October 30–November 5 1987 Vol 6 No 43 60p

POPULAR Computing WEEKLY

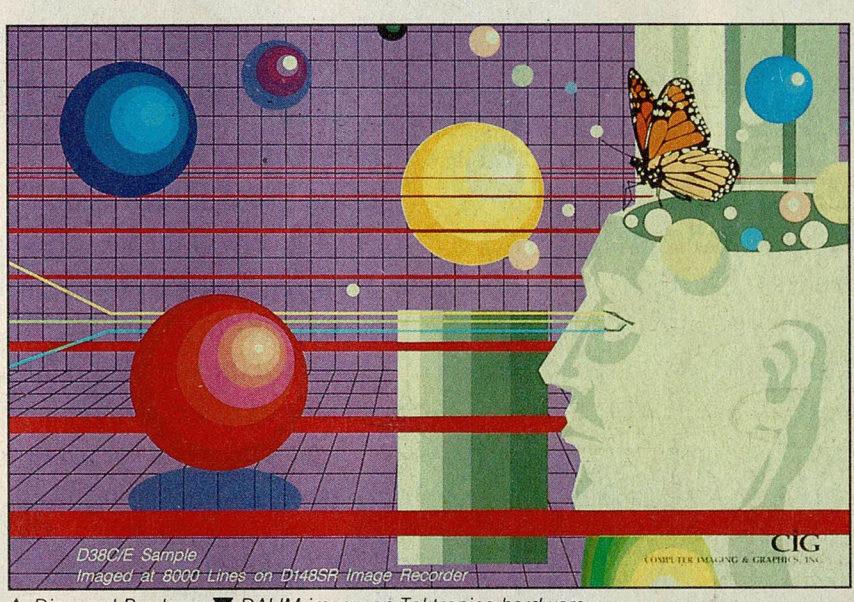
PUMP UP THE COLOUR

Report from the Computer Graphics Show, p. 20

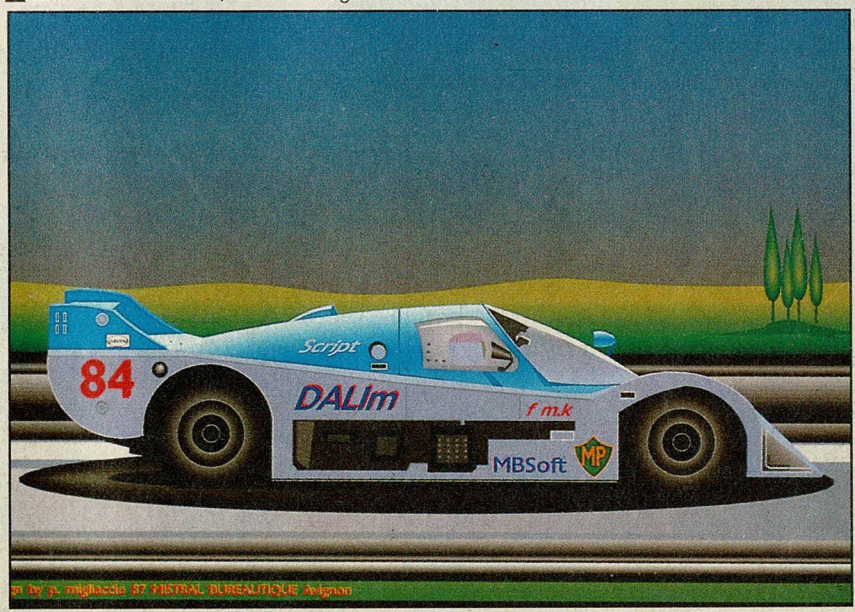
NEWS DESK
Virgin buys into Mastertronic
Amstrad/Epson printer row

SOFTWARE
ST reviews–HiSoft Basic & K-Roget

News analysis
Where next for Atari?



▲ Dicomed Producer ▼ DALIM image on Tektronics hardware



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THE ULTIMATE HOME VIDEO ARCADE MACHINE

This is SEGA – the powerful new video games system designed specially for the home and the whole family. It's compact and easy to assemble, and the high technology gives you sharp video images, vibrant colour and realistic sound!

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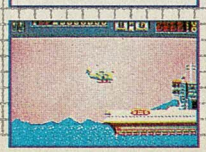			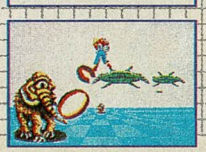	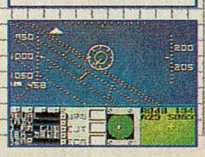	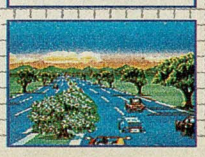

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POPULAR Computing WEEKLY

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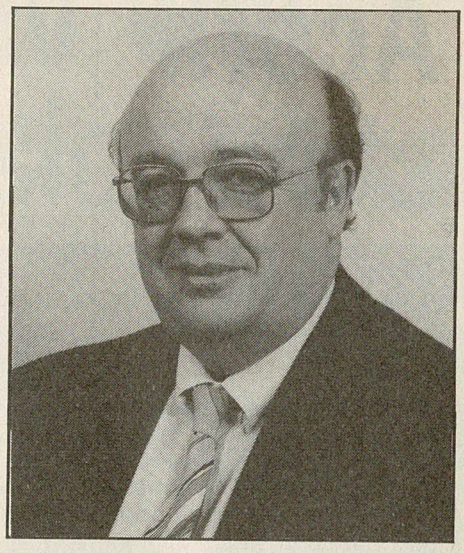

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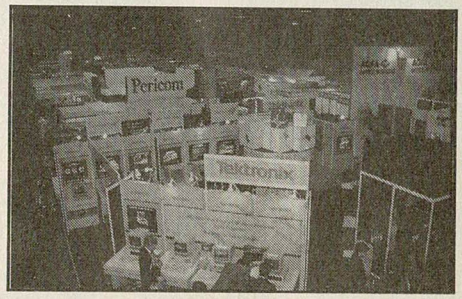

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Top: Frank Herman of Mastertronic. Second: CG'87. Above: Plundered Hearts.

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Acorn chief quits

ACORN last week announced that managing director Brian Long has resigned. Long was unwilling to make a statement while he was still with Acorn, but company spokesman Michael Page said that he had "not particularly" expected Long's decision.

"He's decided to resign as managing director from the end of the month," said Page. "The chairman, Bruno Soggin, is taking on executive responsibility for the time being, but it is his intention to appoint someone as soon as possible."

The sudden announcement comes shortly after another set of disappointing results from the company. Acorn was taken over by Olivetti a couple of years ago, and was hoping that its RISC-based micro Archimedes would put an end to its financial difficulties.

Ironically it was the heavy investment in Archimedes which is still keeping the company in the red.

Virgin gets budget shares

VIRGIN Vision Ltd last week acquired 45 per cent of Mastertronic Group Ltd.

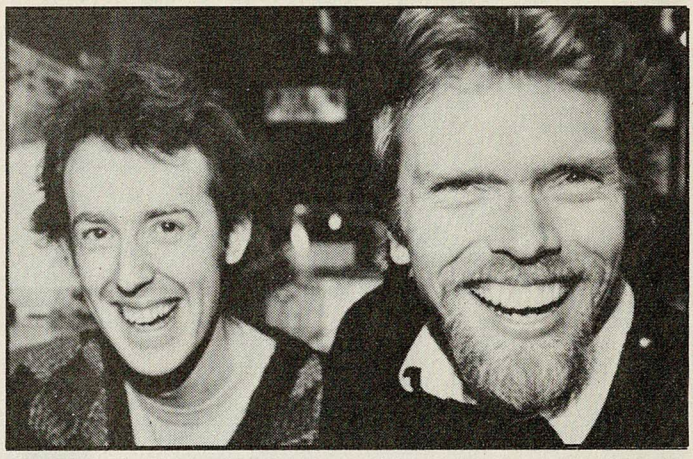
A subsidiary of Virgin Group plc, Virgin Vision has decided to enter the realms of the budget software market, where it has previously been unrepresented.

According to a Virgin representative they were chosen because "They have shown their ability to make profits."

Although Virgin now have a 45 per cent stake in the company, they are still a minority shareholder.

It is said Virgin has faith in Mastertronic to continue as market leaders.

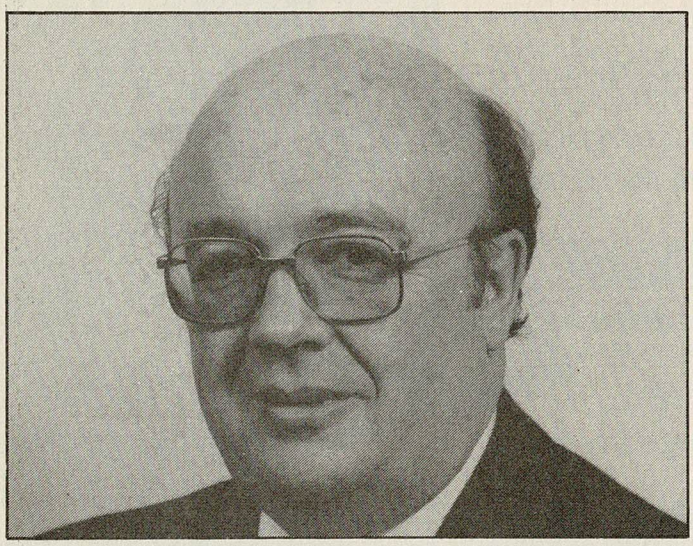
Director of Mastertronic, Mike Kay, was also pleased with the deal but said that there had been some confusion over a story in last week's CTW, concerning Mastertronic's City placement. He commented, "forty-five per cent was to be placed with International Institutions, of which Virgin was one. However, Virgin then decided to buy all the shares."



When asked about a future City placement, Kay said that when Mastertronic was floated on the stock-exchange, it would more likely go to the US, which he thought was better than Britain for high-tech companies.

Virgin and Mastertronic stated they had no immediate plans for further acquisitions.

Misleading figures from Gallup?



Frank Herman of Mastertronic

THE PUBLIC dispute between Mastertronic and Gallup is nearing a solution since Mastertronic submitted details of its retail outlets. Mastertronic has complained for a long time that Gallup's figures – which don't cover many budget outlets – were under-representing its sales.

Last week, Frank Herman of Mastertronic was threatening court action if Gallup didn't revise their figures. Gallup had previously shown Mastertronic to have below 11 per cent of the market share and Herman accused them of 'publishing misleading information that is causing us damage'.

Godfrey Rust, speaking on Gallup's behalf conceded that it was difficult to keep track of budget games that sold predominantly in supermarkets and CTNs (Confectioners, tobacconists and Newsagents).

John Menzies, for instance, has only just agreed to get 20 of its 100 shops to report its sales of games to Gallup.

The problem for Mastertronic is exacerbated by their exclusive accounts in shops like Toys 'R' Us, which are not researched by Gallup. A considerable proportion of their sales have been ignored this way.

At present, Gallup is examining Mastertronic's retail information and any deals exclusive to them will be drawn into the sample. This new principle will also apply to all other budget software houses.

Godfrey Rust suspects that Mastertronic is right in claiming under-representation but they will not know for sure until the sample has been analysed. If all goes well, Mastertronic can expect a revised percentage in the very near future.

Row continues

A QUESTION mark still hangs over the release of *Morpheus* and *Magnetron*, as the dispute between Hewson and Telecomsoft continues.

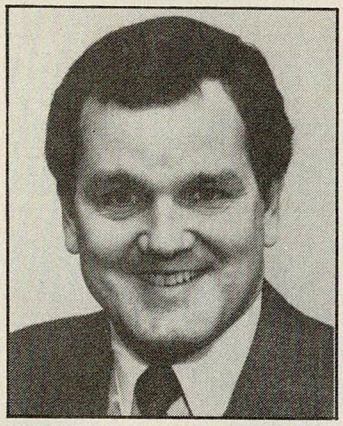
The row was initiated at the PCW Show last month when Goldcraft, alias Andrew Braybrook and Steve Turner, suddenly left Hewson to sign a deal with BT.

When BT announed that it would be releasing *Morpheus* and *Magnetron*, Hewson, the original owner, objected as it was already promoting the games.

Threats of legal action then ensued from both parties, but these were never followed through. Instead, a temporary compromise was reached, as Andrew Hewson said: "Undertakings have been made on both sides not to publish until the situation has been resolved."

According to Debbie Sillitoe at BT, this situation still stands. While not commenting on the future of *Magnetron* and *Morpheus*, she did say that Goldcraft would be releasing a new game for Christmas entitled *Flying Shark*.

New appointment



Max E. Toy

IRVING Gould, head of Commodore International Ltd, has finally appointed a successor to the sacked Tom Rattigan.

Taking over as president and chief operating officer of Commodore Business Machines Inc, will be Max E. Toy. A well-known figure within the computer industry, Toy has held top management positions with IBM, ITT and Compaq.

But as he settles into his new job, based in Pennsylvania, the legal wrangles between Rattigan and Commodore continue. Rattigan is suing Commodore for millions of dollars, accusing them of preventing him from doing his designated work.

Commodore, for their part, have issued a counter-suit and so the two remain in deadlock.

Druid II

A SEQUEL to No. 1 arcade adventure, *Druid* is to be released by Firebird, who claims this adventure is challenging and absorbing.

Druid II has a variety of features, including 32 different spells and 15 perfidious levels. You must help Hasrinaxx to overcome all these hindrances and free the lands of Belorn from the evil Acomantor.

Available next month on the Commodore 64, *Druid II* costs £8.95 on cassette and £12.95 on disc. A Spectrum version is to follow, priced £7.95 on cassette.

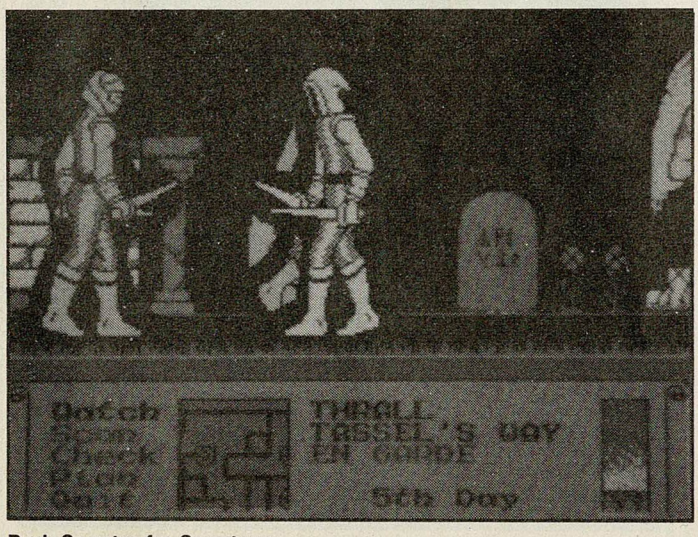
Adventure game challenge

DARK SCEPTRE is the new adventure game by Mike Singleton.

Having overcome the Lord of the Isles, the Northmen now control the Isles of the Western Sea with the aid of Dark Sceptre.

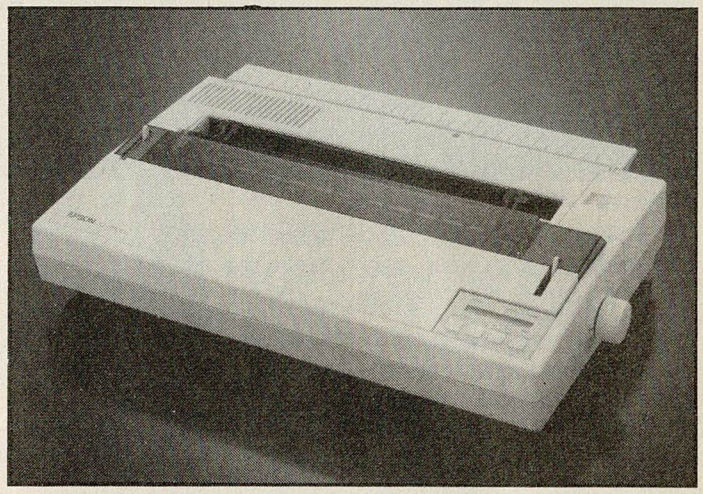
In your mission to find and destroy the sceptre, you will have at your disposal 64 characters, 4000 possible locations and a diverse range of commands.

Think you can do it? *Dark Sceptre* is hailed as a complex and compelling adventure game. To be released on Spectrum (£7.95), it will be on sale next month.



Dark Sceptre for Spectrum

Epson writ decision soon



Epson LQ printer

EPSON has taken legal action against Amstrad in a bid to safeguard its printer identity.

The action was taken to prevent Amstrad from using the designation LQ on their new letter quality printer, which will be called the LQ3500.

Tony Westray, Public Relations Manager for Epson (UK) Ltd, stated that this was the first time a company had decided to use another company's designation, and that it would merely create confusion on the market.

Having used the LQ designation for the past four years, Epson says it has almost become synonomous with their printers. As Tony Westray pointed out: "In promotional material for the LQ 800 and 1000, we don't even prefix it with the Epson name because it is so well known. To make matters worse, our laser printer is called the GQ 3500 which consumers will inevitably confuse with Amstrad's proposed LQ3500."

Despite this action, however, Amstrad's spokesperson said: "We will continue to market the LQ3500 and will strenuously defend any action taken against us."

Business package for Amstrad PCW

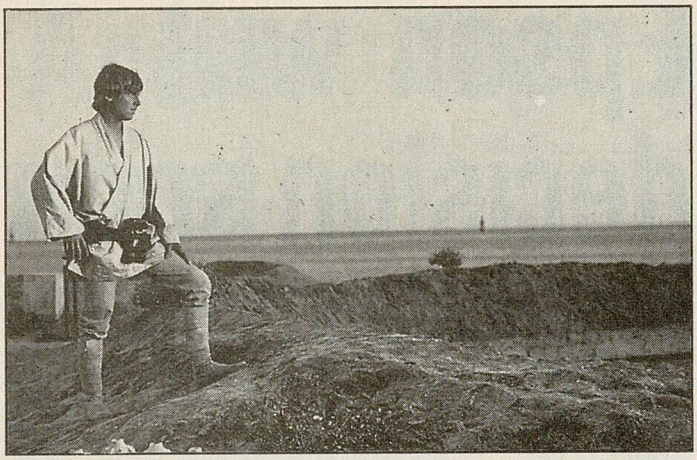
A NEW generation of Camsoft business packages are to be launched by Cambrian Software for the Amstrad PCW range.

Series II Cambase Database is the first to be released and, according to Cambrian Software's managing director, Roger Greyner: "We have dramatically upped the specifications and incorporated helpful suggestions we've received from many of the thousands of existing Cambase Database owners."

Some of the additional features which have been incorporated into Series II include the ability to copy information between files and to change file layout/content while retaining data, editing of output fields and increased selection/sorting facility.

Series II is fully compatible with current Cambase Database versions and is currently available at £49.95.

For existing Cambase owners who want an upgrade, the price is £29.95.



Copyright: Lucasfilm

THE Battle of Galactica can now take place in your own home as Domark introduces a new version of *Star Wars*.

Previously, *Star Wars* was only available as an arcade game but now you can wreak havoc on Darth Vader without having to pay 10p each time.

The game can be played on several difficulty levels, although each one follows the same format.

As the pilot of an X-Wing fighter, you must destroy the Deathstar fortress.

To do this you must dodge and overcome the various hindrances that cross your path, from Darth Vader's galactic agents to laser towers intent on destroying your craft.

The Force will only offer you limited protection and once you have used up all your resources, you are vulnerable and killable.

Star Wars' high speed vector graphics assimilate the game to its arcade counterpart, as does the digitised speech.

Star Wars will be available next month, with *The Empire Strikes Back* and *Return of the Jedi* scheduled for 1988.

The game costs £9.95 on cassette £12.95 on disc for Commodore 54/128 and BBC, £14.95 for Amstrad CPC and £19.95 for Atari ST.

Micro appeal

THE CHILDREN in Need appeal held by the BBC will take place on November 27th, and once again, the computer magazine, *Micronet* will be present at the TV centre, engaged in a variety of activities from pledge-taking to interviewing celebrities.

This year they intend to raise even more than the £46,000 achieved last year. By holding an on-line auction of computer products, *Micronet* hopes the money will come flooding in.

In order to make money for the charity, however, *Micronet* needs sufficient goods to auction. They are currently appealing to the computer industry for donations and it would take a callous company to refuse.

If you would like to help a Child in Need, contact *Micronet* at Telemap Ltd, Durrant House, 8 Herbal Hill, London EC1R 5EJ. Telephone: 01-278 3143.

Space saver

WITH thoughts centred on Christmas and the need for stocking fillers, Accodata has announced its new Keyboard Slideaway.

The Slideaway is designed to protect against dust and spills, and, by pulling out telescopically, to save space. It will fit any computer and any keyboard with a depth of 8" or less.

Retailing at £49 (plus VAT) the Slideaway is claimed to be far cheaper than an ordinary keyboard drawer. It is made of aluminium and coloured light grey. In the words of Accodata's marketing manager, Philip O'Neill, "Keyboard Slideaway gives you that space and at less than £50, every PC should have one."

SOFTWARE HOTLINES

The nauseating trend of turning cartoons and toys into computer games continues this week with the announcement from **Virgin Games** of *Action Force.* Due out for the end of October, watch out for a review in next week's issue.

Piccy of the week award goes to *Firebirds Flying Shark*, seen here on the Commodore 64. Said to retain all the features of the smash arcade original (but how many times have you heard that), *Flying Shark* is a fast and furious vertically scrolling shoot 'em up. It could be just like every other vertically scrolling shooter, but you never know.

While the C64 version will be released soon-ish, Spectrum, Amstrad and Atari ST owners will have to wait a good deal longer.

Good to see the lads doing the business against Turkey the other night, not that it makes up for 'Hand of God' Maradonna knocking us out of the World Cup. Speaking of which, the ludicrously titled, and utterly appalling, Peter Shilton's *Handball Maradonna* game has been relegated to budget status and re-released on the Amstrad.

Mastertronic have been very busy of late. As well as being half eaten by **Virgin** the company has picked up the rights to produce 8-bit conversions of *Psygnosis* range. *Terrorpods, Barbarian* and *Deep Space* are the first three to be scaled down, tenuously scheduled for early 1988. I have my doubts about these though; *Psygnosis* games rely heavily on graphics, and lately sampled sound, something that 8-bit versions can't match. Still, maybe **Mastertronic** can turn the completely unplayable *Deep Space* into a real game.

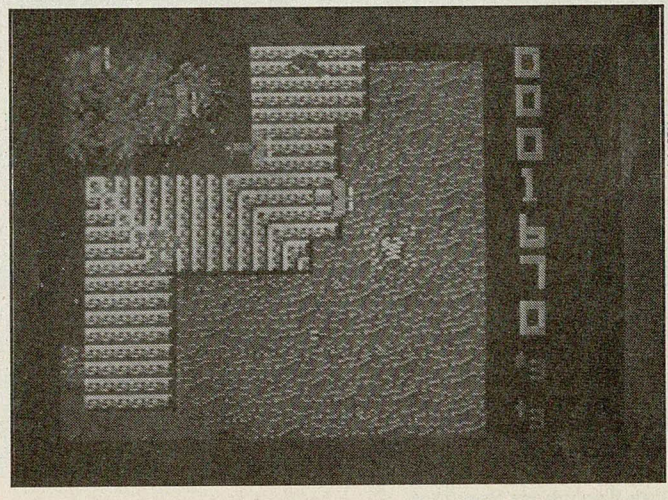
Backlash on the ST, the game that sold 200 copies at £20 merely in pre-production form at the PCW Show, has reached the production line stage. The game is finished but **Novagen** are keeping copies close to their chest until a certain other magazine's review hits the streets.

Speaking of other magazines I hear that *Your Sinclair* has suffered something of a setback with their latest issue. The plan was to give away a free, but watered down, copy of Viz, a comic full of words like, ****, **** and even **** [Censored, Ed]! Hardly surprising then that many major retailers refused to stock that issue of the mag and many copies were then withdrawn.

Following numerous outrageous claims from John Cook, Product Manager of **Mirrorsoft,** we at *Popular* eventually relented and had a look at *Dark Castle* on the Amiga, expecting it to be the best game ever (he lied glibly). Well, it produces the best sound effects ever to emerge from a 1801, but graphically . . . It could be platforms and ladders on the C64, but it is nicely done, and there's a lot of humour to savour.

Electronic Arts, the company rapidly becoming more famous for its free lunches rather than product, has slipped behind in its release schedule. The completely wonderful *Bards Tale* (Amiga/C64) still hasn't appeared on the ST, latest estimate is mid-November. Remember, when the going gets tough, the Bard goes drinking!

Duncan Evans



Action Force © 1987 Milton Bradley International Inc

Gang of Five meet Action Force™. Virgin's Gang of Five have created the excitement of an Action Force™ adventure for your computer.

COBRA, the enemy, are attacking the military installation on the island of Botsneda. A.W.E Striker has been enlisted for the dangerous mission of rescuing classified information from the war-torn eastern sector.

Your part in the mission is to cover A.W.E Striker from the air. In the Spectrum version you are Snake Eyes, air-borne with a helipack. In the Commodore version you control Dragonfly helicopter. Both feature smooth scrolling, excellent graphics and fast arcade action that Gang of Five are famous for. You must clear a safe path for A.W.E Striker to successfully complete the mission.

Commodore 64/128 cassette £9.95,
Spectrum 48/128 cassette £9.95
Spectrum + 3 disc £14.95

Dragonfly must quickly avoid a joint attack from F.A.N.G. and a land-based missile.

Commodore

Snake Eyes forges ahead to clear a safe path for A.W.E Striker.

Spectrum

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PLEASE DO NOT POST COINS OR MONEY!

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NEW AM
NOW OTHER HOME COM

Amiga 500 is here.

With a mind-blowing array of features and capabilities.

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

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

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

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

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

AMAZING SCIENCE FACT.

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

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

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

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

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

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

YOU AIN'T HEARD NOTHING YET!

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

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

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

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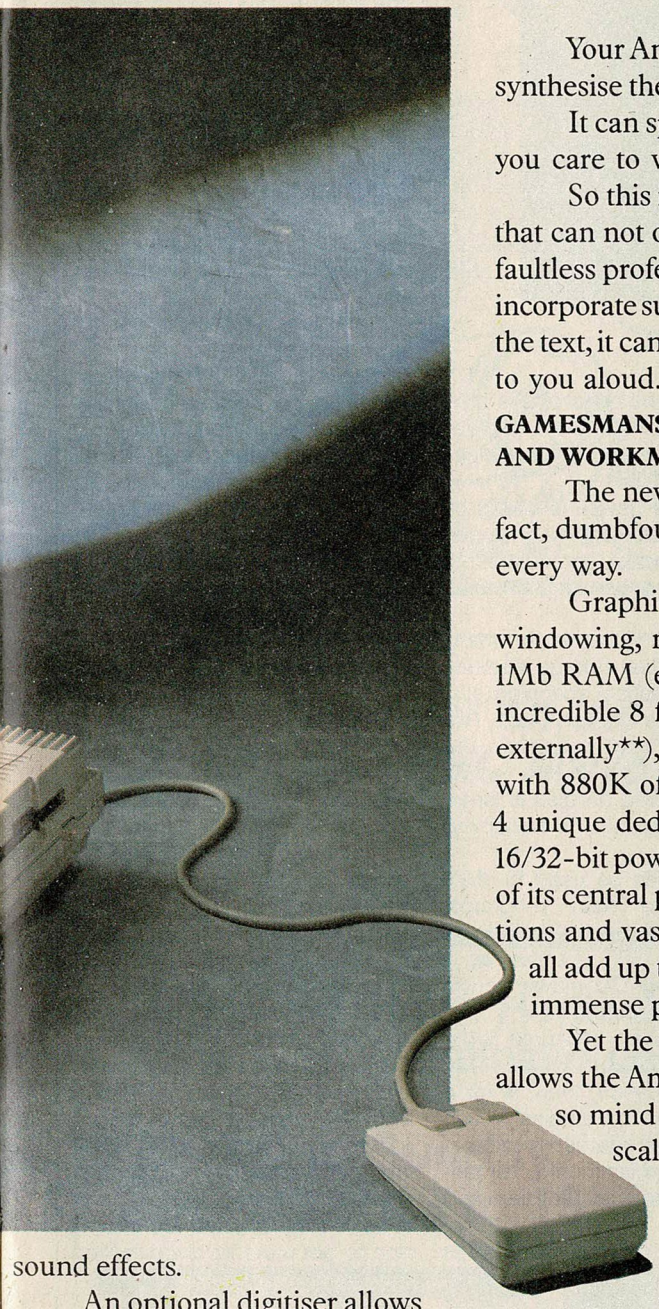

sound effects.

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

Your Amiga can also synthesise the human voice.

It can speak back anything you care to write on the keyboard.

So this is one computer that can not only word process with faultless professionalism, and incorporate superlative graphics into the text, it can also read the text back to you aloud.

GAMESMANSHIP AND WORKMANSHIP!

The new Amiga 500, in fact, dumbfounds its competitors in every way.

Graphics, stereo sound, multi windowing, multi screens, 512K to 1Mb RAM (expandable by an incredible 8 further megabytes externally**), 3½" internal disk drive with 880K of mass memory, 4 unique dedicated chips plus the 16/32-bit power and 7.14MHz speed of its central processor, communications and vast expansion potential all add up to a computer of immense professional capability.

Yet the same technology allows the Amiga 500 to play games so mind bending that only full-scale arcade machines have been able to play them until now.

AND AMIGA MEANS 'FRIEND'!

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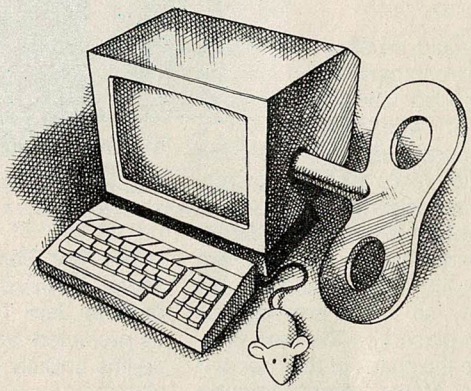

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Popular Computing Weekly, 22-28 May 1987. †*Personal Computer World*, February 1987. ***Subject to availability.*

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Commodore

Atari marches on...

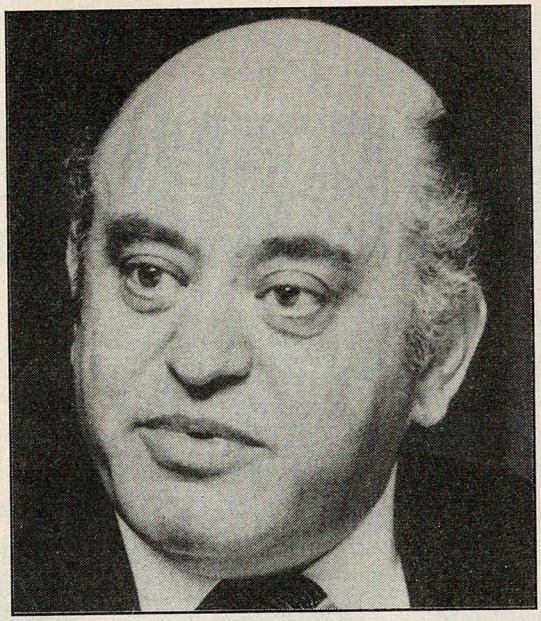
Chris Jenkins reports on Atari

IT would be easy to attribute the resurgence of Atari to the inspired leadership of Jack Tramiel, who clearly offers a vision and depth of experience in which rivals such as Commodore are sadly lacking.

The fact is that Atari's future depends just as much on the fickle public as it ever has; this is why so much emphasis is being placed on the next year, where the shape of the "second wave" of the home computer business will be decided.

The PCW Show – and indeed the world-wide computer market – indicates quite clearly that the age of the eight-bit micro is nearing an end. Certainly, we will not see any significant new machines in this area. So, with 16-bit micros established and true 32-bit products still a little out of reach, what is Atari doing to further its cause in 1988?

The obvious answer is that Atari was certainly doing something right in 1987 – the last quarter's trading figures feature sales of $70m, up from $60m last year, and profits of $13m, up from $9 in the equivalent quarter last year. Indeed, such is the demand for the ST, particularly from Germany and the UK, that Atari claims to have fallen 200,000 units short of demand, and is pushing up manufacturing as far as the component suppliers can manage. While worldwide sales of the ST are now reaching the 500,000 mark, it's unfortunate that the machine is still tainted by Atari's association with games consoles in the States, and has achieved disappointing sales there. The $70m acquisition of Federated, a chain of loss-making electrical retail stores, may help Atari to get the ST to a wider Stateside audience next year. This would inevitably benefit ST users worldwide.



John Tramiel – inspired leadership

The Atari IBM PC compatible seems to have made little impact, as Jack Tramiel as much as predicted, and this situation seems unlikely to change next year.

Meanwhile, what of the European market? While ST sales have been steadily increasing as prices fall, there still seems to be a lack of direction. If, as the price cuts indicate, the ST is moving away from business and towards the games market, why the launch of the unimpressive 65XE Games Computer? Can the ST dominate the market in every field from games to desktop publishing, to music? And is the Atari PC of any real significance in the UK?

All these questions were asked at the PCW Show, but elicited only the standard bland replies. Even the new product announcements were amazingly low-key. While Atari is famous for announcing planned products just to test the water, then dropping them unannounced if things do not work out, the company outdid itself this time.

What did emerge is a trio of products which address three of the major areas of advance in recent months; mass storage, printed output and processing speed.

The much-previewed SML 104 laser printer is finished – almost. With a price-tag just under £1000, and a Mega ST needed to operate it, the laser system may not make much headway against Apple's domination of the desktop publishing market. At least, though, Atari has a foot in the water.

More unexpected is the CBAR 500 CD-ROM device. Seen only as a featureless black box prototype. 10 × 10 × 4 inches, the device is based on familiar technology, but has perhaps the most immediate potential for expanding the ST's abilities.

Compact Disc is in many ways the ideal storage medium; the laser optical scanning system makes it very fast (1.5 Mb/sec) and reliable, the amount of information which can be stored on disc is large, and manufacture is becoming cheaper.

It can also be used to store any kind of data, programs, audio, video, whatever. Indeed, the CBAR 500 doubles as a conventional CD player; music while you compute?

The problem, of course, is the CD is a read-out system. The ideal application, then, is for a large static databases which could be of interest to educational establishments, broadcasters, medical facilities and so forth.

Another obvious application is in the games field. Why waste processing power on creating and manipulating graphics when you can just accesss a videodisc?

If you have seen arcade games such as *Dragon's Lair*, which operate on the same principle, you will realise that such games could far outperform anything seen on any home computer so far.

The CBAR 500 should be available in small quantities at £399 by Christmas. Initially, expect software of the *Encyclopaedia Britannica* rather than *Zap the Aliens* type – the cost of developing CD software will be prohibitive until the user base is well installed.

Perhaps in response to the impressive Acorn Archimedes, Atari has also announced a transputer-based micro. The transputer project is based on the INMOS T800, which has a 32/64 bit structure. Like the Archimedes arguably the hit of the PCW Show – the Atari Machine will have staggering graphics capabilities and processing speed.

Transputers achieve their tremendous processing power by using a reduced instruction set, and calling on any necessary extra capacity to deal with a current task, while the rest of the processor gets on with something else. Transputers can also be chained together for increased performance.

Atari's announced intention is to pursue two projects – one a free-standing transputer system, one an add-on to the ST.

The solo system sounds the most impressive, with a claimed processing speed of 15 million instructions per second, a screen update rate of 18 frames per second on a one million pixel screen, and a range of graphics resolutions from 1280 by 960 in four colours to 512 by 480 with 16 million (count 'em!) colours.

Perihelion, a British company which includes AmigaDOS author Dr Tim King, is contributing to the development work, so UK customers may well be the first to see prototypes next year.

Also set relaunch, confirming the importance of the games market is Atari's dormant mail-order software operation Atarisoft. An eight-bit games catalogue is now available, and there is a sixteen-bit catalogue planned for April

Jack Tramiel's avowed intention to get more involved in the software distribution field obviously extends to the UK too.

With such a multiplicity of projects in fields ranging from games, to desktop publishing, to mass storage, to advanced processors, it seems that Atari is doing an unusually good job of covering all the bases. While some of these projects may be sacrificed on the altar of expedience, whatever is to come in 1988, it seems that Atari is determined to be at the forefront of the market.

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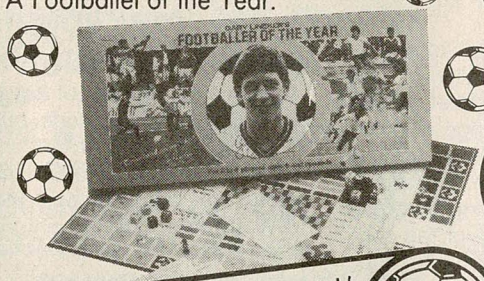

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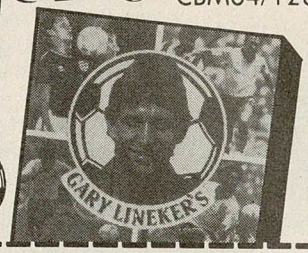

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LETTERS

Smart Alec

I have just thought of a way of increasing the annual sales of your magazine. It's so simple that it is a wonder it hasn't been used before.

As you are probably aware, the real reason people buy it is for the program listings – so this is what you do.

1. Find a couple of quite promising listings for the two most popular machines in Britain – these should be very long so they can be spread over several weeks, but make sure that part one of the listing is extremely interesting.

Run part one of the listings in the same issue, this will probably increase the number of pages to 64 – but the extra cost will quickly be recovered as fatter copies sell more.

2. Don't run either part two in the next two weeks' issues. Fill up the missing space with an interview with some very rich company chief (using a lot of photographs that all look the same if necessary) – or find an article pitting the Amiga against the ST, or comparing the 520STFM with the A500, or pointing out the differences between the old 16-bit machine from Atari,the even older 16-bit machine from Commodore and a state of the art third machine that no-one can afford to add a bit of glamour.

3. Your readers may become a bit fed up with this, so tempt them some more by publishing part two in the fourth week, but make sure you include the deliberate mistake and leave out a few of the lines – from 1510 to 1720 should do it.

4. Repeat stage 2 above, on the pretext that you have a special article revealing how many rubber keys there are on the new 64-bit transputer-based ZX-89 from Basingford Computers and Car Radio Ltd.

There should even be room for a retrospective comparison between the 4-bit Electron and the 32-bit Vax you've always wanted to run.

5. In the seventh week, publish the final parts of the listings. No-one will notice that you have even fewer pages than previous weeks.

6. By the 8th or 9th week, the letters concerning the missing lines from the fourth week will start filtering through, so slip them in somewhere between the in-depth study of the 8 multi-colour mains plug add-ons for the Amiga and the article describing the 8 new additions to the Atari ST range, featuring different coloured mains plugs.

I recognise that *Popular Computing Weekly* may find these suggestions slightly underhand, but should you decide to use any of the points I have covered, I would appreciate a modest consultancy fee.

Dean Cracknell
Alton, Hants

Sorry, but as you may have noticed, we've already thought of this plan. And in any case, most readers buy *Popular* for news of multi-coloured mains plugs. Watch out for our Vax supplement next month.

It's that chin again

NO – NO – NO – NO – NO – I can't stand it any longer!! I am going to cancel my order for *PCW* unless you get a new photograph of Kenn Garroch.

Every week I flick through the pages in anticipation of seeing a new picture, but no . . . there he is still squeezing that zit on his chin!

I had thought of getting a petition together, but feel that the possibility of a reduced circulation figure may force you into action much quicker.

I await your response with interest.

Mrs C Seager
Maidstone, Kent

Now is the time to reveal the hideous secret of Kenn's picture. He is not squeezing a zit at all, contrary to belief among public and industry alike. No – he is in fact eating a sandwich.

This is just one of literally hundreds of letters we've received in panting anticipation of a new picture of Garroch (as we like to call him. Sounds rather good, don't you think?). The truth is, we get more letters about that picture than anything else.

It's something we've been meaning to arrange for ages – ever since we saw the current picture, in fact. Rest assured that we are doing our best to get an up to date picture – it will be here soon. Let's just hope that all his loyal fans take the trouble to write in when the new one finally appears.

Embrace

I find it very difficult to understand the mentality of the home computer market, which offers for sale a range of products many of which are riddled with defects (the computer jargon for these being bugs).

Were other areas of the consumer goods industry to offer for sale such items they would be deluged under a mass of law suits and hounded by trading standards officers for offering goods "not of merchantable quality".

The motor industry, camera manufacturers and electrical goods manufacturers have an extensive research and development programme to avoid the customer finding design and production faults.

However, when faults do occasionally manifest themselves, the products are recalled and rectified at the manufacturer's expense.

Perhaps this attitude could embrace the home computer market either voluntarily by the industry adopting suitable codes of practice, or by extension of the Sale of Goods Act.

David Talbot
Buckingham

Your basic point is sound enough – the computer industry's appalling record for poor after-sales service – and outright ripping-off of customers – is legendary. Ask the Advertising Standards Authority or the Consumers' Association.

But you've chosen rather unfortunate examples as a comparison.

The only consumer durables which can compete with computers for going wrong – and for unhelpful manufacturers – are cars and electrical goods.

But it's certainly about time the industry shaped up, before a change in the law becomes the only way ahead.

Adventure-seeker

Having read the article about Infocom, page 21, October 9–15 '87, you mentioned ZIL, which Infocom write their adventures on.

Ten months ago I part-exchanged my Commodore 64 for an Atari 520STM.

When I had the C64, I wrote a few adventures using the Quill. But since I have had the ST, I have been longing for an adventure writing utility for the ST.

I know a fair amount of Basic and 68000 machine code but not enough to write an adventure from scratch. I know that Gilsoft are bringing out the P.A.W. (Professional Adventure Writer) for the ST but it will not be until sometime next year.

So please could you tell me if there is an adventure writing utility out now, or due out, before the P.A.W.

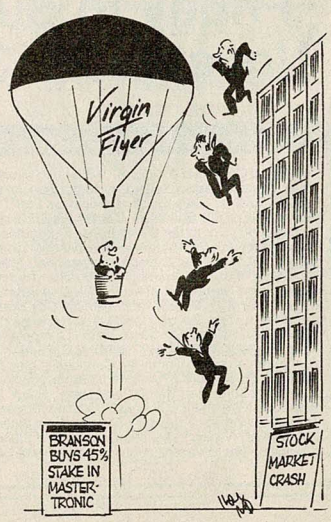
Mark Sarul
Barwell, Leics.

Our technical editor, Duncan Evans, informs me that there are currently two adventure-writing utilities on the market, and neither of them are on the ST.

One is the GAC (Graphic Adventure Creator), by Incentive, and the other – name unknown – is by Gilsoft.

Yes you're right, Gilsoft is indeed launching an ST utility next year, but to the best of our knowledge there is nothing likely to come on the market before that.

Unless, that is, anybody out there knows different – Ed.



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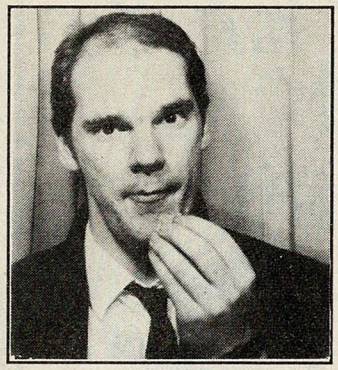

with Kenn Garroch

Feeling studious

C J Welsh, of Moreton, Wirral, Cheshire, writes:

Q I want to learn to program in COBOL, ie, be able to sit down in front of a computer and do the business.

What software/hardware do I need and what is the quickest way to learn (books etc?).

I eventually want to get into business and have programming knowledge to get in the front door.

A Both CP/M and MS-DOS system have a number of COBOL's available. This means either a IBM-PC lookalike or a CP/M machine like the Amstrad PCW series.

Look through the adverts in the more business based computer mags for prices and availability of both the language and the computers to run it on.

What is interesting to me is why you want to learn COBOL since, along with Fortran, it must be one of the dullest languages around. (Please don't write and correct me, this is only my opinion and I'm sticking to it!). You may be better off learning Pascal, Modula 2, C, or even Basic – better still, all of them.

I would have thought that most business programming companies would want to see some sort of certification for Cobol, this is not so vital with other languages as they are so similar – learn one and the others become easy – especially Pascal, C, and most modern Basics.

To do the job properly, a degree in computer programming/science or even better in computer and electronic engineering would be best.

Getting a job with the latter degree should be fairly easy. However, if you don't want to spend 3-4 years at college (although it is worth it, believe me) then there are quite a few training courses available through night school etc.

Get in touch with the local job centre/council/Citizen Advice for details of what is on offer.

After saying all that, you may still want to learn a computer language at home – even Cobol.

If you don't have a computer then decide upon one that you can afford remembering that you may want to use it for other things such as word processing and playing games. Check out the Amstrad CP/M machines (see the Amstrad specific mags for the availability of Cobol) or even the PC1512 which runs MS-DOS and for which you will certainly get Cobol as well as many other languages.

Once you have a machine, get hold of the software and read through the manuals. These should have some kind of bibliography giving you a starting point for obtaining books. With a language like Cobol, you might try the local library and Liverpool University Bookshop as they should have something that will help.

After this, the only way to learn a language is to use it, starting with what examples you can find, and moving on to developing examples of your own.

Before doing anything like spending money, I suggest you get hold of a few works on the various languages, including magazines such as *Byte* and *PCW*. This should give you some idea of what you eventually want to start off with.

Glitch hitch

George W Payne, of 87 Cassiobury Park Ave, Watford, Herts, writes:

Q When using a disc drive, why does a mains glitch invariably affect the header of the disc, rendering the otherwise intact files innaccessable?

Last time this happened I had to rewrite all the programs and data, the latest glitch scuttled a day to day disc which is not rewritable.

Using the Technology Research Beta interface with the Spectrum 48K is there a routine or a few POKEs to enable salvage or recovery?

If this has you stumped, please be kind enough to print my address in the hope that someone out there has found a way in, any help gratefully received.

A OK, I admit that I'm no expert on the Spectrum and its many disc-drives and interfaces. However, I would guess that the first possibility is that during file operations, the header or directory tracks of the disc have been altered, to be restored at the end of the access. A glitch at this point would leave them altered since it is almost certain that the Spectrum which generally does not like mains spikes and would go kaput. The other alternative is that the power supply on the disk drive and its controller is vulnerable to glitches causing them to do unfortunate things – like muck up the directory.

There are two solutions, well, precautions; the first of which is to make sure you have reasonably current backups of the disc you are working on; and the second is to eliminate the glitches with some kind of suppression device on the mains. However, the average mains spike should not affect either of the power supplies or the chips that they are driving, there are after all, certain standards that the manufacturers of the equipment and your local electricity board should live up to.

First, carefully check the connections to the mains of your equipment and see if there are any loose wires (a simple shake of each should do), taking particular notice of the Spectrum's power plug. If this fails to turn anything up, check around the house and see if there is anything in use that is causing the spikes, high powered equipment switching on and off etc. These will usually be plugged into the same ring circuit you are using your Spectrum on. If there is nothing in the house then (getting pretty unlikely at this point) scout the immediate vicinity of your house and listen for heavy machinery going on or off. The last resort is to get in touch with the local electricity board and ask them if they have any ideas. It may be none of these but they may be worth looking into.

As to salvage and recovery, what you really need is a direct disc editor that allows you to look at and alter the bits and bytes on the tracks, individually. I don't know of any for this system, perhaps our readers can help?

A la mode

L Saunders, of Barnet, Herts, writes:

Q I have been programming in machine code on my ST for some time now and would like to ask a couple of questions that have been bothering me for some time. Supervisor mode allows access to various portions of the memory and a number of instructions that are unavailable from user mode. The thing I don't understand is how, apart from using the GEMDOS $20 call, do you get into supervisor mode? It seems that from user mode it is impossible to set the supervisor flag in the CCR register so, how is it done?

The other thing is that when the machine crashes, a number of bombs appear on the screen. Do these mean anything, and if so, what?

A When the 68000 is interrupted, either with an interrupt or with a trap, it goes into supervisor mode automatically. In fact, using any of the exception vectors causes the machine to go into supervisor mode. When the GEMDOS $20 routine is called, the supervisor stack pointer is set to point at the current position on the user stack, and the supervisor stack pointer is returned in DO. The system is left in supervisor mode by setting the flag in the condition code register (CCR). The main point is that GEMDOS is accessed through TRAP #1 ie, an exception so all of this is possible.

For example, set up trap #4 (normally unused) to point to a routine that would not work in user mode – say and #254,$484 to turn the keyclick off.

See Fig. 1, page 18.

The new vis routine is inserted as trap #4 as before. This time, however, it is used to perform a similar function to

continued on page 18 ▶

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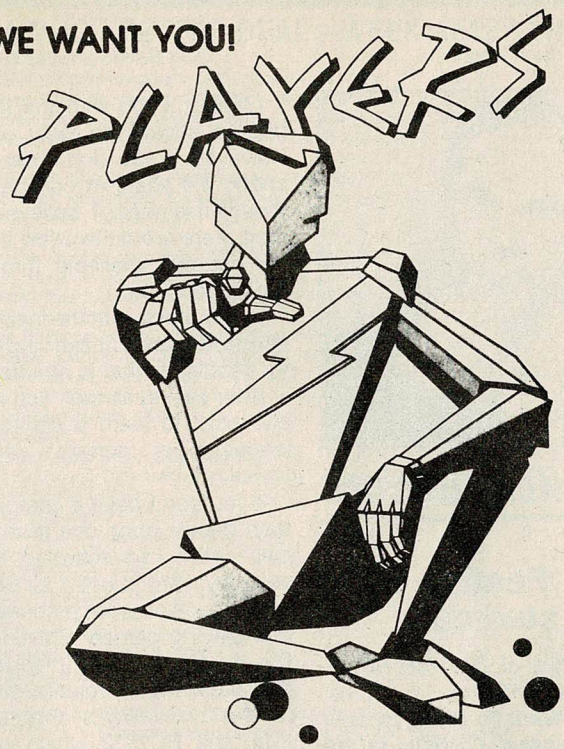

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◀ continued from page 15

GEMDOS $20. The difference is that calling this routine from user mode puts the machine in super mode and calling it from super mode with the old stack pointer on the stack puts t'ST back into user mode.

On entry to vis the system is automatically in supervisor mode and the return address and the condition code register word (CCR) are placed on the supervisor stack.

These 6 bytes are always placed on the supervisor stack by a trap call whether the call comes from user or super mode. The first couple of lines pop the return address and the CCR from the super stack. Move usp, a0 retrieves the user stack pointer (usp) and places it into a0 for later use. Bit 13 of the CCR when set to 1 defines super mode so this is tested to see which way the routine is to work.

If zero then the program is to go to supervisor status so the old ssp is saved into d0 and the pointer to the super stack is made to point to the current user stack position. The return address is then placed on this stack (now super) and the super mode flag is set in d1, which holds the CCR that will be returned to the program. This is then stacked and rte is executed to return to the program in super mode.

If the program was already in super mode then the address placed on the stack before entry to the trap is retrieved and placed in the ssp. A long word is placed on the user stack to maintain a consistent program. The return address is replaced, the super flag is set to zero for user mode, and what will be the CCR is placed on the super stack. RTE then returns to the program in user mode with, hopefully, everything ship shape.

One thing to note is that reset is an exception so the processor automatically goes into super mode when it is switched on or reset, allowing the various vectors to be set up before going to user mode.

Now to the bombs – these give you some idea of what caused the program to crash by indicating which exception vector was the cause of death. The main crunchers are:

Bus error 2 bombs

Usually generated by trying to access a protected area of memory
eg

```
and.b   #254,$484 not in super mode
```

Address error 3 bombs

Try to access memory across an odd address with word or Lword instruction and you'll get one of these
eg,

```
        move.w  lab,d0
dum     dc.b    0       Even address
lab     dc.b    10      Odd address
```

Illegal instruction 4 bombs.

Any unrecognised command, excluding Axxx and Fxxx which have their own vectors, will cause this.

I don't know any examples offhand since this is quite rare.

Privilege violation 8 bombs

An attempt to execute a supervisor mode instruction from user mode gives this.
eg,

```
move    usp,a0  not in super mode
```

How the number of bombs is arrived at can be seen from the way the exception vectors are set out in the first page of memory. See Fig. 2.

```
        clr.l   -(sp)           Tells super routine to go into
                                supervisor mode
        move    #$20,-(sp)      GEMDOS super command
        trap    #1              Go GEMDOS
        add.l   #6,sp           Correct the stack
        move.l  #vis,$90        Set up trap 4 vector
        move.l  d0,-(sp)        Supervisor stack position
        move    #$20,-(sp)      To user mode
        trap    #1              Doit
        add.l   #6,sp
        trap    #4              Turn off keyclick
        rts
vis     and.b   #254,$484       Trap 4 routine super mode only
        rte                     Is an exception so return from it
```

If you want to simulate the GEMDOS $20 call then the trap routine would be:

```
vis     move    (sp)+,d1        Get CCR from stack
        move.l  (sp)+,a2        Get return address from stack
        move.l  usp,a0          Get user stack pointer to a0
        btst    #13,d1          Check for super mode
        bne     viss            Yup is supervisor when 1
        move.l  a7,d0           Get ssp since going to super mode
        move.l  a0,a7           New super stack starts at user stack
        move.l  a2,-(sp)        Replace return address
        bset    #13,d1          Set supe mode in what will be CCR
        move    d1,-(sp)        As this will be CCR on exit
        rte                     Exit to super mode
viss    move.l  (sp)+,d3        Get old ssp
        move.l  d3,a7           Restore it to super stack pointer
        move.l  d3,-(a0)        Effectively dummy on user stack
        move.l  a2,-(sp)        Return address on super stack
        bclr    #13,d1          User mode on exit
        move    d1,-(sp)        This will be CCR on exit
        rte                     Return in user mode
```

The routine is used in a similar way to the last example e.g.

```
        clr.l   -(sp)           Tells super routine to go into
                                supervisor mode
        move    #$20,-(sp)      GEMDOS super command
        trap    #1              Go GEMDOS
        add.l   #6,sp           Correct the stack
        move.l  #vis,$90        Set up trap 4 vector, this will be
                                super in future
        move.l  d0,-(sp)        Supervisor stack position
        move    #$20,-(sp)      To user mode
        trap    #1              Doit
        add.l   #6,sp
        ; Now use trap #4 to get into supervisor mode as follows
        clr.l   #0,-(sp)        Zero is to super mode
        trap    #4              Use the new vis routine
        add.l   #4,sp           Correct the stack
        move.l  d0,stksve       Save the ssp
        or.b    #1,$484         Proof that it works
        move.l  stksve,-(sp)    Old ssp stacked i.e. to user mode
        trap    #4              Execute vis to return to user mode
        add.l   #4,sp           Correct the stack
        and.b   #254,$484       Illegal again for proof (bombs see
                                later)
        rts
```

(Fig. 1)

Address	Vector number	Meaning
$00	0	Stack pointer after reset
$04	1	Program counter after reset
$08	2	Bus error (2 bombs)
$0C	3	Address error (3 bombs)
$10	4	Illegal instruction
$14	5	Division by zero
$18	6	CHK instruction
$1C	7	TRAPV instruction
$20	8	Privilage violation
$24	9	Trace
$28	10	Line A trap (any AXXX)
$2C	11	Line F trap (any FXXX)
$30-$38	12-14	Reserved
$3C	15	Uninitialised interrupt
$40-$5C	16-23	Reserved
$60	24	Spurious interrupt
$64-$7C	25-31	Interrupts 1-7 (2, 4, 6 only on ST)
$80-$BC	32-47	Traps 0-15 instructions
$C0-$FC	48-63	Reserved
$100-$3FC	64-255	User interrupt vectors

(Fig. 2)

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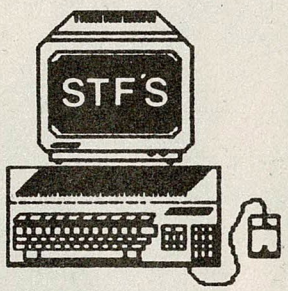

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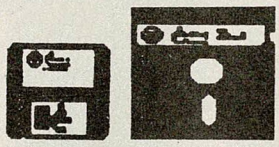

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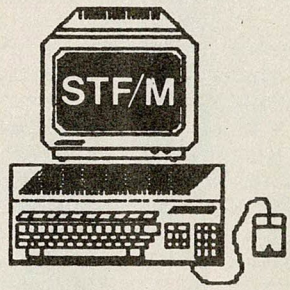

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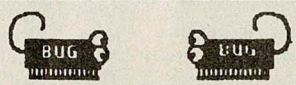

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Pics sell

Chris Jenkins reports on the 8th Computer Graphics Show

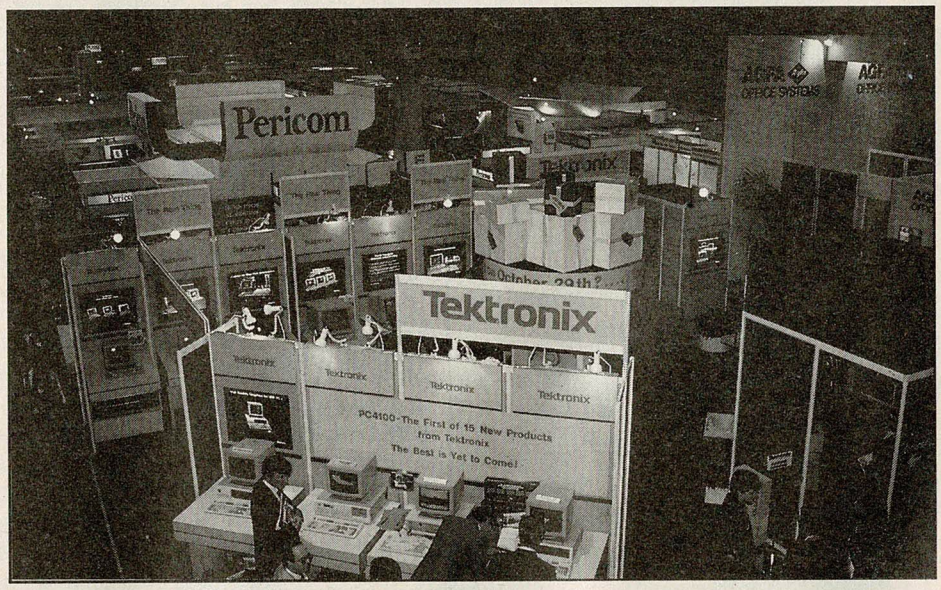
In the wake of the PCW Show, another almost equally large event has gone nearly un-noticed by the home computer industry. Not surprising really, since a "budget" system at the 8th Computer Graphics Show weighed in at around £20,000. We are surrounded by computer-generated graphics, it is a tribute to the sophistication of many of them that often we do not realise we are not looking at traditional paint-and-paper pictures. In all sorts of applications, from business presentations, to animation, to engineering, to pure graphic design, computer systems are taking over.

Earlier this month, at Wembley Conference Centre, more than 150 exhibitors showed the latest hardware, software and techniques for computer graphics.

About the only "home" computer to get a look-in was the Commodore Amiga. Game designers Systems Architects showed some of the ideas which are to be incorporated into the forthcoming game *The Ancient Mariner;* and the Amiga Centre, Scotland, plugged the Amiga 2000, featuring the standard 4906 colours, 6 bitplanes, and 640×400 pixel resolution. Add a 68030 CPU, 68881 maths co-processor, animation software at £90, video genlock hardware at £400, a frame grabber at £549, and a graphics tablet at £606, and you have a budget version of the average professional graphics workstation.

This was all put into perspective by the Whitechapel HiTech-10 RISC-based colour video workstation. Without batting an eyelid, it displayed the famous Amiga juggling robot demo in a small window, while simultaneously running frame-grabbed video images from *Raiders of the Lost Ark* backwards and forwards at ten times the normal speed. The HiTech-10 has the power of 10 VAX 11/780's, and costs £25,000, very competitive in this market.

The most down-to-earth, and in many ways the least interesting aspect of computer graphics is 2-D business presentation software. In this sort of market, you can get away with an IBM PC-AT or compatible, and there is a wealth of software designed to churn out graphs, bar charts, pie charts and titles. For instance, *Genigraphics' Graftime* series offers fourteen different types of charts, three fonts, a selection of palettes, highlighting, and compatibility with a number of well-known business packages. While this is the bread and butter of the computer graphics industry, it is a bit dull, isn't it? What we really want to know about is the glamorous stuff, like *Letraset's Illustrator.* This system, from the people who gave you rub-down transfers, is more like the icon-driven paint packages we are used to seeing on Atari STs and Commodore Amigas. It consists of a PC-AT with a mono monitor running the command software, a 20″ hi-res colour monitor with 1024×768 pixel resolution displaying the pictures, and a palette of 246 colours from a choice of 16.7 million. Yes, you read that right.



Unique Colour Wash software tools emulate airbrush effects to such a degree that the resulting artwork is sometimes indistinguishable from a painting. You can enter information from a graphics pad, a colour camera, an image scanner or a video source and use a 3-D imaging routine to change the image's perspective.

The finished work can be output to 35mm, 4″×5″ and 8″×10″ slide cameras. A4 paper colour copiers, or desktop publishing systems running GEM. Maximum resolution is 4000 lines, compared to 8000 line resolution for really advanced systems. One such is the *Dicomed Producer,* a £52,000 system featuring 1Mb RAM, 46Mb hard disc storage, a 640×480 pixel colour display and a specially designed ergonomic workstation. Its baby brother *The Presenter* runs on the PC-AT. Both are designed mainly for creating presentation graphics but are expandable into the areas of 3-D modelling and video interfacing.

The most talked-about areas of computer graphics are pure animation, and video manipulation. Animators and their systems each have their own cult following, with advertising agencies fighting to come up with the most impressive images for their clients. "Only Smarties Have The Answer" – remember that one? – produced by Digital Pictures using animation software capable of synthesising more than thirty simultaneous light sources, giving the impression of a mobile camera overflying a sports stadium at dusk full of animated sweeties. While the sequence was designed by traditional hand animation methods, the finished pictures are completely created by computer.

Machines, for instance, with exotic names such as Paintbox, Harry, Abehas and Matisse take video pictures and use computer techniques to distort them in ways traditional illustrators could never even imagine.

Matisse, for instance, can grab any video sequence, hyphenate it with computer animations and, controlled by a 32-bit pressure sensitive pad, cut, crop, recolour, zoom, reduce, stop-frame, remodel, and otherwise slash up the original image. You will have seen the like on pop videos over and over again; indeed, any of the effects available from digital video computers are already becoming clichéd, and the demand for new effects is forcing the development of ever more over-the-top systems.

What remains fresh and original, for me, is the pure graphic design work emanating from companies such as Dalim. This French conglomerate is closely associated with the computer animation institute SOGITEC, and since 1962 has been producing award-winning short films, constantly developing new techniques such as 3-D distortion.

Dalim's Tektronics hardware is capable of 8000-line output for eye-bafflingly realistic effects. What is clear, though, is that it is still the skill of the artist, rather than the power of the computer, which determines the quality of the final product. Graphics hardware and software may become more and more powerful, but the human mind and eye are still the best around.

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Lost for words?

In the first of our two software features, Roger Howarth reviews K-Roget.

Word processing is probably the single biggest application for computers today, and is often augmented with built-in spelling checkers, graphics functions and thesaurri.

Although a thesaurus is probably the trickiest to implement of these, they have still been available for some time, although traditionally only at quite a high price, and usually only to the owners of PC compatibles or other strongly business-orientated machines.

Despite the presence of some excellent word processors, the Atari ST has until now been sadly lacking a thesaurus, and for good reason, as this kind of program really does stretch a computer to its limits because of the need for massive on-line storage, that's double sided or hard disks to you and me!

Enter K-Roget from the prolific Kuma: A thesaurus program that can be used with any ST word processor or indeed any PC compatible running Gem.

K-Roget runs as a desk accessory so has the added advantage of being instantly available from within any GEM program, and as an extra bonus, K-Roget can also be used simply as a spelling checker.

What is a Thesaurus

In simple terms a thesaurus is a collection of synonyms, or words with similar meanings, arranged so that for virtually any word, it is easy to find a group of other words that could be used instead, thereby helping the writer to avoid repetition and expand their vocabulary in one fell swop.

In practice a thesaurus is made up of a large index of words and simple phrases, which are referenced to a collection of paragraphs containing the synonyms.

To help provide some order, these paragraphs are collected into general headings and sub-headings, such as *human beings: the will: planning* . . . etc.

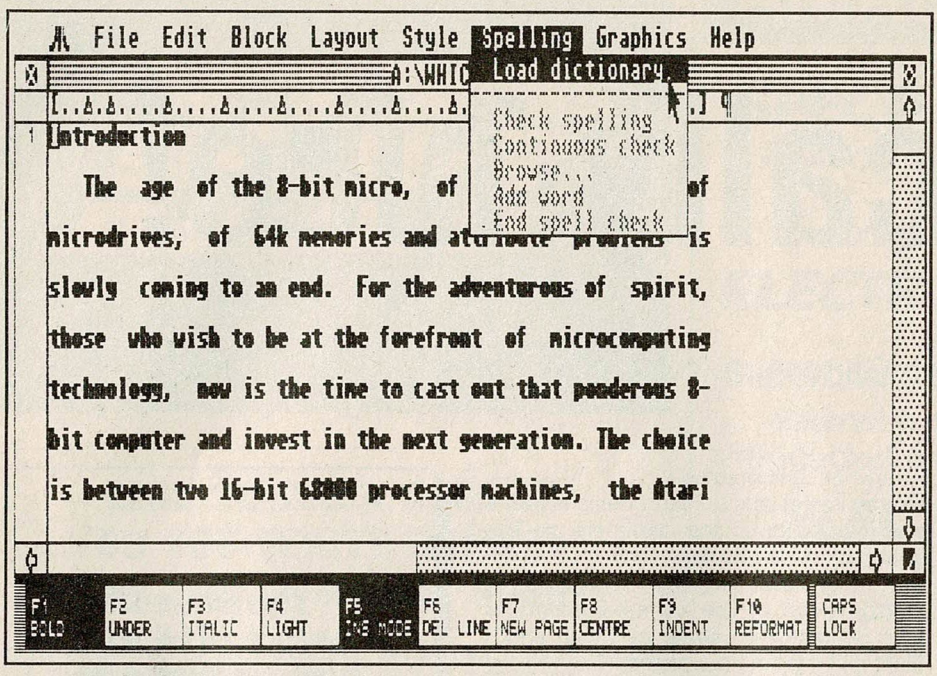
These headings are most often invisible and irrelevant to the user but can sometimes be of interest when researching a theme rather than simply trying to replace a certain word.

Installation

As I have said, K-Roget will stretch all but a Mega or hard disk ST to its limits. This situation is exaggerated because K-Roget is a GEM desk accessory, and all accessories have to operate within certain limitations, the most relevant being that the program can only use 32K of RAM in which to run.

A thesaurus will require substantially more memory than this if it is to be of any use, as it must use a dictionary file and an index file, as well as the actual text of the thesaurus. In the case of K-Roget the dictionary is just over 400K, the index file 20K and the text file some 540K, and for this reason K-Roget can only be run on a 520ST with two double-sided disk drives or an ST

"Enter K-Roget from the prolific Kuma: A thesaurus program that can be used with any ST word processor, or indeed any PC compatible running Gem."



K-Roget can be used with all GEM applications

with at least 1MB of RAM and one double-sided drive, in which case K-Roget sets up a 400K RAM disk to store its dictionary file.

With all the data that K-Roget needs to keep track of, it must be installed to your particular computer system before it can be used for the first time.

This is done for you by a utility program that first asks how many disk drives you have, and whether you wish to use a RAM or hard disk to speed things up.

Having supplied this information and two blank double-sided disks the install program trundles off for about five minutes, asking you to swap disks occasionally before finally producing two new disks that contain your working thesaurus program and data files.

From here things become quite easy. Having created the two working disks, simply copy any other desk accessories that you'll want to use onto the first disk and re-boot the computer with it.

The boot will take an extra two minutes whilst it creates a RAM disk for the dictionary file and copies this data across from your second working disk, but after this all your programs should operate as normal.

In Use:

To use K-Roget simply select it from your accessory menu and a large window will instantly appear, at the bottom of which is an editable text line and a few GEM buttons.

There is a large scrolling display section in the middle of the window where the thesaurus text is displayed and three extra scroll bars which are labelled "reference", "paragraph" and "head" which are used to alter the contents of the display area.

The most common way to use a thesaurus is first to find the word that you wish to replace in the index and then look up the relevant paragraphs in the main text of the thesaurus.

K-Roget can be used in this way by simply typing the original word into the text line and pressing the "return" key (or press the GEM "OK" button).

K-Roget then takes over, first searching its dictionary for the word or phrase that you typed. If it finds the word, it then uses the index file to find all the relevant paragraphs in the main text file.

The first of these is then presented in a scrollable list that occupies most of the screen window together with an indication of how many more paragraphs are available.

Often one word will be indexed to several completely different paragraphs of thesaurus text, depending on the context of the word. For example, the word "paper" will produce references to nine paragraphs, with entries including "nominal" or "unfounded" as in a *paper thin case,* or "leaf", "sheet" and "card" when relating to the stuff on which this magazine is printed.

These different paragraphs can be viewed easily by moving the "reference" slider bar, which will locate and display them quickly regardless of how far apart they are in the actual text file.

This whole process, particularly the initial dictionary search, uses a lot of disk accesses but even so is incredibly fast, especially when one considers that the program is sorting through some 900K of data! Most accesses took around 3 seconds, with the worse cases being less than six.

It is also possible to use a thesaurus by actually browsing through the paragraphs in search of nothing more specific than inspiration, and this can easily be done at any time simply by moving the "head" scroll bar, which is used to travel around the text of the thesaurus in much the same way as flicking through the pages of a book.

The "paragraph" scroll bar works in a similar fashion except that in moves around the paragraphs within the current "head", and as such is confined to one theme.

And a Spelling Checker?

Kuma claim that K-Roget can also be used as a spelling checker, and with over 150,000 words in its dictionary it should be quite impressive.

Unfortunately the dictionary does not contain some simple words such as "the" and there is no way to force it to check through all the words in a file. This means that it can only be used to check words which you are suspicious of.

Having said this, it is quite good as far as it goes; if a word is entered that is mis-spelt or not in its dictionary.

K-Roget provides a list of words that sound similar to the one provided. This makes it very good at helping to correct "occasional" spelling mistakes, or even "nieve" errors, but of course makes it useless at spotting common typing errors such as "teh" rather than "the".

It would be rather inappropriate to be able to add words to the dictionary, and this along with the limitation of only being able to confirm or help with specific words rather that scanning files would probably make it unsuitable as a replacement for a purpose-written spell-checker.

Verdict

The only real problems with this program are linked to the amount of memory that it consumes. I prepared this review on a single disk drive 1040ST and First Word Plus.

With the K-Roget dictionary on a RAM disk, I had around 45K of RAM left to work with. This is just about enough for most documents, but things get a bit tight when you open two or three windows and loading First Word Plus's spelling checker alongside K-Roget is actually impossible.

K-Roget also adds considerably to boot up time and doesn't allow the size of its RAM disk to be altered by the user.

Being able to re-define the RAM disk size would allow Mega ST users to configure their system so that all of K-Roget's files were on RAM disk making the program execute even faster and releasing the real disk drive for use by the main application software.

Having said all this, it is important to realise that my gripes are not so much to do with this implementation of the idea as much as with the idea itself, I still like K-Roget (at around £45 it is not cheap but certainly worthwhile if you use a thesaurus reasonably often), perhaps the cure to the problem is to invest yet more "hard earned" cash and buy a hard disk drive!

Kuma also produce a word processor called "K Word 2" which has been written to take advantage of K-Roget, and if these programs are used together words can be passed between them thus avoiding having to retype words from the keyboard.

Basically nice!

Kenn Garroch reviews HiSoft Basic

One of the strange things about the ST is that, unlike most home microcomputers, it does not come with a built-in, ROM based, Basic.

Instead Atari Basic is supplied on disc, and, putting it mildly, it is not the best Basic in the world. This has led to third parties producing versions of the language that may, or may not, be better.

HiSoft's effort comes in the usual ring-bound folder containing the manual and two single-sided discs.

These can be copied on to a double sided disc allowing much greater ease of use – if you have a DS disc drive.

The unusual feature of HiSoft basic is that it is compiled, which has the advantage that when a program runs it runs reasonably quickly and can easily be made into a stand-alone application ie, it needs no support and can be run by double checking from the desktop since it is a PRG file.

The disadvantage is that, unlike interpreted Basics, there is no immediate mode, so if you want to try a quick calculation, a program must be written and compiled and then run. This is quite fast but if, like me, you are used to the interpreted style, it feels somewhat cumbersome.

What is nice about HiSoft Basic is that it is comprehensive, and there are no line numbers unless you want them.

The high level language style of using labels instead of line numbers seems to have become the vogue for Basic and, I think, it is a great improvement.

There are a large number of commands available and they range from the standard Microsoft set to a number which are ST specific. The only drawback with this is that the authors have not kept the style consistent.

With a standard MS command such as the PSET (x,y) the brackets are obligatory however, with other commands, such as the strangely named LINEF xs,ys,xe,ye there are no brackets.

Surely it would have been possible to implement the MS LINE (xs,ys)-(xe,ye) instead, it does exactly the same thing and is far more common (and consistent).

This is a rather minor winge but having used a number of different Basics, and MS probably most often, it is annoying to get compilation errors in unexpected places.

The other reason for the winge is that HiSoft implies that its Basic is comprehensive enough to allow programs written in other versions to be easily converted.

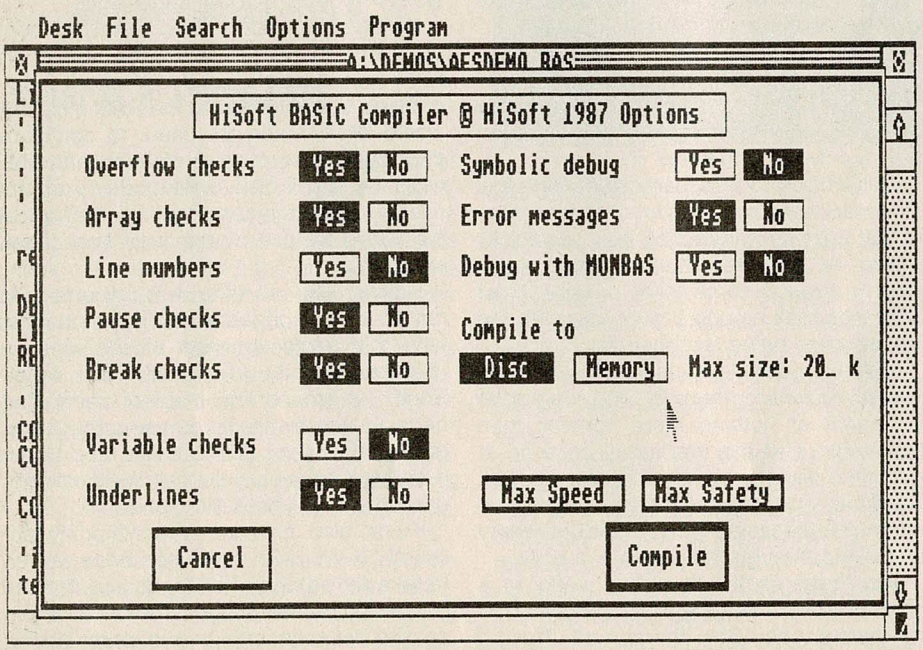
"The unusual feature of HiSoft basic is that it is compiled, which has the advantage that when a program runs, it runs reasonably quickly and can easily be made into a stand-alone application"

This may be so to a certain extent however, consistency of style is a major part of programming language design, and should be strictly adhered to – even if the language is only Basic.

A really useful feature of HiSoft Basic is the LIBRARY command. Of the two discs, the first holds the compiler and demos plus the standard library.

Disc number two contains a stand alone compiler for use with alternative editors, a profiler program for analysing programs, a converter for C header files (presumably HiSoft C), and a bundle of libraries that give easy access to GEM, both VDI and AES, and the BIOS. There is also the facility to create your own libraries which are precompiled so that including them in a program is easy and quick.

The only system functions which are not available are ALINE, I'm not sure why these highly useful set of commands weren't included, probably because most of them are covered in the Basic Command set.



Compiler menu

continued on page 29 ▶

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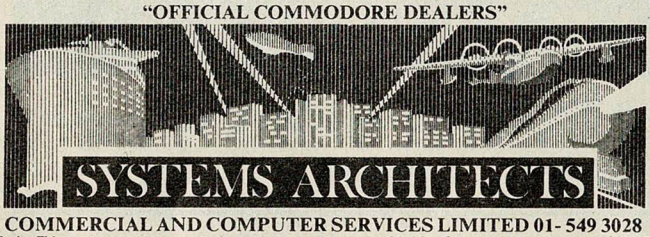

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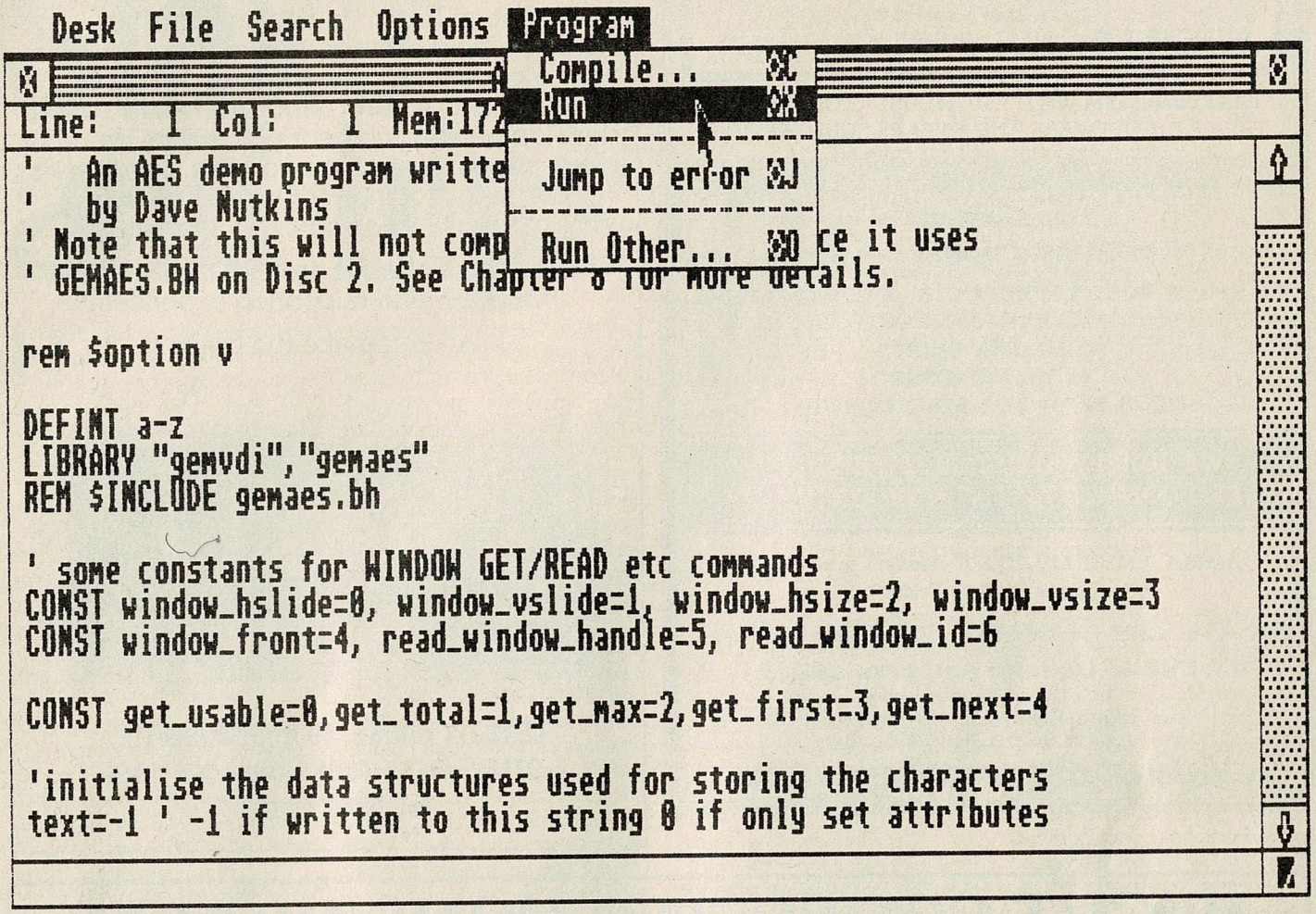

Editor screen showing a program

There are two ways to use the Basic, the first of which is via HiSoft's own text editor which is reasonably good but not brilliant.

It is fully mouse driven apart from the block commands which use the function keys for start-end-save-copy-delete.

This is rather a shame since a simple drag-cut-paste-copy system with the mouse would make moving blocks around a great deal easier.

If you don't like using the mouse then cursor commands are available on the arrow keys and partial Wordstar format.

Once the program, or a section, has been written, compile is selected from a menu, or with ALT-C, and a wide variety of compiler options are available.

These options can also be placed in comments as part of the program and enable such things as checking the break key, arrays, error messages etc.

If all checks are on then the program will run a little slower. Once the program has been finished, all the checks can be turned off to make the program run faster and be unbreakable.

Programs can be compiled to memory usually while still in the development stage, or to disc to make a stand alone program as mentioned above. Compilation to memory takes about 20 milliseconds per line ie, a 340-line program compiled in about 10 secs.

This does vary quite a lot when using libraries but is reasonably quick and when compared to interpreted disc based Basics which load sections from disc, it is acceptable.

Compiling to disc takes longer but really only the same time plus a little extra to save the completed program as a disc file. Once the compiler options have been set up, compilation and execution can be done with ALT-X, which would normally run the program from the editor. If the program has been changed then it is automatically compiled first.

If you find that you don't like the editor, or have one that is a lot better, then there is HBASIC.TTP, a stand alone compiler which just takes the file name as its parameter and compiles as before.

In this situation, the options must be set up in the Basic source file, not really a problem and quite thoughtful of HiSoft to include the possibility.

The manual is quite detailed and includes a short tutorial at the beginning with large sections detailing all of the Basic commands and the libraries.

One sad ommission is a good index, it seems that manual writers don't like going to the trouble of creating them, even though it is easily done with a simple program.

There is not a great deal of information on the GEM libraries but this is forgivable since the ideas and facilities available are quite complex – instead a bibliography is given which covers most of the standard works on the subject.

HiSoft Basic is a pretty complete version of Basic, and covers all the commands you are likely to need to produce programs that are either WIMPS (Windows Icons Mouse Programs) or just standard Basic.

A couple of omissions are OR TIMER, allowing interrupt driven Basic, and a decent box graphics command. These are not vital however, and the speed and flexibility of the system make up for them. Overall, a nice product well up to HiSoft's usual standard.

Price £79.95.

"HiSoft Basic is a pretty complete version of Basic, and covers all the commands you are likely to need to produce programs that are either WIMPS or just standard Basic"

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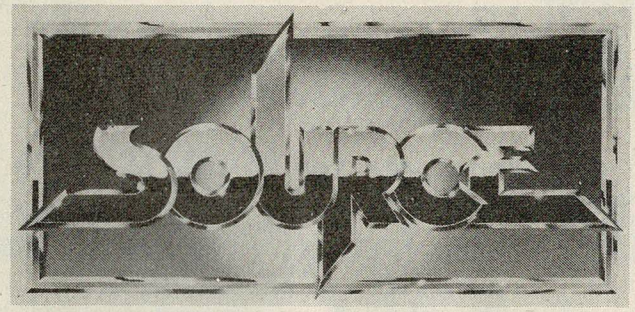

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Commodore 64 and Vic 20	£26.50	Vic 20 Modulators	£17.50
Acorn Electron non ULA faults	£25.00	Small repairs or estimates	£6.00
TV leads	£1.50	Tape leads	£1.60

We also repair other machines, phone for details, normal 48 hours turnround

MEDIA

Amsoft CF2 disc 3" 10	£27.50	5 £14.00	1 £2.99
Branded (hubbed) 5¼" 50	£75.00	10 £16.95	1 £1.99
Branded SS/DD 3½" 10	£17.89	5 £9.00	1 £1.99
Branded DD/DD 3½" 10	£18.89	5 £9.75	1 £2.20
C15 Tapes (non leader) 50	£25.00	10 £5.40	1 £0.60

Please phone for other makers' prices

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3 in.	holds 20	£9.95
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5¼ in.	holds 50	£12.85
5¼ in.	holds 100	£13.75

SOFTWARE

ST, Atari, Spectrum, CBM 64, 16, Amstrad CPC, PCW, Electron, BBC etc. New titles in daily. We have so much software that we are unable to list it all. Use the price guide below. Example Bubble-Bubble RRP £7.95 OUR PRICE £5.95.

RRP	WCHM	RRP	WCHM	RRP	WCHM	RRP	WCHM
39.95	31.75	34.95	27.89	29.95	23.79	24.95	19.87
19.95	15.57	15.95	12.86	14.95	11.89	12.95	10.36
11.95	9.67	10.95	8.67	9.95	7.66	8.95	6.89
7.95	5.95	6.95	5.10				

STOP PRESS: Palace Barbarian in stock, SEGA cards & cartridges deduct £1,00 from RRP. Write to:

Wight Computing Home Micro's, 122 High Street, Ryde, Isle of Wight PO33 2SU. Enquiries or Barclaycard phone orders ***0983 68978***.

All prices include VAT at 15% and postage and packing (UK)

Stake and hips

Hot off the production line come the two latest Infocom adventures, curiously entitled *Nord and Bert Couldn't Make Head or Tail of It* and *Plundered Hearts*.

At one time an Infocom adventure was something that only came out every couple of months and was a treat to be savoured. Now, they're rattling out of Cambridge, Massachusetts at a rate of knots. One result of this move into overdrive is that the subject matter is diversifying. Following on from their first horror story, *Lurking Horror,* the latest offerings concern tales of cliches, spoonerisms and other verbal trickery (*Nord and Bert*), and adventure and romance on the high seas (*Plundered Hearts*).

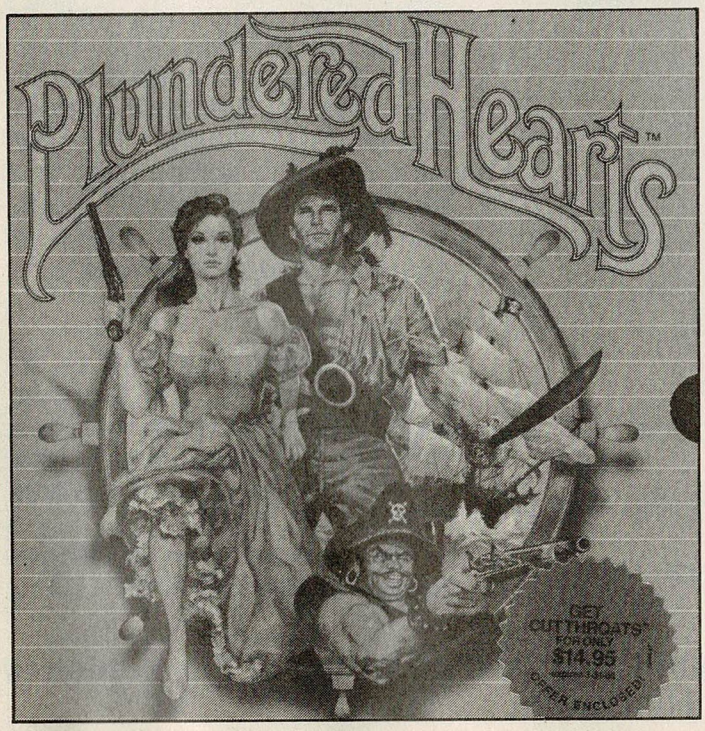
Nord and Bert contains no less than eight 'short stories', set around the mixed up town of Punster. Each story is quite different from the standard adventure, as they each have a theme, but virtually no plot, very few locations, a couple of objects and a veritable plethora of puzzles. No ordinary puzzles either, these consist mostly of the verbal trickeries mentioned earlier. The first game is set in a supermarket, features a pallid looking gentleman with fangs savaging cartons of breakfast cereal. To restore sanity to this particular part of the supermarket you must first overcome the vampire's bad breath, then attack him with a steak (what else), that can be found in the Meet Aisle.

The games can be quite tricky, but thankfully extensive hints are available upon typing HINT. Each game is short enough to be completed in one sitting, especially if you have a couple of friends around for the evening, and given the nature of some of the puzzles you'll almost certainly need some help.

But you certainly can't say that for the other release, *Plundered Hearts,* a tale of romance and adventure which casts you as a young lady in the Caribbean of the 17th century.

Yes, it's Mills & Boon time. The author, Amy Briggs, apparently read hundreds of bodice-ripper novels and researched the costumes and ships of the era in order to produce the requisite atmosphere.

```
Location: Field                                    Farm score: 4 out of 19
You can go: Road, Barn, Barnyard, Stable, Market
fertile valley before your very eyes. Crops sprout and grow tall with the crisp
snapping sound of fresh corn being husked.

Yet with the abundance comes new dangers, as two birds can be seen circling
above, surveying the lush crops.

>kill two birds with one stone
Sensing their impending doom, the birds flutter down to take refuge within the
dense, green acreage. Just now, the old dog, looking as spritely as ever, comes
bouncing upon the scene. Intensely, the old boy scours back and forth between
the furrows, finally scratching to a stop.

He freezes, raises one paw, and stiffens his tail parallel to the ground.

The flush is made! The birds pop up frantically from the cover, criss-crossing
each other's heavenward flight path.

You take aim and throw, and the birds explode in rapid succession like clay
pigeons.

The old dog lets out a long, wolfish howl which echoes thoughout the valley.

>
```



The first challenge as you flounce around your cabin is to fend off the advances of an unsavoury sailor who bursts in when the fighting is at its peak. Not too difficult, but then events over which you have no control take over and before long you'll find yourself ensconced in the Falcon's cabin.

The tall, lean and dashing captain (Gosh! Sounds like my kind of man – Ed.) explains that your father has given him a message warning you of Lafond and his nefarious plans. Your mission is then to seek out your father, who is off trying to rescue someone else, while all the time Captain Jamison has sworn revenge and intends to give Lafond his come-uppance personally.

When the pirate ship moors off St. Sinista, Jamison rows to the island leaving you on your own and locked beneath decks for your own safety. The two problems which assail you in double quick time are a fire in the magazine, and the anchor being cut to leave the ship driving towards the reefs.

In a bid to keep the action flowing at a faster rate than the normal turgid adventure pace, some of the puzzles have multiple solutions (as they should have!), and some do not have to be solved at all. What is disappointing is the character interaction. Instead of having intense conversations full of sparkling wit, the lack of communication verbs reduces speech to dull monologues most of the time.

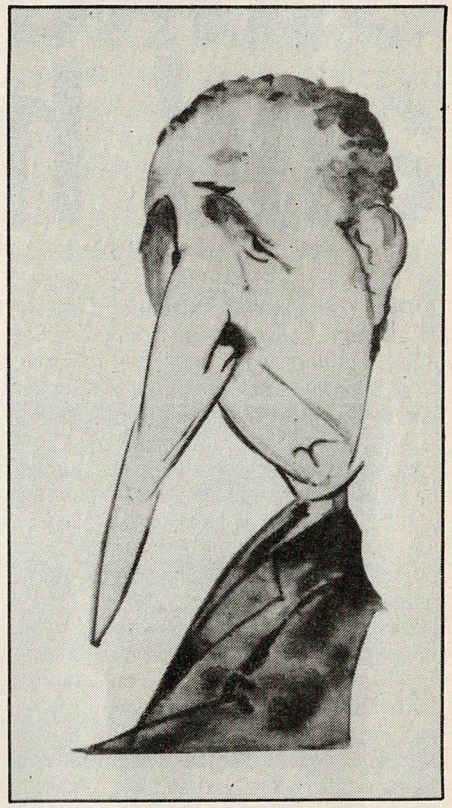
Reputedly, a hefty 25% of Infocom adventurers are female, so an adventure where the leading role is female is undoubtedly overdue. A nice adventure, mostly entertaining, in parts quite entertaining, and a chance for all you swashbucklers to see how the other half lives.

Duncan Evans

Program *Plundered Hearts/ Nord and Bert Couldn't Make Head or Tail of It* **Type** Adventure **Machine** IBM PC, Apple III, Atari ST, Amiga, C64/128 **Price** £24.99. C64 disc, £29.99 all others **Supplier** Activision, 23 Pond Street, London NW3 2PN.

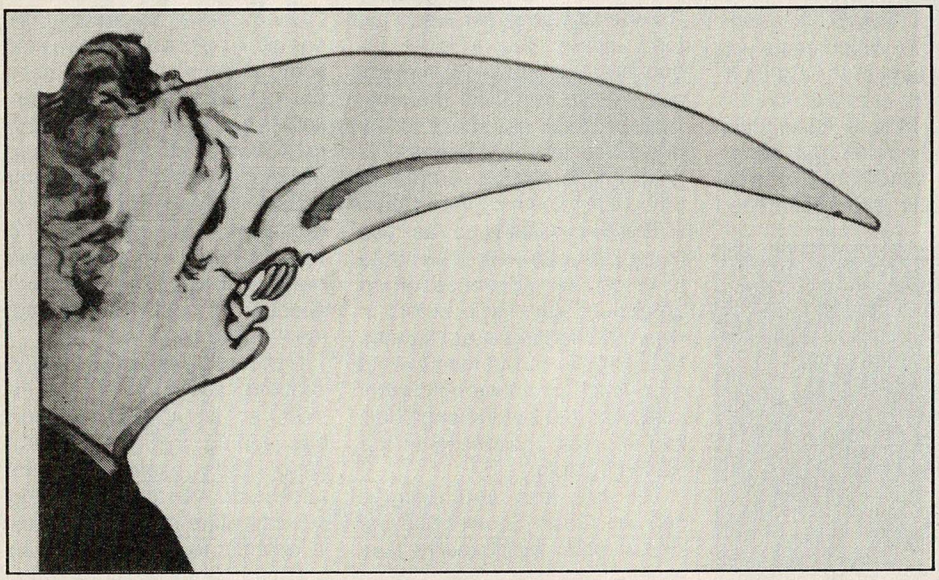
"OF COURSE PRIME MINISTER

You do grasp fully the enormous complexity of the issues behind the present COMPETITION?"



"Don't be ridiculous, Bernard, it could hardly be more simple . . ."

"*Popular Computing Weekly* is joining forces with Mosaic Publishing in a competition to celebrate the release of *Yes Prime Minister,* the licence of the long-running hit television series.



"No less than fifty *Yes Prime Minister* games are on offer as prizes, and all you have to do is answer the three simple questions below, AND provide a new slogan for the game to be used as a tie-breaker.

"All entries must arrive by last post on November 6th 1987. The competition will be judged by Francis Jago, Executive Editor, and John Brissenden, Deputy Editor of *Popular Computing Weekly.* The judges' decision will be final, and all winners' names will be published in a future issue of *Popular Computing Weekly.*"

The questions are as follows:

1) What was Jim Hacker's job before he became Prime Minister?

2) Name the actors who play Hacker, Sir Humphrey and Bernard.

3) What is Sir Humphrey's full official title?

Please send your entries to: Competition, Popular Computing Weekly, Focus Magazines, 3rd Floor, Greencoat House, Francis Street, London SW1P 1DG.

Please mark your envelopes or postcards 'COMPETITION'.

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

Mono Emulator

Mick West

One of the few problems with the ST is its inability to display all three graphics modes on a colour monitor or TV.

The high resolution monochrome display usually needs a special monitor.

Some software, such as *Signum* and *PCB Designer* only work in monochrome mode, so if you do not have the monitor then you cannot use the software.

This two part program provides a solution to this. The Mono Emulator makes the ST run in mono mode, but provides a picture which is suitable for a normal monitor or TV, with the loss of 33K of memory and a little speed.

To use it, assemble the program into a file called MONO.PRG, then you just load the program by double clicking it on the desktop.

You will then be asked to enter a speed from 10 to 80. This is the speed at which the screen is updated.

A low speed will give faster execution of programs, but a slowly updated display, leading to jerky movement of the mouse cursor.

A higher speed will give a smoother display, but will slow the programs down by a noticeable amount. The default setting is okay for most uses.

When you have entered the speed the computer will reset and then will restart as if it is attached to a monochrome monitor.

The desktop will be modified accordingly, with small icons on a grey background. You will now be able to load and run any monochrome only programs without any problems.

You will probably get a better picture using a black and white TV rather than a colour one.

If you do not have an assembler or you don't want to type it in then I can supply copies of the source code and the assembled program for just £4.00 from 27 Lynton Drive, Shipley, West Yorkshire BD18 3DJ.

```
START:
 MOVE.L #MESSAGE,-(SP)
 MOVE.W #9,-(SP)   ; Print startup message
 TRAP #1
 ADDQ.L #6,SP

INLOOP:
 MOVE.L #INPUT,-(SP)
 MOVE.W #9,-(SP)     ; Print input message
 TRAP #1
 ADDQ.L #6,SP
 MOVE.B #3,MESSAGE     ; Input length = 3
 MOVE.L #MESSAGE,-(SP)
 MOVE.W #10,-(SP)
 TRAP #1                      ; Input number
 ADDQ.L #6,SP
 MOVE.W #40,D0                ; Default = 40
 TST.B MESSAGE+1
 BEQ DEFAULT                        ; If len=0
 CMP.B #1,MESSAGE+1 ;len of 1 not allowed
 BEQ INLOOP
 CLR.W D0
 MOVE.B MESSAGE+2,D0          ; first digit
 SUB.W #48,D0
 BLE INLOOP                         ; Too low
 CMP.W #9,D0
 BGT INLOOP               ; Too High (>100)
 MULU #10,D0
 CLR.W D1
 MOVE.B MESSAGE+3,D1          ; second digit
 SUB.W #48,D1
 BLT INLOOP                         ; Too low
 CMP.W #9,D1
 BGT INLOOP                         ; Too high
 ADD.W D1,D0
 CMP.W #80,D0
 BGT INLOOP           ; Check less than 80
DEFAULT:
 MOVE.W D0,SCANPOKE+2
 CLR.L -(SP)
 MOVE.W #32,-(SP)
 TRAP #1                  ; ENTER SUPER MODE
 ADDQ.L #6,SP
 MOVE.W  #$2700,SR ; Norm ROM reset here
 RESET
 CMP.L   #$FA52235F,$FA0000.L
 BNE     FC003C
 LEA     FC003C,A6
 JMP     $FA0004.L
FC003C:
 LEA     FC0044,A6
 JMP     $FC05D8
FC0044:
 BNE     FC0050
 MOVE.B  $000424.L,$FF8001.L
FC0050:
```

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```
 SUB.L    A5,A5
 CMP.L    #$31415926,$0426(A5)
 BNE      FC0074
 MOVE.L   $042A(A5),D0
 TST.B    $042A(A5)
 BNE      FC0074
 BTST     #$0000,D0
 BNE      FC0074
 MOVE.L   D0,A0
 LEA      FC0050,A6
 JMP      (A0)



FC0074:
 LEA      $FF8800.L,A0
 MOVE.B   #$0007,(A0)
 MOVE.B   #$00C0,$0002(A0)
 MOVE.B   #$000E,(A0)
 MOVE.B   #$0007,$0002(A0)
 BTST     #$0000,$FC001D
 BEQ      FC00A6
 LEA      FC009E,A6
 JMP      $FC0CE4
FC009E:
 MOVE.B   #$0002,$FF820A.L
FC00A6:
 MOVE.B   #$0001,$FF8201.L
 MOVE.B   #$0000,$FF8203.L
 SUB.L    A5,A5
; Memory sizing missed out
 MOVE.W   #$093A,A0
 MOVE.L   #$00010000,A1
 MOVEQ    #$00,D0
FC01D0:
 MOVE.W   D0,(A0)+
 CMP.L    A0,A1
 BNE      FC01D0
;
; SCREEN SET UP HERE
;
 MOVE.L   $042E(A5),A0   ; Phystop of RAM
 SUB.L    #$00008000,A0        ; less 32K
 MOVE.L   A0,$044E(A5) ; Screen Physbase
 MOVE.L   A0,MED+SPACE          ; Set MED
; configer hardware address
MOVE.B   $044F(A5),$FF8201.L
 MOVE.B   $0450(A5),$FF8203.L
 MOVE.W   #$0777,$FF8240     ; White back
 MOVE.W   #$0000,$FF8246     ; Black ink
 MOVE.W   #$07FF,D1
FC01F8:
 MOVE.L   D0,(A0)+
 MOVE.L   D0,(A0)+
 MOVE.L   D0,(A0)+
 MOVE.L   D0,(A0)+
 DBF      D1,FC01F8      ; clear  screen
 MOVE.L $044E(A5),A0
 SUB.L #$8000,A0   ; Reserve another 32k
 MOVE.L A0,$044E(A5)   ; For mono screen
 MOVE.L A0,MONO+SPACE          ; Set MONO
 MOVE.L   $FC0014,A0
 CMP.L    #$87654321,(A0)
 BEQ      FC0214
 LEA      $FC0008,A0
FC0214:
 MOVE.L   $0004(A0),$0004FA.L
 MOVE.L   $0008(A0),$0004FE.L
 MOVE.L   #$00FC0D60,$046A(A5)
 MOVE.L   #$00FC10D2,$0476(A5)
 MOVE.L   #$00FC0DE6,$0472(A5)
 MOVE.L   #$00FC0F96,$047E(A5)
 MOVE.L   #$00FC137C,$047A(A5)
 MOVE.L   #$00FC1F34,$0506(A5)
 MOVE.L   #$00FC1EA0,$050A(A5)
 MOVE.L   #$00FC1F6E,$050E(A5)
 MOVE.L   #$00FC1F86,$0512(A5)
 MOVE.L   #$00FC0C2C,$0502(A5)
; Memtop = Physbase minus 1k
MOVE.L   $044E(A5),$0436(A5)
 SUB.L    #$400,$0436(A5)
 MOVE.L   $04FA(A5),$0432(A5)



 LEA      $004DB8.L,A7
 MOVE.W   #$0008,$0454(A5)
 ST       $0444(A5)
 MOVE.W   #$0003,$0440(A5)
 MOVE.L   #$0000167A,$04C6(A5)
 MOVE.W   #$FFFF,$04EE(A5)
 MOVE.L   #$00FC0000,$04F2(A5)
 MOVE.L   #$0000093A,$04A2(A5)
 MOVE.L   #$00FC05C0,$046E(A5)
 LEA      $FC0724,A3
 LEA      $FC05C0,A4
 CMP.L    #$FA52235F,$FA0000.L
 BEQ      FC02F6
 LEA      $FC0A1A,A1
 ADD.L    #$02000000,A1
 LEA      $000008.L,A0
 MOVE.W   #$003D,D0
FC02E4:
 MOVE.L   A1,(A0)+
 ADD.L    #$01000000,A1
 DBF      D0,FC02E4
 MOVE.L   A3,$000014.L
FC02F6:
 MOVE.L   #$00FC061E,$0068(A5)
 MOVE.L   A3,$0088(A5)
 MOVE.L   #$00FC074E,$00B4(A5)
 MOVE.L   #$00FC9C48,$0028(A5)
 MOVE.L   A4,$0400(A5)
 MOVE.L   #$00FC0744,$0404(A5)
 MOVE.L   A4,$0408(A5)
```

Copy Editor

D J Cook

Ever felt envious of the BBC copying function? If so you can now emulate it with this really useful routine.

After running the program press F1, to go into copy mode, and a white read cursor will appear to the right of the ordinary one. This can be moved around using the bottom two function keys (in conjunction with Shift) and text copied when F2 is depressed.

```
LIST
  10 J = 49152
  20 READ A : IF A = -1 THEN PRINT "DONE" : GOTO 50
  30 POKE J, A: C1 = C1 + A : C2 = C2 + A * ( J - 49151 )
  40 J = J + 1 : GOTO 20
  50 IF C1 <> 47894 THEN PRINT "CHECKSUM ERROR "
  60 IF C2 <> 8436401 THEN PRINT "CHECKSUM ERROR "
  70 PRINT "ALL CORRECT"
  80 SYS 49152
100DATA 120,169,192,141,21,3,169,13,141,20
101DATA 3,88,96,32,159,255,32,228,255,240
102DATA 11,201,133,240,10,164,198,230,198,153
103DATA 119,2,76,49,234,120,169,78,141,20
104DATA 3,169,192,141,21,3,56,165,211,101
105DATA 209,133,251,133,253,169,0,101,210,133
106DATA 252,105,212,133,254,88,76,158,192,68
107DATA 74,67,79,79,75,76,49,234,32,159
108DATA 255,32,228,255,240,245,201,13,208,9
109DATA 32,213,192,32,0,192,76,25,192,201
110DATA 134,208,3,76,54,193,201,135,208,3
111DATA 76,2,193,201,139,208,3,76,28,193
112DATA 201,136,208,3,76,224,192,201,140,208
113DATA 150,32,213,192,169,216,32,199,192,165
114DATA 252,201,3,208,13,169,232,32,179,192
115DATA 169,7,133,252,169,219,133,254,160,0
116DATA 177,253,133,2,169,1,145,253,177,251
117DATA 133,182,9,128,145,251,76,49,234,24
118DATA 101,251,133,251,133,253,169,0,101,252
119DATA 133,252,41,3,9,216,133,254,96,24
120DATA 101,251,133,251,133,253,165,252,233,0
121DATA 76,190,192,160,0,165,2,145,253,165
122DATA 182,145,251,96,32,213,192,169,40,32
123DATA 179,192,165,252,201,7,208,176,165,251
124DATA 201,232,144,170,169,24,32,199,192,169
125DATA 4,133,252,169,216,76,156,192,165,251
126DATA 201,231,208,9,165,252,201,7,208,3
127DATA 76,49,234,32,213,192,169,1,32,179
128DATA 192,76,158,192,165,251,201,0,208,9
129DATA 165,252,201,4,208,3,76,49,234,32
130DATA 213,192,169,255,32,199,192,76,158,192
131DATA 32,213,192,169,32,32,210,255,169,157
132DATA 32,210,255,165,182,164,211,145,209,169
133DATA 29,32,210,255,169,0,133,207,76,20,193,-1
```


Memory Monitor

B Marsh

Part two of the memory manipulation is presented this week. There now follows the remaining commands that will be accepted by the program.

(L)BYTES will lead data into memory.

(K)ILL will kill an object file on drive one.

(D)ELETE removes data in a memory location and moves the following data down memory to fill the gap.

(I)NSERT does just the opposite by inserting data and moving the following data up in memory.

(H)ARD dumps the data to a printer, and provides addresses for each data block as well.

(C)LEAR clears any area of memory.

(G)EN will generate standard data statements for editing in *SuperBasic* for any memory area.

(O)MIT exites from the program of course.

```
125 DAT=PEEK(MEM):IF CODE(INKEY$)=32:EXIT DUMP
126 IF TYPE$="HEX":DAT$=HEX$(DAT):ELSE DAT$=DAT
127 PRINT#15,DAT$!!;
128 MEM=MEM+1:IF MEM>786532 OR MEM>EMEM:EXIT DUMP
129 END FOR I
130 :
131 PRINT#15,CHR$(13);CHR$(0); : REMark Send a CR+LF
132 :
```

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```
133 END REPeat DUMP
134 :
135 REMark Send a CR+LF and turn condensed print OFF
136 :
137 PRINT#15,CHR$(13);CHR$(0);CHR$(27);CHR$(19);CHR$(0);
138 :
139 CLOSE#15:CLS#3
140 END DEFine
141 :
142 DEFine PROCedure ZAP
143 IF PLACE("ZAP")=1:RETurn
144 CLS#3:INPUT#3," ENTER LENGTH="!L$:IF L$="":CLS#3:RETurn
145 CLS#3:INK#3,2:PRINT#3," CLEARING DATA AREA...":INK#3,0
146 FOR I=MEM TO MEM+L$-1:POKE I,0
147 CLS#3
148 END DEFine
149 :
150 DEFine PROCedure L_BYTES
151 IF FILENAME=1:RETurn
152 LBYTES F$&"_obj",START
153 END DEFine
154 :
155 DEFine PROCedure S_BYTES
156 IF FILENAME=1:RETurn
157 IF AREA=0:CLS#3:INPUT#3," ENTER LENGTH OF CODE="!AREA$
158 IF AREA$="":CLS#3:RETurn
159 AREA=AREA$:DELETE F$&"_obj":SBYTES F$&"_obj",START,AREA:CLS#3
160 END DEFine
161 :
162 DEFine PROCedure KILL
163 IF FILENAME=1:RETurn
164 CLS#3:PRINT#3," KILL"!F$\\" CONFIRM (Y/N)":GETKEY
165 IF K<>89:CLS#3:RETurn
166 DELETE F$&"_obj":CLS#3
167 END DEFine
168 :
169 DEFine FuNction FILENAME
170 INPUT#3," FILENAME="!F$:IF F$="":CLS#3:RETurn 1
171 F$="MDV1_"&F$:RETurn 0
172 END DEFine
173 :
174 DEFine PROCedure INSERT
175 INPUT#3," ENTER ADDRESS="!MEM$:IF MEM$="":CLS#3:RETurn
176 INPUT#3\\" ENTER DATA="!DAT$:IF DAT$="":CLS#3:RETurn
177 INPUT#3\\" ENTER END ADDRESS="!EMEM$:IF EMEM$="":CLS#3:RETurn
178 EMEM=CONVERT(EMEM$):DAT=CONVERT(DAT$):MEM=CONVERT(MEM$)
179 IF EMEM<MEM:CLS#3:RETurn
180 FOR I=EMEM TO MEM STEP -1:POKE I+1,PEEK(I)
181 POKE MEM,DAT:LOCATION MEM:CLS#3
182 END DEFine
183 :
184 DEFine PROCedure DEL
185 INPUT#3," ENTER ADDRESS="!MEM$:IF MEM$="":CLS#3:RETurn
186 INPUT#3\\" ENTER END ADDRESS="!EMEM$:IF EMEM$="":CLS#3:RETurn
187 MEM=CONVERT(MEM$):EMEM=CONVERT(EMEM$)
```

```
188 IF EMEM<MEM:CLS#3:RETurn
189 FOR I=MEM+1 TO EMEM:POKE I-1,PEEK(I)
190 CLS#3
191 END DEFine
192 :
193 DEFine PROCedure QUIT
194 PRINT#3," QUIT MONITOR (Y/N)":GETKEY
195 IF K<>89:CLS#3:RETurn
196 WINDOW 512,256,0,0:PAPER 0:CLS:OPEN#1,SCR:OPEN#2,SCR:INK 7:NEW
197 END DEFine
198 :
199 DEFine PROCedure GENERATE
200 IF PLACE("GENERATE")=1:RETurn
201 IF FILENAME=1:RETurn
202 CLS#3:INPUT#3," ENTER END ADDRESS="!EMEM$:IF EMEM$="":CLS#3:RETurn
203 CLS#3:INK#3,2:PRINT#3," GENERATING DATA LINES...":INK#3,0
204 GMEM=MEM:NUM%=1:EMEM=CONVERT(EMEM$)
205 DELETE F$&"_dat":OPEN_NEW#10,F$&"_dat"
206 REPeat MAKE
207 L$=NUM%&" DATA "
208 FOR I=1 TO 15
209 L$=L$&PEEK(GMEM):GMEM=GMEM+1
210 IF GMEM>EMEM OR I=15:EXIT I
211 L$=L$&","
212 END FOR I
213 PRINT#10,L$
214 IF GMEM>EMEM:EXIT MAKE
215 NUM%=NUM%+1
216 END REPeat MAKE
217 CLOSE#10:CLS#3
218 END DEFine
219 :
220 DEFine PROCedure GETKEY
221 K=CODE(INKEY$(-1))
222 END DEFine
223 :
224 DEFine FuNction DEC(EE$)
225 POWER=1:TOTAL=0
226 FOR P=LEN(EE$) TO 1 STEP -1
227 E%=(CODE(EE$(P)))-48
228 IF E%<0 OR E%>22 OR (E%>9 AND E%<17):RETurn -1
229 E%=E%-7*(E%>16):TOTAL=TOTAL+E%*POWER:POWER=POWER*16
230 END FOR P
231 RETurn TOTAL
232 END DEFine
233 :
234 DEFine FuNction HEX$(B)
235 H$="":V=B
236 REPeat POS
237 T=V-INT(V/16)*16
238 H$=CHR$(T+48+7*(T>9))&H$
239 V=INT(V/16):IF NOT V:EXIT POS
240 END REPeat POS
241 RETurn H$
242 END DEFine HEX$
243 :
244 DEFine FuNction ASC$(B%)
245 B%=B% MOD 128:IF B%<32:RETurn "."
246 RETurn CHR$(B%)
247 END DEFine
```

Transfer One

G M Phillips

This program for the Commodore 64 is one of two routines which will allow you to save data on the C64, onto tape, which can then be reloaded into an Amstrad CPC.

```
1 REM C64 TO AMSTRAD
2 REM BY G.M. PHILLIPS.
3 REM THIS BIT FOR C64.
6 REM POKE 167 AND 168 WITH START ADDRESS LOW,HIGH
7 REM POKE 169,170 = LENGTH LOW,HIGH
8 REM SYS 832 TO START TO RECORD
9 REM EITHER RUN THIS FIRST, OR LOAD"OSAVER",8,1 THEN NEW, THEN USE IT.
10 FOR I=832 TO 987:READ D:POKE I,D:NEXT
20 POKE 43,64:POKE 44,3:POKE 45,13*16+12:POKE 46,3:SAVE "@:OSAVER",8,1
30 STOP
1000 DATA 76,148,3,0,0,238,32,208,72,138,72,162,4,144,2,162,8,32,103,3
1010 DATA 165,1,41,247,133,1,162,17,202,208,253,9,8,133,1,104,170,104,96,152
1020 DATA 72,160,32,136,208,253,202,208,248,104,168,96,170,69,255
1030 DATA 133,255,138,162,8,106,32,69,3,202,208,249,96,160,255,169,22,32,116,3
1040 DATA 136,208,248,169,24,32,116,3,96,120,169,5,133,1,165,1,41,7,141,68
1050 DATA 3,9,8,141,67,3,32,132,3,165,169,32,116,3,165,170,32,116,3,160,0,132
1060 DATA255,177,167,32,116,3,230,167,208,2,230,168,198,169,165,169,201,255,208
1070 DATA237,198,170,165,170,201,255,208,229,165,255,32,116,3,169,55,133,1,88,96

READY.
```

Transfer Two

G M Phillips

This is the second of the two listings required to transfer data between a C64 and an Amstrad CPC. This listing enables the Amstrad to reload the Commodore data.

```
6 REM AMSTRAD program
10 REM ** read in commodore produced data
20 MEMORY &1EFF
30 FOR i=&1F00 TO &1F7F:READ d:POKE i,d:NEXT
40 SAVE "osaver",b,&1F00,&80
50 REM ** either just run this, or
60 REM ** load "osaver",&1f00 and
70 REM ** call &1f00.
80 REM ** loads data into &2000
90 REM ** onwards.  An error is
95 REM ** shown by a flicker of the border at the end of the load.
1000 REM ** machine code
1010 REM ** save "osaver",b,&1f00,&80
1020 DATA &c3,&48,&1f,&0e,&00,&06,&f5,&ed,&78,&b7,&f2,&12,&1F,&00,&00,&FA
1030 DATA &07,&1F,&0C,&ED,&78,&B7,&F2,&12,&1F,&79,&FE,&64,&3F,&C9,&C5,&1E
1035 DATA &08,&16,&00,&cd,&03,&1f,&cb,&1a,&1d,&20,&f8,&7a,&c1,&5f,&a8,&47
1040 DATA &7B,&C9,&CD,&03,&1F,&cd,&1e,&1f,&fe,&16,&20,&f6,&cd,&1e,&1f,&fe
1050 DATA &18,&c8,&fe,&16,&28,&f6,&18,&ea,&f3,&01,&10,&f6,&ed,&49,&cd,&32
1060 DATA &1f,&cd,&1e,&1f,&6f,&cd,&1e,&1f,&67,&dd,&21,&00,&20,&06,&00,&cd
1070 DATA &1e,&1f,&dd,&77,&00,&dd,&23,&2b,&7d,&b4,&20,&f3,&cd,&1e,&1f,&c5
1080 DATA &cd,&1e,&1f,&c1,&b8,&c8,&01,&10,&7f,&ed,&49,&3e,&47,&ed,&79,&c9
```

In hot pursuit of the Crystals of Zog

Crowther returns! At one time Tony Crowther games were awaited with the same reverence that accompanied an England result. And, more often than not, was greeted with the same sigh of disappointment.

But forget all of that because Crowther has been washed up on the shores of Mirrorsoft, who are hardly renowned for all action extravaganzas, and after collaborating with David Bishop (design), has produced undoubtedly his best effort to date.

Zig Zag is the name of the game, and collecting the Eight Crystals of Zog in the Matrix of Zog is the aim. Yes, well so much for the deep intellectual plot.

The game is a bit like *Zaxxon* with thinking. The graphics are presented in that familiar diagonally scrolling 3-D format, your ship flying up and down corridors, shooting at deadly aliens. But wait, there's more. A stonking lot more.

For one thing, running into the walls and floors merely results in a swirl of stars and your ship bouncing off. Although you can move up/down and left/right you cannot turn corners unaided.

To facilitate this tricky manoeuvre there are prisms, twinkling on the floor, which you must fly into.

Once accomplished, you turn 90 degrees in a particular direction and off you go again.

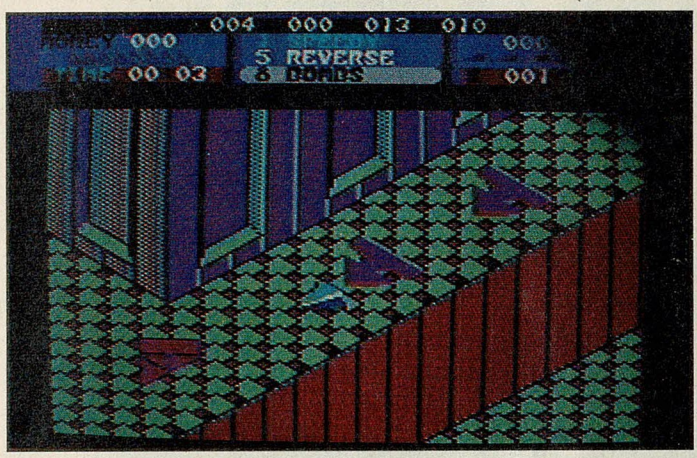
This takes some getting used to, but a little practice will alleviate the initial confusion. You can find yourself disappearing down corridors where you know something unpleasant lurks, though.

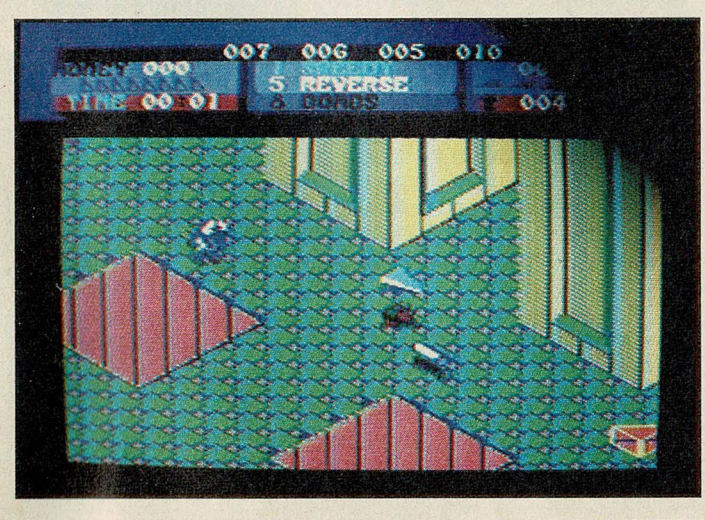
Sounds a little bit too easy so far, doesn't it? Well, there is more to it than that.

Parts of the corridors are blocked or missing, and there is a totally black zone where you'll need infra-red goggles in order to see the walls before you hit them.

Now we're getting to the crux of the matter; for each alien that you ruthlessly blow away, you receive money (killing pays!) in the bank. When you fly at ground level into a yellow shopping area, a menu of goodies comes up.

These include zaps, maps, super fire, extra lives, shields, raisers, infra-red and x-ray vision. What more could you ask for?





The task, then, is to fly around making maps (essential), solving problems and puzzles, kill enough of the enemy to finance home improvements on your ship, go where no trainee star pilot has been stupid enough to go before, and of course, find your way through to each of the Crystals of Zog. Easy!

The scrolling is effortlessly smooth and slick, incredibly fabby music (by that man Crowther again) adorns both the title page and continues throughout the actual game, while the graphics are colourful and effective.

With 1,400 screens to traverse, this particular quest could seem like an impossible mission, but there are the arcade equivalent of adventure hint sheets, in the forms of save zones, press the fire button and you can return to that zone instead of the beginning, and a special zapper mode.

In zapper mode all the problems and puzzles are solved, enabling you to fly around mapping the entire playing area, blasting aliens indiscriminately, and discovering all those nooks and crannies that you overlooked the first time.

There is a price to be paid for the easy life, though (isn't there always?) you can't pick up any of the Crystals which are so necessary to finish the game.

There's more stuff besides all this, including time locks which you have to get before you're left out in the cold permanently, and oodles of options on the title page to make life just that bit more pleasant.

As the inlay proclaims: 'brace yourself for the journey of a teatime'. Crowther is back. Arcade perfection and brain boggling bafflement combine in *Zig Zag*, the best thing he's written in absolutely ages.

Duncan Evans

Program *Zig Zag* **Type** Arcade **Machine** C64 **Price** £9.95 **Supplier** Mirrorsoft, 66–73 Shoe Lane, London EC4P 4AB.

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BBC B

Program *The Alien from Outer Space/Dragons Tooth* **Type** Adventure **Price** £7.95 **Supplier** Incentive Software, 2 Minerva House, Calleva Park, Aldermaston, Berks RG7 4QW.

More worthy GAC stuff for BBC adventurers feeling left out in the wilderness.

Program *Uridium* **Type** Arcade **Price** £9.95 (tape), £14.95 (disc) **Supplier** Hewson, 56B Milton Trading Estate, Milton, Abingdon, Oxon.

Rather ridiculous that Hewson is charging full price for this weak conversion. The game that most BBC'ers would give a leg for has a watery rendition of the much hummed music while loading only, indifferent scrolling, and your ship appears to have faulty retros.

Atari XL/XE

Program *Missing: One Droid* **Type** Arcade **Price** £2.95 **Supplier** Bug-Byte, Victory House, Leicester Place, London WC2H 7NB.

Amstrad CPC

Program *Rigels Revenge* **Type** Adventure **Price** £2.99 **Supplier** Bulldog, 8–10 Paul Street, London EC2.

Program *Freddie Hardest* **Type** Arcade Adventure **Price** £8.95 (tape), £14.95 (disc) **Supplier** Imagine, 6 Central Street, Manchester M2 5NS.

Program *Dizzy Dice* **Type** Simulation **Price** £1.99 **Supplier** Players, Mercury House, Calleva Park, Aldermaston, Berks RG7 4QW.

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

One of four old Acornsoft adventures now produced for the Amstrads. If you have a penchant for old style text adventures then these are a reasonable buy for disc based games.

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

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

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

Program *Pegasus Bridge* **Type** Wargame **Price** £12.95 (tape), £17.95 (disc) **Supplier** PSS, 452 Stoney Stanton Road, Coventry CV6 5DG.

Atari ST

Program *Missing: One Droid* **Type** Arcade **Price** £9.95 **Supplier** Bug-Byte, Victory House, Leicester Place, London WC2H 7NB.

Blam, blam, boom, boom, boom. Zap, kerpow, aargghh! Very cheap but very simple shooting thrash.

Program *Trivial Pursuit* **Type** Board **Price** £19.95 **Supplier** Domark Ltd, 204 Worple Road, London SW20 8PN.

Program *Bubble Ghost* **Type** Arcade **Price** £19.95 **Supplier** Infogrames, Mitre House, Abbey Road, Enfield, Middlesex EN1 2RQ.

Platforms and ladders take a bizarre turn in this French programmed offering. Instead of leaping and running through death filled caverns you control a ghost who has to blow a perishable bubble through said caverns.

Program *Rings of Zilfin* **Type** Animated Adventure **Price** £24.95 **Supplier** SSI/US Gold, Unit 2–4 Holford Way, Holford, Birmingham B6 7AX.

An incredible three discs worth to this animated fantasy adventure, but it still looks pokey. Midget characters and ropey animation mean that a lot of perseverance is required to get the best out of this particular quest.

Challenge the Ogre, **a cybernetic supertank, programmed to annihilate everything in its path. Steve Jacksons' classic board game from a few years ago has now been computerised, unfortunately by the same people who made such a mess of SJ's other cult game, *Car Wars*.**

In the one-player game you take command of conventional forces such as nuclear armed tanks, missile tanks, howitzers, ground effect vehicles (GEV's), and infantry. The objective is simple, destroy the Ogre, executing that directive is far from simple.

The packaging is excellent, up to the usual Microprose standard, and includes a computer specific player reference card, glossy instruction manual, product catalogue, strategy and notes manual, and the throwaway gimmick, this time a radiation danger card.

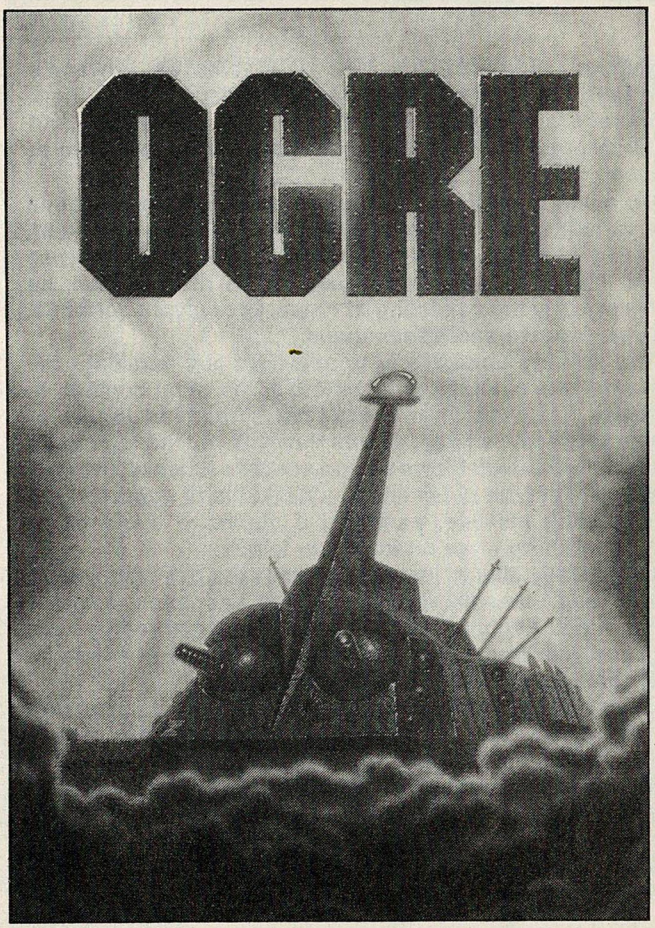
All good and well, the actual game advises you on the level of forces you can put into the field, but you are given complete freedom to improvise and alter both the battlefield and the defense strengths to what you want. Though if you do this you will be warned that it isn't an official set up.

The scenery come in three flavours, empty, rubble (impassible except for infantry and the Ogre), and craters, which are impassible for everyone. Not much variety, but considering the difficulty in avoiding being massacred by Ogre on the recommended setup, the only thing you need is a row of craters stretching from one side to the other.

Each unit in the defence force has its own characteristics which you make the best of in order to combat the various weapons systems that the Ogre possesses. The Ogre has the task of primarily destroying your command centre, which is a sitting duck, and then all your forces, and unless you weigh the odds in your favour it's difficult to prevent it from happening.

Ogre is available on a wide range of formats, but it looks virtually the same on everything from the Commodore 64 to the Amiga. The Origin programmers confirm their lack of talent in programming by only using four colours in the main game on the ST and Amiga versions. Never mind, it's still a good game, and playable enough to overlook those shortcomings.

Duncan Evans



Program *Ogre* **Type** Strategy/Wargame **Machine** C64/Amiga/ST/IBM PC/Amstrad CPC/Apple **Price** Various **Supplier** Microprose, 2 Market Place, Tetbury, Gloucestershire GL8 8DA.

NEW RELEASES

Reppett. Rreppett. It's frog time folks as Hewson's Ranarama, leaps onto the ST. Mervyn, the inept sorcerer's apprentice has turned himself into a frog, and been trapped in a dungeon while avoiding an invasion of evil warlocks.

So much for the plot. The game entails leaping around the various levels of the dungeon, viewed from overhead, blasting away at the various nasties with your offense spell. Magic, is an integral part of the proceedings, as witnessed by the collecting of runes, floor glyphs, offense, power, defense and effect spells.

The primary objective is to seek out and eliminate the powerful warlocks, by what is known as ritual combat. In practice it means re-arranging the scrambled letters of Ranarama while a clock counts down. If you manage to do the job the warlock blows up and scatters runes all over the place. Collect the runes and you'll be able to upgrade your spellcasting abilities, essential if you're to avoid being turned into frog meat on the lower levels.

Graphically, this ST version is easily the best with lots of colour and pleasant design, but the animation wouldn't have raised eyebrows three years ago. No screen scrolling, and your frog leaps one character square at a time so you can forget pixel perfect manoeuvring.

Where Ranarama does excell is in the use of music and sound effects. Some of the best sounds yet to emerge from an ST are on offer. There are even a few sampled effects (half of them straight off a BBC library record), though this is rather gratuitous since they aren't used in the action or on the title page.

Miles better than the dismal Spectrum version, so ST Ranarama could have you leaping for the readies.

Duncan Evans

Program *Ranarama* **Type** Arcade **Price** £19.95 **Supplier** Hewson, 56B Milton Trading Estate, Milton, Abingdon, Oxon.

IBM PC

Program *Gunship* **Type** Arcade Simulation **Price** £34.95 **Supplier** Microprose, 2 Market Place, Tetbury, Gloucestershire GL8 8DA.

The awesome AH-64 Apache simulator comes to the PC. The out of the cockpit view isn't stunning but the wealth of controls, weapons systems, attention to detail, hundreds of missions and rewards make this an absolutely essential buy for PC owners interested in napalming a few gooks before tea.

The release date for the ST version, promised to be mega-awesome is receding into the distance. What was once August has now become November. Come on Microprose, hurry, hurry.

Spectrum

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

More leapy, leapy, jumpy, jumpy arcade action. Excuse me while I go to sleep.

Program *Freddy Hardest* **Type** Arcade **Price** £7.95 **Supplier** Imagine, 6 Central Street, Manchester M2 5NS.

The latest Imagine/Ocean production is a two parter which casts Freddy as a drunken space driver out to steal an alien vehicle after crashing his own. Uninspiring design and frustrating gameplay, but the graphics are nicely done and it's certainly a challenge.

Program *Pegasus Bridge* **Type** Wargame **Price** £12.95 **Supplier** PSS, 452 Stoney Stanton Road, Coventry CV6 5DG.

The latest in the *Wargame* series from PSS concerns one of the operations on D-Day, that to take the bridge over the Caen canal.

There is a wealth of features including, one or two players, fatigue and morale, historically accurate units, fighter, bomber and naval support, and a good deal more.

Pity for PSS that they didn't have this out in time for the last showing of *A Bridge Too Far,* which was on the telly some weeks ago, but anyone interested in wargames should definitely have a look at *Pegasus Bridge.*

Program *Rigels Revenge* **Type** Adventure **Price** £2.99 **Supplier** Bulldog, 8–10 Paul Street, London EC2.

Routine plot for this adventure but it looks quite classy and at the price should be worth investigating.

Program *Mystery of the Nile* **Type** Adventure **Price** £7.95 **Supplier** Firebird, First Floor, 64–76 New Oxford Street, London WC1A 1PS.

Program *Winter Sports* **Type** Sports Simulation **Price** £1.99 **Supplier** Firebird, First Floor, 64–76 New Oxford Street, London WC1A 1PS.

Program *Star Pilot* **Type** Arcade **Price** £1.99 **Supplier** Firebird, First Floor, 64–76 New Oxford Street, London WC1A 1PS.

Racing space game that comes across as a hybrid of *Alleykat* and *Space Runner.*

CHARTS

Top Twenty

1	(2)	Renegade	**Imagine**
2	(3)	Indiana Jones	**US Gold**
3	(4)	Joe Blade	**Players**
4	(1)	Grand Prix Simulator	**Code Masters**
5	(5)	Soccer Boss	**Alternative**
6	(8)	BMX Simulator	**Code Masters**
7	(6)	Pro Ski Simulator	**Code Masters**
8	(14)	Paperboy	**Elite**
9	(9)	Fruit Machine Simulator	**Code Masters**
10	(16)	Dizzy	**Code Masters**
11	(7)	International Karate	**Endurance**
12	(–)	Arcade Classics	**Firebird**
13	(10)	Bubble Bobble	**Firebird**
14	(13)	Back To The Future	**Firebird**
15	(15)	Super Robin Hood	**Code Masters**
16	(18)	World Class Leaderboard	**Access-US Gold**
17	(19)	Football Manager	**Addictive**
18	(12)	Tai Pan	**Ocean**
19	(17)	Micro Rhythm Plus	**Firebird**
20	(–)	Saracen	**Americana**

All figures compiled by Gallup/Computer Trade Weekly

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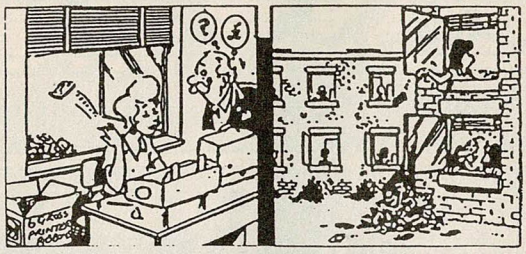

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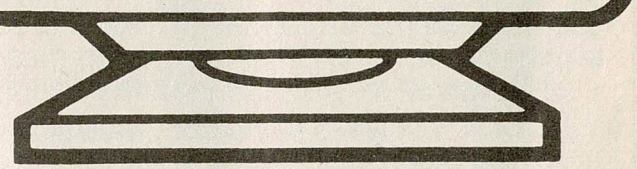

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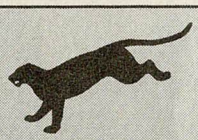

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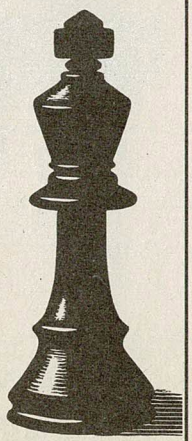

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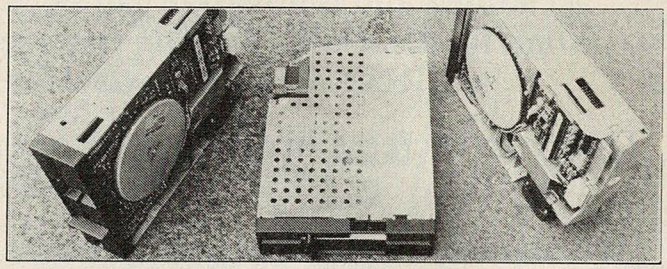

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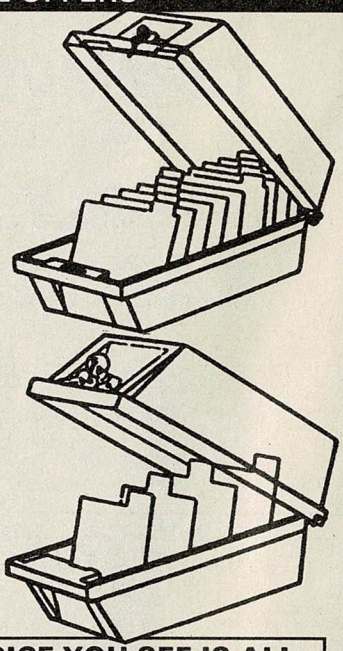

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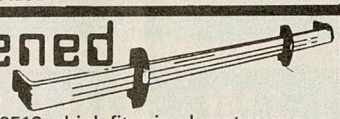

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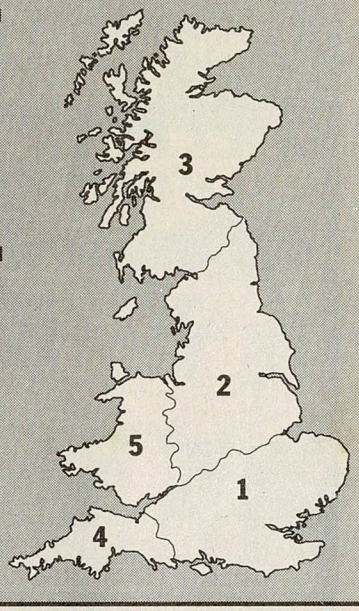

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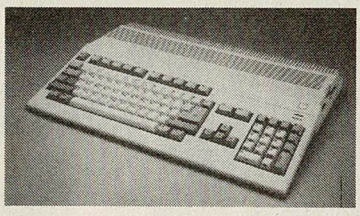

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David Rawlinson

THE SEARCH CONTINUES . . . since we launched our quest for new puzzle ideas last month, the response from you so far has been – well, underwhelming, to say the least.

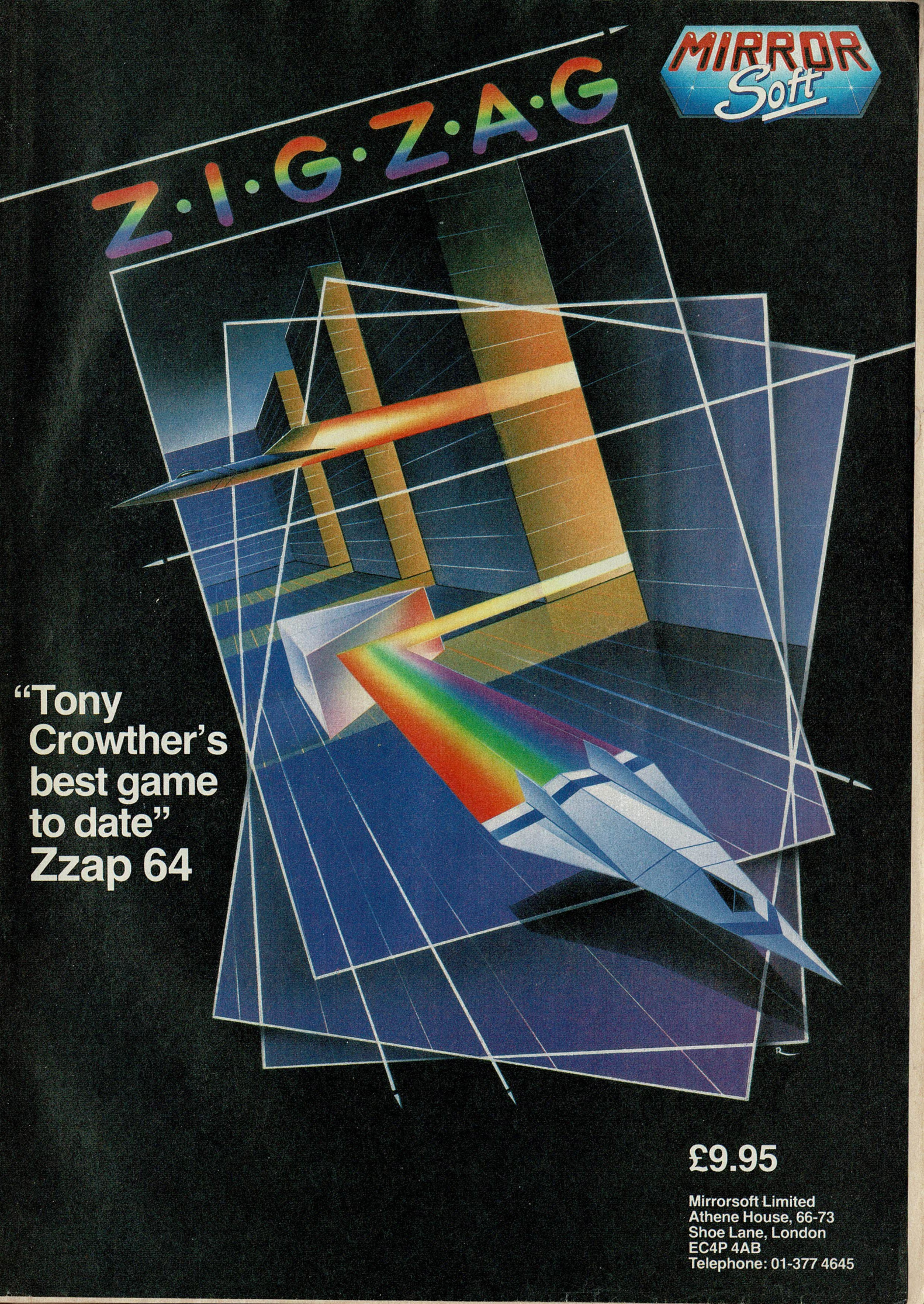
There is still £20 waiting for the best idea submitted by a reader, and accepted as the new *Popular Computing Weekly* puzzle, and the closing date for the receipt of entries is November 7, so there's not long to go before your time's up.

Of course, having put it out to you, the readers, it may be that you'd prefer to retain the original puzzle. That is a possibility we are considering, and may well implement.

So it's up to you. You have until November 7th to tell us what you think. So either let us have your ideas for a new kind of puzzle – or let us know if you'd like to see the return of the original puzzle. Either way, we will do our best to arrange what you the readers would most want.

Please let us have your views either way. Write – by November 7th – to: Puzzle Ideas, Popular Computing Weekly, 3rd Floor, Greencoat House, Francis Street, London SW1P 1DG.

HACKERS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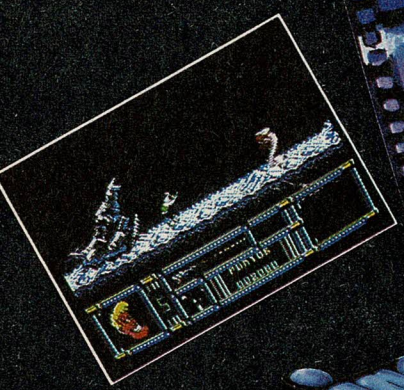

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