HOME COMPUTING WEEKLY
AN ARGUS SPECIALIST PUBLICATION
April 30 – May 6 1985 No 110 45p

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The new Amstrad!



For in-depth review see p.8

MIKROGEN
ASHKERON!
HCW EXCLUSIVE

Oric in cross-channel deal

Oric Products has been bought by SPID, a French importer and distributor of computers and software. The deal with the Paris-based firm includes the Oric name, marketing rights, stock and finished goods.

Liquidator John Cross, of accountants Chater Myhill, would not reveal the purchase price except to say that it was between half and one million pounds.

Oric's creditors are owed £6m but none of them will be paid except Edenspring Investment which will receive part of its £3m debenture.

In 1983 Oric computers were best-sellers in France, and number two in 1984. SPID president Jean-Claude Talar said: "We want to make Oric a French company."

Mr Talar is planning to manufacture Oric computers in France for European buyers and some of these will be sold in the UK. There will also be a UK office but it is not possible to say when this will be set up.

ASM, the original distributor of Oric products, had a large amount of stock when the company went into liquidation and so will probably continue supplying Oric goods for some time.

Mr Cross said that an Indian and some British companies had also been interested in purchasing the company.

All Oric employees including those at the research and development base in Cambridge have been dismissed, except for some staff in Berkshire.

SPID is also planning to expand the Oric range and produce some new models.



Is there a future for the Stratos?

Extra memory for BBC Plus

An extended BBC computer is due for launch on May 1. Called the BBC Plus, the new model has 64K RAM available to both BASIC and machine code programs.

The new model will have DFS as standard and cost £499. Other changes from the model B include six 32K ROM slots instead of the four 16K slots, a 1770 floppy disc controller instead of the ageing 8271 chip and a redesigned printed circuit board.

There is nothing radical about the new model. It incorporates a number of features already available for the model B, sold by independent suppliers. There will be a large degree of software compatibility between the BBC Plus and the BBC B.

Each month hi-scorers win £25
Take a butchers at our Minder review
Critic's choice: Jonah Barrington Squash
Expert opinion on Amsoft's Roland in Space
Review of Demon modem and Sure Shot Supreme

NEW RELEASES







Fantastic Voyage

The game of the film by 20th Century FOX

6.95 48K SPECTRUM

Mighty Magus

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Argus Press Software Group

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P.O. Box 6, Wimborne,
Dorset BA21 7PY.
Telephone (0202) 891744.

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Selected titles available at:
WHSMITH Boots WOOLWORTH
John Menzies
and leading multiple retailers and specialist computer stores.

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Coming Soon...

- Micro Pulse's ROM box reviewed
- Squashed frog on the VIC-20
- Quadrangle on the BBC — game

Soapbox

The BBC Plus is the new BBC machine announced by Chris Curry in January before Acorn's problems arose.

With a number of changes to the memory configuration and extra ROM sockets it is likely to be good news for those who already use the machine.

What is more difficult to decide is whether the first-time buyer will want to spend £499 for a computer unit without drives and monitor.

As a BBC user, I am very excited by the new model but I feel that it is likely to have a very rough ride in a market where the Amstrad CPC664 is £50 cheaper and includes all you can possibly want to start computing.

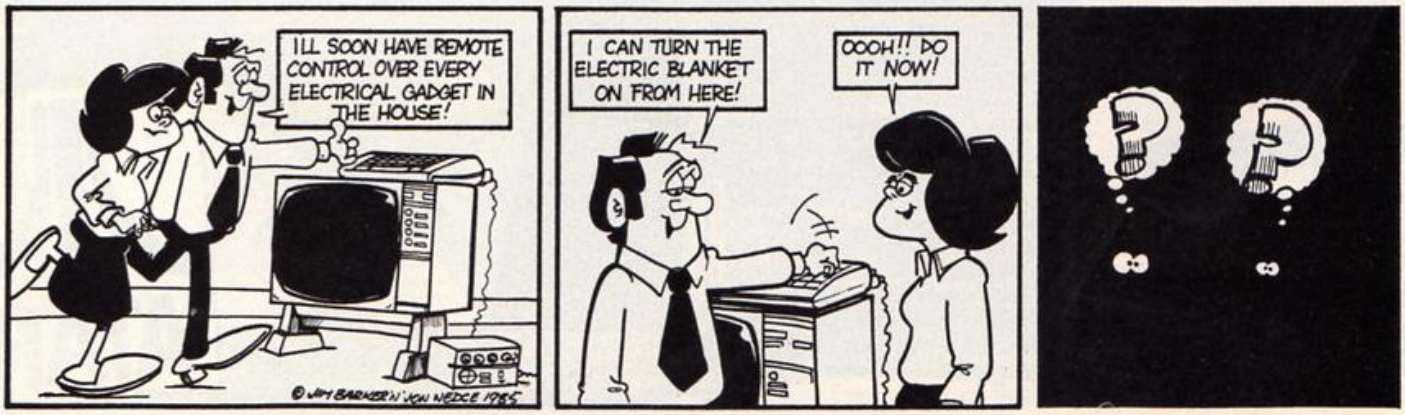
We have a user review of the Amstrad CPC664 in this issue and hope to have a BBC review very soon. Read HCW and you might find the help you need to make your decision. **Dave**

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BASIC LIVING

by Jon Wedge and Jim Barker



Cash on delivery

Prizes of £25 pounds each month are on offer to players of the latest adventure from Mirrorsoft — Ashkeron.

Released on the Spectrum later this month, Ashkeron is a real-time adventure for the less experienced adventurer. It features a new walk-through graphics system which enables you to see exactly where you're going before you move so you make less mistakes.

The £25 prize will be awarded to the adventurer of the month until February 1986. HCW will be publishing the winners' names and photographs on the Readers Page as soon as each score is verified by Mirrorsoft.

In the event of a tie, time taken and the number of turns needed will be taken into account. To enter — record a data file on cassette and send the tape to Mirrorsoft for checking.

If your score remains unbeaten you will also receive the prize for the following month.

Fame and fortune could be yours. Read the full review of the game in this week's issue and then send in your tapes.

Mirrorsoft, Holborn Circus, London EC1P 1DQ

Pirates seized

Five software houses recently joined forces to sue two men and two boys from Hull for pirating games.

The companies involved are Artic, Mirrorsoft, Anirog, Thorm EMI Information Technology and A 'n' F. Among the games said to have been copied were Bear Bovver, Bongo, Kong, Chuckie Egg and Caesar the Cat.

The pirate tapes were seized by police in a raid last August and material from other software houses was also found.

The four pirates agreed to be bound over by a court order banning them from further unauthorised copying.

The court was told the software piracy had reached "epidemic" proportions.

Modem perks

A free quarterly subscription to Prestel and Micronet is being offered by Tandata to customers who buy a modem and BBC or C64 micropack between May 1 and July 31.

The offer is also available to buyers of Tandata's viewdata controllers.

The TM110 auto-dial auto recall modem costs £99 + VAT, while the TM200 multi baud rate modem is £173 + VAT.

Tandata Marketing, 34 Ellerker Gdns, Richmond, Surrey TW10 6AA

German debut for new Atari

A new Atari machine was recently officially launched at the Hanover Computer Fair and our man in Germany has sent us the details.

The Atari 520 ST is a 16-bit machine with 192K ROM and 320 extra RAM. The computer itself comes with a 3.5-in disc drive, a mouse and a monitor. Basic software comes with the machine, including programs such as Jack Write and Jack Paint. The whole package will cost around £700, and Philip Gallagher reports that it is a neat, fast machine with a well styled keyboard, good graphics and an impressive screen display.

At a press conference to launch the machine, Jack Tramiel of Atari explained the thinking behind Atari's product. "Atari wants to work hard constantly to have the best product at the best price," he said.

Atari is planning to manufacture one million Atari STs in the next 12 months these will be sold wherever there is a demand for them. The first computers will be sold in the USA in May but no date has yet been set for a UK launch.

There are also plans to provide CD ROM software and a major encyclopaedia is to be released in the USA in the summer on compact disc. It will cost around $500.



Jack Tramiel: "Best product at best price"



Three cheers

Congratulations to the winners in our Tynesoft Super Gran competition. The top 10 winners will each receive a sweatshirt featuring the lady herself. These readers are: P Hodgkinson, Belfast; Vandebeek Noel, Belgium; Ben Basham, Pontypool; Mrs E Haggerty, Blyth; John Flynn, Rednal; David Anderson, Arbroath; Richard Poston, Horsham; Don Ramsey, Bradford; Steve Wood, Warley; Mark Hudson, Peterborough.

Another 90 readers will each receive a copy of SuperGran arcade game in one of the nine possible versions. They are: Mrs G Smith, Spalding; Andrew Bisby, Gorton; Ian Bucklow, Retford; Miss D Rough, West Bromwich; D Rehm, Hampton; Mrs T M Britton, Boverton; Jonathan Leach, Sidmouth; Ronald Pearson, Clydebank; J Pickford, Birmingham; Les Isbister, Bissleswade; N M Fairless, Stockton-on-Tees; Garry West, Aberdeen; D Wood, St Helens; David Gilfillan, Blyth; Hugh Dickson, Coatbridge; Miss P Marsh, Warlingham; Duncan Worth, Ambergate; Vyverman Stefaan, R A Jones, Folehill; Rod Dench, Sevenoaks; Michael Sharpe, Harthill; Paula Houlton, St Helens; Mr J O Yarker, Pickering; A Watts, North Gosforth; T J Clover, Rotherham; Robert Kelly, Hope; Angus Crowther, Naim; K Chau, Birmingham; Steve Bennett, BFPO 41; Keith Mawson, Slough; A Rahman, Nottingham; Sandy Green, Maryburgh; Adam Furness, Huntingdon; Leslie Frost, Kendray; Christopher Weathers, Ulverston; Trevor Moore, Walsall; M Bromwich, Sealand; Dawn Parish, West Wickham; Darren Eccleston, Witham; Martin Harrison, Batemoor; C Welford, Trent Vale; Dave Brown, Winchester; Darren White, Whitstable; Darren Cockings, West Bromwich; Russell Thewlis, Wickersley; Graham Furniss, Chesterfield; Paul Delph, BFPO29; C Ramdeen, Cowley; N Aldridge, St Albans; C A Kemp, Staines; Tim Prince, Ware; Tom Lynch, London; Ivor Ackerley, Derby; B Lever, Stockport; Keith Giscombe, Droitwich; Vijay Lad, Long Eaton; Neil Blandford, London; F A Beale, Blandford Forum; Karen Rolph, Heaton; J Smith, Salford; R Pilcher, Raynes Park; Morris Corbett, Dingwall; Alan Huck, Plymouth; Steve Higgings, Heston; T Richards, Oldham; Sean Lally, Sydenham; T West, Andover; J S Almey, Grimsby; C Dolan, Isleworth; Kathy Dart, West Torquay; J Froude, Shepperton; Paul Kaylor, Old Trafford; Steve Kinsella, Leigh; Chris Whitehead, Bolton; Graeme Lacey, Tunbridge Wells; Ian Johnson, Chelmsford; D Nottingham, Seaton Lane; Roy Harrow, Dorking; Dean Brassey, Wirral; D R Dickerson, Huntingdon; Darren Pensula, Newcastle; R M Taylor, Bolton; Richard Couchman, Huntingdon; Zoe Slack, Rotherham; Gareth Margan, Langney; Ian Garrow, BFPO 825; S Bateman, Acklam; Scott Miller, Crieff; M Edwards, Shepperton; Mark Pepperrell, Feltham.



Acorn's Elite — helping London children

Battle of the giants

Capital Radio's traditional Easter appeal for the Help a London Child charity is being given a boost by a project organised by Acornsoft.

At the BBC Micro and Electron User Show on May 11/12, up to a dozen Elite-ists will be competing against each other. They'll be playing the new enhanced version of Elite, which features full colour screen and faster graphics — and the title at stake is that of Elite of the Year 1985, as well as computer equipment worth £1,000.

And visitors to the show, which will be held at the New Horticultural Hall, in London, will be able to guess the winning score for a 50p donation to the Help a London child fund. There are prizes to be won by the spectators.

The copy of Elite on which the contestants will be fighting it out, is an improved version for the 6502 Second Processor-extended BBC, and it will be making its debut at the show.



Olé — el QL

Qué L

Sinclair has now launched a Spanish version of the QL, which has been available in Spain since December 1984, but in English.

Now Spaniards can buy the computer with a Spanish keyboard and software. Psion's upgraded QL Quill, Easel, Abacus and Archive are supplied with the computer and nine further programs have been commissioned in Spanish.

Charles Cotton, overseas business manager, said: "The Spanish QL is the first in a series of 12 foreign language versions which we are planning in the year ahead."

Sinclair claims to have cornered 75 per cent of the market in Spain, and has been exporting there since 1981.

Sinclair Research, 28 Stanhope Rd, Camberley, Surrey

NEWS

Top 100

Thanks very much for all the answers to our readers' survey. We've chosen 100 readers, whose entries were first out of the hat, and these fortunate people will each receive a software prize from us. Spectrum winners will get Software Project's Lode Runner; C64 owners will be presented with BC's Quest for Tires, also from Software Projects, while all those who own differenc machines will receive a special prize for their machine.

These are the winners' names: Ronald Farrington, Birkenhead; Sheila Roche, Poole, Robert Kaylor, Manchester; R P Vidler, Essex; Edwin Armstrong, Bedford; Robert McCubbin, Glasgow; Michael Follon, Fife; Neil Gawthorpe, Leeds; Nigel Wallace, Cramlington; S Colella, Southampton; Billy Stewart, Belfast; C Crane, Stoke on Trent; Mark Roake, Woking; Peter Boswell, Cardiff; James Rogan, South Shields; Adam Petch, Market Deeping; Anthony Butwel, Selly Oak; A Woodward, Sutton Coldfield; Kevin Simmonds, Shoreham by Sea; B D Everingham, Harold Hill; A J Cole, Broxbourne; Philip Cartwright, Hackney; A F Judge, Watford; Siuwah Li, N Finchley; Shane Williams, Pwllheri; John Cooper, Mansfield; B Hindmarch, Washington; James Crosby, Wallsend; Brian Christie, Belfast; Andrew Spencer, Derby; Andre Helps, Hemel Hempstead; Brian Newbould, Stockton on Tees; D A Parish, W Wickham; Phillip Lewis, High Wycombe; M J Pinner, Wembley; David Williams, Watford; Andrew Gillespie, Tytherington; Denis Lunt, Worthing; Donald McDermott, Crumpsall, Justin Slater, Accrington; Patricia Ramsay, Angus; William Erdie, Carrick Fergus; Mark Jenkins, Llwynypia; K R Lever, Maidstone; C Tate, Walthamstow; Keith Clark, Manor Park; Graham Murray, Echt; Jill Woffenden, Markyate; P J Wainwright, Shiregreen; Stuart Haigh, Hastead; Charles Goldman, Welwyn; James Kerr Hunter, Greenhills; D E Nicholls, Holborn; Arvin Noris, Cwmbran; Nigel Yarranton, Upper Belvedere; Neil Hayes, W Glamorgan; A Watts, N Gosforth; Jonathan Leach, Devon; A Welsh, Walsall; Andrew McIntyre, Newport; Anthony Middle, Lymington; V Lad, Long Eaton; Steven Paterson, Gt Yarmouth; I Wilding, Skelmersdale; Marion Tuck, Hove; William Barker, Washington; D Roebuck, Lymington; Kim Yarwood, Hatfield; Craig Taylor, Seaton Delaval; Barry Mead, Bristol; David Lucas, Wirral; Patrick Putnam, Chingford; HL Pang, Hove; J Dawson, Sheffield; Darren Watson, Tottenham; Peter Spencer, Wigan; Francis Gillingan, Sale; Cpl Steve Bennett, BFPO 41; S J Freeman, Lowestoft; Dale Russell, Warminster; P Elliott, Andover; Allan Mayers, Cwmbran; Michael Jones, Towcester; Barry McCormack, London; Riccardo Nardini, Ayrshire; Stephen Nye, Frome; Mark Lanouette, Dunstable; Michael Clarke, Consett; G J Poole, Ampthill, J Hughes, Cadishead; H Galloway, Weston super Mare; Steve Johnson, Sale; J Preston, Carlisle; G W T Churchest, Bicester; Liz Tomlinson, Havant; Shawn Mcavery, Protsmouth; Roger Morton, Normanton; D Axford, Lewes; M J Turner, S Lambeth; John Teasdale, Carlisle.



Stuart Henry pops the question

Software update

Stuart Henry's Pop Quiz has now been updated and is available on Micronet 800. Last year's charts records feature prominently in the game which has Radio Luxembourg DJ Stuart Henry asking the questions.

There's more than 750 questions, as well as mystery tunes to keep you guessing. And a contribution for each copy goes to multiple sclerosis research.

Our picture shows Stuart Henry with the game, which runs on the Spectrum.

Bellflower, 6 Rosewood Ave, Greenford, Middx

Cheetah cassette recorder

Cheetahsoft has recently announced the release of a new home computer cassette/data recorder compatible with most home computers.

The recorder costs £29.92 and accepts standard home computer cassette leads and includes a standard DIN socket. Push key controls include all the usual functions. A special feature is the use of only one key for record.

Cheetah Marketing, 24 Ray St, London EC1R 3DJ



Cheetah data recorder

Title	Machine	Price	Publisher
Flight Path	C64 (disc)		Storm Software
Daley Thompson's Decathlon	Amstrad	£8.95	Ocean
Kong Strikes Back	Amstrad	£8.95	Ocean
Hunchback II	Amstrad	£8.95	Ocean
Stuart Henry's Pop Quiz	Spectrum	£5.75	Bellflower
Astronomy	Spectrum	£6.95	Scisoft
Key of Hope	Spectrum	£7.95	Games Workshop
Bug Eyes	BBC/ Electron	£7.95	Icon
Drain Mania	BBC/ Electron	£7.95	Icon
Gates of Dawn	C64	£8.95	Virgin
Arnhem	Spectrum	£8.95	CCS
Amazing Ollie	Spectrum	£4.50	Storm
Ollie Octopus' Sketchpad	Spectrum	£4.50	Storm

COMPETITION

WATCH OUT!

Look sharp — here's your chance to win our up-to-the-minute Seiko RC-1000 wrist terminal







Enter this week's competition and you stand to win a jet-set space age watch — or rather, wrist terminal.

Seiko is giving away one of its latest Commodore 64-compatible RC-1000 terminals. Weighing in at a mere 60 grams, and measuring up at 41.8 x 10.6 mm, this little giant carries 9K ROM and 2K RAM with an LCD display of two rows, each having 12 characters.

On its normal setting, it shows a 12-hour time display with day and date, and a daily alarm may be set by pushing a few of the six buttons below the LCD window.

But where it comes into its own is in its programmability. It comes supplied with disc- or cassette-based software and a lead, with which you connect it to your C64. Now you can enter a weekly alarm, schedule alarm (once-daily reminder for a fixed time and date), world time and memo.

The memo section can be subdivided into categories like telephone numbers and check lists, and you then enter any number of items under your chosen heading.

All you have to do is answer the simple questions below. Cut out your coupon and send it off. What are you waiting for?

Questions

1 Which number issue of HCW will be available on 28 May 1985?

2 When we change the clocks in October, which way will they go, forwards or backwards?

3 Will the year 2000 be a leap year?

4 On which river is Greenwich: Avon, Thames or Clyde?

5 Is the speaking clock now a man or a woman?

How to enter

Answer the questions in the spaces provided on the coupon. Fill in your full name and address clearly. Seal the coupon in an envelope and post it to Home Computing Weekly, No.1 Golden Square, London W1R 3AB to reach us by first post on Friday May 17, 1985.

The rules

Entries will not be accepted from employees of Argus Specialist Publications, Seiko and Alabaster Passmore & Sons. This restriction also applies to employees' families and agents of the companies.

The How to Enter section forms part of the rules.

Seiko Competition

Entry Coupon

Name _____

Address _____

_____

_____

_____ **post code** _____

Answers

1 _____

2 _____

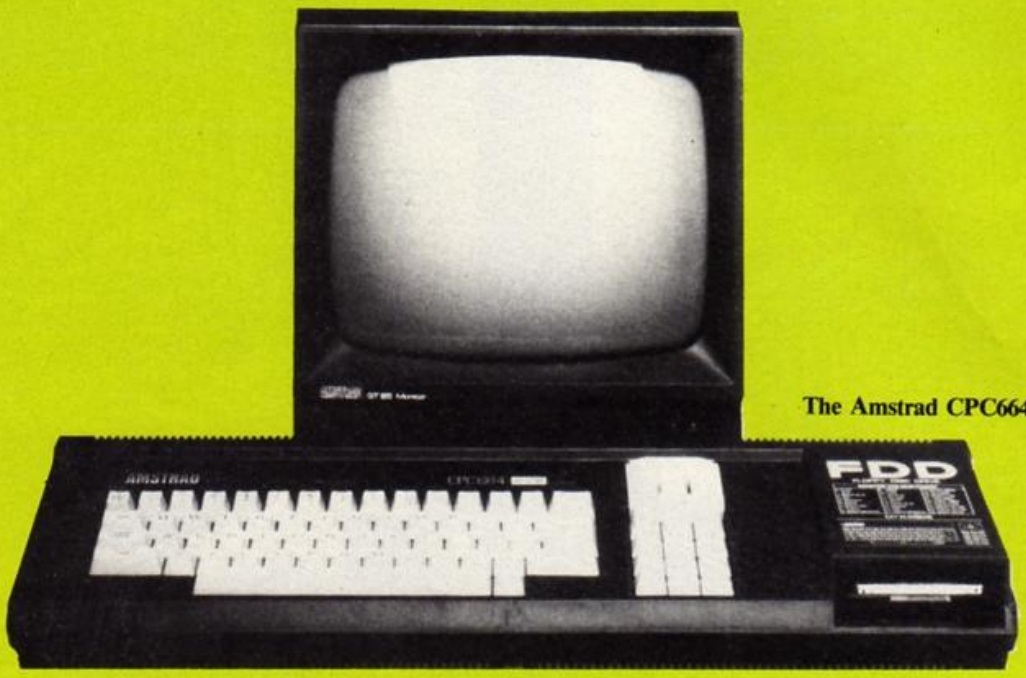
3 _____

4 _____

5 _____

Complete cleary and fully — if you are a winner this will act as a label for your prize. Post to Seiko Competition, Home Computing Weekly, No 1 Golden Square, London W1R 3AB. Don't forget to follow closely the advice in the How to enter section.

HARDWARE



The Amstrad CPC664

John Donovan got his hands on an Amstrad CPC664 — here's his verdict

At the launch of the first Amstrad (the 464) a disc-based Amstrad was promised. A Year later the 664 has arrived.

So, is the 664 just a 464 with the tape replaced by a 3-inch disc drive? Essentially it is, but in order to provide the disc commands necessary Amstrad has rewritten the 1.0 BASIC and provided a few extra features and commands. More about those later but first the computer itself.

The 664 comes in the same package as its predecessor. It has a monitor and a console which contains the keyboard and disc drive. The "one plug" policy has been maintained but only by providing a 12V output from the monitor for the disc drive. The keyboard has been redesigned and is a great improvement. The keys are in a blue grey colour layout, the numerical keypad has been labelled with the letter 'f' before each number to emphasise the point that the Amstrad does have function keys. The cursor keys have assumed an MSX style layout around the copy key. To the right of the keyboard is the disc drive which bulges out from the console. The top surface of this is not used so useful programming information is located here, such as a colour/number chart.

The rear of the 664 is much the same as the 464 except that it now boasts an external cassette port to enable tape-based software to be used on the 664, in fact Amstrad is so keen on compatibility that the Cntrl/Enter combination to load a cassette file has been left rather than boot a disc file as one would expect!

So much for the cosmetics: now for the new commands. These are mainly graphics based, the most interesting of which is FILL, a fast colour fill that takes as its boundaries the present pen colour or the colour you're filling with. So to fill an area one would first draw the shape on the screen, place the graphics cursor within the shape and use the command FILL n where n is the number of the colour to fill with. This is very effective and Amstrad claims it is the fastest colour fill around.

Also of interest is the FRAME command that synchronises the graphics writing with the frame flyback and thus gives much smoother graphic movement from BASIC without the usual flicker or tearing effects. This feature is very effective in use but, as can be seen even from the example program in the manual, slows movement down slightly.

As an addition to the line drawing features, MASK has been added which allows dotted lines to be produced according to the parameter supplied. Unfortunately this parameter has to be entered as a decimal number even though it is the binary representation that is relevant. So if the command MASK 1 is entered then the line will be dotted in the pattern " -" because 1 in binary is 00000001 and so on. Also included is a second parameter which controls whether the first point of each line is plotted. This may not seem too useful but it is used when drawing shapes in EOR mode when the plotting of a point twice would be undesirable.

In addition to these and a few other minor commands Amstrad has improved the error handling and increased the number of error codes, because the disc system generates more complex errors than the simpler tape system. The command DERR has been added so errors may be caught with the new ON ERROR GOTO XXX structure and handled once DERR has identified them.

Finally an ON BREAK CONT structure has been added that effectively disables the escape key.

As I have already mentioned, the 664 is compatible in most respects with the 464 and will thus run all but a few of the 464 software titles. The few that don't run have been written using illegal programming techniques which don't follow Amstrad guidelines. The 1.1 ROM, if fitted to the 464 would make it as powerful as the 664 and, although Amstrad has previously stated that the 1.1 would not be made available, the company now indicates that it will. However, the fact that the ROMs are soldered into the board will provide difficulties for the novice.

To sum up, it is a disc-based machine, in monochrome for £339 and full colour for £449, it has a good keyboard and powerful and proven BASIC. Add to this a list of successful software titles already available and I think you will come to the same conclusion that I have reached. The 664 is a machine to be reckoned with!

Supplier: Amstrad

Address: Brentwood House, Brentwood, Essex

BLOCKBUSTERS

Blockbusters is the ratings-topping, button-popping, mind-stopping quiz game of the decade, and now it's been adapted for your micro computer!

Central TV's popular programme attracts around 12 million fans, and now it's all set to become number one in the personal computer charts as well! Blockbusters is 'edutainment' of the highest level for all the family, providing a perfect introduction to the home computer.

Two players pit their wits against each other and the clock in a game which tests mental agility and general knowledge – it's exciting, educational and intense with an appeal as wide as the micro itself.

If you've got a computer in the family you've got to get Blockbusters. And if you haven't, it's worth getting one just to play Blockbusters! Now available from High Street stockists or direct from Macsen Software – just fill in the coupon below and try to contain your excitement – we'll deliver within 14 days!

This is what the experts have to say . . .
"A surprisingly addictive family game with considerable educational side-benefits" – CRASH MICRO MAGAZINE

Macsen Software, GBA Limited, 17 Nott Square, Carmarthen, Dyfed, SA3 1PQ.
Please send me a Blockbusters programme for my
BBC-B ELECTRON ☐ **SPECTRUM 48K** ☐
COMMODORE 64 ☐ (Tick appropriate box)
Price **£7.95 + 60** pence p&p.
I enclose Cheque/PO number _____
for **£8.55** made out to Macsen Software or please debit my ACCESS/BARCLAYCARD, number _____
Signature (Mr/Mrs/Miss) _____
Address _____
_____
_____ Postcode _____

THE ULTIMATE CHALLENGE!

MACSEN SOFTWARE

MACSEN SOFTWARE

CENTRAL

SOFTWARE



Minder

At last, after a series of naff games based on naff TV series (which were mainly American, or is that just a coincidence?) we get a good game based on an excellent series.

Playing the part of Arthur Daley, you begin with £2000, an assortment of goods and 14 days in which to make as much money as you can by wheeling and dealing with these and any others that you pick up along the way. You'll meet a number of dealers, and can either approach them to flog a few corsets or some such item, or they will make the first approach and try to sell you something. The dealers shop and other locations are presented in much the same way as in a graphic adventure, as is your text input, but the dealers' faces are excellently animated as their words appear on screen.

Haggling is all part of the fun when you're dealing, but watch out for faulty goods or selling stolen gear, or you may get your collar felt by the Old Bill, in the form of Inspector Chisholm.

The text input is fairly friendly, and accepts all sorts of phrases. I told one dealer to "sod off" only to see a great fist fly out of the screen and flatten me.

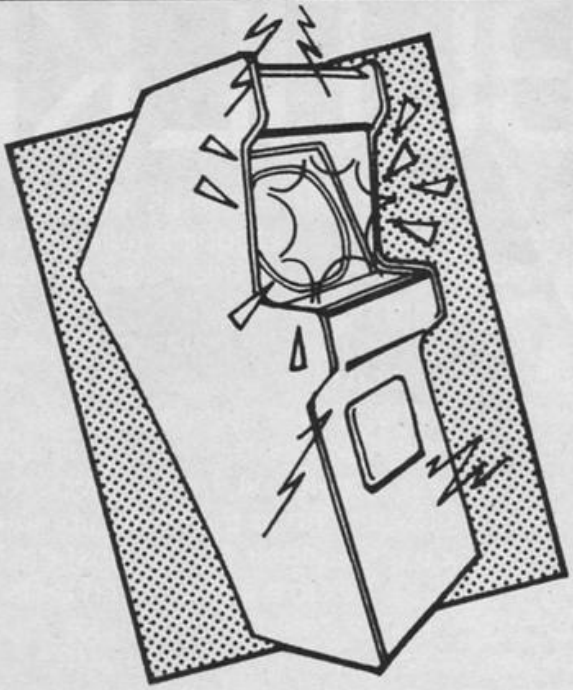
If I had to categorize Minder, I would call it a business simulation of sorts, though vastly richer and more enjoyable than most of that rather dry breed of game. **K.C.**

Price: £9.95

Publisher: Dk'tronics/Thames TV

Address: Unit 6, Shire Hill Ind Est, Saffron Walden, Essex CB11 3AX

SPECTRUM



Roland In Space

That adventurous Amstrad technical manager, Roland, is on the move again. Now he's piloting round the universe in his Mark II telephone box Tardis (wrong colour — BT is painting them yellow these days). Stopping off points are seven freaky planets which Roland is searching for these flashing blue things. Roland has to collect lots of them in order to build his superweapon.

This is another platforms and leaping game, of the Manic Miner ilk with a few new wrinkles added to the old game plan. While there are only seven levels, each one is about three-and-a-quarter screens wide by two-and-a-half screens high. As you move Roland around, the background scrolls smoothly, though at certain times you can get a fair amount of 'tear' at the edges.

You don't have to complete each screen to pass on to another. After an excellent title page in which the planets spin in an elliptical orbit around you, you are offered a kind of graphical menu of the planets, and you choose which to visit. At any time you can return to your phone booth, transporting yourself back to the planet menu and another choice. This lets you practise each screen till you've got it sussed.

Returning to this menu also lets you check the status of your superweapon, represented as a growing coloured bar across the screen, and the number of 're-generations' you have left — you start with nine. So far it doesn't seem like I'll get any extra. Maybe I'm not playing well enough (current high score, 8%).

There's plenty of variety in the locations. Sol 3 has ropes, helicopters, frogspawn and frogs (well, they're green and bug-eyed), birds, apples, spiders, skulls, and our old friend the conveyor belt. Alpha Centauri 4 has more frogs, false teeth, energy blobs and spirals that flutter about, strange green aliens with long necks and hyperactivity, no through road signs, railings and stars.

Betelgeuse 2 is just a big city full of skyscrapers and office blocks, plus more galactic frogs and false teeth, flying saucers and a flying phone booth.

Polaris 4 is pretty hard, with waterfalls and rivers, bridges, and homicidal Easter eggs. Algol 6 is a complete change of scene with a huge pyramid of tunnels guarded by beach balls, Rubic Cubes, and a cigarette stub.

Pollux 3 is an odd mixture of clouds, a rocket ship, a galleon in dock, and the Parthenon. Finally Arcturus 7 is an underwater world of lethal crabs, sea snakes, fish schools and seaweed. You can travel almost anywhere in this screen by swimming, so it's probably the easiest one to start on.

The graphics are surreal, blocky and garishly coloured, which isn't quite to my taste. Nevertheless, leaping fans will love it. **P.N.G.**

Price: £8.95

Publisher: Amsoft

Address: Brentwood Hse, 169 Kings Rd, Brentwood, Essex CM14 4EF

AMSTRAD



Ashkeron

As the local blacksmith you are the nearest thing the members of the village could find to a hero! You are therefore elected to travel to the neighbourhood wizard's castle and retrieve a crown. It is thus that you find yourself outside the said castle with a woodsman's axe and very little idea what to do.

As the castle is surrounded by a wood and bearing in mind you have that axe you may think it a pretty shrewd move to enter the forest — this would be a mistake unless you happen to be a lover of mazes. Once free again you will probably gain access to the castle by waiting for the next cart, ending up in the courtyard; this is where the fun begins. One step to the north and you end up . . . . in another maze!

Just as you begin to think Ashkeron is one big maze you stumble into the picture gallery and will soon be informed that you aren't an art critic but it's an improvement on the maze. After this the game opens up and you can explore the banquet hall and meet the butler, visit the kitchen and get thrown out of the pantry by the cook and talk food with the maid.

At this stage you will have probably encountered the wizard himself who will cast a spell that reverses all actions, so type N and you'll go south. Also prone to pop up is the black witch: you can only get rid of her by bribing her. If you are really lucky you get to meet the slimy green dwarf who invariably assaults you with his sword — ho ho you think, kill him and take his sword. Well, killing him isn't hard (chop chop) but as he dies the sword crumbles to dust! There is a sword that you can get, though, but it's broken unfortunately so you need to find a blacksmith to mend it (another one?). One is duly found and does indeed mend the sword but the forge is in the cellar and the easiest way there is to go to the bedrooms and get thrown into the cells by the sentinels . . . . but I'm telling you the plot!



Ashkeron features that system called "walk thru" graphics. If you go east the picture that occupies the top of the screen scrolls to the left and vice versa; going north or south causes the screen to split in the middle and scroll out.

The pictures aren't as good as Level Nine ones but they are still very effective and what's more important, the space they occupy doesn't detract from the complexity of the adventure. As an adventure purist I think that the pictures don't add anything to the game either but if they were omitted I'm sure some bright spark would moan that the graphics and sound were underused! So to sum up, Ashkeron is something for everyone: a complex, challenging and witty game for the adventurer and it's got pretty pics for the zap'em crowd. An excellent game — buy it! **JGD**

Price: £5.95

Publisher: Mirrorsoft

Address: Holborn Circus, London EC1P 1DQ

SPECTRUM



Jonah Barrington's Squash

Once upon a time, a video game console took up a whole table's worth of space and played an average game of squash with a little white ball and a bat that moved only up or down. Now, your little microcomputer can utterly humiliate you with an animated three-dimensional squash simulation.

The game presents you with a view from the rear of the court, and two nicely animated figures, either of which can be controlled by the computer or a player. Keyboard controls are user-definable, and the game offers four skill levels — though even on the lowest I suffered many a dismal drubbing.

Though your animated player responds well to the controls, I found it very hard to figure out how to place him properly and keep the ball in play, yet this never really became frustrating. In fact, it made me want to keep on trying and master the skill — to no avail so far. Still, nil desperandum and all that.



I'm not a great fan of sports simulations, but this game turned out to be much more enjoyable and addictive than I had expected. The only let-down is the Reprosound voice synthesis which is meant to announce the scores. It simply sounds like a high pitched BEEP, and amplifying it through a tape recorder just gives you a loud, high pitched BEEP, and amplifying it through a tape recorder just gives you a loud, high pitched BEEP, which is so negligible that I stopped noticing it after a while. **K.C.**

Price: £7.95

Publisher: New Generation

Address: The Brooklands, 15 Sunnyband, Lyncombe Vale, Bath, Avon BA2 4NA

SPECTRUM



★ ★ ★ ★ ★

Flipped



★ ★ ★ ★

Hooked



★ ★ ★

Keen



★ ★

Yawning



★

Comatose



Mystery of the Java Star

This is billed as an educational adventure for the family in four parts. The story starts with your purchase of a chest in which you find the fragments of the log book of the long sunk Sea Witch. Your task is to mount an expedition to the Caribbean to search for it, and thus recover the gold and the mysterious Java Star, a ruby which appears to burn all who touch it.

In fact, this isn't an adventure as I understand the term. It's more like a series of linked puzzles through which you gain clues to the next part of the story. The program itself is written in BASIC which, though perfectly satisfactory in itself, means that the game is split into four parts, each loaded separately, and each dependent on the completion of the previous part.

Whilst any CPC464 user would be pleased to achieve this level of programming competence, in comparison with the best currently available, the graphics and sound are rather crude, and seemingly capricious changes in the tense of the narrative rather negate the supposedly educational nature of the game.

The puzzles themselves are rather tedious. For example, various fragments of a paper are shown jumbled on the screen. By entering co-ordinates you swap the bits until it makes sense, though a complete version is shown briefly if you ask for help. This completed, you must then rearrange fragments of a map using exactly the same means. I found this boring. **D.M.**

Price: £7.95

Publisher: Shards

Address: 189 Eaton Rd, Ilford, Essex IG1 2UQ



AMSTRAD



Jetboot Jack

This is an arcade game with 10 screens. Jack, a multi-coloured jogger with jet boots, is found in a record-pressing factory. Each screen has about six levels between which elevators move. Littered around are musical notes which must be collected. Jack's boots soon run out fuel, however, so lumps of vinyl hanging from the roof must be collected when there's a need, but at the same time, Jack must duck beneath any areas of low roof and rather nasty hanging gremlins and bugs — otherwise it's curtains! He is allowed to get his own back though. By positioning him above the hanging nasty, and jumping up and down, the gremlin is dislodged and falls to his death.

Graphically, the game is reasonably sophisticated and smooth, though the colours chosen seem a bit wishy-washy, and the music isn't quite right. Rather repetitive too.

Because it's not the usual zapping and jumping, practice is needed. Don't try to climb aboard the elevators and platforms when they're moving either. Thankfully, there's a practice mode; in fact one of the most welcome features of this game is the facility to choose colours for each type of monitor, joystick or keyboard control, difficulty, start screen, number of nasties and so on. Other software houses please copy!

Sad to report, therefore, that I didn't find it very addictive, though it's certainly a challenge. Given the graphical standard of games like Sorcery, and the rather worn concept used here, I found this rather uninspiring. **D.M.**

Price: £8.95

Publisher: English

Address: PO Box 43, Manchester M60 3AD



AMSTRAD



Mighty Magus

Will you be the Mighty Magus in this perilous journey through 30 levels of the Rising Sun Temple, to have a final showdown with the deadly dragon-like Fraugy the Fierce?

After killing him you must return to the exit. The levels have piles of rubbish and chests — both worth searching — and many warlocks, wizards, and hideous monsters. These assorted meanies with varying strengths can be fought, have spells cast on them or be jumped upon. Your success depends upon relative strengths of the Meany and the Mighty Magus. You may only injure it — so reducing its strength — or it may reduce your strength by injuring you.

Certain parts of the floors have various effects when walked upon — you may be thrown backwards, teleported to another location, have arrows shot at you or spiked walls move in to crush you.

The introductory screen has a story and instructions scrolling in two lines right to left, leading to a screen offering options of redefining keys, colour on/off, instructions and start. There follows a 30-name hi-score table (can be SAVEd and LOADed) and finally the game starts at the temple door on level 30. Wall lights flicker, colour and graphics are superb, as is use of sound and scrolling. Screen right shows score, lives, power, magic, level and items held.

A yellow border means you've found the magic shield, which protects you from injury until the border goes blue.

An enjoyable, easy to understand game that just begs you to have another go. **T.W.**

Price: £6.95

Publisher: Quicksilva

Address: Carlton Lodge, 16 Carlton Crescent, Southampton



SPECTRUM



Alcatraz II — The Doomsday Mission

Having just escaped from prison with some secret files of the enemy's deadly plans to destroy the world — the Doomsday plans — Harry needs to get them to the Allies over the sea by helicopter.

Unfortunately, between them and the prison fence are thick jungle, ordinary jungle, sea, watch towers and various problems, such as scorpion bites. Harry can collect diamonds in the jungle and food and tobacco from visiting the huts. As he wanders through the jungle seeking the helicopter, Harry meets other escaped convicts who give information — such as the name of the contact, Freddie Fingers — in exchange for goods.

The game starts by giving the story and then showing a map to be studied, before listing all the information Harry has to collect about direction to sail in, port to sail to, name of contact and code word. There are four skill levels, though level one was difficult enough for me, and keying 'S' gave status report. Huts can only be entered once and staying too long near a watch tower can lead to recapture.

The graphics are well designed and coloured, and movement is quite slick. There is no scrolling from one screen to another, just simple replacement, and a repeating of the small map from the start would have enhanced what is basically a good game with some excellent ideas. A nice story that is addictive and exceptional value for the low price. **T.W.**

Price: £1.99

Publisher: Scorpio Gamesworld

Address: 307-313 Corn Exchange Bldg, Cathedral St, Manchester 4



SPECTRUM



Fantastic Voyage

If you enjoyed the film you'll find this exceptional game fascinating, as you control the diver swimming around the human body seeking six parts of a miniaturised submarine to rebuild in the brain. Completed, it shrinks and leaves the body via a secret route. I suspect that biologists would disagree with the routes available between organs and some names used.

Unfortunately infections, causing the body temperature to rise eventually killing the "host", occur from time to time in various parts of the body — shown on the body-map at screen right and labelled at screen top. Your position is also indicated on the map and you must laser the infection to continue — or die, when temperature reaches critical.

Your way is also blocked by growths: you must collect a white cell to destroy them. If your energy, sapped by swimming, standing and firing the laser, gets too low then you turn red and finally become invisible until red cells are collected. Cholesterol — yellow dots — can be lasered to allow you to pass, and green viruses break out after the first submarine part has been assembled; they must be destroyed or they'll destroy you.

Screen top also shows score, time, lives and percentage collected. The use of sound is not distracting and the graphics are extremely well drawn and coloured. Movement is in precise response to keys and a new screen instantly replaces the last. A brilliant, addictive way to learn your way — literally — around the body. **T.W.**

Price: £6.95

Publisher: Quicksilva

Address: Carlton Lodge, 16 Carlton Crescent, Southampton

SPECTRUM



Bruce Lee

This game has just got to be a moneyspinner for US Gold. Bruce Lee has to visit 20 secret sealed chambers searching for the Wizard and his secret of immortality. Starting at the entrance, he jumps to collect lanterns on the various levels of the screen before collecting those in two adjacent rooms. Then he can move down from the entrance into another set of screens, collecting more lanterns and avoiding electrical discharges between ledges, pan lights streaming across the floor and suddenly appearing exploding bushes.

Bruce is attacked by the Ninja waving broken sticks and the very dangerous Green Yamo delivering crushing kicks. Bruce can kick and chop while ducking and running away to foil attempts to harm him. The Yamo survives only three blows but the Ninja only two.

To move around each room he climbs vines, rides on waves of particles, which change direction without warning, and jumps from ledge to ledge. On reaching the end of the lower screens and the secret, it's back to the start — assuming that he successfully avoids the Wizard's fireballs and manages to destroy him.

One or two players can play, either against each other or against the computer, scoring points for lanterns collected, each successful chop or kick delivered, entering a new room, knocking out attackers, destroying the Wizard and landing on attackers. At 40,000 points, and each 30,000 after that, an extra Bruce Lee arrives.

Graphics, animation, sound and movement make it a superb program. **T.W.**

Price: £7.95

Publisher: US Gold

Address: Unit 24, Tipton Trading Est, Bloomfield Rd, Tipton, W Midlands

SPECTRUM



World Series Baseball

The well known name Imagine has resurfaced with this simulation of baseball. The most striking aspect is the distinct American feel. The graphics are to a high standard using sprites on a multicolour bit map backdrop.

A single screen is used giving a view of the baseball diamond from the grandstand. Above the field is a window, rather like the grandstand. Above the field is a window, rather like the fancy displays used in most stadia, which gives close up side views of the pitcher and batter. There are options to play against the computer or against a human opponent. The animation is nicely done with cheerleaders and the ball casting a shadow. The close view given by the small window is very slickly done.

I won't try to explain the rules other than saying that the two sides take it in turns to have an innings and the game is the best of nine innings. The control of the game is by joystick only and due to the wide range of options, it takes a little while to suss out. When fielding you have control over a wide range of pitches and the actions of the fielders. As batter you control the type of stroke and the movement of players on the bases.

Compared with other sports simulations, this game is above average. Initially the game is tough to master but once you've moved down the learning curve a bit it becomes both engrossing and exciting. At this price it's great fun and good value. **M.W.**

Price: £7.95

Publisher: Imagine

Address: Ocean, 6 Central St, Manchester M2 5NS

C64



Eiffel Tower

This new addition to the Chalksoft educational range is aimed at children over nine and it is suitable for the user who is starting to learn French or the more advanced user who wants to brush up on vocabulary before going on holiday.

Each side of the cassette carries a different part. Side A covers such topics as home, food, motoring, entertainment and sport. Side B has further word lists including school, shopping and time.

The basis of the program is very simple. You must build the Eiffel Tower. To do this you type in the correct translation to a word written on the screen. There is a code system for the entry of accents etc. If your answer is correct, a section of the tower is erected, if not the correct answer is written on the screen for you to memorise. The original question is then repeated. When the tower is completed you are given a rating varying from apprentice to craftsman.

Revision lists and options to load your own word lists are given. One useful section deals with those little important words which are often ignored in language programs. These include before, after, behind, in front of etc.

The program Turbo loads with little trouble. The graphics are simple but effective and some jolly tunes are used. A nice "fail proof" approach is used so that you can have infinite attempts at a word until you succeed. Overall, a good buy. **M.W.**

Price: £7.95

Publisher: Chalksoft

Address: 37 Willows Rd, Worcester WR3 7QP

C64



Rock n' Bolt

Activision has come up with rather an odd game here. You control a little man who must bolt moving girders together. The catch is that he must walk down the girders to do this and can only move from girder to girder if they are touching.

You enter each level via a lift and you must return to the lift once the screen is completed. The nature of the game is such that a high degree of forward planning is required to ensure that you can complete the screen and find a way back to the lift.

Two types of problem are posed. First some screens can be solved in any way you choose. These tend to be the easier type. The second screen requires that the girders be attached in a specified way. This option can be irritatingly tough. The arrays of girders can occupy up to three screen areas depending on the level of difficulty.

Three play options are available. An untimed option acts as a practice mode allowing you to get a feel for the game. The other two options make you perform against the clock but you can earn money for completed screens.

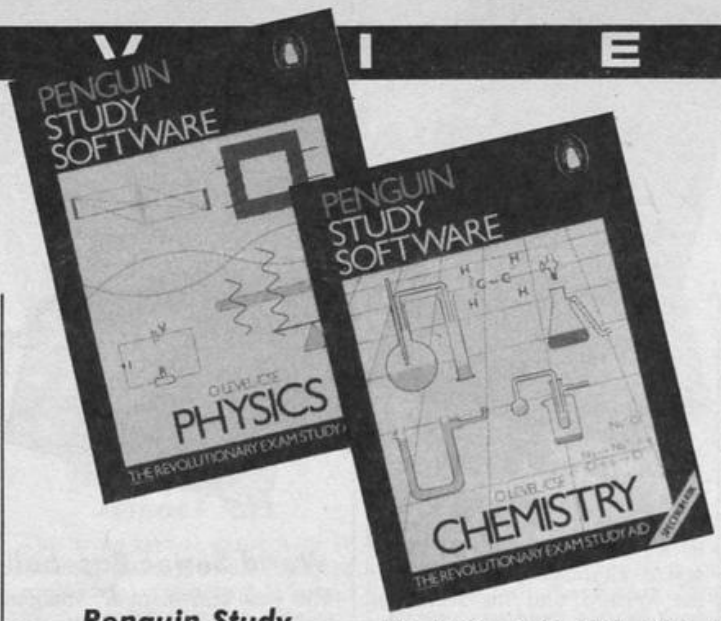
The graphics are slick with reasonable animation. The background music is abstract but very tasteful and didn't become tedious even after an hour's play. Overall a testing game which is tolerably original and very nicely programmed. The bad news is the price. Knock three pounds off it and it's good value. **A.W.**

Price: £10.99

Publisher: Activision

Address: 15 Harley Hse, Marylebone Rd, Regent Park, London NW1 5HE





Penguin Study Software: Physics
Penguin Study Software: Chemistry

Two packages designed to teach and test physics and chemistry at CSE and 'O' level. Although there are a number of teaching packages on the market, it's fair to assume that anyone with a sound knowledge of a subject, a reasonable grasp of programming, and an up to date breakdown of the questions which have arisen in recent exams, could write a question and answer type of testing program which gives your score at the end. Given that, it follows that the content of the program is not nearly as significant as its structure, that is, the way it attempts to teach and test. It's very clear that the authors have given this a great deal of thought.

Each subject has four individual tutorials dealing with related topics. Questions are presented in multiple choice format, as in the exams, at the top of the screen. You are invited to respond either with the key letter for each answer, or 'H' for help. Should your answer be wrong, you are told so, and given the hint you would have received had you asked for help in the first place. You may then attempt another answer. Get it wrong again, or ask for further help, and the answer comes up, together with an explanation of the principle underlying the question, and any relevant information or formulae.

You then have two choices, either to move on to a question on another topic, or to repeat the same topic, but with a different question. It is here that the authors' cleverness shows. Whilst the data in the question will of course be different, the form of the question is also likely to be slightly different too, as a result of randomising both elements. This means that you cannot "learn" the questions parrot fashion, but must be able to contend with all forms of likely questions on the topic. You may repeat like this, with different questions, answers and format as often as you like until you have a sound grasp of the subject matter. Help is always available.

At the end of each question, you may choose to quit and receive your score. Again, this is very clever. You are given the number of "correct first time" responses, "correct second time" responses, "help" requests, questions attempted, time taken and score. The score is very clever too. Every slothful scholar knows you can get away with murder in a multiple choice! By guessing you ought to score at least 25 per cent. The exam boards know this and compensate for it, and so does the score here! Thus you get a detailed and reliable run-down of your performance, which can be dumped to a printer, and used to see how much you improve next time.

Screen presentation is excellent, apparently machine code driven, with redefinable colours, but a Microdrive option to cut loading speed would be handy. Equally useful for first time reinforcement or revision, it's not cheap, but is the best seen yet. **D.M.**

Price: £14.95

Publisher: Penguin

Address: Harmondsworth, Middlesex





Sub Strike

Here is a program for aquatic lovers or anyone inspired by the Submarine series on TV.

As a lonely submariner in the depths of some murky waters your task is to shoot down waves of attacking bomb-dropping, rocket-firing helicopters whilst dodging and destroying sonar subs. To add to the misery, you must also dodge the falling debris of "shot-up" copters.

The scene takes place in a Davy Jones graveyard of wrecks and deep water, above which float cumulonimbus cloud, which hides waves of attacking aircraft flying in from the left or right. As each wave is destroyed the seabed rises, thus limiting manoeuvrability and a new and different coloured formation dives in whilst underwater hazards multiply.

As usual, you begin the game with a number of lives and points are scored for completed screens, copters and rockets shot down and sonar subs destroyed. Extra lives can be gained for every four screens of helicopters destroyed, and there is a high-score table and facilities for joysticks which, despite the game being easy to control, made the game much more enjoyable to play.

The firebutton is a bit irritating because it will only fire when the sub is stationary and the rate of fire is poor. The best strategy is to dart in from the front of the helicopters, let fly, and dodge out again before being hit by bombs and rockets.

The instructions are adequate and the tape comes in a substantial and attractive package. **J.D.**

Price: £6.50

Publisher: TDS

Address: Richmond Hse, 1B Sydenham Rd, Bristol BS6 5SH



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TURBO LOAD



Using Mike Carey's utility for the Amstrad CPC464 you can load software in double quick time

This is a useful RSX word for the Amstrad CPC464, and should be entered in the same manner as the words in David Ellis's articles, ITURBO allows the user to determine the Average Baud Rate (ABR) at which you save programs. From BASIC, Speed Write 0 saves at an ABR of 1000, whilst Speed Write 1 saves at an ABR of 2000 and is very fast. Using ITURBO, the ABR can be adjusted from 685 (slower then Speed Write 0) to upwards of 3500 ABR (much faster than Speed Write 1) before read/write errors occur.

Here are the relevant codes to be entered:

FE 02 C0 CD 9B 82 CD 95 82 1A CD 68 BC C9

The format of the word is ITURBO,h,p where h represents the "half zero bit" length and p represents the "precompensation" applied when saving. The faster the ABR, the more precompensation must be applied. ABR is calculated by the equation:

ABR = 1,000,000/(3*h)

and p may take any value between 0 and 255, but in practice it needn't be greater than 110. Thus ITURBO, 110,95 yields an ABR of 3508. Speed Write 0 is equivalent to ITURBO,25,333 and ISpeed Write 1 is equivalent to ITURBO,50,167.

To save a program, ensure that the word is loaded correctly, along with the previous RSX words (PARAMETER must be present). Enter ITURBO,h,p and SAVE "filename" as per usual. The program will be saved at the ABR determined by your. Experimentation will rapidly demonstrate the fastest save which is reliable on your Amstrad CPC 464.

```
Hisoft GENA3.1 Assembler. Page      1.

Pass 1 errors: 00

                    10 ; AMSTRAD CPC 464 RSX WORD - !TURBO (SPEED SAVE)
                    20 ;
2680  CD9B82        30         CALL #829B                ;PUT PARAMETER 1 IN HL
2683  CD9582        40         CALL #8295                ;PUT PARAMETER 2 IN DE
2686  1A            50         LD   A,(DE)               ;PUT PARAMETER 2 IN A
2687  CD68BC        60         CALL #BC68                ;CALL TO SUBROUTINE
268A  C9            70         RET                       ;RETURN FROM SUBROUTINE

Pass 2 errors: 00


Table used:     13  from   128
```

```
Hisoft GENA3.1 Assembler. Page      1.

Pass 1 errors: 00

                        10
                        11 ; AMSTRAD CPC 464 RSX WORD - !MODE
                        20 ;
25E7  CD9B82            30          CALL #829B
25EA  7E                40          LD   A,(HL)
25EB  CD0EBC            50          CALL #BC0E
25EE  C9                60          RET

Pass 2 errors: 00


Table used:     13  from    111
Hisoft GENA3.1 Assembler. Page      1.

Pass 1 errors: 00

                        10 ;AMSTRAD CPC 464 RSX WORD - !OPAQUE
                        20 ;
25E6  CD9B82            30          CALL #829B
25E9  7E                40          LD   A,(HL)
25EA  CD9FBB            50          CALL #BB9F
25ED  C9                60          RET

Pass 2 errors: 00


Table used:     13  from    111
```


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- Popular Computing Weekly 7/3/85

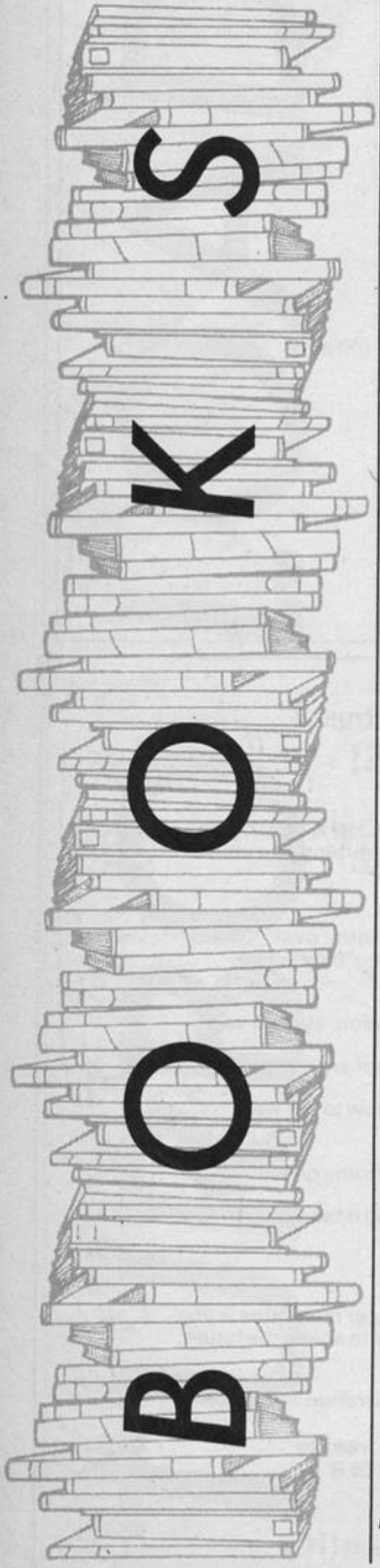
Britain is the Software Capital of the World - far superior to the U.S.A. The computer revolution is just beginning and as the emphasis shifts from hardware to software WE are best placed to shape the future. The writing's on the wall: get actively involved while the industry is young.

(Amstrad, MSX, Atari 800XL, CBM 64, BBC/Electron versions are in preparation.)

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BOOKS





C64 Idea Book

One of the current burning issues in home computing is how to bridge the gap between micros as a games machine and micros as a useful household tool. This book contributes greatly to that task.

It starts with a helpful review of the 64 and explains why you might need a disc drive, printer, plotter, monitor, joystick and even a graphics tablet. It goes on to compare software: write-your-own versus key-in-from-magazine versus bought packages.

There's a very well written chapter explaining the concepts, standard functions and uses of word processors, spreadsheets and databases; plus a bit about music and graphics utilities. It rounds off this excellent chapter with information about languages other than BASIC available for the 64.

The rest of the book is a multitude of practical situations which you might consider computerising. Nothing outstandingly original: party invitations, household accounts, sports club records — including printing the certificates — deep freezer records, stamp or record collection, diet planner and a foreign language dictionary. All are covered with a detailed example, and in a few cases, listings of a program to do the job. In particular there's a simple word processor. Unfortunately most of the listings have errors, some obvious, others not, but enough to confuse beginners.

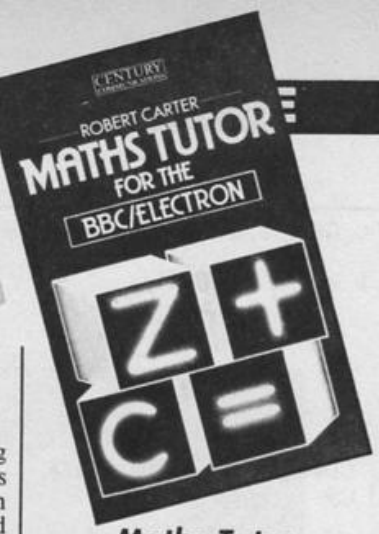
I've a few niggles: I hate the type style. No attempt has been made to translate from the American original, e.g. it uses dollars not pounds. Then it refers to the VIC 1526 printer — long renamed the MPS802. But then, if someone puts just one of these ideas into practice, it'll be value for money. **B.J.**

Price: £8.95

Publisher: First Publishing

Address: Unit 20B, Horseshoe Rd, Pangbourne, Berks

C64



Maths Tutor

Despite the many books written about home computing, this is the first I have seen which makes any attempt to use the computer to teach general mathematics.

The reason why modern maths books are easier to read and understand than the scholarship books of bygone years is that they are attractively set out and use clear diagrams. Diagrams aid understanding so it is no surprise that a compter can be an effective learning medium, especially if you can use it as an interactive device.

The author doesn't pretend to have covered the full 'O' or 'A' level syllabus but his style of writing is lively and easily understood with, scattered about the text, interesting gems of information concerning mathematical history and origins of mathematical terms.

The book starts by giving a simple introduction to basic programming and progresses from simple number theory to more sophisticated concepts such as calculus.

To give some idea: a few of the topics covered are inequalities, polynomials, complex numbers, vectors, conic sections, integration, and, wherever possible, the programs are animated and interactive.

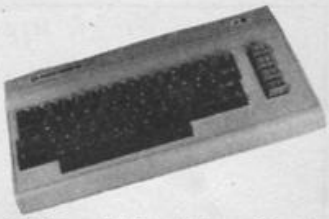
Maths Tutor could be used as a resource of ideas for developing programs tailored to one's own requirements, but one of the most useful sections in the book could prove to be Appendix 1 which gives a comprehensive list of VDU 23 user-defined statements, covering Greek upper and lower case letters as well as many of the mathematical symbols one needs when writing maths and physics programs. **J.D.**

Price: £7.95

Publisher: Century Communications

Address: Portland Hse, 12-13 Greek St, London W1V 5LE

BBC



40 Best Machine Code Routines for the 64

One of the common subjects handled by computer book authors at the moment is the provision of machine code routines which can be used by beginners to enhance their BASIC programs. The main drawback is often that the routines are rather superficial and of limited value and sophistication.

Whilst this book is better than most, these faults are still present. As expected, many of the routines deal with graphics or sound although there are some useful utilities. All programs have a comprehensive presentation. Listings are given of the source code and a monitor dump. These are supplemented by some brief instructions. To allow you to enter the monitor dumps, a loader for the public domain routine supermon, is given.

The graphics routines include pixel scrolls, simple high resolution routines, raster interrupts and some routines for sprites and redefined characters. The pixel scrolls don't use raster interrupts and are therefore flickery and rather nasty. The utilities tend to be the best section with disc commands, OLD, SAVEing and LOADing of blocks of memory, all of these being most useful. The rest is rather mediocre although games writers probably find the routines for sound and envelope of use.

On the whole, this book is of limited value except for complete beginners. The areas of graphics and sound have been well covered in other books and to greater depth. Were this a couple of pounds cheaper, it would be worth buying for the utilities alone.

A.W.

Price: £5.90

Publisher: Duckworth

Address: The Old Piano Factory, 43 Gloucester Cres, London NW1

C64



The Amstrad CPC464 Advanced User Guide

In this Advanced User Guide, which is approved by Amsoft, Mark Harrison sets out to revise the fundamentals of the machine in a style rather less opaque than the original manual, then extends use of the machine to include its unique and powerful features.

Strangely, the first chapter of this 140 page soft-back is taken up with an almost verbatim re-write of the handbook dealing with a list of BASIC keywords and associated parameters, together with the difference between RAM and ROM.

Thereafter, the pace hots up with chapter two getting into some nifty string handling with computer originated listings to type in. This is where your brainwork starts too, because, although the author felt it necessary to explain the difference between RAM and ROM, he doesn't fully explain the intricacies of his listings; just the technique being taught. Indeed, this is a feature of the following chapters which cover clever use of screen input, interrupts and timing, data structures, variously efficient sort routines, graphics and sound synthesis. Scant mention is made of disc-drives; the book was written before their release.

Given that information is power, this is a very worthwhile volume, containing examples, explanation and information not found in the user instructions, or indeed, any of the CPC manuals from Amstrad. You will however, need to be fully conversant with BASIC to make good use of it, and a reasonable level of maths and English is also desirable! **D.M.**

Price: £6.95

Publisher: Sigma Press

Address: 5 Alton Rd, Wilmslow Cheshire, SK9 5DY





Capital Radio's Book of Computers and Simple Programming

This is another book in a series by Compute! Publications dedicated to the TI-99/4A computer. This one, however, is limited to a discussion of home applications using Extended BASIC. There are eight chapters in all, spanning such topics as file management, electronic spreadsheets, graphs and charts, and card files. Programs are provided on all of these subjects and a full discussion on how they run is included.

The book is obviously aimed at the experienced user who wants to use the computer for something more than just games. Although the basic requirements are the console, monitor, Extended BASIC and cassette storage system, many of the programs have options for memory expansion, disc drive and a printer.

The title of the book implies that the applications are intended for the home, but most are suitable for the office. Not many of us would want to routinely plot bar charts of gift expenses to find monthly trends.

Not having an expansion system beyond the minimum requirements of the book, I was soon frustrated by the limitations of the basic system. Keeping information on cassette files is all very well, but can be time consuming to regularly search and update. Copying out results by hand is also a chore if you don't have a printer!

The book will certainly be of general interst to TI users, but hardly worth the investment unless you plan to use it fully to keep a super efficient household. **J.W.**

Price: £10.95

Publisher: Compute! Publications, c/o Holt Saunders

Address: 1 St Anne's Rd, Eastbourne, Sussex BN21 3UN



Book of Computers and Simple Programming

There is always a need for a simple beginners' book which doesn't intimidate first-time users — and which can be understood by perplexed parents of computer whizz kids. This book, whitten by Kelly Temple of Capital Radio, is an attempt to save newcomers to computing from having to tease out information from the plethora of technical literature surrounding the computing scene.

The idea for the book originated from the problems Kelly encountered when he was given the task of putting together a series of programmes on computers for a local radio station. His aim was to produce a simple introduction to computers whilst making learning fun.

One of the problems of writing for computing is that of making the material adaptable for all makes of machine. Fortunately, at this simple level, this isn't too difficult, although sadly, from the BBC's point of view, GOTOs and GOSUBs have to predominate and no mention can be made of PROCEDURES. This means that the structured programming available with BBC BASIC can't be introduced.

I can commend the book for its price, its simple, easy to understand approach, and for the way it treats the problems of syntax differences for certain commands in various BASIC dialects. It avoids areas where programming is machine specific, such as sound and colour, but gives excellent explanations of READ/DATA and ARRAYS. The latter part of the book introduces flow charts, gives a glossary of computer terms, a printout of a game and a brief buyers guide. **J.D.**

Price: £3.95

Publisher: Interface Publications

Address: 9/11 Kensington High St, London W8 5NP





Mapping the VIC

Although Commodore has withdrawn the VIC-20, there are still many thousands of owners using the computer. Fortunately publishers such as Compute! continue to release material for the VIC.

When you want to make the transition from BASIC to machine code, it is vital to have a grasp of the innermost workings of the computer. This book provides a detailed description of how the VIC's memory a ROMs work.

The chapters cover memory pages 0, 1, 2 and 3, memory expansion and the character ROM, the VIC chip and ROMs. All of this is explained in superb detail.

The functions of the locations in the first four memory pages are discussed in depth and useful locations and potential storage areas are indicated. Similarly, the routines in the ROMs are described in splendid detail.

This material is supplemented by 14 appendices giving a wide range of useful data. In all, you get 422 pages of invaluable information for your money.

A particularly useful section is the alphabetic list of entry points and important locations. As far as I can see, this list details the labels used in the original source code.

I cannot find a single fault with this book — a very rare occurence. Each time I pick it up, I find a new, useful and exciting snippet. Whilst the price is somewhat high, it's worth every penny and will find a place in every VIC owner's reference library. **A.W.**

Price: £11.95

Publisher: Holt Saunders (Compute! books)

Address: 1 St Anne's Road, Eastbourne, East Sussex BN21 3UN



GRAPHICS

Jon Revis shows you how to switch colours without having to redraw

Colour switching is a tech nique which allows the animation of characters or designs without the need to redraw the design for each movement. As there is not time spent in redrawing, rapid movement can be produced on even the slowest of machines.

The following example of colour switching was written on an Amstrad CPC464. **Program 1** draws a series of concentric boxes in different colours. It then change each INK colour to black, which is the background colour used. This effectively conceals the boxes. Using a FOR/NEXT loop each of the INK colours is changed momentarily to white before being changed back to black. By starting with the central box and working out, the colour switching creates the illusion of travelling down a tunnel into the screen. The majority of the commands used in the program can be found on most of today's home computers so conversion shouldn't prove difficult.

```
1   REM Program 1
10  INK 0,0
20  MODE 0
30  PAPER 0 : CLS
40  GOSUB 270
50  FOR I = 1 TO 13
60  GOSUB 140
70  GOSUB 200
80  NEXT I
90  GOSUB 350
100 WHILE K <> -1
110 GOSUB 400
120 WEND
130 END
140 REM CALCULATE NEW COORDINATES
150 X(1) = X(1) + 10
160 X(2) = X(2) - 10
170 Y(1) = Y(1) + 10
180 Y(2) = Y(2) - 10
190 RETURN
200 REM DRAW SQUARE
210 MOVE X(1),Y(1)
220 DRAW X(2),Y(1),I
230 DRAW X(2),Y(2),I
240 DRAW X(1),Y(2),I
250 DRAW X(1),Y(1),1
260 RETURN
270 REM READ INITIAL COORDINATES FOR SQUARE
280 I = 0
290 DIM X(2),Y(2)
300 FOR M = 1 TO 2
310 READ X(M),Y(M)
320 NEXT M
330 DATA 10,10,600,300
340 RETURN
350 REM CHANGE ALL COLOURS TO BLACK
360 FOR K = 1 TO 13
370 INK K,0
380 NEXT K
390 RETURN
400 REM CHANGE EACH COLOUR TO WHITE IN SEQUENCE
410 FOR K = 13 TO 1 STEP -1
420 INK K,13
430 FOR N = 1 TO 100 : NEXT N : REM DELAY LOOP
440 INK K,0 : REM BACK TO BLACK
450 NEXT K
460 RETURN
```

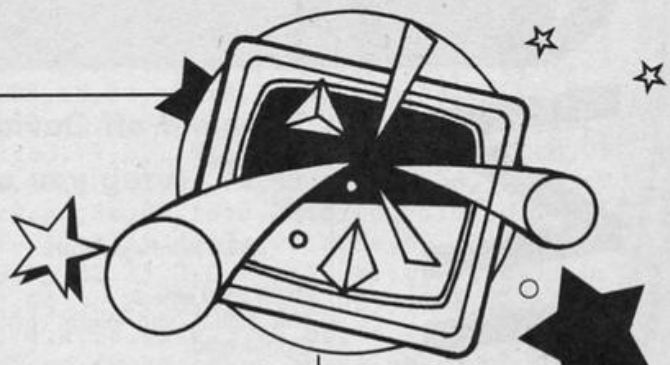
Numerous Commodore 64 users must use their machines solely for playing games. In many cases this may not be through choice, but due to the fact that the C64 is hardly the most user-friendly machine around when you get down to programming. The C64's screen memory map runs from addresses 1024 to 2023. This means that the screen is divided into 1000 squares, laid out in 25 rows with each row containing 40 squares. By using the statement POKE, you can print a character anywhere on the screen. The statement POKE 1024,86 should place a cross in the top left hand corner of the screen. If you try it you will find that it doesn't, because you never told the machine what colour it was to be printed in.

Instead of using simple statements like PEN and INK, Commodore decided there should be a second screen memory which would act like a piece of cellophane. This



second area of memory, the colour RAM, lies from address 55296 to 56295. To make our cross appear on the screen we must POKE a colour value into this colour RAM at the same screen position as our character, eg. POKE 55296,7 (7 is the code for yellow). **Program 2** demonstrates this method of placing a character on the screen and then proceeds to animate it.

```
1   REM PROGRAM 2
5   PRINT " "
10  BASE = 1024
20  PS = 500
25  COL = 55296
30  POKE COL + PS,7
40  POKE BASE + PS,86
49  REM *** READ KEYBOARD + PRINT CHARACTER
50  KEY = PEEK(197)
60   POKE  BASE  + PS,32 : REM PRINT A BLANK SPACE TO ERASE PREVIOUS
CHARACTER
70  IF KEY = 12 THEN PS = PS -1 : REM MOVE LEFT
80  IF PS < 1 THEN PS = 1
90  IF KEY = 23 THEN PS = PS +1 : REM MOVE RIGHT
100 IF PS > 1000 THEN PS = 1000
110 IF KEY = 45 THEN PS = PS -40 : REM MOVE UP ONE LINE
120 IF PS < 1 THEN PS =1
130 IF KEY = 55 THEN PS = PS +40 : REM MOVE DOWN ONE LINE
140 IF PS > 1000 THEN PS = 1000
144 REM PRINT CHARACTER IN NEW POSITION
145 POKE COL + PS,7
150 POKE BASE + PS,86
160 GOTO 50 : REM GO BACK AND READ NEXT KEY PRESS
```



By pressing the Z X : / keys, the cross can be made to move left, right, up, or down, respectively. Line 50 reads the keyboard and stores the screen code of any key pressed in the variable KEY. By checking the contents of KEY against the values of the keys with which we are concerned we can then move the character in that direction.

SUMMING UP



To round off David Ellis's popular series for the Amstrad, we bring you a complete listing of m/c commands

David Ellis's series on RSX words for the Amstrad CPC464 proved very popular. So much so, that we thought we'd increase your enjoyment by summarising the machine code routines which set up all the RSX words you need. If you type out the listing up to line 3160, you'll recognise all the new words you discovered in the series, to be used from BASIC.

Whether you want a resume, to help you clear up some minor confusion, or whether you only managed to catch a part of the series, this listing should make life easier.

We've also included some corrections. Minor printing errors may have confused you — unless you were smart enough to work them out for yourself. Here are the amended lines — and, for your information, David Ellis's articles were printed in HCW 95, 97, 98, 99, 101, 103, 104 and 105.

RSX printing errors

HCW 99 Table 2
The eighth and ninth entries should read:

```
&82CA    JR NZ LOOP    20 FB
&82CC    DEC HL        1B
```

HCW 103 Listing 1
The first entry should read:

```
&82F0    LD B,1    6  1
```

Listing 3
The following lines should read:

```
20000  ADDRESS = &7E8C : X = 1 : WHILE X <> 0
20020  IF X<128 THEN PRINT CHR$(X); ELSE PRINT CHR$(X-128),
```

HCW 104
The complete listing for the words RIGHT and UP is missing, and has been printed on the letters page of HCW 106.

HCW 105 Column 1
The following line should read:

```
20 WIDE = 630 : WHILE WIDE > 0
```

In the summary of RSX words OFFSET should read:

```
OFFSET , @OFFSET%
```

```
10 MEMORY &7CFA
20 location=&7D00:GOSUB 500:IF csum <> 12898 THEN PRINT "ERROR IN SUB 1000"
30 location=&7E88:GOSUB 500:IF csum <> 12897 THEN PRINT "ERROR IN SUB 2000"
40 location=&828A:GOSUB 500:IF csum <> 51473 THEN PRINT "ERROR IN SUB 3000"
50 CALL &7D00:END:REM Introduce the RSX to the firmware
500 REM *************** POKE values to memory  ********************************
510 csum=0:READ code$:WHILE code$<>"-1"
520 code=VAL("&"+code$):POKE location,code
530 csum=csum+code:location=location+1:READ code$:WEND:RETURN
1000 REM ************** RSX COMMAND TABLE DATA *********************************
1010 DATA 1,a,7d,21,fc,7c,cd,d1,bc,c9,8c,7e,c3,8c,82,c3,a2,82,c3,a6,82,c3,aa,82
1020 DATA c3,ae,82,c3,b2,82,c3,b6,82,c3,ba,82,c3,be,82,c3,d2,82,c3,e1,82,c3,f0
1030 DATA 82,c3,f6,82,c3,fc,82,c3,c,83,c3,15,83,c3,24,83,c3,2e,83,c3,46,83,c3
1040 DATA 5e,83,c3,68,83,c3,98,83,c3,d8,83,c3,1,84,0,-1
2000 REM ************** ASCII WORD  TABLE DATA *********************************
2010 DATA 7d,54,8,7f,50,41,52,41,4d,45,54,45,d2,4b,45,59,57,41,49,d4,43,55,52
2020 DATA 53,4f,c6,49,4e,56,45,52,53,c5,47,52,41,50,48,49,c3,43,4c,45,41,d2,43
2030 DATA 41,53,4f,ce,43,41,53,4f,c6,57,41,49,d4,4c,52,4f,cd,55,52,4f,cd,55,52
2040 DATA 4f,4c,cc,44,52,4f,4c,cc,5a,45,52,cf,4d,4f,56,c5,4f,46,46,53,45,d4,53
2050 DATA 45,54,4f,46,46,53,45,d4,52,49,47,48,d4,55,d0,44,4f,57,ce,4c,45,46,d4
2060 DATA 42,4f,d8,53,4f,4c,49,c4,43,4f,4c,4f,d2,0,-1
3000 REM ************** MACHINE CODE TABLE DATA ********************************
3010 DATA b,84,dd,7e,6,dd,46,5,dd,4e,4,dd,56,3,dd,5e,2,dd,66,1,dd,6e,0,c9,cd,6
3020 DATA bb,c9,cd,84,bb,c9,cd,9c,bb,c9,cd,ba,bb,c9,cd,14,bc,c9,cd,6e,bc,c9,cd
3030 DATA 71,bc,c9,fe,1,c0,cd,9b,82,1,f0,4,b,78,b1,20,fb,2b,7c,b5,20,f3,c9,fe
3040 DATA 2,c0,cd,95,82,cd,6,b9,1a,77,cd,9,b9,c9,fe,2,c0,cd,95,82,cd,0,b9,1a,77
3050 DATA cd,3,b9,c9,6,1,cd,4d,bc,c9,6,0,cd,4d,bc,c9,fe,2,c0,cd,95,82,6,0,70,23
3060 DATA 1b,7a,b2,20,f9,c9,fe,3,c0,cd,8f,82,ed,b0,c9,fe,1,c0,cd,b,bc,e5,cd,9b
3070 DATA 82,d1,73,23,72,c9,fe,1,c0,cd,9b,82,cd,5,bc,c9,cd,8c,83,fe,2,20,5,cd
3080 DATA 95,82,18,5,cd,9b,82,54,5d,21,0,0,cd,f9,bb,c9,cd,8c,83,fe,2,20,7,cd,95
3090 DATA 82,d5,e1,18,3,cd,9b,82,11,0,0,cd,f9,bb,c9,cd,74,83,11,0,0,cd,f9,bb,c9
3100 DATA cd,74,83,54,5d,21,0,0,cd,f9,bb,c9,cd,8c,83,fe,2,20,6,cd,95,82,d5,18,4
3110 DATA cd,9b,82,e5,c1,21,0,0,ed,42,c9,fe,1,c8,f5,dd,7e,0,cd,de,bb,f1,c9,fe,2
3120 DATA 28,9,fe,3,c0,dd,7e,4,cd,de,bb,cd,95,82,21,0,0,cd,f9,bb,cd,95,82,11,0
3130 DATA 0,cd,f9,bb,cd,95,82,21,0,0,ed,52,54,5d,21,0,0,cd,f9,bb,cd,95,82,44,4d
3140 DATA 21,0,0,ed,42,11,0,0,cd,f9,bb,c9,fe,2,28,9,fe,3,c0,dd,7e,4,cd,de,bb,cd
3150 DATA 95,82,44,4d,78,b1,c8,c5,21,0,0,d5,cd,f9,bb,cd,cc,bb,23,cd,c9,bb,d1
3160 DATA c1,b,18,e9,fe,1,c0,dd,7e,0,cd,de,bb,c9,0,-1
4010 REM*************THESE ARE THE NEW WORDS**********************************
4020 REM: PARAMETER (machine-code use only!).  KEYWAIT (wait for a keypress)
4030 REM: CURSOF (turn cursor off in program). INVERSE (swaps paper & pen)
4040 REM: GRAPHIC (reset graphic parameters).  CLEAR   (zero screen memory)
4050 REM: CASON  (turn on cassette motor).     CASOF   (turn off cassette)
4060 REM: WAIT,n (wait n*1/100 secs).
4070 REM: LROM,address,@ROM%   (return lower ROM value to variable ROM%).
4080 REM: UROM,address,@ROM%   (  "    upper  "    "   "    "       "  ).
4090 REM: UROLL  (scroll up 8 pixels).          DROLL  (scroll down 8 pixels)
4100 REM: ZERO,n,start address (zero n bytes).
4110 REM: MOVE,n,destination,source  (move n bytes..from..too)
4120 REM: OFFSET,@OFFSET  (return screen offset to variable OFFSET%)
4130 REM: SETOFFSET,n     (set screen offset to n)
4140 REM: RIGHT,n,{color} (draw line right, n pixels, color optional)
4150 REM: UP   ,n,{color} (  "    "   up   ,  "   "      "      "     )
4160 REM: DOWN ,n,{color} (  "    "   down ,  "   "      "      "     )
4170 REM: LEFT ,n,{color} (  "    "   left ,  "   "      "      "     )
4180 REM: BOX {,color},width,height (draw rectangle...color optional)
4190 REM: SOLID {,color},width,height (draw solid....color optional )
4200 REM: COLOR ,pen number  (set graphics plotting color).
4210 REM: all words must be prefixed by the  | bar sign
4220 REM: For details of routines etc. see issues 95,97,98,99,101,103,104,105
4230 REM: To add further words to the RSX see BASIC listing in issue 97.
4240 REM: The above DATA contains all the 'pointers' needed for that listing.
4250 REM: In issue 104, listing 1 has been omitted! See later issue for listing
```

SPECTRUM GAME

ATOM BOX

In this program by D J West you must find the atoms which are hidden in the box. Use you rays carefully or get penalty points.

There are atoms in a box and you must try and work out their positions by firing rays at them.

A ray may be unaffected, deflected, absorbed or reflected back through its entry point. Each raymarker scores 1 penalty point. At any time during the game you may try and guess the position of an atom risking a five point penalty for an incorrect guess.

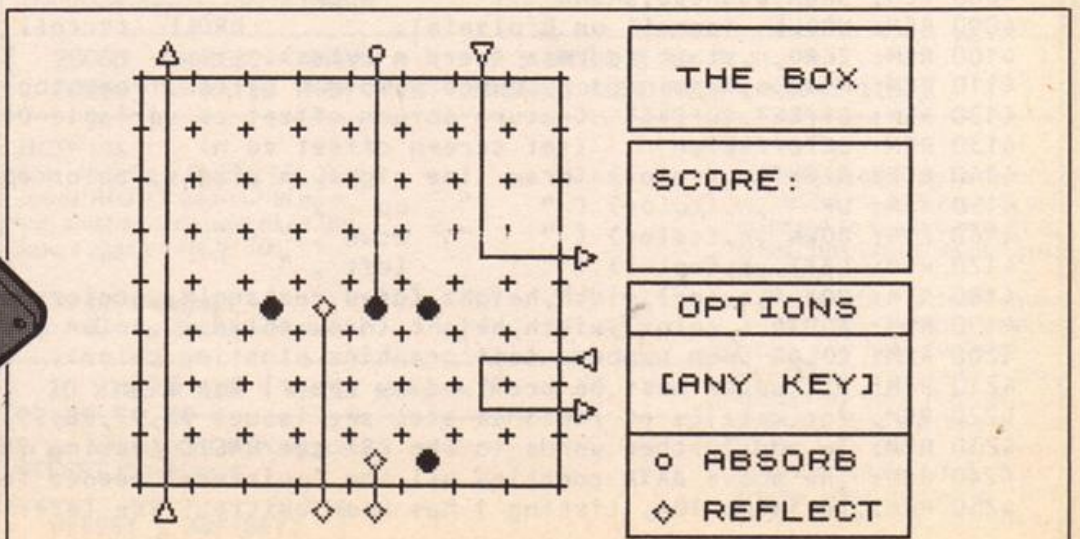
You lose when your score reaches zero.

Variables

6(10,10) playing area
x,y co-ordinates
sc score
at hidden atoms
d$ direction pointer

```
  20 REM     ***************
  25 REM     *             *
  30 REM     *   THE BOX   *
  35 REM     *             *
  40 REM     * by D J WEST *
  45 REM     *             *
  50 REM     *    11/84    *
  55 REM     *             *
  60 REM     ***************
  65 REM
  70 REM type in lower-case !
  75 REM
  80 REM omit REM's with 16K !
  85 REM
 190 RANDOMIZE
 200 GO SUB 9500
1000 REM new game---------------
1010 DIM b(10,10)
1050 GO SUB 8000
1060 GO SUB 7000
2000 REM turn-------------------
2010 PRINT  OVER 1;AT 2*iy-1,2*ix-1;" "
2100 PRINT  FLASH sc<6;AT 6,28;"0" AND sc<10;sc AN
D sc>0
2110 IF sc<1 THEN  GO TO 5700
2130 PRINT AT 8,28;at
2140 IF NOT at THEN  GO TO 6000
2500 GO SUB 4500
2510 LET ix=x: LET iy=y
2520 BEEP .03,40
2530 IF SCREEN$ (2*y-1,2*x-1)=" " THEN  LET sc=sc-
1
2540 PRINT  FLASH 1;AT y*2-1,x*2-1;d$(d)
3000 REM ray--------------------
3010 POKE 23672,0
3100 LET x=x+(d=1)-(d=3)
3110 LET y=y+(d=2)-(d=4)
3120 IF b(y,x) THEN  GO TO 4200
3150 REM exit ?
3160 IF x=1 OR y=1 OR x=10 OR y=10 THEN  GO TO 400
0
3200 REM deflect?
3210 LET t=b(y+1,x)+b(y-1,x)+b(y,x+1)+b(y,x-1).
3250 IF NOT t THEN  GO TO 3000
3260 IF t=3 THEN  GO TO 4100
3270 LET t=t-b(y+(d=2)-(d=4),x+(d=1)-(d=3))
3280 IF NOT t THEN  GO TO 4200
3290 IF t=2 THEN  GO TO 4100
3310 LET bx=x-(d=1)+(d=3)
3320 LET by=y-(d=2)+(d=4)
3330 IF bx=1 OR by=1 OR bx=10 OR by=10 THEN  GO TO
 4100
3340 LET d=(d+1) OR d=4
3350 LET t=t-b(y+(d=2)-(d=4),x+(d=1)-(d=3))
3360 LET x=bx: LET y=by
3370 IF NOT t THEN  LET d=d-2+4*(d<3)
3390 GO TO 3000
4000 REM exit-------------------
4010 GO SUB 4300
4020 BEEP .03,40
4030 IF SCREEN$ (2*y-1,2*x-1)=" " THEN  LET sc=sc-
1
```



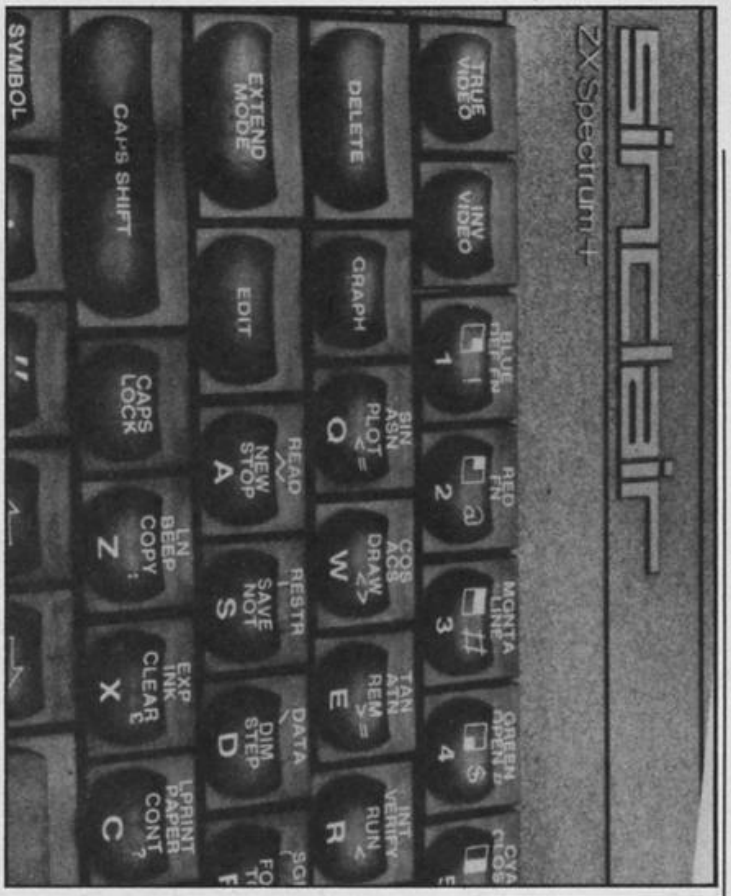


```
4040 FOR f=1 TO 0 STEP -1
4050 PRINT  FLASH f;AT 2*y-1,2*x-1;d$(d)
4060 PAUSE 10: PAUSE 50
4070 NEXT f
4090 GO TO 2000
4100 REM reflect----------------
4110 GO SUB 4300
4150 PRINT  FLASH 1;AT 2*iy-1,2*ix-1;"G"
4175 BEEP .03,20
4180 PAUSE 10: PAUSE 50
4190 GO TO 2000
4200 REM absorb-----------------
4210 GO SUB 4300
4220 PRINT  FLASH 1;AT 2*iy-1,2*ix-1;"H": REM gr"H
"
4275 BEEP .1,10
4280 PAUSE 10: PAUSE 50
4290 GO TO 2000
4300 REM rnd delay--------------
4310 IF PEEK 23672<100+RND*50 THEN  GO TO 4310
4320 RETURN
4500 REM cursor-----------------
4520 BEEP .1,40
4530 PRINT AT 13,22;"[G]UESS  "
4540 PRINT AT 14,22;"[Q]UIT   "
4550 PRINT AT 15,22;"[5]AND[8]"
4560 PRINT AT 16,22;" CURSOR  "
4570 PRINT AT 17,22;"[ENTER]  "
4580 PRINT AT 18,22;" SEND RAY"
4590 PRINT AT 19,22;"         "
4610 LET x=2: LET y=1
4620 LET nx=2: LET ny=1
4650 PRINT  OVER 1: FLASH 1;AT y*2-1,x*2-1;" "
4660 LET a$=INKEY$
4670 IF CODE a$=13 THEN  GO TO 4900
4680 IF a$="g" THEN  GO TO 5e3
4690 IF a$="q" THEN  PRINT  OVER 1; FLASH 0;AT y*2
-1,x*2-1;" ": GO TO 5500
4700 IF y=1 THEN  LET nx=x-(a$="5")+(a$="8")
4710 IF y=10 THEN  LET nx=x+(a$="5")-(a$="8")
4720 IF x=10 THEN  LET ny=y+(a$="8")-(a$="5")
4730 IF x=1 THEN  LET ny=y+(a$="5")-(a$="8")
4750 IF (nx=1 OR nx=10) AND nx<>x THEN  LET ny=y+(
y=1)-(y=10)
4760 IF (ny=1 OR ny=10) AND ny<>y THEN  LET nx=x+(
x=1)-(x=10)
4800 IF nx<>x OR ny<>y THEN  BEEP .01,20: PRINT  O
VER 1;AT y*2-1,x*2-1;" "
4810 LET x=nx: LET y=ny
4820 GO TO 4650
4900 REM direction
4910 IF x=1 THEN  LET d=1
4920 IF y=1 THEN  LET d=2
4930 IF x=10 THEN  LET d=3
4940 IF y=10 THEN  LET d=4
4990 RETURN
5000 REM guess------------------
5010 BEEP .1,42
5020 PRINT AT 13,22;"[O]PTIONS"
5030 PRINT AT 14,22;"         "
5040 PRINT AT 15,25;" - "
5050 PRINT AT 16,23;"CURSOR"
5060 PRINT AT 17,22;"[NTER]"
5070 PRINT AT 18,23;"GUESS   "
5110 PRINT  OVER 1;AT y*2-1,x*2-1;" "
5120 LET x=2: LET y=2
5130 LET nx=2: LET ny=2
5140 LET a$=INKEY$
5150 IF a$="o" THEN  PRINT  OVER 1;AT 2*y-1,2*x-1;
" ": GO TO 2000
5160 IF SCREEN$ (y*2-1,x*2-1)=" " AND CODE a$=13 T
HEN  GO TO 5300
5170 PRINT  OVER 1; FLASH 1;AT y*2-1,x*2-1;" "
5180 LET nx=x+(a$="8" AND x<9)-(a$="5" AND x>2)
5190 LET ny=y+(a$="6" AND y<9)-(a$="7" AND y>2)
5200 IF nx<>x OR ny<>y THEN  BEEP .01,22: PRINT  O
VER 1;AT y*2-1,x*2-1;" "
5210 LET x=nx: LET y=ny
5290 GO TO 5140
5310 BEEP .03,40
5320 IF CODE INKEY$ THEN  GO TO 5320
5400 REM check pos
5430 PRINT AT 2*y-1,2*x-1;"E" AND b(y,x);"F" AND N
OT b(y,x)
5440 BEEP .2,42*b(y,x)
5450 LET sc=sc-5*(1-b(y,x))
5460 LET at=at-b(y,x)
5490 GO TO 2000
```




```
5500 REM quit-------------------
5510 GO SUB 8950
5520 BEEP .1,40
5530 PRINT AT 15,22;"GIVE UP ?"
5540 PRINT AT 17,23;"[Y]-[N]"
5560 IF INKEY$="n" THEN  GO TO 2000
5570 IF INKEY$<>"y" THEN  GO TO 5560
5590 GO TO 5900
5700 REM lose-------------------
5710 GO SUB 8950
5720 BEEP .4,0: BEEP .4,-1: BEEP .6,-2
5730 PRINT AT 16,22;"HARD LUCK"
5750 PAUSE 10: PAUSE 100
5900 REM reveal atoms-----------
5910 FOR f=2 TO 9: FOR g=2 TO 9
5920 IF b(f,g) THEN  PRINT AT 2*f-1,2*g-1;"E": BEE
P .03,42
5930 NEXT g: NEXT f
5990 GO TO 6500
6000 REM win--------------------
6010 GO SUB 8950
6030 PRINT AT 16,22;"WELL DONE"
6040 BEEP .1,0: BEEP .1,5: BEEP .1,9: BEEP .2,12:
BEEP .1,9: BEEP .7,12
6050 PAUSE 10: PAUSE 150
6500 REM new game?--------------
6510 GO SUB 8950
6520 PRINT AT 14,23;"ANOTHER"
6530 PRINT AT 15,23;"GAME ?"
6540 PRINT AT 18,22;"[ANY KEY]"
6550 BEEP .1,40
6560 PAUSE 10: PAUSE 0
6570 GO TO 1000
7000 REM place atoms------------
7005 PRINT  FLASH 1;AT 8,28;"?"
7008 BEEP .1,40
7010 PRINT AT 14,24;"LEVEL"
7020 PRINT AT 16,22;"[3] EASY"
7030 PRINT AT 17,22;"[4]"
7040 PRINT AT 18,22;"[5]"
7045 PRINT AT 19,22;"[6] HARD"
7050 LET A$=INKEY$
7060 IF A$<"3" OR A$>"6" THEN  GO TO 7050
7070 BEEP .03,40
7080 LET at=VAL a$
7085 LET sc=at*5
7090 PRINT AT 8,28;at
7100 FOR f=1 TO at
7110 LET x=INT (RND*8+2)
7120 LET y=INT (RND*8+2)
7130 IF b(y,x) THEN  GO TO 7110
7140 LET b(y,x)=1: NEXT f
7190 RETURN
8000 REM graphic----------------
8010 CLS
8100 FOR f=2 TO 18 STEP 2
8110 PRINT AT f,2;b$: NEXT f
8120 PLOT 20,155: DRAW 128,0: DRAW 0,-128: DRAW -1
28,0: DRAW 0,127
8200 PLOT 169,171: DRAW 86,0: DRAW 0,-32: DRAW -86
,0: DRAW 0,31
8210 PRINT AT 2,22;" THE BOX"
8300 PLOT 169,135: DRAW 86,0: DRAW 0,-40: DRAW -86
,0: DRAW 0,39
8310 PRINT AT 6,22;"SCORE:"
8320 PRINT AT 8,22;"ATOMS:"
8350 PLOT 169,91: DRAW 86,0: DRAW 0,-80: DRAW -86,
0: DRAW 0,79
8360 PLOT 170,75: DRAW 84,0
8370 PRINT AT 11,23;"OPTIONS"
8400 REM example rays-----------
8405 BEEP .2,40
8410 OVER 1: FOR f=0 TO 1
8420 PRINT AT 11,7;"E G E E"
8430 PRINT AT 17,11;"G E"
```

```
8440 PRINT AT 1,3;"D       H   B"
8450 PRINT AT 9,19;"A"
8460 PRINT AT 13,19;"C"
8470 PRINT AT 15,19;"A"
8480 PRINT AT 19,3;"D     G G"
8500 PLOT 28,23: DRAW 0,136
8510 PLOT 76,23: DRAW 0,56
8520 PLOT 92,23: DRAW 0,8
8530 PLOT 124,159: DRAW 0,-60: DRAW 28,0
8540 PLOT 152,67: DRAW -28,0: DRAW 0,-16: DRAW 28,
0
8550 PLOT 92,87: DRAW 0,73
8600 PRINT AT 14,22;"[ANY KEY]"
8610 PRINT AT 17,22;"H ABSORB"
8630 PRINT AT 19,22;"G REFLECT"
8640 PLOT 170,44: DRAW 84,0
8670 PAUSE f: NEXT f
8680 OVER 0: RETURN
8950 REM cl ops----------------
8960 FOR f=13 TO 19: PRINT AT f,22;"          ": NE
XT f: RETURN
9500 REM udg + intialise--------
9505 OVER 0: POKE 23693,7: BORDER 0: CLS
9510 FOR f=0 TO 63
9520 READ a
9530 POKE USR "a"+f,a
9540 NEXT f
9550 LET d$="ABCD": REM gr"ABCD"
9560 LET b$="+ + + + + + + +"
9570 LET ix=1: LET iy=1
9590 RETURN
9600 DATA 0,96,88,70,67,70,88,96
9610 DATA 0,127,65,34,34,20,20,8
9620 DATA 0,3,13,49,97,49,13,3
9630 DATA 0,8,20,20,34,34,65,127
9640 DATA 0,28,62,127,127,127,62,28
9650 DATA 0,0,0,0,8,0,0,0
9660 DATA 0,8,20,34,65,34,20,8
9670 DATA 0,0,28,34,34,34,28,0
```



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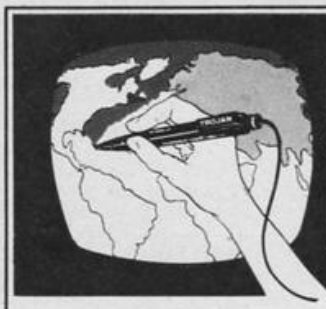
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PROBLEMS



James Russell explains elementary music theory to start you off on using your micro to make music



There's a strange contradiction in starting to use your micro for music. Once you are reasonably proficient at programming, and you have a fair knowledge of music you stand a chance of doing something useful. If, on the other hand you know how to play an instrument and have little knowledge of the computer, life can be very frustrating, taking hours attempting to sort out something which could be achieved in a very short burst on your banjo!

Equally frustrating however, is knowing how to program your computer to play notes, in the way outlined in my last article, but not knowing where to get the note values from. If you can't read music and you have no knowledge of an instrument, where on earth do you start? Perhaps the only place is the written standard music notation, which may well be a frightening thought, if you suffered interminable music lessons at school! If that thought doesn't put you off, then a short reminder as to how written music works might not go amiss.

Music is written on a system of five lines, with four spaces. From the bottom, the notes appearing on the lines are E G B D F, and those in the spaces are F A C E, usually remember as Every Good Boy Deserves Favour, and FACE, respectively. This is shown in Fig. 1.

Notes are placed either on the line or in a space. Unfortunately, this notation isn't flexible enough to show every note possible. As a result, small lines and spaces can be added above and below the ones shown, continuing the pattern of letters A to G then repeating. One glance at your micro manual will show that this still isn't good enough to cope. What about those funny hash signs and squashed b's?

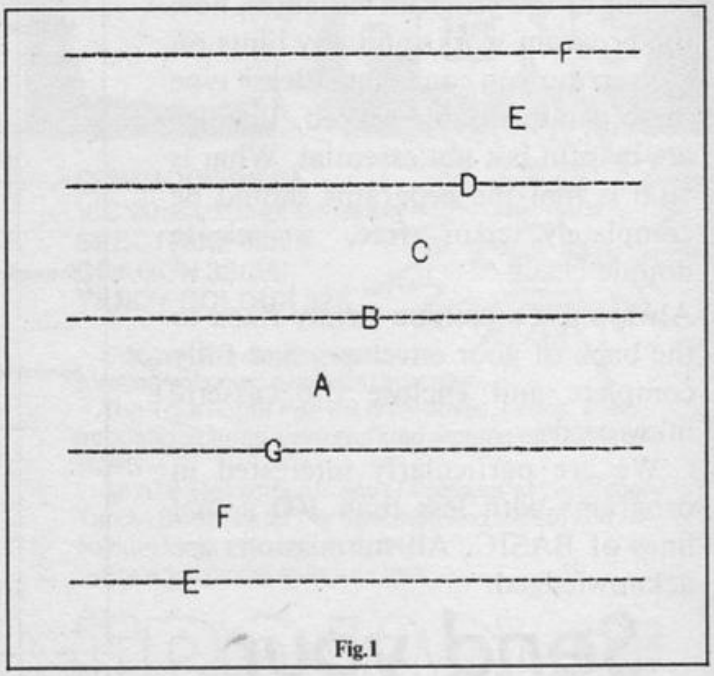
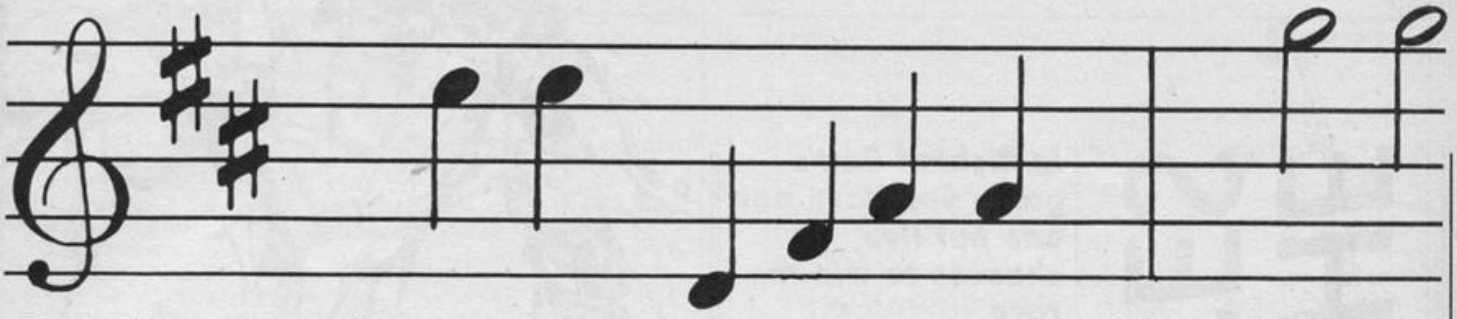


Fig.1

The squashed b's are called flats, and several computer manuals don't mention them! The hash sign denotes a sharp. They have a fiendish significance for pianists. As far as we're concerned, they mean this. If you find them at the beginning of a line of music, say on the G line, then the note which you must find the value of is not G, but either G sharp (hash sign), or G flat (squashed b). G sharp is a higher note between G and A; G flat is a lower note between G and F.



Two problems now arise. Some notes have two names, and some computer manuals only mention one of them! To ease the pain, the following list should help. Starting from the lowest line shown above, the notes in order are:

E : F : F sharp/G flat : G : G sharp/A flat: A : A sharp/B flat : B : C : C sharp/D flat : D : D sharp/E flat : E.

Given this level of knowledge, you should be able to look at a simple tune, work out what the notes are, then look them up in your manual to find the relevant values to put in data statements for the pitch of the note. It's still not cracked however, because you still need to work out how long each note should be; in other words, its duration. If you start out with a simple nursery rhyme, then, for the moment, experiment with the value and see if it sounds right. If not, change it. We'll delve further into this in a later article.

For those of you who are seasoned, trained musicians, no doubt appalled by this explanation, don't give up! If you don't have the programming skill but do have the theoretical knowledge, and a Spectrum, then you'll find that Music Typewriter from Romantic robot, 77 Dyne Rd, London NW6 7DR (£9.95: write for details), will put you out of your misery. Complete with a piano keyboard overlay for the rubber key Spectrum, this allows traditional notation, with all the frills, to be entered via the keyboard.

Up to 254 bars are catered for, and the resulting script can be dumped to a full-size printer via built-in software. Though obviously monophonic, the results can be seen and heard simultaneously, then saved to tape. A supplementary program converts the data to machine code routines for use in your own programs. Sadly, however, it will not allow the Spectrum to be used as a realtime musical instrument.

Commodore 64 and Beeb owners with modest programming skill are well catered for by recently published books. For general purposes, with sound explanations and lots of type-in programs, take a look at Will You Still Love Me When I'm 64, by Peter Gerrard; Duckworth, £6.95. For the BBC, Exploring Music with the BBC Micro and Electron fulfils a similar function, though the use of the Electron is limited. Written by Kevin Jones, and published by Pitman, it costs £9.95.

More specialised is Electronic Music on the Commodore 64, by Mark Jenkins, from Sunshine at £6.95. This not only gives you the works on the 64, but goes into the realms of advanced music synthesis, and the control of synthesisers from the micro, together with sound processing. Music software is also reviewed.

More next time!

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BBC GAME

DAY AT THE RACES



In Richard Batt's game you have not one but five chances to win the race

The going's firm and the odds are good! The stakes are high — you stand to win the coveted prize money. Fortunately you have five chances to win: in each afternoon's racing there are five races and the jockey who is first past the post three or more times, wins at the end of the day.

To win the race you can whip your horse — but watch out! You can be fined for using the crop too much. The races vary in length and full instructions are included in the program.

```
  1 REM **   MICRO RACER  **
  2 REM ** By R.BATT 1984 **
  3 REM **  racing info.  **
  4 REM **  by C.Deadman  **
  5 *FX200,1
 10 MODE7:PROCoff
 20 DIM H$(15),T$(5),V$(7),R%(10),P$(2)
 40 PROCinst
 50 MODE2:PROCoff
 55 PROCinit
 60 REPEAT
 70 R=RND(7):VEN$=V$(R)
 80 PROCvenue:PROCnames
 90 FOR ML%=1TO5
100 PROCvenue:PROCraces
110 PROCtitle:PROCinfo
120 PROCrace
130 IF Y1%=30 AND Y2%=30 THEN 150
140 PROCtitle:PROCresult
150 NEXT
160 PROCend
170 UNTILFALSE
180 DEFPROCinit
190 VDU23,224,129,129,153,153,153,189,189,153,23
,225,189,255,126,126,126,126,126,126
200 VDU23,226,126,126,255,255,255,255,219,219,23
,227,153,153,137,137,129,129,129,129
210 VDU23,228,66,153,189,189,153,255,126,126
220 VDU23,229,0,24,24,24,189,189,153,153,23,230,
153,219,118,0,0,0,0,0
230 VDU23,231,255,255,129,129,129,129,129,129,23
,232,129,129,129,129,129,129,129,129
240 VDU23,233,129,129,129,129,129,129,255,255,23
,234,7,7,7,15,15,7,7,7
250 VDU23,240,0,1,1,1,1,0,0,0,23,241,0,0,0,0,0,1
92,32,16
260 M1%=0:M2%=0:RESTORE 380
270 FORX%=1TO15:READ H$(X%):NEXT
280 FORX%=1TO5:READ T$(X%):NEXT
290 FORX%=1TO7:READ V$(X%):NEXT
300 FORX%=1TO10
310 R%=RND(15):C%=0
320 FORx%=1TO10:IF R%(x%)=R% C%=1
330 NEXT
340 IF C%=1 THEN 310
```

Procedure list

DEFPROCinit sets up user-defined characters, reads in data

DEFPROCoff turns off cursor

DEFPROCvenue prints location of day's racing

DEFPROCnames takes in names of riders

DEFPROCraces prints list of horses' names and race times (race card)

DEFPROCrace calls all necessary procedures and makes calculations to run race

DEFPROCsc draws screen display of track

DEFPROCsetup sets up variables for race

DEFPROChorse draws a horse according to X-position, Y-position, horse and jockey's colours

DEFPROClegs moves horse's legs

DEFPROCrails moves rails using VDU19 command

DEFPROCinput 1 and **2** inputs from keyboard from players 1 and 2

DEFPROCcalc calculates position of horses according to whipping and driving

DEFPROCinfo prints information for the race

DEFPROCfur updates furlongs

DEFPROCstalls prints and deletes stalls

DEFPROCresult prints result of race

DEFPROCphoto deals with a photo finish

DEFPROCend prints winner of afternoon's racing, with the most money

DEFPROCdrew is used when equal money is won

DEFPROCclub fines a jockey for too much whipping

DEFPROCvoid fines both jockeys for too much whipping

DEFPROCwhip prints whip on jockey's arm

DEFPROCinst prints instructions

```
  350 R%(X%)=R%
  360 NEXT
  370 R%=RND(7):VEN$=V$(R%)
  380 DATA SABRE,DELUXE,SWIFT,STEREO,RIDE-ON,HENRY
 IV,THE JACK,SPITFIRE,SHUTTLE
  390 DATA REGALFUN,QUAVER,REDREEF,STARTEST,CRYSTA
L,ADMIRAL
  400 DATA "2.00","2.30","3.00","3.30","4.00"
  410 DATA " HAYDOCK ",NEWMARKET," ASCOT "," EP
SOM "," KEMPTON "," SANDOWN ",DONCASTER
  420 ENDPROC
  430 DEFPROCoff
  440 VDU23;8202;0;0;0;
  450 ENDPROC
  460 DEFPROCvenue
  470 COLOUR7:GCOL0,7:VDU26:CLS
  480 COLOUR129:PRINTSPC(24);"Racing From";SPC(25)
  490 COLOUR128:PRINTTAB(5);VEN$
  500 MOVE0,1020:DRAW1279,1020:DRAW1279,850:DRAW0,
850:DRAW0,1020
  510 VDU28,0,30,19,6:COLOUR3
  520 ENDPROC
  530 DEFPROCnames
  540 PRINT'" Jockeys names ?"'
  550 INPUT" a).."P$(1):IF LEN(P$(1))>9 VDU11,7:PR
INTSPC(19):VDU11:GOTO550
  560 PRINT
  570 INPUT" b).."P$(2):IF LEN(P$(2))>9 VDU11,7:PR
INTSPC(19):VDU11:GOTO570
  580 FORX%=1TO2:P$(X%)=LEFT$(P$(X%),9):NEXT
  590 PRINT''TAB(5);"Thank you":A=INKEY(50)
  600 CLS:VDU26:ENDPROC
  610 DEFPROCraces:PRINT''
  620 FORX%=1TO10
  630 PRINTTAB(8);H$(R%(X%))
  640 IF X%MOD2=0 PRINT'
  650 NEXT
  660 VDU30,19,8,8;0;
  670 FORX%=1TO5
  680 IF X%=ML% COLOUR7 ELSE COLOUR2
  690 PRINT''TAB(2);T$(X%):NEXT
  700 PRINT'':PROCspace(8)
  710 VDU26:CLS
  720 ENDPROC
  730 DEFPROCrace
  740 PROCsc
  750 PROCsetup
  760 PROChorse(X1%,Y1%,0,3)
  770 PROChorse(X2%,Y2%,1,5)
  780 PROCstalls:FORD=1TO5000:NEXT:PROCstalls
  790 RT%=TIME+400
  800 REPEAT:*FX15,1
  810 PROCrails
  820 IF TIME>LT% PROClegs
  830 IF TIME>RT% PROCfur
  840 PROCinput1
  850 PROCinput2
  855 IF P%=Y1% OR P%=Y2% THEN 890
  860 PROCcalc
  870 IF FUR%=0 AND TIME>PT% PROCpost
  880 FORD%=1TO20:NEXT
  890 UNTIL P%=Y1% OR P%=Y2%
  900 FORD%=1TO2000:NEXT
  910 COLOUR128:CLS
  920 IF W1%>16 AND W2%>16 PROCclub(3):GOTO960
  930 IF W1%>16 PROCclub(1)
  940 IF W2%>16 PROCclub(2)
  950 IF P%=Y1% AND P%=Y2% WP$="":WH$="":GOTO980
  960 IF P%=Y1% M1%=M1%+WIN%:WP$=P$(1):WH$=H$(R%(M
L%*2-1))
  970 IF P%=Y2% M2%=M2%+WIN%:WP$=P$(2):WH$=H$(R%(M
L%*2))
  980 ENDPROC
  990 DEFPROCsc
 1000 VDU28,5,31,15,0:COLOUR130:CLS
 1010 FORX%=8TO14:VDU19,X%,2;0;:NEXT
 1020 VDU19,15,7;0;
 1030 FORX%=1TO1000STEP80
 1040 COL%=7
 1050 FORY%=X% TO X%+80STEP10
 1060 COL%=COL%+1:GCOL0,COL%
 1070 MOVE350,Y%:DRAW380,Y%:MOVE970,Y%:DRAW1000,Y%
 1080 NEXT,
 1090 GCOL0,7:MOVE380,0:DRAW380,1020:MOVE970,0:DRA
W970,1020:VDU26
 1100 COLOUR7:COLOUR128:PRINTTAB(1,1);"Fur";TAB(1,
3);FUR%
 1110 MOVE20,1000:DRAW300,1000:DRAW300,870:DRAW20,
870:DRAW20,1000
 1120 PRINTTAB(0,6);"";WIN%
 1130 COLOUR130:ENDPROC
 1140 DEFPROCsetup
 1150 Y1%=25:Y2%=25:X1%=8:X2%=12
 1160 COL%=15:F%=224:B%=227
 1170 LT%=0:DR1%=1:DR2%=1
 1180 W1%=0:W2%=0:PT%=0:P%=0
 1190 w1%=0:w2%=0
 1200 ENDPROC
 1210 DEFPROChorse(x%,y%,c1%,c2%)
 1220 COLOUR2:PRINTTAB(x%,y%-1);" ";TAB(x%,y%+4);"
 "
 1230 COLOUR c1%
 1240 FORX%=0TO3:PRINTTAB(x%,y%+X%);CHR$(224+X%)
 1250 NEXT
 1260 VDU5:GCOL3,c2%:MOVEx%*64,(31-y%)*32
 1270 VDU228,4
 1280 ENDPROC
 1290 DEFPROClegs
 1300 IF F%=224 F%=229 ELSE F%=224
 1310 IF B%=227 B%=230 ELSE B%=227
 1320 COLOUR0
 1330 PRINTTAB(X1%,Y1%);CHR$(F%);TAB(X1%,Y1%+3);CH
R$(B%)
 1340 COLOUR1
 1350 PRINTTAB(X2%,Y2%);CHR$(F%);TAB(X2%,Y2%+3);CH
R$(B%)
 1360 SOUND0,-15,7,2
 1370 LT%=TIME+10:ENDPROC
 1380 DEFPROCrails
 1390 VDU19,COL%,2;0;
 1400 COL%=COL%-1:IF COL%=7 COL%=15
 1410 VDU19,COL%,7;0;
 1420 ENDPROC
 1430 DEFPROCinput1:w1%=0:dr1%=0
 1440 IF INKEY-65 dr1%=1:DR1%=DR1%+1
 1450 IF INKEY-2 PROCwhip(1,3)
 1460 ENDPROC
 1470 DEFPROCinput2:w2%=0:dr2%=0
 1480 IF INKEY-89 dr2%=1:DR2%=DR2%+1
 1490 IF INKEY-74 PROCwhip(2,5)
 1500 ENDPROC
 1510 DEFPROCcalc
 1520 IF w1% ANDW1% MOD 5=0 Y1%=Y1%-1:PROChorse(X1
%,Y1%,0,3)
 1530 IF w2% ANDW2% MOD 5=0 Y2%=Y2%-1:PROChorse(X2
%,Y2%,1,5)
 1540 IF w1% W1%=W1%+1
 1550 IF w2% W2%=W2%+1
 1560 IF dr1% AND DR1% MOD40=0 Y1%=Y1%-1:PROChorse
(X1%,Y1%,0,3):DR1%=DR1%+1
 1570 IF dr2% AND DR2% MOD40=0 Y2%=Y2%-1:PROChorse
(X2%,Y2%,1,5):DR2%=DR2%+1
 1580 IF Y1%>25 Y1%=25:PROChorse(X1%,Y1%,0,3)
 1590 IF Y1%<2 Y1%=2:PROChorse(X1%,Y1%,0,3)
 1600 IF Y2%<2 Y2%=2:PROChorse(X2%,Y2%,1,5)
 1610 ENDPROC
 1620 DEFPROCtitle
 1630 COLOUR131:COLOUR0:GCOL0,0
 1640 PRINTSPC(23);T$(ML%);" ";VEN$;SPC(23)
 1650 MOVE10,1010:DRAW1270,1010:DRAW1270,940:DRAW1
0,940:DRAW10,1010
 1660 ENDPROC
 1670 DEFPROCinfo:GCOL0,1
 1680 MOVE0,720:DRAW1280,720:MOVE0,502:DRAW1280,50
2:MOVE0,352:DRAW1280,352
 1690 MOVE0,275:DRAW1280,275:MOVE0,210:DRAW1280,21
0
 1700 COLOUR7:COLOUR128:PRINTTAB(0,4);P$(1);TAB(10
,4);P$(2)
 1710 MOVE640,910:DRAW640,352
 1720 PRINTTAB(2,6);"rides";TAB(12,6);"rides"
 1730 PRINTTAB(1,8);H$(R%(ML%*2-1));TAB(11,8);H$(R
%(ML%*2))
 1740 VDU28,3,15,5,10:COLOUR130:CLS
 1750 VDU28,13,15,15,10:CLS:VDU26
 1760 PROChorse(4,11,0,3):PROChorse(14,11,1,5)
 1770 COLOUR128:COLOUR6
 1780 PRINTTAB(0,17);"CAPS-Drive";TAB(0,19);"CTRL-
whip"
 1790 PRINTTAB(11,17);"] - Drive";TAB(11,19);"RET-
whip"
 1800 WIN%=RND(4999)+5000
 1810 COLOUR7:PRINTTAB(2,22);"Winner gets ";:COLOU
R8:PRINT'';WIN%
```

```
 1820 FUR%=RND(8)+4
 1830 COLOUR7:PRINTTAB(4,24);FUR%;" Furlongs"
 1840 COLOUR6:PRINTTAB(0,26);P$(1);TAB(10);"= ";M
1%
 1850 PRINTTAB(0,27);P$(2);TAB(10);"= ";M2%
 1860 MOVE0,110:DRAW1280,110
 1870 PRINT':PROCspace(8)
 1880 CLS:ENDPROC
 1890 DEFPROCfur
 1900 COLOUR128:COLOUR7
 1910 FUR%=FUR%-1:IF FUR%=0 P%=1
 1920 PRINTTAB(1,3);FUR%;" "
 1930 COLOUR130:RT%=TIME+400
 1940 ENDPROC
 1950 DEFPROCstalls
 1960 VDU5:GCOL3,4
 1970 MOVE448,220:PRINTSTRING$(7,CHR$231)
 1980 MOVE448,188:PRINTSTRING$(7,CHR$232)
 1990 MOVE448,156:PRINTSTRING$(7,CHR$232)
 2000 MOVE448,124:PRINTSTRING$(7,CHR$233):VDU4
 2010 ENDPROC
 2020 DEFPROCpost:P%=P%+1
 2030 PRINTTAB(14,P%-1);" "
 2040 COLOUR1:PRINTTAB(14,P%);CHR$234
 2050 PT%=TIME+10:ENDPROC
 2060 DEFPROCresult
 2070 COLOUR7:COLOUR128
 2080 IF WH$="" PROCphoto
 2090 PRINT''TAB(3);WH$;TAB(12);"wins"'';WP$;TAB(9
);" gets ";WIN%
 2100 GCOL0,3:MOVE0,700:DRAW1280,700:MOVE0,500:DRA
W1280,500
 2110 COLOUR6:PRINT'';P$(1);TAB(10);" = ";M1%
 2120 PRINT';P$(2);TAB(10);" = ";M2%
 2130 FORX%=1TO20STEP2
 2140 SOUND1,-15,X%*2,1:SOUND2,-15,X%*2,1
 2150 NEXT
 2160 PRINT'':PROCspace(7)
 2170 VDU26:CLS
 2180 ENDPROC
 2190 DEFPROCspace(C%)
 2200 COLOURC%:PRINTTAB(2);"press SPACE BAR"
 2210 REPEATUNTILGET=32:ENDPROC
 2220 DEFPROCphoto
 2230 R%=RND(2)
 2240 IF R%=1 M1%=M1%+WIN% ELSE M2%=M2%+WIN%
 2250 WP$=P$(R%):R%=R%-1
 2260 WH$=H$(R%((ML%*2-1)+R%))
 2270 PRINT''TAB(5);"PHOTOGRAPH"'" Judges in sess
ion"
 2280 FOR D=1TO10000:NEXT
 2290 VDU28,0,30,19,4:CLS
 2300 ENDPROC
 2310 DEFPROCend
 2320 PROCvenue
 2330 IF M1%>M2% WP$=P$(1):WM%=M1%
 2340 IF M2%>M1% WP$=P$(2):WM%=M2%
 2350 IF M1%=M2% PROCdrew:ENDPROC
 2360 COLOUR7:PRINT'TAB(5);"Well  done"''TAB(6);WP
$
 2370 PRINT''" You won most money"''"   this after
noon"''TAB(6);"at ";WM%
 2380 PROCngame
 2390 ENDPROC
 2400 DEFPROCngame
 2410 PRINT'''"   Another game ?";:Y$=GET$
 2420 Y$=LEFT$(Y$,1)
 2430 IF Y$<>"Y" AND Y$<>"y" VDU26:CLS:END
 2440 ENDPROC
 2450 DEFPROCdrew
 2460 PRINT'TAB(3);"You both drew"''TAB(6);"at ";
M1%
 2470 PROCngame
 2480 ENDPROC
 2490 DEFPROCclub(C%)
 2500 PROCtitle:COLOUR128:COLOUR2
 2510 IF C%=3 PROCvoid:GOTO2550
 2520 PRINT'TAB(3);P$(C%);TAB(14);"is"''"   fined
 50 for"''"excessive whipping,"
 2530 PRINT'"and is disqualified"''"   from the ";
T$(ML%).
 2540 IF C%=1 P%=Y2%:Y1%=30:M1%=M1%-50 ELSE P%=Y1%
:Y2%=30:M2%=M2%-50
 2550 PRINT'':PROCspace(2)
 2560 CLS
 2570 ENDPROC
 2580 DEFPROCvoid
 2590 PRINT'"  Both runners are"''"   fined '50 fo
r"''"excessive whipping,"
 2600 PRINT'" & are disqualified"''"   from the ";
T$(ML%)
 2610 M1%=M1%-50:M2%=M2%-50
 2620 Y1%=30:Y2%=30
 2630 ENDPROC
 2640 DEFPROCwhip(W%,C%)
 2650 SOUND0,-15,4,2
 2660 IF W%=1 w1%=1 ELSE w2%=1
 2670 IF W%=1 x%=X1%:y%=Y1% ELSE x%=X2%:y%=Y2%
 2680 VDU5:GCOL3,C%:MOVEx%*64,(31-y%)*32
 2690 VDU240,241
 2700 FORD=1TO200:NEXT
 2710 VDU8,8,240,241,4
 2720 ENDPROC
 2850 DEFPROCinst:CLS
 2860 T$=CHR$141+"-MICRO-RACER-":G$=CHR$130
 2870 PRINTTAB(11,2);T$;TAB(11,3);T$
 2880 PRINT''G$;" Micro-racer is a game for two pl
ayers"'G$;"each riding a racehorse.The riders can"
'G$;"whip and drive the horses to win the "'G$;"ra
ce."
 2890 PRINT'G$;" There are five races on the card
and"'G$;"the object is to earn the most money."
 2900 PRINTG$;" Driving your horse too hard will t
ire"'G$;"him & too much whipping could induce a"'G
$;"fine from the jockeys' club."
 2910 PRINT''TAB(11);"Hit any key...":A=GET
 2920 ENDPROC
```



JOYSTICK



The Ultimate in JOYSTICK controls?

Take a look at the Sure Shot Supreme — and try saying that quickly!

For some reason, people have always believed more aliens could be blasted, more dots gobbled and more barrels leaped with a joystick. Personally, I gain higher scores with keys, often finding joysticks too stiff or too loose. Would this be any different, I wondered.

The Sure Shot is made by RP products, responsible for many of the joysticks found on arcade machines. It's nice to see this is a mainly British-made product. It has an Atari-style plug, suitable for most machines or interfaces. The actual stick is not one of the popular, plastic types which are moulded to fit a clenched hand, but a simple metal rod covered with an adequate plastic cylinder. This allows for a variety of holds, whichever you find most comfortable.

There are three fire buttons; one on top, and two on either side of the base to allow for left- and right-handed players. Fire and the four main directions are all responsive, but diagonals slightly weak: it totally failed on a Q* Bert game I tried. I also found the stick inaccurate for precision jumping games like Technician Ted, where you need to press fire and a direction at the same time.

The base is quite compact, but does not have proper, sucker grip pads on the bottom. Instead it has half spheres, which on my stick were slightly varying in size, causing it to wobble. It is very good to hold in the hand though; but can be painful if you play a tough game.

I tested the stick on the toughest game possible; Daley Thompson Decathlon. It stood up very well — I obtained my best ever scores and ended up looking more stressed than the joystick! The joystick is based round micro switches, fixed to a steel chassis, and should last a long time. It worked well on the shoot-'em-ups I tried.

Although the point of a joystick still seems questionable to me, if you keep having to look at the keys, it may be faster, and saves unnecessary keyboard battering. This is an attractive, sturdy, well-built joystick. It doesn't require Mr Universe to move it, neither is it oversensitive. If you don't mind the lack of grips, the basic design and the poor diagonals, then it is thoroughly recommended. As a key player, I was impressed.

P.S.

Price: Atari £19.95; Einstein/QL £21.95; BBC £24.95; Electron £34.95

Manufacturer: RP Products

Distributor: Euromax

Address: Pinfold La, Bridlington, N Humberside YO16 5XR

Machine: Any with suitable connecter or interface



C64 GAME

BARNEY THE BROKER

There's money to be made in this game by Sean Conway — but look out for Barney the broker — he wants your cash!

Your bank manager has given you £10,000 for three weeks and you must invest it in the stock-market. If you lose the money then you'll probably end up bankrupt but you can keep any profits for yourself.

Look out for Barney the broker, he looks very honest but he might try and sell you some dud shares!

Variables

LL main loop variable
MS(I) newspaper message
Z9 message for day
SF value of shares
SG total value of assets (money and shares)
SB market average
SD net change
N number of share to deal
T number of shares in transaction (+ or —)
O(I) number of shares owned
PO(LL) amount made or lost on particular day
P(I) price of particular stock
PN(I) new price
NS(I) stock name
SA(I) total market stock value
SD(I) chance of stock value increasing
BS stock of Barney the broker
BT no. of shares from BB
BW buy or sell — BB
BP price of shares — BB

How it works

100-107 set up DIMs
135 sets screen, border colours
150-165 read data
170-185 set up variables
300-350 PRINT title screen
505 starts main loop
515 more variables
550-570 reset stock prices
600-690 start of new day
1000-1025 print share names and prices
1500-1580 market average, charge + account balance
2000-2510 share transactions (buy or sell)
2500 GOSUB Barney the broker
3000-3040 portfolio
4000-4200 Barney screen
9000-9065 set up stock day screen, change prices
9300-9340 print new prices, net change
9400 state of broker
9500-9580 stock day screen
9700-9720 print price changes on stock day screen
10000-10510 broker rating at end of game
15000-15020 end of games
11000-11040 press space routine
20000 game data

```
100 REM ******  D I M S  ********
105 DIMM$(14)
106 DIMPO(15)
107 DIMSA(15)
130 REM***SET SCREEN COLOURS***
135 POKE53280,0:POKE53281,0
150 REM ****** SET UP READS *****
155 FORI=1TO10:READN$(I):NEXTI
160 FORI=1TO14:READM$(I):NEXTI
165 FORI=1TO10:READP(I):NEXTI
170 REM ****** SET VARIABLES*****
180 FORI=1TO10:LETO(I)=0:NEXTI
185 M=10000
300 REM*******************************
301 REM***** DRAW BUILDING **********
302 REM*******************************
310 PRINT"
312 PRINT"
314 PRINT"
315 FORI=1TO2
316 PRINT"
318 PRINT"
320 PRINT"
322 NEXTI
324 PRINT"
326 PRINT"                STOCKMARKET
328 PRINT"
330 PRINT"
332 PRINT"
334 PRINT"
336 PRINT"
340 PRINT"
345 PRINT"                (C) SEAN CONWAY 1984"
350 GOSUB15000
```

```
501 REM* MAIN LOOP ***
502 REM***************
505 FORLL=1TO15
510 REM*********************
511 REM     SET VARIABLES
512 REM*********************
515 FORI=1TO10:LETSD(I)=0.5:NEXTI
550 REM********************
551 REM**RESET PRICES*******
552 REM********************
553 IFLL=1THENGOTO600
555 FORI=1TO10
560 P(I)=PN(I)
565 LETPN(I)=0
570 NEXTI
600 REM*******************************
601 REM****BEGINNING OF DAY************
602 REM*******************************
605 PRINT"■■                                          ■";
606 PRINT"■             START OF DAY               ■";
607 PRINT"■                                        ■";
610 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■"LL
612 DD$(1)="MONDAY":DD$(2)="TUESDAY":DD$(3)="WEDNESDAY":DD$(4)="THURSDAY"
614 DD$(5)="FRIDAY":DD$(6)="JANUARY":DD$(7)="1985"
620 PRINT"■■■■■■■■■■■■┌──────────────────────────────┐"
621 PRINT"■■■|                                |"
622 PRINT"■■■|■■■■■■■■MORNING POST■      60P■      |■"
623 PRINT"■■■|                                |"
624 PRINT"■■■|                                |"
630 PRINT"■■■|■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■|"
635 IFLL<6THENLA=LL
640 IFLL>5ANDLL<11THENLA=LL/2
645 IFLL>10ANDLL<16THENLA=LL/3
650 READDT
655 PRINT"■■■■■■■■■■■";DD$(LA);"■";DD$(6);DT;DD$(7)
660 PRINT:FORI=1TO6:PRINT"■■■■|                                |":NEXTI
663 LETZ9=INT(RND(1)*14)+1
665 PRINT"■■■■■■■■";M$(Z9)
670 IFZ9=1THENSD(2)=SD(2)-0.1:SD(3)=SD(3)+0.2:SD(10)=SD(10)+0.2
672 IFZ9=2THENSD(9)=SD(9)-0.1:SD(1)=SD(1)+0.2
674 IFZ9=3THENSD(4)=SD(4)+0.2
675 IFZ9=4THENSD(4)=SD(4)-0.1
676 IFZ9=5THENSD(4)=SD(4)+0.2:SD(8)=SD(8)+0.2
677 IFZ9=6THENSD(4)=SD(4)-0.1:SD(8)=SD(8)-0.1
678 IFZ9=7THENSD(10)=SD(10)+0.2:SD(6)=SD(6)-0.1
679 IFZ9=8THENSD(5)=SD(5)+0.2:SD(2)=SD(2)+0.2
680 IFZ9=9THENSD(8)=SD(8)+0.2:SD(7)=SD(7)-0.1
681 IFZ9=10THENSD(3)=SD(3)-0.1
682 IFZ9=11THENSD(6)=SD(6)+0.2:SD(10)=SD(10)-0.1
683 IFZ9=12THENSD(9)=SD(9)+0.2:SD(1)=SD(1)-0.1
684 IFZ9=13THENSD(7)=SD(7)+0.2:SD(8)=SD(8)-0.1
685 IFZ9=14THENSD(5)=SD(5)-0.1:SD(2)=SD(2)-0.1
690 GOSUB15000
1000 REM ***** PRINT SHARES & PRICES**
1005 PRINT"■■                                       ■";
1007 PRINT"■          OPENING SHARE PRICES          ■";
1008 PRINT"■                                        ■";
1010 PRINT"■■■■■■■■■■■SHARE NAME■              ■PRICE■"
1015 PRINT"■■"
1020 FORI=1TO10:PRINT"■■■■";N$(I),"■■■■■■■■"P(I)
1023 NEXTI
1025 GOSUB15000
1500 REM*******************************
```

```
1501 REM* STATE OF MARKET + ACCOUNT **
1502 REM*******************************
1505 PRINT"                                        ";
1506 PRINT"        STATE OF MARKET AND ACCOUNT     ";
1507 PRINT"                                        ";
1510 FORI=1TO10:LETSA=SA+P(I):NEXTI
1515 LETSA(LL)=SA:SA=0
1520 LETSB=SA(LL)/10
1525 LETSC=SA(LL)-SA(LL-1)
1530 LETSD=SC/10
1533 IFLL=1THENSD=0
1535 PRINT"MARKET AVERAGE £";SB
1540 PRINT"NET CHANGE £";SD
1545 FORI=1TO10:LETSE=P(I)*O(I):SF=SF+SE
1550 NEXTI
1555 LETSG=M+SF
1560 PRINT"AMOUNT OF CASH £";M
1565 PRINT"VALUE OF SHARES £";SF
1570 PRINT"========================"
1575 PRINT" TOTAL £";SG
1576 IFM<0THENPRINT"YOU HAVE NO READY CASH LEFT ---SELL"
1577 SF=0
1578 IFSG<0THENPRINT"YOU ARE BANKRUPT":FORER=1TO750:NEXTER:GOTO11000
1580 GOSUB15000
2000 REM ***SHARE TRANSACTIONS***
2005 PRINT"                                        ";
2006 PRINT"           SHARE TRANSACTIONS           ";
2007 PRINT"                                        ";
2009 PRINT""
2010 FORI=1TO10:PRINT"";I;"";N$(I),:NEXTI
2011 LETET$=""
2012 LETES$="
2013 LETEX$="
2015 PRINTET$"WHICH STOCK DO YOU WISH TO DEAL IN"
2017 PRINT" (ENTER NO. OR '0' FOR NONE)
2020 INPUTN
2021 IFN<0ORN>10THEN2020
2022 IFN=0THEN2100
2023 GOSUB2150
2025 PRINTET$ES$"      ENTER TRANSACTION              "EX$
2030 INPUTT
2032 GOSUB2150
2035 IFT<0ANDO(N)=0THENGOSUB2110:FORI=1TO750:NEXTI:GOSUB2150:GOTO2025
2040 IFO(N)+T<0THENGOSUB2120:FORI=1TO750:NEXTI:GOSUB2150:GOTO2025
2045 LETO(N)=O(N)+T
2050 IFT>0THENZ=P(N)*T:M=M-Z:GOTO2060
2055 IFT<0THENZ=P(N)*T:M=M-Z:GOTO2070
2060 IFM<0THENGOSUB2130:FORI=1TO750:NEXTI:GOSUB2150:M=M+Z:O(N)=O(N)-T:GOTO2025
2070 PRINTET$EX$"          ANY MORE TRANSACTIONS"
2075 INPUTAA$:IFAA$="Y"THEN2015
2100 GOSUB15000
2105 GOTO2500
2110 PRINT"     YOU HAVE NO SHARES TO SELL":RETURN
2120 PRINT"    YOU HAVEN'T THAT MANY SHARES":RETURN
2130 PRINT"            NOT ENOUGH MONEY":RETURN
2150 PRINT"":FORU=1TO7:PRINT"                                        ";:NEXT
2152 PRINT"":RETURN
2500 REM**GOSUB BARNEY*****
2510 GOSUB4000
3000 REM *** PORTFOLIO ***
3005 PRINT"                                        ";
3006 PRINT"               PORTFOLIO                ";
3007 PRINT"                                        ";
3008 PRINT""
```

```
3010 PRINT"STOCK NAME      NO.     PRICE      VALUE"
3015 PRINT""
3020 FORS=1TO10
3025 PRINT"";N$(S),"";O(S)
3026 PRINT"";P(S)
3027 PRINT"";O(S)*P(S)
3030 NEXTS
3040 GOSUB15000
3500 GOTO9000
4000 REM*** BARNEY THE BROKER ***
4010 PRINT""
4020 LETBR$=""
4030 FORI=1TO6:BR$(I)=MID$(BR$,I,1)
4040 PRINTBR$(I)" BARNEY THE BROKER ":NEXTI
4050 LETST$="":LETSQ$="|                          |"
4055 PRINT""ST$""
4060 PRINTST$"| B.B |"
4062 PRINTST$"|     |"
4064 PRINTST$"      "SQ$
4066 PRINTST$"| O O |"SQ$
4068 PRINTST$"|  .  |                     |"
4070 PRINTST$"|     |                     |"
4072 PRINTST$"      "SQ$
4074 PRINTST$"      "SQ$
4076 PRINTST$ST$ST$""
4080 FORI=1TO10
4082 LETBR(I)=P(I):NEXTI
4084 LETBS=INT(RND(1)*10)+1
4086 LETBT=INT(RND(1)*5)+1
4088 LETBU=INT(RND(1)*2)+1
4090 LETBW=INT(RND(1)*3)+1
4092 LETBP=(BR(BS)*BT)
4094 IFBU=1THENBV=0.9
4096 IFBU=2THENBV=1.1
4098 LETBP=BP*BV
4099 IFBP>MTHENGOSUB15000:GOTO4200
4100 IFBW=1THEN4150
4102 PRINT"BARNEY WILL SELL"
4104 PRINT""BT"SHARES IN"
4106 PRINT""N$(BS)
4108 PRINT"FOR  £"BP
4110 PRINT"DO YOU ACCEPT ?"
4111 PRINT""
4112 INPUTAC$:PRINT""
4114 IFAC$="Y"THENO(BS)=O(BS)+BT:M=M-BP
4116 GOSUB15000
4120 GOTO4200
4150 IFO(BS)=0THENGOSUB15000:GOTO4200
4152 IFO(BS)<BTTHENGOSUB15000:GOTO4200
4154 PRINT"BARNEY WILL BUY"
4156 PRINT""BT"SHARES IN"
4158 PRINT""N$(BS)
4160 PRINT"FOR  £"BP
4162 PRINT"DO YOU ACCEPT ?"
4163 PRINT""
4164 INPUTAC$:PRINT""
4166 IFAC$="Y"THENO(BS)=O(BS)-BT:M=M+BP
4168 GOSUB15000
4200 RETURN
9000 GOSUB9500
9005 FORI=1TO10:LETPN(I)=P(I):NEXTI
9010 FORS1=0TO8
9015 PRINT""(9+S1)":00"
9020 IF S1=0THEN9065
```

```
9025 FORZ5=1TO10
9030 LETAO(Z5)=(RND(1))
9035 IFAO(Z5)<=SD(Z5)THENPN(Z5)=PN(Z5)+2.5:GOTO9040
9037 PN(Z5)=PN(Z5)-2.5
9040 IFPN(Z5)<=0THENPN(Z5)=0
9050 GOSUB9700
9055 NEXTZ5
9060 FORI=1TO1000:NEXTI
9065 NEXTS1
9300 REM*******************************
9301 REM NEW PRICES
9302 REM*******************************
9305 PRINT"■
9306 PRINT"■          NEW VALUES AND CHANGES          ■";
9307 PRINT"■                                          ■";
9310 PRINT"■■■■■■SHARE NAME■      ■OLD VAL■ ■NEW VAL■ ■CHANGE■■"
9315 PRINT"■■"
9320 FORI=1TO10
9322 PRINT"■"N$(I),"■■■■■";P(I)
9324 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■";PN(I)
9326 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■";PN(I)-P(I)
9330 NEXTI
9340 GOSUB15000
9400 REM***************************
9401 REM  BROKER STATE
9402 REM***************************
9405 PRINT"■
9406 PRINT"■             BROKER PROGRESS              ■";
9407 PRINT"■                                          ■";
9410 LETPR=LL
9415 FORI=1TO10
9417 LETPQ(I)=(PN(I)*O(I))
9420 LETPQ=PQ+PQ(I)
9425 NEXTI
9430 LETPQ=PQ+M
9435 LETPO(LL)=PQ-10000
9440 PRINT"■■■■■■■ WEEK ■         ■ DIFFERENCE ■■"
9445 PRINT:FORI=1TOLL:PRINT"■■■■■■■";I,"■";PO(I)
9450 NEXTI
9453 PQ=0
9455 GOSUB15000
9460 NEXTLL
9465 GOTO10000
9499 NEXTLL
9500 PRINT"■"
9504 PRINT"■
9505 PRINT"■              DAY'S TRADING              ■";
9510 PRINT"■                                 TIME-    ■"
9520 FORII=1TO5
9530 PRINT"■■ ┌──────────────────┬──────────────────┐";
9535 PRINT"■ │                  │                  │";
9540 PRINT"■ └──────────────────┴──────────────────┘";
9545 NEXTII
9550 PRINT"■■■■■■■■■■■■CHOCOLATE: ■         ■WALLPAPER: ■"
9555 PRINT"■■■■■■■■■■■■■■■■PLAS.BAGS: ■         ■BL.TAPES: ■"
9560 PRINT"■■■■■■■■■■■■■■■■■■■■W.VARNISH: ■         ■TIN.GLASS: ■"
9565 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■WATCH PTS: ■         ■ELE.PLUGS: ■"
9570 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■P.REFILLS: ■         ■RAINCOATS: ■"
9580 RETURN
9700 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■" PN(1)
9701 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■";PN(2)
9702 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■";PN(3)
9703 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■";PN(4)
9704 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■";PN(5)
```

```
9705 PRINT"▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮";PN(6)
9706 PRINT"▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮";PN(7)
9707 PRINT"▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮";PN(8)
9708 PRINT"▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮";PN(9)
9709 PRINT"▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮";PN(10)
9720 RETURN
10000 REM****RATING*******
10005 PRINT"▮"
10010 LETPS=PO(15)
10012 IFPS<0THENJ$="LOSS":PT=-PS
10014 IFPS>0THENJ$="PROFIT":PT=PS
10016 IFPS=0THEN10022
10018 PRINT"▮▮▮▮▮▮▮▮▮▮▮YOU HAVE MADE A";J$;"OF £";P
10020 GOTO10024
10022 PRINT"▮▮▮▮▮▮▮▮▮▮▮YOU HAVE ENDED WITH THE SAME AMOUNT";
10023 PRINT"▮▮▮▮▮AS YOU STARTED WITH."
10024 IFPS<0ANDPT<1000ANDPT>0THENRR$="▮▮▮▮YOU NEED MORE PRACTICE":GOTO10500
10026 IFPS=0THENRR$="▮▮▮▮YOU'RE NOT TOO BAD AS A STOCKBROKER":GOTO10500
10028 IFPS>0ANDPT<=1000ANDPT>0THENRR$="▮▮▮▮YOU HAVE THE HANG OF THE STOCKMARKET"
10029 IFPS>0ANDPT<=1000ANDPT>0THEN10500
10030 IFPS>0ANDPT<=3000ANDPT>1000THENRR$="▮▮▮▮YOU ARE STOCKBROKER MATERIAL" [illegible]0
10032 IFPS>0ANDPT<=5000ANDPT>3000THENRR$="▮▮▮▮YOU COULD BE A GOOD BROKER":[illegible].0
10034 IFPS>0ANDPT<10000ANDPT>5000THENRR$="▮▮▮▮YOU'RE A NATURAL":GOTO10500
10036 IFPS>0ANDPT>=10000THENRR$="YOU MUST BE THE WORLD'S BEST":GOTO10500
10038 IFPS<0ANDPT<=5000ANDPT>1000THENRR$="DON'T TRY THE REAL THING":GOTO10500
10040 IFPS<0ANDPT>=5000THENRR$="THERE'S NO HOPE FOR YOU":GOTO10500
10045 RR$="NO RATING"
10510 GOSUB15000
11000 PRINT"▮▮▮▮▮▮▮▮THATS THE END OF THE GAME ..........     ▮HOPE YOU ENJOYED IT
11020 PRINT"▮"
11040 END
15000 PRINT"▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮PRESS ▮ SPACE ▮ TO CONTINUE"
15005 GETSP$
15010 IFSP$<>" "THEN15005
15020 RETURN
20000 DATACHOCOLATE,WALLPAPER,PLASTIC BAGS,BLANK TAPES,WOOD VARNISH
20005 DATATINTED GLASS,WATCH PARTS,ELECTRIC PLUGS,PEN REFILLS,RAINCOATS
20010 DATAWET AND DAMP WEATHER FORECAST,SCHOOL HOLIDAYS BEGIN
20015 DATABIG INCREASE IN RECORD SALES,DECREASE IN RECORD SALES
20020 DATAHOME COMPUTER SALES INCREASE,COMPUTER SALES SLUMP
20025 DATADULL WEATHER FORECAST,DIY CRAZE SWEEPS COUNTRY
20030 DATAHUGE DIGITAL WATCH IMPORTS
20032 DATABIG CHAIN SUPERMARKET CLOSES
20035 DATASUNNY WEATHER ON THE WAY,SCHOOLS RE-OPEN
20040 DATADIGITAL WATCHES UNPOPULAR,DIY SALES DECLINE
20045 DATA145,115,165,95,75,80,125,160,100,135
20050 REM****DAY DATA*********
20055 DATA2,3,4,5,6,9,10,11,12,13,16,17,18,19,20
```



PERIPHERAL



Jon Revis gets to grips with the Demon modem

Demon modem

Computer communications is one aspect of computing which is becoming increasingly popular. Personally I find it extremely exciting. No longer is your micro bounded by its little black — or in my case cream — box. From the comfort of your living room you can connect up to Prestel and use the many thousands of pages of information, download free or commercial software, or leave messages for other subscribers. Around the country there are dozens of bulletin boards through which computer hobbyists can contact thousands of other users from all over the country. All of this can be yours via that little black box, the modem.

There are numerous modems available in a price range from £50 to £200. One modem which has just surfaced at the lower priced end of the market is the Demon. With a price tag of £50 you could probably assume that the Demon modem is a rather basic device, one of these "Prestel only" jobs.

This assumption couldn't be further from the truth. The Demon modem possesses all the facilities imaginable. It works with a selection of baud rates as long as your arm, it auto dials, auto answers and it's just popped out to put the kettle on!

As is often the case with these devices, it's only as good as the software that drives it. The Demon can be used in conjunction with Termi and Communicator, but to make full use of the facilities I recommend that you purchase the Demon Zromm for a further £24. This provides many "*" commands which can be used directly from the keyboard or incorporated into your own programs.

The Demon has just three connections: the first is from its 9 volt power supply, the second is the lead which plugs into the BBC's RS423 interface socket, and the third is the plug which is inserted into a standard British Telecom wall socket. Whilst on the subject of BT, the modem isn't approved, probably because it can transmit using American frequencies to access American bulletin boards. The bell frequencies drive telephone exchanges crazy! Finally, you just insert the Demon Zromm into a free sideways ROM socket and you have your passport to astronomical phone bills.

Using the Demon couldn't be easier. To log on to Prestel you type three commands: *BAUD 1, which sets up the modem to receive at 1200 baud and transmit at 75 baud; *DIAL followed by the number of the Prestel computer, and finally *PRESTEL. You will then be presented with the familiar Prestel logging-on page. If you want to be a little more clever you can store your customer identity number and password into function key 11 using the normal *KEY command.

Once the modem has completed its connection it will transmit the contents of this function key, thereby logging on automatically. For Prestel users in London things are easier still. *PRETZEL will set up the baud rate, dial the computer, and configure the computer as a Prestel terminal. When used in Prestel mode the ROM sets up the function keys to carry out various useful tasks, e.g. to save a frame to disc, download Micronet software, and dump a frame to the printer, but ignoring any graphics present.

Bulletin boards can be accessed in a similar way to Prestel, *BAUD 4, *DIAL number, *TERMINAL. When using a bulletin board directly after a Prestel session remember to empty *KEY 11. The first time I tried this the computer entered my customer identity and Prestel password in reply to the bulletin board's "First Name" prompt.

User-to-user communications are also catered for. With the *ULOAD and *DLOAD commands one can transmit data or programs between two computers; the files, however, must be stored on disc and not cassette.

The Auto Answer facility of the modem and software provides the capability for your Beeb to be used as a bulletin board. To enable you to write your own bulletin board software many useful commands are present in the ROM. *TIMEOUT allows you to set a time when users are accessing your bulletin board. It automatically displays a warning message one minute before it terminates the call. By also providing a comprehensive set of error codes your software can be written in such a way that it can cope with any occurrence.

Two more general commands are *STATUS, which displays the current baud rate, whether the modem is on line, etc and *HOPPIT which is the software equivalent of removing the ROM from the machine.

For a total of £84 inclusive you could be the proud possessor of one of the most comprehensive communication packages around. Anyone want to buy a nice secondhand acoustic coupler? One careful owner.

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WELCOME TO BASIC



Brian Jones discusses the FOR NEXT loop this week, and sets you some more problems to puzzle out on your own

Here's the answers to the problems set last time. The first was to find if a 72-inch pipe splits exactly into sections x inches long.

```
10 INPUT"LENGTH OF SECTIONS";L
20 LET N=72/L
30 IF N=INT(N) THEN PRINT"YOU GET EXACTLY";N;L;"INCH SECTIONS":STOP
40 PRINT"THAT GIVES";INT(N);"INCH SECTIONS"
50 PRINT"AND";72-INT(N)*L;"INCHES OVER"
```

The second was to find the largest of a series of positive values, terminated by a negative number.

```
10 LET MAX=0
20 INPUT"VALUE";X
30 IF X<0 THEN 60
40 IF X>MAX THEN MAX=X
50 GOTO 20
60 PRINT"THE LARGEST WAS";MAX
```

If you input 10,5,34,33, 19,4,42,4,29,-1 you should get the answer 42.

Right, on to new ground. Probably the most common loop in BASIC is not the jump loop, but a loop known as the FOR NEXT loop. This is the code favoured by those who like to fiddle with unoccupied micros in W H Smith and Boots. They RUN a program something like this:

```
10 FOR I=1 TO 10000
20 PRINT"SPURS ARE MAGIC"
30 NEXT I
```

They then walk away leaving their chosen message to churn itself out 10,000 times. Here's another example:

```
10 PRINT"HEIGHT OF AN OBJECT THROWN UPWARDS"
20 INPUT"INITIAL SPPED IN CM/SEC";U
30 PRINT"TIME","HEIGHT"
40 FOR T=0 TO 10 STEP 0.5
50 LET S=U*T-4.9*T*T
60 IF S<0 THEN PRINT"LANDED":STOP
70 PRINTT,INT(S*100+0.5)/100
80 NEXT T
```

So in general, a FOR NEXT loops takes the form: FOR variable = start value TO end value STEP length

By convention the variable is often I, but as you can see above, any name will do. The start value, end value and



length can be numeric or a variable or even a formula. STEP length is optional, it has default value 1; that is, if you don't specify, it uses length = 1.

You can have loops within loops. Try this program:

```
10 PRINT"␣  CHARACTER BLOCK PROGRAM"
20 INPUT"HEIGHT OF BLOCK";H
30 INPUT"WIDTH OF BLOCK";W
40 INPUT"ONE CHARACTER FILL THE BLOCK";C$
50 FOR I=1 TO H
60 FOR J=1 TO W
70 PRINT C$;
80 NEXT J
90 PRINT
100 NEXT I
```

Now, assuming you choose a height of between 1 and 22 and a width between 1 and 39, this program will display a solid block of characters as input. Although letters or numbers could be used, I think the effect is much nicer with one of the graphics characters. In the program, notice how the ; on line 70 keeps the characters printed together in the same line. This means that when the right number of characters has been printed, it needs the PRINT on line 90 to move it on to the next line.

You may see programs where the NEXT is not followed by a variable name. Commodore BASIC permits this, but it's safer from a programmer's point of view to put them in until you are really sure of yourself.

Here's another program:

```
10 PRINT"␣   COIN TOSSING SIMULATION"
20 INPUT"HOW MANY TOSSES";N
30 FOR I=1 TO N
40 X=RND(1)
50 IF X>0.5 THEN H=H+1
60 NEXT I
70 PRINT"THERE WERE";H;"HEADS"
```

Look at line 40. First, it could be LET X=RND(1), but in most versions of BASIC the LET is optional. It was originally included to stress that it is an assignment of a value, not an equation. Since I expect you've got that point by now, I'll be dropping the LET from now on.

But what about the RND? That's BASIC for "produce a random number". Unlike the LET, the 1 in brackets is not optional; nevertheless the value 1 serves no useful purpose. In Commodore BASIC you can put any positive value in the brackets and the result is a random number between 0 and 1.

In other BASICS such as BBC BASIC, RND(N) gives a random whole number between 1 and N, although RND(1) behaves the same as in Commodore BASIC.

Right, time to leave you with a couple more problems to work on.

1 Write a program to set an addition exercise by generating five random whole numbers between 0 and 9. When the answer is input, get the program to either congratulate or correct the user as appropriate.

3 Get the computer to set an exercise of 10 multiplications of two random whole numbers. Let the user choose the largest number the computer can use. For each sum, report right or wrong and at the end give the score out of 10.

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TOP 20 SOFTWARE

Compiled by Gallup

Fortnight Ending April 16, 198[illegible]

LAST WEEK	MOVE	THIS WEEK	TITLE	PUBLISHER	SPECTRUM	CBM 64	BBC	ELECTRON	VIC 20	AMSTRAD	ATARI	OTHERS
1		1	Soft Aid	Various	•	•						
3		2	World Series Baseball	Imagine	•	•						
4		3	Ghostbusters	Activision	•	•					•	•
28		4	Brian Jack's Superstar Challenge	Martech	•	•	•	•				
2		5	Spy Hunter	US Gold	•	•						
38		6	Gremlins	Adventure Inter.	•	•	•	•				•
7		7	Impossible Mission	CBS		•						
6		8	Football Manager	Addictive Games	•	•	•	•				•
23		9	Daley Thompson's Decathlon	Ocean	•	•					•	•
5		10	Bruce Lee	US Gold	•	•						•
11		11	Air Wolf	Elite	•	•						
9		12	Combat Lynx	Durell	•	•	•	•			•	
13		13	Moon Cresta	Incentive	•	•						
15		14	Blockbusters	Macsen	•	•	•	•				
40		15	Rocket Ball	IJK		•						
12		16	Pole Position	Atari	•	•	•	•			•	
14		17	Finders Keepers	Mastertronic	•						•	
22		18	Sorcery	Virgin	•	•					•	•
26		19	Hunchback	Ocean	•	•	•	•	•			
8		20	Raid over Moscow	US Gold	•	•						

Up and coming

Sporting games feature heavily in this week's Gallup chart. There's World Series Baseball, riding high in the number two slot, in its third week in the chart.

Then there's Brian Jacks' Superstar Challenge, which figures in all three own-machine top 10s, and Football Manager still hanging on in there at the number six position. This game has been in the Gallup chart for 29 weeks, and recently Kevin Toms of Addictive Games organised a celebration of 100,000 sales. Laurie Mc Menemy, Southampton manager, congratulated Mr Toms on the game's run-away success. Football Manager has sold well over a three-year period, and continues to look healthy.

Still in the sporting vein, Daley Thompson's Decathlon is also doing well, and has featured in the Gallup chart for 29 weeks. US Gold's Bruce Lee continues to maintain a high profile at number 10.

SPECTRUM Top Ten

1	Soft Aid	Various
2	Spy Hunter	US Gold
3	World Series Baseball	Imagine
4	Moon Cresta	Incentive
5	Gremlins	Adventure Int
6	Finders Keepers	Mastertronic
7	Bruce Lee	US Gold
8	Brian Jacks Superstar Chall.	Martech
9	Dragon Torc	Hewson
10	Alien 8	Ultimate

BBC Top Ten

1	Castle Quest	Micro Power
2	Elite	Acornsoft
3	Combat Lynx	Durell
4	Blockbusters	Macsen
5	Football Manager	Addictive Games
6	Mini Office	Aardvark
7	Manic Miner	Software Projects
8	Wizardore	Melbourne Hse
9	Micro Olympics	Micro User
10	Brian Jacks Superstar Chall.	Martech

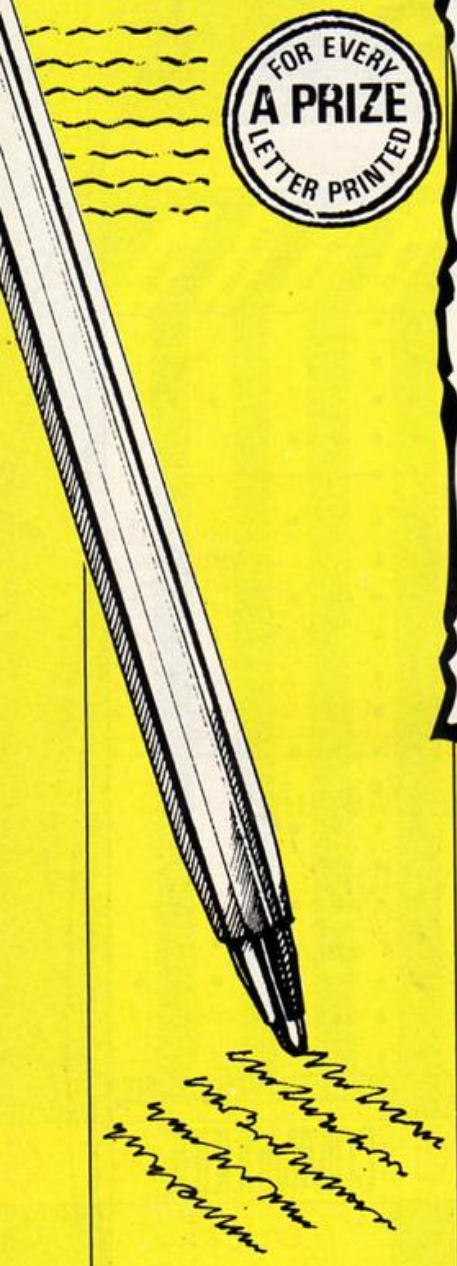
COMMODORE Top Ten

1	Soft Aid	Various
2	Impossible Mission	CBS
3	World Series Baseball	Imagine
4	Brian Jacks Superstar Chall.	Martech
5	Air Wolf	Elite
6	Rocket Ball	IJK
7	Pitstop 2	CBS
8	Pole Position	US Gold
9	Gremlins	Adventure Int
10	Ghostbusters	Activision



Compiled by Gallup for the industry's weekly trade magazine, Computer and Software Retailing.
For details contact John Sorrenti, Computer and Software Retailing, No. 1 Golden Square, London W1R 3AB. 01-437-0626

LETTERS



Goal!

Re R Wibberley's plea for help with Match of the Day in HCW 107: I have achieved a score of 14-0 in the quarter finals and 8-1 in the final.

While playing I found out the following tips: don't use a joystick because it is much easier with the keyboard. When you are attacking go down the wing at the bottom of the screen and as soon as the six-yard box comes on to the screen, shoot diagonally in the air towards the nets.

When you have a corner make the ball go along the floor and next to the goal line and run in towards the net and put the ball in the nets.

You can also win throw-ins near the opposition's nets and just direct it towards their nets. The goalkeeper will dive and you will score a goal.

Chris Warthington, Bolton

Video printing

Here's a tip for all computers with no "stop scroll" facility. If you have no printer and therefore find listing and debugging your programs tedious, then plug the computer into your video (if you have one) and record the listing.

Then you can fast-forward, halt and reverse the listing quickly and easily.

Rod Lane, Halesowen

White Lightning group

Purchases of Oasis's White Lightning for the C64 may be interested to know of the formation of the C64 White Lightning Users Group.

An SAE will bring further details.

David Russell, 146 Hill Top Dr, Rochdale, Lancs OL11 2RZ

Stop moaning!

As a regular buyer of your magazine I have been disappointed by the number of TI owners writing in to say how bad their situation is, complaining that software is expensive and that their machine has little support from magazines and the like.

To me, this whole operation seems pointless, as complaining about the price of software is hardly going to bring it down, and I am sure the dealers concerned understand that TI software is expensive for us.

As for support, as TI-supporting clubs and magazines fade away, it is left to the individual owners and enthusiasts to continue interest in the computer, through clubs such as TI Exchange, or through magazines. Pessimistic letters saying how bad TI life is are pointless as quite enough has been published now to get through to the rest of the computer world.

Stephen Meadows, Sussex

Dave's awards

I think that the computer industry ought to be presented with some extra special awards which the usual ceremonies will never give out. But if I could present awards, I would give them to the following people/companies/etc.

First is the Most Annoying Error award. This goes to Micromega for my copy of Jasper (which I got free in a computer mag last Christmas). It waits until the very end of the program before conking out with a loading error, which probably happened at the beginning of the program.

Second is the Wish I Waited award, which goes to Automata. I purchased a copy of its 10-Pack and a couple of weeks later, to celebrate Deus Ex Machina being voted program of the year, I could have bought that and got a 10-Pack free — for the same price.

The third award is the Long Wait Peripheral and Higher-price-than-should-have-been award, which goes to AGF for my order on a Protocol 4 joystick interface. First I paid a higher price than it should have been, because I sent off an old order form (I saw the new one afterwards), waited for the "28 days for delivery" (as it said on the order form), waited even longer, but still no sign of the interface, but there was every sign of the cheque being cashed early though.

Anyway, after waiting over a month, my dad phoned AGF to find out what had happened to my interface. He got the old excuse of "Maybe it got lost in the post," but my dad didn't fall for it, being a postman.

A few days later, it arrived — recorded delivery, without even anything to make up the extra money paid out on the interface, so AGF, this may be the only award you get!

Next is the Peripheral which has Everything for every Computer but Yours award, which goes to CGL for its Wico three-way joystick which can cause my computer to short-circuit, thanks to its two independent firing buttons. I was going to get this joystick, until I found out it was dangerous.

And finally, my last award goes to Home Computing Weekly for The Longest Wait for a Prize award. I have been waiting since issue 82 for a prize for winning the Unique wordsquare competition. I have phoned up once and written a couple of times, but still no sign of my prize. Also I don't receive anything from the Unique Fan Club anymore. Personally, I think Unique has gone bust. After all, I did read that the proprietor was formerly with the Rabbit sales team.

Shouldn't magazines make sure they have prizes to give away before they print competitions? That reminds me: what were the results of that Imagine competition?

As you can see from my experiences, there are winners and losers in the computer industry — and I'm the loser. Don't you think I should get an award for that?

Dave Brown, Winchester



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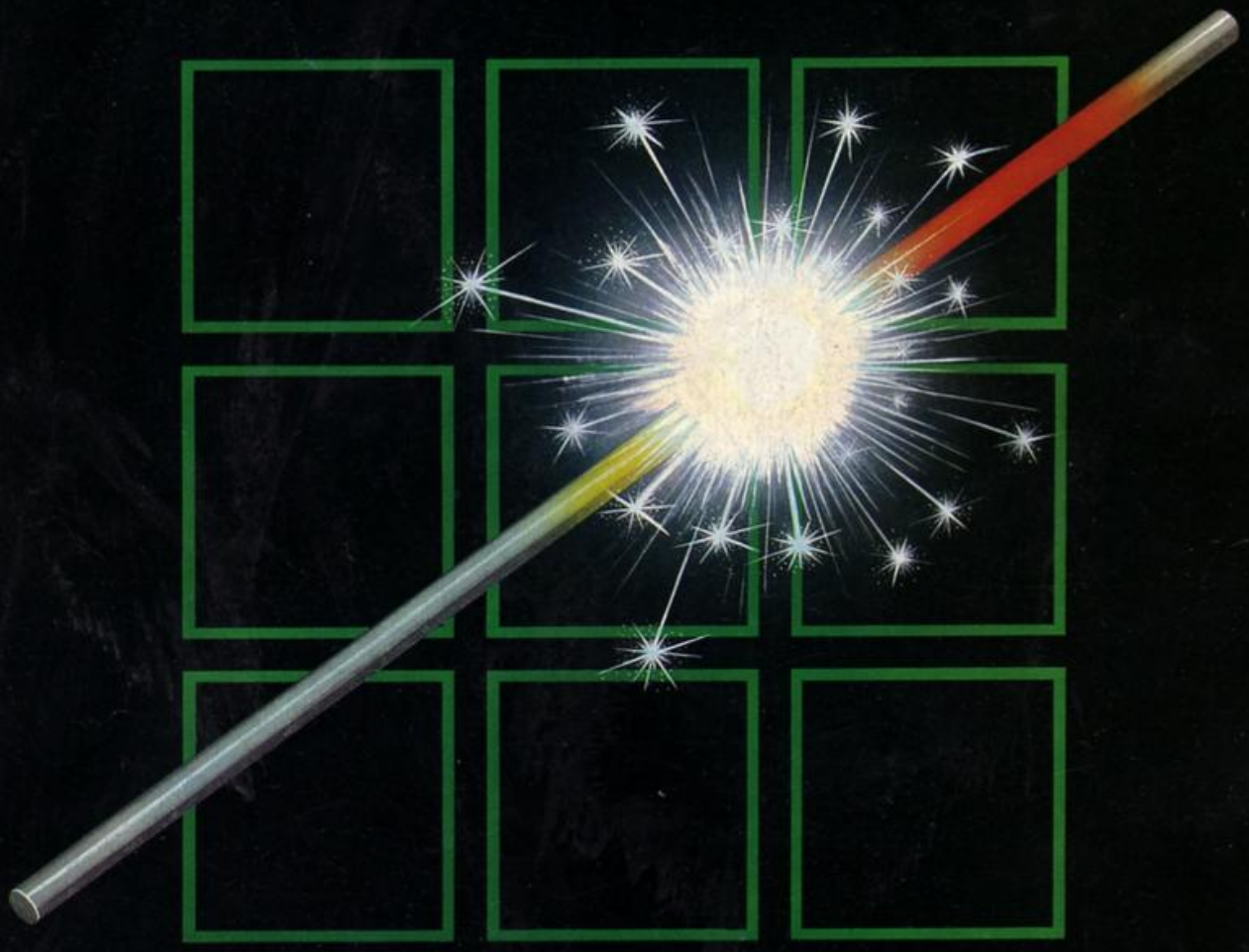
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