Home Computing WEEKLY

An Argus Specialist Publication

Start '84 with Britain's brightest micro weekly

No.44
Jan 10-16, 1984

40p

£2,000 free competition

150 Chances to win RICHARD SHEPHERD adventure games

Software reviews for: Dragon, BBC, Spectrum, Lynx, VIC- 20, Texas, Commodore 64

Great Spectrum programs to type in: Wordsquare and Address Book

Our BBC screen dump goes one better

PLUS: programs for Texas, Dragon, Commodore 64

AND: U.S. Scene, your letters, One Man's View...



W.H. Smith bars island adventure

All copies of an adventure game have been taken off the shelves by W.H. Smith following a complaint that it involves swearing.

Tapes of Espionage Island, a Spectrum game which has been on sale for 18 months, were being returned to Hull software house Artic Computing.

A spokeswoman for Smiths said: "Our attention was drawn to it by a user who wrote to us and was upset about it. We followed his instructions and discovered it.

"I understand that it was not because of swear words in the program are rejected. In this particular program the only way to

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'Monopoly': judge orders sales halt

A software company has launched an appeal to help fight a legal battle with board games giant Waddington Games.

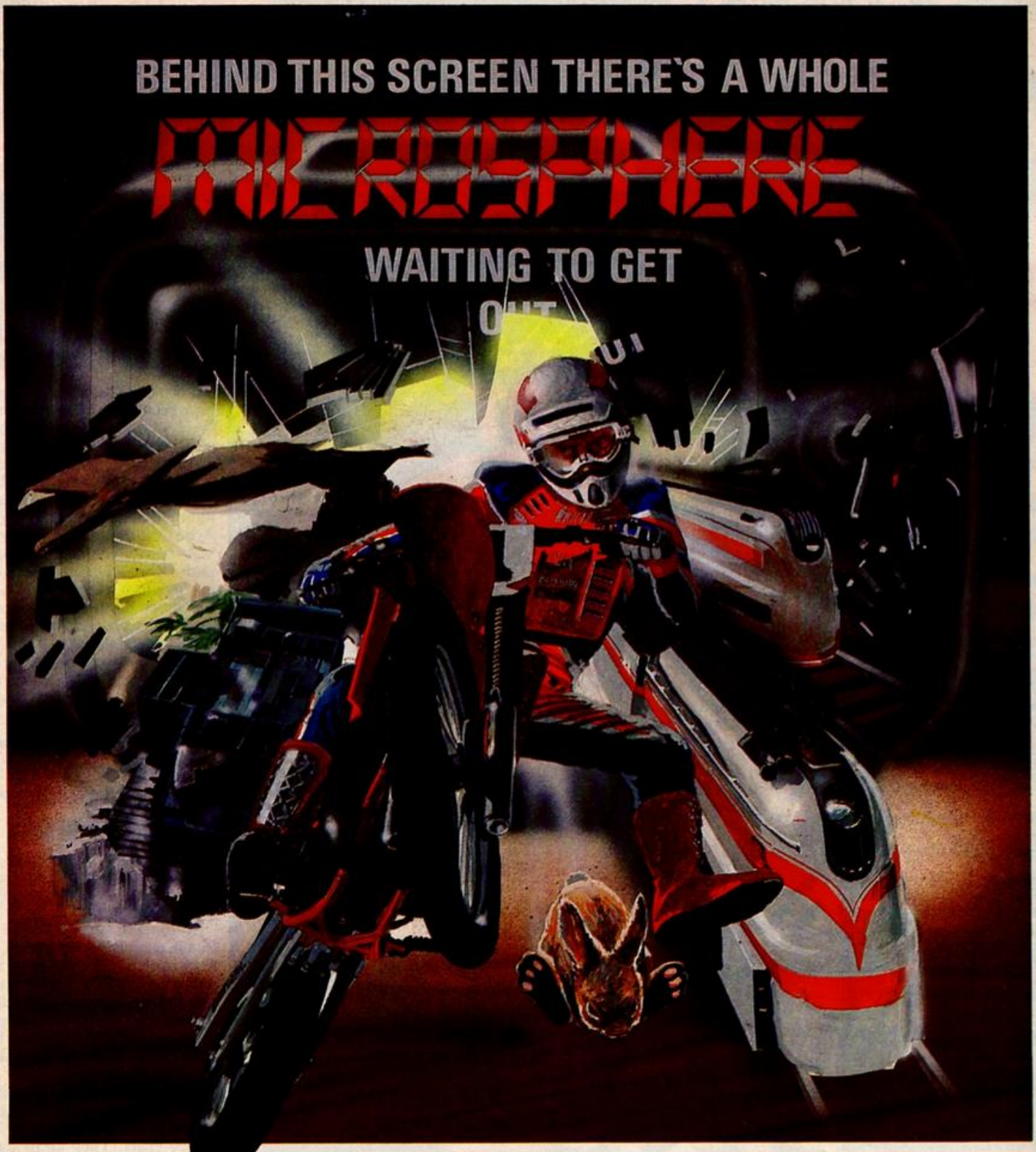
Automata, best known for the Piman character in its games, has been ordered by a judge to stop selling its Go To Jail program.

He has been told by Waddingtons that it was Automonopoly under another name, for which there was already an undertaking not to publish.

Neville Fishwick, of Waddingtons, said: "They are riding on the back of a game we have had for 50 years. They know damn

Continued on page 5





★ **WHEELIE** (48K Spectrum)
As proud owner of the ultimate racing motorbike, you find yourself in a strange world — a world full of double-decker buses to leap and where even the hedgehogs are out to get you! Your only hope of escape is to find the elusive ghostrider and then beat him in a life-or-death race.
100% machine-code action, keyboard and joystick options, demonstration-mode, and amazing graphics combine to make WHEELIE one of THE games for 1984. . . . only **£5.95**

★ **THE TRAIN GAME** (16/48K Spectrum)
The game that starts where model railways left off. Full graphics featuring passenger, goods & express trains; tunnels; stations; turntable bonus games; irate passengers; collisions derailments; and everything else you'd expect from a major railway! just **£5.95**

". . . an excellent game which is original, well thought-out and full of action" (S. User Nov 83)

"Fun, fun, fun to play . . .
(Home Computing Weekly 27/9/83)

OMNICALC (48K Spectrum)
The best Spectrum spreadsheet you can buy. Written in machine code, to be faster, to give you more space for data, and to include more features, it is guaranteed uncrashable. Complete with comprehensive manual **£9.95**

"If more programs shared the quality of OMNICALC then we might see more Spectrums in offices"
(Home Computing Weekly 3/6/83)

EVOLUTION (48K Spectrum)
Meet Tyrannosaurus Rex, Podopteryx, Brontosaurus and many more fascinating creatures on the journey from the start of life to man. See 3500 million years of evolution compressed into half an hour **£6.95**

CBM 64 and BBC owners — WHEELIE and THE TRAIN GAME will soon be ready for your micros.

Items marked * are available from selected branches of Boots

Available at good computer shops everywhere, or by mail order from MICROSPHERE, 72, Rosebery Road, London N10 2LA (Tel: 01-883 9411)

24 PAGES OF SPECTRUM BEST

Send 50p stamp to: Software Supermarket, 87 Howard's Lane, London SW15 6NU

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Briefly

Just out from Arcade is Bubble Trouble, a 48K Spectrum game in which you take the role of a burglar trying to steal some treasure. But giant bubbles are out to stop your thieving — has Arcade been watching The Prisoner? With a claimed 50 screens and three levels, it sells for £5.50. Coming soon from Arcade is an adventure game called The Zone which the company says "may take years to solve". It will certainly have full screen high-resolution images, and a large vocabulary.

Arcade, Technology House, 32 Chislehurst Road, Orpington, Kent BR6 0DG

● ● ●

The Electron and BBC B get five new programs each from Alligata. For the Electron, Bugblaster and Lunar Rescue cost £7.95, Fruit Machine is £5.95, Primary Time, an educational program is £7.95, and there's Scribe II, a word processor, for £9.95. Also at £7.95 for the BBC B are Dambusters, Eagle Empire, and educational programs Primary Time and Primary Art. Contract Bridge costs £9.95. An added bonus for buyers of Dambusters: the highest scoring player wins an all-expenses-paid trip to Möhnesee in West Germany, scene of the Dambusters raid in World War II.

Alligata, 178 West Street, Sheffield S1 4ET

● ● ●

Elkan has brought out three books for owners of Commodore micros. 34 VIC-20 Computer Programs for Home, School and Office costs £7.75. Also at £7.75 are 101 Programming Tips and Tricks for the VIC-20 and Commodore 64, and Commodore 64/VIC-20 Computer Programs for Beginners.

Elkan Electronics, 11 Bury New Road, Prestwich, Manchester M25 8JZ

● ● ●

Computing fans in the West Midlands will be glad to hear that a new Spectrum centre is opening soon in Walsall.

Bowies, 56 Bradford Street, Walsall, West Midlands WS1

BUY THIS SPACE

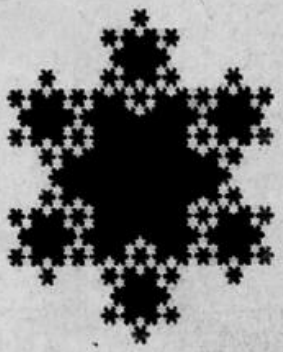
To advertise your latest products!

Ring Coleen or Barry on

01-437 1002 NOW!



Play this game on your Spectrum — just turn to page 17 and type in our listing



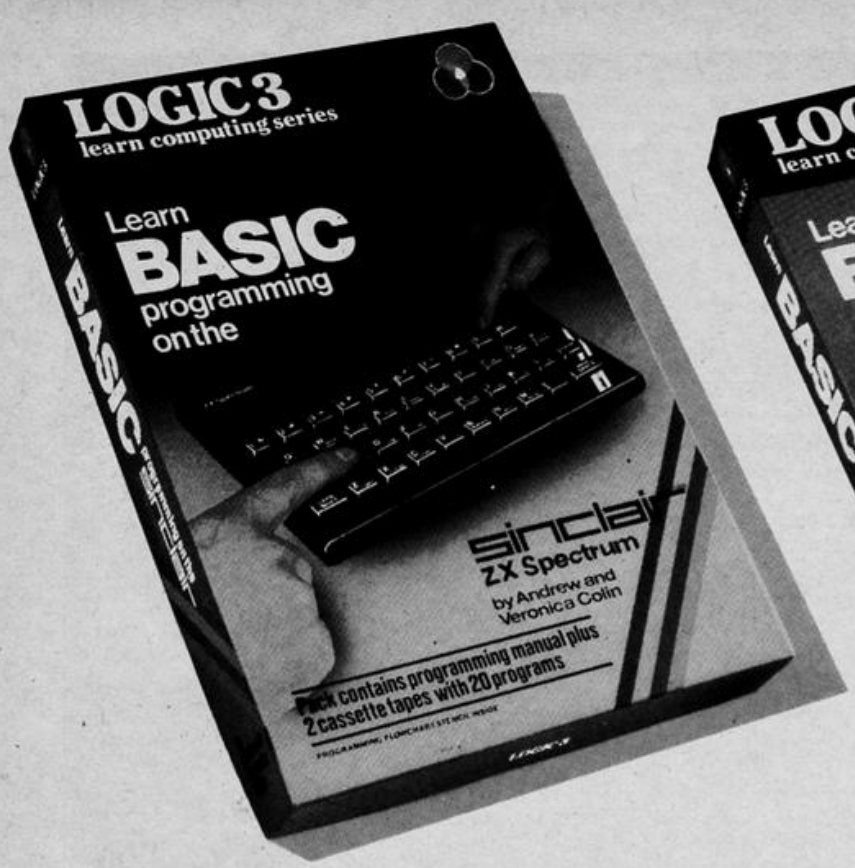
You can do this with your BBC micro and printer. The listing on page 11 copies screens in shades of grey

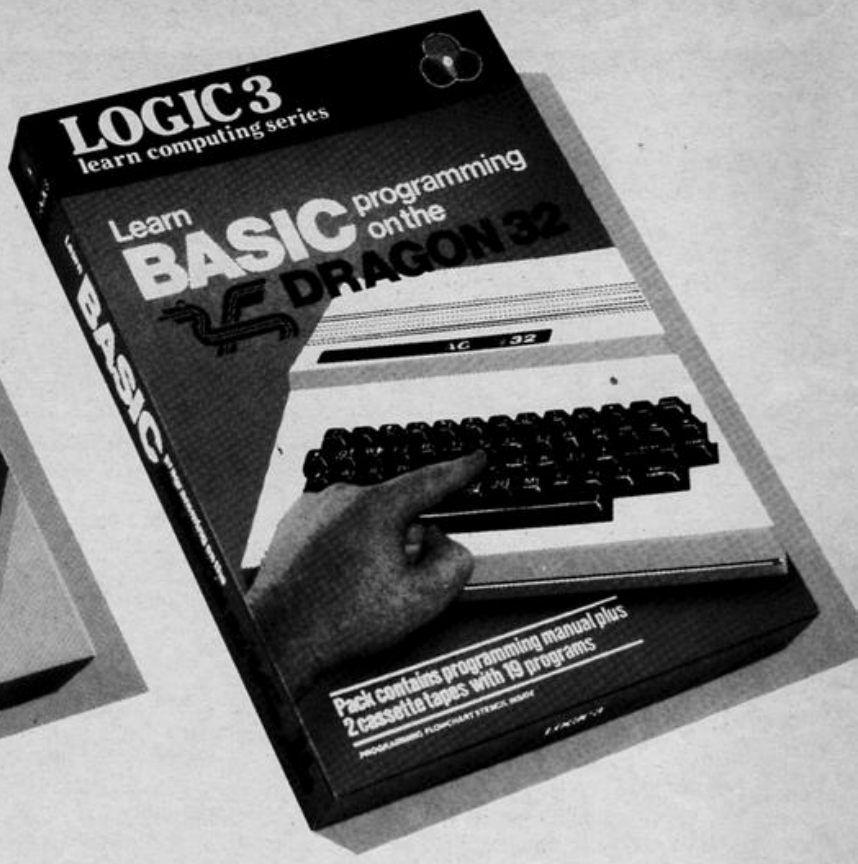


We review more software than any other magazine. In this issue our review panel star-rates 35 products. Read before you buy...



This is a useful address book... or it will be once you've typed in the Spectrum listing which starts on page 34





THERE'S NO PRESENT LIKE THE FUTURE.

THE WORLD'S FINEST PROGRAMMING TUTORIAL FOR ONLY £12.95.

Thousands who own, or would like to own home computers have yet to experience the feeling of discovery that comes when you write your own programs. Yet learning programming can be easy.

'Learn Basic' from Logic 3 is the ultimate development of the method first devised at Strathclyde University – a straightforward, easily understood tutorial written by Professor Andrew Colin and Veronica Colin, authors of Britain's best-selling tutorial package.

Using the method tested by university students and used successfully by over 200,000 home computer users, 'Learn Basic' runs on your own computer and explains everything in clear non-American English without jargon or computertalk. In a matter of hours, you will be writing programs that work.

Essentially, 'Learn Basic' and the rest of the 'Learn Computing' Series that will follow soon are designed for people who want to keep abreast of the computer age. For people who realise that understanding computers is the key to future success, at school, at work and as a parent.

Make your future, and your family's future, richer this

Get 'Learn Basic' by Logic 3 – two tapes and a full-size manual for Spectrum or Dragon (others soon) at just £12.95.

At that price, it's a gift.

Buy the Logic 3 'Learn Computing' Series at computer shops and major retail stores all over Britain. In case of difficulty, write to Logic 3 in Windsor.

TO: Logic 3 Ltd, Mountbatten House, Victoria Street, Windsor SL4 1HE.

If you would like to know more about using and programming a computer in your home, send this coupon for your free copy of our 16-page explanatory booklet "100 things you wanted to know about computers."

It will help you cut through the jungle of computer jargon, and give you news about software developments – even games. ☐

Or send for our software catalogue (tick either or both). ☐

Name _____

Address _____

_____

_____

LOGIC 3 I have already/intend to get a _____ microcomputer
(delete as inapplicable)

HC10/1

'Monopoly'

From front page

well it's not their game, it's ours."

Waddingtons, which also produces Cluedo, Totopoly, Subbuteo, Artmaster, jigsaws and playing cards, licenses Monopoly from the American company Parker Brothers.

There were plans to bring out software this year, said Mr Fishwick.

Mel Croucher, of Automata, said more than 30 software houses had given cash or pledges at the Your Computer Show in December to help cover legal costs, which could amount to £8,000.

Mr Croucher said: "I say that Go To Jail is a compact audio cassette on sale by mail order and in computer shops and if a member of the public confuses it with a large boxed game then something is wrong. It enables the Spectrum to play the game; there is an essential difference.

"If I was Waddingtons I would have brought out a computer game of Monopoly two years ago, or licensed someone to do it. There are 13 versions of a property trading game on the market at the moment."

Waddingtons has been granted the court order until a full hearing over the issue, due at the end of this month.

Mr Fishwick said: "We don't want to bludgeon people. We just want to be protected.

"Where did the fellow get the idea? Whose back is he riding on? This is what the hearing is all about. If he's so clever why doesn't he think of his own ideas?"

Magazine in £65,000 legal deal

Acornsoft is working on new code to stop copying of its software — financed by a £65,000 out of court settlement.

It was paid by the publishers of Personal Computer World which printed a listing showing how to transfer Acornsoft cassette software to disc.

Acornsoft took legal action, through its parent, Acorn Computers, which makes the BBC and Electron computers.

A High Court judge granted an injunction barring the sales of PCW's 404-page January issue and ordering all copies to be recalled. It is estimated that the printing bill alone for this issue would have been £100,000.

Just in 30 minutes before a further court hearing agreement was reached that PCW's publishers would pay £65,000 plus costs, estimated at £2,000-£5,000.

The judge approved the agreement and the injunction was lifted.

The article appeared in the magazine's news section, written by freelance journalist Guy Kewney. He and editor Jane Bird said they published the routine as a service to readers.

After the settlement Ms Bird said: "I feel sorry that, although we have not established a legal precedent, we have reached a situation where editors have to think twice before giving useful routines to their readers."

And she added: "As soon as Acornsoft develops a new locking routine someone will break it. It's what micro freaks love doing."

She stressed that she was opposed to piracy but that this routine had long been known to enthusiasts.

Shops complain over Spectrums

Retailers have complained that while they could not get enough Spectrums to meet demand Sinclair Research has been selling them over the counter at its Camberley distributors' premises.

Shop-keeper Rosemary Harris, of Look and See in Shipton, North Yorkshire, said potential customers had been ringing from as far away as 50 miles to find shops with stocks.

She said: "I think it's an absolute disgrace. Apparently at Camberley you can buy as many as you like and we've been turning away customers for three weeks.

"I would have though they would have made sure there were enough for their retailers."

A Sinclair spokesman said: "It's perfectly true. We did hold back a block of stock against mail order sales.

"Some people are prepared to drive a long way — sometimes from Wales and Scotland — and when people drive that far you can't turn them away.

"We may have been getting 30-40 a day. We are talking about the low hundreds; we are not selling them in the thousands. It's just a little customer service."

In the three months to October 1 Sinclair had sold 300,000 computers, 90 per cent of them Spectrums. He said: "It's been quite extraordinary. Everybody has underestimated — retailers and manufacturers."

Adventure bar

From front page

get past the lady is to swear at her."

But Artic's company secretary, Margaret Turner — mother of founder Richard Turner — said the action by Smiths came as a surprise to her.

She said: "We didn't know anything about it. It's perfectly harmless. It's very unfair. We have had many letters of congratulation about the program.

"At a certain point if you reply with a rude word you get a saucy response, but not with a swear word. Most people would get through the whole game without reaching this point."

In fact, she said, at this point in the program the correct response would be to give the woman a string of beads and she hands over a knife to be used later in the program.

Sir Clive's next micro

Sir Clive Sinclair's next computer will cost about £300 and use Motorola's 68000 16-bit processor.

The details come from an HCW source who is usually reliable. The new micro, said to be due for launch in late spring, is also believed to have more RAM than any other home micro now on the market and, as expected, twin Microdrives built in.

Screen resolution will be 256 by 512 with 16 attributes per pixel.

It is said that one of the UK's leading software houses is already working with a prototype.

If all the details are accurate, it means that Sinclair Research is turning its attention to the upper end of the home micro market — occupied by machines like the BBC micro and the Commodore 64.

Flight fight

There's just 25 minutes to destroy the Doomsday device in CRL's new flight simulator for the 48K Spectrum, The Omega Run. Written by Richard Brisbourne, author of Galactic Patrol, it features 3D, lasers, flak and refuelling from a tanker aircraft. The Omega Run costs £5.95 and a Commodore 64 version is promised soon.

CRL, 9 Kings Yard, Carpenters Road, London E15 2HD

You could be on our pages

We welcome programs, articles and tips from our readers.

PROGRAMS must always be sent on cassette. Listings are helpful, but not necessary. Check carefully that they are bug-free. Include details of what your program does, how it works, variables you have used and hints on conversion.

ARTICLES on using home computers should be no longer than 2,000 words. Don't worry about your writing ability — just try to keep to the style in HCW. Articles most likely to be published will help our readers made better use of their micros by giving useful ideas, possibly with programming examples. We will convert any sketched illustrations into finished artwork.

TIPS are short articles, and brief programming routines which we can put together with others. Your hints can aid other computer users.

Competitive rates are paid.

Keep a copy of your submissions and include an SAE if you want them returned. Label everything clearly and give a daytime and home phone number if you can.

Paul Liptrot, Home Computing Weekly, No.1 Golden Square, London W1R 3AB

Don't you believe it

Two of Britain's best-known software companies have joined forces in a new venture — fast food.

The details were kept secret until the dramatic announcement by Reginald Bosanquet at a formal dinner at London's Hilton Hotel.

Leading figures from the industry heard that Quicksilva and Bug-Byte had formed a new enterprise called Quick Byte.

Already, 298 outlets were set to open in the UK — with twice as many planned for the US — following recipe tests at an experimental centre in Vermont and field tests in Teeside and Yorkshire.

The event was also the occasion for an awards ceremony — and Home Computing Weekly and its editor each scooped an award.

It's no good... I can't go on...

Both the fast-food venture and the awards were well-staged spoofs.

There's not a word of truth in the Quick Byte announcement and all the "awards" were jokes.

The ideas were dreamed up by Rod Cousens, managing director of Quicksilva, and John Philips, Bug-Byte's sales manager.

All the ingredients were there, including gold-edged invitations and specially-designed menus featuring the "Quick-Byte", which turned out to be a fairly ordinary meat ball.

It appeared so genuine that the software industry was alive with rumours that, perhaps, the two companies were about to merge or reach a joint distribution agreement.

Just for laughs, here are the awards. But remember that all of them were awarded in a spirit of fun. Each of the "nominations" is given with the award winner in bold type. The first two awards sounded genuine....

Program of the Year: Jet Pac, by Ultimate Play the Game; **The Hobbit**, by Melbourne House; any flight simulator program.

Best advertising: Automata; **Imagine**; Virgin.

Services to Industry would have gone to Sir Clive Sinclair but, as he could not be present, there was a Show of the Year award: **Brainwave, Birmingham**; Mijid, Cannes; the Northern Computer Fair. Special note: the Brainwave show was, in fact, cancelled.

"Surely you can see the benefits" Salesperson of the Year: Rodney Holland, of Currah; **Beverley McNeill**, one of the divisional advertisment managers of Argus Specialist Publications, the publishers of Home Computing Weekly.

Worst Dresser: **Pete Neill and Chris Holland**, of Salamander; Paul Liptrot, of Home Computing Weekly; Tim Langdell, of Softek.

Ain't it Cute: Cuthbert, who features in Micro Deal programs; Psion's Horace; **Artic's lorry logo.**

Grubby award: Oric, for its team of "Angels" — salesgirls; Computers for All, for girls in leopard skin leotards at shows; **Home Computing Weekly**, for its front page pictures of girls.

The Most Awesome Use of the Word Awesome: **Jeff Minter, Llamasoft.**

Most Original Program: Ocean's Mr Wimpy; **all programs by Interceptor.**

Boob of the Year: Texas Instruments, New Brain and Jupiter Ace; Acme, for advertising games without saying which computer they ran on; **Softek**, for producing a 1983 calendar for 1984.

Paranoid Award: **Neil Johnson**, of software distributors Microdealer UK.

Media Buying Award: Anirog, for advertising on Channel 4; Artic, for commercials on Grampian and Yorkshire TV; **Imagine** for spending "untold millions" in regional newspapers.

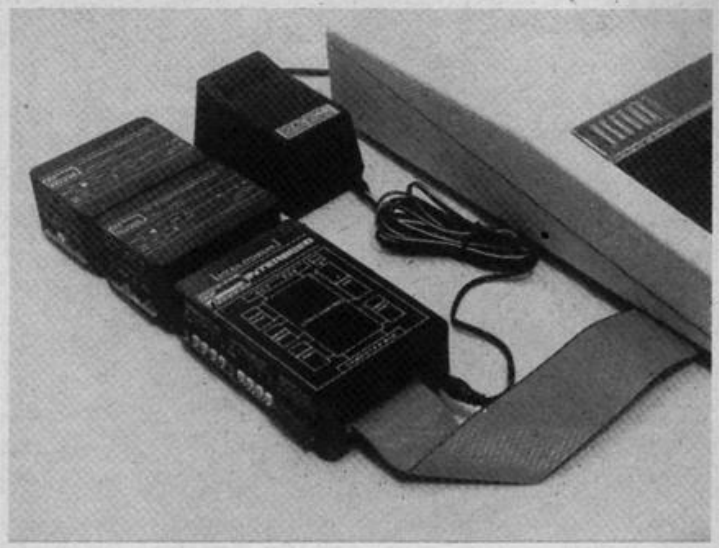
Golden Gob Award: Rodney Holland; **Paul Liptrot**; anyone from Norway.

"...Feel the Width" Award: **Nick Alexander**, managing director of Virgin Games. Mr Alexander called in to collect his award from his company's own end of year party at a London night club.

There were three awards whose titles cannot be given in a family magazine: Terry Pratt, editor of Computer and Video Games; **Jeff Raggett**, of Bunch Books, publishers of Your Spectrum and Soft. **David Kelly**, of Popular Computing Weekly. **Clement Chambers**, managing director of software house CRL.

All the awards, bar one, were "Clives", like the film industry's Oscars except that these were tiny busts of Sir Clive Sinclair. The exception was the Golden Gob which was a gold-coloured open mouth mounted on a plinth.

Paul Liptrot



All the BBC interfaces you can eat from DCP

About interface

If you want to get more out of your BBC micro, DCP has brought out a range of plug-in and plug-together units giving the electrical interfaces you need for control and monitoring applications at home, school and work.

The main Interbeeb unit, which costs £59.95, provides four relay outputs, four switch inputs, eight bit input and output ports and an eight-channel analogue to digital converter. It comes with its own power supply.

And to plug into that are analogue-digital and digital-analgoue converters for £19.95 each.

DCP, 2 Station Close, Lingwood, Norwich NR13 4AX

Ad aggro

Afdec Electronics, Oric, Dixons, Commodore and Quicksilva are just some of the companies to come under fire from the Advertising Standard Authority recently for misleading micro ads.

The ASA was reacting to complaints from members of the public, and several of the complaints concerned that old bugbear — advertising goods that aren't actually available.

Afdec found itself in hot water over the now notorious Fuller keyboard. It implied in its ad that the FDS was in stock and could be despatched within 10 days.

In fact, Afdec had had trouble in getting hold of the keyboard ever since it was first launched in March 1983. Fuller had repeatedly said that stocks would be available within 10 days to two weeks, but none had materialised.

The ASA told Afdec that it should make it quite clear in its ads if a product was not immediately available.

Quicksilva and Commodore were both criticised by the ASA for advertising goods they couldn't deliver — Quicksilva for its Trader game and Commodore for its Petspeed compiler.

A member of the public disputed four claims made in a brochure for Oric, which has been the subject of three other complaints during the past year.

The brochure claimed that the Oric recorded check sums and could save data and arrays; that 40 characters per line could be displayed; that the Oric communications modem was available and British Telecom approved; and that the Oric user manual had "over 200 pages".

The complainant said all these claims were untrue, and Oric didn't argue. It was told to mend its ways in future brochures.

It was the Oric that got Dixons into trouble, too, over ads that said that the machine was "exclusive to Dixons" and "at an amazing new low price" when it wasn't. Dixons admitted that the ads were wrong, and promised not to run them again.



New voice for the VIC

AndOr Systems of Dublin has brought out a new speech synthesiser unit for the VIC-20 and Commodore 64, called the Commtalk.

Like the Adman speech synthesiser for the VIC, the Commtalk can be programmed using speech units called allophones, which can be built up to give it an unlimited vocabulary — in theory, at least.

Unlike the Adman, it leaves your cartridge slot free by plugging into the expansion socket. Sound is channelled through the TV's speaker.

At £39, it's also cheaper than the Adman. It comes with a program cassette, manual and six month guarantee. A Pet version is also available.

AndOr Systems, 28 Hillside Drive, Rathfarnham, Dublin 14, Ireland

£2,000-worth of RICHARD SHEPHERD adventure games must be won

150 chances to win

Just find the missing link words and you could be among the 150 winners of great Richard Shepherd adventures.

We've got £2,000-worth to give away for the Spectrum, Dragon 32 and Commodore 64.

They are the top sellers Transylvanian Tower, Super Spy, Everest Ascent and Ship of the Line.

Fifty winners will each receive two tapes and 100 winners will get one cassette.

All are available for the Spectrum.

Transylvanian Tower and Super Spy are also in versions for the Dragon 32 and Everest Ascent and Ship of the Line are available for the Commodore 64.

How to enter

There are 15 words or pairs of words missing from the following story. Using the clues in the artwork, write the 15 words on a sheet of plain paper in the order in which they appear.

Attach the sheet to the fully completed coupon and enclose it in an envelope.

Important: write on the back of the envelope the number of answers beginning with the letter S.

Post your entry to Richard Shepherd competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB.

Entries close at first post on Friday, January 27.

The winners of two tapes each will be the first 50 correct entries opened and the winners of one tape each will be the next 100 correct entries opened.

Do not forget to name your choices of two adventures — along with the computer you own. Winners of single tapes will get the one they named first.

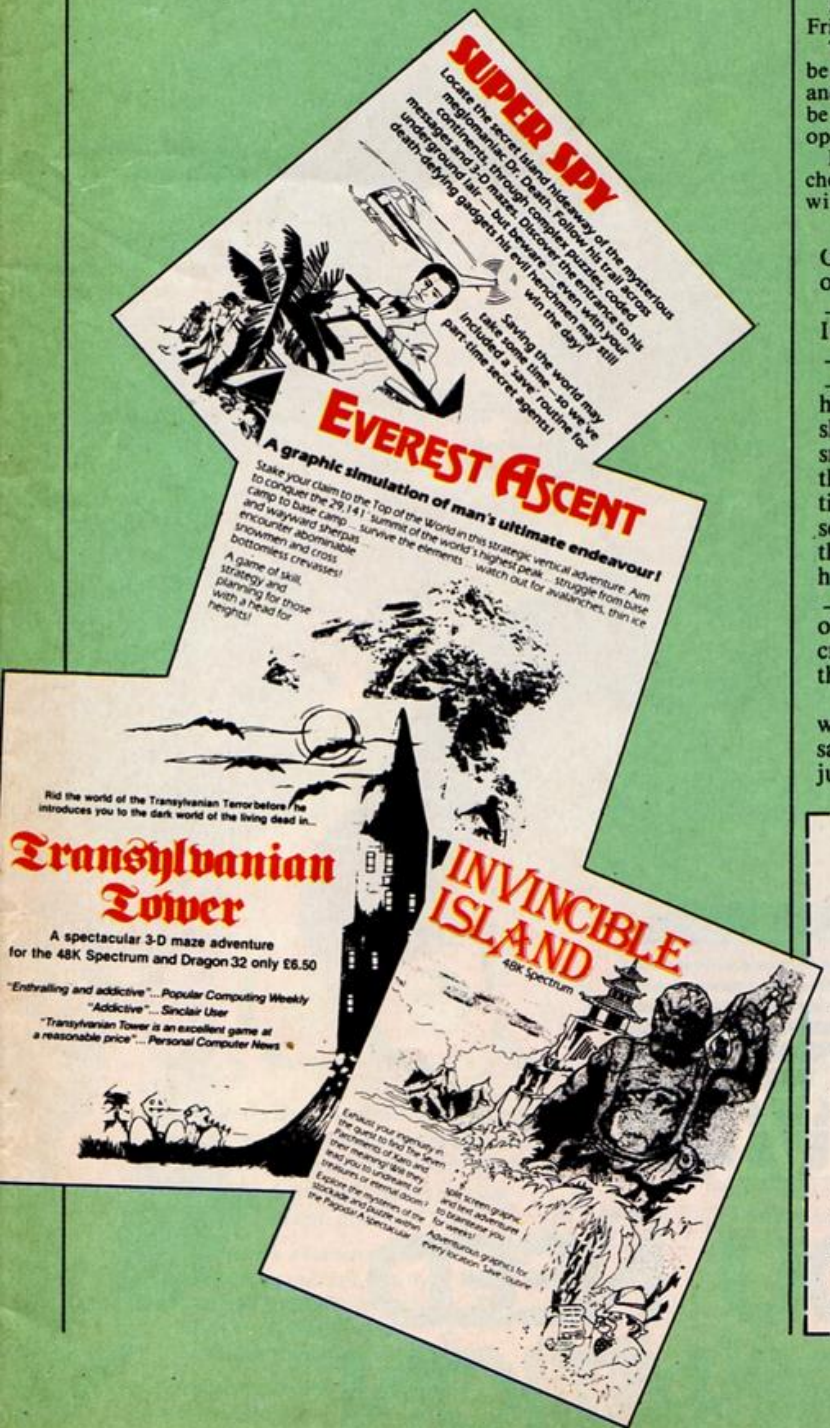
Copies of the coupon will not be accepted. The solution and the names of the winners will appear in the news columns of Home Computing Weekly and the prizes will arrive from Richard Shepherd Software within 28 days of the publication of that issue.

Coupons, envelopes and sheets of paper which are not fully completed will be discarded.

The rules

The first 50 and the next 100 correct entries drawn at noon on Friday, January 27, 1984 will win the prizes. Coupons, envelopes and paper which are not fully completed will not be considered.

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



Our Hero, Super Spy is summoned on the hotline to track down his old adversary _ _ _ _ _ _. He boards the waiting _ _ _ _ _ _ _ _ _ _ and heads for the mysterious Invincible Island. His only clues are on the _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ of Xaro which leads him to the _ _ _ _ _ _ _ _ near the _ _ _ _ _ _. Our hero sneaks up on his adversary ready to pounce ....Crash! Boom! the ground shakes as the _ _ _ _ _ _ _ _ _ _ _ _ _ _ and sends a cloud of smoke into the air. Dr Death senses the danger and escapes down the secret path. Two months later our hero is still on the trail. This time on the hazardous slopes of Mt _ _ _ _ _ _ _. Dr Death has set up a _ _ _ _ _ _ _ _ to continue his evil work protected by the infamous _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _. Super Spy has to _ _ _ _ _ _ _ up the mountain with his team of _ _ _ _ _ _ _ and is in striking distance when he steps on a patch of _ _ _ _ _ _ _ and falls down a _ _ _ _ _ _ _ _ _ _ crevasse. He awakes from his fall in the _ _ _ _ _ _ _ _ _ _ of the _ _ _ _ _ _ _ _ _ _ _ at the base of Transylvanian Tower.

He feels a prodding in his back and as he turns over he fears the worst.... "Come on John it's eight o'clock and you'll be late", says his mother. It seems our hero has overslept and our story has just been an "Adventure into Imagination".

Richard Shepherd competition

Entry Coupon

Name _____

Address _____

_____

_____

_____ post code _____

Prizes I would like (and the computer they run on):

1 _____

2 _____

Write the 15 words on a sheet of paper in the order in which they appear and attach it to this coupon. Post to Richard Shepherd competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Closing date: Friday January 27. Do not forget to write on the back of the envelope the number of answers beginning with the letter S


H·U·P·G
HIGH LEVEL USER FRIENDLY
REAL TIME GAMES DESIGNER
M
ALL YOU NEED
IS IMAGINATION

N·O·W...

THE GAMES YOU IMAGINE CAN BE THE GAMES YOU PLAY

DESIGN YOUR OWN COMPUTER GAMES IN MINUTES

Introducing the incredible H.U.R.G. — The ultimate game program for people who want to really play games. With H.U.R.G. the hardest thing you will have to do is to think of a game title, and design the characters.

HIGH LEVEL — requires no programming skills — simply design the shapes you want, and H.U.R.G. will animate them into the most amazing on-screen action you've ever seen. Choose any setting for your game, from mazes to outer space or sinister caverns — the only limit is your imagination.

USER FRIENDLY — H.U.R.G. will lead you through a series of easy to follow procedures, ending in the creation of a game that is as wild as your imagination!

REAL TIME — You can see exactly what you're creating at all times. Every game has hundreds of variations, and you can change its features at any time. You can speed up the action, change the size of the characters and even make them more vicious — it's all up to you; and you can see it all on-screen immediately.

GAMES DESIGNER — H.U.R.G. enables you to design and store the games you create on cassette and play them later using H.U.R.G. as the control program. It's the one program you will never tire of.

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Melbourne House

A change of scene

New ideas department: our review panel rates a crop of original action games

Sir Slurp-A-Lot TI-99/4A £4.95

Christine Computing, 6 Florence Close, Watford, Herts

As the title of Sir Slurp-a-lot suggests, there's a distinctly boozy theme to this game.

The screen displays a pub, set out as a simple maze of bars along which appear glasses in four different colours. As the contents of each glass are consumed points are scored, the number depending on its colour.

Before starting you select the time limit, from 45 seconds to three minutes, for which you are prepared to race Sir Slurp-a-lot through the maze, imbibing the various drinks as he goes.

His movements may be controlled by either the arrow keys or a joystick.

His carefree revelling, however, is periodically interrupted by the resident poultergeist who wanders invisibly through the maze drinking and smashing glasses.

He exerts a sobering influence on Sir Slurp-a-lot who becomes transfixed until the poultergeist has finished his wanderings.

Should your man crash into one of the broken glasses or bump into a wall the game ends before time and the highest score is given. There is also a comment on your performance — or is it more your level of intoxication? **J.W.**

instructions	95%
playability	60%
graphics	60%
value for money	70%

★ ★ ★ ★

Outback VIC-20 £5.50

Paramount Software, 67 Bishopton Lane, Stockton, Clevedon

This is not just a rehash of a popular arcade game; it's something original!

Marauding swagmen are after stealing the baby kangaroos in 'Hoppy Valley' somewhere in the Australian outback. You must shoot them as they drift down on helium balloons, throwing boomerangs as they attack.

Every one that lands loses you a baby roo.

You score for every swagman's balloon popped and for the number of roos left after each wave of swagmen.

Subsequent waves get quicker and more boomerang-happy, of course. But even the addition of a randomly appearing bonus object which you pop up to the top of the screen to collect doesn't add much to a rather run-of-the-mill game.

The graphics are fair, within the limitation of the VIC's capabilities. Use of colour and sound is good, and the accompanying instructions give all the necessary information.

It is limited to joystick users only; there are no equivalent keyboard controls.

However, it is not limited to an unexpanded VIC and will load happily into a machine with any expansion — why don't more programmers do that? **B.J.**

instructions	90%
playability	60%
graphics	70%
value for money	80%

★ ★ ★ ★

Ugh! Dragon 32 £7.95

Softek, 12/13 Henrietta St, Covent Garden, London

This is an original and highly stimulating game with an excellent story line too.

You are Ugh! a caveman who decides to lay up some store for the winter by stealing some Pterodactyl eggs.

All goes well until Pterry himself sees you and starts to drop rocks on you from a great height.

As if this wasn't enough he calls in his mate Rex (yes, a large carnivorous dinosaur) who takes chase also.

Thus the scene is set for the epic battle of strategy and skill with only a flint spear to defend yourself.

The screen appearance is very pleasant and well detailed, including several dinosaur skeletons and the paths you may follow clearly shown.

The response is fast and accurate on both key and joystick, though I prefer the stick.

If you manage to clear a sheet then another is drawn with even more contorted paths than the last one and the battle continues. This means the game has good variety and added interest.

The only point I would make is that the sound is a little crude. **D.C.**

instructions	80%
playability	90%
graphics	100%
value for money	95%

★ ★ ★ ★ ★

Dare Devil Denis 32K BBC £5.95

Visions, 1 Fellgate Mews, Studland Street, London W6

This program has awakened some hidden desire of which even I was not aware. I obviously yearn for the lights, the cameras and the action, not to mention the bruises of a Stunt Man.

That is what you are in this game — a poor overworked stuntman with only three takes between him and the dole queue.

In those takes Denis (your stage name) has to jump houses on this motorbike, whales on his water scooter and even snowmen on his skis.

The graphics are great and gave me many giggles at first. Look out for the spider too.

Since then the giggles have worn off as I try to earn more and more (Denis gets paid by the stunt) before I get fired each day. Every successful take is followed by a change of location before the cameras are ready to roll again.

There are many levels of difficulty too, all amusingly names — Oscar Nominee, Oscar Winner and Ace, to name but a few.

The worst part of this program is the instructions, which don't give enough advice to the beginner. For example they don't even mention parachuting, a great idea I've found. **D.C.**

instructions	40%
playability	100%
graphics	95%
value for money	100%

★ ★ ★ ★ ★

Apple Jam 48K Spectrum £5.95

dk'tronics, Unit 6, Shire Hall Industrial Estate, Saffron Waldon

Apple Jam is set in a jam factory infested with rats.

The display shows an overhead conveyor along which large helpings of apples come at irregular intervals.

The aim is to move a man to catch and swallow these as they fall off the end of the conveyor, else they fall through into the cellar where the rats get them.

With every mouthful the man, or the rats, get bigger.

The man has two hazards. Overeating can damage his health, but he can nip into a thoughtfully provided sauna to shed some pounds.

The second danger is the rats which come up to his level and will kill him if they can. He can escape them by hiding in a lift until they have gone by.

The applies keep dropping meanwhile, however, so the rats go on growing.

If he dies, an ambulance removes him — a delightful scene the first time or two, but very tedious when often repeated since is greatly slows up the real action.

The instructions on screen are simple but adequate. I liked the option to re-allocate the control keys to suit your taste or joystick. **H.C.**

instructions	70%
playability	60%
graphics	50%
value for money	50%

★ ★ ★

Get it down in black and white — and grey

This isn't just any old screen dump program. It'll make your printer copy the display in shades of grey, as its author Russel Calbert explains

This screen dump program for the BBC micro plus NEC-8023 printer goes one better than the usual black-and-white screen dump — it dumps the screen in four shades. These are black, dark grey, light grey and white.

The program does this by looking at each pixel on the screen in turn, and deciding what the logical colour is (not the displayed colour, so beware those who hide pictures using VDU 19).

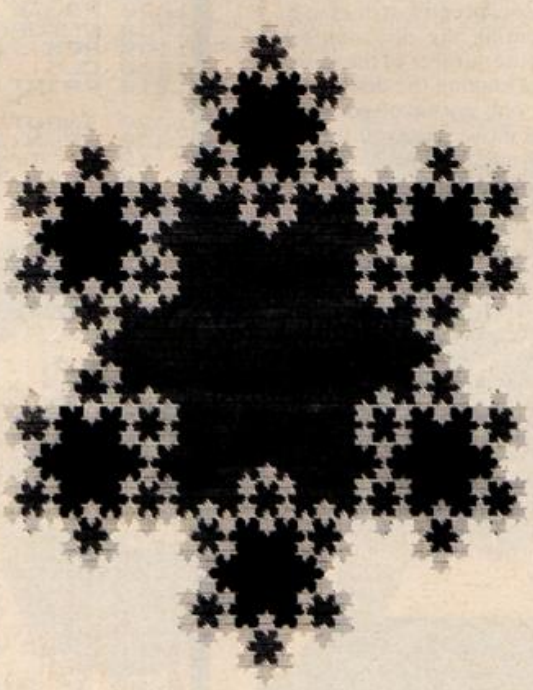
Main variables

- **Y%** line of screen being output
- **y%** pixel of Y% being output
- **X%** horizontal position of byte being output
- **b%** first byte of pixel
- **b1%** second byte of pixel

To get the different shades, the printer head has to move twice across the paper. This, plus the fact that each point has to be calculated, means that a MODE 1 screen dump can take upward of 10 minutes.

Re-writing the program in machine code will speed it up, but I wrote it in BASIC so that it could be easily converted for other printers.

An example of the screen dump program's output



How it works

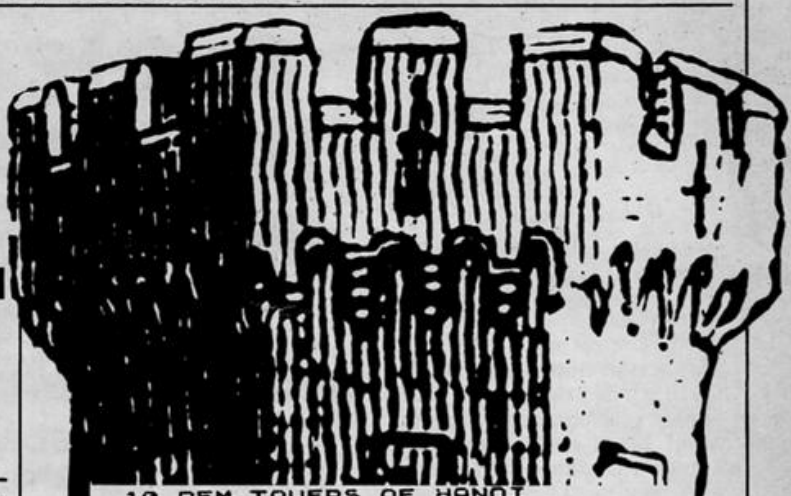
- **10010** move graphic origin to bottom left corner, enable text to be printed anywhere
- **10020** move graphic cursor off screen so anything printed doesn't affect picture
- **10038** enable printer and set print size
- **10080** sets line spacing on printer to 16/144 inch so no spaces between lines
- **10090** step down the screen 32 times
- **10100** move graphic cursor off screen
- **10110** select dot-image graphic mode on printer, and tell it to receive 640 bytes of information (ie one line of graphics)
- **10180** step through horizontal resolution
- **10240-10290** reads half of the line and outputs all four pixels to printer. **Note:** by changing the numbers in lines 10270-10273 you can change what shade is output for the colour of the pixel
- **10310** outputs CR + LF to printer at end of each horizontal line
- **10330** resets printer line spacing to 1/6 inch and disables printer

```
  20 MODE1
  30 VDU5
  40 VDU19,1,4;0;19,2,6;0;
  50 CS=COS(PI/6)
  60 PROCSTAR(640,512,500,2)
  70 PROCdump
  80 REPEAT
  90   VDU19,RND(3),RND(8)-1;0;
 100   A=INKEY(100)
 110   UNTIL FALSE
 120 DEFPROCSTAR(X%,Y%,S%,C%)
 130   LOCAL I
 140 IF S%<12 THEN ENDPROC
 150 IFC%=0 THEN GCOL0,2 ELSE GCOL0,C%
 160 VDU29,X%;Y%;
 170 XL%=S%*CS:YL%=S%/2
 180 MOVE0,S%:MOVEXL%,-YL%:PLOT85,-XL%,-YL%
 190 MOVE0,-S%:MOVEXL%,YL%:PLOT85,-XL%,YL%
 200 FORI=0 TO 2*PI-PI/3 STEP PI/3
 210     PROCSTAR(X%+S%*SIN(I)*0.68,Y%+S%*COS(I)*0.68,S%/3,(C%+1)AND3)
 220   NEXT
 230 ENDPROC
10000  DEFPROCdump
10010  VDU29,0;0;5
10020  MOVE0,2000
10030  VDU2,1,27,1,78
10040  REM CHANGE ABOVE LINE FOR PRINT
10050  REM SIZE
10060  REM USUALLY PICA OR CONDENSED
10070   REM                  ENLARGED
10080  VDU1,27,1,84:PRINT"16"
```

```
10090  FORY%=1023 TO 0 STEP -16
10100    MOVE0,2000
10110    VDU1,27,1,83:PRINT"0640";
10120    REM THE NUMBER INSIDE THE QUOTES
10130    REM IS THE HORIZONTAL RESOLUTION
10140    REM CHANGE IT TO
10150    REM                640 FOR MODE 1
10160    REM                320 FOR MODE 5
10170    FORX%=0 TO 1279 STEP 4
10180      REM CHANGE STEP FOR DIFFERENT
10190      REM MODES
10200      REM STEP 4 MODE 1
10220      REM STEP 8 MODE 5
10230      b%=0:b1%=0
10240      FORY%=12 TO 0 STEP -4
10250        b%=b%*4:b1%=b1%*4
10260        IF POINT(X%,Y%-Y%)=0 THEN b%=b%:b1%=b1%
10270        IF POINT(X%,Y%-Y%)=1 THEN b%=b%+2:b1%=b1%+2
10271        IF POINT(X%,Y%-Y%)=2 THEN b%=b%+1:b1%=b1%+3
10272        IF POINT(X%,Y%-Y%)=3 THEN b%=b%+3:b1%=b1%+3
10273        NEXT
10280      VDU1,b%,1,b1%
10290      NEXT
10300    VDU1,10
10310    NEXT
10320  VDU1,27,1,65,3
10330  ENDPROC
10340
```

The Towers of Hanoi revisited

Here's how Don Thomasson solved a fascinating old puzzle on his Spectrum. Try it for yourself and see



The Towers of Hanoi is an old problem involving a number of discs of different sizes which may be arranged in three piles.

No disc may be put on top of a disc smaller than itself. The problem is to start with all the discs on pile one and transfer them to pile three.

Academic analysis of the problem has suggested a need for a recursive process, a subroutine which calls itself, for example. Empirical methods have been proposed, but they are difficult to explain or justify logically. The target here is to avoid these extremes.

The program was adapted from a Forth version, so it has a clear modular structure. The main subroutine dimensions arrays, and then calls three subroutines. Subroutine 1000 puts up the title display, 1200 initialises the system, and 2000 moves the discs.

Two arrays are used. A(12,3) is used as a 'stack' to hold data defining pre-calculated moves. A(SP,1) holds the number of the disc to be moved, A(SP,2) holds the number of the pile from which it is to be taken, and A(SP,3) holds the number of the destination pile. The array P(3) holds the number of discs on each pile.

Subroutine 1200 asks how many discs are required, and sets up the system accordingly. Up to 12 discs can be handled, but it should be noted that every extra disc doubles the time taken to perform the moves. All 12 will give you something interesting to look at for about 40 minutes.

The 'stack pointer' SP is set to 1, the base line is drawn in, then subroutine 1400 draws the discs on pile 1, using subroutine 1600 to draw each disc. This subroutine is also called by subroutine 3000 to rub discs out and draw them in a fresh place, so it works in OVER mode.

Suppose the initial stack entry is 4, 1, 3, meaning that four discs are to be moved from pile 1 to pile 3. Before this disc can be moved, the first three discs must be on pile 2, so the move 3, 1, 2 is needed. To allow that, the first two discs must be on pile 3. To allow that, the first disc must be on pile 2.

These moves are worked out by subroutine 2200, which creates new 'stack' entries from the previous stack entry. It does so by decrementing the disc number, copying the number of the source pile, and making the destination pile the one not involved in the previous move. Since all the pile numbers add up to 6, the destination pile can be found by subtracting the pile numbers in the previous entry from 6.

The first two moves are straightforward. Disc 1 goes on pile 2 and disc 2 goes on pile 3. We now need to move disc 1 to pile 3.

As the previous move did not involve disc 1, subroutine 2400 is called. This looks at the last move, decrements the disc number, leaves the destination pile unaltered, and makes the source pile the one not moved last time. Note that this modifies a set of stack entries, rather than adding an entry.



As the new move involves disc 1, we carry it out, and then move disc 3 to pile 2. Subroutine 2200 then works out the moves needed to put the first two discs on to disc 3. And so on.

Most of the time taken to move the discs is taken up by the drawing and erasing function. If you want faster action, you might try another way of doing this, perhaps by using block graphics, though that would probably limit the number of discs.

Even so, the discs move around fairly quickly, and if you want to see what is happening more clearly, you may like to put in a delay at the end of subroutine 1600.

```
  10 REM TOWERS OF HANOI
  20 DIM A(12,3): DIM P(3)
  30 GO SUB 1000
  40 GO SUB 1200
  50 GO SUB 2000
  60 PAUSE 200
  70 GO TO 40
 999 REM .................TITLE
1000 CLS
1010 PRINT AT 10,6;"THE TOWERS O
F HANOI"
1020 PAUSE 200
1030 RETURN
1199 REM ............INITIALISE
1200 CLS
1210 PRINT AT 10,7;"How many dis
cs ?"
1220 INPUT N
1230 IF N<2 OR N>12 THEN PRINT A
T 12,6;"Try again, please": PAUS
E 200: GO TO 1200
1240 LET P(1)=N: LET P(2)=0: LET
 P(3)=0
1250 LET A(1,1)=N: LET A(1,2)=1:
 LET A(1,3)=3
1260 LET SP=1: INK 1: CLS
1270 PRINT AT 20,0;"[redacted]
[redacted]"
1280 GO SUB 1400: PAUSE 200: RET
URN
1399 REM ............DRAW DISCS
1400 FOR X=1 TO N
1410 LET Y=N-X+1
1420 LET XPOS=43
1430 LET YPOS=(X+1)*8
1440 LET DSIZE=3*Y
1450 GO SUB 1600
1460 NEXT X
1470 RETURN
1599 REM ...........DEFINE DISC
1600 OVER 1: INK 2
1610 FOR Z=1 TO 6
1620 PLOT XPOS-DSIZE,YPOS+Z
1630 DRAW 2*DSIZE,0
1640 NEXT Z
1650 OVER 0: RETURN
1999 REM ...........MOVE DISCS
2000 IF A(SP,1)>1 THEN GO SUB 22
00: GO TO 2000
2010 GO SUB 3000
2020 IF A(SP,1)>1 THEN GO SUB 24
00: GO TO 2000
2030 LET SP=SP-1
2040 IF P(1)+P(2)=0 THEN INK 0:
RETURN
2050 GO TO 2010
2199 REM ..........CREATE MOVES
2200 LET A(SP+1,1)=A(SP,1)-1
2210 LET A(SP+1,2)=A(SP,2)
2220 LET A(SP+1,3)=6-A(SP,2)-A(S
P,3)
2230 LET SP=SP+1
2240 RETURN
2399 REM ...........MODIFY MOVE
2400 LET A(SP,2)=6-A(SP,2)-A(SP,
3)
2410 LET A(SP,1)=A(SP,1)-1
2420 RETURN
2999 REM ...ERASE DISC,DRAW DISC
3000 LET DSIZE=A(SP,1)*3
3010 LET YPOS=(P(A(SP,2))+1)*8
3020 LET XPOS=A(SP,2)*88-45
3030 GO SUB 1600
3040 LET P(A(SP,2))=P(A(SP,2))-1
3050 LET P(A(SP,3))=P(A(SP,3))+1
3060 LET YPOS=(P(A(SP,3))+1)*8
3070 LET XPOS=A(SP,3)*88-45
3080 GO SUB 1600
3090 RETURN
```

Make magic circles on your micro

The lack of a CIRCLE command is no barrier to drawing circles, ellipses or other shapes on your BBC, as Geoff Turner explains

Unlike most other popular home computers, the BBC micro does not have a CIRCLE command in its BASIC interpreter. However, with a little knowledge of trigonometry, it's very easy to produce circles, ellipses or even polygons, in a variety of plotting styles.

My first program shows the basic method used to produce a circle.

The program requests inputs for the radius and the number of sides for the shape. It then calculates an X,Y co-ordinate for each point around the circumference of the circle using SIN and COS functions.

Because computers work in radians, line 80 is used to convert degrees to radians.

Experiment with Program One using different values for radius and step. Note that a lower step value produces a more accurate circle, while a higher step value produces a less accurate circle but at a much faster speed.

This program uses a plot 69 function to plot individual dots around the circle. However, a draw function could be used to produce a continuous circumference.

Having mastered the basic technique, you can then enhance Program One to produce a variety of different shapes. Using a value of 120 for the step would produce a three-sided shape or triangle, or a value of 72 would produce a pentagon.

Instead of using a fixed radius, we can use a height and width to produce elliptical shapes.

And using some of the many plotting functions available on the Beeb will produce a variety of different effects. Plot 85 can be used to produce filled in circles, for example.

My second program uses several random values to produce an ever-changing pattern of different coloured shapes, all based on the method used in Program One.

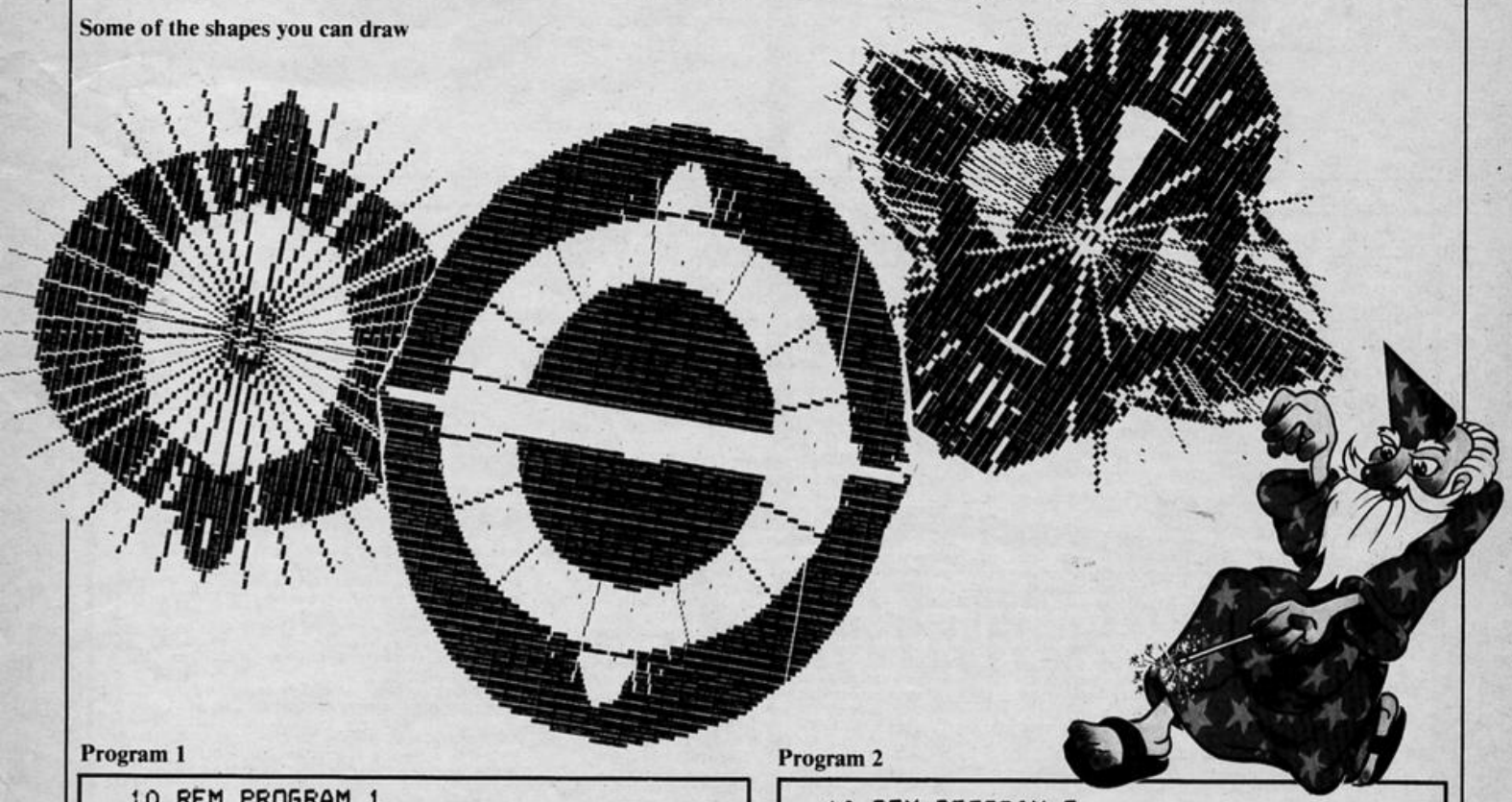
Note that initially the X,Y co-ordinates are calculated and stored in an array. This speeds up the program considerably as there's no need to calculate the values for every shape plotted.

The program produces an impressive demonstration of the Beeb's excellent graphics facilities.

Program 2 — main variables

X(D),Y(D) X and Y co-ordinates for each degree
A,B centre of screen position
P plot function
H height of shape
W width of shapes
S number of sides

Some of the shapes you can draw



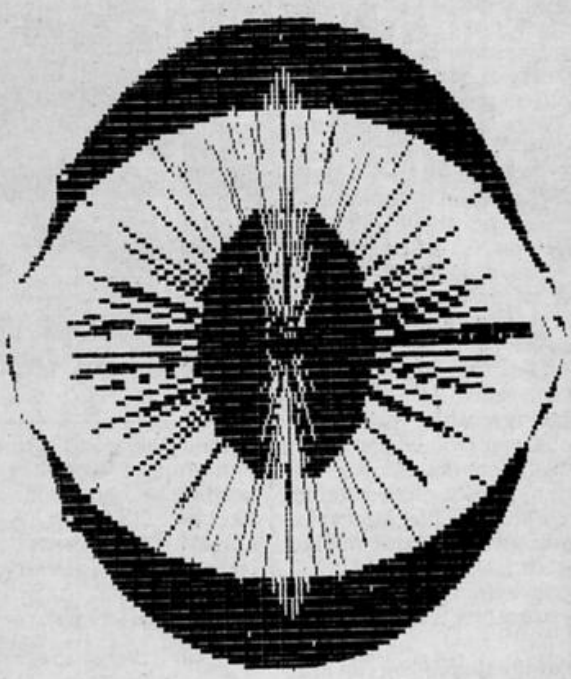
Program 1

```
 10 REM PROGRAM 1
 20 REM CIRCLES
 30 CLS
 40 INPUT "RADIUS 100 TO 500 ",radius
 50 INPUT "STEP FACTOR",step
 60 MODE 2
 70 FOR D=0 TO 360 STEP step
 80 R=RAD(D)
 90 X=radius*SIN(R)
100 Y=radius*COS(R)
110 PLOT 69,X+600,Y+500
120 NEXT
```

Program 2

```
 10 REM PROGRAM 2
 20 REM RANDOM PATTERNS
 30 REM ******************************
 40 REM CALCULATE XY CO-ORDINATES
 50 DIM X(361),Y(361)
 60 FOR D=0 TO 360
 70 R=RAD(D)
 80 X(D)=SIN(R)
 90 Y(D)=COS(R)
100 NEXT
110 REM ******************************
120 REM DRAW RANDOM PATTERNS
```

```
130 MODE2
140 A=600:B=500
150 MOVE A,B
160 REPEAT
170 GCOL RND(5)-1,RND(15)
180 MOVE A,B
190 P=RND(3)
200 IF P=1 THEN P=85
210 IF P=2 THEN P=5
220 IF P=3 THEN P=69
230 H=RND(500)
240 W=RND(500)
250 S=RND(36)
260 FOR D=0 TO 360 STEP INT(360/S)
270 PLOT P, H*X(D)+600,W*Y(D)+500
280 MOVE A,B
290 NEXT
300 UNTIL FALSE
```



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Brain-twisting bytes

Our reviewers pitted their wits against a selection of programs for the thinking micro user

Assembler Math TI-99/4A £8

Kuhl Software, from Stainless Software, 10 Alstone Road, Stockport

This rather extensive program attempts the questionably-useful task of engaging the would-be Assembly language programmer in exercises involving conversion between numbering systems — specifically binary, decimal, and hexadecimal — and also binary addition and subtraction.

However, although the documentation is good, it does rather tend to assume a little more knowledge on the part of the user than might normally be the case.

Ones and Twos Complement receive little attention, and the overall presentation on-screen did leave a lot to be desired at times.

It is probably that all of the exercises could have been performed equally easily using pencil and paper; the program doesn't do that much to warrant its high price tag.

A demonstration program with no explanation is given as well as the main program, which may go a little way to reducing some of the inevitable confusion.

As it has been written in TI BASIC it is possible to scan the program lines — peculiarly numbered in increments of three — and there are some classic examples of inefficient use of the facilities available. **P.B.**

instructions	75%
ease of use	85%
display	80%
value for money	10%

★ ★

Copy Cat TI-99/4A £3.99

Dromeda Software, 56 Wells Street, Haslingden, Rossendale, Lancs

Copy Cat is a Simon type game for up to four players. There are two parts — the Reflex Repeater and Sequence Memory game.

The screen displays the faces of four differently coloured cats, each is numbered from one to four. For each cat a change in colour appears to make its face "light up" and a tone sounded. You have the option of playing with both sound and colour, or sound or colour alone.

In Reflex Repeater, the correct number of the cat making the sound and/or changing colour must be input as rapidly as possible. The time in which to do this is related to the skill level chosen.

For each successful response, points are scored.

For the Sequence Memory game the same choices apply, but this time you must remember the sequence in which the cats are activated. A correct reply gains points and the sequence lengthened until you eventually get it wrong.

I failed to feel enthusiastic about this computer version and find it hard to believe that the youngsters for whom it is intended would either. **J.W.**

instructions	70%
playability	40%
graphics	50%
value for money	50%

★ ★ ★

Searchword Dragon 32 £5.95

Temptation Software, 58/59 Poland Street, London

Word puzzles seem to have generated a lot of spin-offs. Magazines have sprouted giving you options to go blind, cross-eyed and red in the face by concealing words in a block of letters. Now you have the chance to do the same thing on screen.

The most attractive aspect of this cassette is the packaging, which unfortunately is far better than the contents.

The menu seems comprehensive enough, giving you the chance to save and load games, print instructions more fully and erase the letter grid.

One of the options offers a printout of the letter grid and list of words on to a line printer, but it only produced the list of words on mine!

Once you have given your words, the computer sorts out a letter grid of 30 columns by 12 rows. You begin your search and when you've found something, you type the word then answer the prompts for the x and y axis followed by the direction.

The letter grid is printed on the low resultion screen which suits the presentation well enough. But the whole game is pretty dull. You would really have to be very keen on word puzzles to find it enjoyable. **M.P.**

instructions	90%
playability	80%
graphics	40%
value for money	30%

★ ★

Lost 48K Spectrum £5.95

Virgin Games, 61 Portobello Road, London W11

You are in a clearing surrounded by woods and mountains, and have to escape starting with only five days food and water.

The insert has useful instructions plus less gripping information about the author and the Virgin Games Gang.

Loading produced the Teddy Bears Picnic, some screen instructions and then, once again, we are in the woods.

A simple map shows the trees, mountains and rivers through which you must struggle to find a settlement.

Your progress is affected by the terrain, starvation and the generally lousy weather which seems to affect the area.

After every few moves the map disappears to show a status display and a colourful weather report. These slow up the game and become very tiresome after a while.

Cold weather turns the landscape white with snow, and when this happens the escaper has to find shelter quickly or die of cold.

Disaster can be avoided, or at least delayed, by finding food on the way, although the graphics suggest that this consists of snakes and dogs. Not very tasty. **H.C.**

instructions	80%
playability	60%
graphics	50%
value for money	50%

★ ★

The Quest for the Holy Grail 32 K BBC £7.95

Epic, 10 Gladstone Street, Kibworth Beauchamp, Leicester

"So you want to be a Knight?" boomed Arthur — King, to you — avoiding all the usual clichés, "Find the Holy Grail, then!" So, what does a knight errant do? Off he goes!

The game loaded perfectly and played well, using mode 7 colours to good effect. With over 230 locations there is quite a lot to discover and many hazards to overcome.

The first two characters you are likely to run into are the blue and the black knights. Some characters are friendly, some not so — it's up to you to discover which.

The game can be saved to disc but defaults to the TAPE filing system when saving a game.

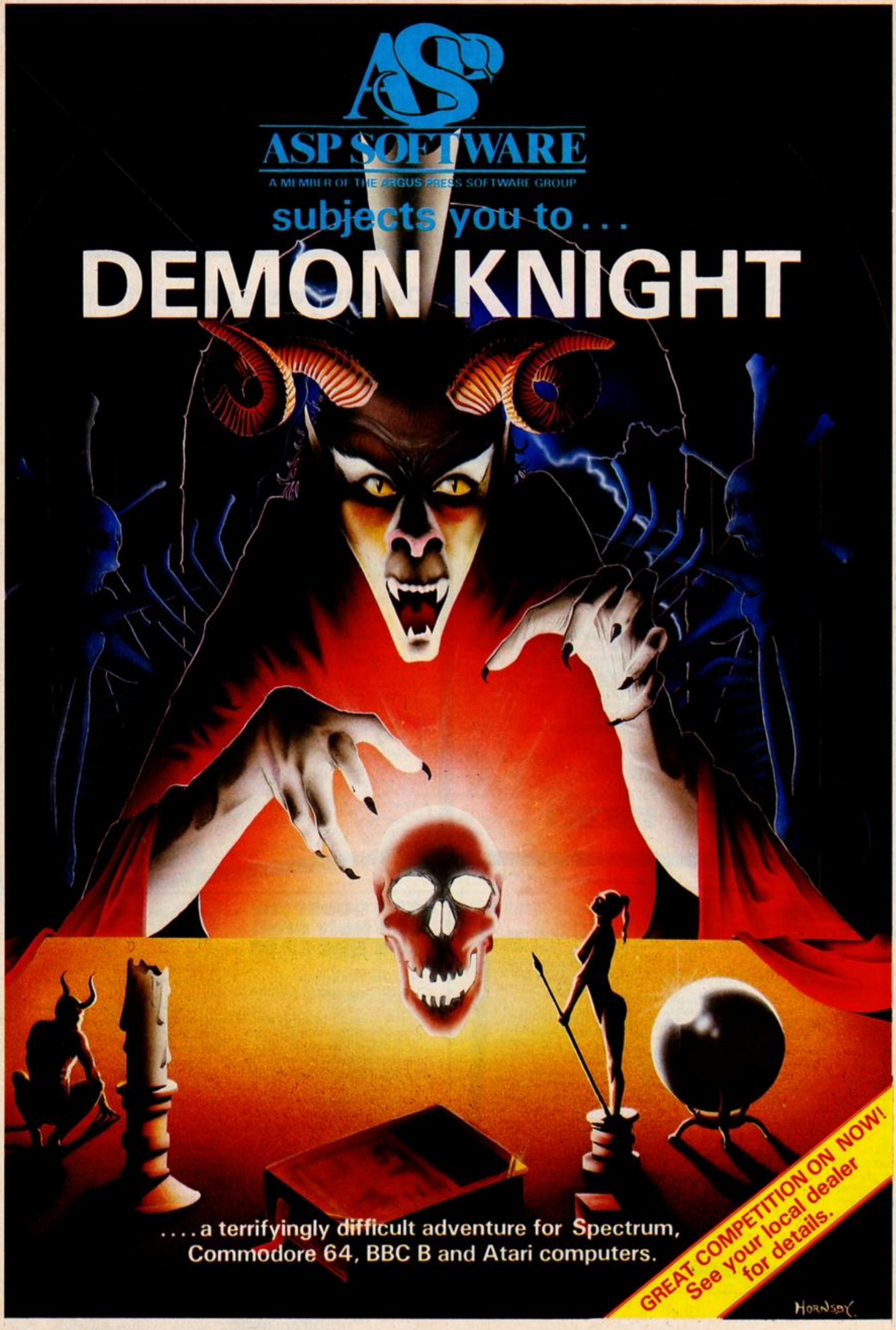
As you are not told which exits are in view you must try every direction — just to see if there's anything there — and as some can kill this is vital.

The adventure can be mapped with little effort, although special attention needs to be given to certain areas.

You are given a few command words to start and then you are on your own. The game and type of problems it poses are, by now, fairly standard — not necessarily predictable, but very enjoyable for all that. **J.W.**

instructions	90%
playability	85%
graphics	n/a
value for money	90%

★ ★ ★ ★


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HORNSBY

Are you as good as your words?

Gather the family around the computer for this enjoyable word game, written for the Spectrum by HCW regular David Nowotnik. He also explains how to convert it for the ZX81

If you enjoy word games such as Scrabble, you and your family are sure to get a lot of fun from my Wordsquare game for the Spectrum.

It's for two or more players who compete against each other to find as many words as they can from a four by four box on the screen.

How it works

10-170 selects 16 letters from string z$, and places them in y$ for printing
180-260 title and instructions option
300-630 routine to draw border and "die"
700-770 place the letters on the "die"
1000-1010 set up game board
1020-1030 set clock to zero
1040-1140 digital clock routine
1150-1160 time up message
1180-1250 display points system
2000-2560 instructions
3000-3030 check for a keypress routine

There is a three-minute time limit — a digital clock ticks away in the bottom left of the screen — and there's a flashing message when time is up.

The program contains all the instructions for playing the game and there is a demonstration routine showing the ways in which letters can be combined to form words.

Have fun!

A sample screen from Wordsquare




```
  10 REM **** Wordsquare ***
  20 REM by David Nowotnik
  30 REM    October, 1983
  40 REM
  50 REM Initialise
  60 REM
  70 LET z$="vgtniexfbriopelustacesrlezavndpecadmntdkou
enosdworamshugeyklmbqjoah
```

Hints on conversion to ZX81

The die drawing routine (500-630) involves high resolution drawing, therefore must either be omitted, or replaced by a routine which achieves a similar effect using the ZX81's chunky graphic characters.

The program will then operate on the ZX81 apart from the clock routine, and the following line changes should produce a digital clock on the ZX81:

1020 POKE 16436,255
1030 POKE 16437,255
1050 LET TIM = 65535
1060 IF TIM – 50 (PEEK 16436 + 256*PEEK 16437) THEN GOTO 1060
1080 LET TIM = TIM – 50

You will, of course, have to separate multi-statement lines, and omit the demonstration routine (2200-2410) in the instructions.

Main variables

z$ holds the letters from which 16 are selected to appear on the die
y$ holds the 16 letters which will be printed on the die
s() array indicator of the letters selected
m,n,x,y, screen position variables to draw the die
tim, min, sec clock routine variables
i,j loop variables

```
efyeitbylialwiugrnhpseitacoai"
  80 LET y$=""
  90 DIM s(16)
 100 FOR i=1 TO 16
 110 LET k=INT (RND*16)+1
 120 LET k=k+1: IF k=17 THEN  LET k=1
 130 IF s(k)=1 THEN  GO TO 120
 140 LET y$=y$+z$(16*(k-1)+INT (RND*6)+1)
 150 LET s(k)=1
 160 NEXT i
 170 REM
 180 REM Title
 190 REM
 200 BORDER 2: PAPER 5: INK 1: CLS
 210 PRINT AT 5,11;"WORDSQUARE"
 220 PRINT AT 8,8;"by David Nowotnik"
 230 PRINT  INK 2; PAPER 6;AT 18,0;" Do you want instr
uctions?(y/n) "
 240 IF INKEY$="n" THEN  GO TO 1000
 250 IF INKEY$="y" THEN  GO TO 2000
 260 GO TO 240
 300 INK 7: PAPER 4: CLS
 310 PRINT AT 2,11;"WORDSQUARE"
 400 INVERSE 1: INK 1
 410 PRINT AT 6,10;"
 420 FOR i=7 TO 16
 430 PRINT AT i,10;" ";AT i,20;" "
 440 NEXT i
 450 PRINT AT 16,10;"
 460 INVERSE 0: INK 7
 500 LET m=93: LET n=54
 510 FOR i=m TO m+48 STEP 16
 520 FOR j=n TO n+48 STEP 16
```

```
 530 LET y=j: LET x=i
 540 PLOT x,y: DRAW 0,12
 550 LET y=y-1: LET x=x+1
 560 FOR k=1 TO 12
 570 PLOT x,y: DRAW 0,14
 580 LET x=x+1: NEXT k
 590 LET y=y+1
 600 PLOT x,y: DRAW 0,12
 610 NEXT j
 620 NEXT i
 630 RETURN
 700 INK 0: PAPER 7
 710 LET t=1
 720 FOR i=12 TO 18 STEP 2
 730 FOR j=8 TO 14 STEP 2
 740 PRINT AT j,i;y$(t)
 750 LET t=t+1
 760 NEXT j: NEXT i
 770 RETURN
1000 GO SUB 300
1010 GO SUB 700
1020 POKE 23672,0
1030 POKE 23673,0
1040 LET min=0: LET sec=0
1050 LET tim=0
1060 IF tim+50>(PEEK 23672+256*PEEK 23673) THEN  GO TO
1060
1070 LET sec=sec+1: IF sec=60 THEN  LET sec=0: LET min=
min+1
1080 LET tim=tim+50
1090 LET s$="Time = "+STR$ min+":"
1100 IF sec<10 THEN  LET s$=s$+"0"
1110 LET s$=s$+STR$ sec
1120 PRINT AT 20,1;s$
1140 IF min<3 THEN  GO TO 1060
```

SPECTRUM PROGRAM

```
1150 PRINT AT 20,18; FLASH 1;"  Time up "
1160 PAUSE 500
1170 PAPER 4
1180 PRINT AT 20,1;"
1190 PRINT AT 6,1;"Letters";AT 6,24;"Points"
1200 PRINT AT 8,1;"3 or 4";AT 8,26;"1"
1210 PRINT AT 10,3;"5";AT 10,26;"2"
1220 PRINT AT 12,3;"6";AT 12,26;"3"
1230 PRINT AT 14,3;"7";AT 14,26;"5"
1240 PRINT AT 16,0;"8 or more";AT 16,26;"10"
1250 STOP
2000 CLS : PRINT AT 2,11;"WORDSQUARE"
2010 PRINT : PRINT "  Wordsquare is a game for two"
2020 PRINT "to six players, aged from eight"
2030 PRINT "to adult.": PRINT
2040 PRINT "  the object is to list as many"
2050 PRINT "words as possible within a time"
2060 PRINT "limit of three minutes, from thegrid of let
ters on the screen."
2070 PRINT : PRINT "  Each player must have a pen  and
 paper, and be position"
2080 PRINT "around the TV set so that other players can
not see his/her "
2090 PRINT "paper."
2100 GO SUB 3000
2110 PRINT AT 2,11;"WORDSQUARE"
2120 PRINT : PRINT "  As soon as the clock starts"
2130 PRINT "at the bottom of the screen,"
2140 PRINT "start to write down all the     words of th
ree letters or more"
2150 PRINT "that you can find. Words are    formed by t
he use of adjoining"
2160 PRINT "letters. The letters must join  in the corr
ect sequence to spell";
2170 PRINT "the word. They may join on in   any directi
on, but no letter can";
2180 PRINT "can be used more than once in   the same wo
rd."
2190 GO SUB 3000
2200 PRINT AT 4,6;"Here is an example"
2210 PAUSE 200: CLS
2220 LET w$=y$: LET y$="achioneaklmstsal"
2230 GO SUB 300: GO SUB 700
2240 RESTORE
2250 FOR i=1 TO 5: DIM g(4)
2260 READ x$: FOR j=1 TO 4
2270 READ g(j): NEXT j
2280 DATA "malt",22928,22930,22864,22802
2290 DATA "cone",22860,22798,22862,22926
2300 DATA "helm",22924,22926,22864,22928
2310 DATA "mast",22928,22930,22866,22802
2320 DATA "melt",22928,22926,22864,22802
2330 FOR j=1 TO 4: PAUSE 100
2340 POKE g(j),184: NEXT j
2350 PAUSE 50: PRINT AT 10,24; FLASH 1;x$
2360 PAUSE 200
2370 FOR j=1 TO 4: POKE g(j),56: NEXT j
2380 PRINT AT 10,24;"    "
2390 NEXT i
2400 PRINT AT 19,2;"How many more can you see?"
2410 GO SUB 3000
2420 PRINT AT 2,11;"WORDSQUARE"
2430 PRINT : PRINT "  Proper names, abbreviations"
2440 PRINT "and words spelled with hyphens  are not all
owed."
2450 PRINT : PRINT "  When time runs out, each"
2460 PRINT "player in turn reads out his    list of wor
ds. Any words"
2470 PRINT "appearing on more than one list is crossed
off all lists on"
2480 PRINT "it appears. Once this is done,  the score f
or each player is"
2490 PRINT "totalled. How to score is shown on the scre
en at the end of a"
2495 PRINT "a game.": GO SUB 3000: PRINT AT 4,10;"WORDS
QUARE"
2500 PRINT : PRINT " The winner is either the playersco
ring most in that game"
2510 PRINT "or the player with the highest  total over
a preset number of"
2520 PRINT "games."''"  To play another game, restart t
he program with RUN."
2530 GO SUB 3000
2540 PRINT AT 4,2;"Press a key to start a game"
2550 GO SUB 3010
2560 LET y$=w$: GO TO 1000
2950 STOP
3000 PRINT AT 21,2;"Press any key to continue"
3010 IF INKEY$<>"" THEN  GO TO 3010
3020 IF INKEY$="" THEN  GO TO 3020
3030 CLS : RETURN
```


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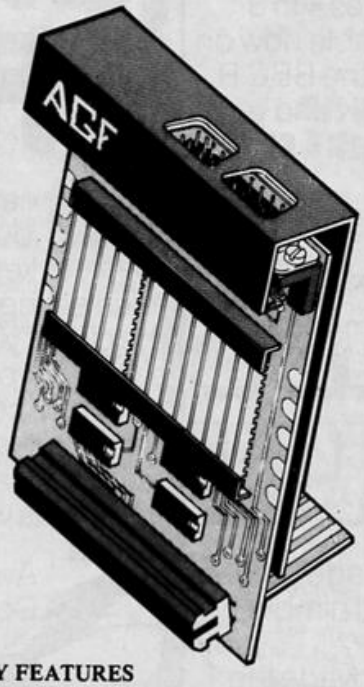
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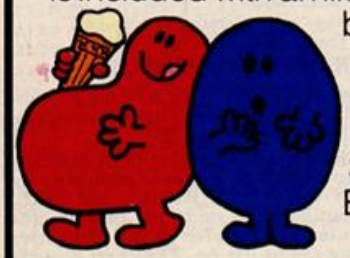
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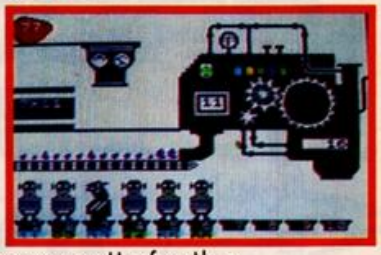
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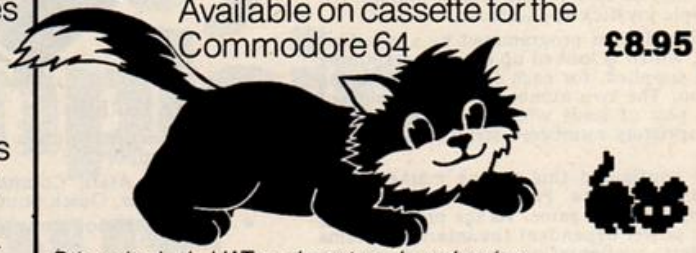
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Don't exert yourself...

Why risk pulling a muscle when you can play these games by just twitching your fingers? Our reviewers report on five simulation tapes

Fruit Machine TI-99/4A £4.95

Christine Computing, 6 Florence Close, Watford, Herts

Fruit machine programs are ten-a-penny and they really need to be something special in order to grip and hold the player's attention.

They are so simple that the Texas manual gives such a program as a graphics demonstration.

This version, alas, has only moderately good graphics, no documentation, and terrible on-screen instruction.

You need to be a Maigret or a Holmes to understand some of the options. 'Shift for Up' actually means that you should use the shift key with the numbers 1, 2 and 3 for nudging by reading between the lines: 'Reels 1 2 3'.

You start by choosing an initial stake of up to 990 pence. Try entering 435 and it will be thrown back at you with a haughty 'this machine only accepts 10p coins'. Why you aren't told this in the first place is beyond me.

There is something of a Catch 22 here in that if you like real fruit machines then this game won't appeal to you, and if you don't mind the absence of hard cash the program won't hold your interest anyway. **P.B.**

instructions	5%
playability	60%
graphics	85%
value for money	30%

★★

Super Fruits 32K BBC £6.95

dk'tronics, Shire Hill Industrial Estate, Saffron Waldon, Essex

This game gives you the opportunity to play fruit machines for as long as you like without having to feed the machine with money. Of course, the main drawback is that you won't win any money from the machine, but you can't have it all ways, can you?

The program is a good simulation of a fruit machine with all the usual features such as 'hold', 'nudge' and 'double or lose'.

Graphics on the spinning wheels are excellent, with very realistic fruits. Sound effects are quite pleasant, with the ability to switch them off it required.

The controls are well planned and easy to use, but I did find one minor bug where it appears that the keyboard buffer is not flushed prior to input.

This has the effect that if you hold the start key down for a short time, the repeat action of the keys fills the buffer with start signals and the fruit machine will continue to spin without the player pressing the start key.

Although this is a well-produced piece of software, I found it got rather boring after a short time. Finally, it lacks the excitement of a real machine, but it may well appeal to the younger age group. **G.T.**

instructions	90%
playability	50%
graphics	90%
value for money	70%

★★★★

Birdie Barrage 32K BBC £7.95

Computasolve, 8 Central Parade, St Marks Hill, Surbiton, Surrey KT6 4PJ

I had assumed that this would be one of those games where you fire laser guns at descending eagles, or similar. In fact it is a competent implementation of golf.

Each hole is presented graphically, complete with lakes, bunkers and the rough. You can choose from four woods, nine irons and a sand wedge, though there is no caddy to advise on which club to use!

The direction of the shot is indicated on a small compass, which you set, allowing for the prevailing wind conditions at the hole. The strength of the stroke is governed by a thermometer-like scale controlled by two cursor keys.

The return key then makes the ball soar across the fairway, usually into a lake in my case!

Having reached the green, a new screen is shown for the close-up putting.

A score card is kept for the course and each hole has a par value.

The graphics are adequate but not exceptional, and golf does not really lend itself to sound effects. At times it was difficult to see where the ball was — rather a handicap!

An option for two players would be a useful improvement. **J.P.**

instructions	80%
playability	70%
graphics	50%
value for money	70%

★★★

Cricket Captain 48K Spectrum £4.95

Allanson Computing, 77 Chorley Road, Adlington, Chorley, Lancs

If you're not yet confident enough to take over from Bob Willis as England captain against the West Indies, then don't worry — you can still enjoy Cricket Captain.

Your first job is to choose a team either from the list of counties provided or one of your own.

Then you have to solve the problems of team selection, bowling and batting order. In this you are helped by the files held on each player giving details of his ability.

Following these preliminaries the game itself is delightfully represented in 3D animation.

As the program warns, it can be very frustrating to see your side skittled out for a very low score, and that on novice level too!

Your turn to bowl is more interesting as you set the field and ring the bowling changes.

To play a complete season's fixtures in full would take quite a time, so there is a save game facility and if you wish you can "skip" a few overs and move forward in time. This last feature should be available for real life cricket!

Cricket Captain is a very amusing game and a fairly realistic simulation. **D.J.**

	85%
instructions	85%
playability	77%
graphics	80%
value for money	

★★★★

Golf 48K Lynx £7.95

Gem, Unit D, The Maltings, Station Road, Sawbridgeworth, Herts

This is an 18 hole golf course simulation. You have a full set of clubs and can set your own handicap and other options. The hole that you are currently on is shown in all its glory.

The program's main drawback is its slowness. It is quite difficult to use if you are not a golfer and didn't know all of the terms to do with golf, but with some practice you can get the hang of it.

Putting tends to be awkward. There is no close up shot of the green on the screen, so it is like directing a putt from a helicopter. It's pretty difficult to judge distance correctly, so putts nearly always miss on the first attempt unless you are very lucky.

The instructions are limited to the operation of the game itself and assume a working knowledge of golf, but most of the rules and techniques can be worked out.

The graphics are good, with a split screen configuration giving the graphical display on the top and next input/output on the bottom.

The tape takes a while to load but loads without problem on TAPE3.

Overall, an interesting simulation for golf addicts, but there's not much there for us ordinary mortals. **M.D.R.**

instructions	30%
playability	40%
graphics	80%
value for money	60%

★★★

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Access VISA

ONE MAN'S VIEW

My money is waiting for Acorn

I wonder how many of you have tried recently to buy an Electron computer.

The double page advert in a number of leading computer magazines, informs readers that the computer is readily available at many branches of W.H. Smith and Acorn agents. Or if they happen to have a credit card — and who doesn't these days? — then they can phone 01-200 0200 and order one direct.

Needing one to carry out a task for a publisher, I decided to have a go and telephone, to try out the system.

A pleasant, but totally disinterested, voice answered my call and asked me to state my requirements. 01-200 0200 is not just for Acorn, it's very general, and a number of other by-phone firms use it. I stated my needs and was asked to wait. Thirty seconds elapsed. The voice again, informing me that the Electron was not yet available, but would I give my name and address. I pointed out that the adverts I had read told me that all I was required to do was phone their number, hand over my credit card number, and an Electron would be its way to me.

☐ ☐ ☐

Would I wait please? Another thirty seconds passed. Would I please tell them the area in which I lived? Avon, I answered politely. I wanted the computer. Would I please wait? Thirty seconds again. The reply eventually was that there were no Acorn agents in my area. Rather exasperated by now, I told the uninformed lady on the other end of the line that I knew personally of three, and gave her their names and addresses. Would I wait again, please? Yes, I had to, the end was not yet in sight. Twenty seconds this time. Indeed yes, agents were situated in Avon, but at the moment they were not stocking the Electron.

Could I therefore order by credit card? She asked me for my home address. Then... no, they were not taking credit card orders yet! Where then, I politely asked, could I get one? Would I wait again please? This time the interval reverted to 30 seconds. They are available at selected branches of W.H. Smiths and local Acorn agents.

☐ ☐ ☐

No I was not talking to an answering machine on a continuous GOTO loop. This girl was for real! Which W.H. Smith? I asked. She couldn't tell me. Not wishing for another 30 seconds delay at my expense, while I waited for her to research the local library for the answer to my question, I remarked that perhaps our conversation might make a good story. I hung up, and re-read the advert.

Yes, Acorn were quite sure I could have one — so OK Acorn, cough up. I've got my £199 ready and waiting, and an interested publisher at the other end of a more forthcoming telephone line.

Maybe they've been taking lessons from a certain peer of the realm, it sounds very much like it, doesn't it?

Brian Boyde-Shaw
Home computer consultant
Nailsea, Avon.

● This space is for you to sound off about the micro scene, to present bouquets, to hurl brickbats, or just to share your opinions or experiences. Send your contributions to Paul Liptrot, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB

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This is a Minefield with a difference as you step on the stones whilst collecting purple boxes which give your both time and points, they disappear from beneath your feet. DO NOT DESPAIR! "BUGSY" will randomly replace the stones but avoid bumping into him or its sudden death! An original compulsive and challenging game **£5.50**

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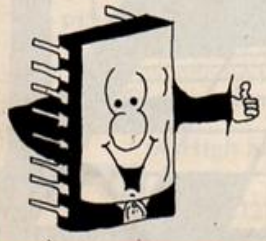
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Race for your life

Get on your bike for a fast-moving two-player game. Mark Playle wrote Laser Light Bike for the unexpanded TI-99/4A

You are in a fast-moving duel to the death — it's you or him.

As you speed along your bike leaves a trail. Crash into it, or your opponents, and you lose.

Riding off the grid automatically gives the set to your opponent.

Best out of nine sets wins the game.

Hints on playing: only press the keys when you want to change direction. If you hold down the keys it slows the game, although this is hardly noticeable.

How it works

100-190 set colours for instructions
200-400 instructions
410-550 define characters
560-640 set colours
650-670 set variables
680-900 draw screen
910-1180 scan keys to move blue bike
1190-1290 move blue bike
1300-1570 scan keys to move red bike
1580-1680 move red bike
1690-1840 explosion, increment score
1850-1980 auto move for blue bike
1990-2120 auto move for red bike
2130-2300 display score, end

Hints on conversion

TI BASIC is fairly standard with two main exceptions. Single statement lines are used and subroutines for graphics and sound are available, prefixed with CALL, as detailed below.

CALL CLEAR clears screen
CALL SCREEN defines screen colour
CALL CHAR defines a character with a 16-digit hex string from an eight by eight grid. Other machines will use a different method
CALL COLOUR (character set, foreground, background) sets colour of character
CALL HCHAR (row, column, character code, number of repeats) places character on screen at co-ordinates specified and optionally repeats character horizontally
CALL VCHAR similar to HCHAR but repeats character vertically
CALL GCHAR (row, column, variable) similar to a screen PEEK on other machines. Gives the ASCII code at the given screen co-ordinates
CALL SOUND (D,F,V) gives sound of duration D, frequency F and volume V. Three sounds can be produced at once

Main variables

RB, CB red bike, blue bike scores
COU counter to nine
X,Y; X2, Y2 blue bike; red bike X,Y, positions
E, E2, D, D2 pointers for auto move
B1, B2 character codes for blue, red bikes

```
100 REM   START INSTRUCTIONS
110 CALL CLEAR
120 CALL SCREEN(5)
130 FOR COL=1 TO 8
140 CALL COLOR(COL,16,1)
150 B1=130
160 NEXT COL
170 FOR COL2=9 TO 11
180 CALL COLOR(COL2,8,1)
190 NEXT COL2
200 PRINT "LASER BIKE RACE"
210 PRINT
220 PRINT "THE IDEA OF THIS GAME IS TO"
230 PRINT "AVOID CRASHING INTO YOUR"
240 PRINT "OPPONENT'S TRAIL OR EVEN     YOUR OWN."
250 PRINT
260 PRINT "TO MOVE THE BLUE BIKE"
270 PRINT "USE KEYS(A,W,S,Z)"
280 PRINT
290 PRINT "TO MOVE THE RED BIKE"
300 PRINT "USE KEYS(L,P,;,>)"
310 PRINT
320 PRINT "BEST OUT OF NINE WINS!"
330 FOR PRI=1 TO 4
340 PRINT
350 NEXT PRI
360 PRINT "Press the space bar to start"
370 CALL KEY(0,K,S)
380 IF S=0 THEN 370
390 IF K=32 THEN 420 ELSE 370
400 REM  END INSTRUCTIONS
410 REM   DEFINE CHARS
420 CALL CLEAR
430 CALL CHAR(128,"183C3C183C3C3C18")
440 CALL CHAR(136,"183C3C183C3C3C18")
450 CALL CHAR(129,"183C3C3C183C3C18")
460 CALL CHAR(137,"183C3C3C183C3C18")
470 CALL CHAR(130,"000076FFFF76")
480 CALL CHAR(138,"000076FFFF76")
490 CALL CHAR(131,"00006EFFFF6E")
500 CALL CHAR(139,"00006EFFFF6E")
510 CALL CHAR(132,"FFFFFFFFFFFFFFFF")
520 CALL CHAR(140,"FFFFFFFFFFFFFFFF")
530 CALL CHAR(144,"FF818181818181FF")
540 CALL CHAR(159,"FFFFFFFFFFFFFFFF")
550 REM   END DEFINE CHARS
560 REM  DEFINE COLOURS
570 CALL COLOR(13,5,16)
580 CALL COLOR(14,10,16)
590 CALL COLOR(15,16,1)
600 CALL COLOR(16,7,1)
610 FOR COL=2 TO 8
620 CALL COLOR(COL,16,7)
630 NEXT COL
640 REM   END DEFINE COLOURS
641 REM   0 VARIABLES
650 RB=0
660 CB=0
670 COU=0
680 CALL CLEAR
690 REM   SET VARIABLES AND
691 REM  DRAW SCREEN
700 X=12
710 Y=3
720 X2=12
730 Y2=31
740 E=-1
750 E2=1
760 D=0
770 D2=0
780 B1=130
790 B2=139
800 CALL SCREEN(2)
810 CALL HCHAR(1,2,159,30)
820 CALL HCHAR(24,2,159,30)
830 FOR GRID=2 TO 23
840 CALL HCHAR(GRID,2,144,30)
850 NEXT GRID
860 CALL VCHAR(1,2,159,24)
870 CALL VCHAR(1,32,159,24)
880 CALL HCHAR(12,3,130)
890 CALL HCHAR(12,31,139)
900 REM   END DRAW SCREEN
910 REM   SCAN KEYS FOR BLUE
920 CALL KEY(1,K,S)
930 IF S=0 THEN 1860
940 IF K=4 THEN 980
950 IF K=15 THEN 1030
960 IF K=2 THEN 1080
970 IF K=1 THEN 1130
980 X=X-1
990 D=1
1000 B1=128
1010 E=0
1020 GOTO 1200
1030 X=X+1
1040 D=-1
1050 B1=129
1060 E=0
1070 GOTO 1200
1080 Y=Y+1
1090 E=-1
1100 B1=130
1110 D=0
1120 GOTO 1200
1130 Y=Y-1
1140 E=1
1150 B1=131
1160 D=0
1170 GOTO 1200
1180 REM   END SCAN KEYS BLUE
1190 REM   MOVE BLUE
1200 EX=0
1210 IF (X=1)+(X=24)THEN 1700
1220 IF (Y=2)+(Y=32)THEN 1700
1230 CALL GCHAR(X,Y,HB)
1240 IF HB=132 THEN 1700
1250 IF HB=140 THEN 1700
1260 CALL HCHAR(X,Y,B1)
1270 CALL HCHAR(X+D,Y+E,132)
1280 GOTO 1310
1290 REM   END MOVE BLUE
1300 REM   SCAN KEYS FOR RED
1310 CALL KEY(2,K,S)
1320 IF S=0 THEN 2000
1330 IF K=11 THEN 1370
1340 IF K=13 THEN 1420
1350 IF K=17 THEN 1470
1360 IF K=12 THEN 1520
1370 X2=X2-1
1380 B2=136
1390 D2=1
1400 E2=0
1410 GOTO 1590
1420 X2=X2+1
1430 B2=137
1440 D2=-1
1450 E2=0
1460 GOTO 1590
1470 Y2=Y2+1
1480 B2=138
1490 E2=-1
1500 D2=0
1510 GOTO 1590
1520 Y2=Y2-1
1530 B2=139
1540 E2=1
1550 D2=0
1560 GOTO 1590
```

TI-99/4A PROGRAM

```
1570 REM  END SCAN KEYS RED
1580 REM  MOVE RED
1590 EX=1
1600 IF (X2=1)+(X2=24)THEN 1700
1610 IF (Y2=2)+(Y2=32)THEN 1700
1620 CALL GCHAR(X2,Y2,HB)
1630 IF HB=132 THEN 1700
1640 IF HB=140 THEN 1700
1650 CALL HCHAR(X2,Y2,82)
1660 CALL HCHAR(X2+D2,Y2+E2,140)
1670 GOTO 920
1680 REM  END MOVE RED
1690 REM  START BANG+SCORE
1700 CALL CLEAR
1710 COU=COU+1
1720 FOR BANG=0 TO 30
1730 CALL SCREEN(7)
1740 CALL SOUND(100,-7,BANG)
1750 CALL SCREEN(2)
1760 NEXT BANG
1770 IF EX=1 THEN 1810 ELSE 1780
1780 CB=CB+1
1790 IF COU>8 THEN 2140
1800 GOTO 690
1810 RB=RB+1
1820 IF COU>8 THEN 2140
1830 GOTO 690
1840 REM   END BANG+SCORE
1850 REM   START AUTO MOVE
1860 IF D=1 THEN 1900
1870 IF D=-1 THEN 1920
1880 IF E=1 THEN 1940
1890 IF E=-1 THEN 1960
1900 X=X-1
1910 GOTO 1200
1920 X=X+1
1930 GOTO 1200
1940 Y=Y-1
```

GOTO START GAME
BLUE

```
1950 GOTO 1200
1960 Y=Y+1
1970 GOTO 1200
1980 REM   END AUTO MOVE
1990 REM   START AUTO MOVE
2000 IF D2=1 THEN 2040
2010 IF D2=-1 THEN 2060
2020 IF E2=1 THEN 2080
2030 IF E2=-1 THEN 2100
2040 X2=X2-1
2050 GOTO 1590
2060 X2=X2+1
2070 GOTO 1590
2080 Y2=Y2-1
2090 GOTO 1590
2100 Y2=Y2+1
2110 GOTO 1590
2120 REM   END AUTO MOVE
2130 REM   START END GAME
2140 CALL SCREEN(7)
2150 PRINT "SCORE"
2160 PRINT
2170 PRINT "BLUE BIKE SCORED ";RB
2180 PRINT
2190 PRINT "RED BIKE SCORED ";CB
2200 FOR PRI=1 TO 5
2210 PRINT
2220 NEXT PRI
2230 PRINT "DO YOU WANT ANOTHER GO?
2240 PRINT
2250 PRINT
2260 CALL KEY(2,K,S)
2270 IF S=0 THEN 2260
2280 IF K=15 THEN 2300
2290 IF K=18 THEN 650 ELSE 2260
2295 REM  END GAME
2300 END
```

BLUE
RED

RED
+SCORE DISPLAY

(Y/N)"

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Imagine you're a yellow ball trapped in a maze...

Now you can add to your collection of arcade-like classics with Gobbler 64. Richard Gibbs wrote it for the Commodore 64 with some unexpected features

Gobbler 64 mirrors the famous arcade game and includes all of the usuals such as bonus fruits and disappearing mazes.

The rules of game are well known, but if you aren't familiar with them I will explain them. You are the yellow round ball which has to move around the mazes eating dots and power pods which enables you to eat the awesome ghost which chases you around the mazes.

There are three mazes which you have to beat. The first maze that you are faced with is the second hardest of the three. With this maze you are not allowed to pass through the walls of the maze but unfortunately the ghost can.

The second maze is the hardest of the lot. This is because as before you can't pass through the walls, and as an added obstacle you can't see the walls either!

The third maze is the easiest of them all. With this maze you are allowed to go through the walls. Once you have completed this maze you are faced with the first maze again.

When you RUN the program the word GOBBLER will appear on the screen, and a few moments later your gobbler will appear and start to eat everything that's on the screen.

How it works

10-70 set up registers
80-130 draw title
140-310 set up variables
320-710 main loop
720-770 draw fruit in right hand corner
780-820 check if all lives have gone
830-1190 draw maze
1200-1250 sound effects
1260-1740 reads sprite and character DATA
1760-2060 title
2070-2180 high score table

After that he will attempt to display the titles and after his failed first attempt he will manage it. When the titles are fully displayed you will be asked at what level you wish to play, 1 to 5, 1 being the easiest and 5 being the hardest. When you enter the level use F1 and use the fire button or space bar to begin.

When you play the game you can use the joystick in port one or use the following keyboard controls:

CTRL left
left arrow down
key 1 up
key 2 right

● As usual, Commodire control characters in the listing are explained in REMs above the lines in which they appear. The REMs can, of course, be omitted.

```
1 REM [RED] = REVERSE POUND SIGN
2 FORA=192*64TO210*64+64:POKEA,0:NEXT
3 FORA=54272TO54296:POKEA,0:NEXT
4 DIMBB$(11):GA=0:REM [RED] [CYN] [BLU] [GRN] [GREY 2]
5 B$(1)="■0000000 RICH":B$(2)="■0000000 MICK":B$(3)="■0000000 HIBB"
6 B$(4)="■0000000 DAVE":B$(5)="■0000000 GREY"
9 S$="0000000"
10 POKE53280,0:POKE53281,0:V=53248:POKEV+21,0:LE=1:HH=205:DO=0
15 REM [HOME] [7 CRSR DOWN]
20 PRINT"■■■■■■■■"
25 REM [YEL]
30 PRINT"■  •••• •••• •••• •••• •     •••• ••••  "
35 REM [RED]
40 PRINT"■  •    • •• •• •• ••  •     •   • •"
45 REM [YEL]
50 PRINT"■  • •• • • ••• ••• •    ••   •••• "
55 REM [RED]
60 PRINT"■  • •• • •• • •• ••  •   ••"
65 REM [YEL]
70 PRINT"■  •••• •••• •••• •••• •••• •••• • ••"
90 POKEV+29,4:POKEV+23,4:HI=5000:C=1479:C1=1228:FR=191:A$="■":SC=0
110 POKE2040,200:POKE2041,205:POKE2042,192:POKE650,255:SE=0:CO=0:LI=3
150 AT=54277:VO=54296:WA=54276:H=54273:SU=54278:POKEV+21,0:POKEV+40,2
160 POKEAT,32:POKEAT+7,32:POKESU,255:POKESU+7,255:POKEWA,33:POKEWA+7,33
190 POKEV+23,4:POKEV+29,4:POKEVO,15
195 IFGA=1THEN226
200 POKE56334,PEEK(56334)AND254:POKE1,PEEK(1)AND251
```

```
210 FORI=0TO511:POKEI+14336,PEEK(I+53248):NEXT
220 POKE1,PEEK(1)OR4:POKE56334,PEEK(56334)OR1
226 IFGA=0THENGOSUB1230
230 GOSUB10000:POKE53272,31
231 X=138:Y=133:X1=50:Y1=80:POKEV+28,2:POKEV+37,1:X6=125:Y6=120
232 POKEV+4,X6:POKEV+5,Y6:POKEV+32,8:POKEV+33,8
260 GOTO810
270 POKEV+42,2
271 PRINT"■■■■■■■■■",TAB(30);HI:REM [HOME] [8 CRSR DOWNS]
272 PRINT"■■■■■■■■■■■■■■",TAB(30);LI :REM [HOME] [13 CRSR DOWNS]
273 PRINT"■■■■■■■■■■■■■■■■■■■■■■";TAB(31);A$:REM [HOME] [21 CRSR DOWNS]
280 JV=PEEK(56321):JV=15-(JVAND15):POKEV+30,0:POKE2042,FR
300 IFDO=100ANDFP=0THENPOKEV+21,7
310 PRINT"■■■■■",TAB(30);SC:REM [HOME] [4 CRSR DOWNS]
311 IFCO=0THEN400
360 IFCO=1ANDJV=4THENX=X-8:C=C-1:POKE2040,202
370 IFCO=1ANDJV=8THENX=X+8:C=C+1:POKE2040,200
380 IFCO=1ANDJV=1THENY=Y-8:C=C-40:POKE2040,202
390 IFCO=1ANDJV=2THENY=Y+8:C=C+40:POKE2040,200
395 IFCO=1THEN440
400 IFPEEK(C-1)<>42ANDCO=0ANDJV=4THENX=X-8:C=C-1:POKE2040,202:GOTO440
410 IFPEEK(C+1)<>42ANDCO=0ANDJV=8THENX=X+8:C=C+1:POKE2040,200:GOTO440
420 IFPEEK(C-40)<>42ANDCO=0ANDJV=1THENY=Y-8:C=C-40:POKE2040,202:GOTO440
430 IFPEEK(C+40)<>42ANDCO=0ANDJV=2THENY=Y+8:C=C+40:POKE2040,200
440 IFX<X1THENX1=X1-LE:POKE2041,208
450 IFX>X1THENX1=X1+LE:POKE2041,206
460 IFY>Y1THENY1=Y1+LE:POKE2041,207
470 IFY<Y1THENY1=Y1-LE:POKE2041,205
480 POKEV,X:POKEV+1,Y:POKEV+2,X1:POKEV+3,Y1:POKEV+6,X3:POKEV+7,Y3
485 IFS<>2THEN506
490 IFX<25THENGOSUB710
495 IFX>245THENGOSUB710
500 IFY>225THENGOSUB710
505 IFY<50THENGOSUB710
506 IFDO<272THEN560
510 IFDO=272ANDS=2THENPOKEV+32,0:POKEV+33,0:EE=0:EN=0:GOSUB770:GOTO810
520 IFDO=272THENS=S+1:POKEV+21,3:RR=RR+1:EE=0:EN=0
530 IFDO=272ANDS=2THENCO=1:POKEV+33,0:POKEV+32,0:DO=0:EE=0:GOSUB810:LE=LE+1
540 IFDO=272ANDS=4THENPOKEV+33,0:POKEV+32,0:DO=0:EE=0:EN=0:GOSUB810
545 IFPEEK(C)=32THEN580
560 IFPEEK(C)=81THENEE=1:EN=30:FORA=0TO100STEP30:POKEH,A*2:FORB=0TO50:NEXTB,A
570 IFPEEK(C)=46ORPEEK(C)=81ORPEEK(C)=99THENPOKEC,32:SC=SC+10:DO=DO+1:GOSUB790
580 IF(PEEK(V+30)AND1)=1THENGOSUB1130
581 IFEE=0THEN635
585 IFEN=0THENPOKEV+40,2
590 IFEE=1THENEN=EN-1
600 IFEN<0THENEN=0:EE=0
610 IFEE=1THENPOKEV+40,EN+1
620 IFEN>0THENPOKEH+7,EN
630 IFEN<1THENPOKEH+7,0
635 POKE2040,201:GOTO280           :REM [BLU]
650 IFFR=192THENPOKEV+41,2:A$=A$+"■*"
660 IFFR=193THENPOKEV+41,2:A$=A$+"■*"
670 IFFR=194THENPOKEV+41,9:A$=A$+"■*"
680 IFFR=195THENPOKEV+41,5:A$=A$+"■*"
690 IFFR=196THENPOKEV+41,7:A$=A$+"■O"
700 RETURN
710 LI=LI-1:IFLI=0THEN20000
```

```
711 PRINT"■■■■■■■■■■■■■";TAB(30);LI:REM [HOME] [12 CRSR DOWN]
720 X=138:Y=133:X1=50:Y1=80:C=1479:C1=1228:GOTO1170
770 X=138:Y=133:X1=50:Y1=80:C=1479:C1=1228:POKEV+32,4:POKEV+33,4:DO=0:CO=0:S=0
780 RETURN
790 POKEH,30:FORA=0TO5:NEXTA:POKEH,0:RETURN
800 REM[CLR]
810 PRINT"■":POKE646,0:POKEH+7,0:EN=0:FR=FR+1:FP=0
819 REM [HOME]
820 PRINT"■*********************************"
825 REM [BLK][BLU][RED][BLU][BLK]
830 PRINT"■*■■.............................■■*":POKE646,0
835 REM[RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK]
840 PRINT"*■.■***■.■******■.■**■.■**■.■*****■.■***■.■*"
845 REM[BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][B
LK
850 PRINT"■*■.■***■.■******■.■**■.■**■.■*****■.■***■.■*"
855 REM[RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK]
860 PRINT"*■.■***■.■******■.■**■.■**■.■*****■.■***■.■*"
865 REM[BLK][RED][BLK][RED]
870 PRINT"■*■.■***■......................■***■.■*"
875 REM[RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK]
880 PRINT"*■.■********■.■**■.■*****■.■**■.■*******■.■*"
885 REM[RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK]
890 PRINT"*■.■********■.■**■.■*****■.■**■.■*******■.■*"
895 REM[RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK]
900 PRINT"*■.■********■.■**■.■*****■.■**■.■*******■.■*"
905 REM[RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK]
910 PRINT"*■.■*****■....■**■.■*****■.■**■....■****■.■*"
915 REM[RED][BLK][RED][BLK][RED][BLK]
920 PRINT"*■......■**■..............■**■.....■*"
925 REM[RED][BLK][RED][BLK][RED][BLK]
930 PRINT"*■......■********■...■********■.....■*"
935 REM[RED][BLK][RED][BLK][RED][BLK]
940 PRINT"*■......■********■...■********■.....■*"
945 REM[RED][BLK][RED][BLK][RED][BLK]
950 PRINT"*■......■**■..............■**■.....■*"
955 REM[RED][BLK][RED][BLK][RED][BLK][RED][BLK]
960 PRINT"*■.■*****■....■************■....■****■.■*"
965 REM[RED][BLK][RED][BLK][RED][BLK][RED][BLK]
970 PRINT"*■.■********■.■************■.■*******■.■*"
975 REM[RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK]
980 PRINT"*■.■********■.■**■.■*****■.■**■.■*******■.■*"
985 REM[RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK]
990 PRINT"*■.■********■.■**■.■*****■.■**■.■*******■.■*"
995 REM[RED][BLK][RED][BLK][RED][BLK]
1000 PRINT"*■.■***■......................■***■.■*"
1005 REM[RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK]
1010 PRINT"*■.■***■.■***********■.■**********■.■***■.■*"
1015 REM[RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK
1020 PRINT"*■.■***■.■******■.■**■.■**■.■*****■.■***■.■*"
1025 REM[RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK][RED][BLK
1030 PRINT"*■.■***■.■******■.■**■.■**■.■*****■.■***■.■*"
1035 REM [BLK][BLU][RED][BLU][BLK]
1040 PRINT"■*■■.............................■■*"
1045 REM [BLK][LIGHT BLU]
1050 PRINT"**********************************■"
1055 REM [HOME] [2 CRSR DOWNS] [RED]
1060 PRINT"■■■";TAB(31);"■SCORE"
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COMMODORE 64 PROGRAM

```
1065 REM [HOME] [6 CRSR DOWNS] [RED]
1070 PRINT"▒▒▒▒▒▒▒";TAB(31);"▒HIGH"
1075 REM [HOME] [10 CRSR DOWNS] [RED]
1080 PRINT"▒▒▒▒▒▒▒▒▒▒▒";TAB(31);"▒LIVES"
1085 REM [HOME] [15 CRSR DOWNS] [RED]
1090 PRINT"▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒";TAB(31);"GOBBLER"
1095 REM [HOME] [17 CRSR DOWNS] [RED]
1100 PRINT"▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒";TAB(31);"
1101 IFFR=197THENFR=192
1110 X=138:Y=133:X1=50:Y1=80:C=1479:C1=1228:GOSUB650:GOTO270
1130 IFX=138ANDY=133ANDPEEK(V+21)=7THENSC=SC+500:POKEV+21,3:FP=1:GOTO1200
1140 IFPEEK(V+30)=3ANDEN<>0THENSC=SC+10:X1=50:Y1=80:C1=1228:DO=DO+1:GOTO1229
1150 IF(PEEK(V+30)AND2)=2ANDEN=0THENGOTO710
1160 RETURN
1170 POKEWA,17:FORA=0TO200STEP30:POKEH,A:FORB=0TO50:NEXTB,A
1180 FORA=200TO0STEP-30:POKEH,A:FORB=0TO50:NEXTB,A:POKEH,0:POKEV+30,0
1190 POKEWA,33:RETURN
1200 FORA=0TO100STEP30:POKEH,A:FORB=0TO10:NEXTB,A
1210 FORA=100TO0STEP-30:POKEH,A:FORB=0TO10:NEXTB,A:POKEH,0:POKEV+30,0
1220 POKEV+30,0:RETURN
1229 FORA=0TO15:FORB=0TO5:POKEH+7,00+A*B:NEXTB,A:POKEH,0:RETURN
1230 FORD=200TO202:FORA=0TO62:READB:POKED*64+A,B:NEXTA,D
1240 DATA0,0,0,0,0,0,0,0,0,248,0,3,254,0,7,254,0,14,124,0,30,120,0,31,240,0
1250 DATA31,224,0,31,248,0,31,254,0,15,255,0,7,255,0,3,254,0,0,248
1260 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1280 DATA0,0,0,0,0,0,0,0,0,248,0,3,254,0,7,255,0,15,255,128,31,255,192,31
1290 DATA255,192,31,255,192,31,255,192,31,255,192,15,255,128,7,255,0,3,254,0,0
1300 DATA248,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1330 DATA0,0,0,0,0,0,0,0,0,248,0,3,254,0,3,255,0,0,243,128,0,115,192,0,63
1340 DATA192,0,31,192,0,127,192,1,255,192,3,255,128,3,255,0,3,254,0,0,240
1350 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1360 FORD=192TO196:FORA=0TO7:READB:POKED*64+25+A*3,B:NEXTA,D
1370 DATA48,8,8,20,36,102,255,102
1390 DATA12,24,126,215,237,126,44,24
1410 DATA60,66,255,129,129,255,66,60
1430 DATA102,255,219,255,102,60,36,102
1450 DATA255,90,102,36,60,24,24,24
1460 FORA=0TO7:POKE14336+42*8+A,255:NEXT
1470 FORA=0TO7:READB:POKE14336+46*8+A,B:NEXT
1480 DATA0,0,24,60,60,24,0,0
1490 FORA=0TO7:POKE14336+32*8+A,0:NEXT
1500 FORA=0TO7:READB:POKE14336+81*8+A,B:NEXT
1510 DATA60,60,126,255,255,126,60,60
1520 FORA=0TO7:READB:POKE14336+65*8+A,B:NEXT
1530 DATA48,8,8,20,36,102,255,102
1540 FORA=0TO7:READB:POKE14336+83*8+A,B:NEXT
1550 DATA12,24,126,215,237,126,44,24
1560 FORA=0TO7:READB:POKE14336+88*8+A,B:NEXT
1570 DATA60,66,255,129,129,255,66,60
1580 FORA=0TO7:READB:POKE14336+90*8+A,B:NEXT
1590 DATA102,255,219,255,102,60,36,102
1600 FORA=0TO7:READB:POKE14336+87*8+A,B:NEXT
1610 DATA255,90,102,36,60,24,24,24
1620 FORD=205TO208:FORA=0TO62:READB:POKED*64+A,B:NEXTA,D
1630 DATA2,128,0,10,160,0,42,168,0,170,170,0,158,182,0,158,182,0,150,150,0,150
1640 DATA150,0,170,170,0,170,170,0,170,170,0,170,170,0,170,170,0,170,170,0,136
1650 DATA136,0,136,136,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1670 DATA2,128,0,10,160,0,42,168,0,170,170,0,150,150,0,158,158,0,158,158,0,150
1680 DATA150,0,170,170,0,170,170,0,170,170,0,170,170,0,170,170,0,170,170,0
1690 DATA136,136,0,136,136,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1710 DATA2,128,0,10,160,0,42,168,0,170,170,0,150,150,0,150,150,0,158,182,0,158
1720 DATA182,0,170,170,0,170,170,0,170,170,0,170,170,0,170,170,0,170,170,0,136
1730 DATA136,0,136,136,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1750 DATA2,128,0,10,160,0,42,168,0,170,170,0,150,150,0,182,182,0,182,182,0,150
1760 DATA150,0,170,170,0,170,170,0,170,170,0,170,170,0,170,170,0,170,170,0,136
1770 DATA136,0,136,136,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1775 FORA=0TO10:READB$:BB$(A)=B$:NEXT
1776 DATAE,N,T,E,R, ,L,E,V,E,L
1780 RETURN
10000 POKEV+16,0
10001 X=15:Y=108:POKEV,X:POKEV+1,Y:POKEV+21,1:POKE2040,200:POKEV+39,1:GG=1340
10010 FORA=0TO255STEP8:GG=GG+1:POKEV,A:POKEGG,32:POKE2040,200:POKE2040,201
10020 POKEH,25:FORB=0TO10:NEXTB:POKEH,0:NEXTA
10030 POKEV+16,1:FORA=0TO60STEP8:GG=GG+1:POKEV,A:POKEGG,32:POKE2040,200
10040 POKE2040,201:POKEH,25:FORB=0TO10:NEXTB:POKEH,0:NEXTA:POKEH,0
10050 POKEV+16,0:POKEV,0:Y=Y+8:POKEV+1,Y
10060 NU=NU+1:IFNU=5THENNU=0:GOTO10080
10070 GOTO10010
10080 Y=50:X=22:POKEV,X:PRINT"▒":POKE2040,200
10090 FORA=0TO10:Y=Y+8:PRINTCHR$(158)BB$(A):POKEV+1,Y:FORB=0TO100:NEXTB,A:GG=14
64
10091 PRINT"▒▒▒▒▒▒WHOOPS !!":FORB=0TO400:NEXTB:REM[5 CRSR RIGHT][WHT]
10092 PRINT"▒▒▒▒▒        ":REM [CRSR UP][5 CRSR RIGHT]
10100 FORA=0TO10:Y=Y-8:POKEGG,32:GG=GG-40:POKEV+1,Y:FORB=0TO100:NEXTB,A
10110 FORA=0TO10:Y=Y+8:GG=GG+40:POKEV+1,Y:NEXT
10120 FORA=0TO11:X=X+8:GG=GG+1:POKEV,X:NEXT:POKE2040,200
10125 PRINT"▒▒▒▒▒▒▒▒▒▒▒▒▒";:Y=Y+8:POKEV+1,Y:REM [13 CRSR RIGHT]
10130 FORA=0TO5:X=X+8:PRINTBB$(A);:POKEV,X:FORB=0TO100:NEXTB,A
10135 PRINT" ";:FORA=6TO10:X=X+8:PRINTBB$(A);:POKEV,X:FORB=0TO100:NEXTB,A
10140 POKEV,180:POKEV+1,80:POKEV+2,130:POKEV+3,80:POKEV+21,3
10150 POKEV+23,3:POKEV+29,3:POKEV+28,2:POKEV+40,2:PRINT
10155 REM [RED][4 CRSR DWN]
10160 PRINT"▒▒▒▒▒  GUIDE YOUR GOBBLER AROUND THE THREE":PRINT
10165 REM [PUR]
10170 PRINT"▒ TYPES OF MAZE WHILST EATING DOTS AND ":PRINT
10175 REM [YEL]
10180 PRINT"▒ POWER PODS."
10195 REM [HOME] [13 CRSR DWN]
10200 PRINT"▒▒▒▒▒▒▒▒▒▒▒▒▒▒";TAB(24);LE
10210 GETI$
10215 REM [F1]
10220 IFI$="▒"THENLE=LE+1
10230 IFLE>5THENLE=1
10235 POKE2041,HH:HH=HH+1
10236 IFHH>208THENHH=205
10240 IFPEEK(197)=60THENPOKEV+23,4:POKEV+29,4:RETURN
10250 GOTO10200
20000 POKEV+21,0:POKEV0,0:POKEV+32,0:POKEV+33,0
20001 S$=STR$(SC):N=LEN(S$):S$=LEFT$("000000",8-N)+RIGHT$(S$,N-1):POKE53272,21
20030 K=0:FORI=1TO5:IFSC>VAL(LEFT$(B$(I),7))THENK=1:I=5
20040 NEXTI
20050 IFK=0THEN20100
20055 REM [BLU][CLR][2 CRSR DWN][2 CRSR DOWN]
20060 PRINT"▒▒▒▒        YOU ARE IN THE TOP FIVE▒▒":POKE198,0
20065 REM [RED][CRSR DOWN][BLU]
20070 PRINT"▒            ENTER YOUR NAME▒▒":INPUT"",I$:IFLEN(I$)>10THEN20070
20080 FORI=4TOKSTEP-1:B$(I+1)=B$(I):NEXT
20090 B$(K)=S$+" "+I$
20095 REM [CLR][3CRSR DOWNS]
20100 PRINT"▒       GOBBLER ALL TIME GREATS▒▒▒"
20110 FORI=1TO5:PRINT"▒              "I;B$(I):NEXTI:IFSC>HITHENHI=SC
20120 FORD=0TO5000:NEXT:GA=1:GOTO10
```


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Top Ten programs for the Spectrum

1	Atic Atac	Ultimate (1)
2	Lunar Jetman	Ultimate (2)
3	Ant Attack	Quicksilva (3)
4	Jetpak	Ultimate (–)
5	Pyramid	Fantasy (–)
6	Kong	Ocean (–)
7	Death Chase	Micro Mega (6)
8	Chequered Flag	Psion (10)
9	Manic Miner	Bug-Byte (4)
10	Pool	CDS (–)

Compiled by W.H.Smith. Figures in brackets are last week's positions.

Top Ten programs for the VIC-20

1	Jetpak	Ultimate (1)
2	Catcha Snatcha	Imagine (2)
3	Arcadia	Imagine (3)
4	Wacky Waiters	Imagine (4)
5	Gridrunner	Llamsoft (5)
6	Sky hawk	Quicksilva (9)
7	Amok	Audiogenic (10)
8	Kaktus	Audiogenic (8)
9	Tomb of Drewa	Audiogenic (–)
10	Bonzo	Audiogenic (–)

Compiled by Websters. Figures in brackets are last week's positions

Top Ten programs for the Commodore 64

1	Frogger	Interceptor (1)
2	Arcadia	Imagine (–)
3	Spriteman	Interceptor (3)
4	Hover Bover	Llamsoft (–)
5	Motor Mania	Audiogenic (6)
6	Crazy Kong	Interceptor (4)
7	QuickThinking	Mirrorsoft (5)
8	Gridrunner 64	Llamsoft (–)
9	Hungry Horace	M.House (7)
10	Purple Turtle	Quicksilva (9)

Compiled by Websters. Figures in brackets are last week's positions

Top Ten programs for the Dragon

1	Cuthbert goes Walkabout	Microdeal (1)
2	The King	Microdeal (2)
3	The Champion	Peaksoft (–)
4	Talking Android Attack	Microdeal (9)
5	Pettigrews Diary	Shards (3)
6	Dragonfly 2	Hewson (7)
7	Mined Out	Quicksilva (5)
8	Dragon Trek	Salamander (6)
9	Frogger	Microdeal (–)
10	Gridrunner	Salamander (–)

Compiled by Websters. Figures in brackets are last week's positions

BEST SELLERS

Top 30

1	Manic Miner	Bug-Byte	Spectrum (5)
2	The Hobbit	M.House	Spectrum (4)
3	Valhalla	Legend	Spectrum (7)
4	Jetpac	Ultimate	Spectrum (4)
5	Hunchback	Ocean	Spectrum (–)
6	3D Ant Attack	Quicksilva	Spectrum (–)
7	Kong	Ocean	Spectrum (3)
8	Lunar Jetman	Ultimate	Spectrum (2)
9	Zzoom	Imagine	Spectrum (–)
10	The Hobbit	M.House	CBM 64 (–)
11	Hunchback	Ocean	CBM 64 (–)
12	Hunchback	Superior	BBC (–)
13	Felcon Patrol	Virgin	CBM 64 (–)
14	Horace goes skiing	Psion	CBM64 (–)
15	Harrior Attack	Durrel	Spectrum (–)
16	Frogger	Microdeal	Dragon (–)
17	The King	Microdeal	Dragon (21)
18	Cuthbert in the jungle	Microdeal	Dragon (24)
19	Atic Atac	Ultimate	Spectrum (1)
20	Skramble	Anirog	CBM64 (–)
21	Arcadia	Imagine	VIC 20 (–)
22	Kong	Anirog	CBM64 (–)
23	Hunter Killer	Protek	Spectrum (–)
24	White Knight	BBC Soft	BBC (–)
25	The Hobbit	M.House	Oric (–)
26	Chequered Flag	Psion	Spectrum (–)
27	Knife of Kishtu	Future	Dragon (–)
28	Chuckie egg	A&F	Spectrum (9)
29	Jetpak	Ultimate	VIC 20 (–)
30	Twin Kingdom Valley	Bug-Byte	Spectrum

Compiled by PCS Distribution(0254 691211) and sanctioned by the Computer Trade Association. Chart is for retail sales in individual outlets in theUK and Northern Ireland for the fortnight ended January 18

Top Ten programs for the ZX81

1	Defender	Quicksilva (–)
2	Invaders	Quicksilva (–)
3	Football Manager	Audiogenic (–)
4	Chess	Sinclair (5)
5	Skramble	Quicksilva (3)
6	Asteroids	Quicksilva (4)
7	Mothership	Sinclair (6)
8	Space Raiders	Sinclair (7)
9	Inca Curse	Sinclair (8)
10	Crazy Kong	PSS (10)

Compiled by Websters. Figures in brackets are last week's positions

Venture into an adventure

Our reviewers tell you what to expect from these adventure games — without giving too much away

Sword of Hrakel VIC-20 with 3K+ £5.99

Romik Software, 272 Argyll Avenue, Slough SL1 4HE

Romik has been taking a greater interest in adventures lately, and this is a good example of their range of games.

First the bad news. If you're a member of the movement in favour of graphical adventures rather than text, this game is not for you.

Personally, I think that a well written textual game which creates a good atmosphere is superior to graphics. (Graphics tend to be RAM hungry.)

Enough rumination, on with the game. Sword of Hrakel is of the classical mode with a standard verb/noun interpreter (since it will fit into a VIC plus 3K what more can you expect?).

The plot is simple: find the sword and save the world.

In order to do it you must explore the scenario, solve a few problems and use a lot of lateral thought. There is enough mental aggravation to give you many hours of teeth grinding, cursing and general despair.

The usual SAVE and LOAD features for keeping a record of your progress are available and the game has a nice feel about it.

The text formatting is fair and there are no obvious bugs. **A.W.**

instructions	70%
playability	80%
graphics	n/a
value for money	90%

★ ★ ★ ★ ★

The Hobbit 32K BBC £14.95

Melbourne House, 131 Trafalgar Road, London SE10

First impressions of The Hobbit are good — a fat package with cassette, instruction leaflet and a copy of Tolkien's Hobbit book.

The instructions take you through the task of communicating with the computer, giving the vocabulary, rules of input and general play concepts, but won't give you any clues. Try reading the book...

Sadly this version is restricted by the BBC's mere 32K of memory, and unlike the Spectrum original has no graphics display, which seems a great pity. Still, those who like myself are used to text-only adventures will find that they enjoy the game anyway.

As well as a save game facility, the program has a printout mode in which the screen output can be fed to a printer — very good for finding your way about, as you can refer back to previous printouts.

The cassette is recorded on both sides. Just as well, as on my copy one side wouldn't always load. The tape tended to jam up, too.

Fifteen pounds seems a bit steep, even for a program this size, but The Hobbit will give rich adventure fans many hours of brain-racking fun. **J.H.**

instructions	95%
playability	75%
display	50%
value for money	75%

★ ★ ★ ★

House of Death 48K Oric £9.99

Tansoft, 3 Club Mews, Market Square, Ely, Cambs

A new adventure game from Tansoft by the author of their earlier Zodiac.

The action takes place in an old House of Horror where films were once made. Various props have been left behind and the house is now occupied by strange and dangerous residents.

If you dare enter the house then you might find five treasures hidden there, but in the course of searching the house you are quite likely to meet a nasty end by one foul means or another.

In addition, if midnight comes — a chiming clock keeps track of time — it is not a good idea to be still inside.

Technically the game seems sound, with the opportunity of saving your position incorporated in the program. The author has a nice sense of humour and I found some of the results of my actions really very funny.

There are no graphics as such, apart from an introductory picture, and I found the screen scrolling a little annoying since not much information is available to view at any one time **P.W.**

instructions	80%
playability	75%
graphics	n/a
value for money	80%

★ ★ ★ ★

Runner on Treiton TI-99/4A £5.95

Lantern, 4 Haffenden Road, Tenterden TN30 6QD

This is a part graphics, part text adventure game. You are the runner and your mission is to collect Treiton jewels which are dotted about at various places on the landscape.

Determined to impede your progress are ferocious beasties, quicksand pits and the keeper of Treiton who is forever on your trail.

Time and your declining strength are against you, but your strength is boosted as you collect the jewels.

You start with £400 to buy flares, wizard spells and time capsules which can help you on your mission.

You are then shown a map depicting the position of the beasts, the quicksand pits and jewels.

This disappears after a few seconds and from then on you must rely on your memory.

At any time during the game, providing you have enough strength, you may enter one of the time warps on the map and be transported to another era on Treiton, where everything has changed position. **D.B.**

instructions	70%
playability	80%
graphics	70%
value for money	80%

★ ★ ★ ★

The Man From Granny CBM-64 £6.95

Vectis, 6 Victoria Road, Sandown, Isle Of Wight

In this adventure you are a secret agent whose mission it is to locate and destroy a foreign agent.

The foreign agent has been taken to Fishbone Prison (or so a newspaper that I found in the game told me.)

The game starts off in a typical American town — lots of alleys and sidewalks. From here you may go into a forest, buildings, streets, prison, etc.

There are various problems to overcome such as gangsters, wild animals, and faulty equipment.

I shall say no more — don't want to give too many secrets away!

The game has very good and accurate descriptions of the playing area and objects in it. There are plenty of witty comments included which make the game distinctive from all other adventures.

Although it's a text only adventure and has no graphics I found it addictive and enjoyable to play. A good text game is much better than an average text/graphics game.

The instructions are very brief — you learn what you are doing as you play the game. I feel this is a drawback of the program. **K.I.**

instructions	20%
ease of use	80%
display	80%
value for money	90%

★ ★ ★ ★ ★

Bring your friends to book with your Spectrum

Turn your computer into a giant address book and keep your friends in order. David Nowotnik explains how it works

If you only want to keep a few names and addresses of friends on file, then an address book will serve that purpose adequately.

However, if the number runs into tens, or even hundreds, then you could get into an awful mess with a book.

This is when a home computer will help you, and if you have a ZX Spectrum or ZX81 then you can use my Address Book program to create and store a file of names and addresses, and use the power of the computer to extract the information you want.



How it works

70-190 initialise main variables
200-360 main menu
400-450 SAVE the program and data on tape
500-550 check for a keypress subroutine
1000-1160 enter details of a new record
2000-2140 enter search parameters
2150-2230 search routine
3000-3130 screen print a record found in the search option
3140-3250 routine to amend a record

When you use the program for the first time, start it with RUN. This will create a blank file, and initialise the program ready for use. It is a simple program to use; there are just three options in the main menu.

Main variables

a$() the array which holds the file
n$() the array holding the field (item) names
n number of records
y$, z$ input variables

```
 10 REM     Address Book
 20 REM   by David Nowotnik
 30 REM       Sept, 1983
 40 REM
 50 REM  Create the file
 60 REM
 70 DIM a$(50,105)
 80 REM
 90 REM     Field names
100 REM
110 DIM n$(7,8)
120 LET n$(1)="Surname"
130 LET n$(2)="Forename"
140 LET n$(3)="Street"
150 LET n$(4)="District"
160 LET n$(5)="Town"
170 LET n$(6)="County"
180 LET n$(7)="Tel. No."
190 LET n=0
195 REM
200 REM    Menu
210 REM
220 CLS
230 PRINT
240 PRINT TAB 12;"Address Book"
250 PRINT AT 3,14;"Options"
260 PRINT AT 6,1;"1. Enter details"
270 PRINT AT 8,1;"2. Search/Ammend"
280 PRINT AT 10,1;"3. Save on Tape"
290 PRINT AT 15,0;"Select option, press 1,2, or 3"
```

Option 1 allows you to make a new entry into the file. You should enter surname, forename, street (including house number), district, town, county, and telephone number to the prompts on the screen. If you want to leave any item blank, simply press ENTER to move onto the next item. And if you make a mistake, you can use option 2 to correct it.

The second option in the main menu allows you to search through your file for any specified item. You have to enter which field (i.e. 1 for surname, 2 for forename, etc), and the search word. If a match is found, then the entire record is shown on the screen.

Once a record is displayed, you have three choices. You can continue with the search (press N), obtain a copy of that record on the ZX printer (press C), or amend the record (press A). The latter is used if you have made a mistake on entry, or the details have changed, such as a change of address.

The final option allows you to SAVE the program and data on tape. This you must do if you have made any changes or additions to the file, before you switch off.

Hints on conversion to ZX81

The program as written will work on the Spectrum; a slight change is required for use on the ZX81. These changes are:

440 PRINT AT 20,1;"START THE TAPE AND PRESS ANY KEY"
450 SAVE "ADDRESS"
460 GOTO 200

Note: it would be a simple matter to change one of the fields — Country, for example — to Month of birth. Then you could check whose birthday was approaching. You could not, however, search this field for the full date.

If you have enough memory you can change the number of records you can store. At present the program limits you to 50. For more change the number 50 to the required number in lines 70, 340 and 1030.

SPECTRUM PROGRAM

```
300 GO SUB 500
310 IF z$="3" THEN  GO TO 400
320 IF NOT (z$="1" OR z$="2") THEN  GO TO 300
330 LET k=VAL z$
340 IF k=1 AND n<50 THEN  GO SUB 1000
350 IF k=2 AND n>0 THEN  GO SUB 2000
360 GO TO 200
370 REM
400 REM Save on tape option
410 REM
420 CLS
430 PRINT AT 4,1;"Save Program and file on tape"
440 SAVE "Address" LINE 200
450 STOP
460 REM
490 REM Subroutines
500 REM
510 REM Check for a keypress
520 REM
530 LET z$=INKEY$
540 RETURN
550 REM
1000 REM Enter details
1010 REM
1020 REM Check if file is full
1030 IF n=50 THEN  RETURN
1040 REM  Fill next record
1050 LET n=n+1
1060 CLS
1070 PRINT AT 2,6;"Enter Details"
1080 FOR i=1 TO 7
1090 PRINT AT 4+i*2,1;i;" ";n$(i);" ";
1100 INPUT y$
1110 LET a$(n,i*15-14 TO i*15)=y$
1120 PRINT a$(n,i*15-14 TO i*15)
1130 NEXT i
1140 PAUSE 200
1150 RETURN
1160 REM
2000 REM Search Routine
2010 REM
2020 CLS
2030 PRINT AT 1,8;"Search/Amend"
2040 FOR i=1 TO 7
2050 PRINT AT i+3,2;i;" ";n$(i)
2060 NEXT i
2070 PRINT
2080 PRINT "Select Field for search ";
2090 GO SUB 500
2100 IF z$<"1" OR z$>"7" THEN  GO TO 2090
2110 PRINT z$
2120 PRINT "Enter Search name"
2130 INPUT y$
2140 IF LEN y$>15 THEN  GO TO 2130
2150 REM Search
2160 FOR i=1 TO n
2170 LET l=15*VAL z$-14
2180 IF y$=a$(i,l TO l+LEN y$-1) THEN  GO TO 3000
2190 NEXT i
2200 CLS
2210 PRINT AT 2,4;"Search Complete"
2220 PAUSE 200
2230 RETURN
2240 REM
3000 REM Record found
3010 REM
3020 CLS
3030 FOR j=1 TO 7
3040 PRINT AT j*2,2;j;" ";n$(j);" ";a$(i,15*j-14 TO 15*
j)
3050 NEXT j
3060 PRINT
3070 PRINT "Press: C for copy"
3080 PRINT "       A for ammend"
3090 PRINT "       N to continue search"
3100 GO SUB 500
3110 IF z$="c" THEN  COPY
3120 IF z$="n" THEN  GO TO 2190
3130 IF z$<>"a" THEN  GO TO 3100
3140 PRINT "Ammend - Select field ";
3150 GO SUB 500
3160 IF z$<"1" OR z$>"7" THEN  GO TO 3150
3180 PRINT z$
3190 LET l=15*VAL z$-14
3200 PRINT "Enter Modified Details"
3210 INPUT y$
3220 IF LEN y$>15 THEN  GO TO 3210
3230 LET a$(i,l TO l+14)=y$
3240 PRINT "  continuing search"
3250 GO TO 2190
```




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The Valley's nerds are on the way out

I'd like to start of this week by expressing an observation for which I do not claim originality, but with which I concur.

It has become increasingly clear during the past year or so that the Silicon Valley, if not the entire microcomputer industry, is bidding farewell to the nerd. If not entirely gone, the days of the white-faced horn-rim spectacled whiz kids are certainly numbered.

As to what sort of person is going to usurp the nerds' former positions of power, this too is clear. It will be your basic business executive from virtually any other industry as long as that industry has nothing directly to do with micros.

Regardless of whether it is breakfast cereals or carbonated soft drinks, it is clear that the new leaders are men who think in terms of the bottom line.

I suppose as the industry becomes more "serious" that this was bound to happen someday, and yet I wonder if becoming serious is all that much of a virtue. Although they may have lacked social skils and business sense, at least those nerds were innovators. And if there is one characteristic that business people are not exactly famous for it is innovation.

I have little doubt what the industry will lose as it "matures." What it gains in professionalism and efficiency may be over-shadowed by the lack of novel applications. When nerds headed the companies, the trend was for small responsive administrations that said yes to new and untested ideas if they sounded interesting or "fun."

As the executive mentality invades the Valley, I foresee the "loop time" increasing between the time when approval is requested to work on a novel application and the time when that approval is obtained. American executives still have not learned the advantages of the "flat" management style favoured by the Japanese which means that many formerly innovative companies may be managed to death. I hope that lots of other people realise the contribution of the nerd before it is too late.

Otherwise, a lot of us will be sitting around in another year or so and wondering, as we have already started to wonder about other aspects of American industry, what went wrong.

★ ★ ★ ★

I'd like to close with a promotion of one of the best hardware/software mail order houses in the country.

I do most of my supply, program, and hardware purchasing by mail order, and I get a lot of promotional mail and catalogs as a result. But this firm deserves a special mention.

I see by their latest ad that they are now calling themselves the largest computer mail order firm in the world, and I can easily believe it. They will take foreign orders and will accept the usual credit cards. Their delivery time is excellent. They also do not lie; if something is out of stock they say so, and will not estimate a delivery date if they are not sure they can meet it.

They handle peripherals, supplies, hardware, and software for every major personal computer and lots of software and some peripherals for home computers.

Lest I keep you in suspense for too long, the name of this firm is called Conroy-LaPointe (formerly Computer Exchange), P.O. Box 23068, Portland, Oregon, (503) 245-6200 or (800) 547-1289.

This last number is toll-free but only the continental U.S. (sorry about that).

If you write to them, I am sure they will send you a catalog and order details free of charge. Very much worth the effort.

See you next week.

Bud Izen
Fairfield, California

The key to learning?

More and more educational software is coming on to the market. To help you decide where to spend your money, our reviewers have tried out five of the latest tapes

Apostrophe 48K Spectrum £7.95

Sinclair Research, 25 Willis Road, Cambridge CB1 2AQ

This is not intended to be a teaching program, but rather a re-iteration and practice tape based on the use of the apostrophe.

It assumes prior instruction and contains only sketchy examples of use. Practice sentences can be input by the user as an option.

You manipulate a blackbrid to drop a "worm", the apostrophe, into the correct place in the sentence. If this process is completed often enough, you get the "reward" of playing a rudimentary arcade style game.

If you fail often enough, you are shown the correct answer. A certificate of results is printed by the ZX Printer if attached.

This work would normally be tacked with children of 11 years and older. Will they really be attracted by "dicky birds", worms, butterflies and helicopters?

Though some use if made of large characters and even a user defined apostrophe, when the exercises are printed, it's in the normal Spectrum character set, and the apostrophe is all but lost on the Spectrum's shimmering screen. **D.M.**

instructions	95%
ease of use	95%
display	60%
value for money	40%

★★

Mr T's Alphabet Games 32K BBC £12.95

Ebury Software, 72 Broadwick Street, London W1V 2BP

This package of two games is aimed at the three to six year olds who have access to micros, and is meant to be used before school and learning to read.

Like a great deal of educational software, the programs don't cover an area comprehensively or even well. Rather, they take a stab at the area in the hope they do some good.

The programs are of excellent quality. In this case, it's simply that without specialist training or help, when to use them is a greater problem than how to use them!

Let's Draw Letters is the best of the two, and aims to demonstrate the correct pencil movements for each of the lower case letters of the alphabet.

This is done very well, and should lead to good letter writing habits. There is no doubt that bad ones cause a great deal of difficulty later.

The other program is Mr T's Letter Factory, which tries to teach letter recognition and matching.

This is an amusingly animated program, but in my opinion has only a limited use.

The whole package would have been much more attractive if priced at a lower level. **D.C.**

instructions	80%
ease of use	90%
display	80%
value for money	50%

★★★

Wild Words Spectrum £7.95

Longman Software, Longman House, Burnt Mill, Harlow, Essex

Wild Words is an amusing and compelling game that gives children of school age and above practice in spelling. The vocabulary includes over 200 words ranging from three to 14 letters, and all the main spelling rules are covered.

After a long loading sequence, the scenario of two trees, greas, and a short-stalked flower appear. The child is asked to select a difficulty level from Easy (words like "mat") to Really Nasty (brontosaurus!).

The first word is displayed briefly, then letters begin to fall from a menagerie frieze scrolling across the top of the screen.

To catch the first letter Micro-chimp is there to help you. You can move him using the cursor keys to catch the required letter in his wheelbarrow, then deliver it without any other letter falling into the barrow, or hitting Micro-chimp on the head!

When the child has completed the word a tune plays, the flower grows, and a new word appears. The more words you complete the faster the letters fall.

If you win, the program describes you as "magic". And that's just how my children described this game. **C.B.**

instructions	90%
ease of use	100%
display	100%
value for money	95%

★★★★★

Mr T's Measuring Games 32K BBC £12.95

Ebury Software, 72 Broadwick St, London W1V 2BP

The Ebury cassettes I've seen have kept up a consistently high standard both in the programming and in the packaging and documentation.

The first game concerns comparisons of size. It is meant for one child who simply operates the space bar. Two objects are shown, one of which changes size. The idea is to stop when they are the same.

The graphics are good, with a variety of items like ice-cream cones, trains, bottles and so on.

The second menu offers three variations on the theme of Climbing and Growing. Animals on a step have to be made taller or shorter with single keys to fit within a given space.

The second stage involves placing the animals higher or lower on the steps to accommodate their size. The final part combines all of these decisions.

Both programs provided the sort of repetition needed by young children to reinforce basic skills in a colourful and imaginative way. There were plenty of suggestions for extending the ideas in the Parents' Handbook.

The children enjoyed playing the games and found no difficulty in operating them. **M.P.**

instructions	100%
playability	100%
graphics	95%
value for money	80%

★★★★★

Robot Runner Spectrum £7.95

Longman Software, Longman House, Burnt Mill, Harlow, Essex

Robot Runner is a challenging game of speed and skill which is designed to give children of six years and above practice in the two to nine times tables.

The object of the game is to help Robot Runner in his quest to retrieve the treasures of Endor which lie on the far side of the dreaded number ways of Andron.

Crossing these involve solving a series of multiplication sums. The child has to work out the answer, and, pressing 7 or 6, increase or decrease the value displayed to the correct value before moving Robot Runner onto the first number way.

And there's a catch. On the number ways are things looking rather like spiders doing cartwheels. Bump into one of those and you have to start again.

To reach the treasures from the last number way you have to guide Robot Runner into a treasure cove without hitting a wall (and still keeping a look-out for those spiders!).

A nicely thought and original game, with superb graphics and good use of sound, Robot Runner should give hours of constructive pleasure. My eight year old thought it was great. **C.B.**

instructions	95%
ease of use	85%
display	95%
value for money	90%

★★★★★

Send your letter to Letters, Home Computing Weekly, No.1 Golden Square, London W1R 3AB. Don't forget to name your computer — the best letter could win £5-worth of software. Got a problem with your micro? We'll soon be starting a queries page, so send your technical questions to Queries at the above address

Why's the VIC left out?

I have just one message to relay to you: bring back VIC-20 software reviews! I, along with fellow VIC-20 owners, are wondering where they have gone.

Over the past few months I have seen only a handful of VIC reviews between all the issues concerned.

It is a fact that just as many people own VIC-20s as they do Spectrums. I realise that there is a lot more software available for the Spectrum than there is for the VIC, but that doesn't mean that there isn't any at all!

I am still on the lookout for more software for my computer, and because of your previous excellent reviews of Arcadia (Imagine) and Matrix (Llamasoft), I decided to buy them.

Apart from this one criticism, I think that your magazine is excellent value for money, and well worth the price tag!

Gary Vurnum, Anerley, London SE20

We've not intention of discriminating against the VIC — you'll see that we are still carrying plenty of program listings for this deservedly popular machine. But what we review is a reflection of what sofware companies send us, and unfortunately it seems to be the case that many companies who used to produce software for the VIC are now concentrating on the Commodore 64. Thousands of ZX81 owners are being similarly abandoned in favour of the Spectrum. All we can say is, if any software companies that produce VIC-20 programs are reading this, start sending us those review tapes!

Seeing red...

I can sympathise with Dorene Cox (HCW 38) on the problems of the Series 3 Spectrums.

On my 21st birthday I was given a 48K Spectrum. This wasn't the original one bought. The first one, which may father tried out before giving me, had to be returned because it didn't load properly.

The second machine had to be returned when it packed up, showing only character squares on screen, and giving no response to key strokes.

The third went the same way as the second. I should point out here that my computers were never left on for very long, nor were they harshly used.

My fourth Spectrum was returned when the keyboard started to lift off when the computer got hot. Also the colour started flashing black and white to colour rather unnervingly after only 10 minutes use.

Spectrum number five was great until one day I tried my first attempt at PEEKing and POKEing. Contrary to what all the books say, this did seem to do it permanent damage. After that, everything that was typed flashed from one daft hieroglyphic to another, even after being switched off for half a day.

All my Spectrums were used on a board which allowed an inch of ventilation.

I think the Spectrum was a fantastic idea, but its major design fault seems to be that it doesn't work. I had to defect, and with my refund, trade a great idea for better reliability. I mean, I have moved on to a VIC-20.

So if you possess a reliable Spectrum, hang on to it. You've got a rare and splendid machine.

Ian Wightman, Aberhill, Fyfe



A little knowledge...

As a TI-99/4A owner I too spent a frustrating weekend up and down the High Street searching for software to no avail.

Certainly the fight between the micros seems to have narrowed down to the BBC, Spectrum and Commodore with hordes of children and adults happily 'hands on' at every available micro bar.

While it is great to see so many people obviously interested in computers, there is still a great lack of interested sales staff around.

Most enquiries about the 99 met with blank stares, one staff member suitably emblazoned with "Computer Sales only" apologised for only being a part-time worker and therefore not knowing details about her firm's current software!

High Street Electricals carry national full page advertisements (especially so at this time of year) but sadly their staff employed sell mainly from the box with little knowledge when asked a seemingly quite reasonable question.

Rumbelows staff did provide the explanation that "Head Office had recalled all 99 software from last Thursday" — so obviously that is that!

One letter from Stainless Software (HCW 38) recently urged us to support the mail order companies for 99 software — it looks as though this is the only way we will be able to continue to buy for the TI — so yes, they will get my support.

May I just say what a pity I think it is that the 99 is no more — the hardware is so much better than many comparables. As a trained typist, I appreciate 'proper' keys and excellent professional finish to the machine which I and the rest of my family have all enjoyed using.

The slow BASIC is perhaps its biggest downfall, but this can be got over with a bit of suitable work!

Finally, I would like to answer Julian Shawcross in HCW No. 38 to say that my son Simon's record so far on TI invaders is 22,356 and he is only 12 — probably a distinct advantage!

Thanks for a great weekly.

Julie Jesse, Braintree, Essex

We asked Henry Quick, marketing manager at Rumbelows, whether the chain was in fact ceasing sales of TI-99/4A software. He said "Absolutely not! A staff member must have got hold of the wrong end of the stick. On the contrary, it's in our interest to keep up stocks of TI-99/4A software so that people will be encouraged to buy the machine. We hope that demand for the TI-99/4A itself will continue for some time, on the basis that it's a good unit and very reasonably priced at £89.99. It's currently selling very well, and we'll be continuing to sell software for it while demand continues."

Norwegian wouldn't

Do you really mean that I shall destroy three issues of your excellent magazine in order to get myself a T-shirt, size XL?

No way — I am not willing to destroy my Commodore 64 to get a caramel, either, though I do love caramels.

Erling Sydnes, Oslo, Norway

★ *You still can't have a T-shirt, but if it's any consolation we're giving you this weeks's software prize.*

Back to the arcades

Well, they say the old ones are the best ones. See what our reviewers thought of these

Squash a Frog CBM 74 £7.95

Alligata, 178 West Street, Sheffield S1 4ET

All the usual Frogger features are here. You have to move your frog across four lanes of fast traffic to the river bank.

On reaching the river bank you have to keep moving or you'll be eaten by a snake. To reach safety you have to hop across the river on the back of turtles or logs.

If you manage to get five frogs across then you progress to the next level of difficulty. Landing on a lady frog earns you extra points — and this game is recommended for eight years upwards!

The program does not allow for the use of joysticks, which is a pity.

The screen display includes the current score, highest to date, number of lives left, time left and level of play. Reasonable sound effects are used to enhance the action.

I thought the screen graphics were quite good but not as good as the best Frogger versions. The action was a little too fast for me, but my son managed to bring home the frogs without too much splat.

With these few reservations, I'd recommend Squash a Frog. A promising start from new software company, Alligata. **L.C.**

instructions	70%
playability	80%
graphics	70%
value for money	70%

★ ★ ★ ★

Mr Frog TI-99/4A (Extended BASIC) £7

SP Software, from Stainless Software, 10 Alstone Road, Stockport, Cheshire

Mr Frog is quite remarkable in that it must be one of the worst adaptations of Frogger that I've ever seen, and among the most expensive.

Furthermore, when you come to play the game itself you are soon left with the impression that something is drastically wrong.

A small insert provided with the cassette gives "hints" like "try not to land at the right hand side of boats" and "you may roll off the logs".

What this means is that if you safely land on a log or boat you may still be treated as though you drowned, whilst at other times you can land in the water by the side of a boat, yet float along as though you were on it!

A similar situation exists when you attempt to land in a home. The instructions say "land slightly to the right".

It's more likely that the homes themselves are in the wrong places. You can jump into the bank itself to the right of the home and be awarded points for a safe landing, whereas landing to the left actually in the home leads to instant death! **J.W.**

instructions	10%
playability	10%
graphics	50%
value for money	10%

★

Exterminator Spectrum £5.95

Silversoft, London House, 271/273 King St, London W6

Exterminator is a Berzerk-type game with a few differences.

You are a little man in the middle of an enclosed screen, saving yourself, and other humans, from the aliens that are after you.

There are all different types of aliens, 'Black Robots', 'Brains', 'Saucers', and all other types of robots.

There is a small but in the program to do with the controls. The insert instructions explain that there are two sets of control keys which can be obtained by pressing 'C' to swap between the two.

This was probably only a fault in loading, but pressing C seemed to have no effect, and I had terrible trouble trying to control the man on keyboard option 1.

The graphics used are, well, a little small. If the graphics were half the size again the game would probably not be as frantic as it was.

Because everything was happening so fast, and the graphics were so tiny, I could hardly make out what was what, and if I took time to look I got killed by something. Not a bad game. But despite these few criticisms not a bad game. **P.S.**

instructions	85%
playability	70%
graphics	68%
value for money	78%

★ ★ ★ ★

Snapman CBM 64 £5

Saturn Software, The Georgian House, Brooks Close, Weybridge, Surrey

No bonus points for guessing which well known game this is a copy of.

You control a small rotund individual which moves about a maze consuming pills.

Four nasty ghosts also move about but they exist only to eliminate our hero.

The objective, to score as much as possible with three lives.

OK, so we all know the principle and most would agree that it's a great game.

The question is, how good is this version? The answer is, good but not exceptional.

Graphically it's fine, with the ghosts having all the required facial expressions, and the overall design is to a good standard.

Movement is smooth and quite quick. There is an obvious bug in that the ghosts tend to become superimposed on occasion and it is not unusual to have only two ghosts to evade.

But I can't understand why the author has bothered to copy this game which has been over-copied already. He (or she) clearly has the ability to write good programs in machine code, so why not write something new?

Still, if you don't have a copy of Pacman, this version is worth a look. It's basically sound and cheap. **A.W.**

instructions	65%
playability	75%
graphics	75%
value for money	80%

★ ★ ★ ★

Trogman TI-99/4A £5

Stainless Software, 10 Alstone Road, Stockport, Cheshire

Pursued by White Wraiths, you have to guide the Trogman around the maze, eating dots and other objects along the way.

When you are ready, you can proceed to the next level by reaching a white hole. Each level is harder than the previous one, as the Wraiths can hide behind and pass through the obstacles.

There are plenty of White Wraiths about, but they only move one at a time. This is clearly a device to prevent this TI BASIC game from being even slower than it already is, as well as making it easier.

A nice addition, which I have yet to see on other TI games, is a high score table which displays the top six scores after each game.

Instructions are provided on a separate sheet, and also within the program. Though adequate, they are slightly inaccurate, stating that only one person can play. Trogman is in fact for one or two players.

This isn't a bad implementation of Pacman, but didn't hold my interest for very long, because it's so slow — probably the only unfavourable aspect of the game. **J.J.**

instructions	70%
playability	65%
graphics	80%
value for money	80%

★ ★ ★ ★

Gearing up for games

Our reviewers report back after test-driving a selection of new road-racing simulations

Deathchase Spectrum £6.95

Micromega, 230-236 Lavender Hill, London SW11 1LE

This is a shoot-them-up arcade-style game in 3D. Simplicity and immediacy make it most attractive, and youngsters will probably find it compelling.

Astride your laser-armed superbike you must chase the machines of the warlords through the forests — your only enemies are the trees! You have three lives per game.

There are eight sectors, or levels, each one being more densely forested than the last. You must successfully patrol each sector by day and night to be promoted to the next.

You have control over your speed, which way you turn and photon bolt firing. All this via Kempston stick or keyboard.

The picture projected is good and jerkiness minimal. The trees race forward to meet you most realistically. The target bikes serve this way and that.

The instructions are minimal (all on cassette insert), the game loads easily and runs very quickly yet is quite controllable, even by keyboard.

As I said, its appeal is in its straightforwardness — possibly so much so that lack of variety might eventually make it pall.

P.C.

instructions	95%
playability	90%
graphics	90%
value for money	80%

★ ★ ★ ★ ★

Monaco 32K BBC £7.95

Alligata, 178 West Street, Sheffield S1 4ET

Monaco comes packaged in a professional plastic wallet with adequate instructions. It's an impressive piece of software that makes good use of the sound and graphics capability of the machine.

The theme is hardly original, but don't let that put you off. This is the classic arcade game in which you steer your car along the track (which scrolls downwards) and try to avoid the other suicidal grand-prix drivers.

There are even ambulances, with sirens wailing, hurtling past you. After several races you feel you need one!

The race track features a tricky chicane, slippery oil patches and gets narrower as the race progresses.

The car responds very smoothly to the controls which allow you to steer left and right and accelerate. Braking is achieved by not accelerating.

The score for the previous 100 games (yes, one hundred) races are kept, though only the four nearest you are shown, together with the highest score and your ranking in the 100.

The instructions state that the game is for the over-11 age group, but I know of at least one five year old who would disagree

J.P.

instructions	80%
playability	100%
graphics	90%
value for money	100%

★ ★ ★ ★ ★

Rider 48K Spectrum £5.95

Virgin Games, 61/63 Portobello Road, London W11

This offering from Virgin brings a new meaning to the phrase "on your bike".

In defence of your country you must parachute into enemy territory, land safely on a moving motor cycle provided by friendly agents, and then accelerate away along heavily mined roads. James Bond, eat your heart out!

The game plays in two sections. Firstly, a parachute fall during which you control the direction of your descent by means of the keyboard aiming for the bikes below. This section is fairly easily mastered but is quite pleasing graphically.

Now the excitement really starts as you rush along the road trying to avoid the enemy mines, a varying number of which are "live" depending on the skill level (1 to 7) chosen.

You are advised to follow the "slalom" style course markers if you wich to succeed in your mission and obtain promotion to 007 level.

Rider is good fun and quickly became a firm favourite with my nine-year-old son. I recommend it.

D.J.

instructions	90%
playability	90%
graphics	90%
value for money	85%

★ ★ ★ ★ ★

Road Racer Spectrum £6.95

Thorn E.M.I., Upper Saint Martin's Lane, London WC2H 9ED

If you were planning to spend the winter preparing for next year's Grand Prix series then Road Racer is the game for you.

It is a colourful, exciting and fast moving game where you find yourself at the wheel of a racing car hurtling around a circuit in the company of other seemingly suicidal drivers who you must keep clear of.

The game may be played with either Kempston joysticks or with the keyboard.

I used the latter and only really succeeded when I got someone else to "change gear" while I concentrated on steering. No doubt a joystick would be a distinct advantage as well as being more realistic.

The graphics are very good, with an excellent impression of speeding along the track.

Another feature includes having to watch tachometer readings in order to avoid your engine blowing up.

Succeed, and you re-start with a bonus car on a more difficult track.

Other keyboard players may find, as I did, that the game crashes (no run) unless any Sinclair printer is detached first.

D.J.

instructions	90%
playability	90%
graphics	90%
value for money	85%

★ ★ ★ ★ ★

Speed Duel 48K Spectrum £5.95

dk'tronics, 23 Sussex Road, Gorleston, Gt Yarmouth, Norfolk

Never judge a book, or for that matter, a cassette, by its cover. This offering came with an insert hand-written on the back of an old Asteroids game and I did not hold out much hope for it. I was surprised.

It's a race game where you must steer your car around one of five progressively longer circuits in an attempt to beat the computer's car.

There are five levels of difficulty plus a practice option.

A joystick may be used and for real skill, you need it.

The graphics are good and there is a high score table for competitions.

If found it an enjoyable game and quite a challenge. The roads twist and turn, and it really is tricky to keep the car from crashing.

Beware the accelerator though. I think it has been borrowed from Concorde.

N.B.

instructions	90%
playability	90%
graphics	95%
value for money	95%

★ ★ ★ ★ ★



More WINNING GAMES from LYVERSOFT

LUNAR RESCUE (48K SPECTRUM)
A team of research scientists are trapped on the moon and you have to pilot the rescue pod from the mother ship and ferry them back safely. But you have only space for one scientist at a time. 100% M/C action with super smooth HI-RES GRAPHICS AND JOYSTICK OPTION.

LIBERATOR (16K/48K SPECTRUM)
This game tests your aim and reactions as you command a gunsight on a homeward bound space freighter. Your cargo is the royal treasures of the empire and many people want them.
A machine code presentation that should have you hooked.

THUNDERHAWK (48K SPECTRUM)
Based on the popular arcade game Pheonix. This 100% full colour epic pitches you against the evil Albertrons who are set to destroy your race, five levels of fast action bring you to the command centre of battle fleet, can you finish the job. WITH JOYSTICK OPTION.

GOLF (48K SPECTRUM)
Using M/C graphic routines, a game to absorb the keen novice and the scratch player. Play on a 9 or 18 hole course, with full selection of clubs. Along the greens and fairways hours of addictive sport can be had.

PICTURE PUZZLE (DRAGON 32)
With HI RES graphics and 100% M/C. You are set the problem of putting the picture back together. Test your skill against the dragon 32 computer. A game guaranteed to hold you spell bound for hours.

ANDROID INVADERS (DRAGON 32)
In a change of tactics the beings beyond the stars have developed an android of human form to do their dirty work. And with the aid of sensor jamming they may prove formidable. Using full colour, M/C, hi-re graphics this game can offer up to 21 levels of combat.

VOYAGER (VIC 20 8 OR 16K)
The mission is simple, but its completion is far from being so. As captain of starship you have all the best facilities at your disposal. Unfortunately the klingons oppose you. A great M/C version of this classic computer game.

SPHINX (VIC 20 8 OR 16K)
A riveting, full colour graphic adventure. That pits you against the spells and guardians of the tomb. In your quest to uncover the treasure of the pharoahs. This game will have you enthralled.

BIRD OF PREY (BASIC VIC 20)
Evil baron von fritz is out to kill his cousin, the much loved Prince Rupert. The Baron intends to throw the prince from his plane into the sacred fire pit. But you the eagle of the north will make every endeavour to save your friend Prince Rupert. With colour, sound, this M/C game is a must.

ALSO AVAILABLE:

Demon Driver Basic VIC20 — £5.95
Lunar Rescue Basic VIC20 — £5.95
Space Assault 3 or 8 VIC20 — £5.95
Apple Bug/Crazy Climber Basic VIC 20 — £5.95
Nuclear Attack/Grand Prix Basic VIC20 — £5.95
Hearts & Diamonds/Hi-Lo Basic VIC20 — £5.95
Machine Code Monitor VIC20—£14.95
Hangman/Super Docker ZX81-16K £4.95
Bouncing Gorillas ZX81-16K—£4.95

all games £5.95

LUNAR RESCUE (48K Spectrum) @ £5.95 each
GOLF (48K Spectrum) @ £5.95 each
VOYAGER (VIC20 8 or 16K) @ £5.95 each
LIBERATOR (16K/48K Spectrum) @ £5.95 each
PICTURE PUZZLE (Dragon 32) @ £5.95 each
SPHINX (VIC20 8 or 16K) @ £5.95 each
THUNDERHAWK (48K Spectrum) @ £5.95 each
ANDROID INVADERS (Dragon 32) @ £5.95 each
BIRD OF PREY (BASIC VIC20) @ £5.95 each

For any VIC-20

Please debit my Access/Barclaycard (delete as necessary)
Card Number
I enclose Cheque/PO for £
Name
Address

66 LIME STREET, LIVERPOOL L1 1JN HCW39

Colour it carefully — every shade counts

As a change from fast-action arcade games, try Said Hassan's program for the Dragon. It's called Think It Out and demands forward thinking if you're to succeed

Plan your moves carefully — this game ends fast if you cheat!

You are presented with a diamond-shaped grid of oblong counter and from then on it's a little similar to solitaire, except you position pieces on the playing area rather than removing them.

The idea is that counters of the same colour must not adjoin, even diagonally.

Full instructions are in the program. Good luck.

How it works

60-110 set speed
170-720 main game
760-810 player wins
820-860 player loses
870-970 replay option end
1000-1100 set up arrays and colours
1110-1280 set up variables and display board
1290-1380 set up random order
1390-1470 first four colours on screen
1480-1520 Y/N input
1530-1580 check key press
1590-1640 pause and slow
1650-1690 check screen codes
1700-2130 instructions
2140-2170 DATA for screen

Hints on conversion

Colour codes: 128 black, 207 buff, 143 green, 239 magenta, 175 blue, 255 orange, 191 red.

Black and white: 79 inverted 0, 106 inverted *, 88 inverted X, 107 inverted +, 99 inverted hash sign.

The screen size of the Dragon 32 is 32 by 16 — top left location: 1024, bottom right: 1535.

Keyboard scan (location, key pressed, value): 341 up arrow 223, 342 down arrow 223, 343 left arow 223, 344 right arrow 233, 338 P 239, 339 Q 239.

PRINT @ prints to a specific location: top left 0, bottom right 511.

CLS clear screen, CLS 0 clears to black, CLS 2 clears to yellow, CLS 3 clears to blue, CLS 4 clears to red, CLS 5 clears to white, CLS 7 clears to magenta. SCREEN 0,1 brightens text screen, SOUND commands produce bleeping noises, PLAY produces music.

Variables

PL player position
SP speed select
CC current colour of square occupied by player
X, Y used for additions for left/right, up/down
A$ Y/N input
R random number
CP checking to see if there is a counter next to the player position
PC colour of counter next to player position
V used to save space

Arrays:
D contains the colour codes for the 25 counters
P contains the 5 different available colour codes
C checks that there are not more than 5 counters of the same colour

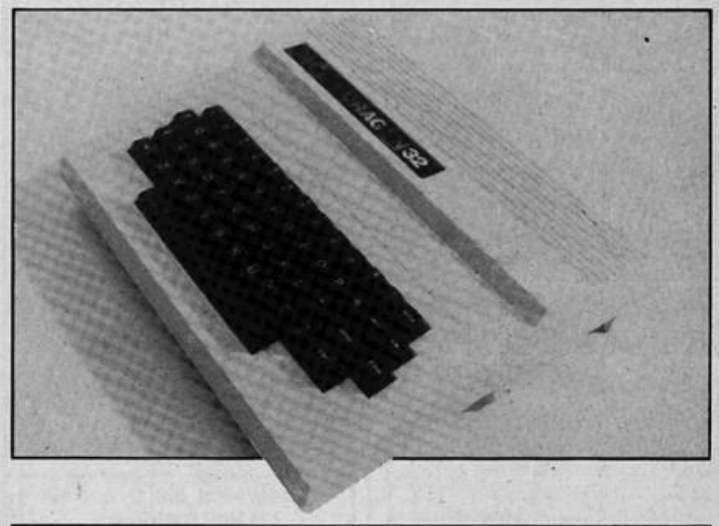
Loop counters:
N, D, DD, X and Y

```
10 ' **********************
20 ' *    THINK IT OUT     *
30 ' * BY S.HASSAN        *
40 ' * FOR THE DRAGON 32 *
50 ' **********************
60 CLS 5
70 PRINT @ 199,"CAN YOUR COMPUTER";
80 PRINT @ 259,"HANDLE DOUBLE SPEED (Y/N)?";
90 GOSUB 1490
100 IF A$="Y" THEN SP=65495 ELSE SP=65494
110 POKE SP,0
120 GOSUB 1710
130 GOSUB 1010
140 GOSUB 1120
150 GOSUB 1310
160 GOSUB 1400
170 '
180 ' * SHOW THE NEXT COLOUR
190 ' * TO THE PLAYER.
200 '
210 FOR N=5 TO 25
220 POKE 1525,D(N)
230 '
240 ' * MAKE THE MOVE.
250 '
260 X=0:Y=0
270 ' ARROW KEY MOVEMENT.
280 IF PEEK(341)=223 THEN Y=-64
290 IF PEEK(342)=223 THEN Y=64
300 IF PEEK(343)=223 THEN X=-2
310 IF PEEK(344)=223 THEN X=2
320 '
330 SOUND 80,1
340 ' MOVED OFF THE BOARD?
350 IF PEEK(PL+X+Y)=128 OR (PL=1071 AND Y<>64) THEN X=0
:Y=0
360 PL=PL+X+Y
370 CC=PEEK(PL)
380 '
390 ' FLASH CURSOR.
400 '
410 FOR D=1 TO 10
420 POKE PL,128
430 FOR DD=1 TO 10
440 NEXT DD
450 POKE PL,CC
460 NEXT D
470 '
480 ' QUIT OR POSITION?
490 '
500 IF PEEK(339)=239 THEN 850
510 IF PEEK(338) <> 239 THEN 260
520 '
530 ' * IS THERE A PIECE ALREADY
540 ' * IN THIS POSITION?
550 '
560 IF PEEK(PL)<>207 THEN SOUND 20,4:GOTO 260
570 '
580 ' * CHECK THE MOVE.
590 '
600 CP=0
610 PC=PEEK(PL-2):GOSUB 1670
620 PC=PEEK(PL+2):GOSUB 1670
630 PC=PEEK(PL-64):GOSUB 1670
640 PC=PEEK(PL+64):GOSUB 1670
650 IF CP=0 THEN 260
660 POKE PL,D(N):SOUND 200,1
670 '
680 ' * IS IT O.K?
690 '
700 V=D(N)
710 IF PEEK(PL-66)=V OR PEEK(PL-64)=V OR PEEK(PL-62)=V
OR PEEK(PL-2)=V OR PEEK(PL+2)=V OR PEEK(PL+62)=V OR PEE
K(PL+64)=V OR PEEK(PL+66)=V THEN GOTO 850
720 NEXT N
730 '
740 ' * END GAME.
750 '
760 ' * PLAYER WINS
770 '
780 POKE 1525,128
790 GOSUB 1610
800 PLAY"T302L24GP24O3CP24EP24L12GP12L24EP24L3G"
810 GOTO 900
820 '
830 ' PLAYER LOSES.
840 '
850 GOSUB 1610
860 PLAY"T203L16CP16O2L32GP32GP32L8AGP8L16BP16O3C"
870 '
880 ' * PLAY AGAIN?
890 '
900 POKE SP,0
910 FOR N=1 TO 1000:NEXT N
920 CLS2
930 PRINT @ 263,"PLAY AGAIN (Y/N)?";
940 GOSUB 1490
950 IF A$="Y" THEN 140
960 CLS
970 END
980 '
990 ' * SUBROUTINES.
1000 '
1010 ' SET UP ARRAYS AND
1020 ' COLOUR CODES.
1030 '
1040 DIM C(5),D(25),P(5)
1050 P(1)=143 ' 79 FOR BK&WT.
1060 P(2)=175 ' 88 "  "
1070 P(3)=191 ' 99 "  "
1080 P(4)=239 ' 106 "  "
1090 P(5)=255 ' 107 "  "
```

DRAGON 32 PROGRAM

```
1100 RETURN
1110 '
1120 ' SET UP VARIABLES.
1130 '
1140 RESTORE
1150 PL=1263
1160 CLS 0
1170 FOR X=1 TO 5
1180 C(X)=0
1190 NEXT X
1200 FOR X=1 TO 25
1210 D(X)=0
1220 NEXT X
1230 FOR X=1 TO 7
1240 READ A,B
1250 FOR Y=1 TO B
1260 POKE 1024+(X*64-32)+(A+(Y*2)-2),207
1270 NEXT Y,X
1280 RETURN
1290 '
1300 ' SET UP RANDOM ORDER.
1310 '
1320 FOR N=1 TO 25
1330 R=RND(5)
1340 IF C(R)=5 THEN 1330
1350 C(R)=C(R)+1
1360 D(N)=P(R)
1370 NEXT N
1380 RETURN
1390 '
1400 ' POKE FIRST FOUR COLOURS
1410 ' ONTO THE SCREEN.
1420 '
1430 POKE 1071,D(1)
1440 POKE 1269,D(2)
1450 POKE 1455,D(3)
1460 POKE 1257,D(4)
1470 RETURN
1480 '
1490 ' Y/N INPUT.
1500 '
1510 SCREEN 0,1
1520 A$=INKEY$:IF (A$<>"Y" AND A$<>"N") THEN 1520 ELSE
RETURN
1530 '
1540 ' CHECK KEY PRESS.
1550 '
1560 PRINT @482,"(PRESS ANY KEY TO CONTINUE.)";
1570 SCREEN 0,1
1580 IF INKEY$="" THEN 1580 ELSE RETURN
1590 '
1600 ' PAUSE AND SLOW.
1610 '
1620 POKE 65494,0
1630 FOR N=1 TO 1000:NEXT N
1640 RETURN
1650 '
1660 ' CHECK SCREEN CODES.
1670 '
1680 IF (PC<>128 AND PC<>207) THEN CP=CP+1
1690 RETURN
1700 '
1710 ' * INSTRUCTIONS.
1720 CLS 5
1730 PRINT @ 9,CHR$(206);STRING$(12,204);CHR$(205);
1740 PRINT @ 41,CHR$(202);"THINK IT OUT";CHR$(197);
1750 PRINT @ 73,CHR$(203);STRING$(12,195);CHR$(199);
1760 PRINT @ 98,"IN PRACTICE IT IS A BIT LIKE";
1770 PRINT @ 162,"PLAYING SOLITAIRE BACKWARDS,";
1780 PRINT @ 227,"YOU HAVE TO PUT THE PIECES";
1790 PRINT @ 291,"ONTO THE PLAYING AREA, NOT";
1800 PRINT @ 361,"TAKE THEM OFF.";
1810 GOSUB 1540
1820 CLS 3
1830 PRINT @ 35,"THERE ARE FIVE COLOURS AND";
1840 PRINT @ 97,"FIVE COUNTERS IN EACH OF THOSE";
1850 PRINT @ 161,"THOSE COLOURS. NO TWO COUNTERS";
1860 PRINT @ 226,"OF THE SAME COLOUR MUST LIE";
1870 PRINT @ 292,"NEXT TO EACH OTHER, THIS";
1880 PRINT @ 358,"INCLUDES DIAGONALS.";
1890 GOSUB 1540
1900 CLS 2
1910 PRINT @ 33,"EACH PIECE MUST LIE SQUARE ON";
1920 PRINT @ 98,"TO ANOTHER (I.E. NOT MERELY";
1930 PRINT @ 162,"DIAGONALLY). THE FIRST FOUR";
1940 PRINT @ 226,"PIECES ARE POSITIONED BY THE";
1950 PRINT @ 290,"COMPUTER, THE REST IS UP TO";
1960 PRINT @ 366,"YOU!";
1970 GOSUB 1540
1980 CLS 7
1990 PRINT @ 33,"EACH COUNTER APPEARS ONE AT A";
2000 PRINT @ 99,"TIME AT THE BOTTOM OF THE";
2010 PRINT @ 163,"SCREEN. MOVE THE FLASHING";
2020 PRINT @ 225,"CURSOR TO THE DESIRED POSITION";
2030 PRINT @ 289,"USING THE ARROW KEYS AND THEN";
```

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2040 PRINT @ 353,"PLACE YOUR COUNTER BY PRESSING";
2050 PRINT @ 430,"'P'.";
2060 GOSUB 1540
2070 CLS 4
2080 PRINT @ 34,"IF AT ANY TIME YOU SEE THAT";
2090 PRINT @ 100,"YOU CANNOT COMPLETE THE";
2100 PRINT @ 161,"PATTERN YOU CAN CHOOSE TO QUIT";
2110 PRINT @ 232,"BY PRESSING 'Q'.";
2120 GOSUB 1540
2130 RETURN
2140 '
2150 ' DATA FOR SCREEN.
2160 '
2170 DATA 15,1,13,3,11,5,9,7,11,5,13,3,15,1
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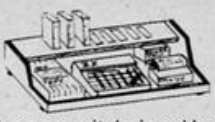
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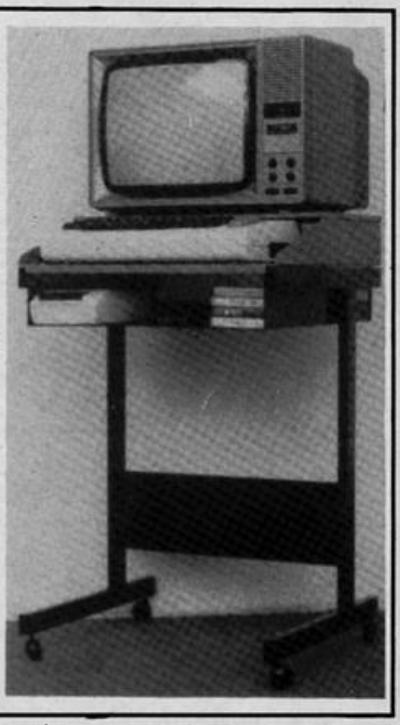
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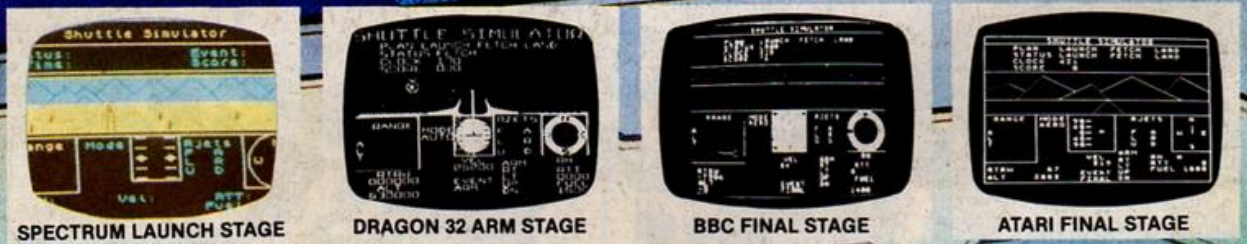
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