October 2–9 1987 Vol 6 No 39 60p

POPULAR Computing WEEKLY

SUGAR TALKS

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NEWS DESK
BT grabs HewsonTeam
Cascade sues Microprose
PLUS
Full PCW Show reports

HARDWARE
Amiga – ST – Archimedes 3-way clash

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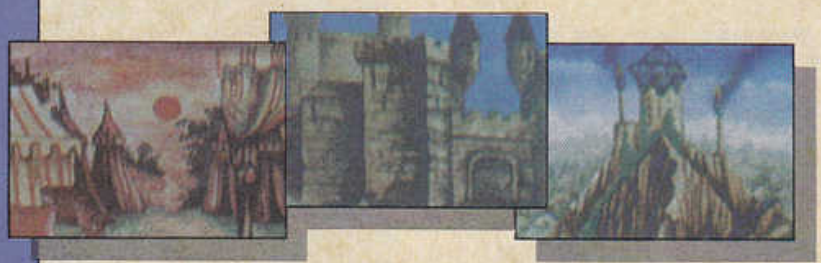

With 70 characters to contend with, masses of spells and puzzles to use and solve, you'll need all your Orcish cunning if you are to reap your ultimate revenge.

But be warned adventurers, for all is not as it first appears in . . . Knight Orc!

Screen shots taken from the Amiga version.

POPULAR Computing WEEKLY

October 2–8

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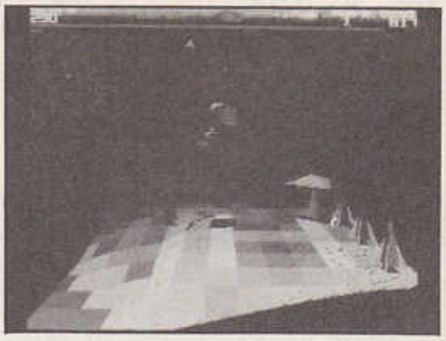
Top: PCW Show; second: Commodore Amiga 500; above: Alan Sugar; below: Zarch.



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Games for Plus 3 follow price cut

THE SPECTRUM Plus 3 has finally got some disc software. Despite announcements from various companies there have been no games produced specifically for the Plus 3 until now, apart from the games that come bundled with it (which are simply old games on disc).

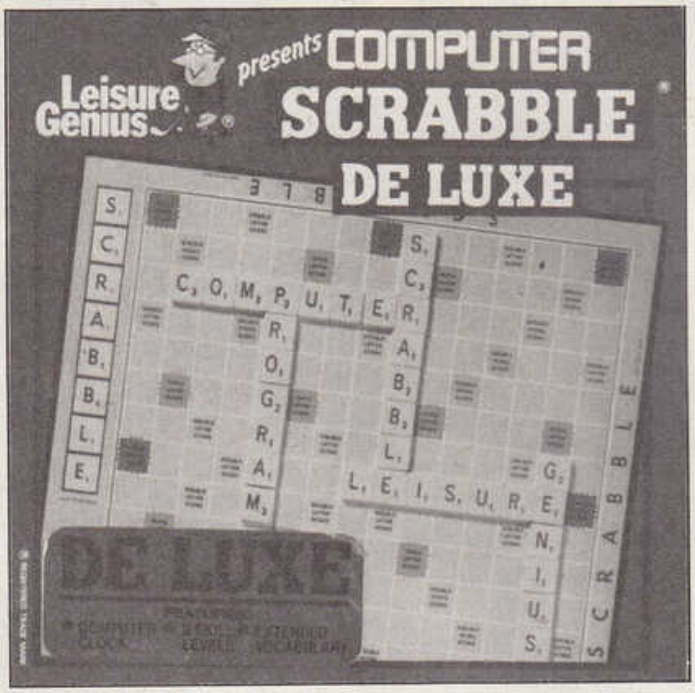
The first completely finished and playable Plus 3 game to appear at the show was Virgin's upgraded *Scrabble Deluxe*, which even beat the Plus 2 version due to a minor compatibility problem with the Plus 2.

The game features improved graphics, a clock to time your moves, and a larger vocabulary than the original version and is on sale at £15.95.

Kempston Data demonstrated (but weren't selling) their desktop mouse system for the Plus 3, which gives it the sort of WIMP system that is normally associated with more powerful machines, and Tasman announced (but weren't demonstrating) *Tasword +3*.

The £50 price cut on the Plus 3 seemed to meet with a fair degree of approval, but apart from these titles there was very little talk of producing original software for the machine, the general attitude of the software houses still being "we'll wait and see how it sells".

Below: *Scrabble Deluxe* from Virgin



Z88 game makes debut

ASSUMING you've got one of the Z88s that can run third party software without being modified, you might be interested in news of the first Z88 game.

Old Scores is a graphic adventure, set in and around the South Bank arts centre in London, which sends you on a search for a missing musical manuscript.

The game comes on ROM cartridge, and uses the Z88's main display for the text input/output, while the 'map' section of the screen contains hi-res graphics of the game's locations.

Old Scores should be available shortly, further information on 01-959 6239.

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Swashbuckled!

The PCW Show provided the setting for a dramatic development last Friday in the dispute between Microprose and Cascade over their games based on pirates.

Similarity, what similarity?

Cascade served a writ for damages on Microprose at the Microprose stand, after Cascade's lawyers had advised the company that recent action taken by Microprose was unlawful, and that as a result "damage has been caused to Cascade Games and its reputation."

Microprose had recently announced that it was sueing Cascade over the packaging for *Pirates of the Barbary Coast*, which it claimed was too similar to the Microprose offering *Pirates*.

No proceedings were subsequently issued, and Cascade is now understood to be claiming substantial damages.

Hewson team goes to BT

ANDREW Braybrook and Steve Turner, collectively known as Graftgold, announced last week that they would no longer be working with Hewson, but that all future releases (including the two currently being promoted) will be under the Telecomsoft banner.

The most immediate result of this dramatic move is that it seems both Hewson and Telecomsoft will be releasing *Morpheus* and *Magnatron*.

A source very close to both Hewson and Telecomsoft suggested that the deal was first suggested less than a week ago, and that both Braybrook and Turner were convinced in only a matter of hours that Telecomsoft could provide a more stable and profitable base than Hewson.

One of the main reasons, it seems, that Graftgold was unhappy with Hewson was the lack of any sort of formal contract, and so the speculation that Hewson (more specifically US Gold) were considering suing seems open to doubt.

Andrew Braybrook assured *Popular* that he had never signed a contract with Hewson and that he was therefore "surprised" that any legal action was being taken, especially as Andrew Hewson had, at first, seemed quite reasonable about the proposed move.

US Gold's involvement in this dispute seems to have occurred after a marketing and distribution agreement had been agreed between Hewson and Gremlin, part of the US Gold/Centresoft group.

Apparently Geoff Brown, head of US Gold, was very upset to have lost the chance of using Braybrook and Turner, and suggested that legal action be taken.

Capp & US titles for Mirrorsoft

MIRRORSOFT'S autumn releases, announced at the show, include an adventure game based on the *Andy Capp* cartoon strip (which just happens to be published in the *Daily Mirror*). The aim of the game is to help Andy survive for a week on his dole money, and it is planned for a Christmas release on Amstrad CPCs, C64 and Spectrum.

The company also has extensive links with a number of US software houses, allowing it to tap into a ready-made catalogue of 16-bit titles.

These include *Defender of The Crown, King of Chicago*, and *Shadowgate* from Mindscape, as well as titles from FTL Games, Spectrum Holobyte, and British wargame specialists PSS.

Pac-Man latest

PAC-MAN and *Soviet Submarines* are the subjects of Quicksilva's main autumn releases.

The company has tied up the conversion licence for *Pac-Land*, the latest *Pac-Man* coin-op game, and the software rights to *The Hunt for Red October*, which is a submarine thriller novel by Tom Clancy.

The company is also moving into the 16-bit market for the first time as many of its titles will now be released in versions for the ST and Amiga as well as the usual 8-bit machines.

Quicksilva's sister company, Bug-Byte, is preparing to launch a range of 16-bit budget games beginning with *Missing: One Droid*, an ST shoot 'em up priced at £9.99.

MORE SHOW NEWS ON PAGES 6,7,11,& 12

Comic capers

IN addition to all its other marketing deals with the likes of *Starlight, Viz Designs*, and even the mildly eccentric *St. Bride's School*, Ariolasoft has tied up the rights to *The Pink Panther* and *Tom and Jerry* (which must have cost a pretty penny). As the deals have only just been signed they are unlikely to be completed this year.

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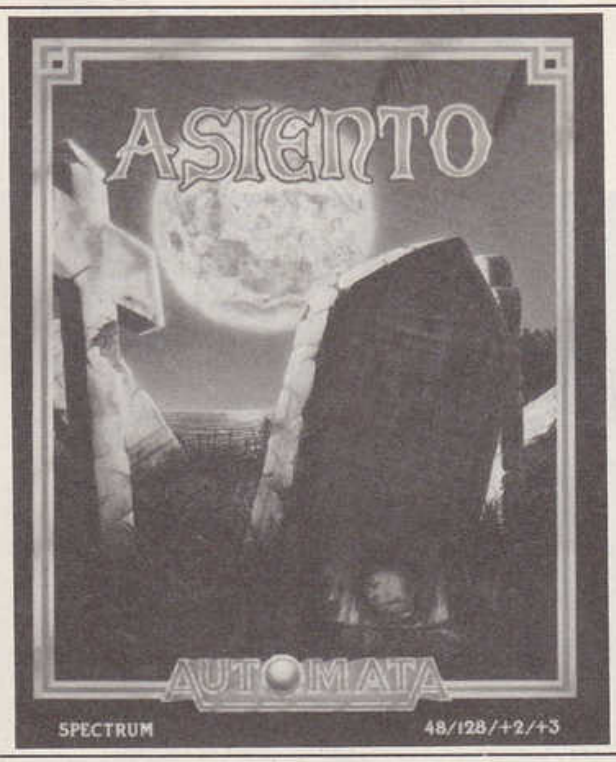
The Pi-Man returns

AUTOMATA, the innovative but commercially unsuccessful label founded by Mel "Pi-Man" Croucher, is back in business.

The Automata name, as well as the rights to the Pi-Man cartoon strip, and a number of games have been purchased by the Interceptor group (which includes Pandora, and the Players budget label).

The label will concentrate on adventures, all priced at £3.99, and the first three titles are *Nythyhel* (Amstrad CPC), *Sword of Kings* and *Asiento* (both for the Spectrum).



Melbourne House re-launched

MELBOURNE House experienced a bit of a relaunch at the show this week. After its move into the arcade field with the successful *Exploding Fist*, a series of lacklustre releases followed, which contributed to last year's takeover of the company by Mastertronic.

The 'new' Melbourne House is still concentrating on arcade games, but now seems to have some sort of coherent strategy in mind, as well as a shiny new logo.

A number of arcade conversions are planned *(Rockford, Road Wars)* across a wide range of machines, and there are some impressive new titles that have been developed on 16-bit machines, beginning with *Metropolis* on the PC.

The company's relaunch will continue through the autumn with three further titles planned for Christmas release.

Atari announce transputer plans

ATARI has announced that it is financing the development of a microcomputer which will not only make Acorn's Archimedes seem slow but will outperform large mini-computers with ease.

The new machine will be based on the Inmos T800 Transputer. This is the chip which can be slotted together with outer transputers to share the work automatically.

The T800 is the top of the range transputer, having a 32/64 bit architecture and on chip floating point circuitry. The T800 also has incredibly fast graphics displays. This will offer an update rate of 13 frames per second on a 1 million pixel screen with a processing rate of 15 Mips.

The Atari machine is being developed by Perihelion, a British company which has been working on the project for some time. Tim King from Perihelion Software wrote Amigados for Commodore, and is now writing the Helios operating system for the Transputer.

There will be two machines. The first will be an add-on box for the Atari ST which will be followed by a stand-alone workstation. Both systems will be based on a single transputer, although it will be possible to fit up to 13 T800's inside the case.

The ST add-on will provide stunning graphics along with networking and computation support. A 32-bit blitter chip, capable of drawing 100 mega pixels per second, will ease the task of handling the very high resolution screen. The screen modes are:

1280 by 960 in four colours, 1024 by 768, 640 by 480 with two screens for rapid animation and 512 by 480 with over 16 million colours.

The Helios O/S may not be finished yet, but Perihelion already has several languages running including C, BCPL, FORTRAN, PASCAL, LISP and the transputer language Occam.

This does not signal the end of either the ST or PC ranges – Bob Glendow hinted that there will be new machines based on both the 68000 and 8086 families of processors.

No price details are yet available, but Atari made it clear last week that first shipments are scheduled for next June.

8-bits win by default

Cliff Joseph finds C64 and Spectrum users well catered for

WELL, well. After all this year's huffing and puffing about 16-bit machines finally making a dent in the market, and the Spectrum and C64 being lousy value compared to the oh-so-wonderful ST, the name of the game at this year's show turned out to be 8-bit arcade conversions.

By far the largest number of licensed titles on show came from **US Gold,** which descended upon the show in a stand that looked like a cast off from E3K.

There, amidst the splendour of many flickering lights and huge video screens blasting out promo material for all the games, you could see Charlie Chaplin alongside *Captain America, Gauntlet II, Trantor, California Sports* and some military things from **SSI.**

They were also trumpeting the arrival of *Impossible Mission II* which I wanted to see, but couldn't find for some reason. And as I was experiencing a bad case of sensory overload from trying to watch *Rygor* on two separate video screens at the same time, I decided to go and see what else was on show.

The **Telecomsoft** stand seemed to be full of high spirits, not surprising considering the body blow the company had just dealt **Hewson.** In fact the best looking game on the **Firebird** part of the stand turned out to be one of the games they'd 'appropriated' along with the Hewson programmers.

Rainbird had little in the way of 8-bit software, being one of the few companies that's really putting some effort into 16-bit stuff.

Star Trek, you won't be surprised to hear, was not conspicuously in evidence.

One of the more interesting arcade conversions announced (but not present, even in demo form) was **Konami's** version of its own arcade game, *Salamander.* The coin-op version has excellent *Alien*-inspired graphics and some absolutely huge sprites. I'm not sure how it's likely to look on a Spectrum or C64 (and Konami admit that they won't be able to get all of the game into those machines), and you'll have to wait until much nearer Christmas to find out.

Oh, hang about a bit, back to US Gold for a sec. If I hadn't been brain-damaged by the sheer awesomeness of their stand, I would have mentioned that US Gold and **SSI** have jointly tied up the official *Dungeons and Dragons* software rights. I say 'official' because there are whole hordes of computer games that have been inspired by the spirit of D&D, including just about every adventure game that ever had a troll or a dwarf in it.

SSI will be producing a series of role-playing adventure games, while US Gold will concentrate on arcade-style troll-bashing. The deal has only just been signed, so no release dates were available for the games.

There were quite a few stands that didn't seem to have anything new on them at all; some of these were dealers flogging old software at knock-down prices, but quite a few were software houses who simply didn't have anything new to show. The likes of **Llamasoft, Durrel,** and various others were plugging their back catalogue with only video demos of a couple of titles to whet people's appetites.

Llamasoft was even plugging an old Vic 20 compilation, but made glorious restitution by announcing a new shoot 'em up provisionally entitled *Eat Lead and Die, Alien Filth* (I just hope it's better than *Camels 2,* that's all). Jeff Minter is also planning a follow up to *Colourspace,* but that's 16-bit so I'm not allowed to talk about it.

My biggest disappointment came at the **Elite** stand, where I was eagerly hoping to get a look at the *Thundercats* game that's being programmed by **Gargoyle Games.** However, Elite continued their tradition of being the least cooperative software house of all time.

The stand covered a fair bit of floorspace, which was surrounded by a great deal of blank wall. There were video demos of some of the games at one end of the stand, and a couple of refugees from *The Stepford Wives* handing out ads for the games at the other end. But no games, no coin-op machines to play with, and all my earnest little pleas for more info got me was a grin from one of the Wives and a price list of old games.

Once I'd absorbed the barrage of demos, press releases, and little salmon sandwiches which the crusts cut off, I was left with the impression that things this year were much the same as at last year's show. The top companies then are still the top companies now, and Spectrum/C64 arcade games still dominate the release lists.

Consolidation rather than progress would be the kindest description I suppose. The creative side of games programming hasn't been extinguished by any means, but games are now much more likely to be written to satisfy the terms of an agent's contract than the programmer's imagination.

There's a clear drift of talent moving from the smaller companies to the bigger set-ups (dramatically demonstrated by Telecomsoft's raid on the Hewson team). But the commerical backing these companies can provide now give programmers the freedom to spend more time and money on development, which has obvious benefits.

In a way it's a bit disappointing, because it means that things haven't really progressed much since last year. On the other hand, if you're a 14-year-old Spectrum owner you should be very happy.

Palace battles on with Barbarian

The protuberant Ms. W.

UNPERTURBED by the controversy surrounding its *Barbarian* game, Palace Software has completed the ST version of the game which, with its improved graphics and sound effects, is even more realistic than before. And in an attempt to boost sales of its ST titles, Palace has decided to price the game at £14.95, almost bringing it down to budget levels for 16-bit software. As well as *Barbarian,* Palace was also demonstrating the *Shoot 'Em Up Construction Kit,* a sophisticated games writing utility.

Two new titles, *Starship* and *Rimrunner,* were announced for Christmas release but are still in the early development stages.

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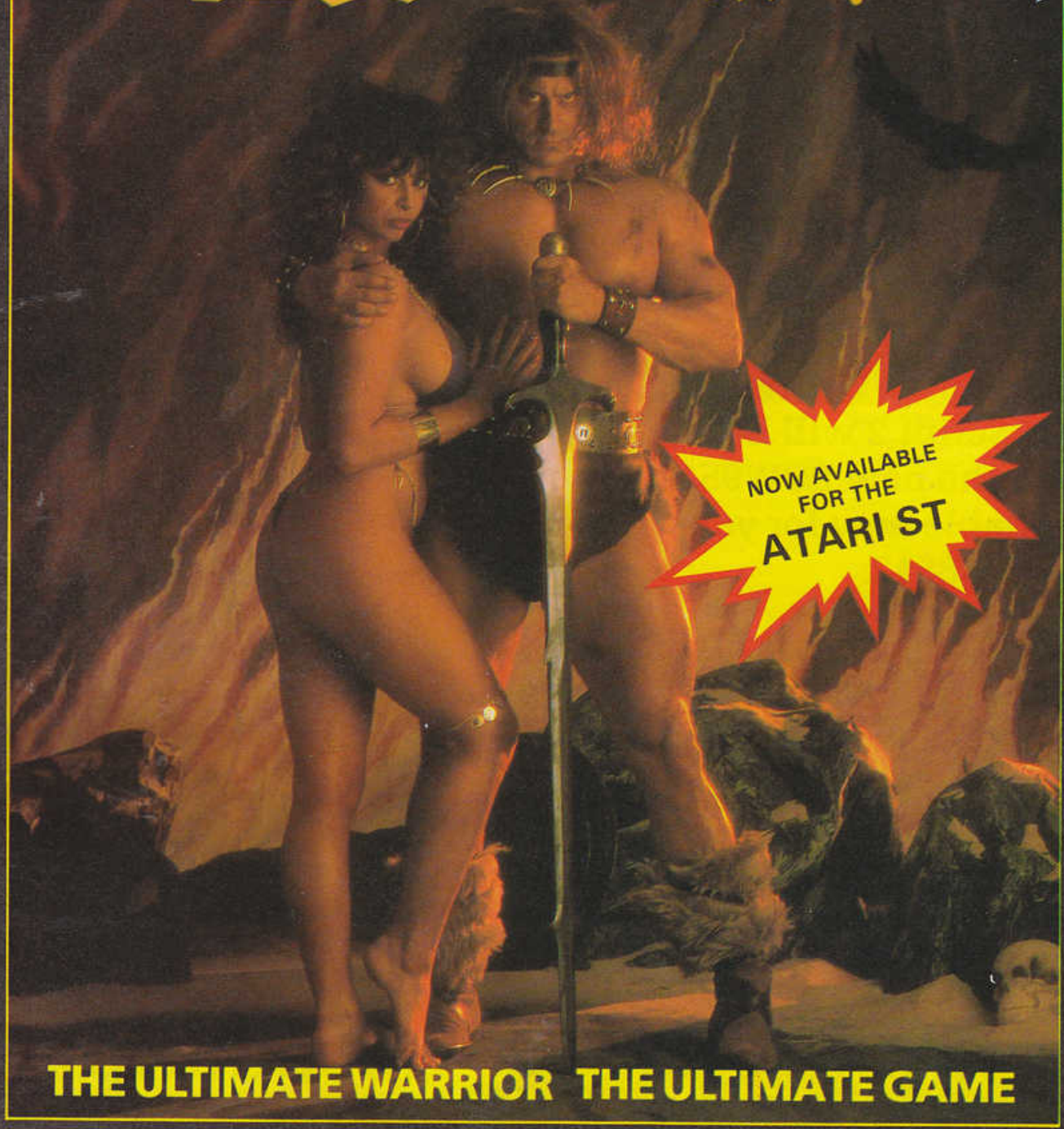
BARBARIAN

The Ultimate Warrior



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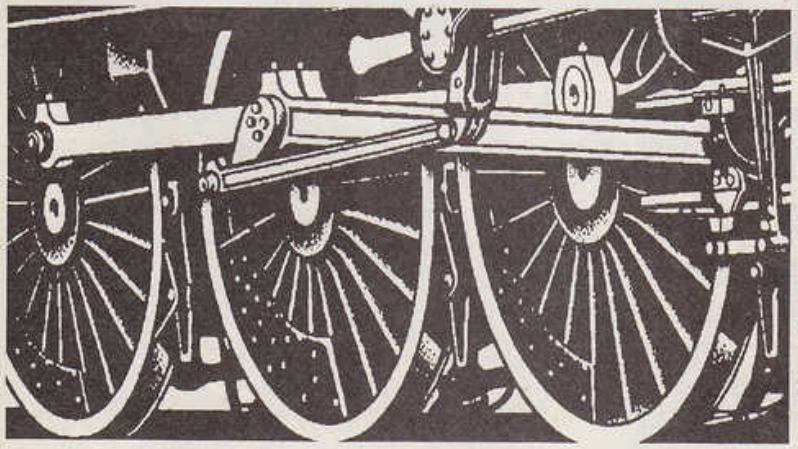

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Commodore Amiga 0, Atari ST 1

This year both **Atari** and **Commodore** fielded their own villages, separate from the main hubbub of the central hall of the show. While great things have been expected, what with the paucity of pre-show product in both camps only the **Atari** village looked remotely alive.

The prolific **Microdeal** were selling the *Airball Construction Kit* for the ST. For only £14.95 you too can design up to 300 interconnecting rooms, filled with superb sprites like the leering warriors, pouting maidens, haunted faces, archways, coffins, and battlements. For all *Airball* addicts an irresistible package. Also new from Microdeal was *GFA Companion*, a dedicated RCS package designed to create Dialogue and Error boxes, and other such Gem goodies, for integration with *GFA Basic* programs.

Games that we had been waiting for, namely *Leatherneck* (*Commando* variant) and *Tanglewood* (difficult to categorise four-way scrolling arcade game) were not ready. In the case of *Leatherneck* the game is still waiting to be written, but *Tanglewood* is only a couple of weeks away from release.

Also shown were *Fright Night*, based on the Columbia Pictures film, and a football game which will be available for both the ST and Amiga sometime in November. Other mooted titles were *Omega Run* (ST, £24.95) and the Amiga version of *Airball* (£24.95).

Round the corner on the **Eidersoft** stand, the promised bunch of new releases in the *Pro* series failed to materialise. *Pro-MIDI* was on show, allowing you to connect the *Pro Sound* sampler to a MIDI keyboard, but finished versions were not anticipated until next week.

Pro Light and *Pro Drum* were similarly inconvenienced, but more surprising was that the promised bundle of *Pro Sound*, MIDI software and a dumb keyboard for £100 is far from certain to appear at all.

The latest game on the **Paradox** label was less than impressive, but Eidersoft's other new title, *Vegas Gambler*, by **California Dreams,** was at least professionally produced.

For hardware, the only new item Eidersoft had was only a twin, double sided disc drive, retailing for the reasonable sum of £249.99.

Psygnosis, the well-known purveyors of graphically excellent but dubiously animated games, released its latest effort. *Terrorpods* for both the ST and the Amiga. The game, costing £24.95 and looking virtually the same on both machines, is rather odd to say the least. A mining planet full of different types of installation has been occupied by the Terrorpods who are using the facilities to build the components for some sort of supreme war machine. Your task is to trade with the installations and buy up the components, while fending off attacks from the Terrorpod mothership and its forces. While the action, colourful and noisy for your zap gun and clever for the missiles, is fast and furious you've got to keep one step ahead of the enemy in order to keep your own supply levels up. The graphics and sound effects are excellent of course, and the animation is well up to scratch so look out for this one.

ST stalwarts turned out an impressive product list, the highlights of which were for the ST, *Monitor Master* (£49.95) which switches painlessly between mono and colour inputs. *Hi-Tec Cartridge Expander* (£49.95) to enable you to plug up to three cartridges in at the same time, although finding three you'd want continuously plugged in might be difficult, and *Skyplot* (£69.95) for all those astronomers out there with 1 meg systems.

Even so called trade days were very busy

For the Amiga, **Robtek** had a 2MB RAM expansion box at a cool £449, slimline 3.5" and 5.25" disc drives for £169.95 and £199.95, the *Hi-Tec Sound Digitizer* (£89.95) which produces IFF-compatible sample files, importantly for those interested in music a MIDI interface (£39.95) which plugs into the serial port, and finally an impressive graphic database called *Microfiche Filer* (£79.95). Just for the show Robtek was also knocking 20–40% off the price of most of their products.

Frontier Software was rather quiet, the only thing of interest besides their range of hard discs was the *MicroStuffer* which will work with any computer that connects to a printer via a Centronics interface. It is of course, a printer buffer, a 64k one at that and has a repeat button, which will make mail shots easier anyway.

Nothing particularly new was forthcoming from **Computer Concepts** this time, just the regulars like *Fast ASM, ST Doctor* (both £19.95), *Backpack* and *Fast Basic*. Speaking of which a new user group specifically for *Fast Basic* programmers has been set up, called FaST unsurprisingly. Officially supported by CC claims the introductory leaflet, urging you to spend £6.00 on subscribing to the user group magazine. Their address is 42 York Road, Rayleigh, Essex SS6 8SB, and despite any passing snide remarks about any magazine except ST World, or anyone not a Fast Basic user, for devotees of that language it should be worth getting involved.

French outfit **UBISoft** was at the show, primarily looking for UK distributors, and having seen previews of *Iron Lord* (fantasy thrash) and *Zombie* (arcade adventure) both of which were graphically impressive (and on the ST), let's hope they tie something up soon. The games are expected to be released in France for Christmas.

Sahara Software (01-735 3806) were once again displaying their impressive alternative ST operating system, *Mirage*. Languages for the system now include, Fortran, Pascal, a Basic Compiler and Lattice C.

On the main Atari stand nothing much transpired. The Mega STs were about and so was the overpriced Atari Laser Printer. An announcement that was interesting concerned the long awaited CD ROM, a compact disc that can store up to 600MB of data, retrieved at a rate of 1.5Mbits/second. The price will be approximately £400 and is due to be shipped before the end of 1987; but how many times have we heard that from Atari? An interesting footnote is that the Atari CD Rom will also allow you to play audio compact discs on it.

One unwelcome feature was to be found in the official Atari Welcome to Atari World guide,

which was produced by the staff of *ST World*, the magazine Atari recently bought a large slice in. In the section highlighting important products for the ST a hard plug was given for *Skulldiggery* from **Nexus.** This *Boulderdash* game was written by none other than *ST World*'s editor, Hugh Gollner. Tacky lads, tacky.

Software Precision (01-330 7166) was actively promoting their *Superbase Personal* and *Superbase Professional* packages, as well as the lesser-know items in the product line such as *Paintpro* (£49.95), a graphics design package, Textpro (£39.95) a word processor, Forth/MT (£49.95), a multitasking implementation, as well as their range of books.

Digital Research, not Atari's favourites I imagine, turned out GEM Draw Plus, GEM Graph, GEM Wordchart and GEM. Write (all £99.95) and promised GEM Paint and ROM Pack. For further information contact Silica Shop (01-309 1111).

If the Atari village wasn't exactly brimming over with excitement, it was still worth paying a call to. Unfortunately, for Amiga owners, the **Commodore** village was not only smaller, it was more like a wake.

The Amiga Centre in Scotland did the most to fly the flag, with Sculpt-3D, a program which boasted that any shape could be manipulated to form any kind of surface. Amongst its features are the use of all the Amiga's graphic modes and 4096 colours, and ray tracing for effects like those found in the Juggler demo. Price ?. A very reasonable £69. Also distributed by the Amiga Centre is AIRI (£55) which is basically icon-driven programming. How good this is really does remain to be seen. Other product included Forms in Flight (£60), 3D graphics package. Express Paint (£58), desktop graphics, Animator Apprentice (£195) for 3D animation, and Ray Tracer with source code in both and Amiga Basic to enable you too to produce HAM mode spectaculars like the *Juggler*. For more details call (031) 557 4242.

Haba Marketing and Eidersoft shared a stand, the most interesting thing thereon was *Digi-Paint*, the 4096-colour art package from the producers of *Digi-View*. Also up and running, the impressive and wonderful *Faery Tale*, an essential buy for fantasy gamers.

Commodore contributed to the dreary atmosphere with a cabinet containing their computers through the ages. And I was hoping I'd never see a Vic-20 again!

Out in the main hall, the major software houses produced the usual video and sound productions to take your mind off the fact that few of them had finished products to show. Yep, it was demo time folks.

Jeff Minter was there, as always. Old hippies never die!

Activision was showing *Enduro Racer* on the ST on its stand, and quite nice it looked

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too. Also on its way from Activision, and available now, is the Amiga version of *GFL Championship Football* (£24.95) for all you American Football fans.

From **Electronic Arts,** the brilliant *Bards Tale I* is expected real soon for the ST, with *Marble Madness* to follow. Considering that Trip Hawkins (the boss) once said that EA wasn't going to pay the ST much attention it's amusing to see the company doing an about turn in the UK because of the superiority of the ST here.

Mirrorsoft and **PSS** shared a stand, and it's significant that when confronted by the press, John Cook, Mirrorsoft's Product Manager, immediately bolted.

After a long wait PSS has finally, and it would appear furtively, launched the ST version of *Annals of Rome*. Written in C this version should overcome the slowness (not to mention the bugs) that hindered the worthy Spectrum original.

PSS has in fact got quite a catalogue of games that they've designed the artwork for but haven't written. The first one ought to be *Power Struggle*, a game of superpower politics. Watch out for that around the turn of the year. Looking further into the future planned projects include *Spycatcher* (ho, ho), *Battlefield Germany* (ST), *Leathernecks* (both), *Fortress America* (ST) and *Final Frontier* (ST).

No sign on *Defender of the Crown* on the ST from Mirrorsoft, although one of the other Cinemaware games, *King of Chicago* was previewed on the Amiga. On the Amiga coming soon list are also *Bermuda Project* (rather like *Faery Tales, GA10* and *Strike Force Harrier*.

For ST owners the coming soon list includes, a space shuttle simulation called *Orbiter*, which features every possible hazard *Bermuda Project* and *Spitfire 40*.

British Telecom made a strong impression with Rainbird, Firebird, Magnetic Scrolls and Level 9. The third adventure from Anita Sinclair and Magnetic Scrolls is going to be *Jinxter* (all formats), which sounds quite awful (luck deserts happy land witches disperse seven parts of protective charm), but will probably turn out to be very good all the same.

Level 9's next effort will be *Gnome Ranger*, in the same vein as *Knight Orc* and with digitised pictures again (of paintings this time ?). Release date is October xth for Amiga and ST versions, priced at the very reasonable sum of £14.95.

Another TBA production from Rainbird is *Universal Military Simulator*, which sounds quite tasty. You can re-enact battles from Hastings to Gettysburg on a 3D grid system that can be viewed from any angle. Also there is a map creator to design your own battlefields and even armies. If the programmers (Intergalactic Development) can pull it off it sounds a dream come true for computer wargamers.

And yet more from Rainbird includes *Black Lamp*, written by Steve Cain and Graham Everett, responsible for *Star Trek*. This is a medieval arcade adventure and by all accounts, well worth taking a look at.

Firebird was slightly subdued. I didn't see *Star Trek* running on anything other than a video machine. What was on show was *Genesis*, Steve 'Goldrunner' Bak's latest production. Super smooth and very fast horizontal scrolling were used to great effect but only half of the screen was being used which was rather disappointing.

Other dribs and drabs include Elite promising *Thundercats* (based on the toys) for the ST. Addictive Games releasing (cor!) *Football Manager x* (ST) for £14.95, presumably just in front of FM 2 at £19.95.

Cameron, distributed by Lightning, was showing a mouse shaped scanner (ST/Amiga) for copying pictures onto the screen. Very impressive it was too even if the images were only in mono.

Novagen has two new games coming up for the ST. *Backlash* (£19.95) and *Damocles* which features solid 3-D planets which you can fly toward, or around, in *Elite* style.

US Gold released *Indiana Jones and the Temple of Doom* for the ST, and it looks dreadful. We're still waiting for *Solomons Key*, and the **SST** products, *Wizards Crown, Shards of Spring, Gettysburg* and *Rebel Charge*. However *Phantasie III* for the ST is out and so is *Kampfgruppe* for the Amiga.

Aackosoft is a Dutch outfit with some dubious material in their catalogue (namely *Leather Skirts*). With a November release date though is *Flight Deck* (ST/Amiga) and further on, *Police Academy 2* (ST), *Hype* (Amiga) and *Indy 500* (ST).

And finally, **Melbourne House,** now an adjunct of **Mastertronic,** announced *Metropolis, Roadwars, Rockford* and *Kelly X* for both ST and Amiga.

For Atari ST owners, PCW 1987 was a reasonable affair, but something of a let down for Amiga owners who got little more than press release promises.

Duncan Evans

DIARY DATES

OCTOBER

15–17 October
Desktop Publishing Show
Business Design Centre, London
Details: Demonstrations of latest hardware and peripherals, plus seminars and user clinics
Organiser: Database Exhibitions, 061-456 8383

NOVEMBER

14 November
National Einstein Exhibition
National Motorcycle Museum, Birmingham
Details: Einstein software etc.
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Organiser: UKEUG (0473) 49507

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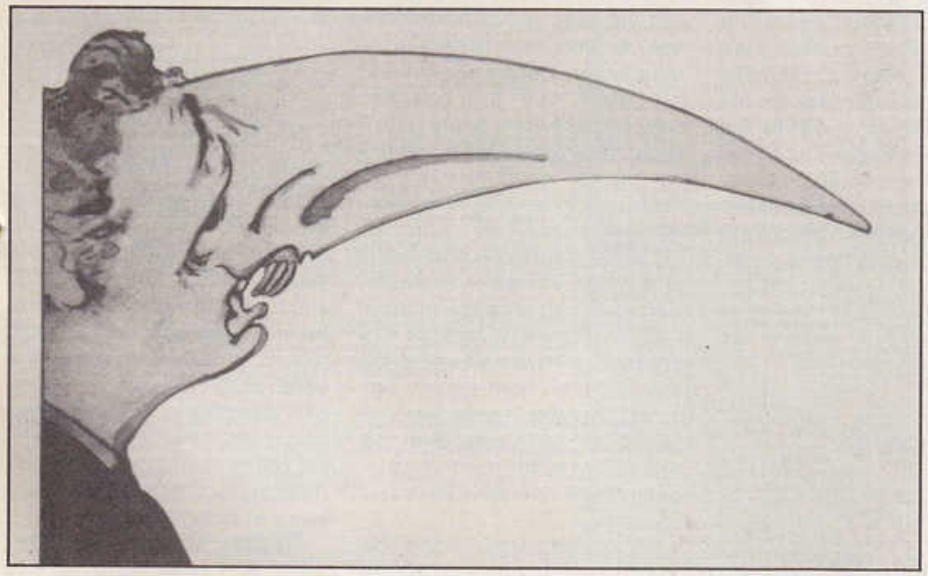

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Don't forget to include a slogan for the game. You could win one of fifty copies of *Yes, Prime Minister*.

LETTERS

More Memotech misconceptions

With reference to the recent correspondence concerning the Memotech "quirk", as a major Memotech retailer we feel that the time has come when the matter should be clarified. Firstly, it has been established that the "quirk" is due to mis-aligned televisions.

This problem affects less than 0·1 per cent of users. In both the cases of complaint, a refund was offered if the customer so decided. In both cases this offer was turned down because they felt that the computer, even with their mis-aligned televisions, was excellent value. It is very rewarding to note that many satisfied users are taking the trouble to write to you, and explaining the problem that these two customers experienced.

We fully support the Memotech computer and will continue to do so just as long as we are able. The user base is growing daily in this country, and this can only be good news for the existing users.

Ron Gladwyn
UK Home Computers
Swindon

Risky business

It was with cynical interest that I read your interview with Mrs. Thatcher's erstwhile favourite "hi-tec" entrepreneur. I have the misfortune to own an excellent operating system hooked to an ill-conceived machine of his designing (a QL). His statements regarding RISC processors were quite in keeping with his "bodge it and hope" philosophy. He also chose to compare a CISC command with a RISC command. He appears to have missed the essential point. If for his comparison he had chosen an "ADD" instruction, common to both chips, a real comparison would have been possible. From my admittedly limited reading on the matter, the advantages of the RISC philosophy are based on the fact that commands such as "MUL" are not often used. Often much pre and post evaluation of the result is also required. Yes, these are available as commands in a CISC, but often they are not quite what you want, and with so many instructions available, even if the instruction set is well known, hours are spent checking in manuals for mode compatibility and checking no unforeseen flags being set. Incidentally, I read recently that the 386 co-processor isn't reliable when performing 32-bit multiplications, and gives variable answers. I for one don't want to rely on dodgy hardware to add to my own ability to obtain wrong answers.

If one has a fast set of basic instructions that can be built into more complex customised structures the advantages become obvious. Once written they can be held in a library of macros to be recalled and modified when needed. To have complex operations combined into one command is going to generate compromises both in design and use.

I have to agree with his disappointment regarding quality of current 16-bit home machines, however, not his reasoning. The current crop of offerings in this category have only been around for a year or so and thus in the position that the 8-bit market was in the late '70s. Could one really visualise a Commodore 128 when the state of the art was the Rockwell AIM? The problem at the moment is that designers are still shaking off the 8-bit ethos and restrictions. The potential of the 16-bit processors will probably never be fully exploited, the 32-bit machines will come to the market in less than the nine year lifespan of the previous generation. This raises economic questions. Developing both soft and hard technology is capital intensive. Recouping invested capital will be over a much shorter production run so unit cost will be higher. Perhaps to the point where the product becomes uneconomic.

Portability would be an obvious solution, but as this is not a facet of Clive's philosophy I don't suppose this would occur to him.

However, I take all pronouncements from him with a pinch of salt; after all, isn't this the man who put the cause of electrical vehicles back by a decade?

Andy Smith
London

Software body

The other day, when I was browsing through a back issue (August 7–13) I started musing on the relative prices of computer games for the "popular machines" (ie, the CPC464, C64 and Spectrum), compared to the music industry, which in many ways is similar.

Now it seems that the prices are considerably out of proportion. I know several people who are in bands and write their own music and they can spend more time working on a song than seems to be spent on a game and yet they get considerably less per copy sold than a software writer. But this is not my real gripe with the software industry, as I have been "into" computers since 1981 when I purchased a ZX81, I then moved on to a VIC20, a Memotech and now an Amstrad CPC6128. I would like to move to an Atari, Amiga or an Archimedes if I can raise the money.

Since then, I have seen the prices of software rise and fall continuously. Then I read Ziggurat by Mike Lewis on the prices of software and he seemed to echo my thoughts, so I thought I would write in and air my view.

My thinking goes along the lines of: why not set up an independent body to look at the software for home computers which checks all new releases from the major companies and test them? They would then put it into a price category, such as £1.99 for the worst and £9.95 for the best. There would obviously be exceptions like the Infocom adventures *et al*, but you could then see what you wanted and have an idea of what it was like.

My second point is that in the good old days, if you wanted a piece of software, you could try it out in the shop before you bought it. Now, if it is not to your liking, tough, you've paid for it. The only way to get it changed is to pray it goes wrong and you can demand your money back.

The third issue I would like to raise is piracy. I have recently finished a college course in computer studies (in a different area) and on this course we were given packages to use, we were told to copy these for class use, which I feel is fine, as the college cannot afford thirty copies of a package. But many of the students on the course were obtaining programs from the local computer shops, bringing them to college and copying them for other students.

I own a Multiface Two for my Amstrad and use this for tapes, as you can put six games on one disc, whereas you only get one on bought discs. I do, however, have all the original tapes in a draw of my desk. Why can't software houses do compilation discs of programs from their catalogue? Say, let the buyer choose up to six games they want and put them on one disc. Why bother with disc protection, as there are many ways round it?

D Wright
Fareham, Hants

It's tricky

I have recently upgraded to an Amiga 500. Certain items of software are duplicated from the Commodore 64 to the A500 and therefore I wrote to some of the relevant software houses, requesting an exchange on the basis of the difference in price plus the original C64 software, plus a small handling charge.

I would like to publicly thank Rainbird for their very fast assistance in doing the above.

To date, US Gold and Electronic Arts have not even had the courtesy to reply to, let alone consider, my request. Software houses are continually condemning piracy, but as long as some show the total apathy and ignorance that US Gold has done, then I find it very hard to have any sympathy.

I did not necessarily expect all to agree, but no industry lasts if it ignores its customers. Thank goodness for Rainbird.

Trevor Cobbe
Leeds

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Share and share alike

Ian Fidler of Hemel Hempstead, Herts, writes:

Q I own a Commodore 16 and I'm just about to upgrade to a Plus 4 with disk drive and monitor. I won't be throwing away my Commodore 16 so I was wondering whether I could use one disk drive for both computers?

A One of the problems with Commodore machines is that they tend to lock you into buying peripherals from Commodore. With this in mind, the disk drives are, as far as I know, all the same, and will work with any of the Commodore machines (Amiga excepted?). So, you should be able to use the Plus 4 drive with the 16.

Eeeny meeny miny mo

John Gray, of Eastbourne, Sussex, writes:

Q I am disabled and cannot get around to clubs or see demos in faraway towns. I am on the point of choosing a computer and colour monitor for entertainment, including some programming. I have looked at two systems available at a local branch of Comet.

The Atari STFM at £299 and the BBC Master Compact with its detached processor and 7.5" disk drive with Acorn colour monitor for about £588 complete.

With the Atari I would need a good quality medium res monitor such as one of the Philips type with stereo sound. Since these are priced around £290, it doesn't leave much change out of £600 for the ST system. The BBC machine is a classic and looks good.

It is rather unfortunate to have to buy a pig in a poke and I can't even have a peek at how the Master Compact performs. Which set up would you plump for and why?

Incidentally, I'm OK for wordprocessing with a CPC6128 and Protext.

A For entertainment, I would certainly go for the Atari STFM system. Apart from being a much better computer than the 'Classic' BBC system which is getting a bit long in the byte, it has far more software available. By entertainment, I presume you mean games, and the Atari beats the pants off the BBC in these stakes, the graphics are better, and the machine is faster.

For programming, the Atari is easily as well supported as the BBC, with Pascal, C, Lisp, Forth, Logo, Basic, BCPL, etc, being available at quite reasonable prices.

The disadvantages of the ST are that its keyboard is awful, the GEM operating system has a few bugs (nothing nasty but they are still there), and the disk drives are probably not as fast as the Master's. They are, however, a lot more efficient.

The Master is much more of a business orientated machine and, as you say, looks good. The problem is that there is not very much entertainment software available, and due to Acorn's 'stunning' marketing techniques, there is not likely to be.

Of the two machines, I'd certainly go for the ST – however, it is up to you in the end and you should be able to get a demo in the shop.

Double joy

Andy Singleton, of Huddersfield, writes:

Q I have been using an MSX machine for two years and have become increasingly annoyed that several MSX games require two independent joystick fire buttons eg, Konami's *Nemesis* and *Penguin Adventure*.

The problem is that no such function can be found on any joystick available. I have two MSX joysticks, and both have two fire buttons, but each one has the identical function.

Is it possible to re-wire a joystick or its plug to create two independent buttons?

A Looking at the joystick port specification, there are two trigger inputs as you suggest. The problem is that most joysticks are made for use by left or right-handed people hence the need for two buttons wired to the same input.

To change the operation so that each of the buttons is independent, you will need to re-wire the joystick and its plug. Normally, the plug is moulded onto the cable so you will have to buy a new one, and some 8-core cable. Wire up the direction controls as before, to one of the buttons. The other button goes to pin 7 of the joystick port – see the diagrams.

The joystick movements and buttons are sensed through pin 8 ie a connection between any of pins 1–4 (joystick) or 6–7 (buttons) tells the computer the switch is closed. Inside the joystick you will see a wire that is common to all of the switches, this goes to pin 8 of the plug and should still go to both of the buttons. To get the extra button, connect a new wire to pin 7 from the other side of the button switch.

The diagram in Fig. 2 should help with the new layout – I've not actually tried this but it seems straight forward enough, having had a good look inside the joystick.

You can get a suitable connector and cable from Maplin Electronic Supplies. Tel: 0702 554161 and the part numbers are RK61R (D Range 9 way socket @ £86p) and XR27F (multi-core 9 way @£80ppm). Note that the cable is screened, it doesn't need to be, it's just that this is the simplest way to get multi-core cable.

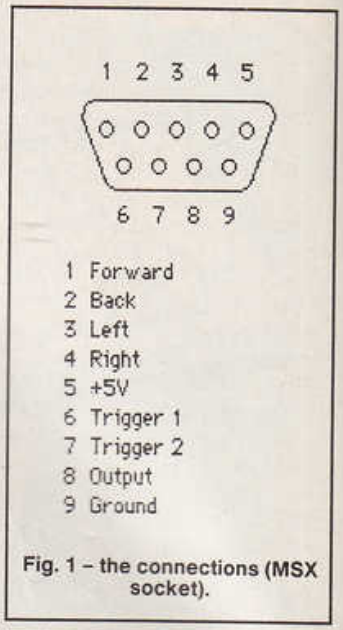

Fig. 1 – the connections (MSX socket).

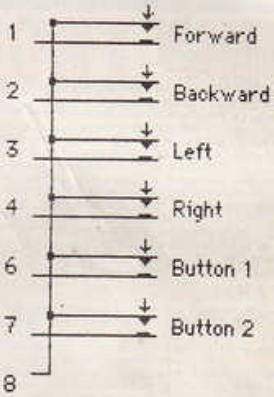

Fig. 2 – the switches.

A gouda buy

Andrew Price, of Melbourne, Derbyshire, writes:

Q I am considering the purchase of a Sony MSX 2 computer and as they are not available in this country, I shall purchase one from Dutch sources. I am aware of the PAL/SECAM/NTSC syndrome and have already resolved that problem, but what concerns me is the mains voltage. I believe that the Dutch national grid runs at 220V, and if this is correct:

a) is it necessary to fit a step down (220–240V) transformer?

b) where could I purchase such a transformer?

A If you can, the best thing to do is check the machine to see if it has an

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input power change switch, as seen on many TV sets. If it has one then it should cover 220V. It is quite possible that the machine will work on 240V even though the specifications say 220 since it is within 10% of the operating range, and the internal voltage regulator should take care of the difference.

I am not absolutely certain of the above and perhaps your best bet would be to write a nice letter to the dealer you intend to buy from, asking whether the machine will work on the UK Mains. Or, perhaps one of PCW's readers can help?

Master mouse

Robert McBride, of Dunfermline, Fife, writes:

Q I have a Kempston mouse and mouse interface that I use with my Spectrum 128 (original black version). I also have a BBC Master 128.

I wish to connect my mouse to the Master, obviously the interface that connects to the Spectrum will not work with the Master. The mouse has a D-type connector (same type as those used on the Atari style joysticks) but I don't have the pin configuration and Kempston are no more.

If it is useful, I have access to the ROM which controls the AMS mouse that is designed for the BBC.

I have heard of a company that produces a special attachment for connecting Atari joysticks to BBC computers. I unfortunately do not have the name of this company.

My problem could be solved when I purchase my Master 512K upgrade as this comes supplied with a mouse. Unfortunately it does not appear to function properly when in 128 mode. I have heard that because of a difference in clocking (or whatever) the pointer speeds across the screen. If I can solve this problem then I don't need to connect my Spectrum mouse to the Master as I could use the 512 mouse in 128 mode.

PS. One imagines you at your office surrounded by an array (tidy of course) of computers and technical 'bits and bobs'. Is this the situation?

A Mice all tend to work in the same way and hopefully, the Kempston is no different. Two encoder wheels are used to detect the motion of the mouse by breaking a light beam (see diagrams). In practice, two light beams per wheel are needed to sense the direction. If one beam is offset from the other, turning the wheel in one direction cases one pulse to come before the other, the other direction reverses the sequence. Counting the number of pulses gives the amount that the mouse has been moved. There are four connections for the wheels, one for each of the buttons, and a +5V and ground for power to the light beams and their associated circuitry.

On the BBC, the AMX mouse connects to the user port and uses the following:

XB YB XA NC YA NC NC LB MB RB
+5 NC OV NC NC NC NC NC NC NC

Looking into the socket of the user port.

XA and XB are the outputs of the light barriers for the X axis, YA and YB are the same for the Y axis, and the L/M/RB are the left middle and right buttons.

Ignoring the button for a moment, it should be possible to open up the Spectrum mouse and find the connections for the X and Y light barriers, these go to the connector as shown above. You will also need to find the 5V line that powers the comparator (top right pin of chip is usually the supply) if there is only one button then connect it to the left-hand connection as this is the most commonly used. The X and Y movement and button can be read from the user port bits 0, 2 and 567 respectively (&FE60 on a BBC B) and the IFR of the user VIA, bits 3 and 4 for X and Y (at &FE60+13 on a BBC B). If you connect the mouse you have up in the way shown then it may well work with the AMX system. If not then you will have to write your own machine code to cope with decoding the movements.

One of the problems you may find is that the number of holes in the movement disks are different. This will cause problems with the step size, and the problem you mentioned with the 512 mouse will occur. What you need to do is scale the number of pulses per step so that they fit nicely as a pixel to pixel movement. If the mouse is moving too fast then you will have to count two or more pulses for one. If it is too slow then move two or more pixels at once. To do this with an existing system, you will need to redirect the port access routines and make the computer believe that things are slightly different ie, send corrected values to the routine instead of the actual ones. Hopefully this is of some help and you get the thing working.

In answer to your last question, all I can say is that my desk sometimes gets rather crowded with all the letters and machines.

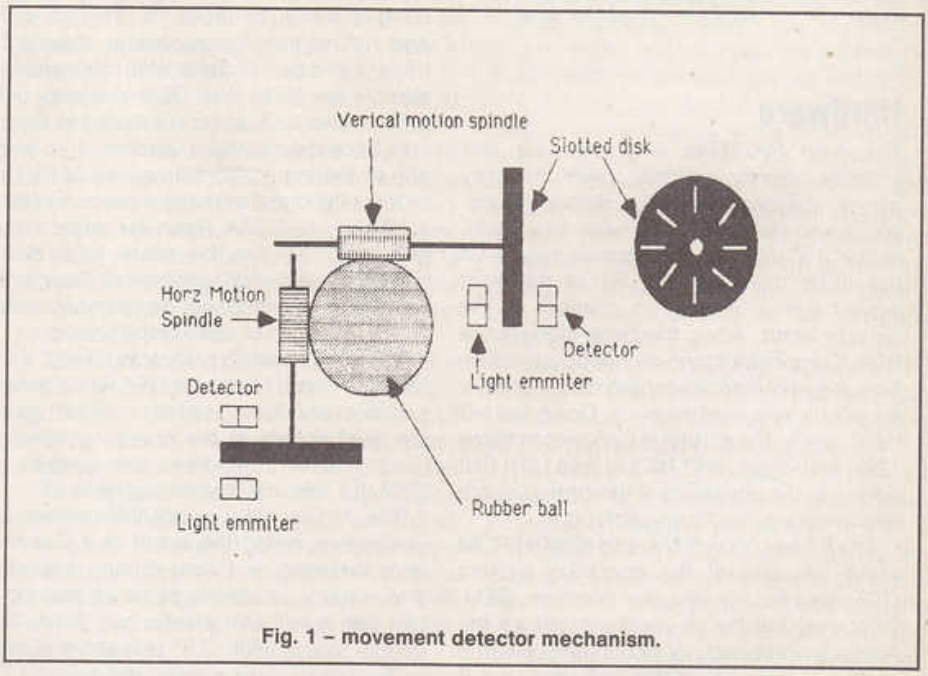

Fig. 1 – movement detector mechanism.

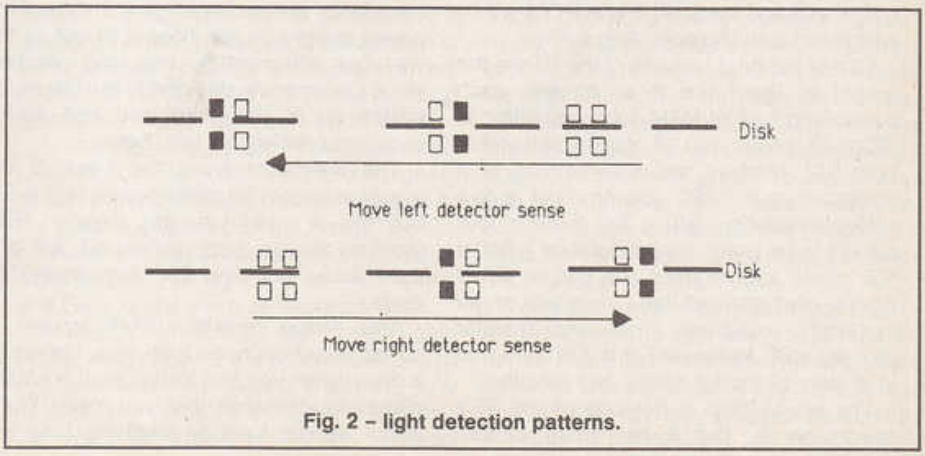

Fig. 2 – light detection patterns.

THE NEW WORLD

The age of the 8-bit micro, of tape recorders, of microdrives, of 64K memories and attribute problems is slowly coming to an end. For the adventurous of spirit, those who wish to be at the forefront of microcomputing technology, now is the time to cast out that ponderous 8-bit computer and invest in the next generation. The choice is between two 16-bit 68000 processor machines, the Atari 520 STFM and the Commodore Amiga A500, and the 32-bit RISC based Archimedes A305, recently unleashed by Acorn.

Which one is the best buy though? In a sense that is a question only the prospective purchaser can answer, but in this article we examine the pros and cons of each system.

Hardware

The Atari 520STFM is a compact and stylishly chunky machine, with its grey casing, diagonal ventilation slots and function keys, cursor and numeric key pads, built in 3.5" disc drive and power supply. Of the three machines the ST is the best served with interfaces to connect to the outside world. Along the back there is the RGB/Composite/Mono monitor port, television, external disc drive, hard disc, Centronics printer and modem ports. Down the left hand side is the cartridge port, which takes 128K cartridges, and MIDI In and MIDI Out ports. On the underside of the computer are two awkward mouse/joystick ports.

The ST has 500K RAM, and 192K of ROM which consists of the operating system (TOS) and the friendly user interface, GEM. GEM may not be as sophisticated as the Amiga's workbench, or as fast and colourful as the Archimedes WIMP software, but it works well and because it is in ROM is fully integrated with the operating system.

One of the best features of the ST are the graphics. There are three modes, each consuming 32K of RAM. Low resolution is 320 × 200 pixels with 16 colours, selectable from 512. Medium res is something of a compromise with 80 columns but a low vertical resolution, 640 × 200 pixels in four colours to be exact. High resolution is 640 × 400 pixels and requires the use of either Atari's own monochrome monitor, or an extremely expensive multi-sync monitor (like the NEC Multisync). It is a shame that to display all modes needs two monitors.

The sound chip is not one of the ST's selling points, but it has been treated somewhat unfairly. There are three channels each one covering eight octaves. If the sound chip hasn't sold the ST then the provision of MIDI ports certainly has. Unlike the other two machines the ST specialises in this area and has endeared itself to musicians.

As far as Basic goes, the one supplied on disc by Atari is something of a joke. The thing is awful, torturous to program with, and not something anyone in their right mind would do by choice. With file handling taken care of by the GEM desktop only programmers would be interested in *Basic*, and because the Atari version is so bad, one of the many alternatives would be the order of the day. For these reasons, in Table 1 I have used *GFA Basic* for comparison purposes. As can be seen, *GFA Basic* compares well with Archimedes *Basic* until we get to the graphics department. Then the ST's lack of custom chips shows.

Still, if you want to program in *Basic*, then I'd recommend Glentop's *GFA Basic*, which provides excellent graphics support, good low level access to the operating system, good control structures, and access to GEM. It's also the fastest available ST.

The Amiga A500 is not the prettiest of computers, being the result of a Commodore reboxing and cost cutting exercise. The result is much the same as pouring a pint into a half pint plastic bag. While the double sided, 880k, 3.5" disc drive is built in, the large power supply and optional TV modulator are external. If you keep the power supply on the floor, it is out of the way but unfortunately this isn't practical since Commodore decided to put the on/off switch on it. You start and end Amiga sessions crawling on the floor.

The interfaces lining the back of the machine are not as numerous as on the ST, but this is what you get anyway: RGB monitor, parallel port, serial port, left and right audio out, and two mouse/joystick ports.

The Amiga desktop WIMP system is called Workbench, and, oh woe, comes on a disc. When you first switch on the A500 it cheerfully demands that you insert Workbench before it will do anything. Now this wouldn't be so bad if all it did was consume some of the 500k memory and then do its job, but no, there's worse to come. When you want to do specific tasks, like copying files from one disc to another, you have to

PCW Test	GFA Basic
1	0.11
2	0.395
3	1.02
4	1.01
5	1.09
6	1.76
7	2.845
8	2.945
Average	1.397
Flood Fill (low res)	2.3
Circle (r75)	0.05
Solid Circle	0.165
Box	0.01
Solid Box	0.03

IS REALLY HERE

Popular's Technical Editor, Duncan Evans, takes a long hard look at two 16-bit microprocessors, the Atari 520STFM and the Amiga A500, and the 32-bit, RISC-based Acorn Archimedes A305, and finds three excellent machines whose relative success in the market will probably depend on price.

insert Workbench before the thing will go. Having moaned enough, it is a sophisticated WIMP system, it is for the most part quick, and it's more integrated than the Acorn flavour. Compared to GEM though, it

Amiga Basic	Basic V
0.398	0.07
1.94	0.36
3.94	0.81
4.64	0.74
5.04	0.85
8.86	1.48
13.76	2.43
17.68	1.71
7.032	1.056
0.44	0.65
0.18	0.01
0.459	0.01
0.007	0.0065
0.007	0.0065

really can be a pain with only one drive.

Amiga graphics are what have made the machines name, and it's not surprising really. There are five modes, but unlike the other two micros in this survey, they only apply to a specific screen, which you have to create yourself.

The Amiga allocates a private bit map for a screen in memory. It has an ID number from 1 to 4 which enables windows to appear in them, a width of 1 to 640 pixels, a height of 1 to 400 pixels and a depth of 1 to 5 planes, which determines the number of colours available. A code, with values of one to four, determines whether the screen will be low or high resolution and interlaced or not. An interlaced screen doubles the number of vertical lines, however, on TV's, and on some monitors the screen does tend to flicker. When using Amiga *Basic,* interlaced screens flicker even with the official Commodore 1081 monitor.

The usual screen displays are thus 320 × 200 in 32 colours, 320 × 400 in 16 colours, 640 × 200 in 16 colours and 640 × 400 in 16 colours. This, as I'm sure you're aware only adds up to four modes. The last one is the Hold And Modify (HAM) which can display all 4096 of the Amiga's colours, as long as they aren't moving. *DigiPaint* is one recent product which uses a modified HAM mode to enable you to draw and paint in 4096 colours, something not even the Archimedes can do.

An interesting point to note is that a user defined screen can be larger than the physical monitor screen, and since there is some unused space at the bottom of the display it means that all those vertical resolutions of 200 can easily become 256.

Animation should be very fast and smooth, not that you'd have known, going by some of the software on sale, because of the custom chips inside the Amiga. Denise provides the resolutions and eight hardware sprites, Fat Agnus does the blitting, and Gary keeps them all under control.

Sound is handled by the custom chip Paula, which provides four voices of sound configured as two stereo channels, nine octaves and complex waveforms. Not only can you have superb music and sampled sounds coming out of this machine, but also speech. Yes, there's also built in speech synthesis. Cicero it isn't, but it certainly matches up to the dulcet tones of say, Francis Jago.

Amiga *Basic,* like Atari *Basic,* is supplied on disc, but unlike that dismal language, is quite usable. Although there aren't that many graphic commands, what there are are quite powerful. Circles, pentagons, boxes, flood fills, rectangular GETs and PUTs, and sprites are all available. The sprite handling and animation in particular are very well handled with interrupts, direction velocity and collision detection. Creating pull down menus and reading the mouse status is also quite straightforward.

With SOUND and WAVE you take control of the stereo sound channels to provide much better music than you get on the ST.

There are two bad points. Structured programming receives scant attention with only a WHILE . . WEND. No procedures, DO . . LOOP or REPEAT . . UNTILs. The other is that Amiga Basic is relatively slow. Have a look at Table 1. For coefficients especially the Amiga crawls along. Where it does pick up speed is on the other graphic commands, as this is where the Fat Agnus picks up the tab.

The Acorn Archimedes A305 is the newest of the three computers and has aroused enormous interest due to it being RISC based and so is rather quick.

The machine has ½ megabyte of RAM, of which 700k is available to the user, and an incredible ½ meg of ROM as well.

Physically, the A305 is undoubtedly the largest of the three systems and comes in the form of a large box containing the circuitry, a whirring fan, the 640k 3.5″ disc drive and power supply, and a large external keyboard. I hope that only the review model (yes there's only one and it's been round half the computer industry) has a keyboard that is unresponsive and horrible. I wouldn't like to buy one that was that bad.

Residing on the rear of the circuit box are analogue RGB, mono video, headphones, RS232, Econet and parallel printer. Given that the original BBC series was well equipped with interfaces, this collection is more than a little disappointing. There are not any joystick ports either.

While the Amiga has great graphics, the Archimedes, in its own way, are just that bit better. There are some twenty modes, have a look at Table 2 to see them all. Note that the last three can only be used on monitors like the NEC Multisync as they do not

produce a usable picture otherwise. The first eight modes (0–7) are standard BBC modes. The speed at which even a RISC machine can scroll a 160k remains to be seen, but if it can do it quickly and smoothly then that really will be something special.

A point to note about the 256 colour modes is that you have 64 base colours to choose from and then specify one of four tints, which occasionally makes it a little tricky getting the desired colour.

Sound could have been extremely good, what with the eight channels and stereo capability. You can even position how far to the left or right you want a channel to sound at. The disappointing aspect is that it only covers six octaves. Start to use more than five channels as well, and you'll find the machine starting to noticeably slow down.

Acorn *Basic V* is supplied on ROM and, even though the A305 has a mouse and WIMP software, it is most definitely not a WIMP system. The desktop program is written in Basic. And although it is both fast and colourful it is something of a gimmick. It is of course on a disc, and is simplistic, and poorly integrated with the operating system. Like the WIMP program for the Master Compact before it, it is rather dull.

Basic V is the latest incarnation of *BBC Basic* and supports the usual procedures and control structures. The multi-function PLOT command is still there, providing point plotting, line drawing, triangles, right and left line fills, solid rectangles, circles (solid or empty), block copy and move (equivalent to GET and PUT), ellipses and sprite plotting.

Most interesting are the sprites. A program on the Welcome Disc lets you define sprites as large as you like, until you run out of memory. Once you've saved them, you can access your sprites with *SCHOOSE name to select it and a PLOT or VDU 23 command to display. Given the speed of the Archimedes the possibilities in this area are exciting for Basic programmers.

Hardware Conclusion

All three computers are excellent machines, but they each have faults. The ST is very good, but the Amiga is better, and the Archimedes is better still. The difference between the Amiga's graphics and Archimedes' is not that great, and in the form of the HAM mode the Amiga is demonstrably better. Which is the better machine for animation has yet to be seen as little software exploits the Amiga's capabilities fully, and there isn't any for the A305.

Software

In this field the clear winner is the Atari ST. As the oldest machine software producers have had longer to cater for the machine. There is also the fact that there are around four times as many ST's as there are Amigas so people tend to write for this larger market more. There are over 500 packages for the ST, everything from arcade games to art packages, languages, decent word processors and music/MIDI products. The Amiga on the other hand, is not so well served, in this country. Only recently has a good quality word processor, Word Perfect, appeared. Graphics packages aside, the Amiga is approximately six months behind that of the ST.

The Archimedes is a new machine so the software scene is obviously barren but various BBC supporting software houses have already pledged their support.

Pricing

The clear winner again is the ST. At only £300, or less from the majority of dealers, this is everyone's chance to own a 68000 processor based, 500k RAM machine with GEM user interface and quality graphics. Outstanding value for money.

The Amiga, at an official price £575 was still too expensive for most people so Commodore, realising this, introduced a £100 off voucher scheme to C64 owners. This was effectively a price cut since anyone with any sense could either get hold of a voucher from a friend, or get one out of the Commodore magazine which also ran the offer. The Amiga is good value for money, but still too expensive to appeal to many non C64 upgraders.

The Archimedes A305, at over £900 doesn't come cheap, but then the best never does. However, it is still far too expensive for mass appeal. On one hand it is a good thing that Acorn have produced this machine because of the BBC/educational tie which will guarantee some sales. But Acorn have a reputation for not cutting prices, and the Archimedes certainly needs it to achieve decent sales outside the education market.

Overall Conclusion

If all three machines had been launched yesterday and all cost, say £400 then it would be easy to recommend the Acorn Archimedes. All fantasy of course, the reality is that the ST is cheapest of the machines, and at £300 will outsell the others by a corresponding factor. If you're on a limited budget then the 520STFM is the obvious choice.

Commodore have very nearly left it too late for the Amiga. It would have been a great shame if they had because the Amiga was the machine everyone wanted to own a year ago. That mantle will, I think, be shortly taken up by the Archimedes. If Acorn cut the price of the A305 to £600 then Commodore would be very hard pressed, but at least in the foreseeable future, they won't. Commodore should take this as a warning shot across the bows and officially cut the Amiga A500 price to £400 or £450 now.

Enough, hypothesizing. If you can afford an Amiga A500 now, and you have a love of advanced and sophisticated technology then it is worth buying the machine. At the PCW show and in its aftermath there will be something of a surge in Amiga software so only a little patience is required.

Perhaps your bank account is so bulging that you can afford an Archimedes, but only a real computer enthusiast could justify buying one at the present time. With almost nothing to run on the machine yet, except Braben's *Lander* demo which contrary to rumour is written in machine code, not Basic, it will be some time before software support reaches even Amiga levels.

So there you have it. You pays your money, you takes your choice. For the record, I own a 520/STFM, an Amiga A500 (bought in that order), and if I had the readies I'd be in the queue for an Archimedes as well. (We obviously pay you too much, Ed.)

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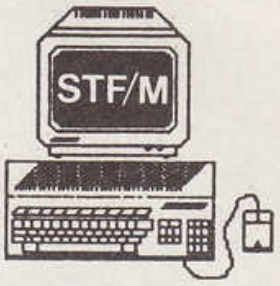

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ON THE SIMPLE OF SPRITES

Writing good games graphics isn't simply a matter of knowing how to program. Kenn Garroch observes that cunning artists can fool the eye into believing a little is a lot.

A good 90% of all computer games depend on graphics, and fast access to screen. The only effective way of doing this is from machine code, ie taking advantage of the fact that MC is the only way to get peak performance from a machine.

At first sight, programming in machine code looks awfully difficult and complicated, and at times it is. However, to make things run as quickly as possible programs should be as simple and/or elegant as possible. Generally, the simpler the better. It's mainly a matter of knowing what the microprocessor is capable of, which instructions do what, how fast they do it, and which is the best way to string them together to get a routine that fits the classic trade-off – space vs speed.

In days gone by the major problems facing the games programmer were lack of space and the comparative slowness of 8-bit processors when manipulating large chunks of information. In the main, the problems were solved (and keep on being solved) and considering the quality of some of the games available on the Amstrad, Spectrum and C64 machines, solved quite well.

No limits

Nowadays with the advent of larger memory capacity and more sophisticated microprocessors, producing games of quality comparable to those of the past is easy. The thing to remember is that none of the more recent machines, ST, Amiga, Archimedes, Mac etc have yet been pushed anywhere near their limits as far as amazing games are concerned – the future's so bright . . . well get the shades out, you'll need 'em.

"The thing to remember is that none of the more recent machines, the ST, Amiga, Archimedes, Mac, etc, have yet been pushed anywhere near their limits as far as amazing games are concerned."

On the table

The trade-off between space and speed is due to the fact that most machine code routines can be made to run a lot faster if they look up information in tables, instead of working it out from scratch every time. The drawback is that tables take up valuable memory, the trick is to use tables where speed is an absolute necessity, and work the rest out as quickly as possible. The other trick is deciding which is the best method.

ART

There are quite a number of tricks that can be used to make graphics look a lot better than they actually are. The first is to remember that the human eye has a noticeable (or unnoticeable, if you prefer) persistence of vision, it remembers what it has seen even when the image is no longer visible. Cinema films work in this fashion, each picture frame of the film changes only 25 times or so a second. Anything faster is pretty well unnoticeable, anything slower appears to flicker. It depends on how far away the picture is to a certain extent since flicker is more obvious in the front row.

This persistence and the fact that the mind tends to imagine movements that don't actually occur means that moving sprites and such can be done much faster than is necessary, at first sight, instead of moving them one pixel at a time, eight could be used to give the appearance of a really fast movement. The advantage is that considerable processor time is saved and can be used elsewhere. There is a limit at which things tend to flicker, the trick is to find this limit and move things at speeds just under it.

"Another trick is to note that the video display is only updated 50 times a second. If things are moving faster than this they are moving to places where they will never be seen."

Another trick is to note that the video display is only updated 50 times a second. If things are moving faster than this then there is redundant processing going on since things are moving to places where they will never be seen. Again, it's simply a matter of timing and judgement to get the best effect.

Mix and match

Graphics for games tend to fall into categories that can be mixed and matched at will. Probably the most famous are sprites – discrete blocks of graphics that are moved around the screen and possibly animated. These are perhaps the most commonly used graphics effect since they provide an easily programmed basis for animation.

Scrolling – vertical and horizontal movement of the whole or a section of the screen as used in many platform games, shoot 'em-ups, chase games etc.

Vector graphics – calculated two or three dimensional points connected by lines or filled and projected onto the screen (mathematically, not physically), anyone who has seen *Elite, Starglider,* or *Lander* (on the Archimedes) has seen the spectacular effects possible via this style. Finally, artwork – artistic backgrounds that can impress much more than any amount of fancy programming. This has only really come to the fore in the last three years or so and many programming houses have seen the difference it makes to have someone who is actually an artist to do the artwork instead of the programmer who may, or may not, be good at drawing.

"Instead of moving a sprite one pixel at a time, eight could be used to give the appearance of really fast movement. Find the limit at which things flicker."

It seems amazing that such a variety of games can be constructed from four simple ideas but basically that is all there is to it. The mark of a good game, graphically speaking, is one in which there is a slickness or sophistication about the display that leaves you thinking "How did they do that!". Obtaining the right effects is a matter of knowing what the machine is capable of, experience, and imagination.

For the remainder of the series I shall look at the individual concepts, sprites, vector graphics etc, and see how they are used.

SWEET

The past year has seen Amstrad's computer operations going from strength to strength, with a worldwide total of 750,000 PCW8256/8512 sold, and 450,000 PC1512 sold between last September and the end of June.

But that time has also seen Amstrad involved in controversial claim and counter claim as it tried to broaden its base into the business market. The new machine marks a further development of this trend, being aimed at the typewriter, rather than any computer market.

Last week's launch of the PCW9512 offered a rare opportunity for a face to face encounter with the man behind the beard – Alan Michael Sugar. John Brissenden came back with this report.

The past year has seen Amstrad Consumer Electronics grow to dominate the UK volume computer industry, to a point where press and public interest in the activities of Britain's most profitable company has never been greater.

So what about this new PCW then? We asked Alan a few salient questions last week, about the new machine, about the PC1512 and 1640, and about the computer market in general.

First of all he ran through the major differences between the 9512 and the old 8000 series machines – the addition of the daisywheel printer is the most important – and explained the different market the new machine is aimed at.

"If you can criticise a product that you sell three-quarters of a million of, it covers the criticism of the previous machine. It covers the areas that excluded the previous machine from the real, 'serious' end of wordprocessing," he says. But what constitutes "serious"?

"The lawyers and the accountants who really love the idea of the PCW, but couldn't really send their clients' letters printed with the dot-matrix format, and to whom, therefore, the quality of the printing was essential.

"The printer has also been improved in that you have a very wide carriage, which

enables you to put the 15" tractor paper on. I'm not quite sure why one needs to put 15" tractor paper on, but then again this is the Amstrad way, this is what the people have asked for, and this is what we've given them."

But if the new machine is so wonderful, where does that leave the 8000 series? Amstrad continues to deny that the 8256/8512 is being discontinued, and only last month announced large price cuts on both. But will they still sell, and will they be dropped shortly?

"We're quite flexible as far as that's concerned – we'll make it as long as it sells. We moved the price down to £299 last week, and the reaction to it so far has been very, very good. As far as we're concerned the 8256 is around as long as there's a market for it.

"Any market where we see a possibility of selling at least 3-400 pieces a week of anything, we're interested in. Now if that market's declining or not is irrelevant, because if it declines to something like 55

FUTURE

pieces per annum, well, we'll respectfully butt out."

An example of this philosophy is expected sales of the Plus 2 and Plus 3 Spectrums of 200,000 this Christmas alone. "Very similar to the suntan lotion market" is how Sugar describes the vast seasonal sales of this ageing 8-bit technology.

As far as the new machines – and the PCs – are concerned, a lot of criticism has been levelled at Amstrad's perceived failure to break into the corporate market, particularly in the States. The PC1640 doesn't seem to have done the trick, either.

"Well, this is a touchy subject, this corporate account thing. I think the terminology really is not so much corporate accounts as business users. A company will approach IBM and say: 'We have a use for 2,000 of your machines for this particular application, and we're not only buying these machines, but we're buying the all-round service of coming in and setting up.'

"Now we're not in that business – we are in the business of supplying companies with these machines. We won't ever supply them with 2,000 pieces at one go, because they don't want 2,000 pieces at one go. But it will be evaluated by whoever buys typewriters and wordprocessors in the organisation and put on the purchase list.

"So yes, they will be used in large corporations, by the sheer fact that the price of the product enables the user not to have to go to a board meeting to get permission to buy one. So if we were inclined to do so, if we went to a corporation and actually asked somebody how many Amstrad machines you have in your entire company, the figures would be shattering. But ask them how many they bought in one consignment, and they wouldn't know."

As far as the 9512 itself is concerned, Sugar reckons that the additional features which mark it from the 8000 series will be sufficiently attractive to justify the extra £200 people will have to pay. But about December, the 9512 is expected to overtake the 8000 models in sales.

Amstrad has spent most of the past twelve months embroiled in controversy – not to mention litigation – over the technical failings and commercial problems of the PC1512 and 1640. Sugar's response to claims that the 1512 is dead, and likely to be

"First of all, there was the bold, going out and buying it, sitting down and punching away. Then there was the less bold, observing that the first one was using it. We're now looking for the stingy."

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shelved, is characteristically dismissive.

"There's been so much flak and nonsense spoken about the 1512 supposedly being dead and all that nonsense. It is nonsense, because I can tell you that right now in the factory we're producing more 1512s than we are 1640s.

"Quite honestly, that perhaps wasn't the initial thought when the 1640 was conceived in the very early part of this year. But what we have identified is that the home computer market is becoming more serious. It's coming away from the Sinclair end of the market, the joystick and games playing type end of the market," Sugar adds, before making his position on the MS DOS/Acorn debate very clear.

"When we consider that people were paying £399 not so long ago for an Acorn computer, which was basically a 6502 product with just a keyboard, it obviously sparked off in our mind the idea that the 1512's position should be that of a home computer. Logically if you buy it for your son or your daughter, they may as well use a machine which they can get some use out of later on in life. That is our new kind of marketing policy on the 1512."

That sounds OK, if you ignore the fact that the initial "compatible with you know who" ad campaign was specifically targetted at business users, and never mind that it took a stunning display of apathy on the part of the business market before this new marketing policy was considered.

"The potential purchaser also thinks to himself, 'Well, I remember the Sinclair that I bought four or five years ago, which is now tucked under the bed somewhere. I bought it with a little bit of interest thinking that maybe I may be able to use it myself.' Well they found out very quickly that it was totally useless, but buying the 1512 is not really useless for the chap if he desires to take home some of his work. So there's another angle on why the 1512 is now poised in the home computer market."

Is the new PCW, together with the repriced 8000 models, part of an attempt to exponentially develop the wordprocessor market, or does Sugar reckon most people will merely upgrade?

"Price always helps on a major breakthrough. Price tips the scales – £299, it sparks off another chain of consumers. So, yes, maybe we could expect to expand the market a little bit more. Lots of people are still hovering around, seeing that their friends are using these machines, and £299 comes just low enough to tip the scales to make them buy one.

"We found with the PCW consumer that there was the bold, first of all, going out and buying it, and sitting down and punching away, and then there was the less bold observing. And then the less bold observed that the first one was actually using it. We're now looking for the stingy."

One possible problem for Sugar in the US – always perceived, rightly or wrongly, as a make or break market for computer manufacturers – could be the continued use of products based on the ageing and weak Z80 processor. Is this causing a credibility gap?

"The funny thing is that no one asks what processor it's got. My famous answer of course is an elastic band, because really the type of consumer that's using the 9512 is not interested in what's inside it. And that's our target audience.

"The 8256 was somewhat of a disappointment in America in the beginning, because the marketing philosophy was wrong. It was being marketed as a computer and a word processor together. The minute you mention the word 'computer' they want a 386 Intel processor sitting in it. You mention a Z80, and they just walk away. And that's why we deliberately market this as a wordprocessor."

So what of the future? This week sees Amstrad's end of year results, which are expected to be even more phenomenal than last year's. And then the rumour machine grinds on, with talk of satellite TV, laser printers and the like. But watch out for that 80386-based PC in the New Year.

Blackwolf

Tim Myatt

Here we go with the concluding chapter of the *Blackwolf* saga. This arcade style game features an expanded UDG set and action-packed gameplay.

```
2600ENDPROC
2610DEFPROCFRONT1
2620VDU4:X=X%*64:Y=1024-(Y%*32)
2630FORA%=X+30 TO X+105STEP25
2640IFPOINT(A%,Y+30)=2:FR%=9
2650IFPOINT(A%,Y+30)=3:FR%=9
2660NEXTA%
2670IFFR%=9:Y%=Y%+1:ENDPROC
2680VDU31,X%,Y%:VDU32:VDU32
2690VDU31,X%,Y%+1:VDU32:VDU32
2700VDU5:GCOL0,1
2710MOVEX,Y:VDU128:VDU129
2720GCOL0,2:MOVEX+15,Y+22:VDU132
2730MOVEX+100,Y+5:VDU130
2740GCOL0,7:MOVEX+32,Y+15:VDU131
2750GCOL0,5:MOVEX+22,Y+35:VDU133
2760SOUND4,-5,100,1
2770W%=1:ENDPROC
2780DEFPROCFRONT2
2790VDU4:X=X%*64:Y=1024-(Y%*32)
2800FORA%=X+30 TO X+105STEP25
2810IFPOINT(A%,Y+30)=2:FR%=9
2820IFPOINT(A%,Y+30)=3:FR%=9
2830NEXTA%
2840IFFR%=9:Y%=Y%+1:ENDPROC
2850VDU31,X%,Y%:VDU32:VDU32
2860VDU31,X%,Y%+1:VDU32:VDU32
2870VDU5:GCOL0,1
2880MOVEX,Y:VDU128:VDU129
2890GCOL0,2:MOVEX-32,Y+5:VDU136
2900MOVEX+59,Y+22:VDU134
2910GCOL0,7:MOVEX+32,Y+15:VDU131
2920GCOL0,5:MOVEX+42,Y+35:VDU135
2930SOUND4,-5,100,1
2940W%=0:ENDPROC
2950DEFPROCBACK1
2960VDU4:X=X%*64:Y=1024-(Y%*32)
2970FORA%=X+23 TO X+103STEP25
2980IFPOINT(A%,Y-5)=2:BK%=9
2990IFPOINT(A%,Y-5)=3:BK%=9
3000NEXTA%
3010IFBK%=9:Y%=Y%-1:ENDPROC
3020VDU31,X%,Y%-1:VDU32:VDU32
3030VDU31,X%,Y%-2:VDU32:VDU32
3040VDU5:GCOL0,1
3050MOVEX,Y+30:VDU138:VDU137
3060GCOL0,2:MOVEX+12,Y+15:VDU140
3070MOVEX+60,Y+25:VDU141
3080GCOL0,7:MOVEX+32,Y+20:VDU131
3090GCOL0,5:MOVEX+22,Y:VDU144
3100SOUND4,-5,100,1
3110W%=1:ENDPROC
3120DEFPROCBACK2
3130VDU4:X=X%*64:Y=1024-(Y%*32)
3140FORA%=X+23 TO X+103STEP25
3150IFPOINT(A%,Y-5)=2:BK%=9
3160IFPOINT(A%,Y-5)=3:BK%=9
3170NEXTA%
3180IFBK%=9:Y%=Y%-1:ENDPROC
3190VDU31,X%,Y%-1:VDU32:VDU32
3200VDU31,X%,Y%-2:VDU32:VDU32
3210VDU5:GCOL0,1
3220MOVEX,Y+30:VDU138:VDU137
3230GCOL0,2:MOVEX+15,Y+25:VDU142
3240MOVEX+60,Y+15:VDU139
3250GCOL0,7:MOVEX+32,Y+20:VDU131
3260GCOL0,5:MOVEX+50,Y:VDU143
3270SOUND4,-5,100,1
3280W%=0:ENDPROC
3290DEFPROCRIGHT1
3300VDU4:X=X%*64:Y=1024-(Y%*32)
3310FORA%=(Y-20) TO (Y+20)STEP20
3320IFPOINT(X+90,A%)=2:RG%=9
3330IFPOINT(X+90,A%)=3:RG%=9
3340NEXTA%
3350IFRG%=9:X%=X%-1:ENDPROC
3360VDU31,X%-1,Y%:VDU32:VDU32
3370VDU31,X%-1,Y%-1:VDU32:VDU32
3380VDU5:GCOL0,1
3390MOVEX,Y+32:VDU146:MOVEX,Y:VDU145
3400GCOL0,7
3410MOVEX+15,Y+16:VDU147
3420GCOL0,2:MOVEX+38,Y+32:VDU149
3430MOVEX+5,Y-18:VDU148
3440GCOL0,5:MOVEX+59,Y+30:VDU150
3450SOUND0,-7,100,1
3460W%=1:ENDPROC
3470DEFPROCRIGHT2
3480VDU4:X=X%*64:Y=1024-(Y%*32)
3490FORA%=(Y-20) TO (Y+20)STEP20
3500IFPOINT(X+90,A%)=2:RG%=9
3510IFPOINT(X+90,A%)=3:RG%=9
3520NEXTA%
3530IFRG%=9:X%=X%-1:ENDPROC
3540VDU31,X%-1,Y%:VDU32:VDU32
3550VDU31,X%-1,Y%-1:VDU32:VDU32
3560VDU5:GCOL0,2:MOVEX,Y+50:VDU151:MOVEX+39,Y:VDU152
3570GCOL0,7:MOVEX+15,Y+19:VDU147
3580GCOL0,1:MOVEX,Y+32:VDU146:MOVEX,Y:VDU145
3590GCOL0,5:MOVEX+59,Y+20:VDU153
3600SOUND0,-7,100,1
3610W%=0:ENDPROC
3620DEFPROCLEFT1
3630VDU4:X=X%*64:Y=1024-(Y%*32)
3640FORA%=(Y-30) TO (Y+20)STEP20
3650IFPOINT(X,A%)=2LF%=9
3660IFPOINT(X,A%)=3LF%=9
3670NEXTA%
3680IFLF%=9:X%=X%+1:ENDPROC
3690VDU31,X%+1,Y%:VDU32:VDU32
3700VDU31,X%+1,Y%-1:VDU32:VDU32
3710VDU5:GCOL0,2:MOVEX,Y+35:VDU157:MOVEX+37,Y-20:VDU156
3720GCOL0,7:MOVEX+20,Y+19:VDU147
3730GCOL0,1:MOVEX+32,Y:VDU154:MOVEX+32,Y+32:VDU155
3740GCOL0,5:MOVEX-15,Y+29:VDU150
3750SOUND0,-7,100,1:W%=1:ENDPROC
3760DEFPROCLEFT2
3770VDU4:X=X%*64:Y=1024-(Y%*32)
3780FORA%=(Y-30) TO (Y+20)STEP20
3790IFPOINT(X,A%)=2LF%=9
3800IFPOINT(X,A%)=3LF%=9
3810NEXTA%
3820IFLF%=9:X%=X%+1:ENDPROC
3830VDU31,X%+1,Y%:VDU32:VDU32
3840VDU31,X%+1,Y%-1:VDU32:VDU32
3850VDU5:GCOL0,2:MOVEX+35,Y+51:VDU159:MOVEX+14,Y:VDU158
3860GCOL0,1:MOVEX+32,Y:VDU154:MOVEX+32,Y+32:VDU155
3870GCOL0,7:MOVEX+21,Y+19:VDU147
3880GCOL0,5:MOVEX-8,Y+20:VDU153:SOUND0,-7,100,1:W%=0:ENDPROC
3890DEFPROCFIU:GCOL3,1:MOVEX+62,Y+10:DRAWX+62,Y+200:ENVELOPE3,0,0,86,-17,0,2,9,94,-1,-65,-1,100,0:SOUND3,3,3,3
3900FORT=0 TO 50:NEXTT
3910MOVEX+62,Y+10:DRAWX+62,Y+200
3920F1%=0:ENDPROC
3930DEFPROCFID:GCOL3,1:MOVEX+62,Y-10:DRAWX+62,Y-200:ENVELOPE3,0,0,86,-17,0,2,9,94,-1,-65,-1,100,0:SOUND3,3,3,3
3940FORT=0 TO 50:NEXTT
3950MOVEX+62,Y-10:DRAWX+62,Y-200
3960F1%=0:ENDPROC
3970DEFPROCFIL:GCOL3,1:MOVEX+20,Y:DRAWX-300,Y:MOVEX+20,Y+5:DRAWX-300,Y+5:ENVELOPE3,0,0,86,-17,0,2,9,94,-1,-65,-1,100,0:SOUND3,3,3,3
3980FORT=0 TO 20:NEXTT
3990MOVEX+20,Y:DRAWX-300,Y:MOVEX+20,Y+5:DRAWX-300,Y+5
4000IFBE%=1:IFH1%-(Y%-1)=0ANDX%-G%<6BE%=0:VDU4:COLOUR1:VDU31,G%,H1%:VDU200:VDU201:VDU31,G%,H1%+1:VDU202:VDU203:FORT=0 TO 60:NEXTT:VDU31,G%,H1%:VDU32:VDU32:VDU31,G%,H1%+1:VDU32:VDU32:SOUND0,-15,110,2:S%=S%+20
4010F1%=0:ENDPROC
4020DEFPROCFIR:GCOL3,1:MOVEX+60,Y:DRAWX+340,Y:MOVEX+60,Y+5:DRAWX+340,Y+5:ENVELOPE3,0,0,86,-17,0,2,9,94,-1,-6,-3,100,0:SOUND3,3,3,3
4030FORT=0 TO 20:NEXTT
4040MOVEX+60,Y:DRAWX+340,Y:MOVEX+60,Y+5:DRAWX+340,Y+5
```

```
4050F1%=0:ENDPROC
4060DEFPROCR1:VDU4:VDU31,P,Q:COLOUR130:
COLOUR7:VDU170:VDU172:VDU172:VDU172:VDU1
72:VDU167:ENDPROC
4070DEFPROCR2:VDU4:VDU31,P,Q:COLOUR130:
COLOUR7:VDU171:COLOUR1:VDU162:VDU162:VDU
162:VDU162:COLOUR7:VDU162:ENDPROC
4080DEFPROCR3:VDU4:VDU31,P,Q:COLOUR130:
COLOUR7:VDU169:VDU172:VDU172:VDU172:VDU1
72:VDU168:ENDPROC
4090DEFPROCT:VDU4:COLOUR128:COLOUR2:VDU
31,P,Q:VDU173:VDU174:VDU31,P,Q-1:VDU175:
VDU176:ENDPROC
4100DEFPROCH:VDU4:VDU31,P,Q+2:COLOUR7:C
OLOUR130:VDU183:VDU184:VDU185:VDU31,P,Q+
1:VDU180:VDU181:VDU182:VDU31,P,Q:VDU177:
VDU178:VDU179:ENDPROC
4110DEFPROCH2:VDU31,P,Q:COLOUR2:COLOUR1
35:VDU160:VDU161:VDU31,P,Q+1:COLOUR7:COL
OUR130:VDU205:COLOUR135:COLOUR2:VDU163:N
=P*64:M=1023-(Q*32):VDU5:GCOL0,1:MOVEN+6
4,M-32:VDU166:MOVEN-10,M-32:VDU166:VDU4:
VDU31,P,Q+2:VDU164:VDU165:ENDPROC
4120DEFPROCRJV1:GCOL0,7:VDU5:MOVEN,M:VD
U192:MOVEN+40,M:VDU192:GCOL0,2:MOVEN,M:V
DU193:MOVEN+40,M:VDU193:VDU4:ENDPROC
4130DEFPROCBAR:IFBA%=0:H%=6
4140VDU4:VDU31,H%+1,J%:COLOUR129:COLOUR
7:VDU197:VDU31,H%+1,J%+1:VDU196
4150IFBA%=1:COLOUR128:VDU31,H%,J%:VDU32
:VDU31,H%,J%+1:VDU32
4160BA%=1:H%=H%+1:IFH%>11:VDU31,H%,J%:C
OLOUR128:VDU32:VDU31,H%,J%+1:VDU32:BA%=0
4170IFDE%=0:FORT=0 TO 100:NEXTT
4180IFX%-H%<2ANDX%-H%>-2:IFY%=J%ORY%=J%
+1ORY%=J%+2PROCDEAD
4190ENDPROC
4200DEFPROCWAL1:VDU4:COLOUR7:COLOUR130:
FORE%=1 TO 18:VDU31,E%,Q:VDU172:VDU31,E
%,Q-1:VDU162:VDU31,E%,Q-2:VDU172:NEXTE%:
ENDPROC
4210DEFPROCWAL2:VDU4:E=19:COLOUR7:COLOU
R130:FORE%=1 TO 5:VDU31,E%,Q:VDU172:VDU
31,E%,Q-1:VDU162:VDU31,E%,Q-2:VDU172:E=E
-1:VDU31,E,Q:VDU172:VDU31,E,Q-1:VDU162:V
DU31,E,Q-2:VDU172:NEXTE%:VDU31,6,Q:VDU16
8:VDU31,13,Q:VDU169:VDU31,6,Q-1
4220VDU162:VDU31,13,Q-1:VDU171:VDU31,13
,Q-2:VDU170:VDU31,6,Q-2:VDU167:ENDPROC
4230DEFPROCDEAD:SOUND0,-15,100,3
4240VDU4:COLOUR128:COLOUR1:VDU31,X%,Y%:
VDU202:VDU203:VDU31,X%,Y%-1:VDU200:VDU20
1:FORT=0 TO 3000:NEXTT:VDU31,6,15:PRINT
"GAME OVER":*FX15,0
4250VDU31,6,17:PRINT"SCORE ";S%
4260REPEATUNTILGET=32:PROCC:X%=9:Y%=14:
PROCFRONT1:GOTO30
4270ENDPROC
4280DEFPROCSHO:IFHJ%=0:AL%=14:HJ%=1:ENV
ELOPE1,0,9,99,26,31,10,5,62,1,-2,-2,127,
0:SOUND1,1,1,1
4290VDU4:VDU31,AL%-2,SK%:COLOUR1:VDU166
:IFAL%<14:VDU31,AL%,SK%:COLOUR128:VDU32
4300AL%=AL%-2:IFAL%<7:HJ%=0:VDU31,AL%,S
K%:COLOUR1:VDU206:FORT=0 TO 60:NEXTT:VD
U31,AL%,SK%:COLOUR128:VDU32:SOUND0,-15,1
10,2
4310IFX%-AL%<2ANDX%-AL%>-1:IFY%=SK%ORY%
=SK%+1PROCDEAD
4320IFDE%=0:FORT=0 TO 100:NEXTT
4330ENDPROC
4340DEFPROCC:FORT=0 TO 7:VDU19,T,0,0,0
,0:NEXTT:VDU4:CLG:COLOUR128:ENDPROC
4350DEFPROCRE:VDU20:VDU19,0,3,0,0,0:VDU
19,2,2,0,0,0:VDU19,7,4,0,0,0:ENDPROC
4360DEFPROCANT:IFBE%=0:H1%=Y%-1:G%=0:BE
%=1
4370IFDE%=0:FORT=0 TO 130:NEXTT
4380VDU4:IFG%>0:VDU31,G%,H1%:COLOUR128:
VDU32:VDU31,G%,H1%+1:VDU32
4400A=RND(10):IFA<6:IFH1%-(Y%-1)>0VDU31
,G%,H1%+1:VDU32:VDU32:VDU32:H1%=H1%-1
4410IFA<6:IFH1%-(Y%-1)<0VDU31,G%,H1%:VD
U32:VDU32:VDU32:H1%=H1%+1
4420IFWI%=0:VDU31,G%+1,H1%:COLOUR1:VDU1
87:VDU188:VDU31,G%+1,H1%+1:VDU186:VDU189
:WI%=1:GOTO4440
4430IFWI%=1:VDU31,G%+1,H1%:COLOUR1:VDU1
91:VDU194:VDU31,G%+1,H1%+1:VDU190:VDU195
:WI%=0
4440G%=G%+1:IFG%>16:VDU31,G%,H1%:VDU32:
VDU32:VDU31,G%,H1%+1:VDU32:VDU32:BE%=0
4450IFX%-G%>-2ANDX%-G%<2:IFH1%-Y%>-3AND
H1%-Y%<1:PROCDEAD
4460ENDPROC
4470DEFPROCDOH:VDU4:COLOUR7:FORT=7 TO
12:VDU31,T,Q:VDU211:NEXTT:ENDPROC
4480DEFPROCDOV:VDU4:COLOUR7:FORT=Q TO
Q+5:VDU31,P,T:VDU211:NEXTT:ENDPROC
4490DEFPROCTING:ENVELOPE2,1,-42,-1,1,1,
1,2,-4,3,-3,-4,103,126:SOUND2,2,-15,10:E
NDPROC
4500DEFPROCDOVC:VDU4:COLOUR128:FORT=7 T
O 12:VDU31,T,Q:VDU32:NEXTT:S%=S%+50:END
PROC
4510DEFPROCL:GCOL3,1:FORT=0 TO 5:MOVEO
%,P%:DRAWO%+500,P%:FORH=0 TO 60:NEXTH:E
NVELOPE3,0,0,86,-17,0,2,9,94,-1,-65,-1,1
00,0:SOUND3,3,10,3:MOVEO%,P%:DRAWO%+500,
P%:FORH=0 TO 160:NEXTH:NEXTT
4520PROCDEAD
4530DEFPROCF:VDU4:VDU31,X%,Y%-1:COLOUR1
28:VDU32:VDU32:VDU31,X%,Y%:VDU32:VDU32:F
ORT=0 TO 5:PROCTING:NEXTT:COLOUR1:VDU31
,2,10:PRINT"CONGRATULATIONS!":VDU31,2,12
:PRINT"YOU HAVE ESCAPED":FORT=0 TO 5000
:NEXTT:*FX15,0
4540VDU31,6,14:PRINT"SCORE ";S%
4550REPEATUNTILGET=32:GOTO20
4560ENDPROC
```

Screen Reverse

Alan Crawford

It is often handy to be able to produce a mirror image of a screen. If you produce a reversed screen, it can be dumped to a printer and, if you have the right equipment, made into a T-shirt transfer.

Basic routines to do this are very slow, but this short machine language routine is very quick and will reverse a mode 8 hi-res screen in less than half a second.

The routine is contained in REV$ and is called using DUMMY=USR(ADR(REV$)). It uses all of page 6 (1536-1791) as a work-space, so don't store any important data there.

```
10 REM SCREEN REVERSER
20 REM BY ALAN CRAWFORD
30 REM DUMMY=USR(ADR(REV$))
40 DIM REV$(74)
50 FOR L=1 TO 74:READ D:REV$(L,L)=CHR$(D):NEXT L
60 STOP
70 DATA 104,240,7,170,104,104,202,208,251,96,162,0,160,8,
138,74
80 DATA 62,0,6,136,208,249,232,208,243,165,88,133,203,165,
89,133
90 DATA 204,160,192,152,72,160,39,177,203,170,189,0,6,72,
136,16
100 DATA 246,160,39,104,145,203,136,16,250,104,168,165,203,
24,105,40
110 DATA 133,203,144,2,230,204,136,208,218,96
```

Break Disable

Alan Crawford

Once this program has been called with DUMMY=USR(1536), where DUMMY is a dummy variable, it will disable the break key completely. The normal method of doing this involves turning off the Break key interrupt by changing a bit in the register of the Pokey chip that is responsible for generating IRQs. This has the disadvantage that pressing Reset or changing the graphics mode re-enables the Break key.

This program, however, works by re-vectoring the interrupt to a new 'dummy' routine that does nothing whatsoever. It also traps the Reset key to prevent this from re-enabling Break.

```
10 REM BREAK KEY DISABLE
20 REM BY ALAN CRAWFORD
30 FOR L=1536 TO 1574:READ D:POKE L,D:NEXT L
40 DUMMY=USR(1536)
50 STOP
60 DATA 104,208,29,120,169,30,141,54,2,169,6,141,55,2,169,3
70 DATA 133,2,169,6,133,3,165,9,9,2,133,9,88,96,104,64
80 DATA 170,104,104,202,208,251,96
```

Case Lock

Alan Crawford

The most irritating feature of the Atari's keyboard is the close proximity of the Caps and Inverse keys to Return. It is very easy to hit the wrong key and when you couple this with Atari Basic's refusal to accept inverse or lower case input, this is a problem.

This short routine locks the Atari in normal video and upper case. It installs itself securely so that it is not disabled by pressing Reset.

```
10 REM CASE LOCK
20 REM BY ALAN CRAWFORD
30 FOR L=1536 TO 1584:READ D:POKE L,D:NEXT L
40 DUMMY=USR(1536)
50 STOP
60 DATA 104,208,39,169,3,133,2,169,6,133,3,165,9,9,2,133
70 DATA 9,169,6,160,27,162,6,32,92,228,96,72,169,0,141,182
80 DATA 2,169,64,141,190,2,104,76,95,228,170,104,104,202,208,
251,96
```

SWEET SIXTEEN

Mark Jenkins with new music software for the Commodore 64.

A few weeks back we gave a run-down of the new Commodore 64/128 music products from Sonus, an American company which has just set up its UK office. Sonus also market products for the Atari ST, Apple MacIntosh and IBM PC compatibles, but we'll be reviewing the Commodore products first.

Included in the range are;

MIDITech (£60), a System Exclusive librarian which can record data dumps from many synths and drum machines;

Sonic Editor (£60), a graphic editing package for the Ensoniq Mirage or Prophet 2000 samplers;

GlassTracks (£47), a basic eight-track, eight-sequence polyphonic MIDI sequencer;

RX Librarian (£30), a data dump recorder for the RX11, RX21 and RX21L drum machines;

Super Sequencer 64 (£99), a professional-level sequencer with System Exclusive data recording abilities;

MIDI Processor (£60), an Event Editor for the Super Sequencer package;

Double Banked Librarian/Programmer (£60), a Yamaha DX7/TX7 synth editor which can cope with both these units simultaneously;

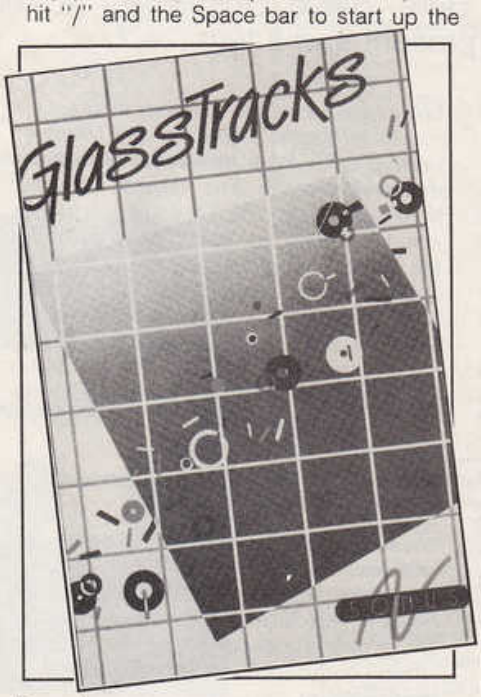
Score Track (£100), a composer package with a full musical display written by Gerhard Lengeling, author of the C-Lab range.

This week we'll look at *GlassTracks* sequencer. Whether this has anything in common with composer Philip Glass is anyone's guess. Maybe it makes all your compositions sound like his, but there's no obvious reason why this should be the case.

In fact the package, which consists of a single disc and handbook, is pretty easy to use, and operates with almost any C64 MIDI interface (Datel, SIEL, Jellinghaus, Steinberg and others have models available). The initial screen allows you to set Pulse Per Quarter Note (PPQN) rates for synchronisation purposes (24, 48 or 96 PPQN), and this will mainly relate to the use of non-MIDI drum machines with the package. Pressing Return takes you to the Sequence screen, which features a Main Menu at the bottom of the screen offering Edit Sequence, Edit Track, Song and Disc options.

These options are selected using the Function keys and choosing Edit Seq will give you a further menu with Append, Name, Transpose and Exit options. Exit takes you back to the main menu, while holding Control or Shift offers you alternative lists of options – such as Set Clock, Int Drum, Int Click and so on. Generally, *GlassTracks'* screens all work in this way, offering four menu options visibly and several more when the Shift or Control keys are pressed. It's a handy way of offering the maximum number of accessible options without cluttering up the screen too much.

To record a sequence, just use the sequence cursor (operated by the arrow keys) to choose a sequence number, then hit "/" and the Space bar to start up the



Record metronome, which is audible through the monitor. In the centre of the screen is a counter which tells you how many bars you've recorded, while next to it is a 'tape transport' display which simulates the layout of a multitrack tape recorder – as on many Atari ST sequencing packages.

In fact, within the limitations of the C64's display, *GlassTracks* is trying very hard to be an ST sequencing package. Track number, name, velocity values and MIDI channel are all displayed constantly, so as long as eight tracks is enough for your compositions, you're not likely to go short of information during the recording process.

Measure number, beat number and number of pulses are all displayed on both the main and 'End' counters, the latter showing you the value of the next beat after the section you've recorded – for instance, 005:01:01 if you've just recorded a four-bar pattern.

Chaining many of these patterns into a song involves (not surprisingly) going into Song mode. Each of the eight sequences you can store can have its own tempo programmed, so the resulting song can have tempo changes throughout its course if desired.

Before composing a song you can edit your individual sequences, append them to themselves or to each other, overdub or punch in, and auto-correct performances down to a 1/32nd note triplet. You can also shift tracks to make up for delay problems, remove pitch bend and other unwanted data to save memory, and so on.

The Song mode allows you to chain up to sixteen sequences, simply by typing the sequence numbers into a list appearing at the top of the screen. In fact this may be a little limiting if you want to compose very long or complex pieces – but for a conventional verse/chorus/verse/chorus/middle-eight/verse/chorus structure, it's fine.

You can name songs and save them to disc, as well as inserting new sequences into the middle of a song at any time; you can transpose a whole song and get a directory of songs on the disc.

It's also possible to record in step time by using the S key – you can also play back one step at a time too, to check for errors – and to punch in while the track is running using Live Punch (the "P" key).

There are many other hidden commands, largely dealing with MIDI problem-solving, but these are well-catalogued in a comprehensive and clearly written handbook. In fact, *GlassTracks* is very quick and easy to get into, and all the functions you need for composing – such as being able to mute some tracks while you're working on others, or Solo a single track – are provided. However the main limitation of the system is the sixteen-sequence capacity of a song, which really isn't enough for more ambitious music. There are ways around this which involve composing very long and complex sequences in the first place, but a package such as *C-Lab Supertrack*, or Steinberg Pro-16 (both of which are, admittedly, much more expensive than *GlassTracks* will reward you with more sheer compositional power. However, at the price, *GlassTracks* gets a definite thumbs-up.

Sonus UK, PO Box 18, Wokingham, Berks RG11 4BP, 0734 792699.

LONDON CALLING

Since its inception in 1983, Micronet 800 on Prestel has become more interactive than ever. Here, Steve Gold looks at Micronet past, present and future . . .

When Prestel first appeared on the then-fledgling UK communications scene back in the late 1970s, it was seen by many as nothing more than a paged set of information frames, accessed and controlled by a numeric keypad over telephone lines.

While the then Post Office had great hopes for what was a technically advanced system at that time, Prestel viewdata never really took off. By the time 1983 came around, most people had almost written the service off as a failed great white hope of British Telecom.

As with all general marketplace products however, Prestel was really a solution waiting to become an answer to a technical question. BT's Martlesham Heath laboratoreis have always come up with technically innovative ideas before their time and Prestel was just such an idea.

Micronet is born

In March of 1983, East Midlands Allied Press came up with the innovative idea of publishing a computer magazine on Prestel. That service was Micronet 800 – the '800' part of the name stems from its original siting on the Prestel database, from page 800 onwards.

Since the heady days of '83, when a small band of dedicated staff worked all hours to bring a constantly changing electronic magazine to their subscribers, Micronet has grown to where it is today – a major force on Prestel with more than 23,000 subscribers.

Subscribing to Micronet

Subscribing to Micronet has a relatively painless effect on the wallet. For the sum of £66 a year – payable quarterly in arrears – you have access to Prestel and Micronet, usually on a local call basis throughout much of the UK. The Prestel database boasts more than 250,000 screens – frames – of data. 30,000 of these frames are under the direct control of Micronet, whose 28-strong London-based staff edit the database on a seven-day a week basis.

Aiding the 28 full-time staffers on Micronet are several dozen home-workers who, for varying remuneration, edit specialised databases under the Micronet umbrella database.

What it costs

I've said that Micronet costs £66 a year plus local call telephone expenditure. In practice, providing cheap rate periods are adhered to, the call expenditure works out at a shade over 50 pence an hour – very cheap when compared to other forms of entertainment.

In addition to the subscription, a typical computer user must also buy – or have access to – a computer modem plus suitable viewdata software. Prices start at about the £25 mark for a low-cost model, which Micronet will actually give you free of charge – plus suitable software – providing you contract and pay for a year's subscription in one go.

As with many services, some facilities on Micronet 800 are what are known as value-added options. By means of a frame charge, which can be anything from 1 to 99 pence (usually at the lower end of the price range), subscribers can access value-added areas. These areas include chargeable telesoftware and similar facilities.

Telesoftware, as the name implies, is an area which allows suitable computer software to be encoded and passed over the telephone line for subsequent saving to disc or tape locally. The program(s) are then loaded and run when the user is offline.

Because Micronet cuts out the middle men in the computer software business, it's able to offer substantial discounts on – and a large quantity of free – telesoftware for download on a variety of machines. The free software is often compared to that which is listed free of charge in several computer magazines. In fact, since a proportion of the subscription to Micronet is spent on commissioning such software, the standard of the freebie programs is surprisingly high.

Some programs, of course, are unsuitable for download and so Micronet also features a software mail order section called *Soft Shop*. Like its telesoftware counterpart, *Soft Shop* supplies software for a variety of home micros at a discount.

News and Views

Because the computer industry is alive on a seven days a week basis, Micronet can supply its subscribers with a diet of computer bumf on seven days a week.

Each day, the news editorial team upload a series of informative news stories to the database and, come the 6pm cheap rate periods during the week – and after 1pm on Saturday and all day Sunday – subscribers log on to glean all that's new in the computer industry.

Micronet's news editor Ian Burley prides himself on being first with the news – often a clear week or more ahead of his printed competition (*PCW* included!). Most computer shows are attended by Burley and his staff, and a story on the show's events is usually online before the show has shut its doors to first day crowds.

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Line Noise

One area which has recently opened up on Micronet is *Line Noise* – named after the glitches and whirrs that wreak havoc with a computer modem user's data. Run by Micronet's effervescent deputy editor Chris Bourne, the area opens up for business at 7pm each weekday night, and goes on until the wee small hours.

And what business! Chris created and runs the *Line Noise* area, which is really an interactive CB-style chatline for subscribers to chat to each other – and to Chris – over the network. Thanks to some nifty Micronet software, Chris is able to insert his own comments onto the frames of 'chat' created by subscribers. If some highly contentious and thought-provoking discussions occur each night that *Line Noise* is open.

Interlink

Interlink is another recent innovation on Micronet. By use of a Prestel gateway, subscribers can access the Telecom Gold electronic mail network via a viewdata format gateway on Micronet.

A mailbox on Telecom Gold can cost upwards of £40 to sign up to, along with recurrent costs of £5 a month for rental of the mailbox. Thanks to a deal struck between Micronet and Telecom Gold, Micronet subscribers can obtain a mailbox on Telecom Gold – accessible via the *Interlink* gateway – free of all sign-up and recurrent standing charges. Users then pay for the use of their Telecom Gold mailbox on a pay-as-you-go basis.

The free Telecom Gold/*Interlink* mailbox facility is worth £60 a year (pro rata to £5 a month) to Micronet subscribers. Whichever way you look at it, this offer represents good value for money.

Teleconferencing

While Micronet already has its chatline services, which allow subscribers to talk publicly to each other, the service does not yet support 'private' or 'closed group' discussions.

In recognition of this fact, the system will shortly open a gateway into another computer capable of supporting teleconferencing. This facility will work to both viewdata and 80-column scrolling formats (see below) and on a pay-as-you-go basis.

Charges for teleconferencing have yet to be decided, but Micronet say that the charges to subscribers will be modest, and cover the cost of switching calls from the relevant Prestel centre to the Micronet teleconferencing computer.

Because teleconferencing calls will be processed through a non-Prestel computer – a Dec PDP-11 in fact – the facilities available will be wide-ranging, supporting several features never before seen on any online system. These include:

● Subscriber keys – Using a 'key', a nominated teleconference administrator (any subscriber can create a key conference) can admit subscribers to the teleconference of his/her choosing.

Free Prestel Demonstration

If you have access to a computer, modem and suitable viewdata software, you can access the Prestel demonstration database by following this simple procedure:

1. Dial the following number for your area (omitting the initial trunk code where appropriate):

London & South East:	01-618 1111
Birmingham & Midlands:	021-618 1111
Scotland – Edinburgh:	031-618 1111
Scotland – Glasgow:	041-618 1111
Liverpool & North West:	051-618 1111
Manchester & North West:	061-618 1111

(When in doubt use the London 01-618 1111 code)

2. Once carrier is heard, place your modem online (refer to modem instructions if appropriate).

3. Use a logon ID of ten 4s (4444444444) and a password of four 4s (4444) and follow the on-screen instructions.

● Teleconferencing blinds – Using a 'blind', teleconferencing delegates can remove any sign of a current teleconference from the public system. This facility prevents anyone peeking in and seeing who's attending the teleconference. It also prevents unauthorised and/or unnecessary interruptions to a teleconference.

Dave Rosenbaum, Micronet's publicity officer is enthusiastic about the teleconferencing system:

"This is a highly innovative product that will allow subscribers a low-cost method of communicating with each other in private groups," he said.

"Private teleconferencing is in its infancy on even the latest US databases, so it's good that subscribers can take advantage of the latest technology on Micronet," he added.

80-column scrolling

One of the major criticisms of Prestel has always been the limitations imposed by the standard viewdata format – 40 columns by 22 lines, two of which are used for control information.

Now, thanks to some innovative programming work by Micronet's technical department – headed by technical director Mike Brown – subscribers will be able to flip through a gateway on Micronet and into other services on a data-transparent basis. This effectively means that the Micronet/Prestel computers will behave like PSS and allow all data to flow unimpeded from the subscriber's terminal to the gateway computer (and vice versa).

Used in conjunction with the existing Interlink service and the forthcoming teleconferencing service, the 80-column scrolling facility will allow subscribers to have the best of both worlds – using viewdata format or 80-column scrolling format as appropriate.

Vasscom

Like several of the long-standing online databases, Prestel's speed seems a little pedestrian compared to the higher-speed databases coming online in the commercial market. For this reason Prestel and Micronet are working towards the national implementation of Vasscom.

Vasscom will allow users of most multi-speed modems to log on to the service at speeds as high as 2400 baud full duplex, as well as the existing 1200/75 baud speeds. Speeds supported range from a lowly 300 baud, through 1200/75, 1200/1200 and the 2400/2400 baud rate.

At the time of writing, Vasscom is available in the London, Manchester and Reading areas, as well as certain parts of Scotland. National access via the multi-speed Vasscom network is expected to be available by early next year.

For further information

Further information on all of Micronet's activities is available from: Micronet 800, Durrant House, 8 Herbal Hill, London EC1R. Tel: 01-278 3143.

VIP PROFESSIONAL

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2 DATABASE

VIP Professional includes a powerful data manager to arrange, store and analyse your important information. It can be used to store your home or business records and do extensive searches, sorts and comparisons. It allows up to 8192 records, with up to 256 fields and queries and 256 search criteria. The database manager can be used in conjunction with the spreadsheet commands to add greater power to the database facilities including sorting specific ranges of the database. You can also specify how you sort files, from the highest value to the lowest value (or from the lowest to the highest), or alphabetically (forwards or backwards). The graphics part of VIP Professional can be used to show trends in the database or other information. With its powerful statistical functions, it has almost limitless power.

3 GRAPHICS

VIP gives shape to your figures by letting you graph your data into six different types of graphs, in startling colour or black and white. Pie charts, bar graphs, stacked bar graphs, line graphs, scatter graphs and X/Y graphs. You can graph your spreadsheet or database data to give instant professional presentations. Your graphs will change instantly as you change the data. When creating a graph you may specify a main heading, a sub heading and a third title at the base of the graph. The necessary scales can be defined either by the user or automatically created. In pie graphs, the most important section of the pie can be separated from the other sections to draw attention to its importance. You may save graphs individually on disk for use at a later date. You can also print your graph on any Epson compatible dot matrix printer.

- VIP Professional has 'Instant Help' so you can find more information instantly.
- VIP calculates to a full 300 digits against Lotus 1-2-3™ which only calculates to 100.
- VIP allows for 256 Query Fields against only 32 allowed by Lotus 1-2-3™.
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- VIP allows different fonts and has an on/off cell grid. Not found in Lotus 1-2-3™.
- VIP supports greater memory and larger spreadsheets than Lotus 1-2-3™.
- VIP graphs and worksheet can be viewed together. Pie charts can be exploded.
- VIP can accept any .WKS files from Lotus 1-2-3™ without modification.
- VIP displays all spreadsheet information in user-sizeable GEM windows.
- VIP can be manipulated using either the keyboard or the user friendly mouse.
- VIP is currently available for the AMIGA, ST and APPLE IIc, IIe and IIGS.

OFFICIAL UK VERSION

The official UK version of VIP Professional has a pound (£) sign as a standard part of its character set. Other versions have also been imported unofficially from the USA and have a dollar ($) sign instead of a £ sign. These versions will not be supported by the UK distributors or their dealers. Ensure that the VIP you buy is the official UK version, not an unofficial import with incorrect characters.

VIP Professional is available from Atari ST Dealers throughout the UK. If your local dealer does not have VIP in stock, it can be obtained by mail order (P&P free) from:

SILICA SHOP Ltd, 1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX
Tel: 01-309 1111

All comparisons made to Lotus 1-2-3™ are to version 1A. E&OE

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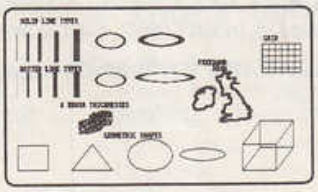

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PAINT BRUSH	—	✓	✓	—	✓	✓	
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PIN POINT ACCURACY	✓	✓	✓	—	✓	✓	
ACTIVE BANDING	—	✓	✓	—	✓	✓	
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COLOURS	27	16	121	121	8	8	
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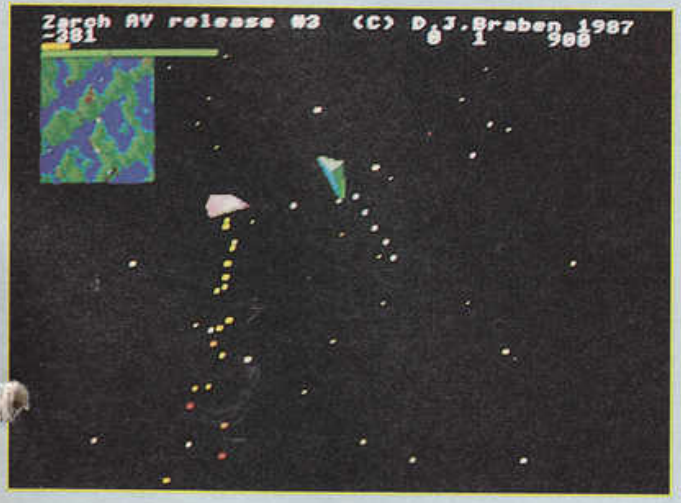
Put aside a month for this beautiful pig

The Archimedes is the most powerful desktop computer in the world. With four times the processing power of a £7,000 IBM based on the 80386, or around 20 times the processing power of the speedy Beeb B, it should be an amazing games machine. What's that; gasps of horror? But big expensive machines are not just for running spreadsheets and word processors, particularly not machines which can display 256 colours and have stunning sound facilities.



But to harness this power takes time (and being a programming genius helps). The man who had both was David "*Elite*" Brabern. Having proved himself by co-writing *Elite*, he also had full co-operation from Acorn. The first result of his efforts was *Lander*, the game bundled with the Archimedes. This grew into *Zarch* which is now available through Superior software.

You control a spaceship and have to defend the planet below from invading aliens. As you fly over the 3D landscape, houses and trees rush by with a realism not seen on anything less than an Evans and Sutherland flight simulator. Your craft casts a shadow over the land and sea, and anything else which flies casts its own shadow, be it an enemy ship, one of your bullets or exhaust from your engine.

Propulsion is by means of a single downwards pointing jet. Press thrust and you climb vertically. To move forward you must tilt the nose as you would with a helicopter. This requires delicate manipulation of the mouse – tip too far and you find that although you are going forward speedily you also lose height and become an ex-spaceship. You can also tip the craft sideways and backwards, moving with complete freedom. Mastering the flying controls is the key to the game – it's a lot like *Thrust* in 3D.

Once you have the mouse tamed you can dive and roll, stop on a sixpence and skim seas without a care. It only takes about a month's solid practice. If you try to thrust out of the atmosphere the engines stop working until you have fallen back to a sensible height.

The foe comes in two flavours, blue and red. The blue baddies look like the roof of a fairground carousel. They land and infect the planet, a red plague spreading over the surface. Occasionally they will take off and fly to another place but they will not fire at you. The red foe is a fast, armed ship much like your own. Points are scored for shooting the aliens and deducted for decimating trees and buildings or for wasting shots. So a score of –101 is not impossible. You need to be very accurate if you want to shoot a blue ship when it is sitting between houses, but then the virus has got to be stopped.

You have a couple of smart bombs at your disposal, an easy way to destroy the red ship, but not ideal for use close to the land, you'll destroy too many trees and lose a lot of points. Ideally you will get a red and blue ship together at sea.

Once you have destroyed a quota of ships, three blues and a red on the first level, you get a bonus for finishing based on the area of the planet which is not yet infected.

Zarch is difficult. Mastering the control is a pig. But the game is so beautiful that you won't give up, and it is absurdly addictive. Each time you play you get better until it doesn't seem quite so difficult after all.

Zarch stays exciting however good you get. I expect every Archimedes owner will buy it. Both of them.

Ian Rook

Program *Zarch* **Type** Arcade **Price** £19.95 **Supplier** Superior Software Regent House, Skinner Lane, Leeds LS7 1AX.

NEW RELEASES

Your complete guide to all the software released this week

Amstrad CPCs

Program *Sabrewulfe* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8-10 Paul Street, London EC2A 4JH.

Program *Knightlore* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8-10 Paul Street, London EC2A 4JH.

Program *Alien 8* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8-10 Paul Street, London EC2A 4JH.

Program *Knightshade* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8-10 Paul Street, London EC2A 4JH.

Program *The Plot* **Type** Arcade **Price** £2.99 **Supplier** Firebird, 64-76 New Oxford Street, London WC1A 1PS.

The review copy of this arrived a couple of weeks ago along with a 'non-disclosure agreement', threatening to have me beheaded if I reviewed it before now. However, this crusading journalist can now reveal that it was all part of an establishment plot, a conspiracy to hide the fact that the game isn't all that good until after the PCW show.

Based on the *Yes, Prime Minister* TV programme, the game casts you in the lead role of Jim Hacker, the not very able PM, assisted (or hindered) by his sidekicks Sir Humphrey Appleby and Bernard Woolley. The purpose of the game is to survive five days in the mad whirl of British politics, making the best decisions you can in order to secure your standing in the daily opinion polls.

You start each day in the PM's office – shown on the screen as a rather garish (on the Spectrum version) picture, a bright red room with a yellow desk. Scattered around are various objects, such as a diary, 'phone, intercom, and so on, which are used to relay messages to and from your office. Moving a cursor over each object allows you to use it and the picture then changes to show you the text of the message.

As messages arrive you will have to decide how to respond to them, making decisions by choosing options from the menus that come up on the screen. If you move the cursor to the door handle you can leave your office and visit various characters who may be able to give you advice.

The authors of the TV series are quoted on the inlay as saying how well the game captures the spirit of the series, but I have vague memories of the series being hilarious, whereas here the 'humour' is really just a series of cynical jabs at politicians and other figures in authority. I'm all in favour of bureaucrat-bashing, but the TV series did it with a degree of wit and intelligence that's lacking in the game.

The actual decision making process doesn't really make you feel involved in the game, since it merely consists of selecting a response from the choice given (sometimes limited to two possible responses). Like Mosaic's earlier Adrian Mole game, *Yes, PM* suffers from too much sitting back and watching the reams of text unfold, and not enough chance to really feel involved in the action. I don't understand why this multiple choice format was chosen when the conventional adventure format allows for greater complexity and, since you can enter your own commands, creates a greater sense of involvement.

The five 'days' in the game load separately, and they cram quite a lot into the whole week, but it all started to feel a bit monotonous after a while. To be honest, I'd rather watch a repeat of the series anytime. Stephen Dean

Program *Yes, Prime Minister* **Type** Adventure/strategy **Machine** Spectrum, C64, BBC B, Amstrad CPC, PCW and PCs **Price** £14.95 all cassette versions, £19.95 all disc versions (except £24.95 for PCW and PC discs) **Supplier** Mosaic Publishing, Gorley Firs, South Gorley, Fordingbridge, Hants.

BBC B

Program *Knightlore* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8-10 Paul Street, London EC2A 4JH.

Program *Alien 8* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8-10 Paul Street, London EC2A 4JH.

Program *Knightshade* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8-10 Paul Street, London EC2A 4JH.

Atari ST

Program *Phantasie III* **Type** Fantasy **Price** £29.95 **Supplier** SSI/US Gold, Unit 2-3, Holford Way, Holford, Birmingham B6 7AX.

The concluding chapter of the role-playing saga reaches a triumphant conclusion with the final confrontation with the dark lord Nicademus.

Significant changes have been made since *Phantasie II*, all for the good. The main map graphics and monsters have been uprated, all the clumsy and awkward smoothed out and the whole thing looks and plays better.

Combined with innovations like being hit, and hitting, specific body-locations and suffering amputations and breaks, and you have an excellent game.

Program *Annals of Rome* **Type** Strategy **Price** £19.95 **Supplier** PSS, 452 Stoney Stanton Road, Coventry CV6 5DG.

At last, PSS finally release the ST version of the Roman empire game that engrossed this office at the beginning of the year. Written in C so substantially faster than the Spectrum version.

Commodore 64

Program *Plasmatron* **Type** Arcade **Price** £9.95 (£14.95 on disc) **Supplier** CRL, CRL House, 9 King's Yard, Carpenter's Road, London E15 2HD.

Program *Microrhythm* **Type** Utility **Price** £2.99 **Supplier** Firebird, 64-76 New Oxford Street, London WC1A 1PS.

Program *Traxxion* **Type** Arcade **Price** £9.95 (£14.95 on disc) **Supplier** CRL, CRL House, 9 King's Yard, Carpenter's Road, London E15 2HD.

Program *X15* **Type** Arcade **Price** £9.99 (£14.99 on disc) **Supplier** Activision, 23 Pond Street, London NW3 2PN.

Program *Blackwyche* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8-10 Paul Street, London EC2A 4JH.

Program *Outlaws* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8-10 Paul Street, London EC2A 4JH.

Incentive Software have been keeping a pretty low profile since the release of Graphic Adventure Creator, but all of a sudden they've announced their new Freescape games system and released three new GAC adventures.

Or, they've released about half a dozen new adventures, since two of the tapes have a complete adventure on both sides, and one is a multi-part game.

The Spectrum release, *Karyssia, Queen of Diamonds*, is a fairly standard fantasy/adventure. Your quest is to travel north across a small group of islands, to the castle, Karyssia where you will kill her and end her evil reign over the islands. This is the multi-load game, divided into three parts, so it's quite an extensive adventure even if it's not all that original. The game boasts 'isometric' graphics, but this just seems to mean graphics drawn with straight lines as with most Spectrum adventure graphics.

Much of the problem-solving revolves around magic amulets and the like, but there is a spell-casting element that makes a change from the usual 'KILL GUARD' monotony of a lot of adventures. Apart from that the game is an average fantasy romp, OK but not outstanding.

C64 owners are offered *Zodiac*, another standard collect-the-lost-objects effort. This time you have to collect the twelve signs of the Zodiac needed to defeat the evil wizard Ramus. Again, this is a fairly professional job but the ideas behind it are so familiar that it left me feeling uninspired, to say the least, and not particularly anxious to see what came next. The 'B' side of the tape is a second adventure called *The Search For The Secret of Life*.

***Nova*, for Amstrad CPCs, is the best of the bunch. Having done the old fantasy plots in the other games, *Nova* tackles the equally familiar outer space scenario. The earth has been invaded by Cyborgs and only you can deliver the vital circuit board needed to begin evacuation of the earth's population. Despite the old formula, *Nova* is written in a slightly lighter style that makes it more enjoyable to play than the others. The second game on the tape is a haunted house scenario that's quite good fun, although it probably won't present too much of a challenge.**

Despite the claimed versatility of GAC, reviewing a clutch of GAC games together does reveal the limitations of using a utility since, as with Quilled games, all these look and feel quite similar. However, the format limitations aren't responsible for the over-used fantasy and sci-fi plots, and more originality could well have perked the games up a bit.

Stephen Dean

Program *Karyssia, Queen of Diamonds* **Type** Adventure **Machine** Spectrum.

Program *Zodiac/The Secret of Life* **Type** Adventure **Machine** C64.

Program *Nova/Haunted House* **Type** Adventure **Machine** Amstrad CPCs.

Price All games £7.95 **Supplier** Incentive, 2 Minerva House, Calleva Park, Aldermaston, Berks.

Program *Sunburst* **Type** Arcade **Price** £2.99 **Supplier** Rack-It, 8–10 Paul Street, London EC2A 4JH.

Program *On Court Tennis* **Type** Arcade **Price** £2.99 **Supplier** Firebird, 64–76 New Oxford Street, London WC1A 1PS.

Program *Pegasus Bridge* **Type** Wargame **Price** £12.95 (£17.95 on disc) **Supplier** PSS, 452 Stoney Stanton Road, Coventry.

Program *4-Action* **Type** Compilation **Price** £9.95 (£14.95 on disc) **Supplier** American Action, PO Box 13040, S200 44, Malmo, Sweden.

A compilation of four action combat games from a new Swedish outfit. Blood N'Guts is about the best of the four, followed by '43 (the sequel to the arcade game, '42). Soldier One and Captured are lesser known titles, but they're not bad value at less than £10 for the four of them.

Program *Maniac Mansion* **Type** Arcade/adventure **Price** £14.99 – disc only **Supplier** Activision, 23 Pond Street, London NW3 2PN.

Program *Dragonskulle* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8–10 Paul Street, London EC2A 4JH.

Spectrum

Program *Car Wars Tennis* **Type** Arcade **Price** £2.99 **Supplier** Firebird, 64–76 New Oxford Street, London WC1A 1PS.

Program *Sun Star* **Type** Arcade **Price** £8.95 **Supplier** CRL, CRL House, 9 King's Yard, Carpenter's Road, London E15 2HD.

Program *Car Wars* **Type** Arcade **Price** £2.99 **Supplier** Firebird, 64–76 New Oxford Street, London WC1A 1PS.

Program *Knightlore* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8–10 Paul Street, London EC2A 4JH.

Program *Alien 8* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8—10 Paul Street, London EC2A 4JH.

Program *Knightshade* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8–10 Paul Street, London EC2A 4JH.

Program *Pegasus Bridge* **Type** Wargame **Price** £12.95 (£17.95 on disc) **Supplier** PSS, 452 Stoney Stanton Road, Coventry.

Program *Action Reflex* **Type** Arcade **Price** £1.99 **Supplier** Ricochet, 8–10 Paul Street, London EC2A 4JH.

An old Mirrorsoft title, in which you can control a bouncing ball and attempt to guide it through a series of obstacle courses. It wasn't really outstanding enough to justify its original price, but is much more worthwhile at budget level.

Program *Dark Star* **Type** Arcade **Price** £2.99 **Supplier** Firebird, 64–76 New Oxford Street, London WC1A 1PS.

CHARTS

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1	(–)	Renegade	**Imagine**
2	(10)	Joe Blade	**Players**
3	(–)	Arcade Classics	**Firebird**
4	(20)	ATV Simulator	**Codemasters**
5	(2)	BMX Simulator	**Codemasters**
6	(18)	Back To The Future	**Firebird**
7	(1)	Run For Gold	**Alternative**
8	(40)	Dizzy	**Codemasters**
9	(3)	Paperboy	**Elite**
10	(16)	International Karate	**Endurance**
11	(23)	Uchi-Mata	**Alternative**
12	(9)	Soccer Boss	**Alternative**
13	(11)	World Class Leaderboard	**US Gold**
14	(5)	Cricket International	**Alternative**
15	(7)	Destructo	**Bulldog**
16	(4)	Super Robin Hood	**Codemasters**
17	(26)	Kik Start 2	**Mastertronic**
18	(6)	Milk Race	**Mastertronic**
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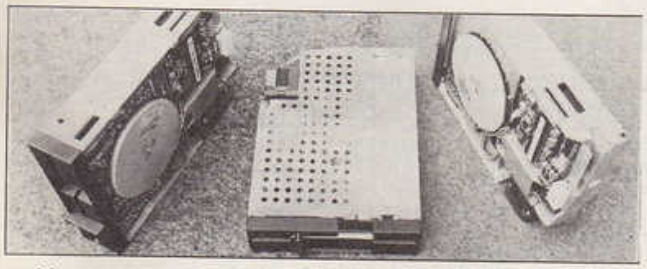

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Get responsible

There have recently been several letters in *Popular* regarding software piracy falling into two broad camps. On the one hand is the 'piracy is theft' band and on the other is 'they overcharge so why not get our own back' brigade.

People who pirate without conscience do neither themselves or others a favour. Yes, there are software houses who use their monopolistic position for profiteering. However, piracy is not the answer. The answer is to spend our money with the good companies who do not abuse their position.

Voting with our wallets gives support to the good companies and lets them know that an honesty company policy pays. Piracy equally hurts those who play by the rules and those who do not. If we want the honest candidate to win the election we must vote for him, not just tear up the other candidate's leaflets.

The other side of the coin is that the monopolistic power, and the abuses that go with it, conferred by copyright, must be curbed if software piracy is ever to be seen as wrong by the average user.

A recent letter likened a user who pirated software because of the cost of it to someone who steals petrol for his car. Fair enough, I cannot support stealing petrol, but at least the honest purchaser of petrol is protected by a bewildering variety of laws. If the petrol contains impurities which damage his car he can sue for the damage and expect full reimbursement.

Conversely all software contains a licence taking away all the user's rights. Is it fair that if a user pays hundreds of pounds (tens of thousands in the case of mini computers) for software he should not be able to sue for all losses resulting from negligent programming? Though losses may be considerable he is only entitled to the replacement of the fifty pence diskette.

Why should a bug in a program not be treated legally in exactly the same way as a real bug in a loaf of bread? The makers of both products are in business and will be at great pains to point out their professionalism. So hold both accountable to the consumer.

They can after all insure themselves and if they do not make mistakes often their premiums will be cheap. But if they make mistakes regularly they will soon find themselves out of business.

Licence agreements can also restrict how I use the software, but a petrol company cannot tell me where I can drive my car.

How many users have bought a word processor believing that the mail merge would be out 'real soon now' only to find that the software house decides it is uneconomical to produce a month later. A washing machine manufacturer must supply parts for his products for ten years by law.

On the subject of price it is not unfair to compare software to petrol. Copyright grants a monopoly and software houses can charge what they want. A gallon of petrol is about the price of a budget game because it is produced by many companies that must compete in a free market. If only one company was allowed to produce petrol, it would cost the price of an accountancy suite. Perhaps a parallel could be drawn with the Fair Rent Acts.

To sum up. Companies, please, give a good, professional service and treat users like free people not helpless slaves to be exploited. Users, please, remember that the only way to keep fair treatment going is to support those companies that practice it.

D R Halliwell

This week, due to overwhelming demand, we have decided that it is about time to launch a new puzzle.

And it has also been decided that the best people to think of a new format for the puzzle would be you, the readers.

So, in essence, this week's puzzle is to think of a puzzle; which will start the week after next.

As with all other puzzles, the person who invents the most interesting format for the new puzzle (phew this is getting confusing, Ed!) will receive a prize, which for this special case will be £20.

Because this is such an important decision, we have decided to run this 'design a puzzle' competition for two weeks, so the closing date is October 16.

Send all your ideas to Puzzle Ideas, Popular Computing Weekly, Greencoat House, Francis Street, London SW1P 1DG.

We expect to see wierder and more ingenious ideas than ever!

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If you gather up all the superlatives from previous Epyx reviews and add them together, you just might go halfway towards describing California Games".

– ZZAP 64.

"California Games has to be the best release this year so far.

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