POPULAR COMPUTING WEEKLY

A FOCUS MAGAZINES PUBLICATION

December 3–9 1987 60p

This Week

5p from every issue sold to the Children in Need appeal

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Amstrad set to launch new 16-bit micro?

AMSTRAD looks set to launch a 16-bit computer early in the new year. The machine is on the production line in Taiwan, and Amstrad hope it will be ready for sale in early 1988; coming as a direct replacement for the 6128.

The new machine, as yet unnamed, was due to be released in December but there have been problems with the casing. The keyboard is a revamped version of the 6128 and there have been some minor technical problems putting in the 16 bits which has resulted in the delay of the machine. A source said:

"Dealers have been unable to get hold of the 6128 for the last few months. Amstrad planned to have the 16-bit machine out before Christmas, but because of the case design problem, was unable to do so."

The machine is apparently aimed at the Amiga/ST user but Amstrad remains adamant that it can create yet another niche in the market for computers.

The Amstrad 6128 – soon to be replaced?

"Amstrad is looking at a direct confrontation with the Amiga," the source said.

Exclusive

Amstrad was unable to confirm further details about the machine. Malcolm Tocher, U.K. Marketing Manager of Amstrad said, "We have plans to sell a new range of computers in January but they are the portables. We cannot comment on any plans for a 16-bit machine as we are still selling the 6128 successfully."

Further details concerning specifications of the machine were not available as we went to press but, according to our source, "Amstrad is putting a 5¼in. disc on the machine instead of the commonly used 3½in. disc used on Amiga and Atari ST computers".

Bob Gleadow, managing director of Atari, was surprised at the Amstrad plans but not too concerned by them. "If the machine is non-IBM-compatible, I would wel-

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Martech joins Electronic Arts

Electronic Art's John Forrest.

ELECTRONIC Arts, the major U.S. software house, has just signed Martech as an affiliated label. After six months of talks, Martech is now the third U.K. affiliate to Electronic Arts, the others being CRL and Nexus. According to Lesley Mansford: "Everything which happens to our product will also happen to our affiliates. Our salesmen will be doing their utmost to sell all products."

In effect, from December 1 Electronic Arts will promote the sales and distribution of all future Martech titles for Europe, excluding Spain, where it has a pre-existing agreement.

The launch title will be *Nigel Mansell's Grand Prix* for the Commodore, Spectrum and Amstrad. Conversions of other Martech hits, such as *Catch 23, Mega-Apocalypse* and *Slain,* are to follow.

David Martin, Martech managing director, is enthusiastic about

continued on page 6 ▶

SEGA

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EDITORIAL

As we enter the week after the enormously successful Children in Need appeal, it is worth reflecting on the lack of support from the computer software industry. I would be the first to congratulate the industry on donating money to charity but, on a more day-to-day basis, children's computing needs are regularly being ignored. This week, as with most weeks, the staff of *Popular* has had numerous telephone calls on the subject of educational software. Parents ask which machines to buy children for Christmas, stating that they want to be able to use the computer as an educational tool as well as a toy.

A few years ago, the classified section of this and most other computer magazines was full of advertisements for educational software for almost every machine. The question we must ask is where have all those packages gone? The demand has certainly not fallen, nor are there any fewer children in need of education.

Even the trusty BBC Micro has faded, taking its educational reputation with it. How many of the machines now starting to dominate the market have a healthy number of educational software packages? Few, if any, unfortunately. The reason for this moan is simple – for computers to gain the reputation in the home market which will allow them to develop further, it must be for being more than just games machines.

It was satisfying to see that two of our major news stories of the last few weeks have caused a stir elsewhere. Our exclusive news on the *Jack the Ripper* game led irectly to a news story in the *Daily Mirror* and possibly to a story in *The Guardian*. With more than 50 letters and hundreds of telephone calls about the Amiga virus, it must be one of the biggest stories we have ever covered. Jubilant, interested, damning, annoyed – they are the reactions we have had so far. We have even had a telephone call from the BBC.

Of those, the letter which aroused most interest was from a dealer, GB Microland. It pointed out that the virus would spread only if people copied discs, thus committing piracy. Unfortunately, if that was the case, the virus would not be a problem. The biggest single type of disc which has spread the virus has been innocently-infected freeware, one of the most valuable and refreshing aspects of computing.

Francis Jago

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ABC

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Programmers clash over computer code

TWO weeks ago, *Popular Computing Weekly* reported a row between Gremlin and Superior Software about a game called *Star Clash*. Superior was claiming that the game was a clone of its best-seller, *Elite*, and so Gremlin boss Ian Stewart withdrew Star Clash from sale while both companies investigated the matter further.

More recently, the row has been fuelled by a letter which *Popular Computing Weekly* received from Star Clash author, Julian Bushell.

The letter states: "The bug they have been talking about is due to hardware restrictions. A line can only be a maximum of 256 pixels; any longer and it will disappear."

Coping with longer lines is much too slow and cumbersome, requiring double-byte multiplication; also very near objects overspill the screen, so correct hidden line removal is not necessary. So this is a hardware restriction of an 8-bit micro rather than a bug".

Richard Hanson of Superior Software.

In response to the letter, Richard Hanson, managing director of Superior Software, commented: "This bug is irrelevant to the one we were talking about initially. This is a new bug we were not aware was there."

Bushell says the coding for Star Clash was originated by himself and that Superior wanted him out of the way.

"When I visited them in 1986 I saw another game called *Nautilus* under development which is also a vector graphic game. Could they be bull-dozing me out of the BBC games market further to increase their monopoly? Incidentally, at the time they asked me to convert Nautilus to other machines."

Hanson dismissed such a claim but conceded that Bushell was asked to write a conversion.

"We were dubious that Star Clash was an original so we asked him if he had copied Elite and he said No. We then asked him if he would consider writing a conversion of Nautilus; he seemed interested but we heard nothing more from him."

To support his stance against Julian Bushell, Hanson added that independent reviewers had equated Star Clash with Elite. "Two commented that they expected Star Clash to be withdrawn from the market", he said.

David Braben, co-author of Elite, was also critical of Gremlin, saying; "If this sort of thing happened elsewhere, like the music industry, people would be sued for a few lifted lines."

The last word was with Ian Stewart, Gremlin managing director. "I hope we are adult enough to settle this out of court as the only people who would benefit from that would be the legal profession," he said.

Nice one Jeeves

Jeeves is available for the Spectrum.

KEMPSTON has just released two new desk-top programs, *Jeeves*, for the Amstrad 8256/8512/9512 and one for the Spectrum +3.

Jeeves runs concurrently with most CP/M programs including *Supercalc*, *Wordstar* and *Cracker*, Mouse control formats, the user to select desk accessories from within these programs:

Disc File Management – directory of drives A, B and M as icons including report on free space available.

Disc Operations – file copy and file delete, achieved by dragging icons.

Calculator – a four-function, 14-digit calculator, with add, subtract, multiply and divide.

Calendar – a complete calendar from January, 1978 to December, 2000.

Phonebook – alphabetic storage of phone numbers in a window 32 characters by 12 lines.

Jeeves is available complete with Kempston mouse for £79.95 or singly for £29.95.

The Spectrum +3 desk-top program, on the other hand, has been designed to make optimum use of the new Spectrum +3 DOS and it is completely ICON-driven. The accessories available for this program are Disc Toolkit – format, copy, erase, verify, check and find information discs. Note Book – text editor with options to cut, paste and copy. Control Panel – mouse, keyboard, printer and screen housekeeping controls.

In addition, the clock, calculator and disc file management features are available.

The software can be used with a keyboard or joystick but is best-suited to the Kempston mouse. Complete with mouse, the program costs £69.95 ord £24.95 if bought separately. For further information, contact Kempston Data Ltd on 0908 690018.

Hit music

MICRONET last week launched its new on-line computer music magazine, *Music City*. It offers editorial information and permits computer users to download software directly into their machines.

The editorial will cover the latest developments in computer music, provide features and reviews and incorporate a letters and contracts section. Also on offer will be an extensive selection of music and instrument files for the BBC micro-based hybrid music system.

In addition, Micronet has an agreement with the Mechanical Copyright Protection Society whereby royalty payments will be made whenever appropriate. Micronet believes it is taking a lead in the area of music copyright, which it hopes will be followed.

Phil Godsell, Micronet software manager, is enthusiastic about the new venture, saying: "Other magazines can feature computer music but how many can supply readers with music software which can be played there and then?"

Micronet is the microcomputing area of the British Telecom Prestel network. Subscription costs £66 a year and Micronet is offering a free modem to all annual subscribers, while stocks last.

Mitsubishi launch 386

MITSUBISHI will launch its new 80386-based, AT-compatible computer at the Which Computer? Show next month. The mp386 is a 32-bit machine and will be the second PC from Mitsubishi to enter the U.K. small computer market.

Accompanying its debut is the mp286 and a selection of Misubishi disc drives and high-resolution colour autoscan monitors.

Also on display at the show is Mitsubishi's business accounting software which has been developed and supported in Britain. Comprising 10 separate but integratable modules, Mitsubishi believes the business software will facilitate every aspect of company administration, from accounts ledgers to fixed asset analysis.

For further information, telephone Mitsubishi on: 0923 770000.

New DTP

A NEW, low-cost desk-top publisher for the Atari ST has been launched by Electric Distribution. *The Timeworks Desktop Publisher* costs £99 inc. VAT and according to Electric Distribution, "includes many features available in desk-top publishing packages costing up to seven times more".

The package has been developed by Cambridge-based software house GST, which is known for designing the *1st Word*, word processor. Versions for the Amstrad PC and IBM compatibles are being finalised.

The new Timeworks DTP package.

BT launch programs for schools

THREE new computer programs for older teenagers have been launched by British Telecom.

The software, aimed at 15 to 18 year olds, gives the pupils real life problems to solve. The intention of the programs is to make the school syllabuses relate more closely to industry and jobs. The programs were written for British Telecom by teachers working with the Computers in the Curriculum (CIC) team at University of London, King's Cross and have been carefully designed to reflect the latest classroom practice and teaching demands. The three programs are PICMAN, SIGTRAN and PULSMOD.

PICMAN allows students to experiment with some of the manipulations that can be made on a video signal once it has been converted to digital form. Students can then modify prepared images or create new pictures of their own.

SIGTRAN deals with the process of transferring a signal from one place to another. Students design a telephone link taking into account all the problems encountered with sending signals.

PULSMOD gives the student an insight into converting analogue signals either speech or video into digital form and decode them back to their original form. The programs cost £15 each and are available for BBC and RML computers commonly used in schools.

Katie Walker and Lisa Wilson from Garforth School in Leeds use BT's new educational software.

Apparently British Telecom have subsidised the price of the programs.

A spokesman for British Telecom said, "We've been doing educational software for the last couple of years, we now have a two year plan extending into 1989 concerning the products we will be releasing." According to BT, the schools seem to be very happy with the products, "We've had a very good response from them."

At present, the products are science based, BT plan to expand on this, "We have English Studies and General Studies products in development and for release."

One may question why BT should want to be involved in educational software but their answer is quite simple, "We see ourselves having a role in the training of people to ensure they become computer literate. In this day and age, computers play a more important role in business".

For further information contact; British Telecom Education Service, PO Box 10, Wetherby, Yorks LS29 7EL.

Popular supports children in need

POPULAR Computing Weekly is giving its support to the Children In Need appeal by donating 5p for every copy of the magazine sold this week.

Televised on BBC1 last Friday, the appeal has been an annual event since 1927, but has only been presented in its 'marathon' form, on radio and television, during the past seven years.

Each year the millions of pounds made from the appeal is allocated by the BBC's Appeals Advisory Committees to various children's groups throughout the U.K. These range from grants to provide special equipment to welfare for deprived or handicapped children.

In 1986, over 7,700 groups benefited from the appeal, thanks to the generosity of the general public. Now *Popular Computing Weekly* has taken a leaf out of their book and will be making its own donation. If you want to help a child in need, buy this copy of *Popular* and we will do the rest.

Robtek's Terminator plans

ROBTEK will from the New Year be producing software mainly for 16-bit machines. The move is made at a time when Robtek has recently announced details concerning its plans to move into the American market.

Robtek is to be distributed by U.S. company Keypunch and, according to sales director Mike Segrue. "The deal is worth at least $100,000."

In the course of negotiations, Robtek has also secured the European rights to a number of Keypunch film licences. The first release will be the follow-up to Arnold Schwarzenegger's mega-successful *Terminator* film, though according to Rank Films, "The sequel is not yet being made, we don't know when it will be made or when it will be released."

Despite the fact that Robtek has secured the licence of an as yet unmade film, they are hopeful of having some future success.

Krypton game to be released

TV GAMES will soon be releasing a computer game based on the successful TV series, *Krypton Factor*. For the last 10 years, thousands of contestants have written to Granada Television, hoping to appear on the show where they are subjected to physical and mental ordeals.

Obviously the game will lack the authenticity of the original Krypton Factor but TV games has attempted to keep it as close to the TVs format as possible.

Pitting your wits against either the computer or another player, you must complete various challenges if you are to become the supreme champion.

They include assessing your powers of observation and general knowledge, your ability to respond to stimuli and your competence with words and numbers. You will even have to prove your fitness in a simulted assault course.

Gordon Burns host of the Krypton Factor.

Krypton Factor, the computer game, is scheduled for release this month on the TV games label.

It will retail at £7.95 for Spectrum, Commodore 64 and Amstrad CPC computers.

Thalamus launch Hunter's Moon

Martin Walker.

THALAMUS has announced the arrival of a new programmer, Martin Walker. Once a training manager for Atari U.K., Walker's first venture, *Magic Window*, was published in 1982 by Quicksilva.

Following that he produced *Rupert and the Toymaker's Party* for Quicksilva and then wrote games for Electric Dreams Software.

After seeing *Delta*, Walker approached Paul Cooper at Thalamus. "I think it is an ideal company to publish original games which need a different kind of marketing to tie-ins and arcade conversions," he says.

Hunter's Moon is his first creation at Thalamus and is due to be released this month. A galactic adventure, *Hunter's Moon* features full-screen, multi-directional scrolling with parallax starfield, information panels within the border and 128 levels set across more than 1,000 screens.

Hunter's Moon will retail at £9.99 (cassette) and £12.99 (disc). Inclusive in the price of the disc are free games, graphics and music demonstration.

Music program for Amstrad CPC

WESTHILL Music are claiming a first by releasing 'An Unusually Intelligent Music Program' for the Amstrad CPC. *Mastercomposer* is a new development in artificial intelligence and allows you to compose original melodies in three-part harmony.

The package is claimed to be easy to use and there is no need to enter any musical notes.

The program is the brainchild of Dr Brian James who has spent the last 7 years planning the program and also doing research into music theory.

Dr James says that the program started life on the Sharp MZ80K computer and that he has spent the last 3 years refining the program on the Amstrad CPC.

According to Dr James, "The program is aimed at anyone who owns an Amstrad CPC and has an interest in music, though they don't need to be professionals to use the program."

There are ten styles of music that the user can have, these include jigs, waltzes, polka, march and calypso.

The program costs £29 on tape or disc from Westhill Music, 7 Beech Road, Westhill, Aberdeenshire AB3 6WR. For further details contact Dr James on 0224-740412.

Amstrad to launch new 16-bit micro

◀ continued from page 1

come it," he said.

Gleadow was unable to comment on how it would compete with the ST. "As I'm not aware of the specifications, I can't really say how it compares with the ST."

Steve Franklin, managing director of Commodore, said of the impending clash of the 16-bit Amstrad with the Amiga: "Unless it has all the benefits the Amiga offers, I can't see it competing. We'll have to wait and see how the machine turns out." Like Atari, Commodore aren't too concerned about the machine, "Competition is quite healthy", Franklin added.

For the Software Houses, Gary Bracey, Software Manager of Ocean would welcome the release of a new Amstrad machine. "We've always supported Amstrad and will continue to do so," Bracey said.

A spokesperson for US Gold said of software support, "We have no immediate plans".

Martech joins EA

◀ continued from page 1

the deal, saying: "We have some tremendous products being developed and are looking forward to working with Electronic Arts in bringing them to the European market."

There was a similar reaction from John Forrest, director of European distribution for Electronic Arts. "We are delighted to have signed Martech as one of our affiliate labels. Martech is one of the most consistent producers of top-quality software in the U.K. and we feel sure that its products will complement others under the Electronic Arts distribution umbrella," he says.

On the subject of software, Martin states that production will continue as before. "We will work on the principle of about a dozen major titles across all formats in a 12-month period."

Mansford stresses that Electronic Arts is involved only in the capacity of distributor, saying: "We will have no control over the software produced."

She added that Electronic Arts would not remain idle with its acquisition but would seek new affiliates. She said, "Ideally, we would like to have about five but there are no other firm negotiations at the moment."

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DIARY DATES

DECEMBER

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

December 9-10
IBM's Strategic and Tactical Directions: 9370, PS/2, SAA Seminar
Sheraton Park Tower, 101 Knightsbridge
Details: PS/2 and the communications capability needed for SAA, examines the 9370 product, contrasting with mini-computers
Organiser: EMAP Conferences, 12 Bedford Row, London WC1R 4DU, 01-404 4844. Contact Tessa Dwan or Sarah Gladstone

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

FEBRUARY

February 4-6 1988
The Amstrad Computer Show
The Great Hall, Alexandra Park, London
Details: Displays and demonstrations of all the latest hardware, software and peripherals for Amstrad computers
Adults £3, Under 16's £2 - £1 off for advance tickets
Organiser: Database Exhibitions, 061-456 8383
This event has been postponed from January 28-30 to the above date.

MARCH

March 18-20 1988
The Electron and BBC Micro User Show
UMIST, Manchester
Details: Displays and demonstrations of all the latest hardware, software and peripherals for Acorn computers
Adults £3, Children (under 16) £2 - £1 off for advance tickets
Organiser: Database Exhibitions, 061-456 8383

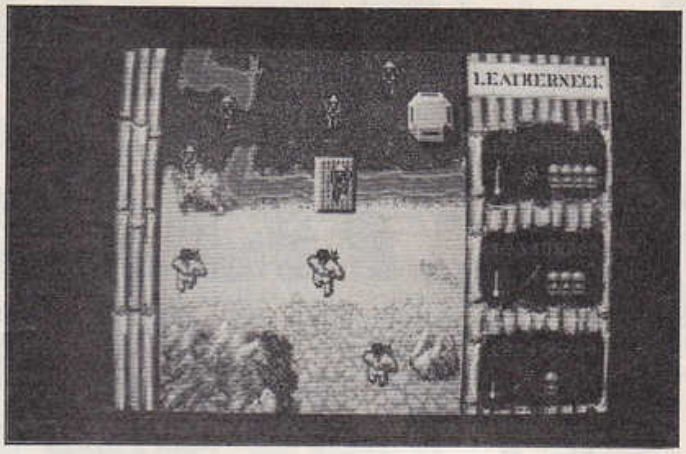
Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. We cannot accept responsibility for any alterations to show arrangements.

CHARTS

Top Twenty

1	(2)	Grand Prix Simulator	Code Masters
2	(1)	Game Set Match	Ocean
3	(8)	Solid Gold	US Gold
4	(9)	Pro Ski Simulator	Code Masters
5	(3)	Joe Blade	Players
6	(14)	Star Wars	Domark
7	(4)	Soccer Boss	Alternative
8	(6)	Renegade	Imagine
9	(12)	Gizzy	Code Masters
10	(11)	BMX Simulator	Code Masters
11	(18)	Fruit Machine Simulator	Code Masters
12	(5)	World Class Leaderboard	Access-US Gold
13	(17)	ATV Simulator	Code Masters
14	(22)	Paperboy	Elite
15	(NE)	Combat School	Ocean
16	(7)	California Games	Epyx
17	(10)	Back To The Future	Firebird
18	(19)	Thundercats	Elite
19	(20)	10 Pack	Gremlin Graphics
20	(15)	Indiana Jones	US Gold

All figures compiled by Gallup



SOFTWARE HOTLINES

Hello again. After my two weeks in exile it's back in the hot seat again. The screenshot this week is of **Microdeal's** *Leatherneck*, an ST vertical blast game with a difference.

Not only are the graphics great, but up to four players can take part at once. This is facilitated by the use of a piece of hardware that plugs into one of the ST's ports, providing two extra joysticks. As *Gauntlet 2* is expected to use the same system it bodes well for multi-player games.

An up and coming Christmas release from **Ocean** for the C64 is *Madballs*. Programmed by Denton Designs, the objective is more than a little strange. You knock other madballs into goals to get them on your team, use captured madballs to get around and score, and collect refuse to feed your madballs and increase energy. Well, it all sounds pretty complicated to me, but check it out when it's released in mid-December.

Just seen some pictures of the imminent **Rainbird** ST releases. *Bubble Bobble* is platform and ladders and does not look too impressive. *Black Lamp* is being produced by Graham Everett, Steve 'Star Trek' Cain and Fred Grey, which explains why the graphics look very good indeed. Release date is (the infamous) coming soon.

Also from **Rainbird,** the Spectrum version of *Flying Shark*, which has some nice and large graphics. This one's due in December sometime, price £7.95.

Over at Maxwellsoft, sorry, **Mirrorsoft,** their release in the December club is *Andy Capp*. Yes, you play the suave sophisticated rogue, who has had his dole cheque pinched and must expend, as the press release says, "every ounce of your Northern charm to find out who the *!?* made off with it." Now, coming as I do from the northern wastelands I found this just a teeny bit insulting, but I can live with it. The game will be available for the Spectrum, Amstrad and Commodore 64.

Three jolly interesting things have just arrived in the post. *Backlash* (at last) and *The Bards Tale* on the ST, and *Rampage* on the C64. Hmmm. Which one will be Game of the Week (roll of drums) in the next issue? Can you guess?

Software Publishing Associates have a couple of oddly named titles coming soon, *Larrie and the Ardies* on the Amiga (I kid you not), and *O.K. Yah!* on the Spectrum.

It's all change over at **Ariolasoft,** where Amanda Barry has called it a day and moved over to Activision, which has just lost its Ambassador, Andrew Wright. It's all fun and games when you're in the biz.

Just as you thought your bank balance was safe, yet another **Infocom** release is imminent - *Border Zone*, a spy adventure written by the co-author of *Zork*, Mark Blanc. Rest assured that this is the last one this year, though expect a similar deluge in 1988.

Although I can imagine Mike Gatting's *Reverse Sweep* game, as suggested two weeks ago in this column, would be appreciated, I am sure the sequel, *Kill an Umpire*, will be much more popular.

There is not much new material for the BBC these days but one company still plugging away is **Superior Software.** Its latest is *Bone Crusher* and casts you as a dragon selling soap for a living.

Finally, here's a little quiz for you. Who exactly was that 'Daniel McGrath' that so ineptly filled my shoes these past weeks? And no, it wasn't me.

Duncan Evans

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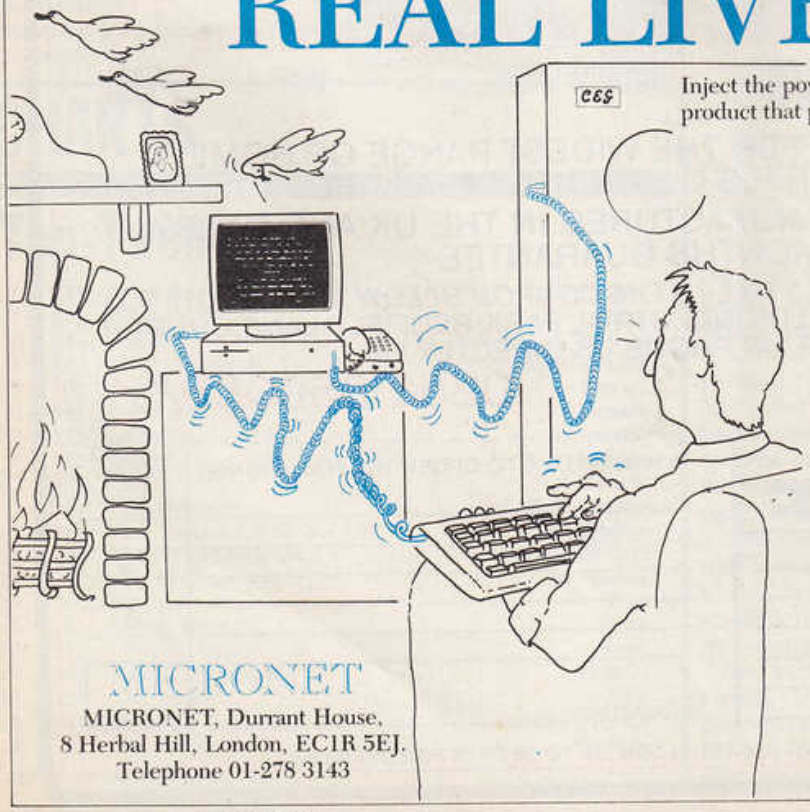

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Market masters

Code Masters have increasingly been in the limelight. Nikki Carvey outlines how an initial fascination with computers in 1981 resulted in the formation of a successful company.

"I cannot believe it has all happened," says Richard Darling. Who would? At just 20, he and his brother David, 21, run Britain's No. 1 budget games company.

Code Masters is the culmination of a fascination with computers which began in 1981 while they were at school in Vancouver, Canada. Computers had been introduced into their maths lessons and, according to Richard, they became hooked. "I liked the idea of controlling them and being able to make them do what you wanted," he says.

What they wanted to do was write games and when a friend bought a Commodore Vic-20, the brothers hogged it. Later, on their return to England in 1982, they bought their own computer so that they could continue to create games.

They soon noticed, from reading *Popular Computing Weekly*, that it was difficult and expensive for the public to buy computer games. Since they believed their games were of sufficiently high standard, they took the initiative to sell their own. A small classified advertisement was placed in *Popular Computing Weekly* and they waited for the response.

David was surprised by what happened, "We were completely swamped with orders and had to stay up all night copying them manually to meet the demand," he says.

They did not get rich overnight, but their hard graft eventually was rewarded. By the autumn of 1983 they had formed their mail order company, Galactic Software. The classified advertisements were replaced by full-page colour ones – the Darling brothers were in business.

While exhibiting at the LET Computer Show in 1984, they were approached by three software houses for which they subsequently produced games. Later, they struck up a joint partnership with the market leader, Mastertronic.

Richard explains the move as logical because Mastertronic offered them a marketing and distribution service they would not have had if they had continued as Galactic. "Mastertronic started budget software and since it was already involved in video, it had access to all the outlets which it sold videos to. They could then use these for computer games, too."

Although they produced a number of successful games as a result of the partnership, including *Master of Magic* and *The Last V8*, the brothers decided in the Spring of 1986 to split from Mastertronic. "It was restrictive," says Richard, "there were games we wanted to release but Mastertronic did not. We were not getting the most out of the games."

They then spent the next few months developing a range of games to start their new company. In September, 1986, Code Masters launched with 12 titles and now they have a range of 54.

Richard Darling: spending time on products.

Seven are now featured in the Gallup Top 20 and the brothers believe that Code Masters will go on increasing its percentage of the market until the full-priced market is eliminated.

Their games are enhanced by the vivid graphics of artist James Wilson. A good friend of David's at school, he has been with them since the mail order days. The brothers are certain that stimulating graphics add to a game's longevity and interest so that the player has the incentive to continue playing.

James now supervises a team of freelance artists while the brothers supervise what their 100 or so freelance programmers are doing. According to Richard it is that orientation towards programming which again differentiates them from other companies.

"We tend to put our games through a finer net, spending plenty of time on each product."

The brothers shy from the extensive advertising campaigns run by full-price houses – "if the games are good enough, it will get round by word-of-mouth" – preferring instead to advertise themselves.

They are signed to one of the biggest public relations companies, Lynne Franks, which gets them as much media exposure as possible. Appearances on Children's Channel and The No. 73 Show are among their past dates and they are scheduled for a signing at the HMV Music Store, London in January.

That latter appearance fits aptly with the launch of the Plus range this month. Based on the idea of record mixes, the new titles, *Super BMX* and *Jet Bike*, offer the player several versions of the same game. On Super BMX, Richard has also introduced for the first time a simultaneous four player facility.

David and Richard hope their new idea will catch on, intending to introduce other titles to the range. If it does they will continue to manufacture the £1.99 games, however, with plans to move into the American market. At present they have a Code Masters representative researching for them in the U.S. and schedules are being drawn up for shipment within the next month.

Tagged, inevitably, as computer whizz-kids; they are conscious not to portray that image to the public. Their profit is ploughed back into the company, with the brothers preferring instead to live modestly. "At the end of the year we discovered what we have spent and call that a salary," Richard says.

They work from two converted barns at the rural family home in Oxfordshire, which is just as well since the family plays a large part in the business. Their father, Jim, joined as financial adviser when they were Galactic. More recently, sisters Abigail and Elizabeth have been employed.

Richard and David may epitomise the young, successful entrepreneurs but they have slogged hard for it. David now devotes all his time to running the business while Richard is still involved in creating games. Having spent many nights programming Super BMX, Richard is resting and waiting for inspiration for his next project. Who knows what Code Masters will produce next? □

LETTERS

Help at hand

In *Popular Computing Weekly* Vol 6 No 44 you published a letter from D A John Wase of Bishampton ('In From The Cold') about his Spectrum +2 playing up, asking if any reader knew exactly what causes it and how to cure it.

May I say that I had exactly the same problems and I sent it to Mastercare Ltd of Doncaster who sorted it out very quickly indeed. The staff was really wonderful and very helpful, so if you could let him know and anyone else who is having trouble with a Spectrum you will be doing them a good turn. It seems that the problems mentioned are a regular thing on the 128 +2, but Mastercare is in my opinion the place to have them sorted out. Its full address is, Mastercare Ltd, Shaw Lane Industrial Estate, Ogden Road, Doncaster, S Yorkshire DN2 4SQ.

Phil Houldsworth,
Woolwich, London.

Editor's reply. It is good to see that there are some happy customers and suppliers, as well as annoyed ones.

Hackers' delight

What a restrained piece of writing on the part of *Popular Computing Weekly*. I refer to the SCA Virus problem on the Amiga. The SCA does exist – I have seen it happen but it is not a great problem because it is a problem which is very simple and easy to destroy.

No doubt we can expect a series of Virus programs to appear, thanks to *Popular Computing Weekly* explaining step by step how to write one. What about the two ST virus problems and those on the Apple 2? Any disc-based machine popular in Europe and the U.S. which has either a large PD software scene or a large hacking system, or both, is very prone to these programs.

I am sure that the rumours about a certain large U.K. software publisher installing the Virus to stop people spreading demonstrations and pre-relase versions of its software is unlikely, even if similar things have been tried in the past and reported by the computer press.

Anyone who doubts the existence of the likes of Virus and tapeworm and trojan-horse programs should check some of the popular science magazines which have covered them for years.

As the SCA virus lives on, the 'invisible' boot sector using DIR would not reveal it. Installing a disc from the CLI is a simple way of blasting the virus. It can also be removed by writing a boot demonstration to the sector. Most hacked games now have them built-in.

Use the key disc principle when using a disc, boot with the original and then insert the copy once the game has loaded.

To remove the virus there are several virus-killing programs which scan the boot sector and allow you to delete or keep the virus. There are also a number of routines available which flush out the RAM, killing the virus. Finally, there is at least one program which can be written to the disc which will protect against catching the virus.

By the way, hackers are the people least likely to be bothered by the virus. As soon as it became known we produced counter-measures, which we use. The virus is now a somewhat endangered species in Europe, thanks to the spread of the virus-killer programs. The only way this problem will infect others is if certain software shops continue to deal in pirate software.

Then a customer buys a game after trying. If the disc is write-protected there is no problem, even if the virus does not always copy. The only other source is the person who copies the occasional game and does not have the contacts to resolve the problem.

I had Virus on my Amiga discs for three months. In all that time it managed to copy itself only to four other discs out of several hundred. None of the software I copied for friends was infected either.

A Hacker of DIS.

Searching for a rainbow

Sadly I have decided to throw in the towel after four years without missing an issue. I have observed the decline in standards for some time, the new look being the proverbial last straw.

I suppose it is what your younger readers want – but the re-expansion of the games review section to dominate the magazine once again is a great disappointment to me and, I suspect, many other more computer-mature readers.

As the only weekly on the stalls you have a marvellous opportunity to be the first with the news, so why throw it away by filling what could be the best part of your product with trivial items like, say, minor personnel changes in the software industry?

My biggest complaint has been saved to the end. The quality of your recent articles has been dreadful. The piece about monitors the other week was a disaster. It was bad enough that we were taught nothing which really helped us to understand how they work, and what is compatible with what but the standard of prose and punctuation was pitiful and a sad reflection on those who let it go into print without substantial re-drafting.

This week, Kenn Garroch again rounds off a far too superficial introduction to I/O by telling us "the only limit is your imagination – microprocessors can control anything". We know that already. Your job is to tell us how. What does an OR gate package look like? Where do I get one? In which books do I look for further information?

Finally, this week in what was once Ziggurat, we are treated to the fatuous ramblings of an 8-bit owner who cannot afford a disc drive. How did you fill half a page with that?

Paul Mooney,
Stretham, Cambs.

Editor's reply. As you have found, we cannot please all the people all the time, and our new look magazine has overall met with very good response. Your criticisms of the monitor article are your views and to counter them we had many calls and letters praising both the magazine and its content, particularly Kenn Garroch.

Finally, to describe this week's Comment as 'fatuous' is unfair and untrue. The point of Comment is to let readers air their views and that is exactly what we do, whether or not everyone agrees with them.

Puzzle

I bought your magazine only for its final page and principally for the puzzle which varied from good to brilliant.

I almost always submitted an answer but my programs are not very good, though the puzzle taught me a good deal.

The other thing of merit was Kenn Garroch. I preferred the old picture.

My subscription has been cancelled. I will look from time to time in the newsagents and if the old compiler returns – and his style is distinctive – I might buy again. You should make up your minds whether your publication is concerned with games and children's rubbish or serious computing.

Douglas Nelson,
Folkestone, Kent.

Editor's reply. It is back, what more can we say?

Yours, satisfied

First of all, I would like to congratulate you on your new look magazine. It looks more professional.

I would also like to contribute to the great Amiga *vs* Atari ST debate. While I consider the Amiga to be the better machine, from past experience the cheaper computer will dominate the home market.

However as computer hobbyists of yester-years have now come of age and are now probably earners, many would seriously consider the Amiga. I would most certainly be glad to own both and I predict a tie.

By the way, David Lester's article on Contracts was interesting and enlightening.

Olusola Ogunde,
Ilford, Essex.

"New computer? What new computer?"

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

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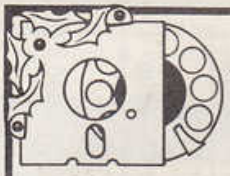

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Picture this. You are heading up a windy mountain road, more than 400 horsepower of pure Italian sports car at your disposal. Suddenly speed restrictions mean nothing, 80 . . 90 . . 100 . . 110 as you scream away you scream away you hear the unwanted wail of police sirens.

That is the scenario for *Test Drive*, the latest Amiga game to be released in the U.K. by Electronic Arts. Programmed originally in the U.S. by Accolade, the company which released *Handball* and *PSI 5 Trading Company*, it is a car enthusiasts' dream game.

It places you as a multi-millionaire software company owner who has just sold out and has begun to indulge himself in his favourite hobby, fast sports cars.

You have five cars from which to choose, all capable of almost three times the speed limit – remember we are talking about the U.S. speed limit of 55mph. The cars are the Lamborghini Countach, Ferrari Testarossa, Lotus Esprit Turbo, Porsche 911 Turbo and the Chevrolet Corvette – they had to have one yankee car.

As you would expect on the Amiga, the graphics are out of this world. Each car is fabulously drawn and the Lamborghini Countach in particular is superb.

Once you have chosen the car you want to drive – each car's performance statistics are displayed on the screen for your perusal – you must prepare to set off on the course provided.

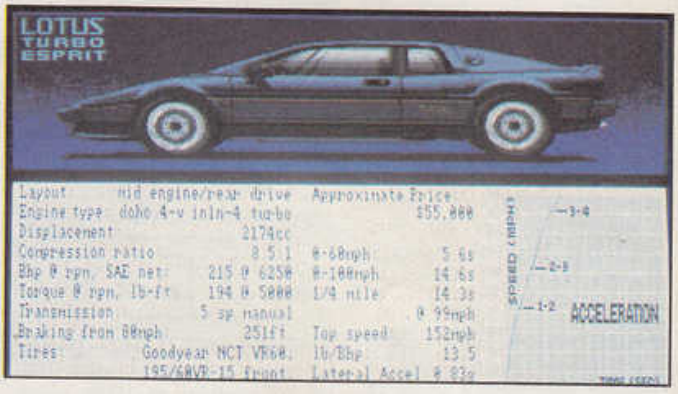
The route you have to drive is more reminiscent of the Lombard RAC Rally than anything, with vicious corners, punishing hills and, to make things really bad, a host of traffic. To make things slightly easier, the cars you are driving are capable of out-accelerating almost anything on the road – except the odd smokie – policeman to you and me.

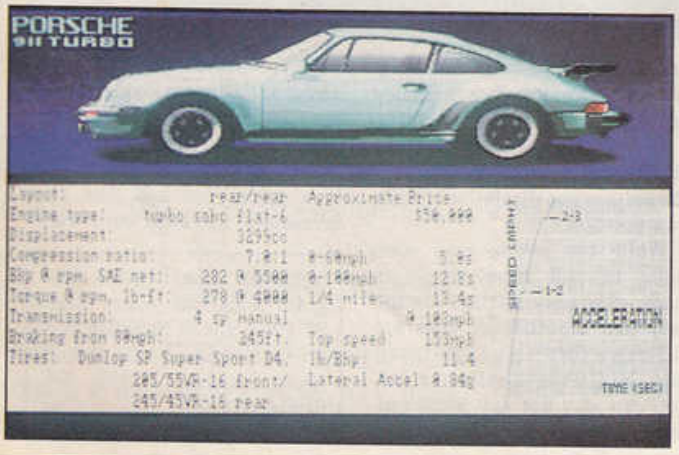
The object is to travel along the route as fast and furiously as possible, avoiding the two main sources of grief, the police and accidents. If you crash, you must re-start from where you had the accident and thus lose valuable time.

The police, however, present a more serious threat. Although your cars are equipped with radar detectors to warn you of their presence if you choose to ignore the radar – and ignore it you must, to achieve a half-way decent average speed.

The one small flaw in this game is the sound. Although there are a few reasonable tunes, the sound effects leave a little to be desired. It would have been pleasant if Accolade could have used different engine noises for the cars, particularly as a four-cylinder Lotus should sound nothing at all like a 12-cylinder Ferrari.

That apart, Test Drive is one of the best games yet on the Amiga. The scrolling is incredibly smooth and is very reminiscent of *Out Run* in the arcades. For any car enthusiast the game is essential, as it is for anyone who wants to see the capabilities of an Amiga.





Reviewer Daniel McGrath **Program** *Test Drive* **Micro** Amiga **Price** £24.95 **Supplier** Electronic Arts, Langley, Berkshire.

Your complete guide to all the software released this week

Amstrad CPC

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

The great mouse reaches the more colourful Amstrad, and looks all the better for it. Definitely one of the better releases for this machine of late, and perfect Christmas fare.

Amstrad PC

Program *Missile Attack* **Type** Arcade **Price** £14.95 **Supplier** Illimitable, 14 Clausentum Road, Portswood, Southampton SO2 0RZ.

Simple graphics but engaging gameplay make this mouse controlled blast from the past an essential purchase for those with a hankering for the good old days.

Airborne Ranger

With something of a change of pace, Microprose produced *Airborne Ranger*, a game which could easily be described as the thinking man's blast.

After getting through the preliminaries you must choose from the 12 missions on offer, which range from destroying a munitions depot, stealing a code book, disabling enemy aircraft, cutting a pipeline, disabling a SAM site, to the all-time favourite, liberating a POW camp.

The first part of your mission takes the form of flying over the target terrain in an Osprey and dropping three supply pods at the desired point. Then it is the moment of truth as you parachute. The graphics of this little sequence are pokey but are not crucial to the game so it doesn't matter much.

The controls for your ranger, when you get down to the ground and into the serious action, include eight-way movement and 32-way firing. The latter is achieved by having a marker which points in the direction you are facing but can be moved clockwise or anti-clockwise two positions before your ranger moves.

Although it is a little strange initially, using the system soon becomes second nature and enables more precise aiming than you usually get in this style of game.

The other features are being able to run and crawl, though obviously not both at once. There are three counters – countdown clock, which shows how much time you have to complete a mission before the pick-up arrives to fly you out; fatigue bar, which shows the ranger's relative tiredness which affects his ability to run; and a wound indicator. Take three wounds and it is goodbye, soldier. Injuries can be treated with first aid but you have only one kit initially, though more medication is available in the pods you dropped earlier.

With a wide variety of missions, weapons, honours and promotions available, Airborne Ranger has the action appeal of Commando-style games plus the tactical elements of the more highbrow simulations. Once you get into it you will find that Microprose has produced the goods again.

Reviewer Duncan Evans **Program** *Airborne Ranger* **Micro** C64 **Price** £14.95 (tape), £19.95 (disc) **Supplier** Microprose, 2 Market Place, Tetbury, Gloucestershire GL8 0DA.

MidiMaze

MidiMaze is either the most clichéd game for ages, or the most original, depending on how you look at it. Produced by music specialists Hybrid Arts and programmed by graphics demonstration wizards Xanth FX, it certainly makes good use of the ST's large memory by allowing up to 16 players to compete simultaneously

The plot is simple. You are a jolly-looking Smiley Face inhabiting a three-dimensional maze of featureless grey walls and open spaces. Your task is to seek other Smileys and massacre them mercilessly.

The big gimmick is that using the ST Midi ports, normally reserved for musical functions, you can network up to 16 machines and have each Smiley controlled by a different player who sees that Smiley's viewpoint on his monitor.

A feature called MidiCam allows one machine to be used to entertain non-participants, showing the viewpoint of each Smiley in turn.

It will also display a map showing all the players, whereas the players can display only their own position.

While the action may soon begin to pall in single-player mode – the easy settings are too easy and the difficult ones too difficult – for team or free-for-all play, *MidiMaze* is unlimited fun. You can also use any word processor which generates ASCII files to create your own maze designs, so the enjoyment is almost unlimited.

While it is a little expensive, if you are buying MidiMaze to play in a group you will find your investment has been worthwhile.

Reviewer John Renwick **Program** *MidiMaze* **Micro** Atari ST **Price** £34.95 **Supplier** Syndromic Music, 24-6 Avenue Mews, London N10 3NP. Tel: 01-444 9126.

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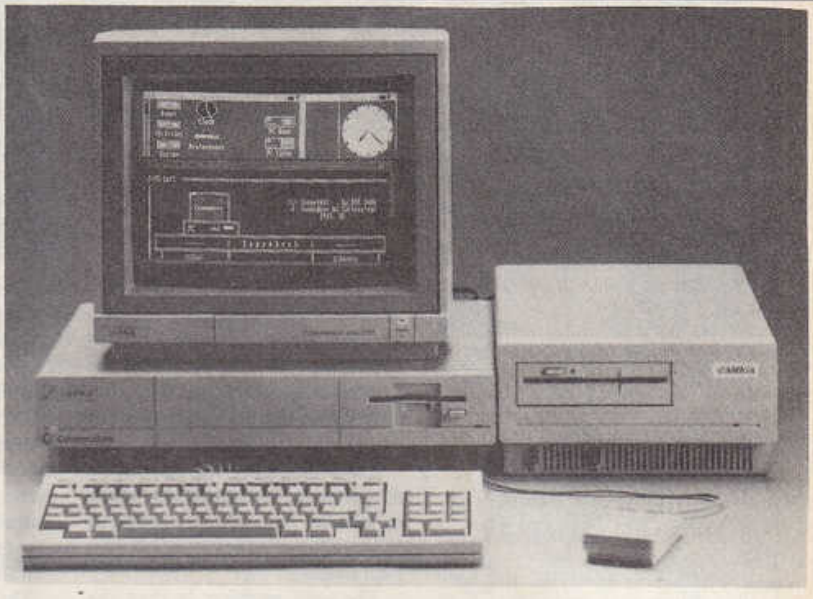

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Software guide continued

Atari ST

Program *Frostbyte* **Type** Platform **Price** £14.95 **Supplier** Tynesoft, Addison Industrial Estate, Blaydon-upon-Tyne, Tyne and Wear.

Conversion of Platform and Ladders game that looks pretty in places but flatters to deceive. Nowhere near as good as this company's other similar game, *Mousetrap.*

Atari XE/XL

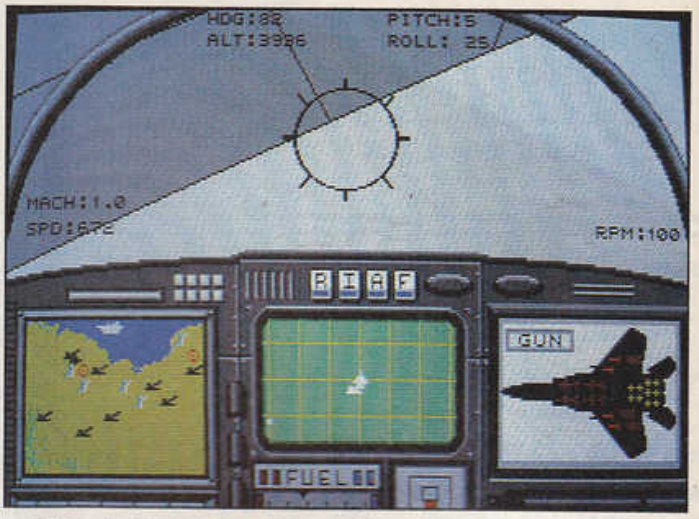
Program *Little Devil* **Type** Arcade **Price** £7.95 (tape), £9.95 (disc) **Supplier** Red Rat, 11 Fennel Street, Manchester M4 3DU.

Leapy, leapy, jumpy, jumpy, over a series of scenes from Hell. Entertaining enough in a limited sort of way, but not the best looking game I've ever seen to say the least.

Program *Basil the Great Mouse Detective* **Type** Arcade **Price** £9.99 **Supplier** Gremlin Graphics, 10 Carver Street, Sheffield S1 4FS.

Bazzer the mouse on the Atari as well! Looks good, plays good. Crikey!

F15 Strike Eagle



Going in low for bombing run, reducing speed to 400. SAM launch detected, activating ECM JAMMING. Bomb released direct hit, target destroyed. Enemy aircraft at seven o'clock, missile locked on fire. Another enemy aircraft bites the dust.

Welcome to the world of the *F15 Strike Eagle,* an aircraft combat simulation from Microprose.

You have eight missions to carry-out. Each is set in one of the Arab States.

The simulation was good on the CBM 64; it is even better on the Atari ST – the graphics are much cleaner and move smoother. The aircraft, are drawn using shaded vector graphics, but the ground targets are still flat, two-dimensional objects drawn on to the ground surface.

The F15 has a varied selection of weapons, including two types of missile, machine guns and for those all-important ground targets bombs.

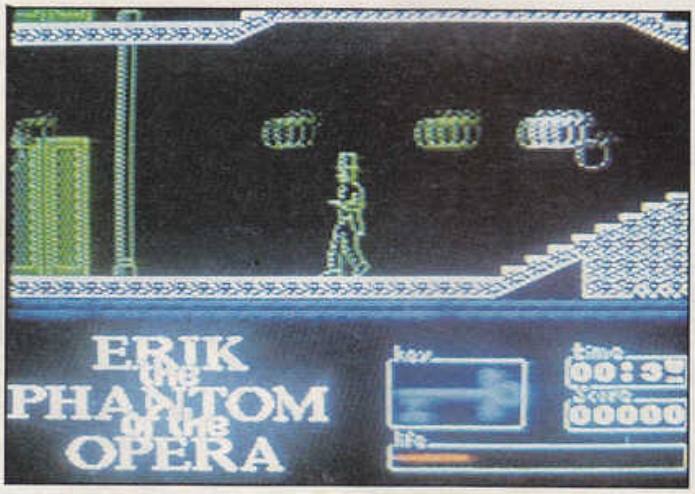
The only problem is that the enemy shoots back and to help you avoid an early demise your aircraft is equipped with ECM jamming, for radar-seeking missiles and flares for the heat-seeking missiles.

The screen is split into four sections. The first, which occupies the top half of the screen, is the pilot's view from the cockpit. Underneath it there are three smaller screens showing the map, radar with three ranges and a screen showing a graphical representation of your aircraft with the current number of missiles and bombs being displayed.

The simulation allows up to four players to play, not all at once, and has the facility to save the game in progress on a data disc. The combat action is fast and with four types of enemy there is no lack of targets.

F15 Strike Eagle is a well-written simulation and with four skill levels will suit everyone from the novice to the ace. Assuming you can swallow the inherent gung-ho attitude the program is essential, for all simulation fans who like some action.

Reviewer Adrian Pumphrey **Program** *F15 Strike Eagle* **Micro** Atari ST **Price** £24.95 **Supplier** Microprose, 2 Market Place, Tetbury, Gloucestershire.



Erik, Phantom of the Opera

Now and again you will see a game which makes you seriously wonder whether the software company responsible has looked at the rival products on the market. Games of this type are usually advertised with supposedly funny cartoons, the humour of which makes you cringe with embarrassment. *Erik, Phantom of the Opera,* is just such a one.

Erik is an arcade adventure with endearingly awful graphics, resolutely two-dimensional, when even the least discriminating of budget software houses can now do a lovely ultimate-style 3D arcade adventure complete with fixtures and fittings for a reasonable £1.99. Needless to say, the sound effects are of the usual plip-plip-PLIP-plip-plip type, too.

As you control some top-hatted man around the sparsely-designed opera house in his quest to defeat the mad Erik and save the heroine, you will soon be wishing Erik would just burn down the place and get it over.

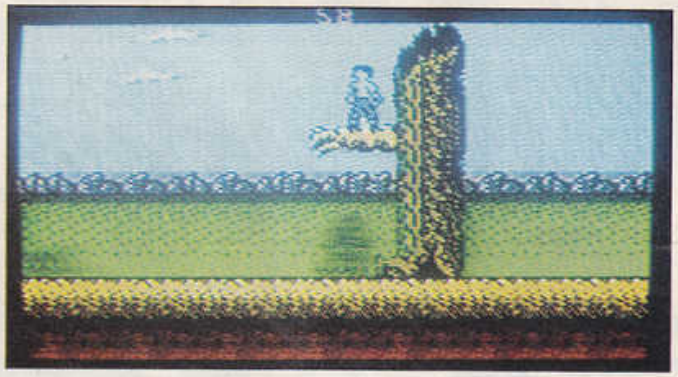
As you search for the six keys which will gain you access to Erik's home-from-home in the sewers, the terrifying perils you will encounter include bouncing skulls, demonic heads and fireballs, depicted with all the graphic sophistication of, say, *Manic Miner.*

So far as I can remember, none of them appeared in Gaston Leroux's novel but this is the software business.

So amateurish is the whole effort, that seriously expected to see little gravestones appearing when you lose a life, or to hear the Dead March playing. All the other cliches are there, so why not?

Reviewer John Renwick **Program** *Erik, Phantom of the Opera* **Micro** Spectrum **Price** £7.95 **Supplier** Crysys/SPA, Units 1 and 2, Alice Owen Technology Centre, 251 Goswell Road, London EC1V 7JQ.

Rygar



Rygar certainly is not a game for the strategically-inclined. Based firmly on the popular coin-op, it is a bloodthirsty arcade adventure in which your trusty rotary saw is called on to disembowel all kinds of gladiators, reptiles, monsters, harpies and what look like Mayan turtles.

If you can swallow the stilted prose of the insert – "Many dominators have ruled in all their glory . . . but Time, their greatest enemy, ultimately defeated their reign" – you will probably enjoy the fast-moving action. Leaping over shattered buildings, using fossilised trees as shelter, *Rygar* fights off hordes of crawling, running and flying monsters. At the end of each level is a bonus screen which earns you points according to how many times your spinning blade has drawn blood.

Some of your victims leave tokens which can be picked up to increase your power, leap higher, slash further, get tougher and so forth.

While there is not a terrific amount of variation, especially in the backgrounds which consists mainly of trees, pits and blocks, Rygar is fast and furious enough to retain your interest past the point where you can easily cope with the deluge of enemies.

One of the better recent coin-op conversions, not perhaps as good as original titles such as Hewson's *Exolon*, but worth examination nonetheless. If nothing else, it is a good advertisement for Black & Decker.

Reviewer John Renwick **Program** *Rygar* **Micro** Spectrum **Price** £8.99 **Supplier** US Gold, Units 2/3, Holford Way, Holford, Birmingham B6 7AX.

Tanglewood

Microdeals recent releases have, on the whole, been very good, so when a new ST game with graphics by Pete Lyon – *Goldrunner* and *Karate Kid 2* – emerges from darkest Cornwall, the disc is thrust into our office ST with eager anticipation.

Tanglewood is described as a graphics adventure but it would be closer to the truth to say arcade adventure as there is no text entry. The story contains echoes of Terropods but there is no real comparison.

You alone have the right to mine the planet on which the action takes place but a rival company has stolen the requisite documents and hidden them inside the multi-storey complex which is their headquarters.

In 10 days an inter-galactic court meets to decide who is to strip the planet of its assets.

So, off you go with your five mining mobiles, attempting to recover the documents in time.

Most of the action takes place on a flat map, with your currently-activated mobile trudging round the various paths. With 3,000 screens, there is plenty, of trudging to do.

It is just like Christmas shopping – you spend ages wandering around and still don't find what you seek. The idea of using the mouse for the control is not a good one either, it makes moving around frustrating at times.

On the surface of Tanglewood are various items such as D-crystals and Ice Emeralds and many regions, including the earthquake zone, the underground mines, and areas where special computer programs are needed to make further progress. You will also need to cultivate the support of the native Tanglians, which should not be easy since you are only there to rape their planet.

Underground the perspective changes in certain situations to a 3D view, which is pleasant to look at and effective.

The main map graphics, though, are at once sombre and horrible.

They are well-drawn and designed – it is just that the colour scheme leaves everything to be desired.

Not a game for those who give in easily, Tanglewood is something of a let-down after a string of excellent titles from Microdeal.

Reviewer Duncan Evans **Program** *Tanglewood* **Micro** Atari St **Price** £19.95 **Supplier** Microdeal, PO Box 68, St. Austell, Cornwall.

Software guide continued

Commodore 64

Program *Street Sports Basketball* **Type** Sport **Price** £9.95 **Supplier** Epyx, Units 2-3, Holford Way, Holford, Birmingham B6 7AX.

It all depends on whether you like basketball I suppose. Graphics and sound are good enough to please the people who do, but not those, like myself, who find the sport an exercise in yawning.

Program *Ninja Hamster* **Type** Martial Arts **Price** £9.95 **Supplier** CRL, CRL House, King Yard, Carpenters Road, London E15 2HD.

What a great throwaway title. Sheer lunacy in this martial arts game in which you play a hamster, beset by all sorts of furry foes, like Sinister Rat and Lizard of Death.

Great fun, a game that doesn't take itself at all seriously that's well worth a look.

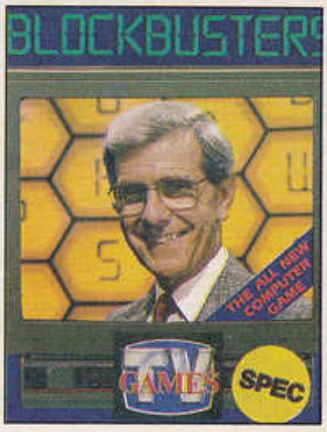
Program *Jet Boys* **Type** Arcade **Price** £9.95 **Supplier** CRL, CRL House, Kings Yard, Carpenters Road, London E15 2HD.

The CRL deluge continues with a game so ordinary it makes you want to forget you ever took it off the shelf for a look in the first place.

Program *Vengance* **Type** Arcade **Price** £9.95 **Supplier** CRL, CRL House, Kings Yard, Carpenters Road, London E15 2HD.

Vertically scrolling shoot 'em up in part one, and hunt through the ship for eight components in part two.

continued on page 23 ▶



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Atari's showdown

Duncan Evans reports on this year's Atari Christmas Show.

London's Novotel Hotel was once again the host for this year's Atari Christmas Show, an event which gives the industry a last chance to show or release products before the season of excess gets truly into swing. The majority of the product was for the ST, although the XE/XL systems were still in evidence.

Atari machines are renowned for their games playing ability so it was a little disappointing to see such a poor showing from the games software houses. Only Microdeal, Red Rat and Tynesoft made any real effort.

New releases

Microdeal's only new release was Tanglewood (reviewed elsewhere in this issue), although Leatherneck, Goldrunner 2, and ST Soccer all got a previewing. Of the latter three only ST Soccer has an imminent release date.

Goldrunner 2 looked like more of the same, but with a smaller ship and a bigger playing area, so it should be good. Leatherneck is the one really worth waiting for though (due January), as it features up to four players in Rambo-style action.

Announced by Microdeal (0726 68020), but not seen, was Slaygon, which looks vaguely similar to Hacker 2.

Red Rat Software had a lot of new releases. Screaming Wings and Pengo were both for the ST while the XL/XE was treated to Nightmares and Little Devil.

More games

Tynesoft's big ST releases, Winter Olympiad 88 and Grand Prix missed the show unfortunately, but Frostbyte was there and also Mirax Force on the XE/XL. This latter game appears to be a Uridium clone (reviewed next week).

Other games were limited to Robtek's (01-847 4457) Alien Strike (ST) which looked pretty average, and a new company called Creation had Skyrider, another game not a million miles away from Uridium. Novagen weren't there, but Backlash was, being offered by many retailers at around £14.

Atari themselves put in an obligatory but very muted appearance. No new product, like the CD Rom, but I did see someone carting off a Mega 2 ST so at least they're now readily available.

Elsewhere on the hardware front interesting things were afoot. Eidersoft (0268 541212) had a very impressive stand, Pro Sound and the Hi-Fi upgrade were booming out over the massed ranks of people peering at Quantum Paint (more on which later). Aladin, is a Mac emulator (another one) from Germany. And yes, you still need to get hold of the Apple Mac ROMs to plug into it. Cost will be £169.

The Atari stand.

Robtek was taking orders for PC Ditto, the PC emulator, and offering some very good deals on their entire range of products. If you want a new printer then the GPR 2000 daisywheel from Dataplus (0242 573573) is one to consider at only £237.35.

KKS Electronics (0594 26435) were displaying a couple of modems from Pace (0274 488211), the Linnet, a V21/V23 intelligent modem with autodial and answer, and the Nightingale, a low cost V21/V23 alternative.

Besides offering their range of excellent value for money disc drives Cumana (0483 503121) also had an OS-9/68000 V2.1 upgrade for those interested in a low cost (well, relatively), high performance UNIX style system.

Joysticks

There seems no limit to the wackiness of joystick manufacturers. Star Trak from RH Design (0423 880520) doesn't have a stick! Instead there are sixteen movement buttons (still eight way control though) and a fire button.

If you have to do a lot of travelling then an expensive solution to the problem of protecting your BT equipment comes in the form of Joint Venture Systems (0793 693778) H-Bag. There's one for the keyboard, and one for a monitor. The cost is £39.95 each or £75 for both.

JVS also had an impressive scanner on show, capable of capturing images with resolutions up to 300 dpi with 32 shades of grey. The ST-Scan Image Scanner comes with scanner, interface, cable and software.

Serious software

There was a reasonable turn out in the serious software department, pride of place going to Eidersoft's Quantum Paint, which was in the final throes of being debugged. You should note that only the 129 colour mode will operate on a 500k system, 1000k or more is required for the 512 and 4096 colour modes. At £20 this, when it's finally released, has to be on every ST owners Christmas shopping list.

Computer Concepts (0442 63937) were showing and selling, Caligrapher, a document processor for the ST at only £69. This will be CC's last ST product for some time, as they are moving into the Archimedes market shortly.

Haba Marketing (01-8441202), Metacomco (0272 428781) and Electric Distribution (0954 61258) all exhibited their existing product lines, the most interesting of which was the latter company's Desktop Publisher (by Timeworks).

New recruits

It was good to see four user groups displaying their latest newsletters and sharing a stand downstairs. All of them are looking for new recruits so here's your chance to really get into the Atari community.

STutter (Tony Gosling - 0473 54602) is the UK ST club's newsletter, Attack! is by the London Atari Club (PO Box 319, London SE15 3NZ), Nugget is the newsletter of the Norwich User Group (0603 661149), and finally 8-16 is by the Bournemouth and Poole Atari User Group (248 Wimborne Road, Oakdale, Poole, Dorset). □

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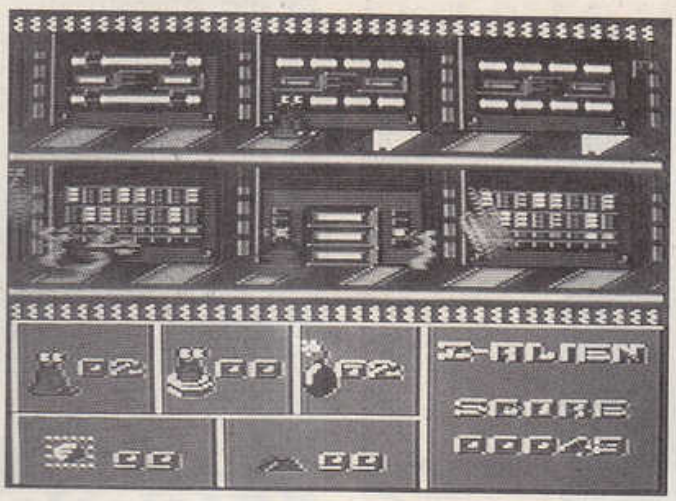
I, Alien



Something in the screenshots of *I, Alien* reminded me of the excellent coin-op *Xenophobe*. Unfortunately, the resemblance is purely illusory. *I, Alien* is a fairly undistinguished chase game in which the colourfulness of the screens is probably the best aspect of the program.

Set on a human slave ship, the game casts you as the lone alien battling mutants, droids and ice dragons in your attempt to escape the ship and reach an escape pod. The top half of the screen depicts the inside of the spaceship, the bowels of the planet and the surface, while the lower half is largely wasted with a few score counters.

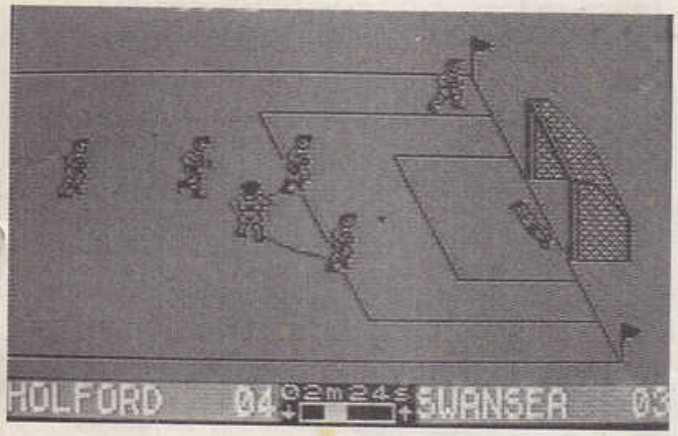
While the graphics and animation are acceptable, there is nothing remarkably stimulating about the action, which consists merely of shooting or leaping over baddies, seeking prisoners and defusing the odd bomb which has been carelessly left lying around.

To make things more senseless, certain enemies, when shot, will leave behind a pile of "acid flesh".

Contact with this, you might think, would do you no good but, to the contrary, it replenishes your firepower. On the other hand, certain baddies leave behind "transmitters" which, if hit, cause you to lose control of your legs; in other words, the joystick direction controls are reversed. Some droids leave behind energy crystals which restore your power.

If by now your sense of *deja vu* is almost overwhelming, let me agree that there is no single element of the game which suggests any spark of originality. Mixing elements of *Impossible Mission, Paradroid, Shaolin's Way* and countless platforms-and-ladders games, it achieves a mediocrity which is almost supernatural. Best avoided unless you have an obsessive devotion to this kind of thing.

Reviewer John Renwick **Program** *I, Alien* **Micro** CBM 64 **Price** £8.95 **Supplier** CRL, CRL House, 9 Kings Yard, Carpenters Road, London E15 2HD.



Superstar Soccer

After the poor *Footballer of the Year*, it is something of a surprise, and a pleasant one, to find that the latest Gremlin soccer program is at the other end of the quality scale. *Gary Lineker's Superstar Soccer* lets you manage teams and play in the matches and it is really good.

You take control of one of 64 teams which play in four divisions, 16 to a division obviously, for nine years. Each team starts with 10 players, rated on skill, playing position, age and injuries.

The main influence surfaces in the transfer section. Instead of buying a player offered to you, as in far too many other games, you are allotted trading points at the start of a season – and at the end depending on performance – which can be used to recruit, trade and generally improve a team. That draws heavily from the American football concept of relinquishing college draft choices in return for players or swaps.

For the first match of a season you pick the team to play and players, illuminated in yellow, are out of position, so their skill level will be affected detrimentally.

There are three varieties of offensive and defensive attitudes, which determine how positive/negative you want the team to play. When there is a halt in the play you can change your plans.

You do not have to watch the matches but, if you do, do not select normal speed to play them because it takes forever to complete one game. That is where the arcade element comes in as you control the centre forward. The method of passing has to be committed to memory, as each joystick position corresponds to a member of your team.

The animation of the players and the variety of movements is excellent even if half the players appear to be Brazilian. It is a surprise to find that there is still life in the football manager genre, because Gremlin certainly has done well with Gary Lineker's Superstar Soccer.

Reviewer Duncan Evans **Program** *Superstar Soccer* **Micro** Spectrum **Price** £7.99 **Supplier** Gremlin Graphics, 10 Carver Street, Sheffield S1 4FS.

Software guide continued

◀ continued from page 19

Commodore 64 continued

Program *Lifeforce* **Type** Arcade **Price** £9.95 **Supplier** CRL, CRL House, Kings Yard, Carpenters Road, London E15 2HD.

And yet more from CRL. This one is written by Software Invasion. Remember them? No? Produced some interesting BBC stuff yonks back. No? Ah well, maybe it's time to get aquainted.

In Lifeforce you play a mega-tank with enough firepower to level the Andies. Yeah, I can identify with that. You trog around this power station that's mutated into a lifeform, eradicating, repairing and eliminating.

Good graphics and reasonable sound effects make this one of CRL's better releases of late.

Program *G-Man* **Type** Arcade **Price** £2.99 **Supplier** Codemasters, Lower Farm House, Stoneythorpe, Southam, Warwickshire CV33 0DL.

Nothing new in this reworking of the authors original C16 game, but for the price it's playable enough, has good graphics and should keep you occupied for a while.

Program *Deja Vu* **Type** Adventure **Price** £14.95 **Supplier** Mirrorsoft, Athene House, 66-73 Shoe Lane, London EC4P 4AB.

Deja Vu – a nightmare comes true. I'll say. Playing this insipid game is certainly my idea of a nightmare.

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Red October

Based on the book by Tom Clancy, *The Hunt for Red October* casts you as a Soviet submarine commander in charge of the latest in Soviet technology. This being the world of righteous United States and big bad Soviet Union, the situation does not stay like that for long.

You and a select number of the crew have been overcome with a desire to give glasnost a miss and defect to the land of MacDonalds, drive-in movies, 24-hour TV and Ronald Reagan. Your ex-comrades are not too happy with this and endeavour to make your next trip to the seabed permanent.

The layout of the controls and overall design is pleasant, with bas relief icons for accessing all the various functions. There are now multiple screens in the format of *Silent Service* which, considering the relative complexity of Red October compared to the Microprose product, could be considered disappointing.

The game starts in the Reykjanes Ridge, an area with deep rock formations interspersed with Soviet surface and submarine vessels, U.S. attack submarines and an underwater listening network.

Initially your crew is unaware of the imminent defection and you must keep the truth from them as long as possible or the risk of being replaced, especially if you sail to odd parts of the map, are great. The other problem is detection. Although reasonable progress has to be made, creeping along quietly is more important.

There are three basic display types – sonar, contour and periscope. The latter gives you a view of the heaving sea, which is far from convincing, but at least the ships sailing around look good.

The controls may be icon-driven but it is still tricky to get to grips with them, very much so on the ST version which is unresponsive. On the Amiga things are much smoother but avoiding a watery grave is still difficult.

While Red October is more complex than Silent Service it is not so well-presented and, for me, less enjoyable.

Reviewer Duncan Evans **Program** *Hunt for Red October* **Micro** Amiga/ST **Price** £19.95 **Supplier** Argus, Victory House, Leicester Place, London WC2H 7NB.

Screaming Wings

Red Rat is well-known in the 8-bit Atari market and is one of the few companies still supporting that range. Not even Red Rat is immune to the lure of the ST, however, and at the recent Atari Show launched a conversion of one existing title and a new one.

Screaming Wings is a vertically-scrolling shoot-'em-up in the grand tradition of all the other games of that ilk. That is not necessarily a bad thing, if carried off with gusto and style, but, unfortunately Screaming Wings has neither of those desirable attributes.

The aim is simple, if your aim is good. Enemy jets pirouette, twirl and float gracefully towards you, spurting lead-jacketed death at a prodigious rate. Armed with a similar cannon you must avoid the hail of fire and return the compliment.

At the end of the first level a large fighter-bomber lumbers into view. Destroy this aeroplane version of a mothership and a spot of R&R can be had back at the airbase – until the next sortie

by the foe, of course. The scrolling is well done, especially considering how much of the screen is on the move, but the scenery underneath the well-designed aircraft is very bland, both in use of colour and design.

Lacking from *Screaming Wings* is that vital element of excitement which gets the adrenalin flowing. The disappointingly weak sound effects do not help. Although it is by no means a bad game, it is not up to the current standard of ST arcade games, so let us hope the next Red Rat production is an improvement.

Reviewer Duncan Evans **Program** *Screaming Wings* **Micro** Atari ST **Price** £9.95 **Supplier** Red Rat, 11 Fenel Street, Manchester M4 3DU.

Software guide continued

Spectrum

Program *Blockbusters* **Type** Quiz **Price** £7.95 **Supplier** Domark, 22 Hartfield Road, London SW19 3TA.

You too can pretend you're on the telly, pretend you're winning super prizes, and pretend that eight quid was money well spent.

Program *Star Wars* **Type** Arcade **Price** £7.95 **Supplier** Domark, 22 Hartfield Road, London SW19 3TA.

Remarkably good implementation of the coin-op originally, but the ST version is still by far the best. No sampled sound of course, and haven't we seen this sort of thing before in 3D Star Crash? If you haven't got that latter game though, this is one well worth buying.

Program *ACE 2* **Type** Combat Flight Simulator **Price** £8.95 **Supplier** Cascade Games, 1-3 Haywra Crescent, Harrogate HG1 5BG.

Hmm. Interesting one which divided office option in its other incarnations. If flight sim style combat games are your thing, it's one to check out.

Program *Venom* **Type** Adventure **Price** £1.99 **Supplier** Mastertronic, 8-10 Paul Street, London EC2.

Nothing to do with the band, but rather an adventure game with illustrated locations. The usual pixie quest plot but uses icon control to speed things up. You could do worse in your next choice of adventure.

Fast all rounder

Adrian Pumphrey reviews Fast Asm, a Fast Basic compatible editor/assembler.

When BASIC is no longer fast enough and you want to get into the heart of a computer, machine code may be the only answer. High level languages such as C or Pascal are all very well, but if you want to produce programs featuring fast moving graphics, then machine code is the only option.

Machine code, however, is just a series of generally indecipherable numbers, so in order to make the job just a little easier you can use an assembler which turns mnemonics (more English-like commands which you type in) into their corresponding machine code numbers.

Fast Asm is a Fast Basic compatible editor/assembler from Computer Concepts. The disc and 35 page manual come in a stylish black plastic wallet with the claim 'ultra fast 68000 assembler' adorning the front. By fast they mean assembling up to 50,000 lines per minute.

Unfortunately, I did not have a 50,000 line assembly program lying around so you will have to take their word for it, but when assembling smaller programs the speed was certainly impressive.

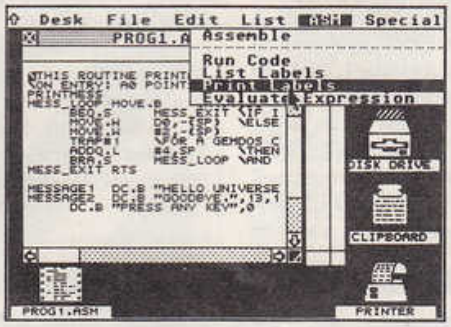
Most packages fall down on the manual, but this is not the case with *Fast Asm*. The manual is written clearly and is easy to understand, although I did manage to find three undocumented commands.

The editor/assembler is simplified by the use of GEM and a mouse for selecting commands from the drop down menus. One feature worth mentioning is the save desktop command, which allows you to save your own customised window setup for later retrieval.

"Most packages fall down on the manual, but this is not the case with Fast Asm. The manual is written clearly and is easy to understand.

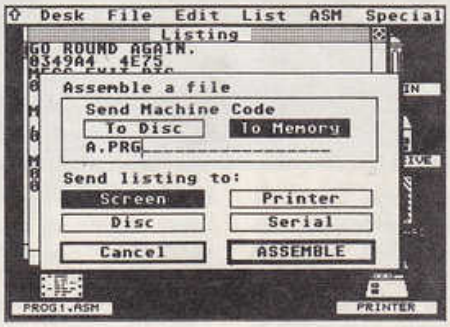
Most assemblers can only have one program in memory at any one time, but with *Fast Asm* you can have up to 10 programs in memory simultaneously, the size of which depends upon the amount of memory in your particular machine.

You can add programs on to the end of one another or you can insert programs into each other, which is very useful for adding subroutines. If you do not want to add subroutines while editing you can call them from disc when assembling. A clipboard facility can also be used with the cut and paste commands.



An assembly listing of Fast Asm.

When a program is moved to the clipboard it is converted into ASCII code and can be saved in that format. To load an ASCII code program into *Fast Asm*, you load the program into the clipboard and then transfer it into a segment.



Preparing to assemble.

Two useful programming functions are Evaluate Expression and Automatic case conversion. The former is a calculator which will display results in both decimal and hexadecimal. The latter allows the programmer to type in lower case and if a recognised assembler command is entered it is converted automatically to upper case.

The assembling can be done in one of three ways, assemble placing object code in memory, assemble placing object code on disc or assemble and produce no object code – to save time producing object code from a source code that may not assemble.

If your program failed to assemble properly you can list the source code and the cursor will rest on the offending instruction and an appropriate error message will be displayed at the top of the screen. If, however, your program assembled correctly, you can run it without leaving the assembler, providing you assembled to memory and placed a return from subroutine instruction onto the end of your program. This option will show the final status of the registers on completion of the program run. It is also possible to display the variables used in the program together with their current values.

On the debit side, there is very little in the way of debug facilities. This may present problems to inexperienced programmers.

If you want a hard copy of your program *Fast Asm* will print a segment or the contents of the clipboard, or even the contents of a window, giving a program listing with an optional header showing a few details about the program.

Overall, *Fast Asm* is an easy to use assembler with some very nice features, £19.95 it is a great deal for someone looking for a good but cheap editor/assembler. In my opinion it is well worth the money and many companies should take note – good quality software at a reasonable price. □

Reviewer Adrian Pumphrey **Program** *Fast Asm* **Micro** Atari ST **Price** £19.95 **Supplier** Computer Concepts, Graddesden Place, Hemel Hempstead, Herts HP2 6EX.

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Just another pipe dream?

Barry Smith profiles the Z-88

The Cambridge Computer Z-88 avoids existing hardward standards. It is first and foremost a software machine, a microcomputer created with a particular kind of application in mind, designed to run a particular set of built-in programs. Although the Z-88 can make use of third-party software, the programs included with the machine form a comprehensive suite which most users should find sufficient for some time.

Its role

The Z-88 is aimed at fulfilling the need for a fully-portable computer which can take on the role of notebook, diary, calendar and calculator, as well as provide the functions of a computer word processor, spreadsheet and database. This combination will be a boon to anyone who moves around in the course of their work, or anyone who works in a situation where traditional desk-top and even portable computers would be too cumbersome.

Two kinds of built-in programs are provided - applications and pop-ups. The applications include an integrated word processor, database and spreadsheet called *PipeDreams*, a diary program, terminal emulation and file transfer software and a version of the BBC Basic programming language implemented for the Z-80 processor.

Pop-ups, including the calendar, clock, alarm and calculator, can be invoked from within an application. They appear over the main program in a window and can be put away again by hitting the escape key.

PipeDream

PipeDream is the key Z-88 application. For most users it will be where the bulk of their useful work is done. The diary, BBC Basic and the bundled comms software will all have their uses and the pop-up utilities are valuable extras but the most striking thing is the fact that they are all built into a stunningly lightweight and reasonably-priced computer.

Attempts to make other machines fulfil such a wide range of functions have foundered. There is not much point in having a computerised appointment book on your desk when you are elsewhere, an appointments book belongs in your brief case or under your arm. A computer-based notebook should be usable wherever you are likely to want to make notes. Existing portable machine which deliver the range of software and the flexibility of the Z-88 are much heavier and bulkier. They are usually much more expensive and they take time to set up and use.

Instant access

The Z-88 is designed so that all your information is instantly accessible, as accessible as the information in a notebook or even more so. You can switch on the Z-88 and begin work instantly. You can switch from one task to any other with a single keystroke and pick up earlier tasks where you left off just as easily. This instant access to data is partly a result of the fact that the Z-88 uses battery-backed RAM instead of discs for primary storage but it is also due the the thoughtful design of the Z-88 operating system software.

"The Z-88 is aimed at fulfilling the need for a fully portable computer which can take on the role of notebook, diary, calendar and calculator, as well as provide the functions of a computer word processor or spreadsheet and database."

The Z-88 operating system is tightly, almost seamlessly, integrated with the application software, so much so that many users will remain virtually unaware of its existence. Despite that, the system provided with the Z-88 deserves close examination, since it holds the key to the machine's usefulness.

Conspicuously absent is the opening A> prompt of the CP/M and MS-DOS command line interface, but the Z-88 resembles CP/M and DOS machines in relegating Basic to its true position as an *application*. The opening Basic prompt of many home computers, showing that Basic is doing double-duty as an operating system shell, is replaced by the bounce-bar menu called the Index. The Index lists all the installed applications and pop-up programs and it is accessible from within an application by pressing the Index key.

The index

The Index allows you to launch programs either by using the cursor keys to move the bounce-bar and return key to select them, or by pressing a key combination consisting of the [] key and one letter. Thus, PipeDream can be invoked by hitting []P. Unlike most existing microcomputer operating systems, the Z-88 OS allows you to launch as many programs as will fit in memory without closing any down. You can have several programs loaded, each holding data, and you can even have multiple copies of a single application.

If PipeDream is already running, selecting []P will display the PipeDream workspace with whatever data you are working on displayed. If you have launched PipeDream more than once, hitting []P repeatedly will circle you around the workspaces. To launch PipeDream again - or any other application - you press the Index key, and then choose PipeDream from the menu.

If you save a document from within PipeDream you have two copies of the data in the Z-88 RAM. The first copy is the PipeDream workspace which contains the working data - in the Z-88 that is an *activity* - and the second copy is the *file* which was created when you saved the document.

Suspended activities

While you work with a given activity, the other activities in RAM are frozen; in Z-88 terms, they are *suspended activities*. This distinguishes the Z-88 task-switching environment from true multi-tasking. If you start a long program written in BBC Basic, then try to switch to PipeDream, hitting the Index key of []P will not work unless you first stop the program. Load a large spreadsheet and start the re-calculation, or sort a database column and while processing continues, task switching will not be effective. Start the diary and look

up you tasks for the day. While you read about your forthcoming appointments, the Basic program is not running and the spreadsheet is not re-calculating but all the activities are still available and they are exactly the way they were when you left them.

Off and on

If you switch off the machine by hitting both shift keys, all the activities will be preserved. This is even true if a Basic program was running or a PipeDream sort of calculation was in progress. When you turn on the machine again, the program continues from exactly the point when you last switched off. This would be equally true even if the machine had been switched off for a week in the meantime.

Suspended activities are listed on the Index menu in a separate column; any suspended activity can be re-started by selecting it from the index. As you start more and more activities, you use more and more RAM. You need to purge memory of old activities periodically, either saving them as RAM or EPROM files or deleting them altogether.

Several of the Z-88 built-in programs are really extensions of the operating system, in the sense that they allow you to manage files stored using RAM and EPROM chips attached to your system, configure devices such as the serial port, and set system-wide parameters controlling the keyboard and screen.

The Filer

The most important of these utilities is the Filer. It is the equivalent of the file management commands included in most microcomputer operating systems and it will work with all the possible file storage devices which can be attached to the system, such as RAM, EPROM cartridges or disc drives.

The Filer supports a true hierachical file system like the BBC ADFS Microsoft MS-DOS, or Unix. A hierarchical filing system, which allows you to create a tree-like system of named directory areas in which to store your files, may seem like overkill to owners of the basic 32k Z-88. With the 3MB chips which are on the way, however, the Z-88 would soon become unusable without such a system; once available storage exceeds 1MB, the number of files on the system would proliferate to the point where it would be impossible to find files when they were needed.

Unlike DOS, Unix or the Acorn ADFS, the Z-88 filing system is basically menu-driven. Short-cut keystrokes are available for most Z-88 operations, using the special diamond and [] keys, but there is not true command line interface. Using the menus, the Filer allows you to copy, delete and rename files. To provide for managing the hierarchical file system, options are available to allow you to create new sub-directories, change the current working directory, or perform tree copies of whole branches of your filing system.

A name match command filters the current directory listing using the ? and * wildcards to match one or more character in a filename. The default pattern is *, meaning all files, but you could change this to *.bas to display only Basic programs. This wildcard facilty is very much the same as the DOS and Unix equivalents.

As in Unix and DOS, you can specify on which files you want to perform commands by giving a pathname. The / character separates each successive directory name from the daughter directory or from the filename, thus:

finance/expenses/*

would identify all the files in the expenses sub-directory of your finance directory. Again, just as in Unix and DOS, the special symbol . . refers to the parent directory, so:

. ./.bas

would mean all the Basic programs in the parent directory of the current sub-directory.

Filer options are available for storing files to semi-permanent EPROM cartridges and fetching them back into RAM. Catalogue Files and Catalogue Eprom provide a fuller directory listing showing file creation and update dates and times, together with the size of each file. Finally, if more than one RAM chip is fitted, Select Device command allows you to switch from the default internal memory device, known as :RAM.0, to an external chip.

Execute

Perhaps the least discussed feature of the Filer so far is the Execute function. It is similar in many ways to the CP/M submit command or the MS-DOS batch file facility, in that it allows a sequence of commands stored in a text file to be passed to the operating system automatically and carried-out without your intervention.

The Execute function is both more and less powerful than the DOS batch file system. It is less powerful because it lacks some of the programming structures of its DOS equivalent - command line parameters, conditional branching and looping, string variables - but, on the other hand, once a Z-88 application is running, the execute file can continue to pass commands to the application.

Execute files can mimic most normal keypresses. For example, the up, down, left and right cursor keys are included in execute files as ¯U, ¯D, ¯L and ¯R. The return key is ¯E. The [] key used to launch applications is coded as # and the diamond key used to issue commands within applications is represented by the vertical bar, |.

The Z-88: a wide range of functions.

Given those keystroke aliases, it is possible to drive any of the Z-88 applications from within a single Execute file; there is comparatively little the Z-88 can do which could not be included as part of an Execute program. This reach into the applications is a facility of which the MS-DOS batch file programmer can only dream; to achieve comparable results, he would have to use a memory-resident macro utility.

Although the key to the Z-88 is its applications software, in particular PipeDream, the underlying system software is an original but well-designed platform which maximises the usefulness of the applications. From the operating system through to the applications there is a single system of help screens and menus and a uniformity of user interface which allows the new user to feel at home with the Z-88 software surprisingly quickly. □

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On the beaten track

Mark Jenkins with details of a new C64 package to help out in any studio.

If you are making music with a micro you are probably recording it. If you are recording it you will probably want to work with a 4-, 8-, 16- or 24-track tape machine. *Ultrax* is a new Commodore 64/128 package intended for the professional musician but which will also be an invaluable aid to the home recordist. It costs £39.95 including postage and packing; an Atari ST version will be available soon as well and the manufacturer, Studio Utility Software, claims that both versions will be equally suitable for home users and will compare favourably by any other software on the market.

Running notes

Ultrax, or UTX-1 as it is otherwise known is intended to help you keep track of your recording work. Hurried notes on loose pieces of paper are far from professional and inevitably lead to your blasting of that brilliant solo which you had recorded on track 3 and forgotten to bounce down into the first mix. If you keep running notes using *Ultrax*, which replaces the paper-and-pencil tracksheet of old, that kind of thing should never happen again.

Ultrax includes full disc and printer facilities, a text entry screen cursor on three main screens, and a calculator section which allows you to enter the speed of your piece in beats per minute and read off a list of echo times needed to produce various types of repeated notes - 4th, 8th or 16th notes or triplets.

The *Ultrax* track sheet screen can show eight, 16 or 24 tracks and is coupled to a track notes screen which allows you to record details of instruments and effects used, sound numbers, Midi channel numbers and so on. The Track Q list screen allows you to keep a record of the song arrangement, tape counter times, sections of songs, number of bars per section, drop-in times and so on.

Disc handling

The disc handling page allows you to save, load, format, scratch, re-name and obtain a directory of all the track, notes and Q sheet pages you have made up. The printer option allows you to print-out information from any of the - not, unfortunately, from the Echo Times calculator - and each track sheet printed-out includes a list of studio, engineer, artist, client and date, which you enter at the start of the session.

The program takes about 45 seconds to load and the resulting main menu allows you to access all the major functions. You would usually start with Write New Sheet, which asks you how many tracks you want

```
                TRACK SHEET    UTX1

| TITLE:ATLANTIS                    | BPM:120 |

| 1          | 2          | 3          | 4          |
| BASS       | SNARE      | HI-HAT     | PERCSSN    |
|            |            |            |            |
| 5          | 6          | 7          | 8          |
| SYNTH B    | CHORDS     | BRASS      | MELODY1    |
|            |            |            |            |
| 9          | 10         | 11         | 12         |
| MELODY2    | EFFECTS    | REVERB     | NOTUSED    |
|            |            |            |            |
| 13         | 14         | 15         | 16         |
| NOTUSED    | NOTUSED    | NOTUSED    | TIMECODE   |
|            |            |            |            |

RECORDED AT   :  UNICORN
ENGINEER      :  MARK JENKINS
PRODUCER      :  MARK JENKINS
ARTIST        :  STEVEN SPENCER
CLIENT        :  NEW WORLD TAPES
DATE          :  11/87
```

to display, the date and so on. If you know you are to use only four tracks on an eight-track machine, or eight tracks on a 16-track, the lower option will give you more space to write notes.

Track sheet

With equal speed you can flick to Load A File, Disc Utilities - which has its own options page - Calculate DDL, times, printer, exit to track sheet or quit. The track sheet is controlled using a white arrow cursor, the pointer. On the 24-track sheet there is only one line per track on which to write, but the eight-track sheet gives much more space. You can hit F1 to return to the main menu, F3 for the Q List screen, or F5 for the note page. The pointer is also used to move round the note page and you can get back to the track sheet and Q List from there, again by using the function keys.

On the Q List page you can use the time boxes to enter the start time, or tape counter reading, for the start of each section of your music. The bars boxes are used to enter the number of bars for each section and the notes box is to keep a record of drop-in cues; again, the function keys are used to change to other pages.

Inserting text

When you want to enter some new text you will find the pointer will move only along the particular field - box - you are filling in; you have to use the return key to move to a new field. Text cannot be inserted at the speed of a word processor but the package is fast enough. Use the delete key to remove any text you do not want. You will find that text to the right of the pointer is not pulled in but is left alone in case you still want it.

The program includes a good selection of disc error messages but if you have started with a reasonable quality disc and formatted it at the start of the session you should have few problems.

Overall, *Ultrax* is a very useful program. The printouts it produces are basic but functional and the ability to store so much information about your compositions is invaluable when you are trying to squeeze as much music as you can on to a limited number of tracks. For the four-track market it would have been useful to see an option which would allow you to keep track more easily of different sounds occurring at different points along the same track.

```
                TRACK NOTES    UTX1
 1 BOOST BASS EQ TO 7
 2 BOOST MID EQ - REVERB 27
 3 --
 4 PAN LEFT - ECHO ON RIGHT
 5 BOOST BASS EQ 7, MID EQ 6
 6 MID EQ 4
 7 PAN RIGHT, ECHO PATCH 35
 8 FOR FIRST HALF
 9 FOR SECOND HALF
10 ECHO PATCH   CHANGED BY MIDI
11 REFER TO Q SHEET FOR PAN INFO
12 --
13 --
14 --
15 --
16
17 VIRTUAL MIDI TRACK: NOT USED
18                "
19                "
20                "
21                "
22                "
23
24                "
```

On the whole, though, a thumbs-up. What should be really interesting is the ST version, which you could run with Kuma K-switch or something similar to have it resident at the same time as a good sequencer package. □

Studio Utility Software, 51 Loveridge Road, London NW6 2DU. Tel: 01-372 5103.

Oasis in a software desert

Some software offerings for the Archimedes by David King.

It has a completely non-standard 32-bit microprocessor and has only been available to the public for four months, so it is not surprising that the Acorn Archimedes super-micro has a very thin software portfolio at present. Things are gradually beginning to accelerate, however, and though there is not much choice many of the missing stones in the Archie fundamental software foundation are now falling into place.

Archimedes owners can choose from two types of program - slightly modified or even standard BBC Micro programs running under the Archimedes 6502 emulator or native ARM - Acorn RISC Machine - machine code programs written from scratch. The former are surprisingly plentiful; the emulator really works usefully, though many favourites will not run if they do not follow Acorn legal code guidelines.

Almost all BBC machine code arcade games will fail to run under the emulator as they poke screen memory illegally. As a rough guide, anything which is Tube - Beeb 6502 second processor - compatible will have a good chance of running under the emulator. Unfortunately there is an exception; service ROMs - those with numerous * command extensions - are not catered for by the emulator and will not work even if they are genuinely Tube-compatible. A surprising number of accomplished BBC programs are written in Basic, including a few entertaining arcade-style games. Many will run without the need of the 6502 emulator, in AFM Basic, and they will run very fast, too; be prepared for a speed increase by a factor of 30 or more.

Under the emulator

The Acorn View range of applications - word processor, database, spreadsheet, graph plotter and spell-check ROMs - will all work under the emulator but beware of some releases which have anti-sideways RAM copy-protection built in. *View Professional*, the Acorn new word processor with integral spreadsheet - also featured in Sir Clive Sinclair's Z88 as *Pipedream* - works well under the emulator, too. Acornsoft Comal also works but the ISO Pascal and Logo twin-ROM sets do not. Acorn can be contacted on 0223 214411.

Computer Concepts have modified its rival to the Acornsoft *View* system, the *Inter*-series range, to run under the emulator, even making use of extended Archie-only screen modes and extra colours, but it will not be releasing them until a ROM board module on which it is working is ready. *Wordwise Plus*, however, has been released on disc for £20. CC is already well into several ambitious ARM projects, including a desk-top publishing system to rival an Apple Mac, but they will not be ready for another three or four months. Computer Concepts can be contacted on 0442 63933.

With software, the Archimedes can emulate a PC.

Logosoft

Logo fans will be pleased to know that their favourite language has been converted to run under the emulator, courtesy of Logosoft, for £35. Logosoft can be contacted on 01-891 0989.

Comms users will have to wait for some really good native comms packages to materialise, though one is almost ready. For the time being, Prestel/Viewdata users might like to know that the Watford Electronic original Modem 84 comms ROM appears to work most of the time under the emulator. It is not brilliant - after all, it was never designed to run on the Archie but it will get you on-line.

We have mentioned just a small selection of emulator-compatible programs but if you want to try an old favourite ROM of yours, you need first to transfer the ROM image to disc. Then copy across to an ADFS 3.5in. disc for use in your Archie. You will then need to write (*BUILD) a short loader EXEC file , as follows:

```
*65ARTHUR (load in emulator)
*GO F800 (get into emulator OSCLI)
LOAD (ROM IMAGE) 8000
GO 0000
```

With luck you should see the familiar ROM welcome on the screen.

Real ARM packages

Clares Micro Supplies, a staunch Acorn-aligned software house, has already produced two serious packages for the Archimedes which do not owe their ancestry to 8-bit BBC origins. *ATM* - advanced Toolkit Module - is a multi-function programmers' aid in the form of a module, analagous to a ROM in the BBC, which provides utility commands for examining disc and memory contents.

String searching and ARM code disassembly is catered for, along with data comparing and disc/memory editing. Clares latest release is the *Artisan* art package. It looks like being the first in a long line of full-feature art systems for the Archimedes from various Acorn software houses. The package is completely WIMP-driven and facilitates many new drawing and painting features which were not possible on the old BBC.

You can select portions of the screen to be re-positioned and rotated at any angle almost instantly, selected parts of the screen can be distorted, the pen/brush can be user-defined as well as being made 'magic', which means you can paint over a pre-prepared section of the screen and affect only pixels of a chosen colour. Both Epson dot matrix and Integrex colour printer screen drump drivers are provided.

Although *Artisan* was written specifically for the Archimedes, substantial parts of it are in Basic, though there is no hint at that when in use. *ATM* and *Artisan* each cost £39.95. Two more products are expected soon, *Alpha-Base* database manager and the *Image Writer* word processor. Clares can be contacted on 0606 48511.

Acorn has worked hard in the short time since the Archimedes has been available to

provide some heavy-duty languages for system designers and other software houses. ANSI standard C, reviewed recently, ISO Pascal, Fortran 77 and Cambridge Lisp are all available now, with Prolog X expected soon. The Pascal, Fortran and C compilers are in pre-release form only but their presence means that the Archimedes is no longer a high-tech novelty but a serious applications machine with Unix looming on the horizon. All these languages require a minimum of 1Mb either an A310 or A400 series machine, or an expanded A305.

Pre-release languages

The pre-release languages are £99 plus VAT but they are expected to be around 50 per cent dearer in final form. *Twin*, a multi-tasking editor developed by Acorn engineers in-house, has also been made available commercially at £30.

Closer to home, Acorn has also announced an Archimedes version of its *View Professional* word processor with integral spreadsheet. As it is written in C, Protechnics, the company behind all the *View* range, is working on a modified version of the existing code to take into account all the Archie extra memory and the WIMP desk-top. It should be available early next year.

For business users, Acorn is marketing the Logistix integrated *Lotus 123* compatible spreadsheet/database and personal manager package from Grafox. It is also written in C and has been available for IBM PCs and compatibles for some time. Expect to see a few PC packages being ported to the Archimedes next year.

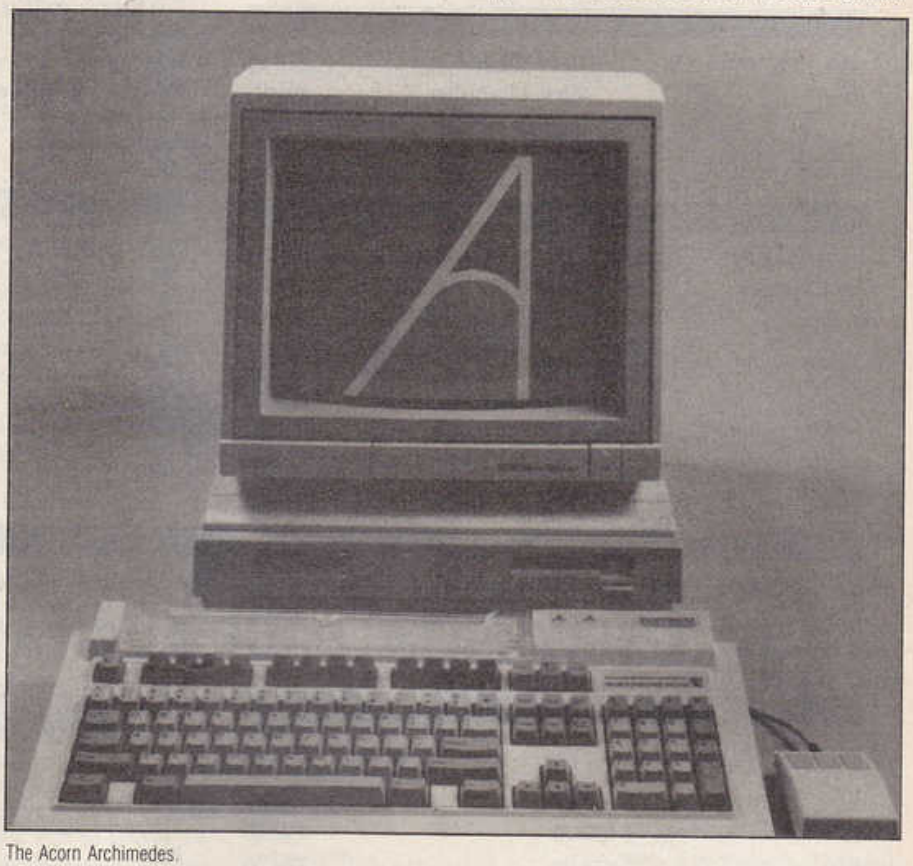
Minerva Systems has finished three products for the Archimedes, two databases and a maze game. *Deltabase* is a ported version of its popular BBC Micro card index database manager. Its design permitted it to be converted easily to the Archie, as most of it is written in Basic which, in turn, accesses machine code drivers. Minerva quickly re-wrote the machine code to be one of the first companies to release a native Archimedes utility package.

Simple

Deltabase is relatively simple compared to *System Delta Plus*, a full-blown relational database which has sophisticated spreadsheet-like maths facilities and makes use of the WIMP desk-top. *Deltabase* and *Delta Plus* are priced £29.95 and £69.95 respectively.

For £14.95 you might choose the one and only Minerva game, *Minotaur*. It is a three-dimensional maze game which can be user-designed. It may be over-priced at £14.95, even though technically it is interesting, as it represents a semi-arcade style game written entirely in Basic.

Zarch from Superior Software is definitely worth £19.95. What more can one say about the game from Elite co-author David Braben? It is a moot point whether Acorn could have done without *Zarch*, the demo instruction version of which is supplied on the Archie welcome disc and which has turned more heads in the direction of an Archie than any Acorn marketing campaign.



The Acorn Archimedes.

Zarch is state-of-the-art when it comes to three dimensional solid graphics animation. The scenario is not wonderful and sound is a joke in the game, but those criticisms make *Zarch* nothing but the most talked about game of the year. Watch for more *Zarch*-style games from Braben and company next year, and, of course, there is *Elite II* on the way.

Computer Concepts has not released anything 100 per cent ARM for the Archimedes, but in this spring it should be unveiling its professional desk-top publishing system, which includes extra hardware, to rival such packages as the Apple Mac *Author* and other similar laser printer drivers. CC will be bringing the Archie into the world of serious professional publishing and at a price it says confidently will stir the DTP market.

As for comms, despite a problem Acorn has experienced with the RS423 hardware, BBC Soft is promising a comprehensive viewdata/scrolling ASCII terminal, and Deebug will be offering a similar specification package to accompany its Hayes-compatible modem module which should be out in January.

Another Emulator

If you have a PC at work, or simply must use the MS-DOS package, the Acorn MS-DOS emulator is probably well worth investigating. Supplied as a £89 plus VAT upgrade, or included in the A310M for £69 above the standard A310 price, the emulator gives you a 512K PC environment with MS-DOS 3.21. It will support 720K IBM format 3.5in. discs as well as standard 360K 5.25in. floppies if you have them.

Acorn has tested most popular packages with the emulator and although there is a display speed penalty on most of them, most of the programs tested worked successfully. Four-colour CGA graphics are supported and even the Microsoft's *Flight Simulator* is reported to work.

Only programs relying on non-standard hardware or PC cards, or those which are programmed illegally, appear to cause problems. Perhaps even more important for the Archie will be the 80186 PC-compatible card which will be available early next year.

The emulator works just a shade slower than the speed of a 4.77MHz PC, whereas the module will approach the speed of an AT and will probably support EGA level high-resolution colour graphics. □

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On the blink

A Searby, of Bradwell, Nr Sheffield, writes:

Q My Oric Atmos has gone on the blink – lost its display. A check indicates that it needs a new ULA, number HCS 10017, C DI-7C, 8315. Could you offer any suggestions as to where I may buy a new chip?

A I do not know where you will get this chip. You might try an Oric user group for information IOUG, contact Gary Ramsey, 1 Kingsway Crescent, Burnage, Manchester M19 9GA, is the only one for which I can find an address.

More basic advice

L Fergussen, of Aberdeen, Scotland, writes:

Q I am writing a program in Basic which uses a good deal of text and would like to be able to code it so that it occupies less memory space. The program is written in Basic on a BBC B. Can you help?

A The best method of coding English text is to use Huffman code. Normally, each character occupies one byte, i.e., eight bits, which is fairly wasteful. Huffman coding finds the frequencies of each of the characters and then assigns shorter bit-length code to characters which occur most frequently. The bits can then be strung together in memory, or a file, to obtain a space-saving of between 30 and 50 per cent. The method works as follows:

Find the frequencies of the characters in the text, i.e., the number of times they occur. Any with a frequency of zero can be ignored, since they never appear.

Find the two smallest frequencies and make a new frequency entry in the table which is the sum of them. Pointers to the two characters which had those frequencies are also set up. The frequencies of the two characters/entries are zeroed to take them out of future searches. The smallest frequencies are then found again and another frequency is set as before.

This process is repeated until only one frequency remains; this is the same as the total number of characters in the string being coded. The array can then be used to code the text by starting at the character and then finding this number in one of the pointers. If the pointer is a '0' pointer, 0 is appended to the end of the character code. If it was a '1' position, 1 is appended. The array position where the number was found is then looked for in the array and the 1 or 0 is appended again.

This process is repeated until the top of the tree is reached, ie, the last entry in the table. The bits are then the code for the character. To decode, start at the top of the tree – last entry in the array – and work down following the pointers in the 1 and 0 arrays until a character is reached.

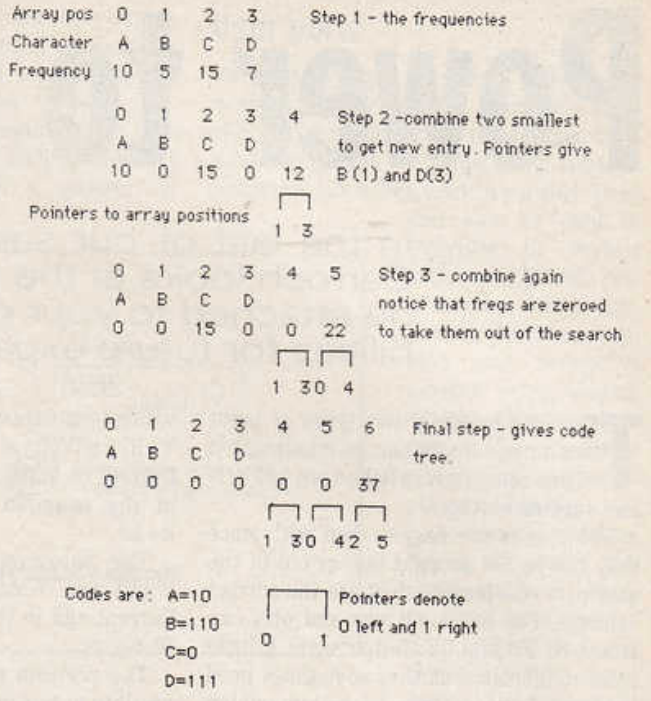
The advantage of Huffman coding is that no character code has the same prefix as any other. That means the bits can be strung together one after the other and decoding starts with the first bit until a character is found. Then the next and the next – see program.

I have written the program in a standardised form of Basic which can be converted easily to any other Basic by adding line numbers and substituting them for labels. BBC Basic will also be able to use superior looping techniques, i.e., get rid of the GOTOs. It should also be fairly straightforward to convert to other languages.

The code from the program is placed in a string but, in practice, this will be placed as bits in consecutive bytes to give a compressed format. I will leave the packing and unpacking to you; it is straightforward and machine-dependent.

There are two ways of using the coding scheme; the first is to save the coding array along with each piece of text. This is really worthwhile only with long pieces, since the space-saving may be taken up by the array with short pieces. The other way is to create a code table for a long standardised piece and then use the same table for a number of files. This will save space on short files but will not be as efficient as it could be.

For more information see *Byte*, May, 1986.




```
DIM  f(127),f$(127),p0(127),p1(127)
a$="This is text to be coded up as an example"
PRINT a$
GOSUB gfreq
en=ll
GOSUB maketree
PRINT "The code is -"
FOR k=0 TO en
b$=f$(k):GOSUB  find
PRINT f$(k),code$
NEXT
PRINT
GOSUB codeall
PRINT "Coded string is - ";c$
PRINT "Which is ";LEN(c$);" bits. Whereas the
original was ";LEN(a$)*8;" bits."
PRINT "This is an improvement of ";
100-((LEN(c$)/(LEN(a$)*8))*100);"%."
p=1
PRINT"Decoding the string -"
FOR h=1 TO LEN(a$)
GOSUB decode
NEXT
END
gfreq:
c=0:tt=0:t=32
gfreq1:
fr=0
FOR s=1 TO LEN(a$)
IF MID$(a$,s,1)=CHR$(t) THEN fr=fr+1
NEXT
IF fr=0 THEN t=t+1:GOTO gfreq1
tt=tt+fr
f(c)=fr
f$(c)=CHR$(t)
p0(c)=0
p1(c)=0
t=t+1:c=c+1
IF tt<LEN(a$) THEN gfreq1
ll=c-1
PRINT"Frequencies found."
RETURN
fsmall:
s1=0
s2=0
p=tt
FOR t=0 TO ll
IF p>f(t) AND f(t)<>0 THEN s1=t:p=f(t)
NEXT
p=tt
FOR t=0 TO ll
IF p>f(t) AND t<>s1 AND f(t)<>0 THEN
s2=t:p=f(t)
NEXT
RETURN
find:
t=0
code$=""
find1:
IF b$<>f$(t) THEN t=t+1:GOTO find1
fd=t
dfind0:
t=en+1
find2:
IF p0(t)=fd THEN found0
t=t+1
IF t>ll-1 THEN dfind1
GOTO find2
found0:
code$="0"+code$
fd=t
IF fd=ll-1 THEN RETURN
GOTO dfind0
dfind1:
t=en+1
find3:
IF p1(t)=fd THEN found1
t=t+1
GOTO find3
found1:
code$="1"+code$
fd=t
IF fd=ll-1 THEN RETURN
GOTO dfind0
decode:
REM p is the pointer to c$ position
sp=ll-1
decod1:
IF MID$(c$,p,1)="1" THEN sp=p1(sp)
ELSE sp=p0(sp)
p=p+1
IF sp<en+1 THEN decoded
GOTO decod1
decoded:
PRINT f$(sp);
RETURN
codeall:
FOR k=1 TO LEN(a$)
b$=MID$(a$,k,1)
GOSUB find
c$=c$+code$
NEXT
RETURN

maketree:
GOSUB fsmall
ll=ll+1
f(ll)=f(s1)+f(s2)
p0(ll)=s1
p1(ll)=s2
f(s2)=0
f(s1)=0
IF f(ll)<>0 THEN maketree
PRINT"Tree made."
RETURN
```

Power to the people

In the last of our series on interfacing, Kenn Garroch looks at the various gadgets that can be attached to your computer, and the possibilities for future expansion.

There are basically two types of input and output which can be manipulated with a computer, switched ons and offs and varying voltages.

The former are easy to deal with since they can be fed straight into or out of the user port - so long as they are the correct voltages. For input, all ons and offs can either be 5V and 0V. Outputs are a little more complicated as they sometimes need to drive devices such as motors which require more power than the I/O chip can provide.

Driver circuit

The way around this is to use a transistor driver circuit as shown in figure one. There are two types, inverting and non-inverting, and it does not matter which is used so long as it works the right way around.

The power output from the driver is dependent on the current capability of the transistor which is governed by the resistor R.

Values

A table of transistor characteristics shows the current capability under the heading Ic(max) which is the collector current. If the device being driven requires 5V at 2 amps a transistor with an Ic of 2A or more should be used and the value of the resistor should be 2.5Ω or less and have a power capability of 10 watts. These values are determined from the formula V=RI i.e. Voltage equals Resistance times Current in Volts, Ohms (Ω) and Amps. So in the example, V=5 and I=2 making R=2.5.

The power consumption in Watts is W=VI i.e., Watts equals Voltage times Current and in this case, it is 5 times 2 or 10 Watts.

The problem now arises that it is not possible to buy a 2.5Ω 10W resistor.

It is possible to go for the nearest values i.e., 10W at 2.2Ω which gives a maximum current of 2.3A - more than sufficient, and since it is still using 2A in practice, the wattage is the same.

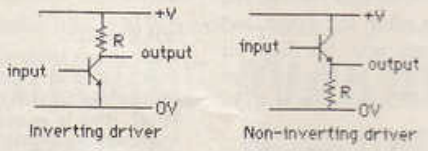


Fig 1 Transistor drivers

Input

The input to the transistor which turns it on and off comes from one of the user port outputs turning on and off.

One thing of which to make sure when driving powerful external devices is that an external power supply with the appropriate rating is used. It is no use trying to drive five stepper motors, each consuming 1A, from a power supply which can provide only 500mA of power; you will need at least 5A and possibly more to cover overheads and peaks.

Relay

Driving mains-powered devices e.g., turning the hi-fi on and off cannot be done directly from the user port since mains voltages are around 250V and are AC. A relay must be used with the port output driving the coil which turns the relay on and off.

A transistor driver between the port and the coil is also necessary since most I/O chips will provide only 1mA or so of power and most relays require between 50 and 100mA to drive the coil.

The most important aspect of driving mains-powered equipment is isolating it from the computer.

The coil side of the relay must be completely disassociated from the switch side controlling the 250V.

This includes ground lines as well. If you do not isolate the mains, it is possible to get an electric shock, and/or blow up your computer.

"One thing of which to make sure when driving powerful external devices is that an external power supply with the appropriate rating is used."

"Dealing with varying or analogue voltages requires some system of converting them into a form which can be read into the port."

Converting voltage

Dealing with varying or analogue voltages requires some system of converting them into a form which can be read into the port. An analogue to digital converter performs this by comparing the incoming analogue voltage to a series of preset voltages.

The output is in the form of a binary number which can be connected directly to the port.

ADC's

ADC's are in various sizes and qualities from ultra-fast high accuracy e.g., a conversion time of less than 1μS into 12 bits to slow low accuracy types e.g., 100μS conversion into eight bits.

There are also a number of multi-channel ADCs which allow a number of inputs to be sampled - looked at at an instant of time.

The best type of ADC to use is 8-bit with

as high a speed as you can afford. The 8-bit types are convenient for most user ports and high-speed conversions work just as well at slow rates.

ADCs can be used to measure any varying voltage ranging from a changing temperature to sound input from a microphone.

Obviously, the latter needs to be sampled much faster than the former – at least twice the frequency of the sound being sampled, e.g., for audible sources greater than 40KHz.

Binary numbers

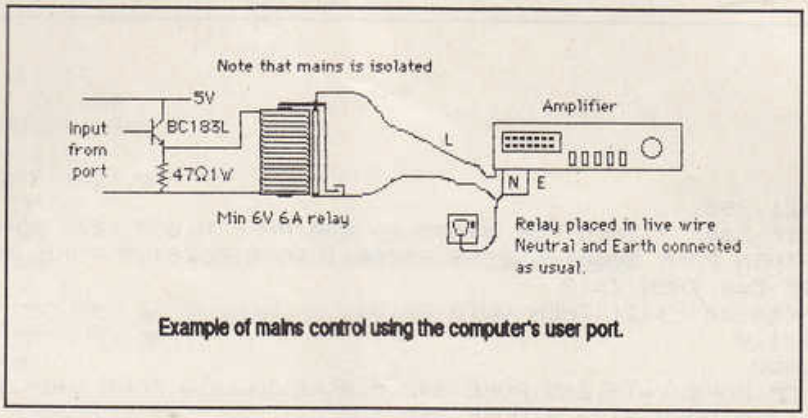
Working the other way, it is possible to convert binary numbers into varying voltages by using a (digital-to-analogue converter).

This takes the outputs from the port as a binary number and converts them into a voltage representing that number.

For an 8-bit port, this gives 256 separate voltages and if the range is set between 0 and 5V, it goes from 0 to 5V in steps of 20mV – 20-thousandths of a volt – or so which gives a reasonably accurate output. DACs can be used to control applications where analogue voltages are required; in general there are very few of these.

A more obvious application is to turn sampled sound back into audible sound by connecting the DAC to a speaker, or converting numbers into colour values for RGB monitors.

Fortunately, DACs work much faster than their counterparts the ADCs with a conversion from the binary input to the analogue output taking about 1µS or less.



Example of mains control using the computer's user port.

User ports

Most I/O systems are built around the methods already covered. There are, however, a few others worth mentioning. User ports can provide very fast links between computers since they work in parallel. They can also be used to interface to devices such as EPROM programmers, extra keyboards, serial transmission and reception devices extra display devices, sound generators, in fact any device which has a microprocessor interface.

As I mentioned earlier in the series, the limits are your imagination. I have tried to give the basic ideas and concepts behind interfacing; the practicalities are fairly straightforward and really require only a little experimentation. □

This is the last part of our series on interfacing. Next week Kenn Garroch starts a series on writing computer programs.

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UFO 2

Steven Pattullo

At last, the final section of UFO 2. To run the game from the beginning, load + run each section separately starting with RECON followed by SPRITES, CHARSET, ALPHACHARS, M/CODE, and finally UF02. Control is via the joystick in port 2 (the rearmost). Push right and left to move across the screen, up and down to move across the playing area. Make sure you stay on the graphics background otherwise the ship will blow up. □

```
22130 POKE V+21,255
22131 GET Z$:IF Z$=" " THEN FOR N=837 TO 844:POKE N,080:NEXT:X=1
22132 IF X=1 THEN POKE 53281,1:POKE 53280,1:POKE 53281,0:POKE 53280,0
22135 Z=Z-1:IF Z=0 THEN Z=10
22180 IF PEEK(56320)<>111 THEN GOTO 22131
22185 POKE V+21,0
22190 GOTO 10000
30000 PRINT "□":POKE V+16,255:POKE 842,0:POKE V+21,0:POKE V+16,0:POKE 837,0
30003 POKE V+23,8:POKE V+29,8:POKE 950,1
30004 POKE 828,0:POKE 830,3:POKE 831,0:POKE 832,0:POKE 833,0:POKE 950,0
30005 POKE V+21,0
30006 PRINT "  ■YAHOOO YOU MADE IT  AN OBVIOUS FLUKE":PRINT "■"
30007 FOR N=1 TO 3000:NEXT:PRINT "□"
30010 FOR N=1 TO 8
30020 PRINT "#$%-./#$%-./#$%-./#$%-./#$%-./"
30030 PRINT "&+'(+)&+'(+)&+'(+)&+'(+)&+'(+)"
30040 PRINT "()*;<=()*;<=()*;<=()*;<=()*;<=":NEXT
30060 X=0:POKE 51194,144:POKE 51196,139:POKE 51195,128:POKE V+16,8:F=0
30070 POKE V+1,150:POKE V,40
30080 POKE V+3,160:POKE V+2,50
30085 POKE V+7,150:POKE V+6,30
30090 POKE V+16,8
30100 POKE V+21,11
30110 POKE 831,5:POKE 950,0:POKE 837,0
30120 IF X=0 THEN POKE 51195,128
30130 IF X=5 THEN POKE 51195,129
30140 IF X=10 THEN POKE 51195,130
30150 X=X+1:IF X=15 THEN X=0
30151 IF PEEK(V+30)=7 THEN GOTO 60000
30152 IF PEEK(V+30)=15 THEN GOTO 61000
30160 IFPEEK(56320)=111AND F=0 THEN POKE V+21,15:POKE V+5,150:POKEV+4,63:F=1
30170 C=PEEK(V+30)
30180 IF PEEK(V+30)=7 THEN GOTO 60000
30190 IF PEEK(V+30)=15 THEN GOTO 61000
30195 GOTO 30120
35000 POKE 51192,143
35001 FOR N=S TO S+24:POKE N,0:NEXT:POKE S+24,15:POKEV+40,0:POKE V+28,253
38010 POKE V+1,140:POKE V,60
38020 POKE V+3,160:POKE V+2,80
38030 POKE V+21,3
38040 POKE S+5,100:POKE S+6,200
38042 FOR F=1 TO 10
38050 POKE S+4,17
38060 POKE S+1,PEEK(V+3):POKE S,PEEK(V+2)
38061 POKE S+4,129:POKES+1,PEEK(V+2):POKE S+4,17
38062 POKE V,PEEK(V)+1
38063 POKE V+1,PEEK(V+1)+1
38100 POKE V+3,PEEK(V+3)-1
38110 POKE V+2,PEEK(V+2)-1
38111 NEXT F:RETURN
```

```
38120 FORN=1TO10:NEXTN
60000 POKE V+21,0:PRINT "■":S=54272
60005 PRINT "■▲YOU FLUNKED IT SORRY NO BONUS"
60030 PRINT "■■■■          PRESS FIRE FOR NEXT LEVEL"
60031 FORN=STOS+24:POKEN,0:NEXT:POKE S+24,15:FORN=250 TO 50 STEP-7
60032 POKE S+5,100:POKE S+6,N:POKE S+4,33:POKE S+1,N:POKE S,N:POKE S+3,17
60033 POKE S+1,100:POKE S,50:POKE S+4,129:POKE S+1,N:POKES,N:NEXT:POKE S+24,0
60040 IF PEEK(56320)<>111 THEN 60040
60045 POKE V+23,0:POKE V+29,0
60050 RETURN
61000 POKE V+21,11:
61010 FOR N=1 TO 100
61020 Y=INT(RND(0)*200)
61025 POKE V+42,Y
61030 NEXT:POKE V+21,0
61040 PRINT "■"
61045 PRINT "■■                    NICE SHOT"
61050 PRINT "■■          BONUS HAS BEEN AWARDED■■■■■"
61052 B=510
61054 PRINT "■SCORE  ▲";SC;"■"
61055 PRINT "■BONUS  ■";B;"■"
61056 SC=SC+10
61058 B=B-10
61062 IF B=0 THEN 61070
61064 GOTO 61054
61070 PRINT "■■■■          PRESS FIRE FOR NEXT LEVEL":POKE S+24,0
61080 IF PEEK(56320)<>111 THEN 61080
61085 POKE V+23,0:POKE V+29,0
61100 RETURN
62000 POKE V+21,1:POKE 950,0:POKE 837,0
62001 PRINT "■■OH DEAR DUE TO A SMALL MISCALCULATION"
62002 PRINT "■ON YOU PART YOU APPEAR TO HAVE EXPLODED"
62005 FOR N=S TO S+24:POKE N,0:NEXT:POKE S+24,15
62010 POKE S+5,40:POKE S+6,150
62015 POKE S+12,10:POKE S+13,100
62020 POKE S+4,33:POKE S+11,129
62025 FOR N=1 TO 5
62026 POKE S+4,33
62030 FOR F=30 TO 0 STEP-10
62035 POKE S+1,F:POKE S,F
62040 FOR G=1TO2:POKE S+1,100:POKE S,F
62045 POKE S+8,F+50:POKE S+7,F+50
62047 POKE S+8,F+10:POKE S+7,F
62049 FOR U=20 TO 40 STEP 8:POKE S+1,U:POKES,U:POKES+8,U:POKES+7,U:NEXTU
62051 NEXT F,N
62055 POKE S+24,0
62060 FOR N=1 TO 20
62061 POKE 53282,1:POKE 53283,0
62065 POKE V+37,2:POKE V+38,7:POKE V+39,1
62070 POKE V+37,12:POKE V+38,8:POKE V+39,12
62075 POKE V+37,1:POKE V+38,9:POKE V+39,2
62076 POKE 53282,0:POKE 53283,1
62080 NEXT
62085 POKE V+37,0:POKEV+38,0:POKEV+39,0
62090 POKE V+21,0
62100 IF SC<Z(5) THEN 8
62110 FOR I=1 TO 5
62120 IF SC>Z(I) THEN X=I:I=10
62130 NEXT I
62140 FOR I=5 TO X STEP-1
62150 A$(I)=A$(I-1):Z(I)=Z(I-1)
62160 NEXT
62170 PRINT "■■"
62180 PRINT "           WHAT A MEGA SCORE"
62190 PRINT "■■■ ENTER YOUR NAME WHICH WILL GO DOWN IN"
62200 PRINT "■                  HISTORY"
62210 PRINT "■■■■  WELL UNTIL YOU TURN IT OFF ANYWAY"
62220 PRINT "■■■"
62230 INPUT A$(X):Z(X)=SC:GOTO 8

READY.
```

Sprites

Joseph Halstead

These two programs for the Amstrad are a sprite routine and designer.

The first sets up three RSXs, IPRINT, ITYPE and CHECK. IPRINT takes five parameters - IPRINT,xsize,ysize, x,y,address - where xsize is the width of the sprite in bytes, ysize is the height of the sprite in pixels; x is the horizontal graphics co-ordinate of the top left-hand corner of the sprite; y is the vertical co-ord of the TLHC; address is the address at which the sprite data is held in memory.

ICHECK uses the same parameters as IPRINT but does not place anything on the screen. It checks whether a sprite on the screen has been printed over.

If it has, 1 is returned in location &90B3; if not, this is 0.

The same parameters should be used to check the sprite as those used to print it.

ITYPE is used to select the method of printing. If ITYPE,1 is used, the sprites over-write anything underneath them. ITYPE,2 causes the sprite data to be ORed with the screen data and ITYPE,3 causes it to be ANDed. ITYPE,3 is XOR mode and, using this option, placing a sprite over itself causes the original sprite to be erased with the background untouched.

To use the sprite designer, the *Sprites* program must be run first, as utilities provided by it are needed.

The cursor is controlled with the cursor arrow keys and a pixel is printed in the selected colour by pressing the space bar.

To change the pen, press P and then use the cursor keys to select the colour. Press return when finished.

To change the ink colour, press I and then use space to select; return finishes this command.

To save to memory, press S and give the inputs as requested.

To load from memory, press R again, replying with the correct inputs.

To save from memory to disc use Q. The length is the width in bytes times the height in pixels.

To load from disc to memory, press L. The screen can be cleared with C.

In mode 2, one byte gives eight pixels across; in mode 1 it gives four, and in mode 0 it gives two.

The sprites are stored in memory from &2000 to &9000. Remember to use the & sign when entering addresses. □

```
1 ' Sprites
2 ' by Joseph Halstead
3 '
10 DATA 21,14,90,01,09,90,C3,D1,BC,18,  967
20 DATA 90,C3,27,90,C3,45,90,C3,88,90,  1405
30 DATA 14,90,09,90,50,52,49,4E,D4,54,  926
40 DATA 59,50,C5,43,48,45,43,CB,00,CD,  1049
50 DATA 6A,90,C5,DD,46,08,E5,1A,AE,77,  1294
60 DATA 23,13,10,F9,E1,7C,C6,08,67,30,  1025
70 DATA 04,01,50,C0,09,C1,10,E6,C9,DD,  1147
80 DATA 7E,00,FE,03,20,06,3E,AE,32,30,  755
90 DATA 90,C9,FE,02,20,06,3E,A6,32,30,  965
100 DATA 90,C9,B7,28,06,3E,B6,32,30,90,  1060
110 DATA C9,AF,32,30,90,C9,DD,6E,02,DD,  1373
120 DATA 66,03,DD,5E,04,DD,56,05,B7,CB,  1122
130 DATA 1C,CB,1D,CD,1D,BC,DD,5E,00,DD,  1218
140 DATA 56,01,DD,46,06,C9,AF,32,B3,90,  1133
150 DATA CD,6A,90,C5,DD,46,08,E5,1A,BE,  1396
160 DATA 20,13,23,13,10,F8,E1,7C,C6,08,  924
170 DATA 67,30,04,01,50,C0,09,C1,10,E5,  875
180 DATA C9,3E,01,32,B3,90,E1,C1,C9,01,  1257
190 lin=10:FOR g=&9000 TO &90B3 STEP 10
200 FOR h=0 TO 9
210 READ a$:POKE g+h,VAL("&"+a$):x=x+VAL
    ("&"+a$)
220 NEXT
230 READ chk:IF x<>chk THEN PRINT"ERROR
    in";lin:END
240 lin=lin+10:x=0:NEXT
250 IF HIMEM>&9000 THEN MEMORY &8FFF
260 CALL &9000

10 ' Sprite Designer
20 ' by Joseph Halstead
30 '
40 ON ERROR GOTO 1040
50 DIM in(15)
60 MEMORY &1FFF
70 |TYPE,3
80 INK 1,20:INK 0,0:BORDER 0
90 PAPER 0:PEN 1
100 INPUT "WHICH MODE (0-2)",m
110 MODE m:md=2-m:IF md=0 THEN md=0.5
120 IF m=0 THEN m=0.5
130 INPUT "HOW MANY BYTES WIDE (1-20)",w
idt
140 IF widt<1 OR widt>40 THEN 130
150 INPUT "HOW MANY PIXELS HIGH (1-30)",
height
160 IF height<1 OR height>30 THEN 150
170 CLS:FOR g=1 TO 4^md
180 READ a:in(g-1)=a:INK g-1,a
190 LOCATE g,25:PEN g-1
200 PRINT CHR$(143);:NEXT
210 PEN 1
220 WINDOW 1,40*m,21,23
230 WINDOW #1,1,40*m,24,24
240 DATA 0,26,15,6,24,22,20,18,16,14,13,
12,10,8,4,2
250 x=0:y=0
260 col=1:px=2
```

```
270 LOCATE #1,px,1:PRINT #1,CHR$(241)
280 MOVE x*md*8,320-(y*8),1,1
290 TAG:PRINT CHR$(129);
300 MOVE x*md*8,320-(y*8),1,1
310 PRINT CHR$(129);:TAGOFF
320 IF INKEY(2)>-1 THEN y=MIN(height-1,y
+1)
330 IF INKEY(0)>-1 THEN y=MAX(0,y-1)
340 IF INKEY(1)>-1 THEN x=MIN(((widt*4)*
m)-1,x+1)
350 IF INKEY(8)>-1 THEN x=MAX(0,x-1)
360 IF INKEY(47)>-1 THEN GOTO 450: ' fil
l pixel (space)
370 IF INKEY(27)>-1 THEN GOTO 510: ' cha
nge pen (P)
380 IF INKEY(35)>-1 THEN GOTO 1000: ' ch
ange pen's ink (I)
390 IF INKEY(60)>-1 THEN GOTO 580: ' sav
e to memory (S)
400 IF INKEY(50)>-1 THEN GOTO 700: ' rec
all from memory (R)
410 IF INKEY(67)>-1 THEN GOTO 910: ' sav
e to tape/disc (Q)
420 IF INKEY(36)>-1 THEN GOTO 960: ' loa
d from tape/disc (L)
430 IF INKEY(62)>-1 THEN RUN: ' clear sc
reen (C)
440 GOTO 280
450 MOVE x*md*8,320-(y*8),15,2
460 TAG:PRINT CHR$(142);
470 MOVE x*md*8,320-(y*8),col,1
480 PRINT CHR$(129);
490 PLOT x*md*2,398-(2*y),col,0
500 TAGOFF:GOTO 280
510 LOCATE #1,px,1:PRINT #1," "
520 IF INKEY(1)>-1 THEN px=MIN(4^md,px+1
):col=px-1
530 IF INKEY(8)>-1 THEN px=MAX(1,px-1):c
ol=px-1
540 LOCATE #1,px,1:PRINT #1,CHR$(241)
550 IF INKEY(18)>-1 THEN GOTO 280
560 FOR h=0 TO 50:NEXT
570 GOTO 510
580 POKE &902F,&7E
590 POKE &9031,&12
600 LOCATE 1,24
610 WHILE INKEY$<>"":WEND
620 INPUT "WHAT ADDRESS (&2000-&9000)",a
dd
630 |TYPE,0
640 |PRINT,widt,height,0,398,add
650 |TYPE,3
660 POKE &902F,&1A
670 POKE &9031,&77
680 CLS
690 GOTO 280
700 WHILE INKEY$<>"":WEND
710 WINDOW 1,40*m,1,23:CLS
720 WINDOW 1,40*m,5,23:CLS
730 WINDOW 1,40*m,21,23:GOTO 740
740 INPUT "HOW MANY BYTES WIDE (1-20)",w
idt
750 IF widt<1 OR widt>40 THEN 750
760 INPUT "HOW MANY PIXELS HIGH (1-30)",
height
770 IF height<1 OR height>30 THEN 770
780 INPUT "WHAT ADDRESS (&2000-&9000)",a
dd
790 |PRINT,widt,height,0,398,add
800 TAG
810 FOR z=0 TO widt*(4*m)
820 FOR t=0 TO height-1
830 u=TEST(z*md*2,398-(2*t))
840 MOVE z*md*8,320-(t*8),u,1
850 PRINT CHR$(129);
860 NEXT
870 NEXT
880 TAGOFF
890 CLS
900 GOTO 280
910 INPUT "WHAT ADDRESS",a
920 INPUT "HOW LONG",l
930 INPUT "WHAT NAME",na$
940 SAVE na$,b,a,l
950 CLS:GOTO 280
960 INPUT "WHAT ADDRESS",a
970 INPUT "WHAT NAME",na$
980 LOAD na$,a
990 CLS:GOTO 280
1000 IF INKEY(47)>-1 THEN in(col)=(in(co
l)+1) MOD 26:INK col,in(col):LOCATE #1,5
,1:PRINT#1,in(col):
1010 IF INKEY(18)>-1 THEN LOCATE #1,5,1:
PRINT#1," ":GOTO 280
1020 FOR h=0 TO 50:NEXT
1030 GOTO 1000
1040 POKE &902F,&7E
1050 POKE &9031,&12
1060 |TYPE,0
1070 |PRINT,widt,height,0,398,&8000
1080 |TYPE,3
1090 POKE &902F,&1A
1100 POKE &9031,&77
1110 PRINT"Error";ERR;"in line";ERL
1120 END
```

Pay attention!

From now on we are requesting that you include a suitable stamped addressed envelope for return of your submission. Not enclosing a suitable SAE will mean that your program will not be returned. You have been warned.

With regards to future submissions we are looking for articles on programming in general, utility programs and applications software and lastly, good games. Here are a few types of program we don't want: Educational, hangman, pools predictors, mastermind, flashing borders, bank accounts, disc catalogues and clocks.

Please do not telephone regarding any queries or problems with the listings. If you cannot get a program listing in the magazine to work, write to me, care of *Popular Computing*, and I will deal with it as soon as possible.

If there were problems then we will let you know. Corrections normally appear a couple of weeks later.

Thanks. □

Kenn Garroch
Listings Editor

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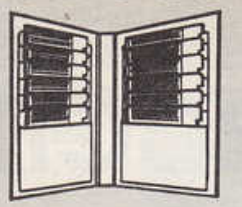

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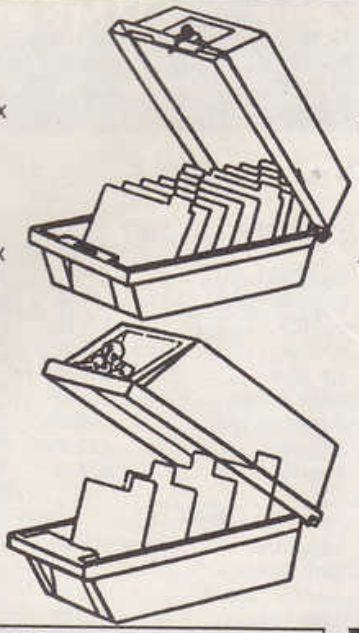

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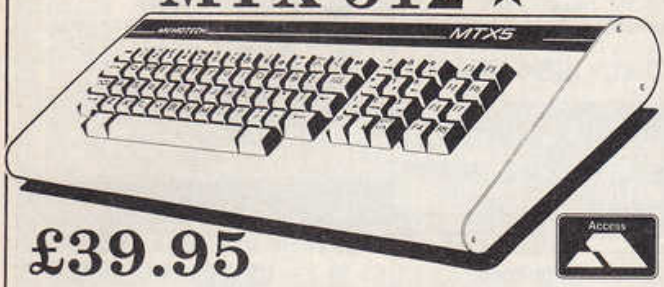

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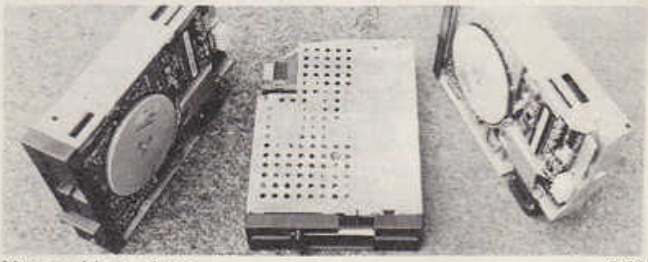

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COMMENT

Mice are driving me bats

Am I alone in hating micro-driven software and computers? Hailed as the greatest thing since the disposable nappy, they produce nothing for me as a teacher but headaches.

On the old 8-bit computers in our school, the severely under-rated Apple IIe and IBM clones, it was possible to arrange for basic software applications such as the word processor, database, mother-in-law's hate list and some to boot automatically when you turn on the machine.

This cannot be achieved easily on mouse-driven equipment. Certainly, it's true that we highly-trained adults can do this for them but the pupils cannot do it easily, whereas on the Apple IIe, for example, a simple INIT WORDPRO command from a pre-loaded computer would ensure that the word processor would boot automatically from scratch each time the disc is used.

Imagine the sense of power this gives to a bespectacled, spotty 13-year-old schoolboy with only a half-eaten carrot for a brain who realises he can control the innermost functions of this roaring beast tucked away in the inner depths of the blood-stained walls of the technology department.

So we find ourselves in a position of not being able to boot an application from scratch. This, then, involves aforementioned pupils spending the next 20 minutes attempting to double-click the word processing program into life.

More often than not they will succeed only in single-clicking the program and freezing the activity on the screen, not being sufficiently deft of hand to move the cursor successfully off the program icon and unclick it.

There is a further problem when pupils are creating their programs in Basic. Applesoft Basic and Basic on the IBM are crude but adequate elementary forms of the language but which enable screen manipulation, colour graphics and even animation with a firm logical foundation. 16-bit versions of Basic, even Fast Basic, have all kinds of ready-made routines for manipulating the GEM environment, which are very difficult to explain in a simple, logical manner.

It is also true that to use the whole screen for running your program you again have to resort to the dreaded mouse and I have to make moronic comments like "Aim for that funny, triangular bit up there in the corner, Jenkins. No, not that one - the other one. Oh, what have you done now?"

Finally, we reach the point when you want to see a display of your programs on the screen. In Apple's DOS 3.3 it is simply CATALOG and in MS-DOS it can be achieved with DIR. Both instructions result in a simple, neat list of the current software on the disc you are using. Not so with the mouse-driven beasties.

They produce endless arrays of boring icons which invariably run off the edges of the screen. Consequently, young Jenkins has great fun whizzing all over the place with the mice.

I should like to finish by highlighting a problem even Atari did not consider. Is it aware that in an urban comprehensive school the temptation to take the little rubber ball out of the bottom of the mouse at the end of the lesson and take it away is too great, not just for Jenkins Minor but also for Swott Major? Have you tried to buy a replacement ball for a mouse from a supplier?

Bring back the 8-bit micro and rescue me. All is forgiven - even the chunky graphics which have now taken on an air of nostalgia. □

Andrew Stephenson

PUZZLE

Our local cycle club recently ran a relay marathon from John o'Groats to Land's End over a period of nine days. On each of the days a team of cyclists covered the route between the towns and cities shown. As part of the support fund-raising, members of the public were invited to guess the distance, covered on each day of the event, and the best three entries are shown:

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5 Leeds–Nottingham	93	72	85
6 Nottingham–Oxford	107	115	98
7 Oxford–Salisbury	65	83	50
8 Salisbury–Exeter	88	101	92
9 Exeter–Land's End	134	157	122

By comparing the distance covered on each of the nine days it was seen that each of the three entrants had each made three correct guesses, but no entrant was correct on two consecutive days. If the total distance was 1,009, can you work out the correct distances covered on each of the nine days? □

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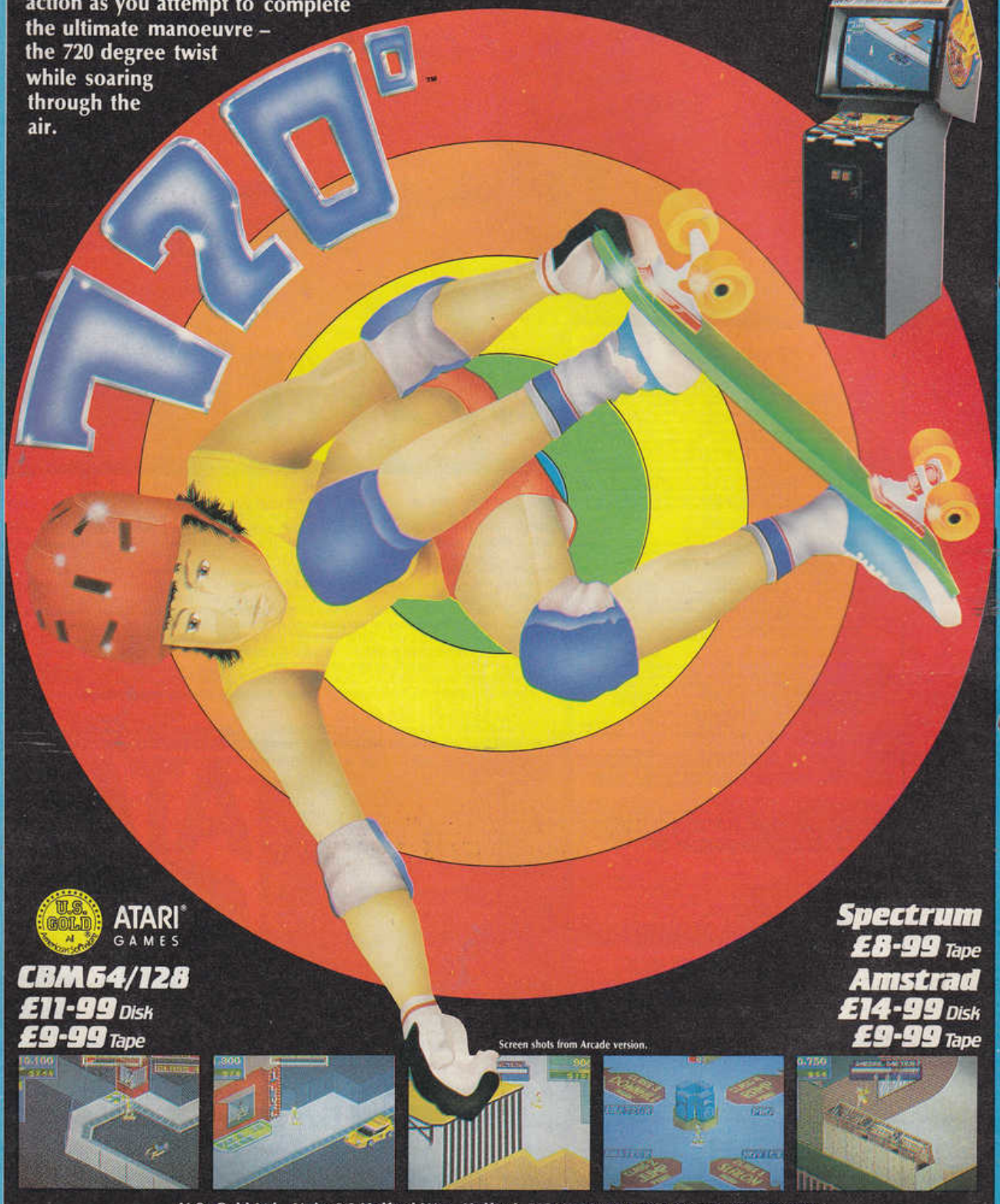

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