

# Home

An Argus Specialist Publication

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software reviews  
and listings

# Computing WEEKLY

45p

No. 61  
May 8-14, 1984

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Commodore 64,  
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Oric/Atmos

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more) for your  
Spectrum**

**Commodore 64:  
two listings**

**AND**

**games to enter  
for the BBC and  
Oric/Atmos**



## And now for the good news...

Prices of software will drop, says a new report. While hardware sales will gradually slow down, software sales will boom.

Blair Mascall, senior consultant with EIU Informatics, said: "This is the best forecast available. We have taken into consideration all factors, such as price changes, availability of new computers and hardware penetration of the market. We built a computer model to help us with our predictions."

Twenty-one categories of software were studied in the  
*Continued on page 6*

## Get to grips with BASIC

If you want to do more with your micro than play games, tune in to ITV on Sunday mornings from June 10 and learn the basics of BASIC.

Me & My Micro is a new half-hour series from Yorkshire TV in which Fred Harris, presenter of Playschool, gives an introduction to programming, illustrating the subject with well-known games.

Fred's first task is to move a star across the screen. After introducing fundamental commands like LIST, CLS and RUN, he explains the idea of loops with cartoons. He then puts theory into practice and uses loops to get the stars moving.

In the second show, he converts the moving star into a Monsterzap game, introducing subroutines and structured programming, and showing how to generate simple graphics with keyboard characters.

An easy maze race provides the starting point for the use of RND and conditional instructions, and strings are brought in to handle a shuffle routine to make anagrams. Finally the tools of the BASIC programmer's kit are brought together to make a large structured program which plays the card memory game, pelmanism.

Each of the five shows  
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**ZX Microfair:  
first full report**



# *From CDS, the ultimate challenge* **'COLOSSUS CHESS 2-0'**

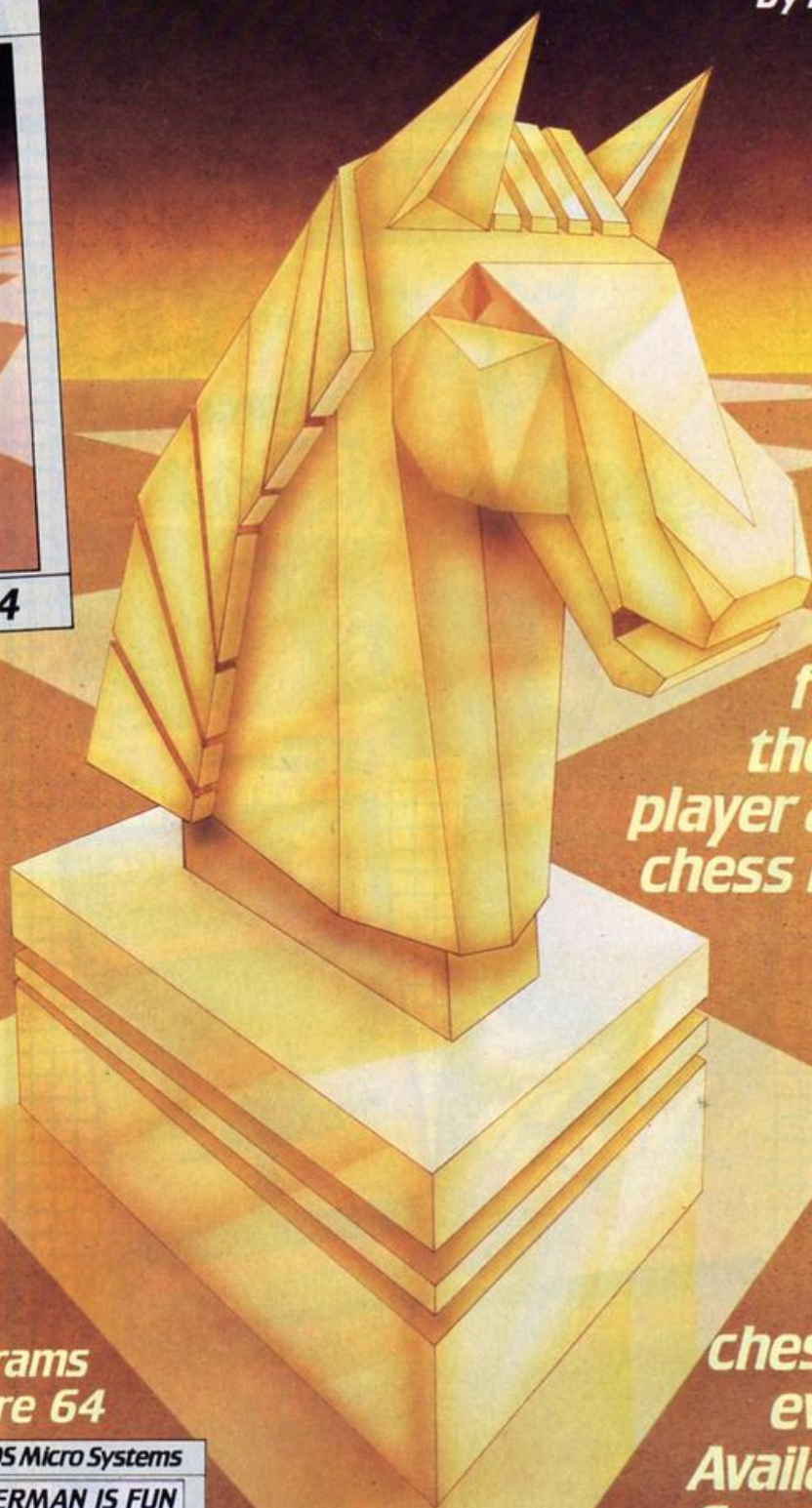
*by Martin Bryant*

**CDS Micro Systems**

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# Home Computing WEEKLY

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HOME COMPUTING WEEKLY  
BRITAIN'S BRIGHTEST



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**Readers:** we welcome your programs, articles and tips — see the  
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**Software houses:** send your software for review to the editor.  
Contact him for competitions and other promotions, as well

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# NEW!

## 48K SPECTRUM FRED

Author: **Indescomp** ☐

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the torrid tomb of  
'Tootiecarmoon' for the  
terrible treasures amidst  
monstrous mummies,  
ghastly ghosts, bats  
and rats!

## COMMODORE 64 BOOGABOO (THE FLEA)

Author: **Indescomp** ☐

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caves with Bugaboo the flea  
but beware of the fearsome  
Dragon as you jump around  
the exotic vegetation.

## 48K SPECTRUM RAYMOND BRIGGS' ☐ THE SNOWMAN

Author: **David Shea** £6.95

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book.



## FRED SPECTRUM GAMES FROM QUICKSILVA



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New Spectrum keyboards, and a wealth of new software, made their first public appearance at the ZX Microfair.

Attendance at the one-day show — held at north London's Alexandra Palace — was about 7,500, down probably because of the fine weather.

The new keyboards, shown by CCI and AMS, are both priced at £49.95 and involve screwing the Spectrum's PCB inside.

The CCI model, made by Ricoll, is stove enamelled in brown and cream with more colours to come. CCI is also bringing out a programmable interface, with the standard Atari-type nine-pin DIN socket, plus a joystick at an all-in price of about £24.50.

CCI's Arthur Tufnell said: "That's about £10 cheaper than everyone else".

The AMS keyboard is slimline, 4cms high at the back sloping to 2cms, and has 53 keys, including numeric keypad and space bar. Made of plastic, it is black with etched white keys.

As well as free Easter eggs, OCP had a new Pool program, (£9.95, 48K Spectrum). And due out in about two months: Roulette and Pontoon on the same tape, also £9.95.

For more serious micro users, OCP will bring out soon Stock Manager Plus 80, VAT Manager Plus 80, Word Manager Plus 80 and Word Manager standard version. The first three will cost £19.95 and the last £9.95. Plus 80 means suitable for most Centronics-type 80-column printers and interfaces.



● Penny Brownlie, director of CCI, with stove enamelled Spectrum keyboard

Crystal's oddly-named new Spectrum game, It's the Woolruf (£6.50), gives you the role of a sheepdog and you have to guide sheep across a river, avoiding the wolf. Coming soon: a space arcade game called Tubeway Army (about £8.95) and Zeus 64 (£9.95), an assembler for the Commodore 64.

# What's new at the Microfair

Find out what you missed.  
Paul Liptrot reports on the new products he discovered



## ● The slimline Lo-Profile keyboard from AMS — the Spectrum PCB fits inside

Steve Briers, of Odyssey, launched five £2.50 maths programs for the ZX81 and Spectrum.

Vortex had a fighter pilot simulation called TLL (48K Spectrum, £5.95) and Mikrogen is due to launch the first of a new series of £6.95 games featuring a character called Wally.

In the first, Automania (Manic Mechanic), Wally, who has a flat cap and a beer belly, has to build 10 cars, ranging from a 2CV to a Rolls-Royce, and things keep going wrong. Initially for the 48K Spectrum, the range will also appear for the Commodore 64. Mikrogen's ATC (48K Spectrum, £9.95) is also out soon. Written by an air traffic controller, it includes a keyboard overlay and six levels, ranging from 16 to 60 aircraft per hour.

Chris Lloyd, of Cambridge Computing, promised a new Spectrum add-on for £20-£30 but declined to say what it is.

Procom's new proprietor, Albert Owen, showed Dynamic Graphics, a two-tape graphics package at £14.95, and announced Dynamic Programming, coming soon, which includes an additional 181 commands and seven pre-defined sounds for games. Also for the Spectrum is Procom's new arcade game, Bonkers.

Digital Integration, which produces Fighter Pilot (48K Spectrum), has another simulation in June and RD Laboratories is soon to offer enhanced software with its £55.50 Digital Tracer to add features like copy, move and a status line. And Campbell now has a program to add items such as automatic numeric editing and printing to any width up to 255 to its Masterfile (Spectrum, £19.95). The new MF Print costs £6.95.

Teleplus showed a range of computer desks costing £17.50 to £49.95 and East London Robotics plans to soon make available its electro-cardiogram for the Spectrum, a prototype of which was at the last Microfair.



## ● Chris Johnson, of Comprosys, with ASZMIC board

Chris Johnson, who designs operating systems for mainframes in Sweden, demonstrated his Master Virus BASIC adding 22 new commands to the ZX81, plus features like high resolution plotting. Marketed by Comprosys, the SP ROM costs £19.95. The company also has a new ZX81 Prestel adaptor (£30) and markets the ASZMIC card (£17.95 or £20.25) and E07 ROM, which includes editor, assembler, toolkit, key repeat and graphics for £29.95.

Dream showed a graphic adventure maker, Dungeon Builder (£9.95, 48K Spectrum) and has a new game for the Commodore 64 called Pub Quest (£5.95) which challenges you to buy a drink... while drunk.

Roy Backhouse, managing director of Fuller, said the Soundstick (£19.95) he has designed for the Spectrum plugs a gap in the market. It is a Kempston-type joystick interface and sound amplifier in one unit

which is styled to lay against the back of a Spectrum, forming a neat unit.



## ● Fuller's new Soundstick, held by designer and managing director Roy Backhouse

dk'Tronics has a new model of its £45 Spectrum keyboard, with a space bar and, to come, a new interface model costing £19.95, including a light pen.

Automata, the PImania company, has launched a magazine called The Piland Bugle and Kempston is planning new peripherals for the Spectrum and the Electron.

Trashman (48K Spectrum, £5.95) is new from New Generation and involves collecting and emptying dustbins on the streets of Bath. Compusound brought out its first software, Blockbusters (48K Spectrum, £5.95), an educational question-and-answer game.

Sinclair Research showed the QL, and other products, including four new games from Hudsonsoft, a Japanese company.

## ● The next ZX Microfair is due to be held on September 8, again at Alexandra Palace

### Where to find them

In order of appearance  
CCI, Units 2-4, Shire Hill Industrial Estate, Saffron Walden, Essex  
AMS, Green La, Appleton, Warrington WA4 5NG  
OCP, 4A High St, Chalfont St Peter, Bucks SL9 9OB  
Crystal, 125 Smedley Rd, Cheetham Hill, Manchester M8 7RS  
Odyssey, 28 Bingham Rd, Sherwood, Nottingham NG5 2EP  
Vortex, 280 Brooklands Rd, Brooklands, Manchester M23 9HD  
Mikrogen, 44 The Broadway, Bracknell, Berks  
Cambridge Computing, 1 Ditton Walk, Cambridge CB5 8QZ  
Procom, 309 High Rd, Loughton, Essex  
Digital Integration, Watchmoor Trade Centre, Watchmoor Rd, Camberley, Surrey  
RD Laboratories, 20 Court Rd E, Cwbran, Gwent NP44 3AS  
Campbell Systems, 15 Rous Rd, Buckhurst Hill, Essex IG9 6BL  
Teleplus, PO Box 407, Maldon, Essex CM9 8UR  
East London Robotics, 11 Gate, Royal Albert Dock, London E16  
Comprosys, 29 Campden Rd, S Croydon, Surrey CR2 7ER  
Dream, PO Box 64, Basingstoke, Hants RG21 2LB  
Fuller, 71 Dale St, Liverpool 2  
dk'Tronics, Unit 6, Shire Hill Industrial Estate, Saffron Walden, Essex  
Automata, 27 Highland Rd, Portsmouth, Hants PO4 9DA  
New Generation, The Brooklands, Sunningbank, Lymington, Bath BA2 4NA  
Sinclair Research, Stanhope Rd, Camberley, Surrey GU15 3BR



## Good news

From front page

UK. Study the table below:

|                                 | 1982 | 1983 | 1984 | 1988 |
|---------------------------------|------|------|------|------|
| Arcade games                    | £6m  | £19m | £29m | £46m |
| Adventure games                 | £2m  | £7m  | £16m | £43m |
| Children's educational programs | £1m  | £10m | £23m | £62m |

"The sale of arcade games will reach its peak in 1987," said Mr Mascall.

"After this, growth will taper off. Adventure games will become almost as popular as arcade games by 1988, and children's educational games will see a massive boom in popularity, overtaking arcade games by 1988."

"As for hardware, the Spectrum still dominates the market, with predicted sales in 1984 of £333m, compared with £336m in 1983. Although this seems like a drop in sales, we must take into account the fact that the unit price has been lowered. More computers sold will yield less income. In 1983 Spectrum's share of the market was 35 per cent with the VIC-20 and Commodore 64 in second place."

"The Americans are still heading the field with home computer software packages," he continued. "With the exception of Psion for the Sinclair, best-selling software is mostly imported. In particular, nearly all Commodore programs are imported."

The future for the software trade will rely heavily on branding, according to Blair Mascall. A particular brand name, once well known, will attract customers to buy regardless of the program. Increasing awareness of product names will become more and more important. This is where the big companies will be able to cash in, as their promotional budgets will be greater.

"The general trend in software prices will be downwards," says Mr Mascall. "Lower priced software sells more packages than more expensive software. This is where the mail order firms lose out, since they are slow to react and less sensitive to price changes. Mail order sales will become less frequent. At the moment Boots and W. H. Smith sell 20 per cent of all software in the UK."

EIU Informatics is the information technology wing of the Economist Group, which publishes the Economist magazine. EIE Informatics is a consultancy service which specialises in research and analysis. Reports on the

software market in West Germany and France are still to be published.

The in-depth report, Markets for Microcomputer Software in Europe, was completed at the end of 1983 and comprises a five-volume series; the UK volume costs £1,100.

EIU Informatics, Spencer House, 27 St James's Place, London SW1A 1NT

## BASIC

From front page

features a guest appearance by an unusual micro-user. One week it is a Midlands vicar who uses his Spectrum to help teach his confirmation candidates, another week it is a Yorkshire granny who uses hers to generate knitting patterns.

Adam Hart-Davis, producer, said: "These programs will provide the building blocks from which even the complete beginner could develop programs. We hope the series will interest 12-year-olds with access to a micro, as well as the more seasoned programmers."

Fred Harris, maths graduate and former teacher, now works full-time on television and radio. He is a keen computer buff and has been experimenting with different ways of teaching computing to children for some years.

Back-up support for the series is provided by a book, also called Me & My Micro, by Paul Shreeve, published by the National Extension College. Price £2.95 (also on cassette).

Further back-up material includes listing of all programs used in the series, souped-up versions of the games, comments and suggestions. Send a s.a.e. to Me & My Micro, Admail 1, Leeds LS3 1YS  
Yorkshire TV, TV Centre, Leeds LS3 1JS

## Briefly

Just out from Intrigue — Lionel and the Ladders, for the Extended BASIC TI-99/4A. This animated sprite graphic adventure sells at £7.95.

Intrigue, Cranbrook Rd, Tenterden, Kent TN30 6UJ

## Debut for new games

New games were given their first public airing at the PCG Easter show.

From Romik, resplendent in new packaging, were Turtle Jump at £6.99 and Multisound Synthesizer at £14.99, both for the Commodore 64. Multisound Synthesizer was originally on the VIC-20 but has been re-written for the Commodore 64 to make use of its enhanced sound.

Taskset, the arcade game company that moved to computers, released Gyropod for the Commodore 64. It features impressive 3D graphics and fast action with the player trying to destroy different planets protected by fanatical aliens.

Creative Sparks, the new name for Thorn EMI's software arm, is releasing Black Hawk for the Commodore 64. This game is a good reproduction of Xervious and plays Wagner's Ride of the Valkyries. It also has two new releases for the Spectrum: Orc Attack and Tower of Evil. Re-released are all of Thorn EMI's older titles on cassette instead of more expensive cartridges.

Visions had a barrage balloon flying above the show and had the strangely named Revenge of the Killer Tomatoes for the Spectrum and Pengi for the BBC.

The Nowotnik Puzzle, a cube game previously on the Spectrum, has now been released for the Oric/Atmos by Tansoft along with a revised version of its Chess program that is also suitable for the new Atmos. Chess costs £9.99 and Nowotnik Puzzle is £7.95.

Audiogenic has imported a new range of American software on disc for the Commodore 64. Alice in Computerland is an adventure linked with a series of games all on the subject of Alice in Wonderland and Through the Looking Glass. Pegasus puts you in charge of a winged horse fighting the forces of evil, suitably equipped with similar steeds. Both cost £12.95 and are available on cassette as well at £8.95.

Mastertronic, the new company that caused a stir by selling games at £1.99 and £2.99, was displaying its range of about 20 games. Its whole range is now £1.99. Director Martin Alper explained: "When we bought the games in some were better than others and cost more. We thought we could recoup our costs by selling them at the higher price,

but we decided that the £2.99 price took the software out of the pocket money price range." Mr Alper said the marketing strategy was successful because "we have already sold over 130,000 games to dealers."

Jeff Minter, of Llamasoft, was showing (and field testing) a pre-production version of his latest masterpiece, Sheep in Space. You play a sheep, firing what are provisionally known as bonios, trying to save your planet from camels and llamas.

Mike Roberts

## Space school

Kosmos has followed its French Mistress program with Answer Back, an educational program for the BBC/Electron. This package, costing £10.95, combines a series of quizzes on general knowledge for the over 11s with a space-age game, in an effort to teach and amuse.

Fifteen quizzes, each covering a different topic, are supplied, with a total of 750 questions and 3000 answer options. Science, history, geography, astronomy, music and sport are among the categories of questions. Multiple choice, true or false and complete the answer are the options available. The questions are fired at you by a robot from a lunar scene, and if you answer correctly you may shoot at a space ship.

New quizzes may be created and questions may be repeated if wrongly answered. Kosmos plans to release a Spectrum version shortly, as well as a similar quiz for under-11s.

Kosmos, 1 Pilgrims Close, Harlington, Dunstable, Beds LU5 6LX

## Slinky's star turn

Slinky is the first of Audiogenic's new Commodore 64 disc games. Selling at £12.95, Audiogenic claims that Slinky sets new standards in graphics and sound, combining the visual capabilities of the arcade with the interaction of adventure games.

When Slinky hops on a coloured block it changes colour. The Wicked Wizard and his minions are after Slinky, and Slinky's adventures continue through 99 different levels. Dusty the Dust Cloud and Marge the Magnet are two of the characters who star in this game.

Audiogenic, PO Box 88, Reading, Berks



Here's a great offer from K-tel and Home Computing Weekly — £1 off K-tel's range of twin-game cassettes. And the postage and packing is absolutely free. K-tel, well-known for its greatest hits albums, sprang onto the software scene just a few months ago. And one of its innovations was a Double-Siders range, offering twice the value for the price of a single cassette.

And now we're offering even greater value to owners of the Spectrum and the VIC-20.

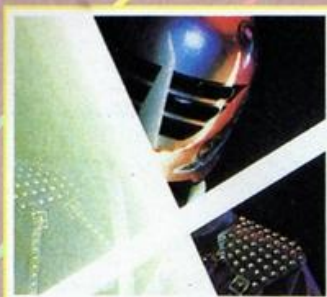
All you have to do to claim your bargain tapes is to cut out the voucher on this page

# Save one pound off the price of K-tel's range of six double-siders

shops is £6.95 each. So all you'll pay is £5.95 and the postage and packing is free. Your tapes will arrive from K-tel within 28 days. This offer closes at first post on Friday June 29, 1984.

Please remember you'll need next week's coupon as well as the voucher on this page.

**Alien Swarm/Arena for either Spectrum. Alien Swarm:** The most lethal invasion ever to threaten our world... They drop like deadly rain. You alone can kill them, but each alien that survives grows stronger. They have some very nasty surprises in store. **Arena:** You are the captive of an ancient war-like alien race. Like the Romans, they play games with their captives, games with a very final outcome. As you battle to deflect deadly comets you notice something strange... the spiked walls seem to be getting nearer... Compatible with Kempston-type joysticks.



**Arena**



**Plague**

**Plague/Alien Demon for the VIC-20. Note:** Alien Demon requires 8K RAM expansion. **Plague:** They're everywhere... a marching infection, a creeping horror. Can you wipe them out before you're infected? Watch out for the Plague Pests and their egg bombs and the Robo Crabs. **Alien Demon:** It knows you're there and it wants you. Can you get it before it gets you? You're in command of the deep space explorer ship Kilos. You've just completed a mission to a distant planet. Unknown to you, the Alien Demon and his deadly droids boarded Kilos and killed your crew. Now you face them alone.

**Castle Colditz/Battle of the Toothpaste Tubes for the 48K Spectrum. Castle Colditz:** You are a prisoner of the Third Reich. Can you escape its iron grip? To escape you must avoid the dogs and survive such horrors as the corridor of rats, the tunnel of poisonous spiders and the vault of bones. **Battle of the Toothpaste Tubes:** Can you destroy the evil Brush Brigade? Or will you succumb to the dreaded Mini Tubes and Chattering Teeth? You fire from your toothpaste tube and protect yourself with a fluoride shield.



**Battle of the Toothpaste Tubes**



**Tomb of Dracula**

**It's Only Rock 'n' Roll/Tomb of Dracula for the 48K Spectrum. It's Only Rock 'n' Roll:** Can you become a superstar, or are you just another has-been? You've got a lot of energy, a bit of money and a great future. But can you stay the course, stand heartbreaking disappointments, arrest, fraud, scandal and more? Can you capture the hearts and wallets of the public? **Tomb of Dracula:** Darkness is falling. The vampires are hungry. You can't go back. Your only chance of survival lays ahead. With each step, past cold and clammy walls, you think of the horrors you'll face: ghoulies, zombies and pits of choking slime. You have just seven silver stakes with which to defend yourself. Dare you face the ultimate evil... and win?

**Supavadars/Bomber Run for the unexpanded VIC-20. Supavadars:** You are a Pathfinder and your mission is to flatten the enemy city

and land your force. It's dark, the crew is edgy. Below you stretches the inhospitable city. But this is no sitting target — anti-aircraft batteries are putting up a barrage of flak and enemy fighters are on the prowl. **Supavadars:** We are under attack by a powerful alien force and you are in command of earth's defences. Our future depends on your skill and courage. You must shoot them down with your powerful multi-directional missiles. If one slips through you must bomb the forces.

**Defusion/Worms for the 48K Spectrum. Defusion:** Time is running out... you are only seconds from an explosive experience. A live bomb ticks menacingly as you try to get near enough to defuse it. Unfortunately, your path is littered with booby traps, to say nothing of a very determined hit man. **Worms:** What's slimy and nasty and ties itself, and you, in knots? You control the worm as it grows, relentlessly filling the screen. Take care to keep clear of your own tail... and the bluebottles.

## These are the six tapes offered

one pound  
K-tel  
voucher



# Games... all more for you Spectrum

## Millipede by Gary Haynes

This program puts you in the position of a millipede having to make your way through a field of mushrooms.

As the Spectrum has no scroll command in BASIC, I POKEd the character onto the screen. This makes Millipede a fast and fairly exciting game.

As a bonus, there are also pieces of fruit which are displayed at random. Eating a fruit gives you 10 extra points and every scroll gives you one extra point.

There is a high score facility and the graphics are good.

You have three lives and you lose one every time you run into a mushroom.

At 150 points the game increases speed and gets faster for every further 100 points you score. To move left press 5 and to move right press 8.

## Reversal by Alec Wakley

This game was inspired by the BBC game, Invert, which appeared in issue 43 of HCW. As with Invert, the object is to make a grid of 16 squares all one colour.

Initially each square is set

### Variables

**DIM a(4,4)** colour values of each square

**x,y** current position

**ox,oy** previous square

**nx,ny** new square

**moves** number of moves

**low** lowest score

**on, tw** values of both colours in play

**col** used to pick all three colours,

finally for BORDER + PAPER

**k\$** Hold INKEY\$ value

**i, n, j, m** FOR... NEXT loops

## Listing for Millipede

```

1 LET hs=0: GO SUB 9000                                : REM *** mil
lipede attack*** : REM *** by G. Haynes.....

2 LET sc=0: LET lives=3
3 POKE 23692,255: LET score=0
5 PRINT AT 21,0: LET x=16400: LET a=16
6 IF ATTR (0,a)=59 THEN GO TO 100
7 IF ATTR (0,a)=189 THEN BEEP .01,20: LET score=score+10
8 POKE x,126: POKE x+8*32,126: POKE x+2*(8*32),36
9 POKE x+3*(8*32),189: POKE x+4*(8*32),189: POKE x+5*(8*32),36: POKE x+6*(8*32),36
25 POKE 23692,255
27 LET k=RND*(a+10): IF k>=26 THEN LET k=26
30 PRINT TAB k: INK 3:"AAAA"
40 IF INKEY$="8" AND a<30 THEN LET x=x+1: LET a=a+1
50 IF INKEY$="5" AND a>1 THEN LET x=x-1: LET a=a-1
60 BEEP 0.01,10
65 IF k<10 THEN PRINT AT 21,k+10: FLASH 1: INK 5:"B"
70 LET score=score+1: IF score>=150 THEN PRINT
75 IF sc=250 THEN PRINT TAB RND*24: INK 3:"AAAA"
90 GO TO 6
100 REM ***you're dead***
110 CLS : FOR f=69 TO -40 STEP -2
120 BEEP 0.01,f: NEXT f
125 PRINT AT 0,0:"Hi score=": FLASH 1:hs
127 LET sc=score
130 PRINT AT 8,5: FLASH 1:"YOU HAVE LOST A LIFE!!!"
135 PRINT : PRINT : PRINT "...you scored,this life,";score: PRINT : PRINT "...your score so far is ";sc
145 IF sc>hs THEN LET hs=sc
147 LET lives=lives-1: IF lives<0 THEN CLS : GO TO 400
150 PAUSE 0
155 PAUSE 0
160 IF INKEY$<>" " THEN CLS : GO TO 3
400 REM *you're really dead!*
410 PRINT AT 8,5:"You have no lives left!!!"
420 FOR f=1 TO 2: BEEP 1,-20: NEXT f
430 BEEP .2,-20: BEEP 1,-20
440 BEEP 1,-17
450 BEEP 1,-20: BEEP 1,-20: BEEP 1,-25: BEEP .5,-20: BEEP 1,-20
455 PRINT : PRINT TAB 10:"OVERALL SCORE...";sc
460 PRINT AT 15,0:"Press any key for another go or 'e' to end..."
470 PAUSE 0: PAUSE 0
480 IF INKEY$<>"e" THEN CLS : GO TO 2
490 CLS : PRINT "BYE-BYE!!!"
9000 FOR f=0 TO 7
9010 READ a: POKE USR "a"+f,a
9015 READ b: POKE USR "b"+f,b
9020 NEXT f
9024 PRINT TAB 5: FLASH 1:"MILLIPEDE ATTACK!": PRINT : PRINT : PRINT
9025 PRINT "Avoid the mushrooms and eat as much fruit as you can...if you dare !!!"
9026 PRINT : PRINT "But watch out as the game gets faster...you only have 3 lives!!": PRINT : PRINT "Press any key..."
9027 PAUSE 0: CLS
9030 RETURN
9040 DATA 16,32,56,32,124,16,254,124,254,254,214,254,16,254,56,56

```



# and a lot our

randomly to one of two colours. When a player moves to a square it changes to the other colour. But you cannot go back to the square you have just left, and this is marked with an X.

## How it works

210-320 initialise  
390-550 select colours  
600-680 random selection of two colours for 16 squares  
690 random starting position (x,y)  
695 print instructions  
700 print squares  
800-1150 check if cursor keys pressed and if legal move  
1205 BEEP on move  
1210 keep score  
1220 update score  
1230-1250 change new square colour value and print  
1260 update position  
1270-1350 check if all squares are the same colour  
1410-1420 check and print lowest score  
1430-1590 play music, scroll away and GOTO new game  
3000-3070 choose colours  
3100-3290 print starting squares  
3420-3550 change colour of new square and flashing centre, print inverse X in last square and blank out previous X  
3610-3800 print instructions  
4000-4050 music

## Space Invaders by James Hill

You have three ships with which to ward off the alien invaders from the planet Spectra. They drop bombs to try to destroy you.

After one fleet of attackers

## How it works

25-90 set up screen  
100-210 main game loop  
220-270 subroutines to print space invader strings  
300-375 fire missile routine  
400-410 blow up space invader  
420-438 reset strings  
1000-1010 clear sheet  
2000-2030 lose one life  
2050-2090 game over routine  
8000-8050 instructions  
9000-9100 user-defined graphics  
9200-9300 save game routine  
9400-9430 print information routine

you will receive an extra ship. But they get lower and lower and defence becomes harder and harder. Use your skill to survive, but remember — your chances are very slim.

## Variables

hs high score  
sc current score  
k control variable for lowering invaders  
x,y position of your ship  
a,b position of invaders (top row)  
dir direction in which invaders are travelling  
o,p position of bomb  
a\$, b\$, c\$, d\$, e\$, f\$, g\$, h\$ space invader strings  
IS score (life) graphic string  
is no space invaders left string

## Animate and Sound Patterns by Ian McDonald

Animate, a machine code routine for either model of the Spectrum, copies the left hand side of the screen to the right more or less instantly and then clears the left side.

The idea of the routine is to DRAW a picture in the left half of the screen. Using BASIC, this can be quite slow, especially if the picture is at all complex.

The trick is to DRAW the picture on the left in INK that is the same colour as the background PAPER. The left side will appear blank although a picture is actually being DRAWn there.

The listing is in fact two programs — a demo starts at line 300.

Once lines 60-240 have been entered and RUN, the routine is easily tested by:

LIST (ENTER)  
Randomise USR 65000  
(ENTER)

If you have a 16K Spectrum type RANDOMISE USR 32500 instead.

The listing should move to the right and the left side go blank. You can then try the demo program. The effect is (or should be) of a circle moving smoothly up the screen.

When you're happy that it all works correctly, eliminate all the unnecessary BASIC by entering NEW. The CLEAR instruction in line 60 will

## Listing for Reversal

```
200 REM ****REVERSAL
      INITILISE****
210 INK 0: PAPER 7: BORDER 7:
FLASH 0: BRIGHT 0: OVER 0: INVE
RSE 0
220 LET low=200
230 DIM a(4,4)
300 CLS
310 LET ox=0: LET oy=0: LET mo
ves=0
390 PRINT AT 3,22;"REVERSAL"
400 PRINT AT 5,22;"CHOOSE";AT
6,22;"FIRST";AT 7,22;"COLOUR"
410 GO SUB 3010
420 LET on=col
450 PRINT AT 6,22;"SECOND"
460 GO SUB 3010
470 LET tw=col
480 IF tw=on THEN GO TO 450
500 PRINT AT 6,22;"BACKGROUND"
510 GO SUB 3010
520 IF col=on OR col=tw THEN
GO TO 500
530 INK 7
540 IF col>3 THEN INK 0
550 BORDER col: PAPER col
560 CLS
570 IF low=200 THEN GO TO 590
580 PRINT AT 18,23;"LOWEST ";l
ow
600 FOR i=1 TO 4
620 FOR n=1 TO 4
630 LET a(i,n)=on
640 IF RND>.5 THEN LET a(i,n)
=tw
670 NEXT n
680 NEXT i
690 LET x=1+INT (RND*4): LET y
=1+INT (RND*4)
695 GO SUB 3600
700 GO SUB 3100
800 REM INKEY$ MOVING
810 LET k$=INKEY$
820 IF k$="" THEN GO TO 810
830 IF k$<>"5" THEN GO TO 900
840 IF y=1 THEN GO TO 810
850 LET ny=y-1: LET nx=x
860 IF ny=oy AND x=ox THEN GO
TO 810
870 GO TO 1200
```

Here's a bumper bundle for  
Spectrum owners — three  
games and a batch of  
interesting and useful  
routines to try



# SPECTRUM PROGRAMS

```

900 IF k$<>"6" THEN GO TO 100
0
910 IF x=4 THEN GO TO 810
920 LET nx=x+1: LET ny=y
950 IF nx=ox AND y=oy THEN GO
TO 810
980 GO TO 1200
1000 IF k$<>"7" THEN GO TO 110
0
1020 IF x=1 THEN GO TO 810
1030 LET nx=x-1: LET ny=y
1050 GO TO 950
1100 IF k$<>"8" THEN GO TO 810
1120 IF y=4 THEN GO TO 810
1130 LET ny=y+1: LET nx=x
1150 GO TO 860
1200 REM CHECK
1205 BEEP .1,2*VAL k$
1210 LET moves=moves+1
1220 PRINT AT 17,23;"MOVES ";mo
ves
1230 IF a(nx,ny)=on THEN LET a
(nx,ny)=tw: GO TO 1250
1240 IF a(nx,ny)=tw THEN LET a
(nx,ny)=on
1250 GO SUB 3400
1260 LET ox=x: LET x=nx: LET oy
=y: LET y=ny
1270 FOR i=1 TO 4
1280 FOR n=1 TO 4
1290 IF a(i,n)<>a(1,1) THEN LE
T n=5: LET i=5
1300 IF n=4 AND i=4 THEN GO TO
1400
1310 NEXT n
1320 NEXT i
1350 GO TO 810
1400 REM FINISH
1410 IF moves<low THEN LET low
=moves
1420 PRINT AT 18,23;"LOWEST ";1
ow
1430 GO SUB 4000
1460 PRINT AT 20,5;"PRESS ANY K
EY FOR NEW GAME"
1470 IF INKEY$="" THEN GO TO 1
470
1540 FOR j=1 TO 22
1550 PRINT ;" ": POKE 23692,255
1560 NEXT j
1590 GO TO 310
2999 STOP
3000 REM GO SUB AREA
3010 LET k$=INKEY$
3020 IF k$<>"0" AND k$<>"1" AND
k$<>"2" AND k$<>"3" AND k$<>"4
" AND k$<>"5" AND k$<>"6" AND k
$<>"7" THEN GO TO 3010
3030 LET col=VAL k$

```

```

3040 IF INKEY$<>" " THEN GO TO
3040
3070 RETURN
3100 REM GO SUB PRINT
3130 FOR i=1 TO 4
3140 FOR n=1 TO 4
3170 FOR j=-1 TO 1
3180 FOR m=-1 TO 1
3190 PRINT INK a(i,n);AT 4*i+j
,4*n+m;"■"
3200 NEXT m
3210 NEXT j
3220 NEXT n
3230 NEXT i
3250 PRINT INK a(x,y); FLASH 1
;AT x*4,y*4;"■"
3290 RETURN
3420 IF ox=0 THEN GO TO 3440
3430 PRINT INK a(ox,oy);AT ox*
4,oy*4;"■"
3440 PRINT INK a(x,y); INVERSE
1;AT x*4,y*4;"X"
3450 FOR j=-1 TO 1
3460 FOR m=-1 TO 1
3470 PRINT INK a(nx,ny);AT 4*n
x+j,4*ny+m;"■"
3480 NEXT m
3490 NEXT j
3500 PRINT INK a(nx,ny); FLASH
1;AT 4*nx,4*ny;"■"
3550 RETURN
3610 PRINT AT 2,22;"REVERSAL"
3620 PRINT
3630 PRINT TAB 19;"Make all";TA
B 19;"squares the";TAB 19;"same
colour";TAB 19;"as few moves";
TAB 19;"as possible"
3640 PRINT
3650 PRINT TAB 19;"You are here
"; FLASH 1;"■"
3660 PRINT
3670 PRINT TAB 19;"You can not"
;TAB 19;"move back to";TAB 19;"
last square X"
3800 RETURN
4000 REM Music
4010 BEEP .25,0: BEEP .25,3: BE
EP .25,5: BEEP 1.25,7
4020 BEEP .25,0: BEEP .25,3: BE
EP .25,5: BEEP 1.25,7
4030 BEEP .25,0: BEEP .25,3: BE
EP .25,5: BEEP .5,7
4040 BEEP .5,3: BEEP .5,0: BEEP
.5,3: BEEP 1.25,2
4050 RETURN
8999 STOP
9000 SAVE "Reversal"
9010 PRINT "RE-WIND TO VERIFY"
9020 VERIFY "Reversal"

```



## SPECTRUM PROGRAMS

preserve the machine code.

All the DRAWing should be kept within the left of the screen and should be done with temporary colour commands. It pays to have the INK contrast with the PAPER until you're satisfied that your drawing program works. Then change the INK to the same colour as the PAPER.

At the end of the picture drawing sequence place RANDOMISE USR 65000.

The routine and any associated BASIC can be SAVED with:

SAVE "name": SAVE "name", CODE 65000, 50

Once SAVED, it can be LOADED with:

LOAD "": LOAD " " CODE 65000, 50

### How it works

#### 60-250 POKES

**60,90** For a 16K Spectrum the value 64999 should be changed to 32499

**70** t is a variable that checks to see the DATA is correct

**90-130** do the necessary READ-ing and POKing

**140-230** values to be POKED. There are 10 lines, each with five items, except for 230 which has four items

**300-320** set up permanent colour values, in this case black INK on white PAPER

**330-350** variables

**370** draws a yellow circle on the left. Changing the INK to white will produce a white circle on white PAPER, i.e. an invisible circle

**390** copies circle to right, clearing left

**400** moves centre of circle up by two pixels

**410** loops back to 370

**500-780** are the mnemonics for the machine code listing. Don't type them in — they don't do anything. They're there for those who are interested in working out how the program works.

Sound Patterns, as the name suggests, shows what sound looks like by reproducing it as waves on the screen, a little like those heartbeat monitors in hospitals.

Here's how to use it: LOAD and RUN. When the screen says 9 STOP statement, 290:1 press CONT (ENTER). Then continue to play sound into the computer via the cassette leads.

It is also possible to use your recorder's inbuilt microphone — if yours has one — to see the sound of your own voice as you speak.

## Polar Plotter by Peter Scott

Most computer users are used to plotting graphs using x- and y-axes. Less familiar, but equally important, are graphs in polar coordinates, in which

### Listing for Space Invaders

```

10 BORDER 0: PAPER 0: BRIGHT 1: CLS : GO SUB 30000
15 GO SUB 90000
16 LET m1=21: LET M$=" Do you need INSTRUCTIONS ? ": GO SUB 94000
17 IF INKEY$="n" OR INKEY$="N" THEN GO TO 25
18 IF INKEY$="y" OR INKEY$="Y" THEN GO TO 20
19 GO TO 17
20 GO SUB 80000
25 LET hs=0
30 BORDER 0: PAPER 0: INK 7: BRIGHT 1: OVER 0: FLASH 0: CLS
40 REM
55 LET k=0: LET sc=0: LET lvs=3
60 LET a$=" AB AB AB AB AB AB ": LET b$=" CD CD CD CD CD CD CD ": LET c$="
IJ IJ IJ IJ IJ IJ IJ ": LET d$=" KL KL KL KL KL KL KL "
65 LET l$=" EF EF EF "
70 LET i$=" "
75 LET e$=a$: LET f$=b$: LET g$=c$: LET h$=d$
80 LET x=20: LE y=16: LET b=0: LET dir=0: LET a=2+k: LET o=a
85 FOR m=0 TO 31: PRINT AT 20,m;"_": NEXT m
90 LET p=INT (RND*32)
100 OVER 0: PRINT AT x,y;"_EF_"
102 PRINT AT o,p: INK 2;"H"
105 GO SUB 220
110 IF dir=0 THEN LET b=b+1
120 IF dir=1 THEN LET b=b-1
130 IF b>10 THEN GO SUB 260: LET a=a+1: LET dir=1
135 PRINT AT 0,1:"SCORE = ";sc;AT 0,20;"HIGH = ";hs
140 IF b=0 THEN LET dir=0
145 GO SUB 240
150 IF a+6=18 AND (d$<>i$) THEN IF (c$<>i$) THEN LET k=0: GO TO 2000
155 IF a=13 THEN GO TO 2000
160 IF INKEY$=" " THEN FOR m=19 TO a+8 STEP -1: PRINT AT m,y+2;"!";AT m-1,y+2;
"!";AT m,y+2;" ": NEXT m: PRINT AT a+7,y+2;" ": GO SUB 300
165 PRINT AT o,p;" "
170 LET o=o+1
175 IF o=x AND (p=y+2 OR p=y+3) THEN GO SUB 2000
180 IF o>x THEN PRINT AT o-1,p;"_": LET o=a: GO TO 90
185 PRINT #0;AT 0,0;"LIVES = ";l$( TO lvs*3);" "
190 IF a$=i$ AND b$=i$ AND c$=i$ AND d$=i$ THEN GO TO 1000
200 LET y=y-2*(IN 65278=253 AND y>0)+2*(IN 65278=251 AND y<25)
210 GO TO 100
220 PRINT AT a,b: INK 3;a$:AT a+2,b: INK 4;b$:AT a+4,b: INK 5;(c$ AND c$<>i$);A
T a+6,b: INK 6;(d$ AND d$<>i$)
230 RETURN
240 PRINT AT a,b: INK 3;f$:AT a+2,b: INK 4;e$:AT a+4,b: INK 5;(h$ AND h$<>i$);A
T a+6,b: INK 6;(g$ AND g$<>i$)
245 BEEP .007,-10: BEEP .01,-15
250 RETURN
260 PRINT AT a,b;i$:AT a+2,b;i$:AT a+4,b;i$:AT a+6,b;(i$ AND c$<>i$);AT a+8,b;(
i$ AND d$<>i$)
265 BEEP .02,-15
270 RETURN
300 REM CHECK TO SEE IF MISSILE HITS SPACE-INVADER
305 IF y+2<=b+1 THEN RETURN
306 IF (y+2)>b+21 THEN RETURN
308 LET y1=y-b
310 IF d$(y+3-b)<>" " OR g$(y+3-b)<>" " THEN LET v=3: GO TO 400
315 LET v=3: GO SUB 375
320 IF c$(y+3-b)<>" " AND h$(y+3-b)<>" " THEN LET v=2: GO TO 400
325 LET v=2: GO SUB 375
330 IF b$(y+3-b)<>" " OR e$(y+3-b)<>" " THEN LET v=1: GO TO 400
335 LET v=1: GO SUB 375
340 IF a$(y+3-b)<>" " OR f$(y+3-b)<>" " THEN LET v=0: GO TO 400
345 LET v=-1: GO SUB 375
370 RETURN
375 PRINT AT a+v*2+1,y+2;"!";AT a+v*2+1,y+2;" ": RETURN
400 REM SPACE INVADER BLOWS-UP
410 PRINT AT a+v*2,y+1;"GGG": BEEP .01,20: BEEP .01,0: PRINT AT a+v*2,y+1;" "
420 REM RESET STRING
425 DEF FN j$(k$)=k$( TO y1+1)+ " "+k$(y1+5 TO )
430 GO SUB 430+2*v+2: LET sc=sc+50-v*10: RETURN
432 LET k$=a$: LET a$=FN j$(k$): LET k$=f$: LET f$=FN j$(k$): RETURN
434 LET k$=b$: LET b$=FN j$(k$): LET k$=e$: LET e$=FN j$(k$): RETURN
436 LET k$=c$: LET c$=FN j$(k$): LET k$=h$: LET h$=FN j$(k$): RETURN
438 LET k$=d$: LET d$=FN j$(k$): LET k$=g$: LET g$=FN j$(k$): RETURN
1000 LET sc=sc+20: IF sc=1000 THEN LET lvs=lvs+1: FOR n=0 TO 6: BEEP .5,n: NEXT
n: FOR m=27 TO 18 STEP -1: PRINT #0;AT 0,m;"EF ": BEEP .005,10: NEXT m
1010 LET k=k+2: GO TO 60
2000 REM LOOSE 1 LIFE
2010 LET a=2+k: PRINT AT x,y+2: FLASH 1: INK 6: PAPER 2;"GG": FOR n=0 TO -10 STE
P -1
2020 BEEP .005,n: BEEP .003,0: NEXT n
2030 FOR m=0 TO 200: NEXT m: LET lvs=lvs-1: IF lvs=0 THEN PRINT #0;AT 0,8;"
": GO TO 2050
2040 LET o=a: CLS : GO TO 80
2050 PRINT AT 10,13: FLASH 1: PAPER 2: INK 6;"GAME OVER"
2060 IF sc>hs THEN LET hs=sc: NEXT n: CLS
2065 FOR n=0 TO 500: NEXT n
2070 LET m1=12: LET M$="ANOTHER GO ??": GO SUB 94000: LET m1=15: LET M$="YOUR SCO
RE WAS ": GO SUB 94000: PRINT AT 15,24;sc
2075 IF sc=hs THEN PRINT AT 1,9: FLASH 1;" A NEW HIGH-SCORE ": FLASH 0
2080 IF INKEY$="Y" OR INKEY$="y" THEN CLS : GO TO 55

```



## SPECTRUM PROGRAMS

each point is described by its distance from the origin (r) and the angle between the line joining it to the origin and the horizontal (t).

Polar Plotter is designed to help people to feel more at home with polar coordinate graphs. It will plot the graph corresponding to any equation; the version shown here plots  $r = \sin \frac{1}{2}t$ , but this can be altered by changing e in line 20. Values of r up to 1 can be fitted on the screen, but if larger values are encountered, then the program automatically rescales the graph.

Many common curves have simple equations such as:

$r = 1$  (circle)  
 $r = \sin (\frac{1}{2}t)$  (cardioid)  
 $r = t$  (Archimedian screw)  
 $r = 0.5 + \sin t$

After that, ingenuity is the only limit to the shapes that can be produced. The graph plotted covers values of t from 0 to 2. This can be altered in line 50; for example, LET t = PI\*2/15 plots a graph for t from 0 to 4

### Variables

s is a scale factor; if s = 80, then the distance between r = 0 and r = 1 is 80 pixels.  
 eS stores the function being plotted  
 z is a running variable  
 t is the angle of the point being plotted  
 r is the distance of the point from the origin  
 x and y are the x and y coordinates of the point

### How it works

10-30 define the graph plotted, and print the heading and axis  
 40-110 plot the graph at 60 equally spaced angles, every 6 degrees  
 50-60 calculate the value of r and t for each point  
 70-80 convert r and t into x and y coordinates  
 90 checks whether the graph is going off-screen; if so, it changes the scale s, and starts again  
 100 plots the point

### Hints on conversion

The program is written in Spectrum BASIC, but would convert readily to other machines. BORDER 6 and INK 2 in lines 10 and 100 simply define colours, and could be omitted. The origin of the graph is at pixel 121, 83; (line 100). This pixel corresponds to the left edge of the minus sign at 11, 15 (line 30). Other machines might have different values here. The scaling s gives the number of pixels corresponding to one unit of r; this value appears in line 10, and also line 90. The program can be translated into ZX81 BASIC; if line 90 is omitted, then it can be run on a 1K machine.

```

2085 IF INKEY$="N" OR INKEY$="n" THEN STOP
2090 GO TO 2080
3000 REM INTRODUCTION
3010 RESTORE 9110: FOR n=USR "m" TO USR "m"+7: READ a: POKE n,a: NEXT n
3015 PRINT AT 3,3: INK 7;"J.HILL PRESENTS....."
3020 FOR n=0 TO 5: FOR m=0 TO 6
3030 PRINT AT 5,2: INK m;"  MM  MMM  MM  MMMM  M  MM  MM  MM  M
M      M      M      M      M      M      M      M      M      M
M      M      M      M      M      M      M      M      M      M
MMMM
3040 PRINT AT 13,0: INK m;"  MM  MMM  MM  MMMM  MM  MMMM  MM  MMMM  MM  MM
M      M      M      M      M      M      M      M      M      M      M
M      M      M      M      M      M      M      M      M      M      M
M      M      M      M      M      M      M      M      M      M      M
3055 BEEP .001,20: PAUSE 1
3060 NEXT m: NEXT n
3070 INK 7: FOR n=175 TO 160 STEP -1: PLOT 0,n: DRAW 255,0: NEXT n
3080 FOR n=160 TO 80 STEP -1: PLOT 0,n: DRAW 10,0: PLOT 245,n: DRAW 10,0: NEXT n
3090 FOR n=15 TO 0 STEP -1: PLOT 0,n: DRAW 255,0: NEXT n
3100 RETURN
8000 REM INSTRUCTIONS
8010 BORDER 0: PAPER 0: INK 6: BRIGHT 1: FLASH 0: CLS
8015 PRINT AT 0,6: INK 6: FLASH 1: PAPER 2;"XXXXXXXXXXXXXXXXXXXX":AT 1,6:"X":A
T 1,21
:"X":AT 2,6:"XXXXXXXXXXXXXXXXXXXX"
8016 LET m$="SPACE INVADERS": LET m=1: FOR n=20 TO 7 STEP -1: PRINT AT 1,n;m$( T
0 m): BEEP .1,20: LET m=m+1: NEXT n
8017 FOR m=1 TO 5: BEEP .1,30: NEXT m
8020 PRINT : PRINT : PRINT : s$=" YOU HAVE THREE SHIPS TO WARN
OFF THE ALIEN INVADERS FROM THE PLANET (ZX) SPECTRA. THEY DROP BOMBS TO TRY TO
DESTROY YOU !!! BUT YOU MUST USE YOUR SKILL TO SURVIVE.
AFTER ONE FLEET OF THEM YOU WILL RECEIVE AN EXTRA SHIP. BUT THEY GET LOWER
AND LOWER. IT GETS HARDER AND HARDER. YOUR CHANCES ARE VERY SLIM
BUT GOOD LUCK !!! "
8030 FOR s=1 TO LEN s$: PRINT s$(s): BEEP .01,0: NEXT s
8035 PRINT AT 18,0:"Z=LEFT X=RIGHT <SPACE>=FIRE"
8040 FOR m=1 TO 200: NEXT m: PRINT AT 20,0:" James Hill : DATE 26/1/84 "
8050 PRINT #0:AT 0,0:" PRESS ANY KEY TO CONTINUE ": PAUSE 0: PRINT #0:AT 0,0
:"
8055 CLS : LET m1=2: LET m$=" T H E E N E M Y ": GO SUB 9400
8060 FOR n=0 TO 6: PRINT AT 5,n: INK 3:" AB ":AT 7,n: INK 4:" CD ":AT 9,n: INK 5
:" KL ":AT 11,n: INK 6:" IJ ": BEEP .001,20: PAUSE 1: NEXT n
8070 FOR n=10 TO 17: FOR m=5 TO 11 STEP 2: PRINT AT m,n:" ": NEXT m: NEXT n
8080 FOR n=5 TO 2 STEP -1: PRINT AT ABS ((n-10)*2+5),19;n*10:" POINTS.": BEEP .5
,20: NEXT n
8090 FOR n=0 TO 2: FOR m=-40 TO 50 STEP 5: BEEP .003,n: BEEP .002,m: BEEP .002,1
: NEXT m: NEXT n
8100 PRINT #0:AT 0,0:" PRESS ANY KEY TO PLAY ": PAUSE 0: PRINT #0:AT 0,
0:"
8200 RETURN
9000 REM USER DEFINED GRAPHICS
9010 RESTORE 9050: FOR n=0 TO 95: READ a: POKE USR "a"+n,a: NEXT n
9020 RETURN
9050 DATA 0,67,71,73,127,15,2,14,0,192,224,144,254,242,66,114
9060 DATA 0,3,7,9,127,79,68,70,0,194,226,146,254,240,32,96
9070 DATA 1,3,31,224,175,175,160,255,0,128,252,14,234,234,10,254
9080 DATA 210,20,65,34,24,68,146,16,40,40,40,68,108,40,16,16
9090 DATA 1,3,7,8,31,10,5,10,128,192,224,16,248,160,80,160
9100 DATA 1,3,7,8,31,5,10,5,128,192,224,16,248,80,160,80
9110 DATA 255,0,127,0,63,0,31,0
9400 FOR m=1 TO LEN M$
9410 PRINT AT m1,16-LEN M$/2+m:M$(m)
9420 BEEP .005,-10
9430 NEXT m: RETURN
    
```

### Listing for Animate

```

60 CLEAR 64999
70 LET t=0
90 FOR b=65000 TO 65048
100 READ a
110 LET t=t+a
120 POKE b,a
130 NEXT b
140 DATA 33,0,64,6,192
150 DATA 197,84,93,6,16
160 DATA 19,16,253,1,16
170 DATA 0,237,176,6,16
180 DATA 35,16,253,193,16
190 DATA 235,33,0,64,6
200 DATA 192,197,62,0,6
210 DATA 16,119,35,16,252
220 DATA 6,16,35,16,253
230 DATA 193,16,239,201
240 IF t<>4152 THEN PRINT
FLASH 1:AT 10,5:"ERROR IN
DATA!": STOP
250 STOP
299 REM << DEMO >>
300 PAPER 7
310 INK 0
320 CLS
330 LET x=64
340 LET y=10
350 LET r=10
370 CIRCLE INK 6;x,y,r
390 RANDOMIZE USR 65000
400 LET y=y+2
410 GO TO 370
    
```



## SPECTRUM PROGRAMS

```

499 REM          << MNEMONICS >>
500 REM 1d HL,16384
510 REM 1d B,192
520 REM push BC
530 REM 1d D,H
540 REM 1d E,1
550 REM 1d B,16
560 REM inc DE
570 REM djnz,-1
580 REM 1d BC,16
590 REM ldir
600 REM 1d B,16
610 REM inc HL
620 REM djnz,-1
630 REM pop BC
640 REM djnz,-19
650 REM 1d HL,16384
660 REM 1d B,192
670 REM push BC
680 REM 1d A,0
690 REM 1d B,16
700 REM 1d(HL),A
710 REM inc HL
720 REM djnz,-2
730 REM 1d B,16
740 REM inc HL
750 REM djnz,-1
760 REM pop BC
780 REM djnz,-15
    
```

### Listing for Sound Patterns

```

10 FOR b=30000 TO 30110
20 READ a
30 POKE b,a
40 NEXT b
1 REM

100 DATA 33,86,117,54,0,6,84, 219,254,254
110 DATA 191,32,1,52,16,247, 126,50,103,117

120 DATA 62,2,205,1,22,217,229, 217,253,54
130 DATA 67,0,253,54,68,84,1,0, 0,17
140 DATA 0,1,205,106,36,253,54, 67,0,253
150 DATA 54,68,85,1,0,0,17,0, 255,205
160 DATA 186,36,217,225,217, 201,0,0,0,0
170 DATA 62,0,6,255,50,79,117, 50,96,117
180 DATA 197,245,205,48,117, 241,193,60,16,240
190 DATA 201,219,254,254,255, 40,250,62,2,205
200 DATA 1,22,205,107,13,205, 110,117,205,142
210 DATA 2,123,254,32,200,195, 139,117,201
REM
290 STOP
300 RANDOMIZE USR 30091
    
```

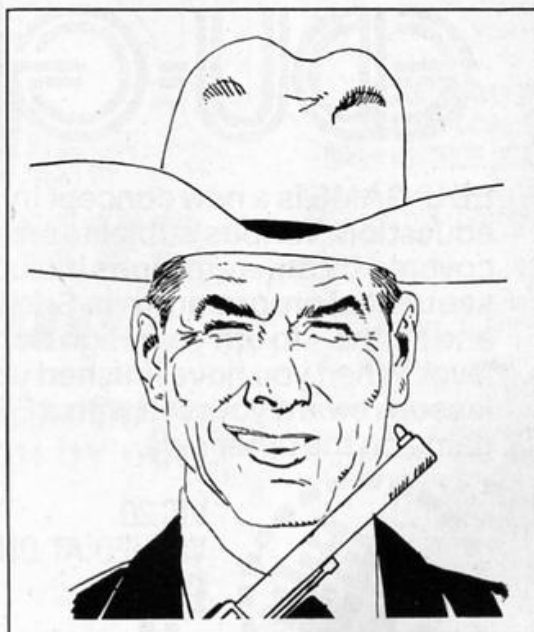
### Listing for Polar Plotter

```

10 BORDER 6: LET s=80
20 LET e$="SIN (t/2)"
30 PRINT AT 0,9;"POLAR PLOTTER"
"r=";e$;AT 11,15;"-----"
"TAB 24;80/s
40 FOR z=0 TO 60
50 LET t=PI*z/30
60 LET r=VAL e$
70 LET x=r*s*cos t
80 LET y=r*s*sin t
90 IF ABS y>80 OR ABS x>80 THEN
N LET s=s/2:CLS:GO TO 30
100 PLOT INK 2;121+x,83+y
110 NEXT z
    
```

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# WHAT IS EDU-GAME?



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colleges throughout the UK the chance to buy Commodore 64s complete with 1541 single floppy disc drives, Logo and Simon's Basic for £299.99 per package. This is a saving of £172 over the recommended retail price of £472.

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## Percy Penguin 32K BBC £7.95

Superior, Dept C, Ground Floor,  
Regent House, Skinner Lane,  
Leeds

Percy is trapped in an ice maze populated by deadly Snobees. You must position the penguin next to an ice cube to skid into another ice cube or the side. Any unfortunate Snobees in its path are crushed.

The graphics are fairly good, but movement is slow. After crushing an ice cube Percy stays still for a second or two, leaving the Snobees a chance to kill him. Extra points are awarded for lining up diamond cubes. Hard to get used to, with time it becomes quite addictive.

The game has good sound. As you start the opening bars of 'Toccata' are played and throughout music is played. The instructions are quite clear and concise. For some reason an irrelevant picture of 'Percy's Home' appears after the instructions.

The major problem is the increase in difficulty. The first few Snobees are easily killed, but the last one is nearly impossible. I have noticed this in a number of new games.

D.B.

|                 |     |
|-----------------|-----|
| instructions    | 80% |
| playability     | 80% |
| graphics        | 80% |
| value for money | 75% |



## Music Box Dragon 32 £7.95

Dragon Data, Kenfig Industrial  
Estate, Margam, Port Talbot, W  
Glam SA13 2PE

This program is supplied in the most lavish packaging seen for a Dragon program at this price. The box is a giant, beautifully illustrated custom case and comes with an excellent book of instructions. The program itself is a form of synthesiser; you enter your musical composition into the computer and then hear it played back to you. Once completed, your masterpiece can be saved and loaded from tape, edited and even played backwards! This last feature is particularly interesting and amusing.

This program does not transform your Dragon into a real synthesiser, as the notes which make up the melody, bass etc have to be typed in using a special notation system that is reasonably easy to use considering that the program offers a number of parameters to the composer. There is a choice of four instruments which are gloriously combined on the introduction tune. After several hours of using the program, you start to get reasonable tunes, although still a long way from the standard of the introduction tune. At this price though, well worth the money.

C.G.

|                 |     |
|-----------------|-----|
| instructions    | 75% |
| ease of use     | 65% |
| display         | 60% |
| value for money | 95% |



## Cosmic Bounce Commodore 64 £7.50

Cable, 52 Limbury Rd, Luton,  
Beds LU3 2PL

When I first saw the inlay to this cassette my immediate reaction was, "Oh not, not another space destruction game". Much to my surprise this game turned out to be well designed, amusing and very difficult.

You play the part of the pilot of a Plasmobile. Your task is to protect an energy source from intruders called Doovries. Unlike most games where you have a rapid fire hyperlaser, you have a single plasma bolt. When fired the bolt zips around the screen rather like a ball on a pin-ball table. If it hits a Doovrie... the intruder dies; if it hits the power source... you die. To re-use the plasma ball, you must catch it with your ship (not an easy feat). If the Doovries hit the power source you lose a life.

The design and programming of the game are of a high standard. All animation is smooth and the design of the Doovries is highly amusing.

This is a well produced product which offers great value and will keep your attention for many hours.

A.W.

|                 |     |
|-----------------|-----|
| instructions    | 90% |
| playability     | 80% |
| graphics        | 85% |
| value for money | 80% |



# Use your brain, have some fun!

A batch of games and utilities  
checked out for you by our  
reviewers

## Video Titles TI-99/4A £8

Stainless, 10 Alstone Rd, Stock-  
port, Cheshire SK4 5AH

This program, written by the man behind Stainless Software, is the Extended BASIC version of a TI BASIC original.

If you have ever seen the demonstration program which used to be run on the TI in retailers, then you will have some idea of the presentation this program can produce.

By giving the computer instructions in the form of three-letter mnemonics, you can print text horizontally or vertically in many directions, scroll up or print normally — that is, on line 24 with upward scroll. You can set screen and character colours, pause for a specified time, and the instructions can be saved and reloaded from either tape or

disk.

Up to 400 entries can be made using this version, and any files produced with the TI BASIC version can be run as well — good to see compatibility between the original and the update.

The documentation is quite good, and must generally be referred to when using the mnemonic instructions. Suggestions are also given to assist those wishing to expand the program's capacity and facilities.

P.B.

|                 |     |
|-----------------|-----|
| instructions    | 95% |
| ease of use     | 95% |
| display         | 95% |
| value for money | 80% |



## Cowboy/ Barricade Sord M5 £8.95

Computer Games, CGL House,  
Goldings Hill, Loughton, Essex  
IG10 2RR

In Cowboy, your ranch is attacked by horse-thieves and you're the cowboy who has to fight them off. The figures are in fact matchstick men, and the horses are static objects dotted about the screen. You have to catch the randomly moving thieves when they are not red while avoiding contact with the horses, as they will kick you.

Barricade is a simple version of the game that used to be called "Surround" which, after the showing of the film "Tron", has been renamed Light Cycles. In Barricade, you are a continuously growing line and must avoid colliding with the opponent, the wall, or insects which appear at random intervals. Joypad option, two player option, various difficulty levels.

Both games are written totally in BASIC-I thus graphics and sounds are poor. However both are well written and the little instruction booklet is very informative, explaining how to connect a cassette recorder to your M5, load and play the games.

Overall this package represents fair value for money.

S.S.

|                 |      |
|-----------------|------|
| instructions    | 100% |
| playability     | 50%  |
| graphics        | 50%  |
| value for money | 70%  |





# Two we can win your

```

1 REM*****
2 REM*FRUIT MACHINE*
3 REM*   BY   *
4 REM* DAVID REES *
5 REM*****
10 IFPEEK(52000)=1THEN1000
19 REM*[CLR][CYAN][DWN*2]
20 PRINT"[X]LOADING MACHINE CODE"
50 POKE52000,1
60 FORN=0T0399
70 READA:IFA=-1THENA=255
80 POKE14336+N,A
90 NEXT
100 FORN=0T052
110 READA:POKE49152+N,A
120 NEXT
200 FORN=0T052
210 READA:POKE49408+N,A
220 NEXT
500 DIMA$(5,2)
510 FORN=0T05:FORM=0T02
520 READA$(N,M):PRINT"[X]";A$(N,M)
530 X=M*3+N*9+50176
540 FORP=0T02
550 POKEX+P,PEEK(1024+P)
560 POKEX+P+256,PEEK(55296+P)
570 NEXTP
590 NEXTM,N
700 FORN=0T0189
710 READA:POKE49664+N,A
720 NEXT
800 FORN=0T070
810 READA:POKE49920+N,A
820 NEXT
999 REM*[CLR][GREEN]
1000 PRINT"[X] WELCOME TO THE FRUIT MACHINE."
1010 PRINT"YOU HAVE 50 PENCE TO BET WITH."
1020 PRINT"10 PENCE IS BET EACH TIME, AND IF A"
1030 PRINT"CHERRY APPEARS AT THE ROW START,";
1035 PRINT" OR 2 OR3 CHARACTERS";
1040 PRINT" APPEAR NEXT TO EACH OTHER."
1049 REM*...[DWN]
1050 PRINT"YOU WIN EXTRA MONEY.X"
1060 PRINT"PLEASE SET THE SPIN SPEED (1-255)"
1070 INPUT SP:IFSP<10RSP>255THEN1070
1110 POKE53265,PEEK(53265)OR64
1120 POKE53272,21
1130 V=53248:POKEV+34,1:POKEV+35,12
1140 POKEV+36,12:M=50
1150 POKEV+32,0:POKEV+33,0
1170 FORN=0T02:POKE858+N,1:NEXT
1180 POKE862,2:POKE863,8:POKE864,14
1200 S=54272:POKES+14,255
1210 POKES+15,255:POKES+18,129
1220 POKES+24,15
1400 M=M-10:IFM<0THEN1450
1410 PRINT"SORRY, YOU RAN OUT OF MONEY"
1420 PRINT"WOULD YOU LIKE ANOTHER GO (Y/N)?"
1430 GETA$:IFA$="Y"THEN1000
1435 IFA$<>"N"THEN1430
1440 POKE53272,21:END
1449 REM*[DWN][L.BLUE]
1450 PRINT"[X]PRESS ANY KEY BETWEEN 1 AND 9 ";
1460 PRINT"FOR SPIN LENGTH."
1500 GETA$:IFA$=""THEN1500
1510 IFVAL(A$)=0THEN1500
1520 L=VAL(A$)*2+8
1530 C(0)=INT((INT(RND(1)*10)+2)*L/2)
1540 C(1)=INT((INT(RND(1)*10)+2)*L/2)
1550 C(2)=INT((INT(RND(1)*10)+2)*L/2)
1580 POKE872,0
1590 FORN=0T02:POKE869+N,C(N):NEXT
1900 D(0)=INT(RND(1)*5)
1910 D(1)=INT(RND(1)*5)
1920 D(2)=INT(RND(1)*5)
1930 FORN=0T02:POKE866+N,D(N):NEXT
1990 POKE53272,31
2000 PRINT"[X]";
2010 FORN=0T023
2020 PRINT" "
2030 NEXTN
2039 REM*...[HOME]
2040 PRINT" "
2050 FORN=0T010:PRINT:NEXT

```

## How it works

**10-90** POKE graphics to memory  
**100-220** POKE in machine code  
**500-590** POKE in character layouts  
**700-820** POKE in more machine code  
**1000-1060** PRINT out instructions  
**1070-1150** set speed and video registers  
**1170-1180** set machine code routine registers  
**1200-1220** set random number registers  
**1400-1440** if you run out of stake money...  
**1450-1520** set maximum spin length  
**1530-1930** set spin length for each column  
**1990** user-defined character mode  
**2000-2080** set fruit machine display  
**2120-2140** GOTO machine code routine  
**2150-2310** work out the score  
**2320** clear key buffer  
**2390** wait  
**2400-2480** PRINT out winnings and give questions to continue the round  
**5000-5410** fruit graphics DATA  
**5500-5760** machine code DATA  
**6000-6040** character layout DATA  
**7000-8080** final machine code DATA

## Fruit Machine

This is a fast game where, as you would expect, you gamble away your money on the outcome of three spinning columns. I have tried to make this version more interesting by using fast, versatile routines and good graphics.

The graphics are achieved by using extended colour mode, and plenty of user-defined graphics stored at 14336 and beyond.

E.C.M. limits the number of characters you can use to 64, but makes up for this by allowing you to use four different background colours at the same time (instead of one).

As you can also change the foreground colour of each character to one of 16, the good use of graphics here gives an effect that only a similar mode, or 16 colour high resolution graphics, could recreate.

The other interesting feature is the program's versatility. The whole routine that shows the columns spinning is pure machine code. This allows you to choose virtually any spin speed to suit your tastes.

Also, each column spins

```

2059 REM*[L.BLUE]
2060 PRINT,"[X]"
2069 REM*[LEFT].[RVS ON]
2070 PRINT,"[X] "
2079 REM*[L.BLUE]
2080 PRINT,"[X]"
2120 POKE56325,SP
2130 SYS49664:W=0
2140 POKE56325,62
2150 A=INT(PEEK(1506)/9)-7
2160 B=INT(PEEK(1512)/9)-7
2170 C=INT(PEEK(1518)/9)-7:X=0
2180 IFA=BANDB=CTHENMU=3:D=A:GOTO2300
2190 IFA=BTHENMU=2:D=A:GOTO2300
2200 IFB=CTHENMU=2:D=B:GOTO2300
2210 IFA=1THENM=M+10:D=1:GOTO2320
2220 MU=0:D=0:X=-10
2300 M1=(D=1)+2*(D=3)+3*(D=4)+4*(D=2)+5*(D=0)
2310 M1=-M1:W=M1*MU*2+10+X:M=M+W
2320 FORN=0T09:GETA$:NEXT
2390 FORN=0T02499:NEXT
2399 REM*[CLR][GREEN]
2400 POKE53272,21:PRINT"[X]"
2410 PRINT"YOU HAVE WON "W" PENCE."

```



## HOME COMPUTING WEEKLY 8 May 1984 Page 17



# COMMODORE 64 PROGRAMS

## Prize Cards

Will you win a new car? Prize Cards gives you the chance by allowing you to gamble points on three rows of cards.

The questions are easy to answer, making this a game anyone can enjoy, and the user-defined graphics give realistic pictures of cards in the range two-10 and aces.

When typing in the program, be especially careful with lines 100-270. As well as user-defined graphics, the program also transfers normal graphics from ROM to RAM, and the keyboard has to be disengaged while this is done.

Thus, if there is a mistake in any of these lines, the program will stop and never reach the part which engages the keyboard. You will not be able to type in anything, and so you will have to switch the computer off and on again, losing the program.

### How it works

30-40 set card strings  
50-90 read card patterns  
100-270 POKE normal and user defined graphics to RAM  
300-330 reset cards played array  
340-425 set display and variables  
430-450 jump to routines  
455-520 start card question  
530-590 gamble: how much  
600-630 higher or lower  
640-690 new card  
700-770 new row of cards  
1000-1040 select a new card from those remaining  
1100-1330 printout a new card  
1500-1610 was your higher/lower choice correct?  
2000-2250 end of game messages  
5000-5130 card and graphics patterns DATA

After graphics are defined, the game starts. You go through two long rows and one short row of cards, betting points on whether the next card will be higher or lower (you are also allowed to change your card at the start of each row).

All questions except points

```
30 A$(0)="♠":A$(1)="♥":U$=CHR$(17)
34 A1$=CHR$(144)+"YOU WON THE CAR"+CHR$(145)
36 A2$=CHR$(28)+"YOU WON THE CAR"+CHR$(145)
40 A$(2)="♣":A$(3)="♦":Q$=CHR$(145)
49 REM*INPUT CARD PATTERNS*
50 FORN=0TO9
60 FORM=0TO6
70 FORL=0TO2
80 READA(N,M,L)
90 NEXTL,M,N
99 REM*GET GRAPHICS FROM ROM*
100 X=PEEK(14336)
110 IFX=60THEN260
120 POKE56334,PEEK(56334)AND254
130 POKE1,PEEK(1)AND251
140 FORN=0TO2047
150 POKE14336+N,PEEK(53248+N)
160 NEXT
170 POKE1,PEEK(1)OR4
180 POKE56334,PEEK(56334)OR1
190 FORN=0TO14
200 READA
210 FORM=0TO7
220 POKE15360+M+A*8,PEEK(14343+A*8-M)
230 NEXTM,N
240 FORN=0TO7:READA,B
250 POKE15824+N,B:POKE14800+N,A:NEXT
260 V=53248:POKEV+24,31
270 POKEV+32,6:POKEV+33,14
299 REM*SET CARDS PLAYED ARRAY*
300 FORN=0TO9
310 FORM=0TO3
320 C(N,M)=0
330 NEXTM,N
338 REM*SET DISPLAY*
339 REM*[CLR][RED]
340 PRINT"███ PLAY YOUR CARDS"
380 VOLD=0
390 X=3:P=200:Y=2:G=0:GH=0
400 PRINTCHR$(19);CHR$(31)
410 FORN=0TO9:PRINT:NEXT
420 PRINT"YOU HAVE "CHR$(144);P;CHR$(31);
425 PRINTCHR$(157)" POINTS "
430 IFG<0THEN530
435 IFGH<0THEN450
440 GOSUB1000
450 GOSUB1100
455 PRINTCHR$(19):FORN=0TO10:PRINT:NEXT
460 PRINTCHR$(28)"DO YOU WANT TO CHANGE";
465 PRINT" YOUR START CARD?"
470 GETA$
480 IFA$="N"THEN530
490 IFA$<"Y"THEN470
500 PRINT:
510 FORN=0TO9:PRINT" ";:NEXT:PRINT
520 GOSUB1000:GOSUB1100
530 PRINTCHR$(19)
540 FORN=0TO10:PRINT:NEXT
550 FORN=0TO9:PRINT" ";:NEXT:PRINTQ$
```

### Hints on conversion

Remove anything to do with POKEs (these change modes and store graphics) and all PRINT statements, except those containing questions. There are few other alterations to be done, and then you can add your own commands to make the program a fully working version on your computer.

bet need one-key answers, making this an easy game to operate. The object is, by the end of the third row, to get the highest score you can, and if you have amassed 4,000 points or more, you win a car!

The cards are displayed in full colour, and are as real as is sensibly possible. They are randomly chosen, and are drawn from the array C(9,3), so a card can never appear twice in one game. Cards are in the range 2 to 10, and aces are high.

If you want to use the card graphics in other games, the PRINT routine is at lines 1100-1330.

If you want to try and beat my record score, it is 109,200!

### Main variables

G go number per row  
GH card row number  
GP points gambled  
P points you have remaining  
V present card value  
VOLD last card value  
X print position of card Xwards  
Y print position of card Ywards  
A1\$,A2\$ you won the car message  
AS(4) suit patterns for printing  
C(9,3) cards played  
A(9,6,2) card patterns

● As usual, we have inserted REMs in the lines above those in which control characters appear. These are only for your guidance when entering the programs and should not be entered. Be particularly careful with the lines containing DATA — there are often several commas in a row.

```
559 REM*[RED]
560 PRINTQ$;"HOW MUCH DO YOU WANT TO GAMBLE"
562 PRINT" "Q$
565 INPUTGP:GP=ABS(GP)
570 IFP>GPTHEN600
580 PRINTQ$:PRINT"THAT'S TOO MUCH"Q$;Q$;
585 PRINT" "Q$
590 GOTO565
595 PRINT
600 PRINT"A HIGHER OR A LOWER CARD?"
610 GETA$
620 IFA$<"H"ANDA$<"L"THEN610
630 AN$=A$
640 X=X+7:VOLD=V
645 PRINTCHR$(145);CHR$(145);
646 FORN=0TO9:PRINT" ";:NEXT
650 GOSUB1000:GOSUB1100
660 IFA$="H"THENGOSUB1500
```

```
670 IFA$="L"THENGOSUB1600
680 IFP=0THEN2000
690 G=G+1
700 IFG=1ANDGH=2THEN2100
710 IFG<4THEN400
720 G=0:GH=GH+1:X=3
730 PRINTSPC(160)"I AM ADDING 200 POINTS ";
740 PRINT"TO YOUR SCORE"
750 P=P+200:FORN=0TO1499:NEXT
759 REM*[CLR][RED]
760 PRINT"███ PLAY YOUR CARDS RIGHT "
770 GOTO400
1000 V=INT(RND(1)*10)
1010 S=INT(RND(1)*4)
1020 IFC(V,S)<0THEN1000
1030 C(V,S)=1
1040 RETURN
1099 REM*PRINT A CARD*
1100 PRINTCHR$(19);CHR$(144);
```



## COMMODORE 64 PROGRAMS

```

1110 FORN=1TOY:PRINT:NEXT
1120 PRINTSPC(X);" "
1130 FORN=0TO6
1140 PRINTSPC(X);CHR$(144)" I ";
1150 FORM=0TO2
1160 IFA(V,N,M)=0THENPRINT " ";GOTO1190
1170 IFN>3THENPRINTCHR$(18);
1180 PRINTA$(S);CHR$(146);
1190 NEXTM
1200 PRINT "CHR$(144)" I "
1210 NEXTN
1220 PRINTSPC(X);" "
1230 PRINTLEFT$(A$(S),1);
1240 PRINTCHR$(19);
1250 FORN=0TOY:PRINT:NEXT
1260 PRINTSPC(X+1);
1270 IF V=9 THEN PRINT "A";GOTO1290
1275 A$=STR$(V+2):B$=RIGHT$(A$,1)
1277 IF V=8 THEN B$=" "
1280 PRINTB$;
1290 PRINTU$;CHR$(157);A$(S);
1300 PRINTU$;U$;U$;SPC(3);CHR$(18);
1310 PRINTA$(S);U$;CHR$(157);
1320 IF V=9 THENPRINT "A":RETURN
1330 PRINTB$:RETURN
1500 IF V>VOLD THEN P=P+GP:RETURN

```

```

1510 P=P-GP:RETURN
1600 IF V<VOLD THEN P=P+GP:RETURN
1610 P=P-GP:RETURN
2000 FORN=0TO1999:NEXT
2010 PRINTCHR$(147);CHR$(144);U$;U$"YOU LOST"
2020 PRINTU$"BETTER LUCK NEXT TIME!"
2090 GOTO2200
2100 FORN=0TO1999:NEXT
2110 PRINTCHR$(147);U$;U$;U$"WELL DONE!"
2115 PRINTCHR$(31)"YOU HAVE WON"CHR$(28);
2120 PRINT "P;CHR$(31)" POINTS"
2130 IFC<4000THEN2200
2140 PRINTU$;U$"*****"
2150 PRINT"* YOU WON THE CAR *"
2159 REM*[UP*2]
2160 PRINT"*****.T]"
2170 FORM=299TO0STEP-10
2180 PRINTSPC(2);A1$
2185 FORM=0TOM:NEXT
2190 PRINTSPC(2);A2$
2195 FORM=0TOM:NEXTM
2200 PRINTU$;U$;U$;CHR$(28);
2205 PRINT"WOULD YOU LIKE ANOTHER GO?"
2210 PRINT"TYPE 'Y' OR 'N'"
2220 GETA$
2230 IFA$="Y"THEN300
2240 IFA$<>"N"THEN2220
2250 END
4999 REM*CARD DATA*
5000 DATA,1,,,,,,,,,,,,,1,
5010 DATA,1,,,,,,,,,1,,,,,1,
5020 DATA1,,1,,,,,,,,,1,,1
5030 DATA1,,1,,,,,,,,,1,,1
5040 DATA1,,1,,,,,,,,,1,,1
5050 DATA1,,1,,1,,1,,1,,1,,1
5060 DATA1,,1,,1,,1,,1,,1,,1
5070 DATA1,,1,,1,,1,,1,,1,,1
5080 DATA1,,1,,1,,1,,1,,1,,1
5090 DATA,,,,,1,,,,,
5100 DATA48,49,50,51,52,53,54,55,56,57
5110 DATA65,83,88,90,1
5120 DATA70,98,201,146,73,146,73,146
5130 DATA73,146,73,146,73,147,70,98

```



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\* ZX81 Chart  
Home Computing Weekly  
1.8.83 and 1.11.83.

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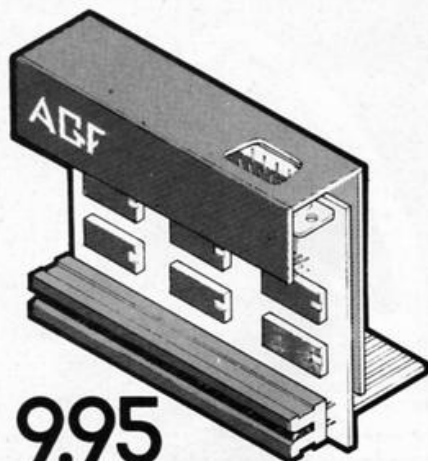
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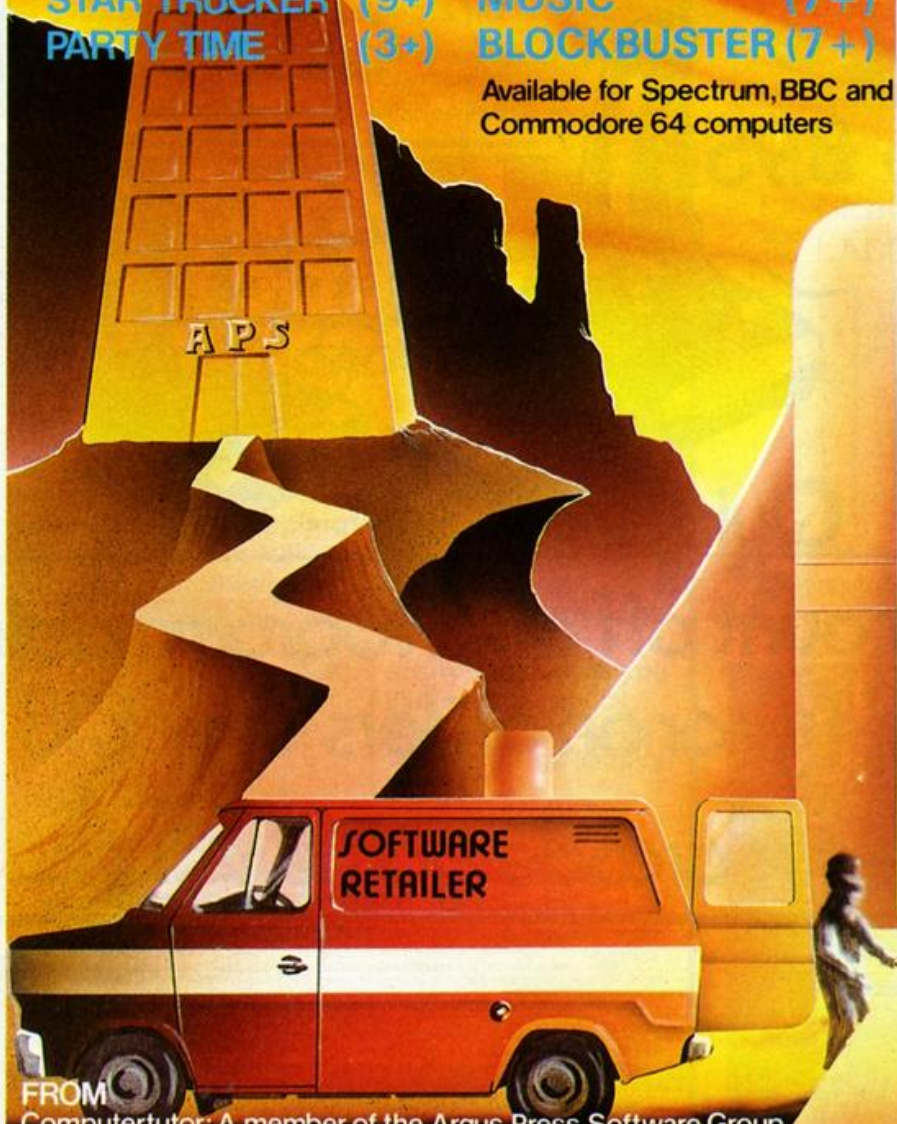
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So when you enter our wordsquare competition don't forget to write on the coupon the computer you own and the prize you would like.

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prizes which means more than 100 winners. The total depends on the prices of the tapes our winners select.

Romik co-founders Mike Barton and Steve Clark started in September 1982 with just five programs for the VIC-20.

Mr Barton, the managing director and chairman, who was with another software company, said: "I'm a computer addict, that's why I started Romik. I couldn't get enough good software."

Mr Clark, at present studying for a computer science degree, will soon be joining Romik full time.

Mr Barton said: "Steve was a

freelance programmer and we decided to combine and form our own company. We borrowed enough to get started and we had paid it back within a few weeks.

"It was my ambition to be the biggest independent software house in the world within two years and we are well on target. Our software is produced under licence in 10 countries and we export directly to 20 more."

Coming soon from Romik are titles for the newly-launched Amstrad computer, games on disc for the Commodore 64, 15 titles for the new MSX system computers plus more titles for existing computers.

Romik also plans more utilities. Among them is a graphics package for the Commodore 64, priced at £14.99, which, says the company, will be easier to use and offer more than the competition.

And there will also be games with an educational content.

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#### Commodore 64

Turtle Jump Zappy Zooks  
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#### BBC

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(All except Super Nine need 16K RAM expansion)  
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#### How to enter

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**Important:** you must write on the back of the envelope the number of titles you found. You may enter as many times as you wish provided each is on the official wordsquare and coupon and in a separate envelope. Please do not enclose anything else. Incomplete entries cannot be considered.

**Clues:** Multisound Synthesizer starts with the third character in from bottom right, runs backwards and turns up into column one. There are more titles than usual this time and they are spelled backwards and forwards, horizontally, vertically and diagonally. All except Multisound Synthesizer are on one line.

Our wordsquare was compiled by 15-year-old Dawn Barton, Mr Barton's niece. The software titles in the wordsquare are drawn from the following lists of Romik's products. Each title in the square appears once only.

Send your entry to Romik Software Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Closing date is at first post on Friday May 25, 1984. Prizes will be awarded to the sender of correct entries opened at random, regardless of computer owned, until the prize value reaches a total of about £1,000. The prizes will arrive from Romik within 28 days of the results appearing in Home Computing Weekly, or earlier.

#### The rules

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

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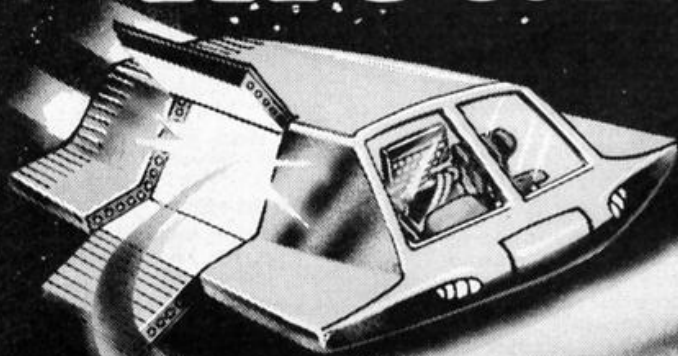
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Instead of zapping aliens, try helping this one back to his spaceship. Alasdair Jarvie, whose game runs on any Oric or Atmos, gives you the chance to be kind to a being from outer space

# Will you do a favour for an alien?

Alien is lost and cannot find his way back to the spaceship unless you help. You have to guide him up the ladders, avoiding the bombs.

You collect bonus points when you reach the spaceship or move underneath an object.

The game also has a "choose your own volume" feature so your family won't be bothered by the noise! It runs in 16K and will work on any Oric or Atmos.

## How it works

10-50 variables  
60-90 get input and react  
100-200, -300, -400, -500 move alien left, right, down, up  
500-600 update score etc  
600-900 move bomb 1, bomb 2, bomb 3  
10000-19999 redefine characters  
20000-29999 instructions  
30000-39999 set up screen  
40000-45000 lose a life  
45000-45999 end  
50000-50000 move to another screen

## Variables

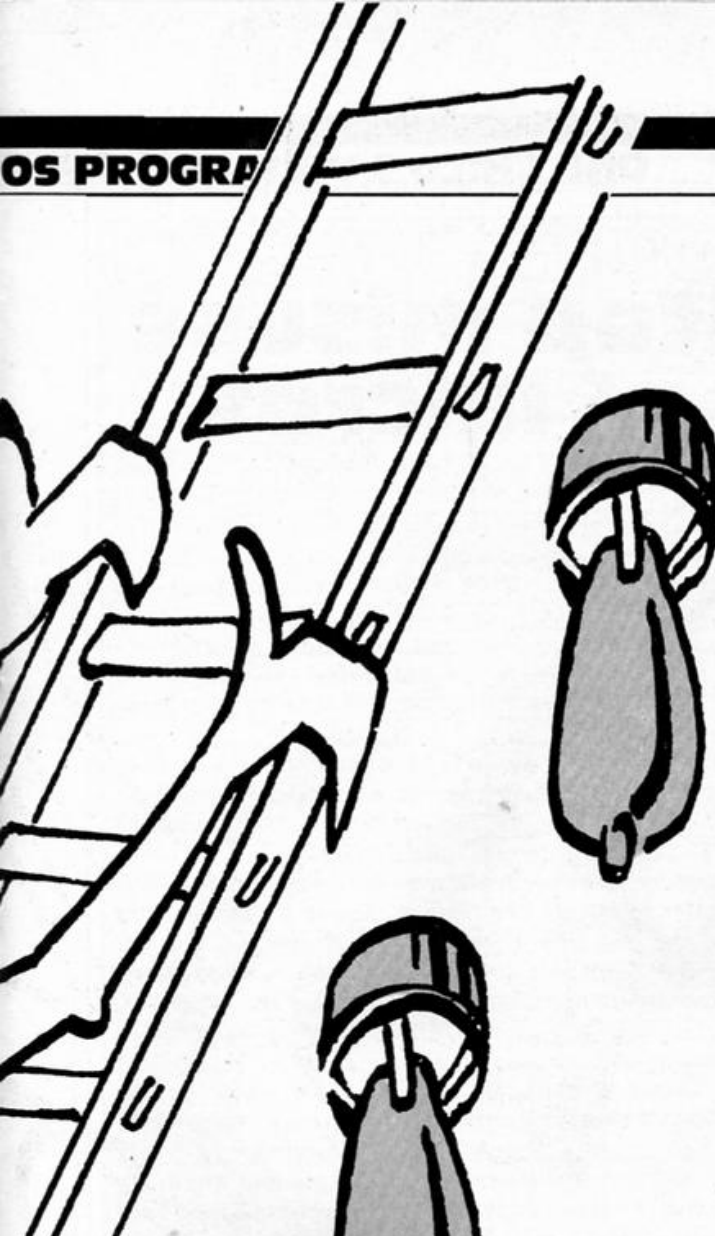
A,B position of alien  
C,D,E,F position of spaceship  
G,H,I,J,K,L positions of bombs

## Hints on conversion

PLOT can be replaced by PRINT AT, PAPER and INK change the colour of the screen, SCRIN checks what is on the screen, ABS is the absolute value and POKE 618, 10 switches off cursor and keyclick.

```
1 TEXT
8 POKE 618,10
10 REM *** ALIEN ***
11 POKE 618,10
20 REM *** BY A. JARVIE ***
30 LIVES=3:P=40000
40 GOSUB 10000:GOSUB 55000:GOSUB 20000
50 GOSUB 30000
60 A=18:B=19:C=4:D=1:E=4:F=2:G=4:H=3:I=-34:J=7:K=4:L=1
1:Q$="de":W$="fg"
70 PLOT A,B,"h":PLOT C,D,Q$:PLOT E,F,W$:PLOT ABS(G),H,"1"
:PLOTABS(I),J,"1"
75 PLOT ABS(K),L,"1"
80 A$=KEY$
85 IF A$="Z" THEN GOTO 100
87 IF A$="X" THEN GOTO 200
89 IF A$="/" THEN GOTO 300
91 IF A$="." THEN GOTO 400
95 GOSUB 500:GOSUB 600:GOSUB 700:GOSUB 800
97 GOTO 70
100 REM *** ALIEN - LEFT ***
105 IF A <= 3 THEN GOTO 70
110 PLOT A,B," ":A=A-1:PLOT A,B,"h"
115 IF SCRIN(A-1,B)=108 THEN GOTO 40000
120 IF SCRIN(A,B-1)=105 THEN MARK=MARK+10:PLOT A,B-1," "
125 IF SCRIN(A,B-1)=106 THEN MARK=MARK+50:PLOT A,B-1," "
130 IF SCRIN(A,B-1)=107 THEN MARK=MARK+100:PLOT A,B-1," "
131 IF SCRIN(A+1,B-1)=99 THEN PLOT A+1,B,"c"
132 IF SCRIN(A+1,B+1)=99 THEN PLOT A+1,B,"c"
133 IF SCRIN(A,B-1)=102 THEN GOTO 50000
134 GOSUB 500:GOSUB 600:GOSUB 700:GOSUB 800
135 A$=KEY$
140 IF A$<>"C" THEN GOTO 145
141 IF A-4<= 3 THEN GOTO 145
142 PLOT A,B," ":A=A-4:PLOT A,B,"h"
145 IF A$="X" THEN GOTO 200
150 IF A$="/" THEN GOTO 300
155 IF A$="." THEN GOTO 400
190 GOTO 100
200 REM *** ALIEN - RIGHT **
205 IF A >= 36 THEN GOTO 70
210 PLOT A,B," ":A=A+1:PLOT A,B,"h"
215 IF SCRIN(A+1,B)=108 THEN GOTO 40000
```





```

220 IF SCRN(A,B-1)=105THENMARK=MARK+10:PLOT A,B-1," "
225 IF SCRN(A,B-1)=106THENMARK=MARK+50:PLOT A,B-1," "
230 IF SCRN(A,B-1)=107THENMARK=MARK+100:PLOT A,B-1," "
231 IF SCRN(A-1,B-1)=99THENPLOT A-1,B,"c"
232 IF SCRN(A-1,B+1)=99THENPLOT A-1,B,"c"
233 IF SCRN(A,B-1)=102THENGOTO 50000
235 GOSUB 500:GOSUB 600:GOSUB 700:GOSUB 800
240 A$=KEY$
245 IFA$<>"C"THENGOTO250
246 IF A+4>=35THENGOTO250
247 PLOTA,B," ":A=A+4:PLOTA,B,"h"
250 IF A$="Z"THENGOTO100
255 IF A$="/"THENGOTO300
260 IF A$=" "THENGOTO400
290 GOTO 200
300 REM *** ALIEN - DOWN ***
305 IF SCRN(A,B+1)<>99THENGOTO70
310 PLOT A,B,"c":B=B+1:PLOT A,B,"h"
315 GOSUB 500:GOSUB 600:GOSUB 700:GOSUB 800
390 GOTO 300
400 REM *** ALIEN - UP ***
405 FORQ=1TO4
406 IF SCRN(A,B-1)<>99THENGOTO70
410 PLOT A,B,"c":B=B-1:PLOT A,B,"h"
415 IF SCRN(A,B-1)=104THENGOTO40000
420 NEXTQ
435 GOTO 70
500 REM ** BONUS AND SHIP **
505 PLOT C,D," ":PLOT E,F," ":C=C+1:E=E+1:PLOT C,D,0$
:PLOT E,F,W$
510 PLOT 2,1,4:PLOT 2,2,4:PLOT 3,1,1:PLOT 3,2,1
515 IF C>=35THENPLOT C,D," ":PLOT E,F," ":E=3:C=3
520 PLOT 8,24," SCORE":PLOT 16,24,STR$(MARK):PLOT 21,2
4," LIVES"
525 PLOT 29,24,STR$(LIVES)
529 P=P-30
530 PLOT 12,26,"--BONUS--":PLOT 23,26,LEFT$(STR$(P),5)
535 IF P=0THENGOTO45000
590 RETURN
600 REM *** BOMB -1 ***
605 PLOT ABS(G),H," "
610 IF ABS(G)>=35ORABS(G)<=3THENG=-G:H=H+4
615 G=G+1:PLOT ABS(G),H,"1"

```

```

616 IF H>=20THENPLOT ABS(G),H," ":G=4:H=3
620 IF SCRN(ABS(G-1),H-1)=99THENPLOT ABS(G-1),H,"c"
625 IF SCRN(ABS(G-1),H+1)=99THENPLOT ABS(G-1),H,"c"
630 IF SCRN(ABS(G+1),H)=104THENGOTO40000
635 IF SCRN(ABS(G),H+1)=99THENO=INT(RND(1)*2):IFO=1THE
NGOTO 660
650 RETURN
660 FORQ=1TO4
665 PLOT ABS(G),H,"c":H=H+1:PLOT ABS(G),H,"1"
669 IF SCRN(ABS(G),H+1)=104 THENGOTO40000
670 NEXTQ
675 G=-G
690 GOTO 600
700 REM *** BOMB -2 ***
705 PLOTABS(I),J," "
710 IF ABS(I)>=35ORABS(I)<=3THENI=-I:J=J+4
711 I=I+1:PLOT ABS(I),J,"1"
715 IF SCRN(ABS(I-1),J+1)=99THENPLOT ABS(I-1),J,"c"
716 IF J>=20THENPLOTABS(I),J," ":I=4:J=3
720 IF SCRN(ABS(I-1),J-1)=99THENPLOT ABS(I-1),J,"c"
725 IF SCRN(ABS(I+1),J)=104THENGOTO40000
730 IF SCRN(ABS(I),J+1)=99THENO=INT(RND(1)*2):IF O=1TH
ENGOTO760
750 RETURN
760 FORQ=1TO4
765 PLOT ABS(I),J,"c":J=J+1:PLOT ABS(I),J,"1"
770 NEXTQ
775 I=-I
790 GOTO 700
800 REM *** BOMB -3 ***
805 PLOT ABS(K),L," "
810 IF ABS(K)>=35OR ABS(K)<=3THENK=-K:L=L+4
811 K=K+1:PLOT ABS(K),L,"1"
815 IF SCRN(ABS(K-1),L+1)=99THENPLOT ABS(K-1),L,"c"
816 IF L>=20THENPLOT ABS(K),L," ":K=4:L=3
820 IF SCRN(ABS(K-1),L-1)=99THENPLOT ABS(K-1),L,"c"
825 IF SCRN(ABS(K+1),L)=104THENGOTO40000
830 IF SCRN(ABS(K),L+1)=99THENO=INT(RND(1)*2):IFO=1THE
NGOTO860
850 RETURN
860 FORQ=1TO4
865 PLOTABS(K),L,"c":L=L+1:PLOT ABS(K),L,"1"
867 IF SCRN(ABS(K),L+1)=104THENGOTO40000
870 NEXTQ
875 K=-K
1012 GOTO800
10000 REM *** REDEFINITION ***
10010 FOR A=0TO95:READD:POKE 46080+A+(8*ASC("a")),D:NE
XTA
10020 DATA 63,33,33,33,33,33,33,63
10030 DATA 33,51,30,12,12,30,51,33
10040 DATA 33,33,33,63,63,33,33,33
10050 DATA 03,07,13,25,49,63,62,60
10060 DATA 48,56,44,38,35,63,31,15
10070 DATA 60,62,63,31,15,07,03,01
10080 DATA 15,31,63,62,60,56,48,32
10090 DATA 12,30,63,45,33,51,30,12
10100 DATA 30,12,63,63,63,63,12,30
10110 DATA 03,03,06,12,12,24,48,48
10120 DATA 30,30,33,45,18,18,30,63
10130 DATA 30,45,45,63,63,45,45,30
19999 RETURN
20000 REM *** INSTUCTIONS ***
20010 CLS:PAPER6:INK4
20020 PLOT 5,3," A L I E N":PLOT 5,4," A L I E N ":PLO
T 5,3,14:PLOT 5,4,14
20030 PLOT 3,7," THE OBJECT OF THIS GAME IS TO HELP"
20040 PLOT 3,9,"THEN LITTLE ALIEN GET BACK TO ITS"
20050 PLOT 3,11,"SPACE SHIP (WHICH IS AT THE TOP"
20060 PLOT 3,13," OF THE SCREEN). YOU DO THIS "
20070 PLOT 3,15," BY CLIMBING LADDERS AND "
20080 PLOT 3,17,"AVOIDING THE BOMBS THAT THE "
20090 PLOT 3,19,"SPACE SHIP DROPS AT YOU"
20100 PLOT 3,21,"THIS IS A SAFTY PRECAUTION ONLY"
20110 PLOT 3,24," PRESS ANY KEY FOR CONTROLS"
20120 PLOT 2,24,4:PLOT 0,24,16
20130 GETA$
20140 CLS:PAPER4:INK2
20150 PLOT 19,6," ":PLOT 18,4,"UP"
20160 PLOT 9,13,"Z":PLOT 6,11,"RIGHT"
20170 PLOT 29,13,"X":PLOT 27,11,"LEFT"
20180 PLOT 19,19,"/":PLOT 17,21,"DOWN"
20190 PLOT 5,23," PRESS ANY KEY TO START !"
20200 PLOT 19,13,"C":PLOT 17,11," JUMP"
20210 PLOT 1,6,1:PLOT 1,4,0:PLOT 1,13,1:PLOT 1,11,0:PL
OT1,19,1:PLOT 1,21,0
20230 GETA$
29999 RETURN
30000 REM *** SET UP SCREEN ***
30005 CLS:PAPER0:INK1
30010 PLOT 1,0,"aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
a"
30020 PLOT1,1,"a a"
30030 PLOT1,2,"a a"
30040 PLOT1,3,"a c c c a"

```



## ORIC/ATMOS PROGRAM

```

30048 PLOT1,4,"a bbbcbcccccccccccccccccccccccccccccccc a"
30060 PLOT1,5,"a      c              c              c      a"
30070 PLOT1,6,"a      c      i              c      j      c      k      a"
30080 PLOT1,7,"a      c      c              c      c      c      c      a"
30090 PLOT1,8,"a bbbcccccccccccccccccccccccccccccccccccc a"
30100 PLOT1,9,"a              c              c              a"
30110 PLOT1,10,"a      k      c      j      c              j      a"
30120 PLOT1,11,"a      c      c      c      c      c      c      a"
30130 PLOT1,12,"a bbbcccccccccccccccccccccccccccccccccccc a"
30140 PLOT1,13,"a      c              c              c      a"
30150 PLOT1,14,"a      c      j      c      i              ci      a"
30160 PLOT1,15,"a      c              c      c      c              c      a"
30170 PLOT1,16,"a bbbcccccccccccccccccccccccccccccccccccc a"
30180 PLOT1,17,"a              c              c              a"
30190 PLOT1,18,"a              j      c      jc              j      a"
30200 PLOT1,19,"a              c              c              a"
30210 PLOT1,20,"a bbbcccccccccccccccccccccccccccccccccccc a"
30220 PLOT1,21,"a              a"
30230 PLOT1,22,"aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa"
30240 FORA=4TO20STEP4:PLOT 2,A,2:PLOT 37,A,1:NEXTA
39999 RETURN
40000 REM *** THE END? ***
40010 LIVES=LIVES-1:IF LIVES<=0THENGOTO45000
40020 CLS:PAPER2:INK4:PLOT 5,12," YOU LOSE A LIFE"
40030 T$="1234567891234567891234512345123459876598765987654
321987654321123119911991"
40040 FORA=1TOLEN(T$)
40050 W=VAL(MID$(T$,A,1))
40060 PLAY 7,0,0,0:MUSIC 1,2,W,V :MUSIC 2,6,W,11:MUSIC
2,3,W,5:NEXTA
40070 PLAY 0,0,0,0:WAIT 100:GOTO50
45000 REM *** THE END ***
45005 CLS:PAPER5:INK6
45010 PLOT 5,10,"THE END" :PLOT 5,9,"THE END":PLOT 4,9
,10:PLOT 4,10,10
45020 T$="11991199191919876543223456789876543211234567
899991111999191919191"
45030 FORA=1TOLEN(T$)
45040 W=VAL(MID$(T$,A,1))
45050 PLAY 7,0,0,0:MUSIC1,1,W,V :MUSIC 2,6,W,V :MUSIC
3,3,W,10
45055 SOUND 6,W, V:SOUND 1,W,V :SOUND 3,W,10:SOUND 5,W
,B
45060 NEXTA
45070 PLAY 0,0,0,0:END
50000 REM *** FINISH A SCREEN ***
50005 PAPER4:INK0
50010 CLS:P=1000:MARK=MARK+500
50020 PLOT 5,10," GO ONTO ANOTHER SCREEN "
50030 T$="12345676532234565425413245765421212456765421
23456765439876543459876"
50040 FOR A=1TOLEN(T$)
50041 W=VAL(MID$(T$,A,1))
50042 PLAY 7,0,0,100
50045 MUSIC 1,3,W,V:MUSIC 2,1,W,V:MUSIC 3,6,W,V
50060 NEXTA
50070 PLAY 0,0,0,0
50080 GOTO 50
55000 REM *** VOLUME CONTROL ***
55010 CLS:PAPER1:INK4
55020 PLOT 5,5," VOLUME CONTROL":PLOT 5,6," VOLUME CON
TROL":PLOT5,5,14
55030 PLOT 5,6,14
55040 PLOT 2,8,"PICK THE VOLUME CONTROL "
55050 PLOT 2,10,"BETWEEN THE NUMBERS (1 TO 15)":INPUT
A#
55060 IF VAL(A#)<10R VAL(A#)>15THENGOTO 55050
55070 PLOT 10,20,"THE VOLUME IS ":PLOT 25,20,A#
55080 PLOT 8,22," PRESS <H>TO CHANGE OR <C> TO"
55090 PLOT 12,24," CONTINUE"
55100 GETA#
55110 IF A#="H"THENGOTO55050
59999 RETURN

```

## ONE CHILD'S VIEW

# Stop misuse of micros

*It is with growing unrest that I write this, such is the state of the computer scene today.*

Two years ago, when I first bought a computer, enthusiasts were using the Atari and Intellivision games systems for playing games, not computers — these were being used, correctly, for programming. Nowadays, too many computers are being used exclusively for game playing.

At least 75 per cent of those in my class who own computers treat them as games machines. Their programming skills are limited to LOAD"" and 10 PRINT" Arsenal rule OK" and 20 GOTO 10.

Owners are often heard to boast about their computers. During one French lesson I heard from behind me: "So what if you've got a Dragon 64, I've got a BBC B." Since this came from a devoted games player it set me wondering what was the point of spending £400 on a computer when a £60 games machine would have been sufficient.

I would also like to add my own views on the turbulent controversy surrounding software piracy. Two years ago, when I bought my first computer, a trusty ZX81, software companies were not making anywhere near as much money as they do now. In those days piracy took place maybe even more than nowadays; software houses are now making thousands of pounds in profit, but they have started kicking up a fuss. Surely they have enough money not to worry about the (relatively) small loss over piracy? If they want to prevent piracy, a drop in prices would help, as there would then be less need for it. At its present price software is utterly, confoundingly extortionate.

In general, the computer market is going downhill. Micros are being used for games too much, leading some people to think that is the limit of their capabilities. Programs are becoming increasingly scarce: this in turn will lead to personal computers being used for a narrower range of purposes.

Computers are becoming games machines with programming as a sidekick. This all contributes to making the programmer's life harder and encouraging users to submit entirely to games playing and thus misuse what can be one of man's greatest tools.

**Robin Elworthy**  
Hardline, anti-games, no playing, no compromises  
computer activist  
Maidstone, Kent

● 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. Contributions from individuals earn a fee. Send your views to Paul Liptrot, Editor, Home Computing Weekly, No.1 Golden Square, London W1R 3AB



Text Planning Sheet for the BBC micro. Use it for Mode 7 down to the bold line and the whole graph for all other modes.  
Designed by Micro-Aid, 25 Fore Street, Praze, Cornwall TR14 0JX.  
A 12-sheet pad costs 65p including postage, from Micro-Aid.

Modes 2,5  
Modes 4,6,7  
Modes 0,3

PROGRAM TITLE

Notes:

|    | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|----|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|
| 0  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 1  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 2  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 3  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 4  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 5  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 6  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 7  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 8  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 9  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 10 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 11 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 12 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 13 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 14 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 15 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 16 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 17 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 18 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 19 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 21 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 22 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 23 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 24 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 25 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 26 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 27 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 28 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 29 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 31 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |



It's two of you versus the BBC  
micro. Who'll come out ahead  
in Geoff Turner's Hidden  
Numbers program?

BBC P

# Find the numbers and foil your micro



```

10 REM *****
20 REM * HIDDEN NUMBERS *
30 REM * By Geoff Turner *
40 REM * 1984 *
50 REM *****
60 ON ERROR MODE7:REPORT:PRINTERL:END

70 *TV255
80 MODE7
90 PRINTTAB(0,5),STRING$(40,"?")
100 PRINT
110 PRINTTAB(10,8);CHR$(141);CHR$(129);"HIDDEN NUMBE
RS"
120 PRINTTAB(10,9);CHR$(141);CHR$(129);"HIDDEN NUMBE
RS"
130 PRINTTAB(11,10);CHR$(134);"By Geoff Turner"
140 PRINTTAB(0,13),STRING$(40,"?")
150 PRINTTAB(2,20);CHR$(136);"DO YOU WANT INSTRUCTION
S (Y/N) ?"
160 I$=INKEY$(5):IF I$="" THEN 160
170 IF I$="Y" THEN PROCINSTRUCTIONS

```



Hidden Numbers is a game for one or two players against the computer. At the start of the game the computer generates 100 numbers between one and 10, and hides them in a 10 x 10 matrix. Each player takes a turn to uncover any two numbers, in an attempt to find two identical.

If he is successful, the player scores points to the value of the exposed numbers, and the pair are removed from the board. The game continues until all the numbers have been removed from the screen, and the winner is the player with most points.

To enable the computer to have a reasonable chance of winning the game, it has been programmed to remember the last five numbers exposed. I have found this to be a reasonable amount of memory to enable the computer to compete with its human opponents.

Playing the game is fairly easy. When the board is displayed, the first player is chosen at random, and his/her name is displayed at the bottom

## How it works

80-160 display title page, option to view instructions

180 calls PROCEDURE to initialise variables

210 calls PROCEDURE to set up screen display

220 starts a repeat loop which continues to call main loop PROCEDURE until there are no numbers left on screen

260-300 give option to play again or end

310-620 initialise PROCEDURE. Several arrays are DIMensioned and variables are set to their initial values. The PROCEDURE also asks how many players, and their names. The hidden numbers are generated at lines 550 to 610. Note that this can take several seconds.

630-860 display instructions if requested

870-1120 set up screen display. All hidden numbers are covered by a ? at this stage

1130 enters the main loop. Each players' turn consists of one pass through this loop. The PROCEDURE allows input from the player and checks validity. After two valid numbers are selected, line 1480 diverts the program to check for two similar numbers

1530-1600 deposit exposed numbers in memory

1620-1710 check for winning combinations, increase scores

1720-1800 update players' scores on screen

1810-1900 ends game with suitable message

1910-2000 generate computer's selection

2110-2080 check memory for winning number

```

180 PROCINITIALISE
190 MODE2
200 VDU23,1,0;0;0;0;0;
210 PROCSCREEN
220 REPEAT
230   PROCMAINLOOP
240   UNTIL LEFT%=0
250 PROCEND
260 PRINTTAB(1,12);"PLAY AGAIN (Y/N) ?";
270 I$=INKEY$(5):IF I$="Y" THEN CLEAR:RUN
280 IF I$<>"N" THEN 270
290 MODE7
300 END
310 DEFPROCINITIALISE
320 ENVELOPE 1,2,-25,-80,-6,15,0,0,126,0,0,-126,126,1
26
330 ENVELOPE 2,1,-36,-93,-9,11,0,0,126,0,0,-126,126,1
26
340 LEFT%=50
350 DIM NAME$(3)
360 DIM F%(10,10)
370 DIM SC$(3)
380 DIM M$(5)
390 DIM G3(5)
400 DIM G4(5)
410 MEM=1
420 CLS
430 PRINTTAB(0,5);"HOW MANY PLAYERS (1 or 2) ?";
440 INPUT"NM
450 NM=INT(NM):IF NM<1 OR NM>2 THEN VDU7:GOTO 420
460 PRINTTAB(0,8);"PLAYER ONE ENTER YOUR NAME";CHR$(1
30);:INPUT"NAME$(1)
470 IF NM=2 PRINTTAB(0,10);"PLAYER TWO ENTER YOUR NAM
E";CHR$(130);:INPUT"NAME$(2) ELSE NAME$(2)="BEEB"
480 NAME$(3)="BEEB"
490 A$="?"
500 FOR I=1 TO 3
510   SC$(I)=0
520   NEXT
530 T%=RND(NM+1)
540 PRINTTAB(0,15);"PLEASE WAIT WHILST I HIDE THE NUM
BERS"
550 FOR R%=1 TO 10
560   FOR I=1 TO 10
570     N%=RND(10):M%=RND(10)
580     IF F%(N%,M%)<>0 THEN 570
590     F%(N%,M%)=R%
600   NEXT
610 NEXT
620 ENDPROC
630 DEFPROCINSTRUCTIONS

```

of the screen. The player enters his first choice with a letter and a number, e.g. A3 or G5 etc. The computer checks the validity of the chosen number and then exposes the number on the screen. The player is then prompted to enter a second choice and the procedure is repeated.

When it is the computer's turn to play, the message BEEB THINKING is displayed, and the computer makes its selection. The first number

chosen is completely random, but the second may be taken from the computer's memory if a match is found or, alternatively, a second random number is chosen.

In the later stages of the game, the computer's thinking time will be longer, as it may have to make many random selections before a valid number is found.

Hidden Numbers runs in about 4K on a BBC model B in mode 2. Model A users may use

mode 5 with slight variation to the colours used.

## Main variables

LEFT% numbers left on screen  
 NAMES(\*) players' names  
 F%(\*,\*) value of each hidden number  
 SC%(\*) players' scores  
 M%(\*) Beeb's memory counter  
 G3(\*) Beeb's memory  
 G4(\*) Beeb's memory  
 NM number of players  
 T% turn number  
 G1,G2 player's first selection  
 G3,G4 player's second selection



```

640 CLS
650 PRINT
660 PRINT "A GAME FOR ONE OR TWO PLAYERS AGAINST"
670 PRINT "THE COMPUTER."
680 PRINT
690 PRINT "THERE ARE ONE HUNDRED HIDDEN NUMBERS"
700 PRINT "DISPLAYED ON THE SCREEN. YOU HAVE TO"
710 PRINT "FIND TWO EQUAL NUMBERS TO SCORE POINTS"
720 PRINT
730 PRINT "HIGHER NUMBERS SCORE MORE POINTS."
740 PRINT
750 PRINT "IF YOU FIND TWO STARS '*' YOU WILL"
760 PRINT "SCORE TWENTY POINTS"
770 PRINT
780 PRINT "ENTER YOUR CHOICE WITH A LETTER AND"
790 PRINT "NUMBER LIKE THIS :- A5 or G3 etc."
800 PRINT
810 PRINT "THE GAME ENDS WHEN ALL NUMBERS ARE"
820 PRINT "UNCOVERED"
830 PRINT:PRINT:PRINT:
840 PRINT "PRESS SPACE BAR."
850 REPEAT UNTIL INKEY(-99)
860 ENDPROC
870 DEFPROCSCREEN
880 COLOUR 6
890 PRINT " A B C D E F G H I J"
900 FOR I=0 TO 9
910   PRINTTAB(0,(I*2)+2);I
920   NEXT
930 COLOUR2
940 FOR X=1 TO 19 STEP 2
950   FOR Y=2 TO 20 STEP 2
960     PRINTTAB(X,Y);A$;
970     NEXT
980   NEXT
990 COLOUR 7
1000 PRINTTAB(0,22);STRING$(20,"_")
1010 COLOUR 1
1020 PRINT "SCORES"
1030 PRINT
1040 COLOUR 6
1050 FOR I=1 TO 2
1060   PRINT LEFT$(NAME$(I),8)
1070   PRINT
1080   NEXT
1090 IF NM=2 PRINT NAME$(3)
1100 MOVE 704,0
1110 DRAW 704,9*32
1120 ENDPROC
1130 DEFPROCMAINLOOP
1140 PROCSCORES
1150 T%=T%+1:IF T%=NM+2 THEN T%=1
1160 FOR I=1 TO 4
1170   PRINTTAB(12,22+(I*2));SPC(8);
1180   NEXT
1190 COLOUR 11
1200 PRINT TAB(12,24);LEFT$(NAME$(T%),6);"'S";
1210 IF NAME$(T%)="BEEB" PRINT TAB(12,26);"THINKING" E
1220 COLOUR 7
1230 PRINTTAB(12,28);"1  ";
1240 IF NAME$(T%)="BEEB" THEN PROCBEEB(1) ELSE G1=GET
1250 IF G1<65 OR G1>74 VDU7:GOTO 1240

```



```

1260 N1%=G1-64
1270 IF NAME$(T%)<>"BEEB" PRINTTAB(15,28);CHR$(G1);
1280 IF NAME$(T%)="BEEB" THEN PROCBEEB(2) ELSE G2=GET
1290 IF G2<48 OR G2>57 VDU7:GOTO 1280
1300 M1%=G2-47
1310 IF F%(N1%,M1%)=0 THEN 1230
1320 IF NAME$(T%)="BEEB" PRINTTAB(15,28);CHR$(G1);
1330 PRINTTAB(16,28);CHR$(G2);
1340 IF F%(N1%,M1%)<10 PRINTTAB((G1*2)-129,(G2*2)-94);
F%(N1%,M1%); ELSE PRINTTAB((G1*2)-129,(G2*2)-94);"*"
1350 PRINTTAB(12,30);"2 ";
1360 IF NAME$(T%)="BEEB" THEN PROCBEEB(3) ELSE G3=GET
1370 IF G3<65 OR G3>74 VDU7:GOTO 1360
1380 N2%=G3-64
1390 IF NAME$(T%)<>"BEEB" PRINTTAB(15,30);CHR$(G3);
1400 IF NAME$(T%)="BEEB" THEN PROCBEEB(4) ELSE G4=GET
1410 IF G4<48 OR G4>57 VDU7:GOTO 1400
1420 M2%=G4-47
1430 IF F%(N2%,M2%)=0 THEN 1350
1440 IF G1=G3 AND G2=G4 VDU7: GOTO 1400
1450 IF NAME$(T%)="BEEB" PRINTTAB(15,30);CHR$(G3);
1460 PRINTTAB(16,30);CHR$(G4);
1470 IF F%(N2%,M2%)<10 PRINTTAB((G3*2)-129,(G4*2)-94);
F%(N2%,M2%); ELSE PRINTTAB((G3*2)-129,(G4*2)-94);"*";
1480 PROCHECK
1490 FOR TM=1 TO 5000:NEXT
1500 COLOUR 2
1510 PRINTTAB((G1*2)-129,(G2*2)-94);A$
1520 PRINTTAB((G3*2)-129,(G4*2)-94);A$
1530 MEM=MEM+1:IF MEM=6 THEN MEM=1
1540 G3(MEM)=G1
1550 G4(MEM)=G2
1560 M%(MEM)=F%(N1%,M1%)
1570 MEM=MEM+1:IF MEM=6 THEN MEM=1
1580 G3(MEM)=G3
1590 G4(MEM)=G4
1600 M%(MEM)=F%(N2%,M2%)
1610 ENDPROC
1620 DEFPROC CHECK
1630 IF F%(N1%,M1%)<>F%(N2%,M2%) THEN A$="?" :SOUND 0,
2,50,5:ENDPROC
1640 A$=" "
1650 SOUND 1,1,200,10
1660 LEFT%=LEFT%-1
1670 IF F%(N1%,M1%)<10 SC$(T%)=SC$(T%)+F%(N1%,M1%) ELS
E SC$(T%)=SC$(T%)+20
1680 F%(N1%,M1%)=0:F%(N2%,M2%)=0
1690 G3(MEM)=0:G4(MEM)=0
1700 G3(MEM-1)=0:G4(MEM-1)=0
1710 ENDPROC
1720 DEFPROC SCORES
1730 COLOUR 1
1740 FOR S=1 TO NM+1
1750 P=10
1760 IF SC$(S)>9 THEN P=9
1770 IF SC$(S)>99 THEN P=8
1780 PRINTTAB(P,24+(S*2));SC$(S);
1790 NEXT
1800 ENDPROC
1810 DEFPROC END
1820 COLOUR 6
1830 G$="GAME OVER"
1840 FOR I=1 TO LEN G$

```



54  
28  
27

```

1850 PRINTTAB(4+I,10);MID$(G$,I,1);
1860 SOUND 1,-15,I*10,5
1870 TIME=0:REPEAT UNTIL TIME>50
1880 NEXT
1890 SOUND 1,-15,100,20
1900 ENDPROC
1910 DEFPROC BEEB(G)
1920 FOR Q=1 TO 1000:NEXT
1930 ON G GOTO 1940,1950,1960,1980
1940 G1=RND(10)+64:ENDPROC
1950 G2=RND(10)+47:ENDPROC
1960 PROCMEMORY:IF M=1 ENDPROC
1970 G3=RND(10)+64:ENDPROC
1980 IF M=1 THEN ENDPROC
1990 G4=RND(10)+47:ENDPROC
2000 ENDPROC
2010 DEFPROC MEMORY
2020 M=0
2030 I=1
2040 REPEAT
2050 IF F%(N1%,M1%)=M%(I) THEN G3=G3(I):G4=G4(I):M=1
:M%(I)=0:IF G1=G3 AND G2=G4 THEN M=0
2060 I=I+1
2070 UNTIL I=5 OR M=1
2080 ENDPROC
    
```

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## Typing Tutor TI-99/4A £6.50

Warwick, 40 Kingsway, Newby,  
Scarborough, North Yorks  
YO12 6SG

This program is designed to teach touch typing. There are three programs, the first containing instructions on how to do the exercises on the other two. Although invited to 'press any key to continue' the program will sometimes crash with a Bad Line Number.

The second program acquaints the user with the keyboard, starting with the home keys, progressing to upper and lower case, shift and function keys. Exercises give practice with characters on the keys displayed or blanked out. My main objection is that specific guidance is not given as to which fingers should be used. Written

instructions and diagrams to supplement those on screen would prove useful. At the end of each exercise the average response time is given.

The third program progresses to typing complete words. The computer has been given a vocabulary of 500 words, but as these are stored in data statements you sometimes have to wait a long time for the next one to appear.

Considering these programs are meant to encourage accurate typing, there are several spelling mistakes littered throughout all three. Practise what you preach, please!

|                 |     |
|-----------------|-----|
| instructions    | 60% |
| ease of use     | 60% |
| display         | 85% |
| value for money | 65% |



J.W.

## Clever Dick 48K Spectrum £5.50

Simply, 2/6 Baker Street, Old  
Town, Stevenage, Herts SG1  
2NJ

When will programmers learn that young children cannot read and spell well — if at all? The whole point of using a computer is to teach in a colourfully graphic way, using the minimum of words and allowing repetition, or the stopping of tuition.

Obviously Simply Software is not in that league yet. It states this program is for the two- to eight-year-olds. No way! You cannot quit a section and return to the menu, it relies on words being entered but cannot accept wrong spellings (how many eight-year-olds can spell Wednesday?), has some bugs —

did you know Wednesday comes one day after Wednesday — and does not keep your answers on-screen.

It attempts to cover testing of number knowledge; practise in addition, subtraction, multiplication and division; teaches colours; practises the alphabet, days of the week and months of the year.

There are some nice touches, such as words coming from left or right, a pretty tune playing when correct, levels of difficulty and randomised scores with 'alright', 'good' or 'excellent' after a section finishes.

T.W.

|                 |     |
|-----------------|-----|
| instructions    | 35% |
| ease of use     | 25% |
| display         | 20% |
| value for money | 30% |



## Maths Invaders Commodore 64 £7.95

Stell, 36 Limefield Ave, Whalley,  
Lancs B6 9RJ

In my experience children generally enjoy playing more than work. If you combine play with work children can learn without realising it.

This game follows the usual space invader format as you have to shoot down invading spaceships. However, in this case, the spaceships have a maths problem and to shoot them down you have to hit them with the correct answer. Your gun fires with a satisfying crack and all being well the ship will explode. Speed is of essence, as is dexterity. If you do not answer quickly enough another bank of invaders appears. There are fifteen ships in a wave and when you have killed them all a siren sounds.

There are twelve types of sum: addition, subtraction, multiplication and division, at easy, medium and hard levels. There was little difference between the easy and hard multiplication, but the difference in addition and subtraction levels was evident.

Technically the game is well executed with adequate graphics and sound. Not unexpectedly, the game is not up to the standard of many of the arcade games, but then again, they don't try to teach you anything!

M.W.

|                 |     |
|-----------------|-----|
| instructions    | 80% |
| ease of use     | 90% |
| graphics        | 90% |
| value for money | 90% |



# Reports on the teachers

End of term marks by our  
reviewers for all that's new in  
teaching software

## The Grunberg Linkword Language System — Spanish Dragon 32 £12.95

Dragon Data, Kenfig Industrial  
Estate, Margam, Port Talbot, W  
Glam SA13 2PE

The Grunberg system of learning basic foreign vocabulary and grammar has hit the headlines in the last few months since it has been adapted for a range of computers. Dragon Data have produced a most creditable version which is supplied in a large presentation case with a reasonable instruction booklet and an audio tape as well as the program.

The system does seem to work

when learning basic vocabulary; in a matter of a few hours this package rapidly improved my Spanish, which admittedly did not stretch far beyond olé and paella.

I found it easy to recognise and understand the words and grammar, although the system may not work for everybody. There are some 400 words to learn plus the basics of grammar. The program is divided up into sections, which load separately. The loading takes ages but is eventually worth it.

The program is certainly worth buying if you want to know a little Spanish before you take your holiday there.

C.G.

|                 |     |
|-----------------|-----|
| instructions    | 90% |
| ease of use     | 90% |
| display         | 60% |
| value for money | 90% |



## 'O'-ACES Physics 1 Electron/ BBC 32K £6.90

Sunland, 204 High St West,  
Sunderland SR1 1UA

This is one of the worst educational programs I have seen for a while. It is boring, uninspiring and represents the worst teaching possible.

The program drills the student with questions against the clock. The inlay claims "three great games". They are Time Limit Test, i.e. each question has a limited answer time; Mind-master, a one-minute test with you answering as many as possible, and Examination where you choose the number of questions and the computer sets the time limit.

There is also a "browse" facility to familiarise you with the questions (and answers). If you regard these as "great" then this could be for you, but I doubt it.

There is an "incentive" to do well: you could be awarded a 'CO-CO-NUT' if you get to the oasis (O'aces. Get it?) but the graphics are so crude as to be laughable.

The worst feature is that this claims to test physics. Science is about discovery and it is very sad to see a subject reduced to this.

One final criticism: you cannot enter your own questions and although there are 100 questions this is rather poor.

D.C.

|                 |     |
|-----------------|-----|
| instructions    | 50% |
| ease of use     | 50% |
| graphics        | 0%  |
| value for money | 10% |





## Colditz Adventure 48K Spectrum £6.95

Phipps Associates, 172 Kingston Rd, Ewell, Surrey

A split screen graphics/text adventure. Your aim, naturally enough, is to escape. An interesting set of objects litters the locations: floorboards, keys, broken glass, rope, a gun and so on.

The locations themselves are numerous and varied. If you fancy a crypt or a stone coffin its here, together with wire fences, tunnels in various state of repair and lots of guards. Not only must you escape the castle but also get safely to the border.

The graphics are limited to a modest window and, in common

with the Hobbit, don't show every location. They are simple but effective and are drawn extremely rapidly. The vocabulary too is limited to the simple phrases beloved by true adventure enthusiasts and the HELP feature is equally quirky. The words seem to be interpreted much more quickly than in other adventures I've recently seen.

The usual SAVE GAME routine is provided for use when patience, time, or both, run out. I've seen the solution and the guy who wrote this is a sadist! Good fun.

|                 |     |
|-----------------|-----|
| instructions    | 80% |
| playability     | 95% |
| graphics        | 85% |
| value for money | 95% |



## Fighter Pilot TI-99/4A £6

Stainless, 10 Alstone Rd, Stockport, Cheshire

Search and destroy is the name of the game. Enemy planes must be destroyed before they have the opportunity to bomb you. You start with five but are awarded one extra after 3000 points.

The joystick is used in conjunction with the keyboard to control speed, height and direction. The screen shows a control panel with gauges for all these parameters as well as radar. But before you even start looking for the enemy the fighter must be lifted from the airstrip. The first few games are usually wasted in trying to find the requirements for a perfect take off.

Once in the air you launch the attack on the enemy who has the added advantage of cloud cover. For each adversary hit, points are awarded. Failing to take evasive action will probably find you one fighter less and back on the ground!

When you feel you've had enough you may return to the ground — but only if your fuel is not too high and, more importantly, if you are not so disorientated that you can't find the runway.

J.W.

|                 |     |
|-----------------|-----|
| instructions    | 75% |
| playability     | 70% |
| graphics        | 70% |
| value for money | 90% |



## The Ring of Darkness 48K Spectrum £9.95

Wintersoft, 30 Uplands Park Rd, Enfield, Middx EN2 7PT

A define-your-own-character adventure which is more graphics than text. Having decided who and what you are, you flip the cassette and LOAD the main game code block.

A graphics window on an enormous playing area is revealed, with rivers, seas and castles. Assailed by a number of nasties, your equally crudely drawn and animated person traverses the area presumably seeking something. Offer services to one of the kings and a quest will be set.

As you play you gain in experience, consume food, acquire gold and arrival in a new location, displayed in simple arcade style, means the opportunity to barter for food, arms, transport and so on. Some castles conceal entrances to underground mazes, drawn in rather fine 3D, which require yet more code to be LOADED. Indeed, on some occasions you will need to flip the cassette again.

The beauty of this game is its infinite variation. Change your character and the game responds in a totally different way. Implementation on Microdrives would add speed to what is already quite a sophisticated program.

Although the graphics and language interpreter are not beyond criticism, well worth looking at.

D.M.

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



# Will you believe you're there?

New simulations and  
adventures for Spectrum, TI  
and Sord reviewed and star  
rated by our panel

## Real Tennis Sord M5 £23.95

Computer Games, Golding Hill, Loughton, Essex IG10 2RR

This must be one of the most impressive tennis simulations available for any micro. It has absolutely nothing to do with traditional breakout games but is a proper simulation in 3D.

The court is displayed giving you a view rather like the one you get on telly from Wimbledon except the court is, for some strange reason, bright orange and yellow!

The simplest way to play is to move your man, who is, incidentally, incredibly well animated, to the ball and the man will automatically hit the ball back. But if you're feeling

adventurous, you can try lobs or ground strokes. You can play another person or the computer, but be warned, the computer is amazingly good at this game. He never seems to miss a shot and his service is second to none!

Overall, this has some of the most impressive graphics I have ever seen, sound is very realistic and animation is simply superb. Meticulous attention to detail, right down to the shadow on the ball makes this one of the best, if not the best, tennis game on the market, just as addictive as any shoot-'em-up game.

S.S.

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



## Heavy Boxing Sord M5 £23.95

Computer Games, Goldings Hill, Loughton, Essex IG10 2RR

This game cartridge attempts to recreate some of the atmosphere of heavy boxing and a jolly good job it does too!

The ring is displayed, the crowd in the background cheer and whistle and wave their arms with impatience. Then the gong rings. The two fighters stand up and move towards the middle of the ring. The fight is on. You move your fighter with your joypads and throw punches at your opponent whose punches can be avoided by ducking or throwing wild punches. Strength is shown on the bottom of the screen and every time you are hit, it goes down. The fight is over when you or your opponent are knocked out, or settled by decision, i.e. number of hits. You have the option to play the computer or a human player.

Animation is excellent and the tension as you helplessly watch your player on the floor being counted is excruciating. The realistic thuds as you land punches and small details such as the whistles of the crowd make this game a winner. The only thing you've got to watch for is not to break your joypads when you get too excited!

S.S.

|                 |     |
|-----------------|-----|
| instructions    | 90% |
| playability     | 85% |
| graphics        | 85% |
| value for money | 80% |







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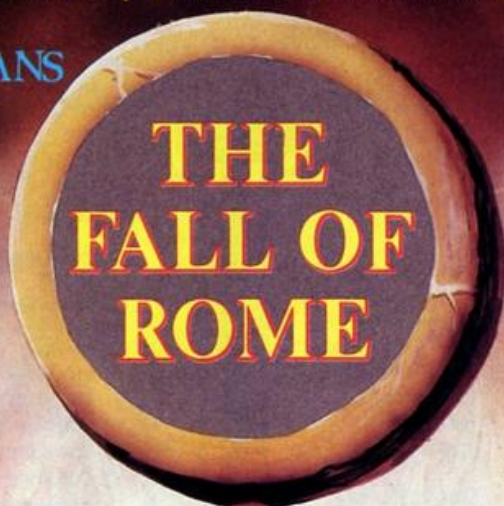
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# CHARTBUSTERS

## BRITAIN'S SOFTWARE CHARTS

by the ASP Market Research Group

### ARCADE

|                    |                   |              |
|--------------------|-------------------|--------------|
| 1 Jet Set Willy    | Software Projects | Spectrum (2) |
| 2 Fred             | Quicksilva        | Spectrum (6) |
| 3 Codename MAT     | Micromega         | Spectrum (8) |
| 4 Manic Miner      | Software Projects | Spectrum (-) |
| 5 3D Ant Attack    | Quicksilva        | Spectrum (-) |
| 6 Caesar the Cat   | Mirrorsoft        | Spectrum (4) |
| 7 Space Pilot      | Anilog            | CBM 64 (7)   |
| 8 Bumping Buggles  | Bubble Bus        | CBM 64 (9)   |
| 9 Manic Miner      | Software Projects | CBM 64 (1)   |
| 10 Chinese Juggler | Ocean             | CBM 64 (-)   |

### NON-ARCADE

|                               |                 |                 |
|-------------------------------|-----------------|-----------------|
| 1 Twin Kingdom Valley         | Bug-Byte        | CBM 64 (1)      |
| 2 Golf 64                     | Abrasco         | CBM 64 (2)      |
| 3 First Steps With Mr Men     | Mirrorsoft      | Spectrum (-)    |
| 4 The Wizard and the Princess | Melbourne House | VIC-20 (-)      |
| 5 Colossus Chess              | CDS             | CBM 64 (-)      |
| 6 The Valley                  | APS             | Spectrum (3)    |
| 7 Goldlocks                   | Arrow Books     | Spectrum (8)    |
| 8 The Hobbit                  | Melbourne House | Spectrum (9)    |
| 9 Party Time                  | Clever Clogs    | Spectrum 64 (-) |
| 10 Whizz Quiz                 | Clever Clogs    | Spectrum (10)   |

Compiled with the assistance of Britain's leading software distributors, including: Pinnacle, SDL, PCE, Websters, PCS and Software Centre.

### SPECTRUM

|                  |                       |
|------------------|-----------------------|
| 1 Jet Set Willy  | Software Projects (2) |
| 2 Fred           | Quicksilva (-)        |
| 3 Codename MAT   | Micromega (-)         |
| 4 Manic Miner    | Software Projects (-) |
| 5 Ant Attack     | Quicksilva (10)       |
| 6 Caesar the Cat | Mirrorsoft (-)        |
| 7 Pogo           | Ocean (7)             |
| 8 Cyrus-IS-Chess | Intelligent (9)       |
| 9 Lunar Jetman   | Ultimate (8)          |
| 10 Alchemist     | Imagine (-)           |

### COMMODORE 64

|                                |                       |
|--------------------------------|-----------------------|
| 1 Quick Thinking               | Mirrorsoft (2)        |
| 2 Caesar the Cat               | Mirrorsoft (3)        |
| 3 Manic Miner                  | Software Projects (1) |
| 4 Ugh!                         | Softek (8)            |
| 5 Hunchback                    | Ocean (4)             |
| 6 Mr Wimpey                    | Ocean (6)             |
| 7 Spirites and the Snowman     | Commodore (-)         |
| 8 International Football       | Commodore (9)         |
| 9 Revenge of the Mutant Camels | Llamasoft (5)         |
| 10 Colosus Chess               | CDS (-)               |

### DRAGON 32

|                          |               |
|--------------------------|---------------|
| 1 Dragon Chess           | Oasis (1)     |
| 2 Hungry Horace          | M.House (3)   |
| 3 Chuckle Egg            | A&F (4)       |
| 4 Ugh!                   | Softek (2)    |
| 5 Pedro                  | Imagine (6)   |
| 6 Eightball              | Microdeal (-) |
| 7 Krieg Spiel            | Beyond (5)    |
| 8 Cuthbert in the Jungle | Microdeal (-) |
| 9 Up Periscope           | Beyond (7)    |
| 10 Frogger               | Microdeal (-) |
| 10 Skramble              | Microdeal (-) |

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

### VIC-20

|                  |                          |
|------------------|--------------------------|
| 1 Snooker        | Visions (1)              |
| 2 Crazy Kong     | Interceptor (5)          |
| 3 Flight 015     | Ferranti / Davenport (2) |
| 4 Sub Commander  | Thorn (-)                |
| 5 Escape MCP     | Rabbit (-)               |
| 6 Harrier Attack | Rabbit (9)               |
| 7 Dam Buster     | Rabbit (10)              |
| 8 Jetpac         | Ultimate (6)             |
| 9 Emmet Attack   | Commodore (7)            |
| 10 Gridrunner    | Llamasoft (8)            |
| 10 Mine Madness  | Thorn (-)                |

### BBC

|                  |                 |
|------------------|-----------------|
| 1 Demolator      | Visions (-)     |
| 20 Man Brother   | MRM (1)         |
| 40 Man           | MRM (2)         |
| 5 Killer Gorilla | Precision (-)   |
| Diamond Mine     | MRM (5)         |
| 7737 Simulator   | Salamander (3)  |
| 8 Space Shuttle  | Microdeal (-)   |
| 10747 Simulator  | Doctor Soft (6) |

### ZX81

|                     |                |
|---------------------|----------------|
| 1 Fantasy Games     | Sinclair (2)   |
| 2 Flight Simulation | Sinclair (5)   |
| 3 Mothership        | Sinclair (1)   |
| 4 Skramble          | Quicksilva (7) |
| 5 Football Manager  | Addictive (5)  |
| 6 Invaders          | Quicksilva (8) |
| 7 Space Raiders     | Sinclair (3)   |
| 8 Asteroids         | Quicksilva (4) |
| 9 Defenders         | Quicksilva (9) |
| 10 Chess            | Sinclair (-)   |



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## Ghostman 48K Oric/ Atmos £7.50

Severn Software, 15 High St,  
Lydney, Gloucester GL15 5DP

Control your Ghostman around the maze eating the dots and fruits and avoiding the ghosts who are very clever at chasing you. If you are concerned by the ghosts, try to get the power-pill when you become temporarily invisible to the ghosts. When you've eaten all the dots, you go on to the next level where action is faster.

Sounds familiar? Well, Ghostman is a version of the arcade block-buster. Most of the features of the original are there: pizza-shaped pacman, four ghosts, four power-pills at the corners, fruits for bonus points and the secret tunnel. Key layout

is sensible, unlike some games, and the response very good. All characters are well defined and move smoothly. Also animation is excellent. The sound — volume can be altered — is used very effectively. As you would expect from any decent game nowadays, there's a hall of fame. It would have been nice if the author could have put in intro music, but you can't expect everything.

Technically excellent, obviously lacking in originality, but if you still like pacman, this is probably the definitive version for the Oric. S.S.

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



## Khe Sahn TI-99/4A £

Stainless, 10 Alstone Rd, Stockport, Cheshire

A simulation of the Tet offensive in South Vietnam during 1968. You have five platoons and four helicopters, which you must use efficiently to seek out and destroy two companies of North Vietnamese regulars, which are invisible and controlled by the computer.

On the map is a military base, with four roads leading to it, an air base, a Vietnamese village and the players five troops.

A truck travels to the base every so often. If part of the road along which it travels has been destroyed, the truck will wreck and points will be awarded to the North Vietnamese Army (NVA). This road must be repaired, and

can be by using platoons and a helicopter.

The procedure for moving the helicopters has been badly thought out. The numeric keys are used to input a coordinated position, which is the destination of the helicopter. Unfortunately, the screen is not marked out in any way at all, so the positions have to be estimated. Obviously, a game such as this should not have to do with rough estimations of positions.

Although I feel that pleasure should not be gained from the subject of war, Khe Sahn may hold the interest of a wargames enthusiast. J.J.

|                 |      |
|-----------------|------|
| instructions    | 100% |
| playability     | 65%  |
| graphics        | 75%  |
| value for money | 65%  |



## Timebomb Spectrum £5.95

CDS, 10 Westfield Cl, Tickhill, Doncaster, S.Yorks DN11 9LA

Another "help suicidal Cedric defuse bombs" game with two keyboard control choices or Kempston-type joystick. You move around a grid erasing blue squares, flags and bombs, but avoiding the skulls. After the first screen, beware the Mobile Boots. There is the facility to scroll your position left and right without erasure and there is a total of five skill (speed) levels.

The bombs countdown from 30 with five defusions per screen. The real-time countdown is six seconds — just locating Cedric takes a couple. I don't mind it being difficult... but this is impossible!

Graphics are unspectacular and there is a popular classic "tune" which is murdered as you move.

Bravely persevering, I discovered "hold". Shamelessly using it on every bomb to work out the best route and with three lives, I survived to screen 12, taking my very high-score into the Hall of Fame.

But cheating is only fun for a while. This is not among the best game of its type.

CDS really ought to put its address on its products. Or is the company confident that no purchaser will ever have cause to contact it? D.C.

|                 |     |
|-----------------|-----|
| instructions    | 90% |
| playability     | 40% |
| graphics        | 50% |
| value for money | 60% |



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## Word Maze Sord M5 £23.95

Computer Games, Goldings Hill, Loughton, Essex IG10 2RR

Word Maze is described as a combination of 3D maze and word guessing game.

A maze is displayed in 3D and starts moving by itself. When it comes to a fork, you have to guess a word, rather like in hangman except you have to guess it before a bomb goes off! If you don't manage to get the word, marks will be deducted and you're asked to advance left or right. If your choice agrees with the computer, you will advance toward the exit, if not, towards a dead end. If you get the word right, your score is increased and you're guided

towards the exit by the computer. If you get out of the maze before oxygen runs out, you have the option to play again.

As a 3D maze, Word Maze is trivial and boring. As a educational game, even though the program allows you to add your own words, it won't teach you many new words. Sound and animation are virtually non-existent and I'm afraid, all this boils down to is a souped up game of Hangman with some graphics at an inflated price. S.S.

|                 |      |
|-----------------|------|
| instructions    | 100% |
| playability     | 30%  |
| graphics        | 30%  |
| value for money | 30%  |



## Super Cobra Sord M5 £23.95

Computer Games, Goldings Hill, Loughton, Essex IG10 2RR

Super Cobra was a minor hit in the arcades a few years back. It was a good game but for some reason, it was totally overshadowed by a very similar game called Skramble. In case you haven't seen either, let me explain.

The objective is to fly the helicopter to take on military supplies while successfully avoiding missiles and UFOs. The helicopter is highly manoeuvrable and may be moved in eight directions. By pressing the attack key, laser missiles are fired from the front of the helicopter, while heavy bombs are dropped from the bottom. Your main targets are anti-aircraft units, UFOs and missiles. After clearing four screens, military supplies will appear. If you can load the supplies, it's your chance to increase your score.

Graphics are very impressive and sprites are used to their fullest effect. The sound of the rotor blades is very effective and overall the game is very close to the arcade original. Although this game is virtually impossible to play on the keyboard — you are required to manipulate no less than nine keys at once — it is a must for all scramble-type game addicts. S.S.

|                 |     |
|-----------------|-----|
| instructions    | 80% |
| playability     | 90% |
| graphics        | 90% |
| value for money | 85% |





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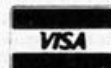
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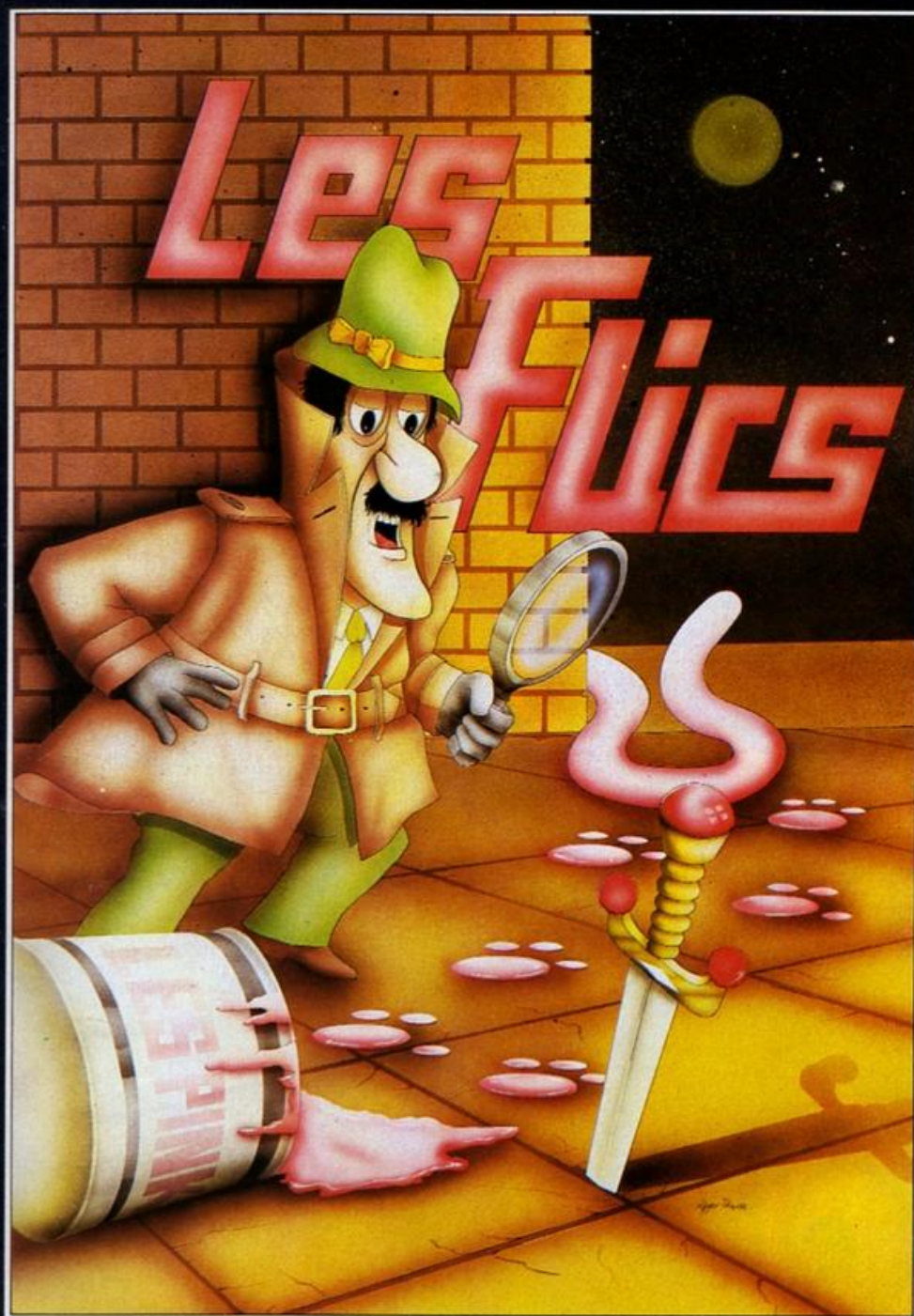
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are eup tew, because that ees  
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Ah neu yew are geuing tew  
trah en steal a gem steun in  
mei care ..... beut eet weel  
naught be eeze mei frend,  
eau neau, me and mei trusty  
servant Kaolin weel be tryin  
to steup yew.

Not eaunly zat, beut Les  
Flics, the treu gend'armerie  
eunder mei commant weel be  
out en force, so, you foel, you  
'ave neo chance aggenst  
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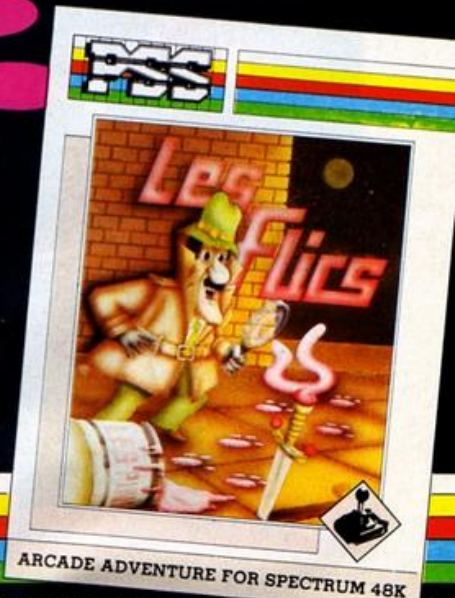
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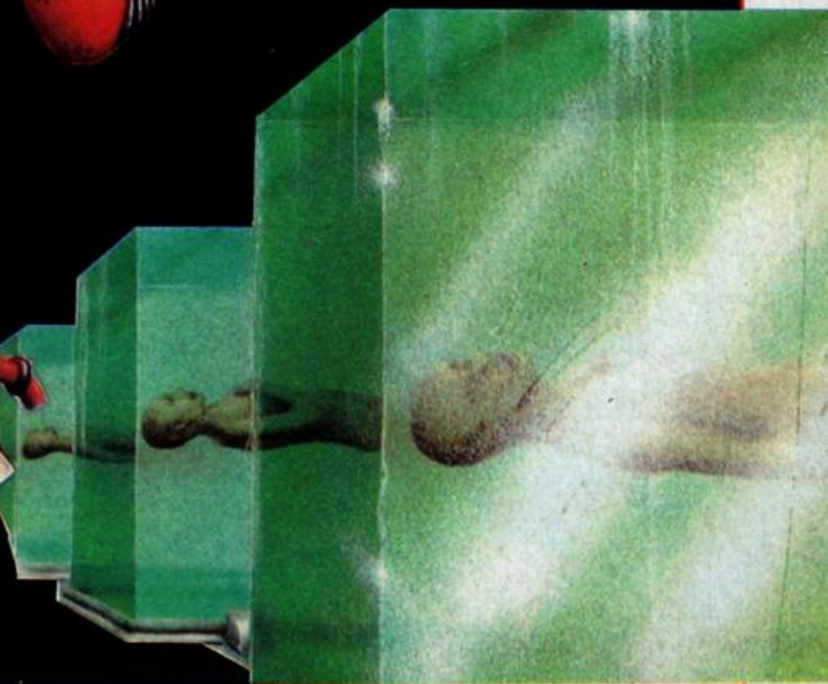
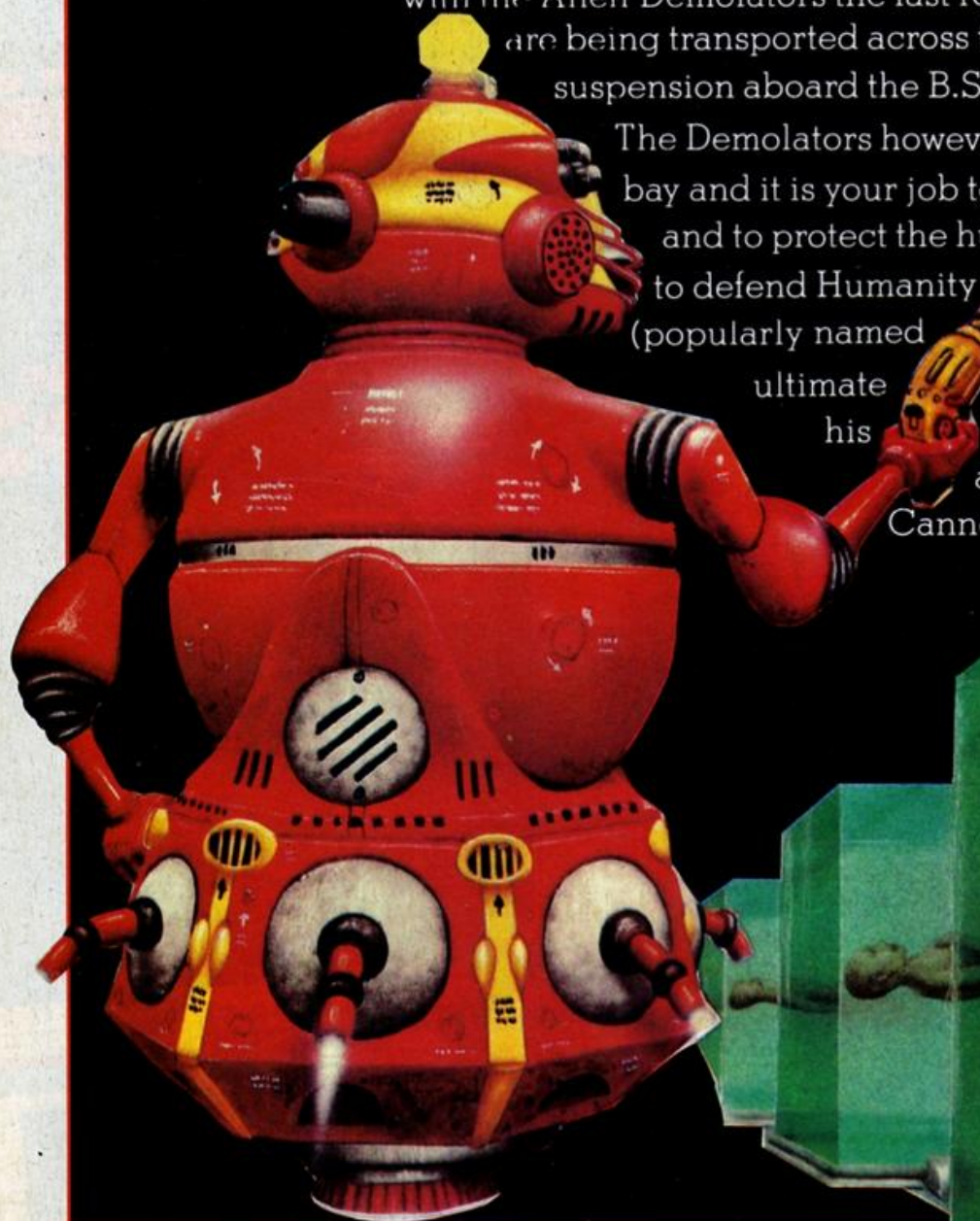
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