction of the hardware's potential. In particular, its use of MIDI was extremely rudimentary.

Ram has now teamed up with DHCP Electronics, a specialist in MIDI software for Amstrad machines, to produce an eight-track MIDI sequencer program based on the Music Machine hardware. The £34.95 package will act like a multi-track tape recorder, storing MIDI data from synthesizers, drum machines and other MIDI-equipped electronic instruments. This data can later be played back by up to eight instruments or groups of instruments.

In addition, DHCP has produced editing packages for the Casio CZ101 and CZ230 synthesizers which will also run on the Music Machine. For CPC owners who do not have a Music Machine, DHCP will supply a more comprehensive MIDI interface costing £60.

There are no immediate plans to produce a sequencer for the Spectrum version of Music Machine.

DHCP is also developing MIDI products for the Amstrad PC and PCW machines.

Items for the PC (and similar IBM compatibles) include a £134.95 MIDI interface with two independent MIDI Out ports, allowing up to 32 different groups of instruments to be controlled simultaneously, and a £99 Music Composition Language package which will drive the interface. Also in the PC pipeline are a £70 editor for Yamaha's FB01 synthesizer module, and a rhythm programmer package.

For the PCW series, DHCP has produced a £79.95 MIDI interface and a matching 12-track sequencer program costing £60 (for £45 if you hurry). A range of editors and toolkits for synthesizers including Casio's CZ101 and CZ230. Yamaha's FB01 and Korg's DW6000 is planned.

Addresses

Ram Electronics, Unit 16, Redfields Industrial Park, Redfield Lane, Church Crookham, Hants GU13 0RE. (0252) 850085.

DHCP Electronics, 32 Boyton Close, Haverhill, Suffolk CB9 0DZ. (0440) 61207.

Quantum Leap

SINCLAIR QL users can now experiment with Artificial Intelligence as Compware has just launched its *Expert System Shell*.

Designed for both the experienced and the amateur user, the product enables you to produce useful rule based systems at a low cost.

The Expert System Shell has a wide range of features, including tokenised rules to save memory, intelligent scanning and prescanning of rule base and on-line sensitive help. It comes complete with a comprehensive manual which provides examples and a tutorial section.

The Expert System Shell cost £49.95, including postage and VAT, and is available from Compware, 57 Repton Drive, Haslington, Crewe CW1 1SA.

Professional release

THE *Mini Office Professional* is the latest product to be released by Database Software.

Costing just £29.95, the programme goes further than its predecessors, *Mini Office and Mini Office II*. The five integrated modules – word processor, Database, graphics, spreadsheet and communications have now been enhanced by a host of new features.

The modules are easily accessed and the system assists the user with built-in messages and consistent keystroke commands. Since the modules are interconnected you can use them together, for instance, to create graphs from spreadsheet figures.

The word processor has been improved upon so that you can now scroll from top to bottom of your text in less than a second. You will also find a word count permanently displayed on screen.

The new graphics module is a feature that will enable you to display three bar charts or overlay up to three line graphs, and hold as many as ten sets of data in memory.

In addition, the free-format database will give you 255 fields with 576 characters per field, search facilities, and various type styles. Similarly, the spreadsheet has up to 255 rows or columns with 12,000 cell available.

The communications feature, on the other hand, embodies full terminal emulation with a viewdata option for accessing Prestel graphics.

Mini Office Professional comes on two discs containing machine code programs and example files. It is accompanied by a 70-page text and graphics manual, complete with tutorials.

For further information contact Database Software, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

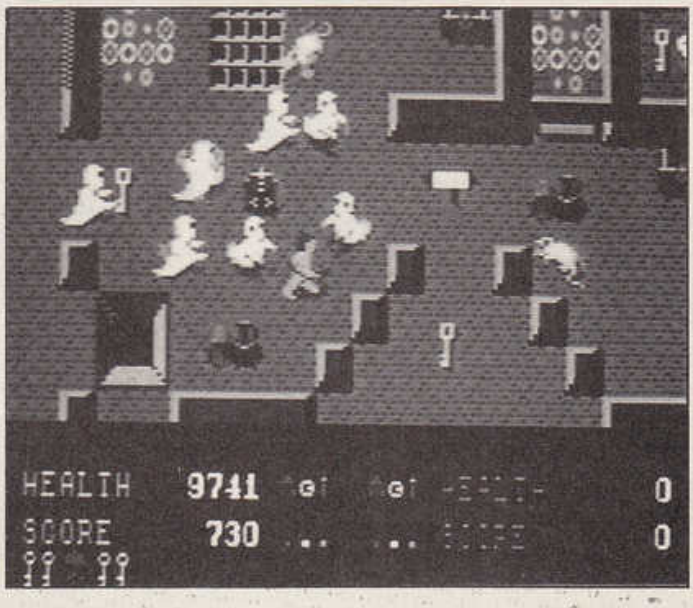
Stalking the mazes

DEMON Stalker is a new one or two-player arcade game being released this month by Electronic Arts. Produced for the Commodore 64, the game offers 99 levels of mazes on which you will encounter various things from keys to monsters to magic.

Whilst some of the items will be good, many such as *Calvrak the Demon*, will be evil and you must destroy their sources if you are to increase your health and strength points and win the game.

Since *Demon Stalker* contains a complete menu-driven construction set which enables you to practise play any level, modify existing levels or even create your own game from scratch.

The Commodore cassette costs £9.95 and the disc, released next month, is £14.95.



PC help for dyslexics

ACCORDING to a report in the *Sunday Times*, computers may be the solution to the exam failures of dyslexic children.

Richard Challis, a 15 year-old public schoolboy from Wiltshire, is currently appealing to his exam authorities to let him use his Amstrad PC 1512 when he takes his GCSE exams next year.

Having dyslexia means that Richard has great reading and spelling difficulties and is therefore at a disadvantage to his class-mates. According to Sandra Maloney, PR person for the Dyslexia Association, "Exams are the worst time for dyslexic children because of the pressure and the need to write quickly. Often they know all the answers but just can't put it on paper properly." With a word processor, however, Richard makes fewer spelling errors and can write faster.

From this, one would assume that the authorities couldn't possibly refuse Richard. But they will be contemplating the matter for some time, saying that they have to study the effect of a computer on other children taking exams, whether a technician has to be present and whether the print-out time is incorporated into the exam time.

If Richard does win his case, he will set a precedent for 320,000 other school children who suffer from severe dyslexia. For them the fear of exams is well and truly justified.

Elite legal row over Star Clash

ELITE publisher Superior Software was taking legal advice last week over the appearance of a BBC game *Star Clash*, published by Gremlin.

Superior Software claims that the game is a clone of its best-selling game, and as a gesture Gremlin boss Ian Stewart has agreed to withdraw *Star Clash* from sale while both companies continue their investigations.

"Several of the original features first used in *Elite* also occur in Gremlin Graphics' game," said Superior managing director Richard Hanson last week.

"There is even a slight bug in the *Star Clash* program which is identical to a bug that is evident in *Elite*. Indeed many of the machine code routines appear to have been copied verbatim from *Elite*."

Star Clash programmer Julian Bushell offered an early version of the game to *Superior* some months ago, but it was refused.

"We took one look at the game and refused to publish it because it

Elite – the original

was so similar to *Elite*," said Hanson. "I must say that my anger is mainly directed towards the programmer, because I have contacted Gremlin Graphics and I firmly believe they have been duped by Julian Bushell."

Ian Stewart confirmed that the company has written to Bushell about the affair, but was unwilling to comment further pending his reply.

"It's no great hassle as far as I'm concerned – but I don't condone programmers re-using other people's code."

SOFTWARE HOTLINES

People said they could not do it, they said it was impossible. But, take one look at the picture and prepare to be astonished. Yes, it's *Outrun* on the Commodore 64.

Judging by the preproduction version, as far as one can judge in these circumstances, it's going to be pretty fabby. *Outrun* is very fast, and the way the ground undulates, just like in *Enduro Racer*, is very well done.

Release date is provisionally scheduled for mid-November, but even if there are delays **US Gold** should have it out for Christmas. The ST version is also under development, but is not due until the turn of the year.

The **Microdeal** machine motors on. *Tanglewood* on the ST is nearing completion, mid-November again. It features 3000 locations, which you can visit, out of a total of 12000. I wonder what the other 9000 are for?

The press release for the game claims that "You've never played an adventure like *Tanglewood*." Since there is no text input and it's all graphics I imagine not.

Also from Microdeal, but this time for the Amiga, *Insanity Fight*, programmed by a Swiss team would you believe, is another vertically scrolling shoot 'em up. This one looks quite good, and you cannot say that about many games of this type on the 'ultimate' home computer. Price will be £24.95 and release is . . . Guess?

Those nice lads from Outlaw Productions, the **Palace Software** offshoot, showed us something very interesting on the Commodore 64 last week. The *Shoot 'Em-Up Construction Kit* allows you to design professional looking horizontal scrollers, single screeners, or Commando-style games. For

Captain America

such a complicated package it looks remarkably simple to use, and the results, if you use some imagination, are well up to budget software standard. Price is £14.95 on tape and £19.95 on disc. It hits the streets next week, and methinks they are going to sell quite a few.

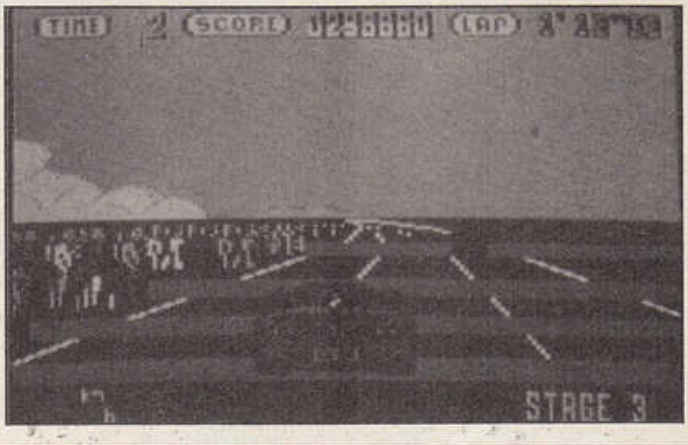
US Gold is, as always, planning a bumper crop of games for your delectation this Xmas, and of these, *Captain America* is a favourite to storm his way into unsuspecting stockings as few will be able to resist a game that takes place in 'the doom tube of Dr Meglomann'.

All the games for US Gold and GO! will be similarly priced. £9.99 on cassette for Commodore and Amstrad, £8.99 for Spectrum, £14.99 on disc for Amstrad and £11.99 or £14.99 on Commodore disc.

Well, last week was Guy Fawkes Night, and I have heard that a game to commemorate the event is planned for next year. However, you cannot get by without having a big licence or name involved, so I can see it now – *David Owen's Gunpowder Plot.*

Pirate Software is putting three of its most tasteful games on 3" disc for all those Spectrum +3 owners out there with nothing to run on their machines. The titles are *Call Me Psycho, Holiday in Sumaria* and *Smash Out.*

Duncan Evans



DIARY DATES

NOVEMBER

13–15 November
Electron and BBC Micro User Show
New Horticultural Hall, London SW1
Details: Latest hardware and software across the Acorn range
Organiser: Database Exhibitions, 061-456 8383

21 November
Wales and West Computer Show
Central Hotel, Cardiff
Details: Regional computer show of particular interest to Dragon users
Tickets £1 adults, 50p children
Organiser: R & A J Preston, (0656) 880965

DECEMBER

5 December
6809 Colour Show
Grand Hall, Connaught Rooms, Gt Queen Street, London
Details: Show for Dragon and Tandy owners
Tickets £2 adults, £1 children
Organiser: John Penn, (04203) 5970

12 December
Christmas ZX Microfair
New Horticultural Hall, London SW1
Details: Latest innovations for Sinclair users
Advanced tickets: £1.50 adults, £1 children
Tickets on the door: £2 adults, £1.50 children
Organiser: Mike Johnson, 01-801 9172

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. We cannot accept responsibility for any alterations to show arrangements.

'Electric' goodies

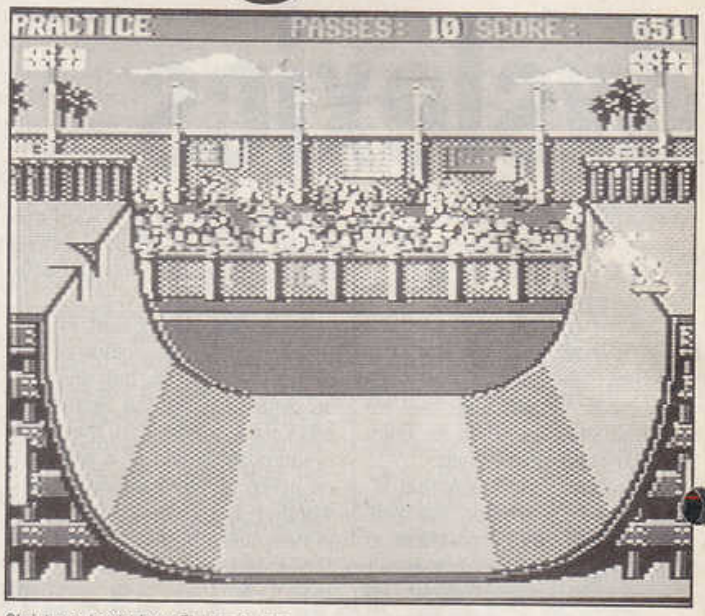
FOLLOWING last week's review of Ocean's Christmas software, this week we look at Electronic Arts and US Gold.

Electronic Arts announced it would be releasing eight new games for Christmas – *Skate or Die, Ferrari Formula One, Test Drive,* the fantasy *Bard's Tale II, Chuck Yeager's Advanced Flight Trainer, PHM Pegasus* – a hydrofoil combat simulation, *Apollo 18* and *Mini Put.* In addition its original *Bard's Tale* will be available for all popular home computers and *Marble Madness* will be out for the Atari ST and IBM PC.

You will also be able to purchase *Wiz Wars,* a compilation of *Archon* and *Archon II: Adept.* Of these the skateboarding simulation, *Skate or Die,* is Electronic Arts' pride and joy. With professional contests, special events and computer opponents, the game offers a multitude of moves and is graphically rich. Available on the Commodore 64, it will cost £14.95 on disc and £9.95 on cassette.

Also of interest are *Ferrari Formula One* and *Test Drive.* The first has you racing a Ferrari F1/86 on 16 top-class racetracks, whilst *Test Drive* enables you to speed in several top sports cars including the Lamborghini Countach.

Both games are available on the Amiga, priced £24.95. *Test Drive* will also be out on the IBM at £24.95 and the Commodore, £9.95 on cassette and £14.95 on disc.



Christmas treats from Electronic Arts

Going for gold

EXCITING things are also going on at US Gold for Christmas.

Five new games are scheduled for release, including a conversion of the coin-op hit *Outrun.* A challenging motor sports simulation, *Outrun* comes with the original soundtrack which you can slot into your hi-fi.

The other games are *Rygar,* another coin-op conversion, set in prehistoric times, the skateboarding simulation – *720 degrees,* and *Gauntlet II.* The latest game is a sequel to *Gauntlet* but also has many new features such as the evil Dragon and 'IT' creature, over 100 different levels and extra amulets – Temporary Repulsiveness, Transportability and Supershots.

In addition to these games there is also the *Solid Gold* compilation, consisting of five top games – *Gauntlet, Ace of Aces, Leaderboard, Winter Games* and *Infiltrator. Solid Gold* is priced at £9.99 on cassette for C64, Spectrum and Amstrad, £12.99 on disc for the Spectrum +3 and £14.99 for the others.

Gauntlet II from US Gold

Gold's new GO! label, which licences predominantly British products, is also set to release five games – *Bravestar* – Mattel's New Texan hero, *Ramparts* – a medieval jaunt, *Side Arms* – Camcom's shoot 'em up, *Wiz Warz* – the magical strategy/action game and *Captain America.* GO's first adventure.

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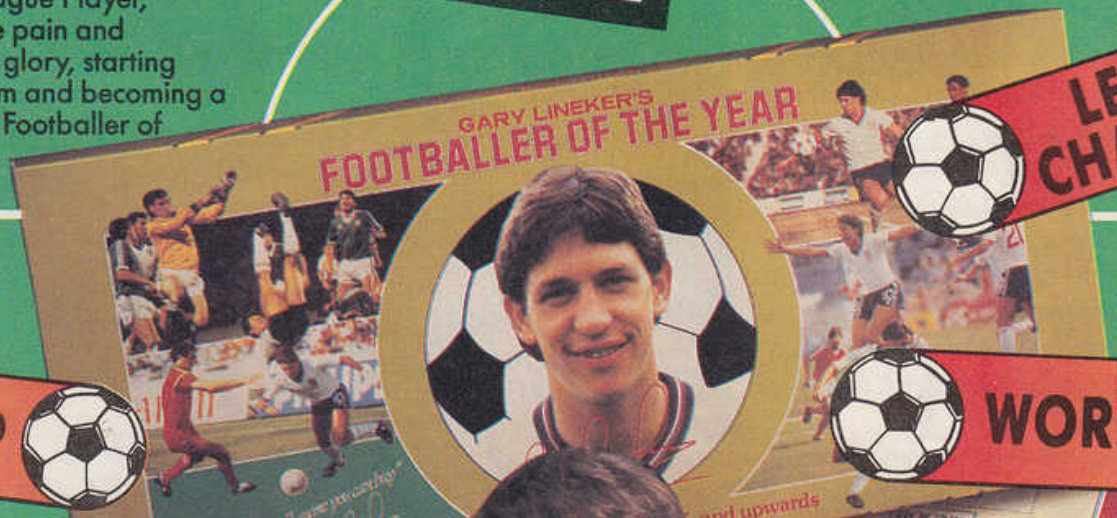

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Address .....

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Postcode .....

Total Amount Enclosed £.....

CHEQUE/P.O./OR ACCESS/VISA ONLY. Please debit my Access/Visa account.

Signature .....

Date .....

GREMLIN

Gremlin Graphics Software Ltd., Alpha House, 10 Carver Street, Sheffield S1 4FS. Tel: (0742) 753423

NEW AM
NOW OTHER HOME COM

Amiga 500 is here.

With a mind-blowing array of features and capabilities.

And a £499.99: price ticket (inc. VAT), hundreds of pounds less than anyone could have predicted.

"...a miracle of compression..." writes *Popular Computing Weekly** "...it all adds up to a formidable system which is clearly better than anything else at the price."

This elegant little machine takes family computing into new dimensions of creativity, excitement and productivity.

It outruns and outguns office PCs as a business multi-tasker, performing a deskful of different jobs simultaneously, at over 7 million steps per second in realtime.

So other home computers may not be the only machines it consigns to the toy cupboard.

AMAZING SCIENCE FACT.

Amiga is used by Disney, Universal and other Hollywood studios for its dazzling 3D graphics manipulation and animation powers.

A sophisticated high-speed graphics processor called a blitter chip transforms images in realtime.

You can paint the screen with more than 4,000 colours. Create and modify designs and effects as you like, with pin-sharp resolution.

You command an almost limitless workshopful of stunning professional graphics capabilities.

With an optional Genlock interface, you can capture images off videotape. Manipulate and mix them with graphics. Then re-transfer them to videotape!

This means you can produce spectacular special effects like those created by Amiga computers for Channel 4's *Chart Show* and the American TV science fiction series *Amazing Stories.*

YOU AIN'T HEARD NOTHING YE

Concealed within the sleek Amiga shape, there is also a pro-quality sound synthesiser an four-track stereo sound system.

Driven by another powerful and unique custom chip, it can synthesise musical instruments an

: Includes DeluxePaint from Electronic Arts worth £79 + VAT! (Excludes monitor or TV modulator.)

COMMODORE BUSINESS MACHINES (UK) LTD, COMMODORE HOUSE, THE SWITCHBACK, GARDNER ROAD, MAIDENHEAD, BERKSHIRE SL6 7XA. TELEPHONE: (0628) 770088. TELEX: 846057 CBMUK

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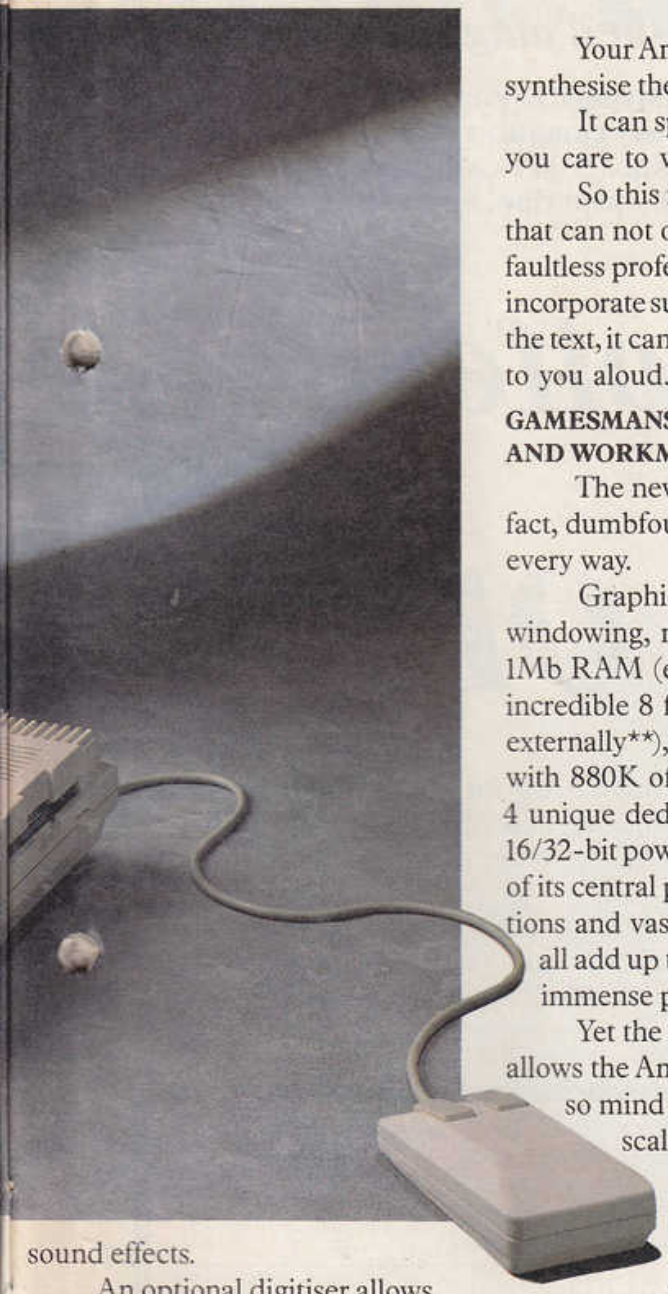

sound effects.

An optional digitiser allows you to take onboard real sounds. Mix and modify the two. Translate your compositions from keyboard to sheet music. Play them back through the monitor's speaker or your hi-fi.

Your Amiga can also synthesise the human voice.

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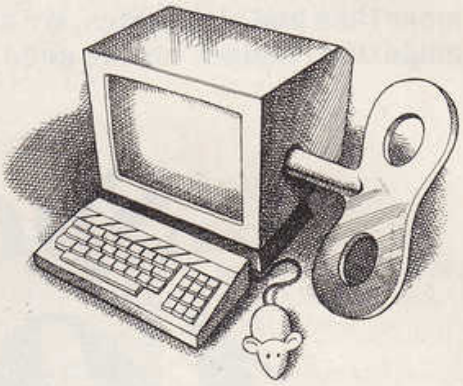

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Popular Computing Weekly, 22-28 May 1987. †*Personal Computer World*, February 1987. ** *Subject to availability.*

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PCW2

Amstrad Effect 2

Will the imminent launch of Amstrad's Portable PC be a re-run of the huge success of the PC1512? Nikki Carvey reports.

THE launch of the Amstrad portable two weeks ago was a hard sell affair.

Chairman Alan Sugar laid special emphasis on the 'Amstrad Effect' of the PC1512, whereby Amstrad produced the 'right machine at the right price' and so managed to succeed where others failed.

Sugar maintained that this would continue with the Amstrad portable. But since portables currently occupy only 3 per cent of the market and even IBM has declined to produce one, a question mark hangs over the success of this new venture.

All times, all places

But Sugar is adamant that there is a large market for the portable since demands now extend beyond the home and office, with people requiring access to computers at all times and all places.

He sees the target consumers as "people who recognise where they would could use it and who find the portability an incentive."

He added that the PPC was "a hive off between a Laptop and a luggable."

The crucial aspect is of course, price. With Toshiba and Compaq selling their portables from around £1000 to £2000, Sugar believes that the customer is simply not prepared to buy such a large amount.

Despite Amstrad's faith in its product, however, the sceptics remain. A spokesperson for Boots stated that it would not be stocking the portable "purely for commercial reasons". In other words they do not think there will be enough demand for it.

Whilst Rymans will be stocking the product, it is more the result of a 'give them a chance' attitude than a belief in the market.

Machines buyer, Graham Green, was interested to hear of Boots' decision since it confirmed his own doubts.

He commented, "I'm not personally convinced there is a huge market for them. People will be buying them as toys and not really using them." He added that there had, as yet, been no advance orders from any of the Rymans shops.

The two other main retailers likely to stock the Amstrad portable are W.H. Smiths and Dixons.

Whereas Dixons has been unavailable for comment, W.H. Smiths was, although its computer buyer, Ian Laurie, was noncommital. "We have not yet reached a decision as we still have to evaluate the machine". But he did say that 1988 was the year for the portable to succeed if it was going to take off.

So when the Amstrad PPC goes on sale in January 1988, it will probably meet with mixed reaction.

Some support Sugar's view that the portable market is a viable one, whilst others believe that this time Amstrad won't succeed where others have failed.

Getting to grips

What seems to be the biggest problem in sight for Alan Sugar and the Portable Personal Computer is the continuing difficulty Amstrad is having getting to grips with the 'corporate' market.

Whilst the PC1512 and PC1640 have both been well received by the press and public, the large corporations are still backing PC specialists such as Compaq and Zenith, and IBM themselves.

For the portable to succeed, it too will have to broach the corporate gap.

The machine may, and I suspect will, sell well to computer users who purchase their own machines (if only on its price to performance basis) but will companies to whom price is not the biggest consideration take the PPC seriously?

Ironic as it may seem, the general conclusion is that Amstrad is under-pricing itself out of contention.

When asked to comment on expected sales figures, Sugar himself conceded that it was "dodgy territory" but said that Amstrad was looking for figures in the hundreds of thousands. Will this be achieved. Will the 'Amstrad Effect' continue? Next year will reveal all. □

LETTERS

An open letter to Micronet

I was interested to read your reaction in Vol 6 No 41 of *Popular Computing Weekly* to my article on the French Teletel system. I don't blame you for plugging Micronet on the back of my article. But honestly Micronet and Minitel are not really that comparable!

Minitel is a silicon substitute for the national telephone directory – a free alternative for registered telephone subscribers. So you include a modem for the price of a £66 subscription for access to a system in which many services are free (as with Minitel). Fine. But for many of us that means forking out more cash for an RS232 to join Modem and Micro, unless yours takes this into account.

Does Micronet include free online access to the Telecom national phone directory? Or hardware on which games can – at a price – be played?

I may not have to pay to access a free service, but I'll have to pay to use telephone lines. This isn't so straightforward for someone living outside the urban areas.

The PSS network in France goes somewhat further than the British system to equalise the costs of access nationally. The cheaper you make entry level, the easier it is for more people to get into the habit of using the system. This reduces costs, and people become more willing to pay the extra for leisure and less essential online services.

£100 or so, plus the costs of local phone calls to start becoming familiar with the whole concept of online information, is to many home computer users a luxury that they cannot afford. It's yet another price threshold people are reluctant to cross unless the usefulness of doing so can be justified. Look at the way more people will fork out a couple of quid for a budget game today, than pay a tenner for just one – however good.

In the end budget game prices may lead people to spend more money on games, but they'll do so convinced they're getting better value for money.

I work from home for a third world church charity, which is cost conscious. So I've paid for the computer tools most colleagues prefer to do without. It's unlikely I could improve my business efficiency dramatically with online services. Am I losing out by not subscribing?

I'd like to discover how Micronet could be useful in my modest office, but simply cannot afford the cash outlay for equipment, membership and call charges.

"Wow! This "Jack The Ripper" game certainly is realistic!"

My financial controller's question about the value of a service is: "What does it cost *not* to have what you feel is essential?" So I do without, yet curiosity and intuition tell me I should be exploring – not only to get quick access to travel info, telephone numbers etc; but to see if it's possible to update my information on third world issues which matter to people I work with.

I'll do you a deal. Lend me a modem and RS232 for my CPC6128 for a year, and free access. I'll pay the phone bills, and I'll pay the year's subscription retrospectively if I get what I want out of the system. Moreover, I'll keep a diary of my exploits which you'll be welcome to publish in whatever magazine you persuade to take it. Who knows – perhaps *Popular Computing Weekly* might be interested?

Keith Kimber
Chepstow, Gwent

This is a genuine letter, honest – Ed.

ST adventures – results

Mark Sarul of Barwell, Leics, asked on the October 30 letters page if there were any adventure writing utilities available for the Atari ST. The reply given was that there were only the GAC and another by Gilsoft name unknown (which is obviously the Quill), but neither is out for the ST.

You asked if anyone knows different. I haven't got an ST yet but according to various public domain software lists this is what's available with each library's disc numbers:

Page 6, PO Box 54, Stafford ST16 1DR, has ST50 The Eamon Adventure System, ported from the Apple (it doesn't mention whether it's the Apple II or the Macintosh) and now fully implemented on the ST. The disc contains several adventures and full documentation. There's also ST59 Adventure Writer, including a Gem.IMG graphics screen.

Floppyshop ST, 50 Stewart Crescent, Northfield, Aberdeen AB2 5SR has GAM.04 Adventure Writer.

STAR UK, Elmdale House, 8 Elm Place, Aberdeen AB2 3SU has ZZ6 Adventure Writer.

MCSOFT, 9 Abingdon Gardens, Bath, Avon BA2 2UY has GAM 005H – an adventure building system complete with a sample adventure, and GAM 015H Eamon Adventure System.

Obviously I can't say which discs apart from the Eamon Adventure System are duplicated on this list until I get an ST, but I hope this has been of some help. As for using an ST with an Amstrad CTM monitor, as supplied with their CPCs, I thought I should mention that a ready made lead for this purpose is available from Microsnips, 37 Seaview Road, Wallasey, Merseyside L45 4QN, telephone (051) 830 3013. Credit card hotline on (051) 691 2008, for £9.95 plus £1 p&p.

Paul Brown
Sidcup, Kent

Faith in a cruel world

First, thanks and praise to your advertiser, Schoen Keyboards. I bought a board for my QL but made a terminal cods of fitting the terminal tails. Chris Smith charitably suggested a now-corrected design frailty as well as my banana fingers deserved blame, and fitted an immediate free replacement. I have now a splendid keyboard and the warmth of a good deed shining in a naughty world.

Second, I put your publication to ordeal by dilemma. Mrs Seager (5 Oct) will forsake you if you don't refurbish the public face of Kenn Garroch. I will consign you to Robert Maxwell if you do. And what's my reason? Week on week and month upon month through your pages and over your columns strides the wild sage of Och na Garr calling Forth in the tongues of Lisp and C and Modula 2, manhandling monitors, out-facing interfaces, and unthreading all the labyrinths that could interlink an Archimedes, a Cray 1 and an orphan Oric via the French Midi with a comb and paper. As a Basic Basher whose highest flight is a pert peek or a pragmatic poke, I am rebuked, cast down. Then I glance at that tortured picture . . . the hunted, staring eyes, the pain-stitched lips, the endless deformity of that left shoulder thrice the size of its other, the giant hand clawed in a timeless spasm – and I can say "Genius maybe, but my God how he's paid for it!" Here is a terrible levelling. Reconciliation, word over all, beautiful as the sky, is spoken: and I am free to return humbly to my next loop for ay, och ay. Would you and Mrs Seager conspire to rob me of this?

Lastly, a little knock to help David Talbot (5 Oct) persuade the trade to turn on its hearing aid. I have just bought from the local Dixons a Spectrum +3. I like it: printing from RS232 or Centronics parallel in full printer control without having to buy a ransom of interfaces to do it; a Copy command for A4-wide screen dumps; an integral compact Spectrum system. My heart sang a leaping song as the manual confirmed my briefing that I could transfer my golden heritage of home-grown programs via cassette and the special lead to the Sound/Tape socket.

"Be still, my heart" says quite another song. So too say Dixons. The special lead is specially unavailable. The only reason why I did and any other would buy a +3 rather than another similarly priced disc-equipped machine is onward compatibility of software. If Alan Sugar can't stick so essential a lead in with the main pack, should not Dixons feel bound in commercial honour to have the thing available at sale? Why do I who want only to be a customer find myself coursing around Croydon like a demented Aneka Rice without her helicopter looking for a bit of wire that nobody keeps? So I have to order the special lead with a special order form specially for me. It will take a week while my genius lies fallow. How long then at Xmas time? And what is the sage of Och na Garr going to do about it?

George Watson
Croydon

We're sorry but *Popular Computing Weekly* cannot guarantee to reply to *all* letters requesting a personal answer. It helps us enormously if readers are prepared to have general queries answered on these pages, so, if possible, please do not send SAEs.

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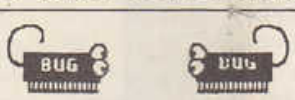

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Garrison Throws Down the Gauntlet

Once upon a time there was a game called *Dandy*. In most respects it was a pretty boring game, with one major attraction; four people could play the game simultaneously. Although a pretty ordinary game, *Dandy*'s one claim to fame is that it was responsible for a bod at Atari Games creating *Gauntlet*.

Once upon another time, there was an arcade game called *Gauntlet*. It was tremendously successful and, as tends to happen, lots of software houses wanted to release it. Only US Gold, however, had the rights to publish *Gauntlet*.

Once upon another time (last time, honest) Firebird released a game called *Druid*, to be followed shortly afterwards by *Dandy* from Electric Dreams. These games had one thing in common, they were both closely modelled on *Gauntlet*.

The reason for this laborious introduction is that yet another *Gauntlet* clone has been launched, only with two major differences. Firstly it is for the Amiga, and secondly it is as good, if not better, than the arcade original.

Garrison is set to be released any day this week, priced at £23 and sold, in the UK at least by an Amiga specialist called Simply Megaware. They were not, however, responsible for the programming of the game. The team behind *Garrison* are collectively known as Digital Dreams, a German company of whom I for one have never previously heard.

Perhaps the most immediately impressive thing about *Garrison* is the music. Strictly for headbangers, it consists of a bastardisation of Dire Straits *Money For Nothing* reproduced immaculately on the Amiga. Although not the same atmospheric music as the original, this is a pretty good alternative.

In play the game allows two people to play simultaneously (this is limited by the two joystick ports), with each player choosing any one of the five available characters (Dwarf, Valkyrie, Wizard, Warrior and Elf). Each of the five characters has different strengths, which manifest themselves in good and bad points.

Graphically, *Garrison* is an accurate clone of *Gauntlet*, with a number of notable changes. All the dungeon floors are complicatedly designed, and the baddies (ghosts, devils, etc) all well defined. One criticism I would level at the game is that, unless you have a 1024K Amiga (and how many of those are there?) your men all look the same, thus making life somewhat confusing.

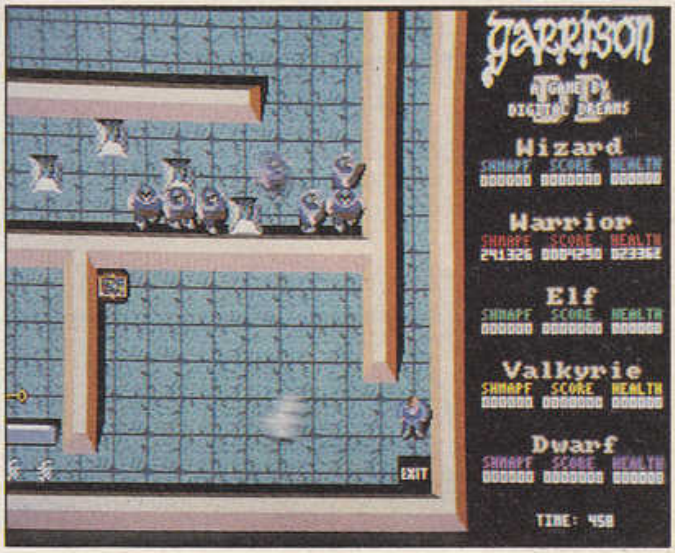
Throughout the game, sound effects are used well, with some excruciatingly painful sounding noises as you despatch of various baddies. People unused to the ins and outs of *Gauntlet* will find the game confusing at first, but after a few nights play, you will be hooked.

Garrison is quite simply the best arcade game yet to be released on the Amiga. It combines excellent gameplay with graphics and sound that matches the original arcade machine – what more could you possibly want?

If you own an Amiga and you don't crack open the piggy bank for Garrison then you're a fool.

Daniel McGrath

Program *Garrison* **Type** Arcade **Price** £23 **Supplier** Simply Megaware, 49 Links Drive, Solihull, West Midlands.



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ATARI ST, AMIGA & ARCHIMEDES & SOFTWARE GALORE

Academy, or *Tau Ceti 1*, flops onto the ST. One of the more eagerly awaited conversions of the year for the average ST owner has arrived, and if sighs of disappointment were heard around the office, it was only because so much was expected of the program.

You play a cadet at the Galcorp Academy, set up to train skimmer pilots for colonisation and reconnaissance work. To graduate from the *Academy* you must score 90% on 20 missions, grouped in five levels of four.

You have a choice of three skimmers, or you design your own with its own capabilities, weapons systems and power plants. Once you've got your wheels the next thing to do is check out the mission briefing before passing out into the barren wastelands where the action commences. I don't think barren is quite the word though, featureless is more appropriate.

The front panel of your spaceship is disappointingly plain. Rather than fancy instruments, monitors and dials, the display is boringly similar to the Spectrum version. The small viewport through which the alien planet surface can be seen reveals stars, the sun, and the oncoming enemy complete with laser fire. Although you can speed up and slow down, there is no indication of such action on the scenery, no sensation of going anywhere. A counter creeps up or down accordingly on the control panel but I'm afraid that's not good enough.

The extra equipment that a standard skimmer can take on board is interesting as well as useful. A scanner gives you a 360 degree radar scan of the surrounding area, which is extremely useful for locating the guy that's blowing your tail to pieces. On worlds where the sun sets it gets pretty dark out there on the plain, so remember to pack a few flares to illuminate the scene. You could always use the infrared viewer as well.

It's not all destruction though, many of the larger buildings have docking facilities, and jump pads to enable you to leap from location to location and so save time (and avoid danger). Talking to your computer while docked allows a few useful functions to be carried out, including, manipulating code pieces found while on the mission.

What was a cracking game on the Spectrum has turned into a mediocre one on the ST, complete with fairly poor graphics and sound.

Duncan Evans

Program *Academy* **Micro** Atari ST **Price** £19.95 **Supplier** CRL, CRL House, 9 Kings Yard, Carpenters Road, London E15 2HD.

Horizontally scrolling screen, men running around firing at you, the action viewed from above, prisoners to rescue from the clutches of an evil enemy. What could it possibly be? *Commando*? No, not quite. This is Konami's *Jackal*, a home computer version of their popular arcade game.

The idea is a simple one. Drive through enemy territory in a jeep, mowing down gooks with a machine gun, or simply running them over (hee hee). You must rescue the prisoners from their huts and deliver them to safety at the helipads where a helicopter will arrive and whisk them away to safety.

Having done the decent thing you can then progress on towards the enemy headquarters and try to finish the game by blowing it off the map.

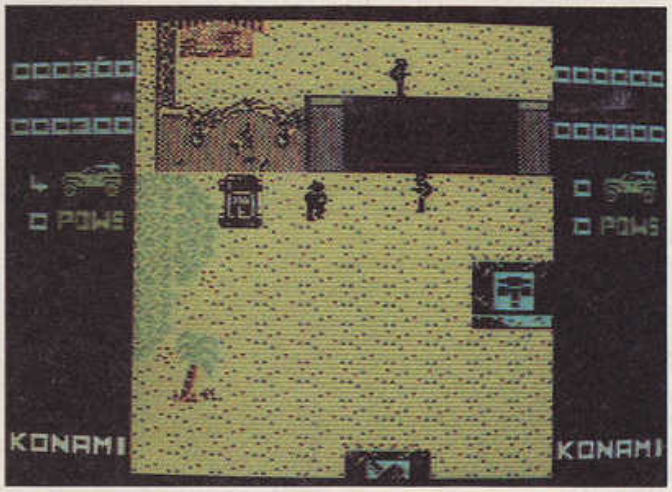
As well as the soldiers firing at you, care must be taken when there are tanks around as these are very proficient at relieving you of the odd life.

On the Spectrum version, which as one might expect is not the best implementation, the scrolling is quite good, and the use of colour is up to scratch, but the soldiers, tanks and jeep are not much better than black blobs.

While running the opposition over is fun, the general gameplay is below par. The Amstrad and C64 versions are a good deal better.

Duncan Evans

Program *Jackal* **Micro** Spectrum **Price** £7.95 **Supplier** Konami, Bank Building, Bank Street, Newton Abbot, Devon TQ12 2JL.



Your complete guide to all the software released this week

Amiga

Program *Ninja Mission* **Type** Arcade **Price** £9.95 **Supplier** Mastertronic, 8-10 Paul Street, London EC2.

Mastertronic moves into the Amiga market with this conversion. Graphically it is very similar to the ST version, something of a disappointment when the Amiga is capable of better, but the sound is noticeably less tinny. The music is quite good, in a Europop sort of way, and accompanies the limited martial action proceedings. Good enough for a wet afternoon, but worth a tenner?

Amstrad PCW

Program *Countdown to Doom* **Type** Adventure **Price** £9.95 (disc) **Supplier** Topologika, PO Box 39, Stilton, Peterborough PE7 3BR.

Program *Philosophers Quest* **Type** Adventure **Price** £9.95 (disc) **Supplier** Topologika, PO Box 39, Stilton, Peterborough PE7 3BR.

Program *Kingdom of Hamil* **Type** Adventure **Price** £9.95 (disc) **Supplier** Topologika, PO Box 39, Stilton, Peterborough PE7 3BR.

continued on page 18 ▶

Software guide continued

Program *Acheton* **Type** Adventure **Price** £9.95 (disc) **Supplier** Topologika, PO Box 39, Stilton, Peterborough PE7 3BR.

Amstrad CPC

Program *Peter Shilton's Handball Maradona* **Type** Arcade **Price** £2.95 **Supplier** Bug-Byte, Victory House, Leicester Place, London WC2H 7NB.

Oh no. The naffest licence ever reaches the Amstrad. Owners of said machine steer well clear.

Program *Aliens* **Type** Arcade **Price** £9.95 **Supplier** Electric Dreams, Terminus House, Terminus Terrace, Southampton SO1 1FE.

Some attractive graphics and atmospheric games make this US version of Aliens a reasonable alternative.

The first game though, dropping into the asteroids atmosphere, is still ridiculously hard, but at least you can skip that section.

Even less palatable is the fact that this is a multi-load job on cassette.

Program *Guild of Thieves* **Type** Adventure **Price** £19.95 **Supplier** Rainbird, Wellington House, Upper St Martins Lane, London WC2H 9DL.

This 6128 only version features similar graphics to the ST version, but not quite as good obviously. Still, excellent adventure in which you undertake mass thievery.

All 6128 owners should rush out and buy immediately.

Program *Super Sprint* **Type** Arcade **Price** £9.95 **Supplier** Electric Dreams, Terminus House, Terminus Terrace, Southampton SO1 1FE.

The officially licensed version of the arcade classic. Oh, you've already bought the Codemasters budget version. Never mind. The official version still looks antiquated.

Program *Jackal* **Type** Arcade **Price** £7.95 **Supplier** Konami, Bank Building, Bank Street, Newton Abbot, Devon TQ12 2JL.

continued on page 21 ▶

The production line over at Infogrames HQ has recently cranked into full gear, and *Phoenix* is one of the latest offerings.

Programmed by Ere Informatique, *Phoenix* resembles a cut down version of *Stargliders;* it has wire frame graphics, but your movements are strictly limited.

You are the pilot of the Phoenix AY21, with orders to reopen some disused space lanes by flying down them and shooting anything that gets in the way.

The control panel is fairly pretty, but doesn't offer a great deal of information. Your energy level, level number and a short range scanner are about it. That latter item isn't much use, because everything moves so fast you don't have time to look away from the out-of-the-cockpit view. Rushing towards you in wire frame 3D are tracks of panels which mark the space lane, along with coloured squares which can mean bad news, and large obstructions, which definitely mean bad news.

To start with, the space lane is three blocks wide and wrapped into a canyon shape, it does level out into a plain later on though, and expand to six lanes. The greatest problems arise when sections of the space lane are simply missing, and you must change lane in order to avoid disappearing into a black hole (is this the A1 or what?). Given that everything hurtles at great speed towards you, your reactions need to be quite quick initially. When great chunks of the space lane are missing, and you have to swap lane at every panel, thought goes out of the window and you simply have to react correctly and in time. It can be quite exhilarating when you flash through a particularly hard sector, but equally annoying when you blow it, just short of the end of the level.

Very reminiscent of the *Star Wars* game, *Phoenix* is one for those with only the fastest of reactions and sharpest of minds.

Duncan Evans

Program *Phoenix* Micro Atari ST Price £19.95 Supplier Infogrames, Mitre House, Abbey Road, Enfield, Middlesex.

You too can be President Reagan in the latest release from PSS on their Classic Conflicts label. No, I don't mean it shrinks your brain or gives you wrinkles, merely that you can control East or West in a game of 'Superpower Politics'.

Although the C64 doesn't have the capability for displaying high res, colour graphics with loads of detail, the actual world map in the central window of the display is still effective. A blow up of the area under the map cursor appears in the bottom left of the screen anyway.

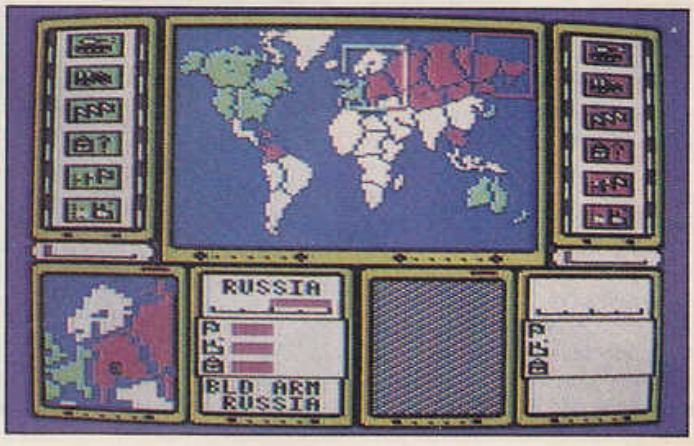
Every turn, each player has a number of options points, doing anything takes up a few points. Your options including attacking adjacent countries, building up the industrial strength, enforcing countries with the forces from the one next door, exerting political influence and building factories.

As a one-player game it is interesting enough for a couple of plays, but the lack of sophistication and strategy (this isn't an 8-bit Balance of Power) results in it becoming stale before too long. As a two-player game, the thing has more longer lasting appeal.

Quite a nice, easy game for indulging in the odd bout of megalomania. INF treaties? Fah!

Duncan Evans

Program *Power Struggle* Micro C64 Price £4.99 (tape), £9.95 (disc) Supplier PSS, 452 Stoney Stanton Road, Coventry CV6 5DG.



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How to ruin a potentially good game, part 1: perfectly reasonable basic idea and add interesting weapons systems. Throw in four-way movement for the players, ship and docks for refuelling and re-arming. Give the game three different paths so as to cater for all levels of players and mix it all together. Finally, give your cake-mix to people with little talent at baking.

The result: a limp, irritating and unprofessional product. Call it *Gunboat* and try to pass it off as a game.

Piranha's game of life and death in a maze of internal waterways where the object was to destroy enemy command stations had a lot going for it, on the drawing board.

The ship sports hydrofoils which can carry it over sandbars and shallow water, and engines for slow reversing.

The weapons systems include a deck gun with 360 degree field of fire, torpedoes, mines and a missile which automatically goes for the biggest target on the screen.

The problems start when you realise that this is a joystick and keyboard affair, and that when you start firing the deck gun you lose control of the ship. When you're in a tight corner this can be fatal.

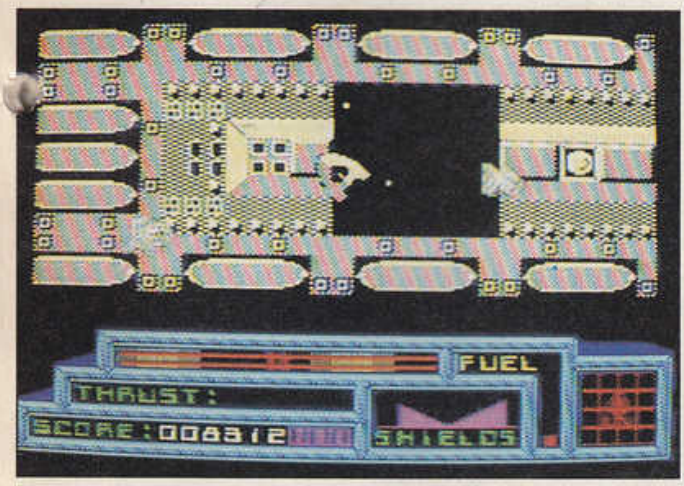
The answer is supposedly don't use the deck gun in those circumstances, but when you're surrounded by foes on land, sea and in the air there's not much choice.

What really lets *Gunboat* down are the flickery sprites, the dismal background graphics, appalling horizontal scrolling and mediocre sound effects.

As a game released in early 1984 this wouldn't be too bad, but it isn't 1984, need I say more?

Duncan Evans

Program *Gunboat* **Micro** C64 **Price** £8.95 (tape), £13.95 (disc) **Supplier** Piranha, Stockton House, 1 Melbourne Place, London.



Death or Glory was pretty dreary on the Commodore 64, but on the Spectrum it takes on whole new levels of dreadfulness. Lavishly illustrated with screenshots (hah!) the packaging informs you that your task is to defend the colony of New Stratford, presumably just off the Avon Nebula, from an invading fleet (after the souvenirs, I should think).

Harrassed by what look like swarms of angry salt-shakers, you fly your spaceship across the resolutely non-scrolling starfield, avoiding missiles until you locate the mothership on your scanner. Then fly over it, bombing off great square chunks.

The bits I particularly like are the edges, which consist of a thin coloured strip and lots of black space – still, the space explodes too when you bomb it, so what the heck?

Complete one mothership, and you're thrown into another wave of salt shakers and have to chase after another lego leviathan. Since I scored 290,000 on my first go with both hands shut and my eyes tied behind my back, EITHER I am the galaxy's greatest arcade game player OR "Death or Glory" is hideously uncomplicated and unsatisfying.

Could I just say that the high-score table is pretty? Because I wouldn't want to be accused of ignoring the good points.

John Renwick

Program *Death or Glory* Arcade **Price** £8.95 **Machine** Spectrum **Supplier** CRL, CRL House, 9 King's Yard, Carpenter's Road, Stratford, London E15.

Software guide continued

Atari XE/XL

Program *Henry's House* **Type** Arcade **Price** £1.99 **Supplier** Mastertronic, 8-10 Paul Street, London EC2A 4JY.

Engaging oasis in a software desert. Platform and ladders conversion with four channel sound and music.

Program *Knight Orc* **Type** Adventure **Price** £14.95 (disc and tape) **Supplier** Rainbird, 74 New Oxford Street, London WC1A 1PS.

Another version of Level 9's latest, without graphics, even on the disc version.

BBC B

Program *Ransack* **Type** Arcade **Price** £7.95 **Supplier** Audiogenic, Winchester House, Canning Road, Harrow HA3 7SJ.

Program *Ziggy* **Type** Arcade **Price** £7.95 **Supplier** Audiogenic, Winchester House, Canning Road, Harrow HA3 7SJ.

Program *Life of Repton* **Type** Arcade **Price** £6.95 (tape), £7.95 (disc) **Supplier** Superior Software, Regent House, Skinner Lane, Leeds LS7 1AX.

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All good games eventually spawn imitators, and Thundercats is pretty clearly derived from that ultimate slash'n'hack feast, Nemesis the Warlock. However, rather than simply hewing your way through screens full of platforms and ladders, here you have to keep moving, running through parallax horizontally scrolling backgrounds while you do your bloodthirsty work.

Thundercats is licensed from a cartoon series, but don't let's hold that against it. Tidily programmed, colourful, and accompanied by one of those insistent weebly music tracks, it's a fine example of what the Commodore 64 is good at. You play the heroic Lion-o (can you believe that?), leaping chasms, jumping over obstacles and slashing down hordes of Molemen on your way to retrieve the Eye of Thundera from the wicked Mumm-Ra (stop this, it's getting too silly).

Leaping to catch shields of power, ducking to cut down teeny little moles, and keeping an eye on the timer, Lion-o speeds to the rescue. You get a bonus according to how many enemies you kill, and another if you complete a level in time. Bonus levels give you one chance to rescue a caged pussycat; fall, and it's back to the main game.

You can pick up time bonuses, and extra weapons such as fireballs, along the way. Here the resemblance to Nemesis is strongest, as you must decide whether to use sword or fireball to get out of tough spots. In a pinch, you can sometimes leap over your enemy and do him in from behind. Collide with a moleman or get hit by a flying raven and you do a most Nemesis-like backflip and keel over.

Fine, then, apart from a few very obvious similarities to the otherwise less sophisticated NTW.

John Renwick

Program *Thundercats* **Type** Arcade **Price** £9.95 **Machine** CBM64 **Supplier** Elite, Anchor House, Anchor Road, Aldridge, Walsall.

Another funny animal licence – at least this time it's from Disney, which gives it something of a pedigree. Despite the cutesy animal tag, Basil is a pretty good example of the platforms-and-ladder - arcade - adventure - strategy genre. You're a mouse detective, spiritual descendent of Great Man of Baker Street (or you could be an actual descendent – old Sherlock had some funny habits . . .), and your task is to rescue your kidnapped partner.

Each scene contains eight clues, which you must collect by examining objects while avoiding the rodent henchmen of the evil Professor Ratigan. Only five of these clues are genuine, but you won't know which to keep and which to discard until you have filled all your Clue Pockets, and can activate your magnifying glass.

When assembled, the clues will also indicate the way out of the level and onto the next. The three levels depict the seedy waterfront, the sewers, and finally Ratigan's hideout. Finding cheese boosts your energy and allows you to make longer leaps, and mousetraps can be collected and later dropped in front of the henchmen to paralyse them.

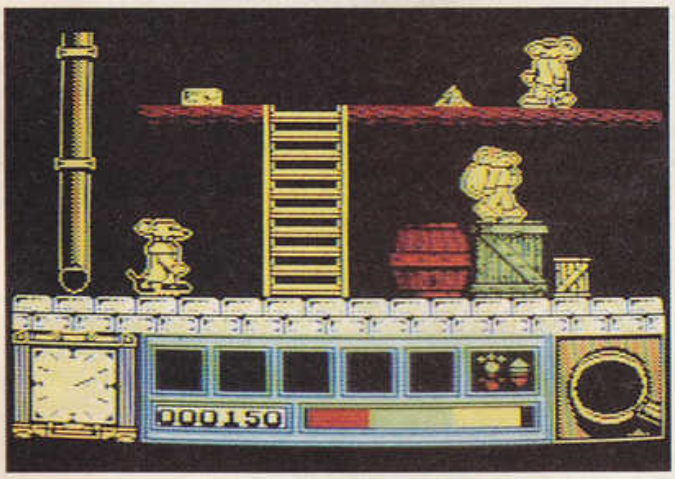
Here's a clue which will gain you access to hidden sections of the game; letter boxes are made for jumping into!

The larger single colour graphics are very stylish, nicely designed and perfectly masked to avoid all colour clashes with the detailed backgrounds.

The only annoying aspect of the game is the plip-plip-PLIP-plip-plip Basil makes every time he jumps, which can become a tad tiresome.

Otherwise, Basil is excellent, in fact the best programmed Spectrum game I've seen for some time. I hope the enjoyment lasts long enough for me to complete the quest.

John Renwick



Program *Basil the Great Mouse Detective* **Type** Arcade/adventure **Price** £7.99 **Machine** Spectrum **Supplier** Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.

Software guide continued

Program *Cops 'n' Robbers* **Type** Arcade **Price** £1.99 **Supplier** Atlantis, 28 Station Road, London SE25 5AG.

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Program *Survivors* **Type** Arcade **Price** £1.99 **Supplier** Atlantis, 28 Station Road, London SE25 5AG.

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Program *Knight Orc* **Type** Adventure **Price** £14.95 **Supplier** Rainbird, Wellington House, Upper St Martins Lane, London WC2H 9DL.

Program Radius **Type** Arcade **Price** £1.99 **Supplier** Players, Mercury House, Calleva Park, Aldermaston, Berks RG7 4QW.

continued on page 24 ▶

Software guide continued

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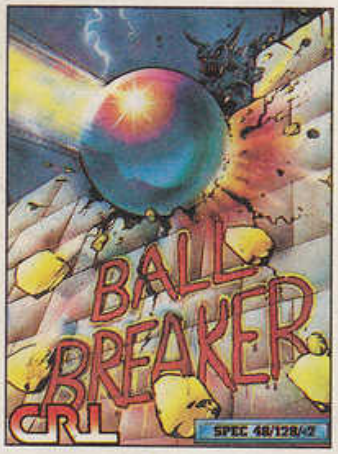
Program *Quantum* **Type** Utility **Price** £89 **Supplier** Brigite Neese & Associates, 53 Osborne Terrace, Stacksteads, Bacup, Lancashire OL13 8JY.



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Program *3D Game Maker* **Type** Utility **Price** £8.95 **Supplier** CRL, CRL House, 9 Kings Yard, Carpenter's Road, London E15 2HD.

Program *Ball Breaker* **Type** Arcade **Price** £8.95 **Supplier** CRL, CRL House, 9 Kings Yard, Carpenter's Road, London E15 2HD.

Program *Home Builder* **Type** Educational **Price** £4.95 **Supplier** Coxsoft, 31 Fullwell Avenue, Barkingside, Ilford, Essex.

Program *World Class Leaderboard* **Type** Sport Simulation **Price** £9.95 **Supplier** US Gold, Unit 2-4, Holford Way, Holford, Birmingham B6 7AX.

Simulation fans will probably have spent the last few months bemused at the lack of noise from one particular company: Digital Integration. Now this silence has ended with the arrival in this morning's post of *Bobsleigh*.

The stage is set immediately after the game has loaded with a rendition of the theme from *Ski Sunday* (quite what this has to do with bobsleighing, I'm not sure, but it's pretty good nevertheless).

Anyone who has played *World Games* from Epyx will be familiar with the concept of this game, although to be fair to DI, this game has taken the concept of *Bobsleigh* considerably further than *World Games* even attempted to do.

The object of this game is not only to compete with the rest of the world, but to manage your finances, and make decisions that will prove crucial to the long term challenge your team will, or won't, be at the Olympics (your ultimate goal).

To be painfully honest, the first half an hour with this game only reinforced my doubts about the game as a concept. After a few more goes, however, as I began to master the techniques of getting through each course, my feelings started to change.

What makes the game so playable is the level of concentration and planning needed to make a series of successful runs.

You must reach optimum fitness, choose the right bob, and make all the right decisions on runs that can last up to one and a half minutes.

Graphically, *Bobsleigh* is similar in many ways to previous Digital Integration launches. It may not be quite up to *TT Racer*, but it is both representative and fast enough.

Bobsleigh is another winner from DI. It may not (quite) be in the *TT Racer* league, but it is still well above the recent crop of blast games. Miss it at your peril.

Francis Jago

Program *Bobsleigh* **Micro** Various **Price** £8.95 **Supplier** Digital Integration, Watchmoor Trade Centre, Watchmoor Road, Camberley, Surrey.

A while ago now, *Metrocross* was all the rage. In case you missed it, it featured horizontal scrolling and a hero who had to leap over obstacles, dodge hazards and generally mess around with all the objects to score bonus points, go faster, etc.

Dateline November 5th, and Audiogenic has released *Despatch Rider* for the BBC. It's programmed by Phil Whitehurst and it does bear something of a resemblance to the aforementioned US Gold game.

The plot this time cases you as a motorbike courier, delivering mail, avoiding obstacles, and picking up gas, as you speed on your way to the end of the level and to meet your girlfriend. How sweet.

Anyone who has spent more than five minutes on the roads of London will know that in fact, most Despatch riders spend their time screaming around on GSXR 1100 Suzukis pretending to be Barry Sheene, and avoiding the unwanted attention of the eagle-eyed constabulary.

And as for the likelihood of them having girlfriends; who needs them anyway? (Ooh-er sounds a bit dodgy!!).

The similarities between this and *Metrocross* are obvious, but *Despatch Rider* is a much more inferior product.

It runs in Mode S so that means four colours and chunky graphics.

Fair enough, but to have blue and green all over the place makes it look pretty disgusting.

The horizontal scrolling leaves a lot to be desired, as does the gameplay, although the sprites are large so at least that's something.

You can speed up or slow down, but if you take too long, then you start to run out of time and before you can say Kamikazi you've lost another of your seven lives. You're definitely running out of lives by now.

In the audio department there's not much happening either.

No music on the title page or anywhere else, and entirely predictable noises for the bike and collisions.

There is nothing in the way of glossy frills. The control key arrangement is standard and you can redefine them if you want to.

At a couple of quid, *Despatch Rider* would make a decent budget game for the Beeb, but at this price it really can't be recommended.

Duncan Evans

Program *Despatch Rider* **Micro** BBC/Electron **Price** £7.95 **Supplier** Audiogenic, Winchester House, Canning Road, Harrow HA3 7SJ.

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Shapely Creations

Peter Worlock reviews *Sculpt 3D* – a program which will allow you to create three-dimensional images.

Computer graphics has followed a clearly marked path of evolution from the character-based displays of machines like the Commodore Pet and original Apple II through low resolution pixel graphics on Spectrums, Amstrads and C64s to the very high resolutions possible on the Amiga and ST.

And as the hardware facilities improved, so did the software. Paint and draw programs for producing two dimensional images are now commonplace. But *Sculpt 3D*, the latest graphics package for the Amiga, represents another step forward on the evolutionary path: full three dimensional image processing.

To date such software has been confined to dedicated graphics workstations or large mini and mainframe systems. Of course there have been many 3D wireframe graphics programs for older 8-bit computers but *Sculpt 3D* goes well beyond this to handling solid filled objects in full colour and as icing on the cake adds ray tracing facilities too.

Ray tracing is something of a flavour of the month thanks to the well known graphics demos *Juggler* on the Amiga and *Shiny Bubbles* on the Atari ST (in fact *Sculpt 3D* was written by Eric Graham creator of *Juggler*). *Sculpt 3D* is a very powerful program and will allow you to create your own sophisticated images but there are some major drawbacks.

Features

The program comes on a single 3½" disc accompanied by a 96-page laser-printed manual. The disc as supplied is close to full with the program file and several demo files and therefore lacks Workbench or a CLI boot routine. To load *Sculpt 3D* you therefore either have to load Workbench separately or create a CLI boot disc.

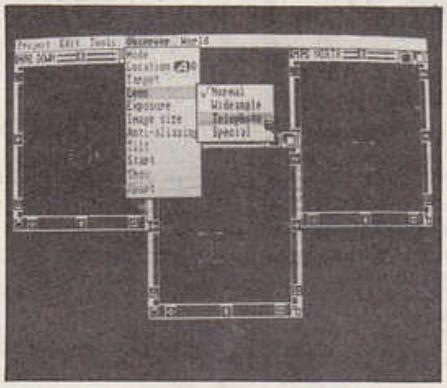
Once the program has loaded you are presented with the main work screen which comprises three viewing windows and the Amiga's usual hidden menu bar. The three windows show a bird's eye view, the view from east to west and the view from south to north, corresponding to the familiar plan views and elevations used in architects' drawings and blueprints.

This can take some getting used to since you have to visualise your objects from these three viewpoints and as you create an image in one window it is rendered from the appropriate viewpoints in the other two windows.

Objects are created by defining points in 3D space (called vertices) and edges linking these points. Once again, this is not a natural process for anyone used to draw and paint programs. To create a square face (a tabletop or a wall for example) requires the following steps.

Method

First select one window, say the top down view for a tabletop. Holding the left mouse button down you move the cursor to the desired location and then with the left button still down press the right button to create the first point. Repeat for the other three corners.



Next, you have to select only two or three points to create the edges. If you select three then click on the edge-building tool you create a triangular face with three edges, ie, half of the tabletop cut diagonally. Then deselect the first three points, select the fourth plus the two adjacent ones and then click on the edge building tool again.

This creates a rectangle composed of two touching triangles. In the top down window this looks like a rectangle with a diagonal line through it. In the other two windows the image is a single horizontal line since these are edge-on views.

This process sounds complicated and time consuming and in the early stages it can be both. However, once you get used to the method of working it does become quicker. The main thing to remember is that edges can only be created by connecting two or three points.

If all objects had to be created like this *Sculpt 3D* would be a very tedious program to use. Instead, it provides quick and easy tools for creating a variety of shapes. From a menu selection you can add cubes, spheres hemispheres, cones and other shapes and solids to your image.

Creative facilities

Moreover, there are a number of other useful facilities to make the process of building 3D shapes easier. One of these is the extrude tool which takes a 2D image and then builds it up layer by layer. This is a quick and easy way of making three dimensional lettering for example:

Once your image has been created you then have a number of options of how to view it. Helpfully, these options are presented in a way that lets you treat your objects as a film set. First you can position your camera (called the observer) anywhere in the scene and specify a target which governs where the camera is pointed.

Next you can light the scene with one or more lamps hanging these in different positions to cast shadows and to illuminate areas that would otherwise be unlit.

Finally, you can specify the lens on the imaginary camera, using another from a telephoto wide angle to a fish eye.

So you've created your image, positioned your camera and lighting but you still haven't seen anything except the three 2D windows. *Sculpt 3D* creates the full scene on a separate screen in one of five sizes tiny, small, medium, full and jumbo. Start things going and sit back. And wait and wait and wait.

The quickest image is wireframe in which only the edges are portrayed. Next is painting in which visible faces are filled in solid colour but there is no shading or shadows and no difference in texture. Third up is snapshot which adds crude shadows and some difference in texture. Finally there is photo which reveals your image in all its realistic glory.

Apart from the increasing time needed to calculate these images they carry an increasing penalty on memory overhead (more on this later).

So much for the basics, there's a lot more. For example. you can change all of

the colours in an image using the full 32-colour palette from the Amiga 4096 shades and different faces be painted different colours.

Moreover each face can be a different texture ranging from dull through shiny to mirror. There is also glass texture which features varying degrees of transparency and reflection depending on the angle from which it is being viewed.

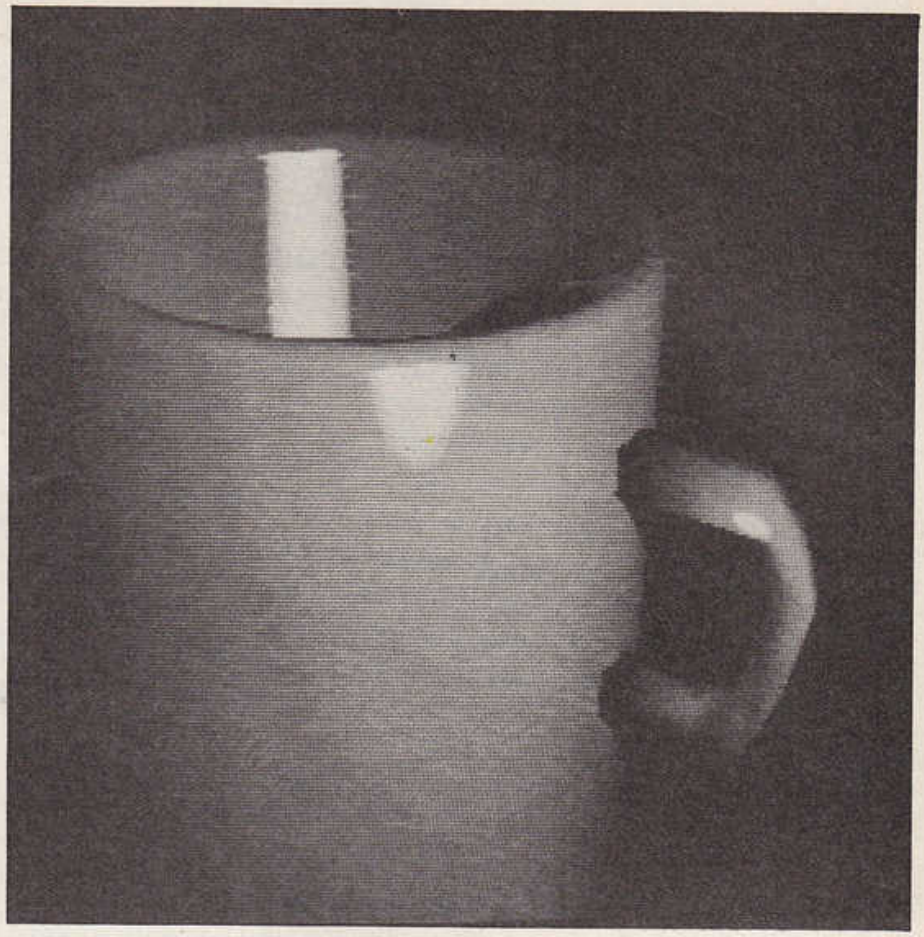
You can also add a sky and a chequer-board ground pattern stretching away towards the horizon. The software handles perspective automatically and calculates shadows from your lamps, too.

The really clever stuff and the most impressive visually is the ray tracing facility, which will calculate reflections (and indeed reflections in reflections) on surfaces defined as glass and mirror. This is what gives *Sculpt 3D* pictures their realism.

What all this means is that you can create on your Amiga something like the following, a town with roads, streetlights, shopwindows and office blocks. Define windows as glass texture and put some lamps inside the buildings and *Sculpt 3D* will realistically draw all the shadowing and reflections and the varying light levels.

Next position your observer within the model, generate a finished image and save this to disc. Move your observer and generate a new image. Save this one to disc. Repeat umpteen squillion times. Write a batch file to successively display these images and bingo, you have an astoundingly realistic computer-generated cartoon of someone moving through this solid-looking world.

This kind of project is possible but – here we come crashing back to reality. A large project such as the one just described would be a lifetime's work because powerful though the Amiga is it is a dinosaur at this kind of application.



Problems

The first problem is that the kind of 3D images *Sculpt* creates require an awful lot of memory to calculate. On a 512K Amiga you won't have room to do anything except the crudest scenes of simple blocks and spheres and no reflections either. On a 1Mb system you can go further but 2 or 4 megabytes is preferable. (Once the image is created, of course, it can be stored on disc, occupying only the memory required for the screen display.)

Secondly ray tracing involves unimaginable numbers of calculations and not even the Amiga's 68000 processor can rattle these off at anything like a sufficient speed. A maths co-processor might help but there's no mention of this in the manual so I imagine it isn't supported. This speed problem is why computer generated animation is largely confined in mega-mainframes like the Cray used for *The Last Starfighter*.

A very simple image can take 10 to 15 minutes calculation in photo mode assuming you have the memory to accommodate it. Complex images will take hours and possibly days to develop.

Conclusions

Sculpt 3D is an incredibly powerful program which can create truly astounding displays. Provided you can get to grips with the system of using points in three separate windows and the problems of visualising 3D objects in three 2D windows it is relatively easy to use.

Unfortunately on a 512K Amiga it is little more than a curiosity since you cannot do more than create the most basic images. To fully exploit the software you will need a massively expanded system with a megabyte or more of RAM and two disc drives or a hard disc.

Apart from these limitations of the hardware (not the fault of *Sculpt 3D*) there are one or two snags with the software. Least among these is the lack of a line-drawing tool. I suppose there's a good reason why the software works in points rather than edges but for us humans edges are a more natural reference point. A line drawing facility with rubber banding would make *Sculpt 3D* a great deal easier to use.

Another improvement would be the ability to correct drawings by specifying co-ordinates for points. There is a co-ordinate system in the software, but trying to adjust using the mouse can require a great deal of trial and error. Typing in a couple of numbers would be a lot easier.

Most importantly, however, the memory problems do not appear to have been properly catered for. Usually if *Sculpt 3D* runs out of memory it simply tells you so and lets you carry on working but on one occasion it threw me back to Workbench trashing the image I was working on and a second time it simply crashed.

Anyone seriously interested in solid modelling and ray tracing will jump at *Sculpt 3D* but you should be prepared to pay for the hardware expansion you'll need. The rest of us will probably stick to *Deluxe Paint*. □

Peter Worlock

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Delicious Deluxe

Matthew Palmer reviews two graphics programs for the Amiga

Whilst there are a good number of Amiga programs available, some of them do not exploit the full capabilities of the machine, especially in games software. However, in the business/creative section and primarily, graphics packages, the standard is much higher.

Two such programs, *DeluxeVideo* and *DeluxePrint*, both from the makers of *DPaint*, Electronic Arts, combine power with ease of use.

DELUXEVIDEO

DeluxeVideo is a powerful graphics manipulation tool which combines static pictures, moving objects, sound effects, music and various graphic effects such as rotations, colour cycling, move to, fade in/out, strobe and resizing.

The package comes with three discs and a fairly large manual. The main disc is called the Maker disc where you put together your videos, together with a Player disc and a Utilities disc.

The whole system is controlled by Intuition, the Amiga menu and window system. It is easy to understand for a complex program, but the theory of the video hierarchy will mislead, unless the user has read the tutorial section in the manual beforehand.

The main video script contains the scenes and music on different 'tracks'. The tracks are where you place the effects and there are four different ones for background, foreground, music and control on the video script. For each scene on the video, there is a separate scene script just like the main screen, complete with more tracks and effects. The tracks on each scene allow background, foreground, control, picture, object, sound, text line and polygon text effects.

Selecting a picture track will load in any IFF picture and the ability either to display immediately or to fade in the picture. One restraint is that *DeluxeVideo* only uses eight colours and the pictures will be displayed in the best or current palette. However, the display is still quite good. Objects are selected in the same way and can be loaded in on the video and made to appear, disappear, move, shrink and expand. Any brushes made in *DPaint* can be used as an object.

Text can be put on the screen in two ways. Text in the usual fonts can appear, move or disappear. Polygon text, though not giving different fonts, can be rotated in three axes to give better effects.

Sound effects can be incorporated and changed in *DeluxeVideo*. Even IFF sampled sounds may be included, memory permitting. Music files can be used to play at the same time as the graphic effects. Electronic Art's own *Instant Music* and *DeluxeMusic* programs, or any other using IFF format, can be used to compose your soundtracks. Included with *DeluxeVideo* are ready-made 3D bar and pie chart videos, as well as a text slide show, enabling you to create a video in minutes.

The whole video or a separate scene can be viewed at any time and controlled with the *DeluxeVideo* control panel which will play, fast forward, rewind, pause, mute, stop and restart the video. A timer shows the time in seconds and can be used for exact timings. The time at which the video runs can be changed from normal to realtime, half or quarter speed and superslow.

Finished videos can be played using the Player disc, without the Maker program. The final disc, *DeluxeVideo* Parts, has drawers for music, instruments, objects, pictures and videos. It also includes Unpack, a program that unpacks the demo videos into their corresponding drawers and Vidcheck, a video file compressor. One last utility is The Framer, which loads in a *DPaint* picture and using a six frame box, splits the picture into six and animates through all six of them.

Overall, *DeluxeVideo* is a sophisticated graphics tool, able to put together files from other Amiga programs and make them work well together. *DeluxeVideo* costs £69.95 and if you can afford it is a very good program.

DELUXEPRINT

DeluxePrint is an easy to use printing program, enabling you to design greeting cards, letterheads, signs, banners, posters and calendars. Upon loading the program, you are presented with the main format menu, from which you choose one type of design. Choosing one of them with the mouse will display the blank page, occupying about half the screen for greeting cards and posters and half the area again for letterheads or banners. On each one, you are given the choice of selecting a border, images (small pictures) from the library of clip art or placing text on the page, in a variety of fonts and sizes.

Selecting a border from the range of designs on the disc is the first thing to do. There is a good range available, in any colour. Once you have selected a border, you have the option of removing it again if you don't like it, or editing the pattern. Choosing the edit will allow you to use basic drawing functions such as line, box, draw and oval, as well as the ability to move or reverse the design.

There are a wide range of cartoon type images to choose from, including such subjects as school, computers, sport, travel, clothes, space, buildings and others. As with the border, once selected, images can be placed on the workslate, moved, removed, copied, flipped, enlarged and edited. They can also be placed in patterns.

The last thing to add to a document is the text, in a limited variety of fonts and sizes. As with before the text can be moved or enlarged. One useful feature is a built-in calendar of every month of every year since 1 AD.

Once you have completed your page, you can save it or print it out. As you can see from the sample, printing gives good results on dot matrix printers. Greeting cards, signs and banners which take up half the screen will be printed double the size, but letterheads remain as they are shown.

As with *DeluxeVideo*, this package combines ease of use with powerful features. Its also quite cheap at only £24.95. All-in-all, another good program from Electronic Arts. □

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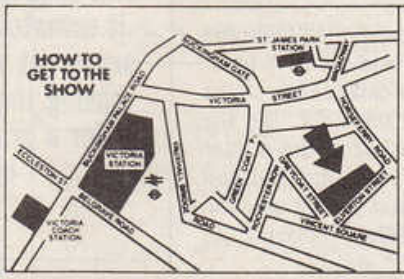

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♯ Sharp Syncopations ♯

Mark Jenkins ends his series on music software for the Commodore 64, with a look at two more programs in the Sonus range of music packages.

Those of you who do not own a Commodore 64 will be beside themselves with glee to hear that this is our last look – for the moment – at the Sonus range of C64/C128 music packages.

The packages, which include two sequencers, an event editor, a Yamaha RX drum machine librarian and a Yamaha DX synth editor/librarian will run on most MIDI interfaces such as those from Datel. SIEL, Jellinghaus and the forthcoming model from Cheetah, although it would be as well to check out the interface you intend to use before purchasing.

Prices for most of the packages are very reasonable, and the last two we have to look at are ScoreTrack, a music notation package, and Sonic Editor, a sample editing package available for the Ensonia Mirage (or its rack-mounted version) and the Sequential Prophet 2000 or its rack-mounting version, the 2002/2002 Plus. We will cover Sonic Editor as soon as we can get our sticky hands on the appropriate samplers.

ScoreTrack will convert files from the Sonus SuperSequencer and Studio 1 packages into conventional musical notation and allow you to print them out. The file convertor is on the reverse of the master disk and you must save the routines needed for your particular printer onto the front side of the disk before replacing the write protect sticker.

ScoreTrack comes with a large and fearsome-looking anti-copying dongle for the User port – this can be replaced for $35, but only if you have already registered as a purchaser. ScoreTrack displays treble and bassclefs with unlimited polyphony, notes down to 1/32nd notes, double sharp and double flat and other less common pieces of notation, all rest values, and key signatures. The package includes its own sequencer routines, which may be easier to use in some cases than importing music from SuperSequencer. Alternatively, notes can be placed on the screen using a cursor, moving on to the next note with the +/– keys.

ScoreTrack can hold 63 patterns each with 16 tracks, so theoretically you can store 1,008 short musical passages. There is a 255-position Song Table, and it is possible to mute tracks on some passes so a passage need not always sound the same. ScoreTrack gives out MIDI clocks when playing so you can synchronise a drum machine or other sequencer, and you can quantise your performances to exact divisions of notes.

"ScoreTrack is about the cheapest notation package available on the market at the moment, and having its own sequencer built-in makes it unmatched if you need to score out your music without having the budget available for a professional music copyist."

If you choose any recorded track and then press "E" for "Edit", ScoreTrack will do some calculations and then display the passage in musical notation. This could be a pretty slow process if you have used many tracks, but the relative cheapness of the package can excuse this.

The way notes are displayed on the screen is subject to the chosen quantisation, a minimum length value, a legate function which specifies the minimum amount of time by which notes have to overlap before being considered as a single chord, a staccato function which defines minimum rest length, and the chosen key with up to 7 sharps or flats. You can also transpose the whole display and alter the colours of the display.

ScoreTrack uses two linked cursors, one showing the current note, one the MIDI event which created that note. The F5, 6, 7 and 8 keys move the display to new notes, and a change in any Note On time will automatically be matched with a change in the appropriate Note Off.

You can delete and insert notes with the Inst/Del key and delete and insert more specific MIDI events (pitch bends, patch changes and so on) using the Event Editor section. After-touch is not recorded as it uses up too much memory, although you can insert it using the Event Editor section.

On the Note Editor page, pressing P will print out the whole screen display, and Epson, Panasonic and Star printers are currently compatible. There is also a routine on the disk to set up ScoreTrack for other printers as well.

ScoreTrack is about the cheapest notation package on the market at the moment, and having its own sequencer built-in makes it unmatched if you need to score out your music without having the budget available for a professional music copyist.

If you intend to use other players who read, or if you want to copyright any of your compositions, ScoreTrack could be invaluable.

Also included in the Sonus range are the MIDITech System Exclusive Librarian (£60), The Sonic Editor (£60), the basic Glasstracks sequencer (£47), the RX drum machine Librarian (£30), and the Double Banked Librarian/Programmer (£60) for the Yamaha DX7/TX7. ScoreTrack costs £100. □

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Pump That Base

David Lester looks at the more serious side of computing and compares three database programs for the Amstrad CPC 6128.

The CPC 6128 was promoted by Amstrad as a serious personal computer for the home; more recently, though, Amstrad have instead been pushing their newer IBM compatibles, and PCWs, to the serious home user, and the serious side to the CPC micros seems to have tailed off.

After a wordprocessor, a database is probably the most frequently used serious software package in the home, and despite the trend away from serious software for the CPCs, there are several available to the 6128 owner. Each, of course, claims to be the ultimate in databases - with the most power and yet easy to use. How do these claims stand up? In this short piece we aim to reveal the relative strengths and weaknesses of three packages.

Databases are basically great for accessing information in all sorts of different ways, far faster than could be done manually. But before you can manipulate the files, you have to install them. You need to set up what form you want to store your chosen data in terms of what information you want for each record (name, address, 'phone number, etc) and how much space you want for each entry. This requires substantial planning before you actually touch the keys. It also means that a successful database needs to be easy to operate, so that you spend your time using the data, rather than working around the limitations of the software.

It is this which is to my mind the biggest disadvantage of *At Last*, by Rational Solutions. It comes on disc for both the CPC 6128 and the PCW computers - useful if you have both, or at some stage wish to change. It also comes with a pretty hefty tome as a manual. Whether it is a fault of the manual or of the program, I do not know, but I must confess to finding the combined package very hard to come to terms with. This could be because I have used other databases, while the manual is aimed at first-time users; but be warned.

When starting to use *At Last*, it soon becomes clear that setting up is going to take an awful long time. For a start, you cannot simply load it up and have a look at a few sample databases. It works under CP/M, and because it consists of several separate programs (to set up the keyboard, define a database, and use a database), your disc-drive will be working overtime from the word go. Having a second drive will make things considerably easier; not that that is mentioned in the ads, of course! You even need to go through the entire initialising process just to look at the worked examples!

On Page 1, the manual makes a point of explaining that there are no short cuts to reading the manual in its entirety and working through all the examples. For anyone who has read a database before this is infuriating, since much of what is said is pretty basic. It is, though, excellent for beginners; especially since things are spelt out in painstaking detail. A concise reference section would have helped a lot here.

Still, *At Last* offers some tremendously powerful features for a program of this price - its search commands being of special note. Being more specific, *At Last* is a true relational database. For the uninitiated, this means, in short, that it can "relate" data between more than one file, ie, that you do not need to repeat the same entries on several files, saving both time and memory. While it is nowhere near as powerful as something like DBase II or III, it does not aspire to be. It stands up well, though, in comparison with other cheap database programs, including those on view here.

"Databases are basically great for accessing information in all sorts of different ways, far faster than could be done manually."

Other points of note include an excellent screen editing facility, and a large capacity (only limited, in fact, by the capacity of your disc).

Indexes are used to put files in a database into order; normally, you need to constantly update these index files as you alter your records - *At Last* scores highly by doing this automatically, saving precious time. It is also very flexible in terms of how to print any information reports you might want. The disadvantage to this flexibility, though, is that even for simple reports, there is a fairly lengthy process you need to plough through prior to printing.

Yet another disadvantage is that *At Last* does not allow you to perform calculations on any arithmetical data you may have stored. This means that you could not use the database to, for example, keep track of any savings or investments you might have (as you could very easily with professional programs).

Campbell Systems' *Masterfile III* is, in contrast to *At Last*, a sheer delight to get to know and use. Menu-driven, the package is easy to learn how to use, and is extremely versatile. It, too, comes with a comprehensive manual, which is well-written, and easy to follow. One key difference is that this is designed so that you do not need to spend a weekend reading it prior to seeing the program in action. If you know anything about database management software, you can dip into the clearly divided manual to find out just how *Masterfile* works, and be off.

Hence getting started with the program is relatively simple. The program uses AMSDOS - so you do not need the hassle of booting up CP/M all the time. For first time users, this allows you to take your

disc out of the box, and load it up there and then; you can load in the example files which come as a tutorial, and learn by doing in a very simple and easy-going way. Not using CP/M also has the added bonus that you can adapt the program for your own needs, from BASIC. This is well described in the manual, and adds huge potential for you to tailor the program to exactly how you want it.

Masterfile has the relational facility touted by *At Last*, and is second to *At Last* only in terms of capacity. With two disc drives. *At Last* has a much higher storage capacity. One less obvious advantage which *Masterfile III* has is that it has almost become the standard for CPC computers; which means that relevant software such as spreadsheets and word-processors tend to be compatible with it, whereas they may not be with some of the others.

Minerva Systems, despite having a lower profile for their *Random Access* competitor, make some pretty strong claims for it ("the most powerful ever for the price"). Perhaps.

Like *Masterfile*, it uses Amsdos so that it is tailor-made to fit the CPC, rather than happening to run on it via CP/M, which makes it significantly easier to start to use. And its emphasis is different. As part of Minerva's almost unique approach to utility software, it is very user-friendly. And simpler, too. I do not mean this in a derogatory sense; compared to *At Last* it is a positive advantage. It is much easier to use, and more clear. But one cannot deny the lack of power relative to the first two packages, not only by not being a relational database, but also by virtue of its having a smaller storage capacity, and having simpler search commands.

As suggested by its name, this package uses a random access system to reduce the time taken to find data, this is important unless you have time to waste. This works well, and is a very useful feature.

It allows you to use BASIC to customise it to your own needs, like *Masterfile*, and provides more arithmetic calculations than the other two. Furthermore, you can incorporate your own feel to it by designing the "record cards" on which you will store your data to include graphics and boxes, and even different sizes of characters. (Quite how useful this is depends upon what you are using it for; I confess to not needing that feature at the moment, but you never know . . !)

Which really brings me to the crux of the article. There can be no one outright winner in terms of features, power, or ease of use. The three packages tested are clearly very strong in their own ways, and it is for you to decide whether or not you require the extra storage of *At Last*, the power and compatibility of *Masterfile III*, or the simplicity and speed of access provided by *Random Access*. It makes a pleasant change for a reviewer to be able to conclude that all three packages work well. It merely remains for you to sort out your own priorities, and choose accordingly.

If the old adage that the customer is always right holds true, *Masterfile* wins the day by outselling the other two by quite a large extent. It offers the most power for the least effort, and is to my mind far preferable to *At Last*. But I cannot deny that there is always the other hand . . . □

PROGRAMS EVALUATED:

1) Database Manager (At Last)
£28.95 from Rational Solutions Ltd.

2) Masterfile III
£39.95 from Campbell Systems.

3) Random Access Database
£39.95 from Minerva Systems.

KENN GARROCH

Time for a change

Jimmy Grubb, of Carlisle, writes:

Q I am at present the owner of a C16 with which I use a 1541 disk drive, a great little machine, little referring to the memory. In the near future I intend to upgrade to either a C64 or C128, I am in my thirties and completely self-taught about computing I am finding the C16 a bit restrictive but with money a little short, I will be purchasing second hand one, so I wonder if you could clear up a few points for me?

1) What advantages and disadvantages the C64 has over the C128 and vice versa?

2) When buying second hand, are there any simple tests I could carry out on either computer to check for faults?

3) What are likely to be the main faults with either computer?

4) A friend reckons that only about 75% of C64 software will work on the 128 in 64 mode, why is this, or is he wrong?

5) I have, at present, got Lazer Basic (Disk), Simons Basic (Cart) and in future was thinking about the Phanton add ons. Will these work on the 128 in 64 mode or not?

Your help will be greatly appreciated on this matter. I see that second hand 64's are roughly £80–£110 wheras C128's are £140–£200, is it really worth saving up the extra?

A As far as I know, the C64 doesn't have any advantages over the C128, since the 128 includes a 64 mode. The 64 is physically a smaller machine but that's about all. On the other hand, the C128 has a number of advantages, larger memory, better Basic, three machines in one (C64, C128, and (P/M), and a better keyboard. Basically the C128 is an improvement, by quite a long way on the C64.

When buying second hand, the first and most obvious thing is to set-up the machine and see that it works. While it is running, rattle the power leads around to see if there are any faults in them – not usually too difficult to fix but you may reduce the price a little. Check all the keys on the keyboard to make sure that they work, and take a good look at the display to make sure it is steady. It's a good idea to take along a game that you know and run it. Something that makes use of all the machine's facilities including the joysticks, the graphics and sound. If all these are fine then the machine is probably in good shape.

If you have chance with either of the machines, leave it on for 20 minutes or so, and then touch the power supply casing. If this burns your hand then it's reasonably likely to pack up in the next few months. If it is only warm then it should be OK. There are two types of supply for the 64, the old green shoe type, and the newer black ribbed box. The latter is better and should give much less trouble over the years to come. Apart from the above tips and a good look at the bodywork, I cannot think of much else to suggest. In general, computers are fairly reliable, and only the moving parts ever get a chance to wear out. Obviously, if the machine is looking battered then second thoughts might be in order (unless, of course, its very clean).

Where faults are concerned, I'm not a great expert on the C128 and so, I cannot say what they may be. The C64 however, sometimes suffers from bad power supplies and knackered VIC and sound chips. Leaving the machine on for an hour or so will turn up these faults and, as I said above, running a well-known game also helps.

As far as I know, the compatibility between the C64 and the 128 in 64 mode is about 99%. Most 64 software that has been written since the advent of the 128 will run in 64 mode. Older stuff is not guaranteed to, but it should. You may have problems with cartridges and interfaces as the 128 has different hardware that is not completely 64 compatible. I cannot go into details since I don't have any, but most, if not all, Commodore peripherals should work.

As to which you should buy, if depends on what you want. The 64 is great for games and game programming (machine code) but is a little naff when it comes to word processing. The 128 on the other hand is capable of running an 80-column screen (but only with a monitor I suspect) and has a better keyboard. Since most 64 games will run in 64 mode, I would think it better to save up the extra money and go for the larger machine. On the other hand, you might be able to get a second hand non-Commodore machine for around the same price as the 128 – this is worth considering.

Confusions

M I Armstrong, of Welton, Lincoln, writes:

Q I have just purchased an Amstrad 9512 and would like to ask a couple of questions about the disc system. The first is: what kind of disc should I use, the CF-2 or CF-2DD? I read in another publication comments referring to the use of discs from the 8256/8512, both A drive (SD) and B drive (DD) which I find confusing. Could you perhaps explain which you would recommend and why?

I also notice the caveat 'almost' used with monotonous regularity with reference to the use of 8000 series software on the 9512. Could you perhaps enlarge upon this?

Finally, page 25 of the manual mentions the possibility of adding an extra disc drive, specifically the FD4. Is this an integral drive or simply a bolt on addition and would it involve changing the type of discs used ie, single or double density?

A There are basically four types of disc which can be split into two groups: single-sided (SS), and double-sided (DS). Each of these can be either single or double density. The CF-2 appears to come in the double-sided category and can be either single or double density (SD or DD). SD discs normally have 40 tracks per side giving approximately 360K of storage whereas DD discs have 80 tracks giving roughly twice the storage with 720K. The 9152 is quoted as having 720K of storage on its drive and so must be using DD discs.

The way in which discs are manufactured means that after testing, those that do not qualify for DD status are sold as SS and those that don't make that are junk. However, it is possible for a DD disk drive to read a SD disc in DD format since, most of the time, the discs are of quite a high quality – the only drawback being that they are not quaranteed against loss of data if you use them in this way. What is also usually possible is for a DD disc drive to read a SD disc in SD format. This is easy since the read/write head of the drive simply jumps two steps at a time to access every other track effectively, halving the number of tracks.

The 8000 series of PCW computers uses one drive of each type ie, a SD as A and a DD as B. This daft arrangement means that the B drive, which is usually used for storage only, has twice the amount of space as the A drive but needs higher quality discs. Since DD discs work easily with SD drives, most PCW users will end up buying DD discs all of the time.

The 'almost' you mention presumably refers to the compatibility of software between the two machines. Not being a great expert on either, I can't expound a great deal on the subject. However, the best thing to do when acquiring software for your system is to make absolutely sure that it will run ie, get some kind of guarantee from the dealer. This then puts you in the position that if something does go wrong, you can take steps to rectify the problem at someone else's expense.

From the look of the 9152 (I've never actually used one). I'd say that it is possible to fit an extra drive in the slot to the right of the one that is already there. Judging by Amstrad's usual marketing strategy, they will produce either an upgrade or, more likely, another machine that uses both slots.

I'm afraid I have to admit (again?) that I know nothing about the FD4; however, I'd guess that it is an external drive. The best way to find out is to look for expansion slots at the back of the machine. If one of these is labelled disc drive or even FD4 then you have the answer. As to whether it is single or double density, I suggest you contact a dealer and ask.

Keyed-up

Pearce Jameson, Clapham, London, writes:

Q As you probably know, the Atari ST keyboard is accessed by way of an external processor (Hitachi 6301). The problem I have is reading multiple keypresses from it. It appears to only reveal the last two keys pressed, if you hold down any more, they are ignored. What I would like to know is how to read more or alternatively, since I can read the ROM of the

6301, obtain a data sheet for the processor so that I can disassemble the commands and see how it works with a view to changing things round for multiple keys.

Obviously, the best answer would be to recommend a book that explains 'in detail' how the keyboard system operates. As far as I can see from my researches, there are no published details on the subject. I am at my wits end – can you help?

A Mmmm this is a hard one – as you say, there doesn't appear to be any details on the subject. All I can find is a list of the Intelligent Keyboard Command Set in *Anatomy of the Atari ST* but these are of no use with this problem. It would be quite useful for games programming to be able to poll the keys as on other micros; however, I'm afraid I don't know how it's done. If any reader's know the details, please send them to Peek and Poke so that I can let everyone in on the secret.

Load of . . .

H Spencer, of Wirral, Cheshire, writes:

Q I have heard rumours that there are some problems with games that use the internal disk drives on the 520STFM. The rumour says that some games will not load, is there any truth to this, and if so, what is the problem?

A Apparently this rumour is true, some of the software houses have used a form of protection that involves accessing track numbers above 40. This is useful in that validity information can be held here that will not normally be copied by disk copiers. However, the problem arises that some (perhaps many) of the internal drives cannot cope with reading these extra tracks, and so the disk looks like it's a copy. As far as I'm aware, the problem has now been acknowledged and the software houses are using other forms of protection. If you have any software that causes problems and won't load, send it back to the software house and complain, making sure you have receipt and proof that it is an original.

Link up

J Bentham, of Thornton, Blackpool, writes:

Q Firstly, my friend has a mono Amstrad CPC 464 which he wants to use with the Commodore 1701 monitor. This would require an RGB to composite video converter.

Secondly, I require the opposite, composite video to analogue RGB, to use my Commodore 64 with my NEC Multiscan monitor which I use with my Atari 1040 ST.

Does any company supply these RGB – composite converters? Also, does any company sell a TV Tuner that I could use with my RGB monitor?

A I must say first of all that I know of no-one selling such devices – which doesn't mean that there aren't any. Considering the number of different video formats, such devices would be quite useful and, as far as I know, there is no technical reason why they cannot be built.

If any Popular readers know of a company which supplies them or who knows how they are designed, then please write to Peek and Poke with the details, I need all the help I can get.

Stubborn revolutions

A D Bishop, of Sidmouth, Devon, writes:

Q I have a 1541 disk drive (CBM) which is refusing to rotate the disk most of the time. I believe that the central hub which looks like a segmented plastic ring which mates with another receptor ring and grips the disk from the inside edge – is worn. Do you know anyone who can fit another clamp ring or where I can get one please?

A The best thing to do is look through the adverts at the back of the magazine and find a reasonably priced repair service. Make sure, if you can, that payment can be made via credit card (this has numerous advantages over a cheque).

After looking inside my 1541, it seems more likely that there are problems with the motor or the drive belt than with the clamp.

To check the clamp, try a disk with hub supports (usually a white ring in the middle) and then one without. The supports make the hub a little thicker and should improve the grip. If there is no difference then the clamp is probably OK. It is well worth getting the drive completely serviced and realigned, especially if it is getting old. I'm afraid that I cannot recommend anyone in particular since this would, first of all, be free advertising, and secondly, not having used them, I don't know of any.

Games master

Geoff Salter, of Dinas Powis, S Glamorgan, writes:

Q I own a Toshiba T300 computer and wonder if you or any of your readers could help with the following points:

1) Where could I get the Graphics Package 1 from?

2) What software will my machine run ie, games?

At present the system is fine for the reason I bought it, namely COBOL programming but, as I wish to begin writing games, I need to find the answers to the above questions.

A Unfortunately, I have never heard of the T300 let alone acquired any software for it. However, if you want to begin writing games, the two main packages you will need are an assembler, and, as you mentioned above graphic package. Probably the best place to look is in the various computer magazines and their advertising pages. I'm sorry I can't be of more help, perhaps our readers know more?

Discovered

Gerry Fisher, of Duffield, Derbyshire. B Manning, of Kidderminster, Worcs. L W Dewhurst, of Leaington Spa, Warwickshire. And others.

A My thanks to the above, all who wrote in with solutions to G Thibaudeau's letter in the 9th October issue of *PCW* concerning the Opus Discovery disk drive problems. First of all, two user's clubs for this gadget are:

Mr D Lilley,
The Spectrum Discovery Club,
8 Rayham Crescent,
Black Hill,
Keighley,
West Yorks
and,
Mr Mike Kuklewsky,
The Discovery User's Club,
Urkwal 92,
1324 HR Almere,
The Netherlands.

Mr Dewhurst says that the first is quite helpful and the second can supply (presumably to members only) a dissassembly of the Discovery ROM in English. This costs 18 Gilders (about £6) and covers versions 2.1, 2.2 and 2.22 of the ROM. The club also produces a magazine in English and also replies to queries in English, although they can be a little slow about it.

Suggestions for loading in the very long program start off simply with trying CLEAR 65535 ro remove the UDGs.

The explanation for the problem is that the Discovery allocates a small amount of space below the Basic program (blocks of 128 bytes) before saving or loading, giving it back after the operation. Since the program was very long (41K), running the program allocates variables and saving the program saves these as well. Due to the increased size of the program, the Discovery is unable to allocate enough work space although it was able to save. On trying to load the program back in, the header on the disk tells the Discovery that there is not enough RAM ie, the program was too large to allocate the work space, and then load it in. The answer to this is to doctor the header so that the Discovery thinks that there are no variables present, thus reducing the size of the progam. The best way to do this is to get hold of the Opus Disk Manager from Bradway Software of 33 Conalan Avenue, Sheffield S17 4PG.

Other solutions are to make sure that no channels have been opened ie, #3 for the printer, before loading the program in the 48K Spectrum, use random access on the file – or a copy of the file – to produce a shorter version of the file which will load. Other possibilities are to edit the file and cut off the last line or so instead of the line ending with chr$13, termination can be achieved with chr$128.

With a 128K Spectrum, the Discovery RAM disk 6 can be used. MOVE the program file to disk 6 and load it from there ie,

```
MOVE 1;"program" TO 6;"program"
LOAD *6; "program"
```

The Discovery normally uses a 256 byte buffer (equivalent to one disk block) whereas the RAM disk only uses 32 bytes. The 224 bytes that are saved should release sufficient memory to load the program.

Once loaded, it is a good idea to shorten the program by VALing – use GOTO VAL"1234" instead of GOTO 1234 as this save 3 bytes. When saving CLEAR will delete the variables and shorten the file, remove REM statements and join lines as this save 4 bytes each time.

Finally, thanks to all the people who have written in on this subject, hopefully Mr. Thibaudeau will be able to fix the problem now.

Ground Control to Major Kenn

In the first of another Kenn Garroch series, this time on interfacing, Kenn looks at the two basic input/output systems to use on home microcomputers.

Over the next few weeks I will be looking at how to connect computers to the real world, and make them control and sense much more than simple keyboards and video screens, which is all they normally do.

All home micros can be connected to the outside world, some far more easily than others.

The two main processors in use today, the 6502 and the Z80, show the two main methods of input/output (i/o) control. The 6502 (also used in 6800, 6809 and 68000) system is simplest and relies on the fact that the i/o controller is part of the memory map.

A set of memory locations are directly connected to an i/o chip such as the commonly used 6522 VIA. This has a number of registers that can be directly written or read as though they were any other memory location. The most important of these is the i/o port itself.

Input/output port

An i/o port usually has eight lines (see Fig 1), one corresponding to each bit of the memory byte.

Each of these can be either input or output, in the first case, voltages placed on them can be read simply by looking at the memory location eg, with PEEK.

In the second case, values written to the memory location set up voltages on the output pins of the i/o chip. As with all computers, the only values possible are zero or one, corresponding to the voltages 0V and 5V ie, off or on.

The direction in which the signals travel lie, for input or output, is set up in another register of the chip, usually an adjacent memory location, known as the data direction register. A bit set in this register tells the chip that the corresponding line is an output, zero defining in.

The Z80

The Z80 (8080, 8085 ie Intel/Zilog) employs a different format for its i/o. Instead of using up valuable memory space for i/o and data a direction registers, the microprocessor chip has an extra output that informs the system that the information on the address and data buses refers to i/o and not memory.

The INP and OUT instructions are used for the access and hence the i/o section does not appear on the memory map. There are similar chips to the 6522 VIA that work with this extra line known as PIO's (Parallel Input/Output) but they are seldom used. Instead, the whole of the system bus is usually available at the back of the machine as on the Spectrum and Amstrad machines.

"All home micros can be connected to the outside world, some far more easily than others . . . in this series we take a look at how to do this, and make them control much more than simple keyboards and video screens, which is all they normally do."

Connecting things up to this is reasonably easy, but nowhere near as simple as using a VIA chip where the address decoding is automatically taken care of.

Looking at the system bus of a Z80 machine (Fig 2), the lines that are important are the address bus lines A0–A15, the data bus lines D0–D7 the $\overline{RD}$ (Read), $\overline{WR}$ (Write), and $\overline{IORQ}$ (Input/Output Request). Note that the last three have lines or bars above them denoting that they are active when low (zero volts).

Logic circuit

Some simple electronic logic circuits are needed to make some sense of these signals, basically, because, i/o ports use the same address and data buses as the memory but are not active until an i/o request is made.

To see how the decoding is done, the basics of logic circuits have to be understood.

There are three basic forms of circuit, the simplest being NOT or invert, then come the two standards AND and OR. NOT takes its input voltage and reverses it ie, 5 Volts at the input gives 0V at the output, and 0V at the input gives 5V at the output.

AND and OR are a little more complex, however, but their operation can easily be seen in the diagrams in Fig 3. AND and OR gates can have two or more inputs, and the operation is performed on all of them.

The tables in Fig 3. show the two inputs with all their possible states and are known as truth tables.

Simply stated, AND gates show 0V at their outputs unless all of the inputs are 1 (5V is usually denoted as 1 and 0V as 0). OR gates show 1 at their outputs unless all of the inputs are zero.

This may make them sound opposites which, after careful examination of the truth tables, is not the case. The inverse of

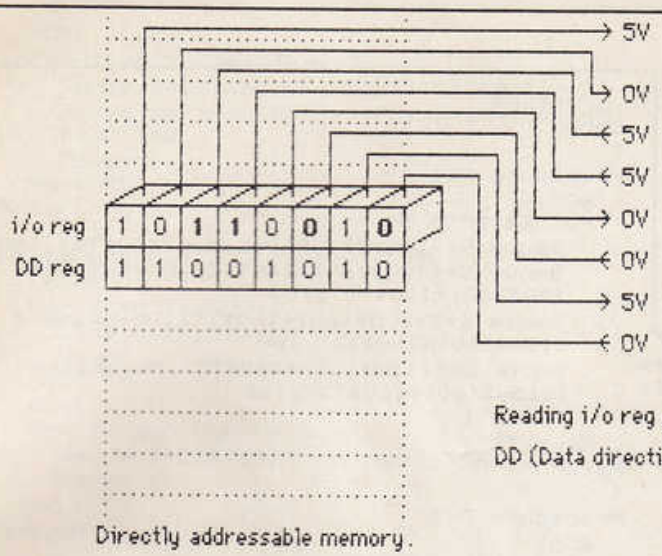

FIG 1 the 'in memory' type of i/o.

"Once contact with the outside world has been achieved, what can be done with it? . . . the only limit is your imagination, microprocessors can control anything."

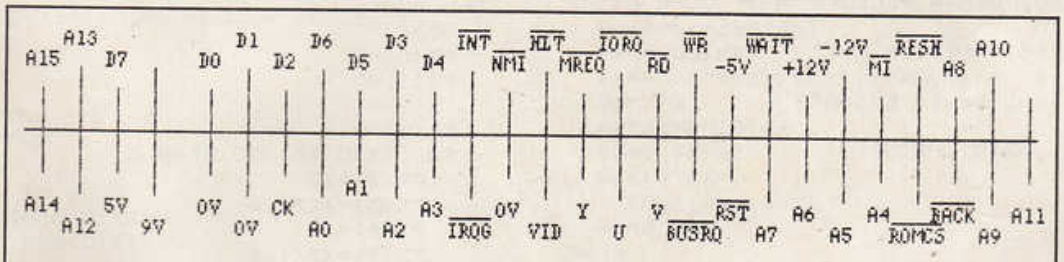

Fig 2 The Spectrum Z80 system bus.

an AND is known as NAND (NOT AND) and is an AND gate with a NOT gate after it, the inverse of OR is NOR.

Logic gates can be connected together in sequence to obtain the required function and are available in a number of different forms and chip packages.

The standard symbols (or rather the symbols I shall use) are shown below to their truth tables.

Once contact with the outside world has been achieved, what can be done with it? Attaching such things as ADCs (Analogue to Digital Converters and their complements DACs (Digital to Analogue Converters) allow reading of varying voltages from sensors such as thermometers and microphones.

The switchable outputs can control relays that can switch things on and off.

In fact, the only limit is your imagination, microprocessors can control anything. □

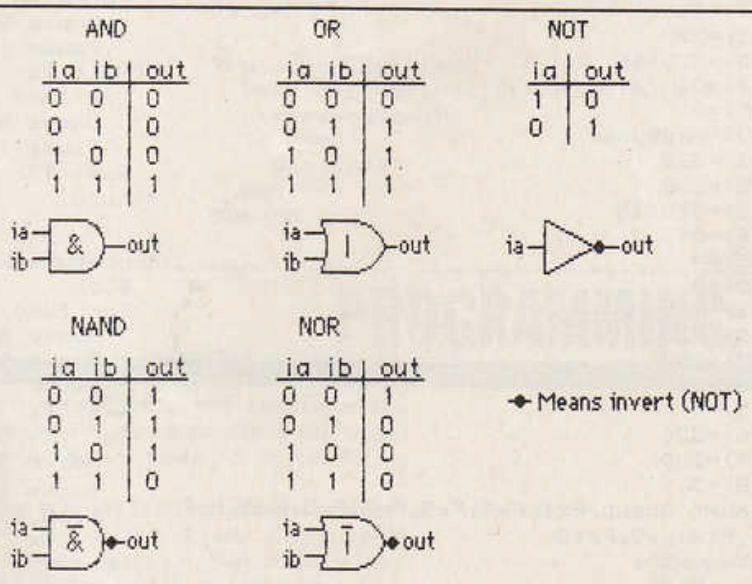

Fig 3 AND/OR/NOT/NAND/NOR truth tables and symbols

Film Show

D Eaton

This GFA Basic program is a Degas picture show utility. When the program is run, after being debugged, all files on drive A with the extender .PI1 will be shown one after another in ten interesting ways. As can be seen from the extender, this program is only suitable for displaying low resolution pictures. □

```
***** degas low res picture show program *****
***** written by David Eaton 29-Sep-1987 *****
Start:
Rez%=Xbios(4)
If Rez%=2
  System
Endif
If Rez%=1
  Void Xbios(5,L:-1,L:-1,W:0)
Endif
Hidem
On Error Gosub Fixit
For T%=0 To 15
  Setcolor T%,0,0,0
Next T%
Deftext 1,1,,32
Text 15,50,"Degas Picture Show"
Deftext ,0
Text 75,105,"Written by:"
Deftext ,1
Text 70,160,"David Eaton"
@P
Dim S%(5),D%(5),P%(8)
Num%=1
@Get_dir
If Fi%=0
  System
Endif
Do
  For P%=1 To Fi%
    @Get_pic
    Pause 175
    S=Varptr(A$)+34
    Physbase=Xbios(2)
    S%(0)=S
    S%(1)=320
    S%(2)=200
    S%(3)=320/16
    S%(4)=0
    S%(5)=4
    D%(0)=Physbase
    D%(1)=320
    D%(2)=200
    D%(3)=320/16
    D%(4)=0
    D%(5)=4
    P%(0)=0
    P%(1)=0
    P%(2)=320
    P%(3)=200
    P%(4)=0
    P%(5)=0
    P%(6)=320
    P%(7)=200
    P%(8)=3
    On Num% Gosub Fx1,Fx2,Fx3,Fx4,Fx5,Fx6,
    Fx7,Fx8,Fx9,Fx10
    Num%=Num%+1
    If Num%=11
      Num%=1
    Endif
  Next P%
Loop
'
Procedure Fx1
  @Col
  For T%=0 To 50
    Bmove S+(160*T%),Physbase+(160*T%),160
    Bmove S+((50*160)+160*T%),Physbase+(
    (50*160)+160*T%),160
    Bmove S+((100*160)+160*T%),Physbase+(
    (100*160)+160*T%),160
    Bmove S+((150*160)+160*T%),Physbase+
    ((150*160)+160*T%),160
    Pause 1
  Next T%
Return
'
Procedure Fx2
  @Col
  For T%=0 To 100
    Bmove S+160*T%,Physbase+160*T%,160
    Bmove (S+32000)-160*T%,(Physbase+32000)
    -160*T%,160
    Pause 1
  Next T%
Return
'
Procedure Fx3
  @Col
  P%(0)=0
  P%(1)=0
  P%(4)=0
  P%(5)=0
  For X%=0 To 320 Step 3
    P%(2)=X%
    P%(3)=X%/1.6
    P%(6)=X%
    P%(7)=X%/1.6
    Bitblt S%(),D%(),P%()
  Next X%
  Bmove S,Physbase,32000
Return
'
Procedure Fx4
  @Col
  For T%=0 To 200 Step 2
    Bmove S+T%*160,Physbase+T%*160,160
    Pause 1
  Next T%
  For T%=1 To 200 Step 2
    Bmove S+T%*160,Physbase+T%*160,160
    Pause 1
  Next T%
Return
'

Procedure Fx5
  @Col
  For T%=0 To 200
    Bmove S+T%*160,Physbase+T%*160,40
    Bmove S+80+T%*160,Physbase+80+T%*160,40
    Vsync
  Next T%
  For T%=200 Downto 0
    Bmove S+40+T%*160,Physbase+40+T%*160,40
    Bmove S+120+T%*160,Physbase+120+T%
    *160,40
    Vsync
  Next T%
Return
'
Procedure Fx6
```

```
  @Col
  For T%=0 To 201 Step 2
    Bmove S+T%*160,Physbase+T%*160,160
    Bmove S+(201-T%)*160,Physbase+(201-T%)
    *160,160
    Pause 1
  Next T%
Return
'
Procedure Fx7
  Color 0
  For T%=0 To 200
    Line 0,T%,320,T%
    Vsync
  Next T%
  @Col
  For T%=200 Downto 0
    Bmove S+T%*160,Physbase+T%*160,160
    Pause 1
  Next T%
Return
'
Procedure Fx8
  Color 0
  For T%=200 Downto 0
    Line 0,T%,320,T%
    Vsync
  Next T%
  @Col
  For T%=0 To 200
    Bmove S+T%*160,Physbase+T%*160,160
    Pause 1
  Next T%
Return
'
Procedure Fx9
  @Col
  For T%=1 To 3000
    X%=Int(Rnd(0)*310)
    Y%=Int(Rnd(0)*190)
    P%(0)=X%
    P%(1)=Y%
    P%(2)=X%+10
    P%(3)=Y%+10
    P%(4)=X%
    P%(5)=Y%
    P%(6)=X%+10
    P%(7)=Y%+10
    Bitblt S%(),D%(),P%()
  Next T%
  Bmove S,Physbase,32000
Return
'
Procedure Fx10
  @Col
  X%=0
  Y%=0
  P%(0)=X%
  P%(1)=Y%
  P%(3)=200
  P%(4)=X%
  P%(5)=Y%
  P%(7)=200
  For T%=0 To 320
    P%(2)=T%
    P%(0)=T%
    P%(4)=T%
    P%(6)=T%
    Bitblt S%(),D%(),P%()
  Next T%
  '  Bmove S,Physbase,32000
Return
'
Procedure P
  Setcolor 0,7,7,7
  Setcolor 15,0,0,0
Return
'
Procedure Get_dir
  Dim D$(512)
  Fi%=0
  Sud%=0
  Sdir$="*.pi1"
  Pth$="\"
  Sdd%=0
  F%=0
  P%=1
  While P%>0
    Buf$=Space$(45)
    Pth$=Sdir$
    Fs$="A:"+Sdir$+"*.*"+Chr$(0)
    Dec P%
    Attr%=&H10
    @Get_first
    While A%=0
      @Get_next
    Wend
  Wend
Return
'
Procedure Get_first
  Void Gemdos(&H1A,L:Varptr(Buf$))
  A%=Gemdos(&H4E,L:Varptr(Fs$),Attr%)
  If A%=0
    @Rd_buff
  Endif
Return
'
Procedure Get_next
  Void Gemdos(&H1A,L:Varptr(Buf$))
  A%=Gemdos(&H4F)
  If A%=0
    @Rd_buff
  Endif
Return
'
```

continued next week

UFO2

Steven Pattullo

Arcade action and graphical splendour in Steven Pattullo's successor to *UFO*. The objective is to fly to the end of each level and shoot the thingy that floats down.

On level one, one of the enemy fighters will try and shoot you down, so it's a good job that you're armed likewise, with a solitary missile. However, the enemy sometimes has shields which make him impervious to your fire, so watch out!

The game will be presented over a number of weeks, in a number of parts. Simply type in each listing and save it. More details on level two next week, but if you can't wait and you want a copy of the game with excellent graphics and fast moving sprites then send £2 (turbo-load tape) or £3 (disc) to 34 Birchfield Road, Widnes, Cheshire WA8 7SU. □

continued on page 42 ▶

```
READY.


10 SCREEN=50176
20 CHARS=51200
30 IF SCREEN=CHARS THEN E$="ERROR..CHARS AND
     SCREEN AT SAME ADDRESS":GOTO 60000
40 IF INT(SCREEN/16384)=INT(CHARS/16384)THEN
     60
50 E$="ERROR..CHARS AND SCREEN NOT IN THE
     SAME BANK":GOTO 60000
60 X=INT(SCREEN/16384)
70 Y=(SCREEN-X*16384)/64
80 Z=(CHARS-X*16384)/1024
90 IF Z<>4 AND Z<>6 THEN
100 PRINTCHR$(147)"HANG ABOUT THIS WILL TAKE
     A COUPLE OF   MINS........"
110 POKE 56334,PEEK(56334)AND254
120 POKE 1,PEEK(1)AND251
130 FOR I=0 TO 2047:POKE CHARS+I,PEEK(53248+I)
     :NEXT
140 POKE1,PEEK(1)OR 4
150 POKE 56334,PEEK(56334)OR1
160 POKE 56578,PEEK(56578)OR3
170 POKE 56576,(PEEK(56576)AND252)OR(3-X)
180 POKE 53272,Y+X
190 POKE 648,SCREEN/256
200 PRINTCHR$(147);"DONE"
60000 POKE 44,4:POKE 1024,0:NEW

READY.



READY.
5 PRINT "■HANG ABOUT READING SPRITE DATA!!!"
10 A=57344
20 FOR N=1 TO 19
30 FOR F=0 TO 62
40 READ X:POKE A+F,X:NEXT F
50 A=A+64:NEXT N
50000 REM
50010 DATA 000,000,000,000,252,000,003
50020 DATA 255,000,015,250,192,015,251
50030 DATA 128,063,234,160,063,174,160
50040 DATA 252,048,088,252,032,164,250
50050 DATA 186,148,254,229,148,250,233
50060 DATA 084,224,000,020,169,166,148
50070 DATA 042,169,080,042,101,080,005
50080 DATA 085,064,005,085,064,001,085
50090 DATA 000,000,084,000,000,000,000
50100 REM
50110 DATA 000,000,000,000,252,000,003
50120 DATA 255,000,015,250,192,015,251
50130 DATA 128,063,234,160,063,174,160
50140 DATA 255,186,088,252,032,164,250
50150 DATA 186,148,254,229,148,248,000
50160 DATA 084,224,204,020,169,002,148
50170 DATA 042,169,080,042,101,080,005
50180 DATA 085,064,005,085,064,001,085
50190 DATA 000,000,084,000,000,000,000
50200 REM
50210 DATA 000,000,000,000,252,000,003
50220 DATA 255,000,015,250,192,015,251
50230 DATA 128,063,234,160,063,174,160
50240 DATA 252,048,088,252,032,164,250
50250 DATA 186,148,254,001,148,248,204
50260 DATA 084,224,204,020,168,000,148
50270 DATA 042,137,080,042,101,080,005
50280 DATA 085,064,005,085,064,001,085
50290 DATA 000,000,084,000,000,000,000
50300 REM
50310 DATA 000,000,000,000,000,000,000
50320 DATA 084,000,001,153,000,001,155
50330 DATA 064,006,166,144,029,085,080
50340 DATA 006,154,164,006,086,084,001
50350 DATA 117,080,001,253,128,001,117
50360 DATA 080,006,086,084,006,154,164
50370 DATA 029,085,080,006,166,144,001
50380 DATA 155,064,001,153,000,000,084
50390 DATA 000,000,000,000,000,000,000
50400 REM
50410 DATA 000,000,000,000,000,000,000
50420 DATA 000,000,000,000,000,020,000
50430 DATA 040,084,000,170,085,000,170
50440 DATA 085,000,171,085,000,175,086
50450 DATA 000,191,090,000,254,106,000
50460 DATA 250,170,000,234,170,000,170
50470 DATA 170,000,169,171,194,165,175
50480 DATA 234,149,191,170,085,254,169
50490 DATA 085,250,165,085,042,149,084
50500 REM
50510 DATA 000,000,000,000,000,000,000
50520 DATA 000,000,000,000,000,021,106
50530 DATA 240,085,171,248,086,175,232
50540 DATA 090,191,160,106,128,000,170
50550 DATA 000,000,171,000,000,175,000
50560 DATA 000,191,170,000,254,169,000
50570 DATA 250,165,000,234,128,000,170
50580 DATA 000,000,170,000,000,169,000
50590 DATA 000,165,000,000,148,000,000
50600 REM
50610 DATA 000,000,000,000,000,000,000
50620 DATA 000,000,000,000,000,021,106
50630 DATA 168,085,170,170,086,170,170
50640 DATA 090,000,171,104,000,047,168
50650 DATA 000,063,168,000,063,168,000
50660 DATA 062,168,000,058,168,000,042
50670 DATA 168,000,042,168,000,042,172
50680 DATA 000,041,191,000,165,255,170
50690 DATA 149,254,170,085,058,169,084
50700 REM
50710 DATA 000,000,000,000,000,000,048
50720 DATA 000,000,048,000,000,253,170
50730 DATA 250,118,171,234,122,175,170
50740 DATA 106,130,170,010,194,176,011
50750 DATA 194,240,015,131,224,014,131
50760 DATA 160,010,130,160,010,194,160
50770 DATA 011,194,176,015,130,240,014
50780 DATA 131,224,170,175,169,170,190
50790 DATA 165,170,250,149,171,234,085
50800 REM
50810 DATA 000,000,000,000,000,000,000
50820 DATA 000,000,000,000,000,000,000
50830 DATA 000,000,000,000,000,000,000
50840 DATA 000,000,000,000,000,000,000
50850 DATA 000,000,000,000,000,085,085
50860 DATA 085,170,170,170,160,002,128
50870 DATA 160,002,128,000,000,000,255
50880 DATA 195,192,000,000,000,002,130
50890 DATA 128,170,130,128,085,065,064
50900 REM
50910 DATA 000,000,000,000,000,000,252
50920 DATA 051,000,195,051,000,130,034
50930 DATA 000,136,042,000,129,001,000
50940 DATA 129,001,000,084,021,000,000
50950 DATA 000,000,000,000,000,085,085
50960 DATA 085,170,170,170,160,002,128
50970 DATA 160,002,128,000,000,000,255
50980 DATA 003,192,000,000,000,160,002
50990 DATA 128,170,130,128,085,065,064
51000 REM
51010 DATA 000,000,000,000,000,000,000
51020 DATA 000,000,000,000,000,000,000
51030 DATA 000,000,000,000,000,000,000
51040 DATA 000,000,000,000,000,000,000
```

```
51050 DATA 000,000,000,000,000,085,064
51060 DATA 000,170,128,000,160,000,000
51070 DATA 160,000,000,000,000,000,255
51080 DATA 192,000,000,000,000,002,128
51090 DATA 000,170,138,000,085,069,000
51100 REM
51110 DATA 000,000,000,000,000,000,000
51120 DATA 000,000,000,000,000,250,169
51130 DATA 085,000,000,000,062,170,085
51140 DATA 000,000,000,000,000,000,000
51150 DATA 000,000,062,170,085,000,000
51160 DATA 000,000,000,000,000,000,000
51170 DATA 062,170,085,000,000,000,250
51180 DATA 169,085,000,000,000,000,000
51190 DATA 000,000,000,000,000,000,000
51200 REM
51210 DATA 000,000,000,000,000,000,001
51220 DATA 085,000,022,166,064,126,154
51230 DATA 144,021,085,084,001,169,213
51240 DATA 006,170,093,026,058,153,024
51250 DATA 050,169,027,254,189,024,050
51260 DATA 169,026,058,153,006,170,093
51270 DATA 001,169,213,021,085,084,126
51280 DATA 154,144,022,166,064,001,085
51290 DATA 000,000,000,000,000,000,000
51300 REM
51310 DATA 000,000,000,001,000,000,023
51320 DATA 064,000,122,144,000,022,060
51330 DATA 000,001,100,000,000,105,000
51340 DATA 000,025,080,005,006,164,026
51350 DATA 089,217,111,170,093,111,170
51360 DATA 093,026,089,217,005,006,164
51370 DATA 000,025,080,000,105,000,001
51380 DATA 100,000,022,080,000,122,144
51390 DATA 000,023,064,000,001,000,000
51400 REM
51410 DATA 000,000,000,021,080,000,126
51420 DATA 164,000,022,169,000,001,090
51430 DATA 064,001,070,144,006,145,144
51440 DATA 027,165,084,104,229,165,096
51450 DATA 217,153,111,154,109,096,217
51460 DATA 153,104,229,165,027,165,084
51470 DATA 006,145,144,001,070,144,001
51480 DATA 090,064,022,169,000,126,164
51490 DATA 000,021,080,000,000,000,000
51500 REM
51510 DATA 000,000,000,000,000,000,000
51520 DATA 000,000,000,000,000,000,255
51530 DATA 000,015,255,240,063,255,252
51540 DATA 063,255,252,255,255,255,170
51550 DATA 165,106,157,230,224,170,167
51560 DATA 234,085,085,085,021,085,084
51570 DATA 021,085,084,005,085,080,000
51580 DATA 085,000,000,000,000,000,000
51590 DATA 000,000,000,000,000,000,000
51600 REM
51610 DATA 000,000,000,000,000,000,000
51620 DATA 000,000,000,000,000,000,000
51630 DATA 000,000,000,000,000,000,000
51640 DATA 000,000,000,000,000,000,000
51650 DATA 000,000,021,106,168,000,000
51660 DATA 000,000,000,000,000,000,000
51670 DATA 000,000,000,000,000,000,000
51680 DATA 000,000,000,000,000,000,000
51690 DATA 000,000,000,000,000,000,000
51700 REM
51710 DATA 000,000,000,000,000,000,000
51720 DATA 000,000,000,000,000,255,255
51730 DATA 000,003,255,192,015,255,240
51740 DATA 063,255,252,255,255,255,182
51750 DATA 218,170,182,218,175,182,218
51760 DATA 170,085,085,085,021,085,084
51770 DATA 005,085,080,001,065,064,085
51780 DATA 085,000,000,000,000,000,000
51790 DATA 000,000,000,000,000,000,000
51800 REM
51810 DATA 000,000,000,000,000,000,000
51820 DATA 000,000,000,000,000,000,255
51830 DATA 000,015,255,240,063,255,252
51840 DATA 063,255,252,255,255,255,255
51850 DATA 255,255,255,255,224,255,255
51860 DATA 255,255,255,255,063,255,252
51870 DATA 063,255,252,015,255,240,000
51880 DATA 255,000,000,000,000,000,000
51890 DATA 000,000,000,000,000,000,000

READY.


READY.


100 FOR N=51480 TO 51280+(8*78):READ A:POKE
    N,A:NEXT
1000 DATA 255,255,213,213,213,213,213,213
1002 DATA 255,255,85,85,85,85,85,85
1004 DATA 255,254,86,86,86,86,86,86
1006 DATA 213,213,213,213,213,213,213,213
1008 DATA 86,86,86,86,86,86,86,86
1010 DATA 213,213,213,213,213,213,234,170
1012 DATA 85,85,85,85,85,85,170,170
1014 DATA 86,86,86,86,86,86,170,170
1016 DATA 85,105,125,85,85,105,125,85
1018 DATA 128,128,128,128,128,128,128,128
1038 DATA 170,170,149,149,149,149,149,149
1040 DATA 170,170,85,85,85,85,85,85
1042 DATA 170,171,87,87,87,87,87,87
1043 DATA 0,126,70,74,86,102,126,0,0,8,8,8,
    24,24,24,0
1044 DATA 0,126,66,2,126,96,126,0,0,124,68,
    30,6,70,126,0,0,124,68,68,68,126,12
1045 DATA 0,0,126,64,126,6,70,126,0,0,126,
    64,126,70,70,126,0,0,124,4,4,12,12,12
1046 DATA 0,0,60,36,126,70,70,126,0,0,126,
    66,66,126,6,6,0
1047 DATA 149,149,149,149,149,149,149,149
1048 DATA 149,149,149,149,149,149,191,255
1050 DATA 85,85,85,85,85,85,255,255
1052 DATA 87,87,87,87,87,87,255,255
1054 DATA 87,87,87,87,87,87,87,87
1066 DATA 3,3,13,13,53,53,213,213
1068 DATA 213,213,53,53,13,13,3,3
1070 DATA 86,86,88,88,96,96,128,128
1072 DATA 128,128,96,96,88,88,86,86
1074 DATA 85,85,106,106,106,106,106,106
1076 DATA 85,85,170,170,170,170,170,170
1078 DATA 106,106,106,106,106,106,106,106
1080 DATA 170,170,170,170,170,170,170,170
1082 DATA 253,253,253,253,253,253,85,85
1084 DATA 255,255,255,255,255,255,85,85
1086 DATA 253,253,253,253,253,253,253,253
1088 DATA 255,255,255,255,255,255,255,255
1090 DATA 255,254,214,214,214,214,234,170
1092 DATA 255,255,213,222,222,222,222,222
1094 DATA 255,255,85,85,121,121,121,121
1096 DATA 222,222,222,222,222,213,234,170
1098 DATA 121,121,121,121,85,85,170,170
1100 DATA 0,128,160,104,90,230,230,230
1102 DATA 230,230,230,90,104,160,128,0
1104 DATA 170,170,190,174,142,190,174,142
1106 DATA 170,170,251,186,56,251,186,56
1108 DATA 170,171,239,235,227,239,235,227
1110 DATA 190,174,142,190,174,142,191,255
1112 DATA 251,186,56,251,186,56,255,255
1114 DATA 239,235,227,239,235,227,255,255
1115 DATA 0,0,0,0,0,0,0,0

READY.
```

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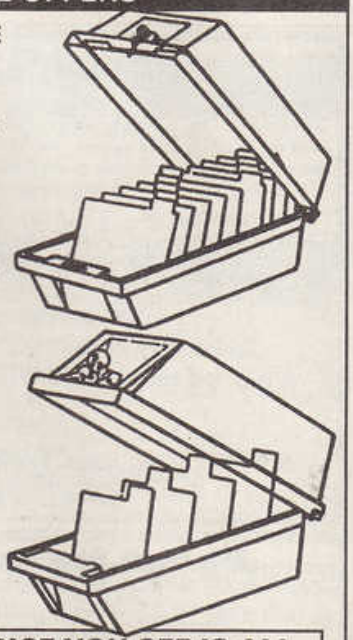

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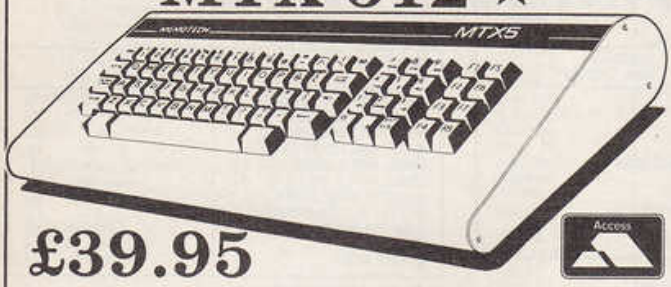

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No Business Like Micro Business

Micro-computer pricing policy has remained virtually unchanged since the launch of the ZX81 in the dim and not so distant past.

The majority of new micros have always been launched with an almost mandatory, substantial price tag. Once the company has recouped enough to offset its initial investment, the machine suddenly drops £100 or so in price. Why? Because that's business.

Although computers have tended to follow this trend, many of their associated peripherals have not. Disc-drives, printers and notably monitors, admittedly costing considerably less than they did a few years ago, remain on a relatively high, yet static price plateau. Why?

One reason may be that not enough units are sold in relation to the number of computers to enable peripheral prices to be lower. But, by the same token, if the prices were to drop, would not more people consider adding these peripherals to their system?

Many home computer users must contend with the tortuously slow, unreliable and often frustrating cassette filing systems of their micros simply because a faster and more efficient disc filing system is out of their financial reach.

I (and I am sure many others will agree) find it difficult to justify the expense involved in building a reasonably efficient system around a micro which cost probably well under £200. The computer is predominantly master and all peripherals are merely servants, or so one is led to believe.

To make an analogy, imagine a company director, he is the decision maker and the delegator, and therefore is normally the highest paid, thus the most expensive asset. When we look at computer systems we find that this is not necessarily the case.

This facet appears inherent throughout the computer industry. Look at the introduction of the cheap PC clones. Many of the existing PC software packages were, in several cases, more expensive than the machines they were destined to be used on.

When the existing user-base decides to upgrade many users will be turning their attention to the 16-bit market. This means that they will be paying, roughly, the same price for a 16-bit machine now that they would have paid for an 8-bit machine a couple of years ago. Features which cost the 8-bit user extra at the moment eg, a mouse, disc-drive etc, are included in the price of the 16-bit machines.

When will the third party support manufacturers realise that they must take stock of their position. They have a responsibility to take an objective view of their industry and should endeavour to provide the items the consumer wants at a price he can afford.

Pricing policies must be reviewed before the end of the decade if this faction hopes to survive the dramatic changes which, I feel, the industry is about to experience, as technology takes another leap forward.

With the price of electronic components steadily decreasing in tandem with the extensive automation of the production line it is only fair that a percentage of the increased profit margin should be passed on to the end user.

In an area as volatile as computing the peripheral manufacturers must strive to counter each new move adopted by the major computing companies. With increased sales they could provide a larger turnover, some of which could be invested in advanced research and development technology.

The software sector, at least, has begun to realise that by adopting realistic pricing levels their continued success and profitability is greatly enhanced.

If radical changes are not forthcoming in the very near future, the dependants of 8-bit technology will only succeed in cutting their own throats as well as inflicting serious subsequent damage on the rest of the micro-computing community. □

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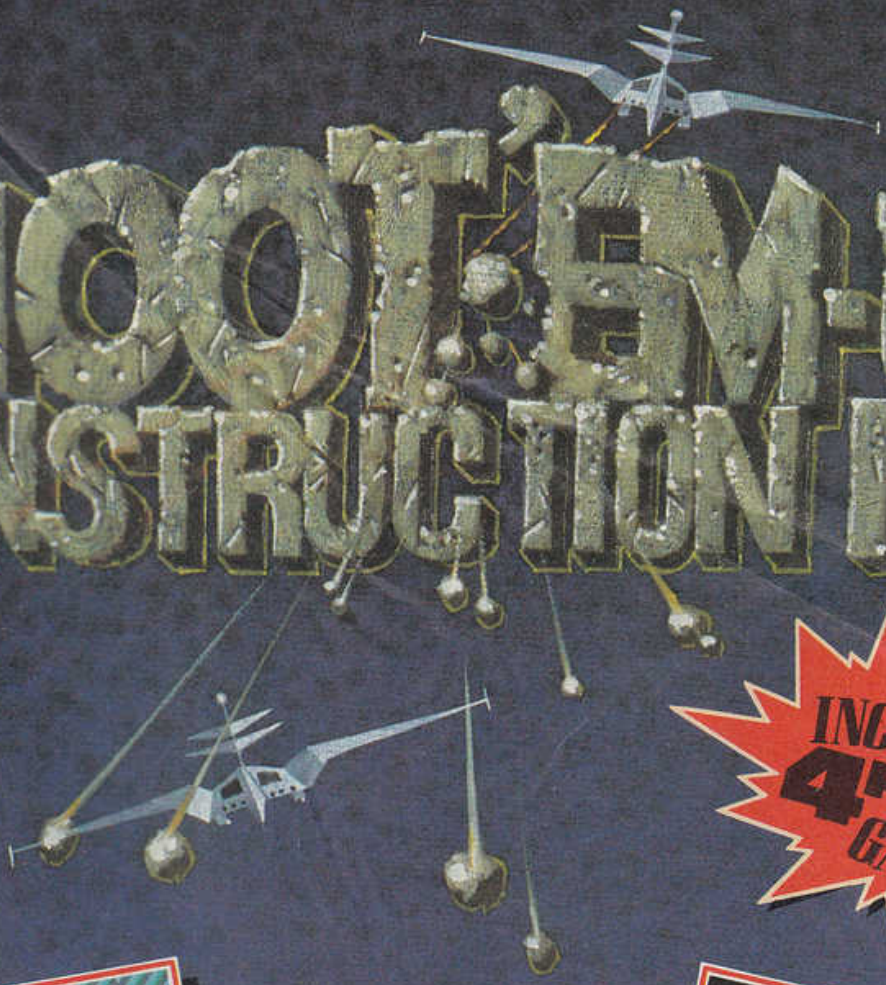

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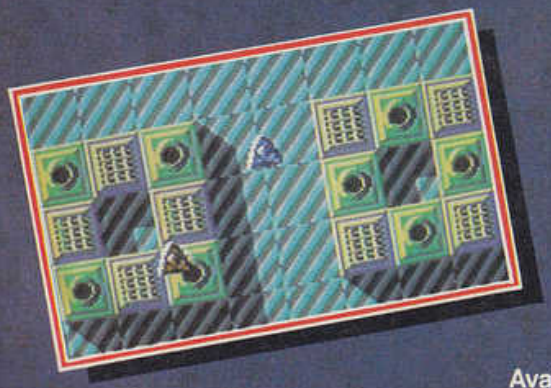

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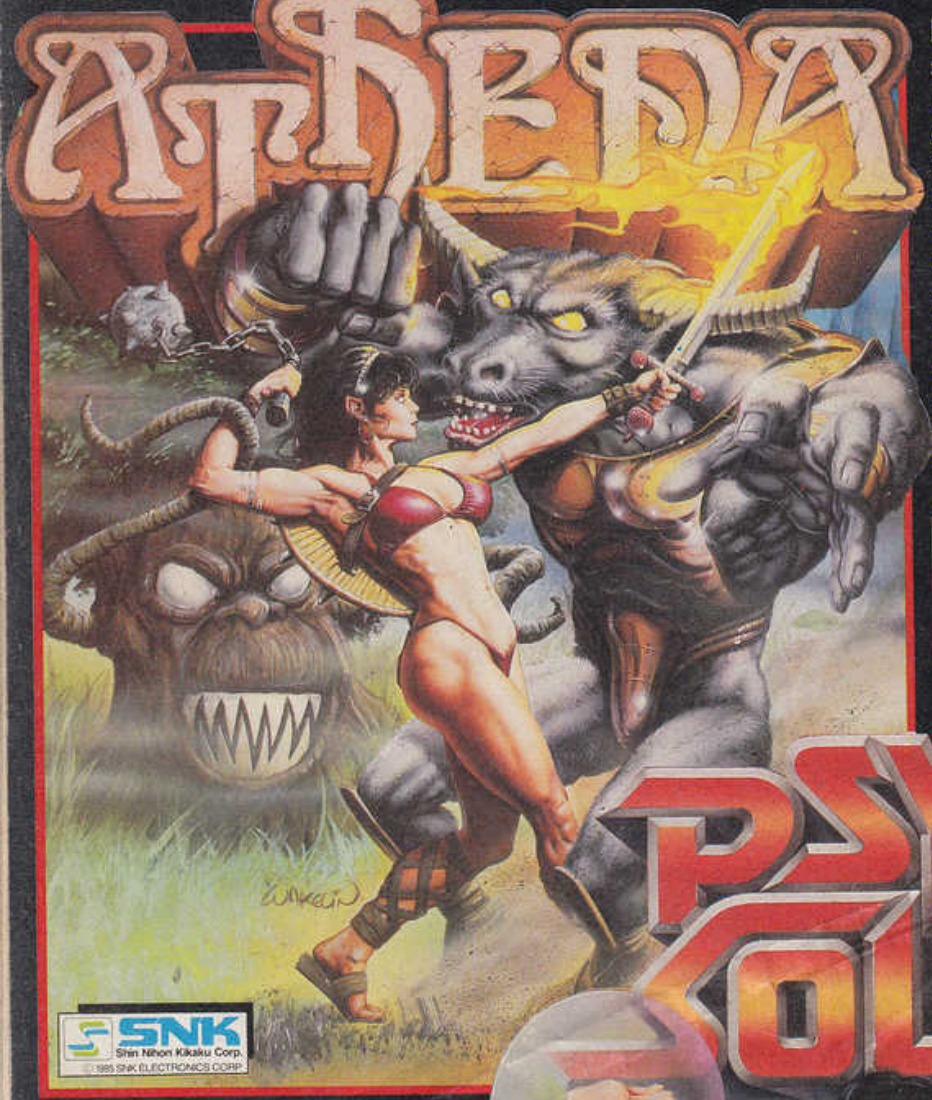

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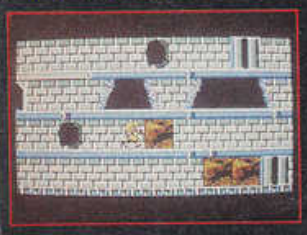

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