January
1984

AN ARGUS SPECIALIST PUBLICATION

GAMES COMPUTING

NEW

80p

The magazine for those who take their computer and video games seriously

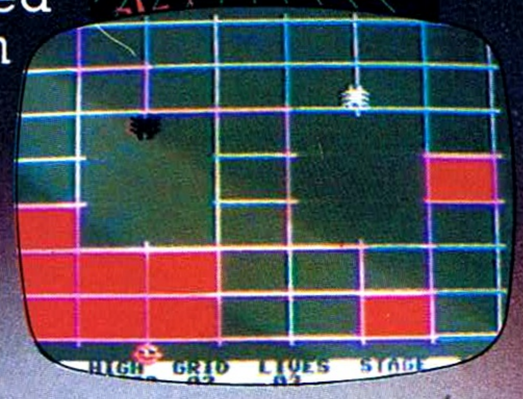
Save **SPAM** from the Runaway **Robot** in this meaty **Spectrum** game

Frenetic fun games to play for **Oric, Atari, BBC, Electron, Spectrum, VIC, Sharp, CBM 64, Texas**

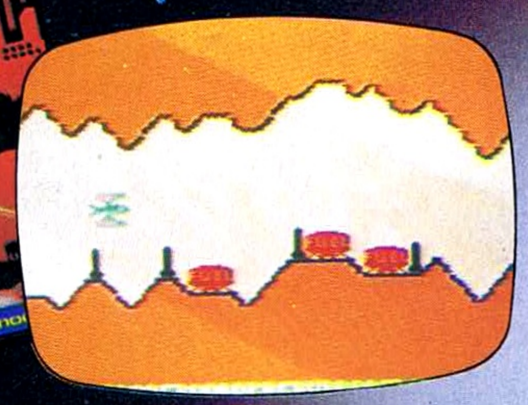
FREE: Pull-out POSTER PROGRAM Moon Rescue

TERMINAL SOFTWARE

commodore 64 games cassettes



SUPER SKRAMBLE!
Personal Computer News (15-21 Sept '83) gave SUPER SKRAMBLE! an overall rating of NINETEEN OUT OF TWENTY and described it as: "Well implemented with beautifully smooth scrolling and very nice graphics."



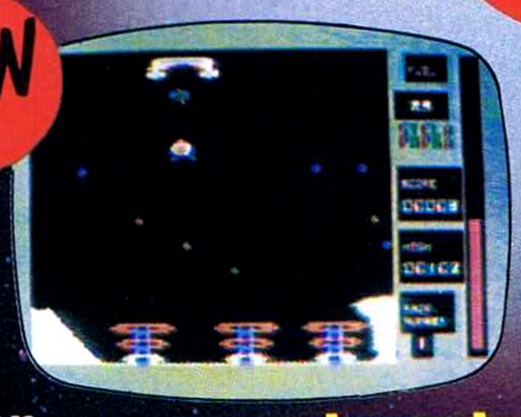
SUPER GRIDDER
"... a compelling piece of frivolity that could give hours of fun." was the verdict of Personal Computer News (22-28 Sept '83).

SUPER DOGFIGHT
The first 64 games cassette to have SIMULTANEOUS TWO-PLAYER ACTION – realistic sound effects too.

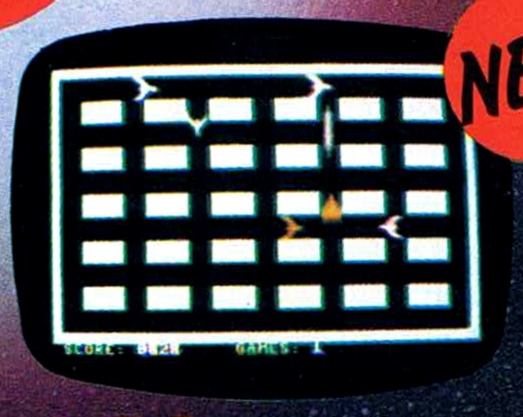
SUPER SKRAMBLE!
"An excellent game" said Computer & Video Games magazine (Sept '83).

STELLAR DODGER
A game of skill and anticipation in which you must dodge your way through asteroids to complete your mission.

NEW



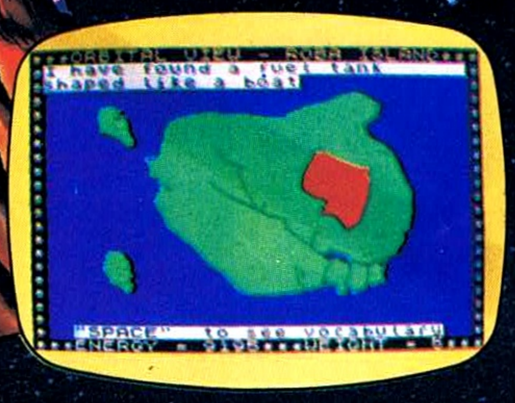
NEW



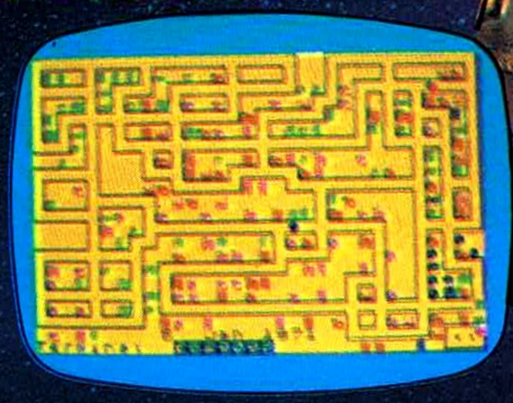
HUNTER
A fast action game in which your pursuers gain in speed and intelligence as you master each successive screen.

sinclair Spectrum 48k

VAMPIRE VILLAGE and **SPACE ISLAND** are REAL-TIME graphic adventures and every game is different from the one before.



CITY is a unique REAL-TIME better-than-a-board game for 1-4 players that combines simplicity of use with complexity of form as the city you build takes on a life of its own.



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Greenchip at DEBENHAMS
LASKYS

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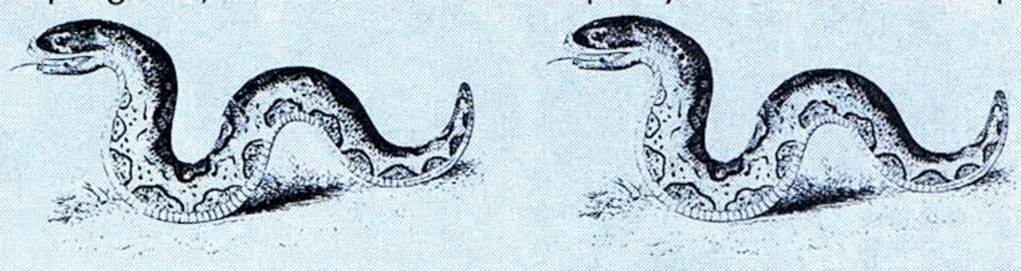

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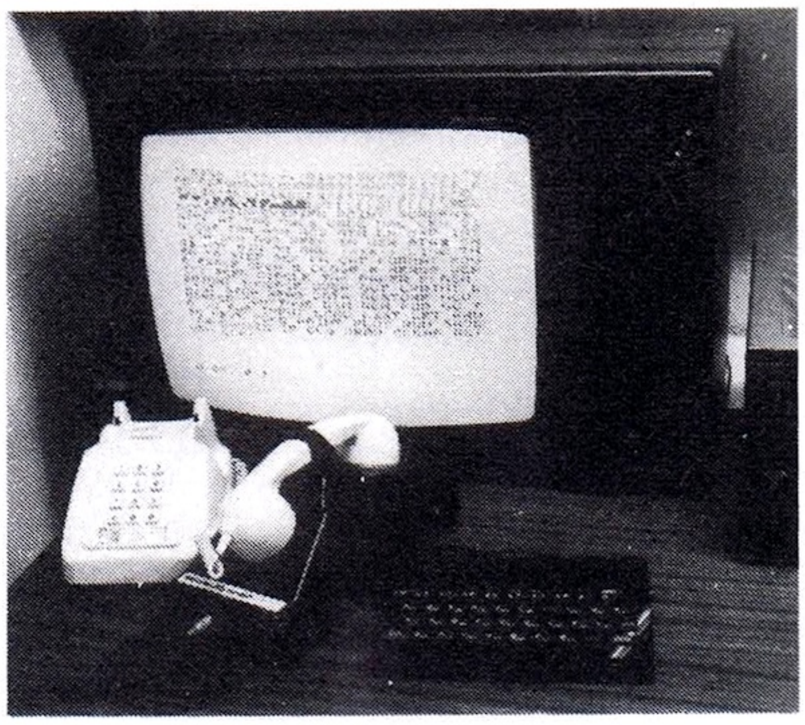

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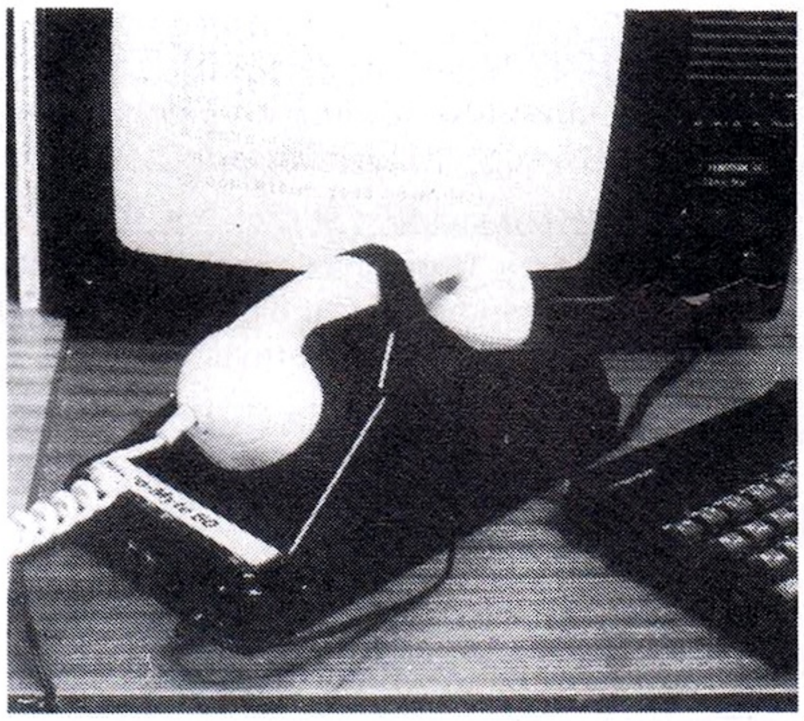

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Callers welcome

Deep in the galaxy of computer games lurk vast numbers of keen gamesters waiting with baited breath for all they can possibly glean about breaking games frontiers. But there was a huge void. Until . . . *GAMES COMPUTING!*

A magazine for those who take computer and video games seriously. Packed full of programs for you to play around with and key into your own machine, news of the latest games to be released for you to break high-score barriers with, reviews of all kind of games from space

So what we at *Games Computing* want you to do is give our Runaway Robot a name. In future issues of *Games Computing* he'll be popping up all over the place throughout the magazine. In this issue you'll find him running amok on the pages devoted to the Spectrum program of the same name.

If you want to enter this competition for a bit of fun and a giggle why not turn to the program called Runaway Robot and read it thoroughly. That will give you an idea of our Mr Robot's character and

If you want to enter the competition you must accompany your entry with the coupon cut from the corner of this page. I'm afraid the riotous Runaway Robot is making his mark on *Games Computing* already and insists that you cannot send in a photocopy of the coupon. Sorry lads.

So, put your pens into action — we're all waiting eagerly in the offices for the names to pour in and save our Runaway Robot from a life of gloom and doom. He's waiting for you. . . .

Intro...

favourites, alien blasting bombarding, adventures in haunted castles with goblins and ghouls, strategy games for the more serious, and all your arcade favourites.

Wargames and Competitions

Wargamesters can have fun and games each month with out great series on the subject. It kicks off in our launch issue with the background behind the birth of wargaming, so if you are not yet one of the topic's devotees you may well end up being one if you stick to our series.

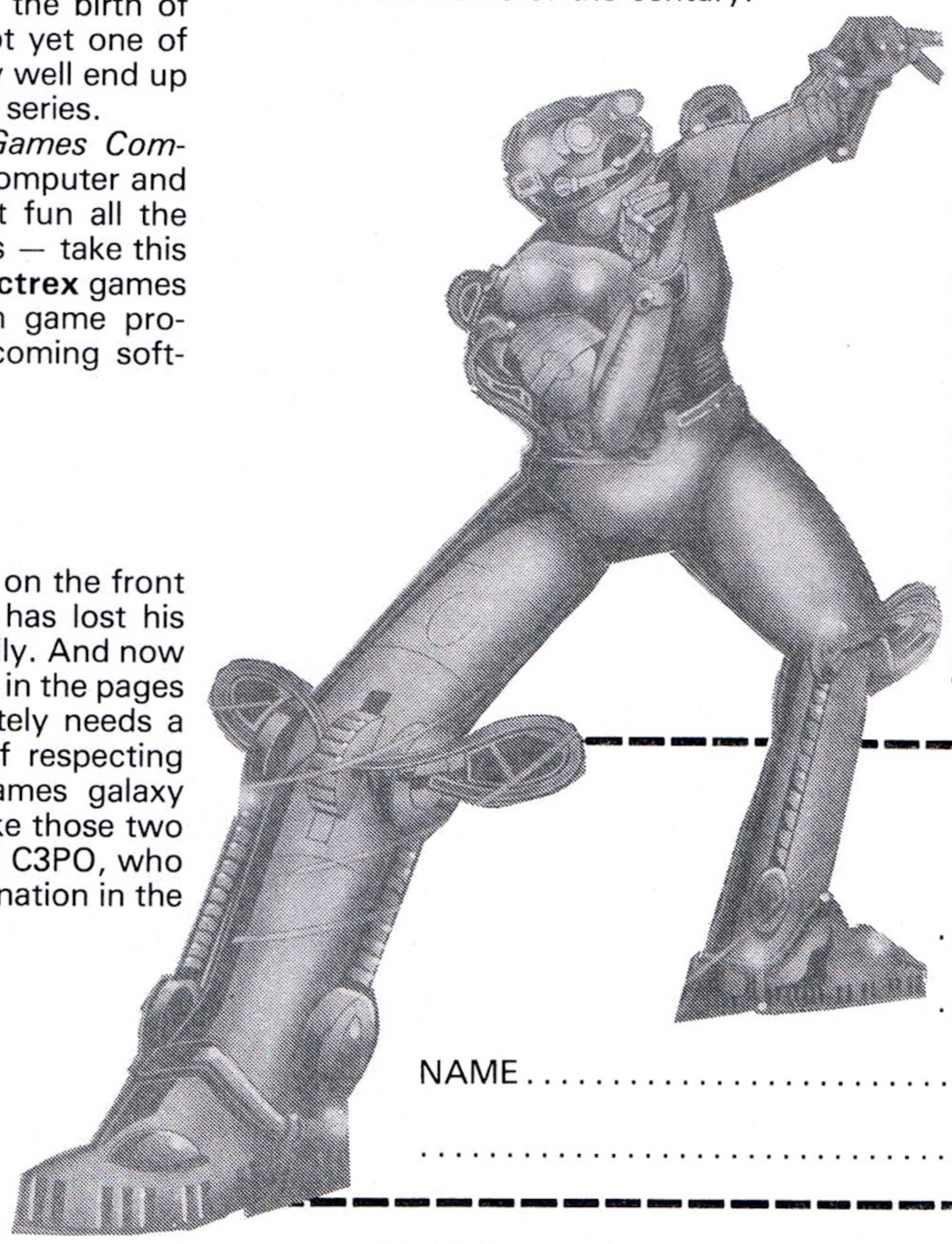
In the months to come *Games Computing* will make sure your computer and video gaming is nothing but fun all the way. There'll be competitions — take this month's for a start. Win a **Vectrex** games console and have your own game produced and sold by up-and-coming software firm **Visions**.

Runaway Robot Needs a Name

That forlorn looking creature on the front cover of *Games Computing* has lost his marbles — but only temporarily. And now that he's found his new home in the pages of our magazine he desperately needs a new name. After all, no self respecting robot would wander the games galaxy without a proper name — take those two endearing androids R2D2 and C3PO, who leapt to the hearts of many a nation in the great film Star Wars.

could help you think of a witty yet appropriate name for him.

To enter the competition just send your chosen name to the Editor, Games Computing, 145 Charing Cross Road, London WC2H 0EE. All entries must be received by January 31, 1984 (seems like light years away) and please mark clearly on the envelope RUNAWAY ROBOT COMPETITION. If you don't, your entry is likely to get mixed up with other competition entries and our runaway robot could miss out on the name of the century!



More More More

If you flick to the centre pages of *Games Computing* youy'll see a super colour poster which you can pull out and keep. Stick it up wherever you want (and I don't want any rude suggestions) — on your bedroom wall, or perhaps somewhere suitable at school, but don't forget to ask for permission first.

And each month we'll give you a different, bright poster illustrating one of the games published in *Games Computing* — so make sure you get your copy of *Games Computing* regularly each month and don't miss out on this great opportunity.

We want to hear from you

With that, I hope you'll enjoy reading the first issue of *Games Computing* and have a whale of a time doing so. You'll doubtless notice that we haven't included a letters page in this issue for obvious reasons. And if you can't guess what they are — we haven't got any readers yet. But we're dying to hear what you think of the magazine so write in and let us know the good news, the bad news and any suggestions for *Games Computing* — as long as they're printable!

I WOULD LIKE TO CALL THE ROBOT

.....

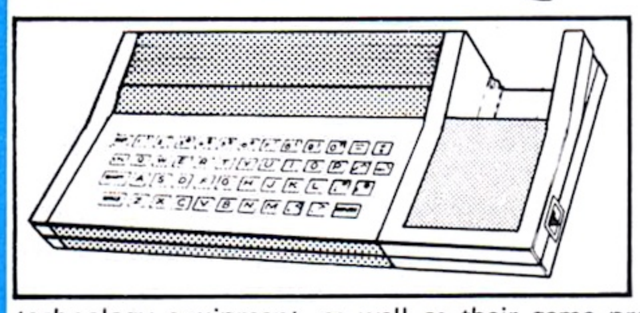
.....

NAME .....

..... POST CODE .....

HOME COMPUTERS

20K AQUARIUS



AQUARIUS: The brand new Aquarius Personal Computer is part of Mattel Electronics latest developments in advanced technology and offers full home computing facilities, as well as extensive game play, using a very wide range of plug in cartridges. Since Aquarius is a Mattel Electronics product, it benefits by the company's wide experience of producing high technology equipment, as well as their game programming expertise which is evident from the advanced games which have been produced for the Intellivision. Aquarius costs £49 and comes with microsoft basic built in. It is so simple to use that you'll be writing your first programs within minutes of taking the machine out of its box. You can even record the programs on your own cassette recorder at home, so you can use them again at a later date. Most available domestic tape recorders are compatible with the Aquarius.

A POWERFUL MACHINE: For all it's simplicity, it is also very sophisticated. It has a Z80A processor and it comes with 8K of built in ROM and 4K of RAM, expandable to 52K. It has a display of 40 x 24 characters, and a graphic resolution of 320 x 192 with a total character set of 256 (including the complete ASCII set with upper and lower case letters, numbers and additional graphic symbols). The keyboard has 49 full stroke moving keys, unlike some of the cheaper machines which have membrane keyboards. The size of the machine (excluding any of the additional peripherals), is 13"x6"x2".

PERIPHERALS: It is very easy to increase the capabilities of your Aquarius as all the peripherals plug straight into one another. You can add a Printer, a Modem, a Data Recorder, Mini Expander and other items. All of the peripherals are very easy to install and what is more, they're easy to use. But the best news of all is, they're easy to afford.

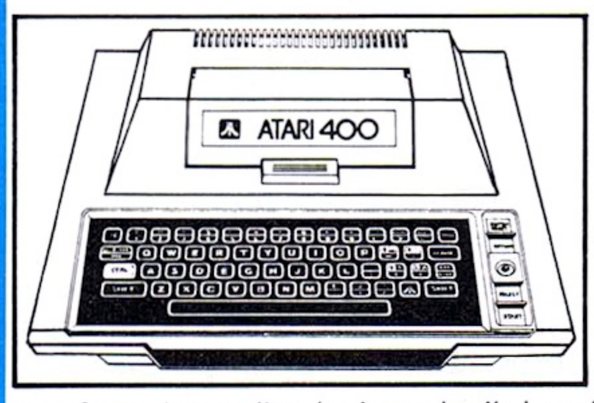
CPM OPERATING CAPABILITY: The Aquarius is capable of being expanded to 52K RAM and later in 1983 a disk drive will be available for it, with the commercial CPM business operating system. This will allow you access to one of the largest software libraries in the world, with literally hundreds of programs available for you to use.

CARTRIDGES: Various sophisticated programs have been launched on plug in cartridges such as a Visicalc spreadsheet and a word processor. Other cartridges include popular Intellivision titles and are available for as little as £12.95.

4K Mattel AQUARIUS – £42.61 + VAT = £49
20K Mattel AQUARIUS – £67.83 + VAT = £78

£49

ATARI 400/800



NEW LOW PRICES

ATARI 400/800: With the Atari Personal Computers, you can play the ultimate in T.V. games, teach yourself new subjects or skills, balance budgets, and even write your own computer programs in Basic.

SPECIFICATIONS: Both the Atari 400 and 800 can display in up to 16 colours, each with 16 intensities. They have four independent sound synthesizers for music tunes/game sounds, giving four octaves with variable volume and tone control on your T.V.'s speaker. The display graphics are of amazing quality, having a detailed resolution of 320 x192, comprising 24 lines of 40 characters. Atari personal computers have a standard 10K ROM operating system. In addition to this the standard Atari 400 (£99) comes with 16K of RAM and the expanded version with 48K (£158). The Atari 800 (£249) comes with 48K as standard. Both the 400 and 800 are now supplied with a FREE £40 Basic Programming Kit, which includes the Basic Programming Cartridge, as well as a 120 page Basic Reference Manual and the 184 page Self Teaching Manual by Bill Carris called 'Inside Atari Basic', so you can begin programming straight away, without buying any 'extras'. Even a mains plug is supplied!

OVER 500 PROGRAMS AVAILABLE: The Atari computers are supported by well over 500 programs available for your use, a larger selection than you will find on any other television game or home computer! The wide selection puts Atari way ahead of the competition. Just fill in the coupon and we will be pleased to send you a full price list which gives details of our range of software available for entertainment, home education, programming and home office use. We think you'll agree when we say it's quite impressive.

100 FREE PROGRAMS FROM SILICA SHOP: If you buy your Atari 800 from Silica Shop, you will receive a FREE presentation pack of 6 cassettes containing 100 programs, including games, utilities and demonstrations. Unfortunately, because of the low price at which we are offering the Atari 400, we are unable to give the programs with both machines. However, as a special offer, we are selling the programs to purchasers of the Atari 400 for only £14.95, less than half of the recommended retail price of £30. Silica Shop offer a TWO YEAR GUARANTEE on both Atari 400 and 800 home computers.

ATARI 400 With 16K – £86.08 + VAT = £99
ATARI 400 With 48K – £137.39 + VAT = £158
ATARI 800 With 48K – £216.52 + VAT = £249

£99

VIDEO GAMES

COLECOVISION

THE SYSTEM: The CBS Colecovision offers new standards in video game play. The excellent graphics are well implemented with arcade titles such as Zaxxon, Lady Bug, Gorf, Wizard of Wor, Carnival, Mouse Trap and the lovable Smurfs. The console comes supplied with a three screen arcade quality version of DONKEY KONG. Parker and other companies have also announced ranges of cartridges for Colecovision, to further enhance the wide range of quality titles available for this new television games machine.

THE CONSOLE: The CBS Colecovision video games system has advanced technology which produces superlative graphics resolution and excellent sound effects. The styling of the console and hand controllers has been carefully researched; the console is designed to complement modern hi-tech equipment, and has clear features for easy operation. The hand controllers allow fingertip control via the 8 direction joystick, and feature 2 independent fire buttons. The push button keyboard is used for game selection and for game control with some cartridges. The hand controllers are detachable and are connected to six feet of telephone coil cable, storing neatly away in the console when not in use.

ATARI EXPANSION MODULE: The Atari converter module allows Atari VCS software cartridges to be played on the Colecovision console, allowing owners the freedom to purchase from the extensive range of Atari compatible cartridges. It also means that existing Atari owners can buy the CBS Colecovision games system without discarding their software library. Silica Shop offer part exchange facilities if you wish to upgrade.

TURBO EXPANSION MODULE: The Turbo Driver Expansion Module allows you to actually drive the vehicle that appears on your T.V. screen. The module consists of a steering wheel, dashboard and accelerator pedal. One hand controller is mounted on the dashboard to provide a gear change unit. The module comes complete with a Turbo Driver cartridge, the first of several cartridges to make use of the module, which provides all the action of sitting in the driving seat. This facility is unique to CBS Colecovision.

HOME COMPUTER EXPANSION MODULE: The Home Computer Module scheduled for late 1983, allows conversion of the games unit into a sophisticated Home Computer. This flexibility of design is an important feature of the CBS Colecovision System.

COLECOVISION - £127.82 + VAT = £147

£147

VECTREX

THE SYSTEM: Vectrex is a totally unique Home Arcade System, which has been exclusively designed and engineered to duplicate real arcade game play. Complete with its own monitor display, Vectrex won't cause any arguments over the use of the family's television because it has its own built in screen.

THE SCREEN: Vectrex does not use ordinary display techniques, instead it uses vector scanning to control the images on the screen. With this scanning method, the gun only updates the area of the screen that has changed, whereas a normal T.V. re-transmits the ENTIRE screen 50 times a minute. It is this that gives Vectrex its speed, and means that very little computer power is required for screen control, and the results provide very fast responding and clear images. These 'Vector Graphics' are used in several arcade games such as Asteroids and Battlezone, to give you incredibly high resolution and quality. Vectrex brings all of this from the arcade right into your living room. The Vectrex screen is capable of displaying 80 columns by 40 lines, which is significant to the extensive developments planned for the system.

EXCITING SOUNDS AND ELECTRONICS: Vectrex has an advanced microprocessor with more speed and power and exciting effects than many home video games systems.

REAL ARCADE CONTROLS: Vectrex has a unique control panel, similar to those used in many real arcade games, with 4 concave action buttons and a full 360° self centering joystick. This control panel has a 4 foot detachable cord for maximum player freedom.

REAL ARCADE GRAPHICS: Vectrex has its own 9 inch vertical screen and unlike a conventional T.V. screen, uses advanced display technology to achieve brilliant, high resolution imagery and superb game play never before possible. The Vectrex display provides special effects too, such as 3-D rotation and zooming in and out, which a regular T.V. cannot match. Using a black and white monitor, each Vectrex game comes supplied with its own coloured plastic screen overlay to add to the excitement of game play. The range of Vectrex cartridges (£19.95 each), gives a good selection of arcade games such as Berzerk, Scramble, Rip-Off and Bomber Attack. Vectrex comes complete with a fast paced 'Minestorm' game built into memory.

VECTREX: Vectrex has an advanced state-of-the-art microprocessor with more speed than other T.V. games.

VECTREX – £112.17 + VAT = £129.00

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- **SECONDHAND GOODS** - we sell secondhand Mattel & Atari consoles/cartridges (with a full 1 year guarantee), at two thirds of our normal retail price.
- **COMPETITIVE PRICES** - both our prices and service are very competitive. We are never knowingly undersold and will normally match any bona fide price quoted by our competitors, providing they actually have the goods in stock. We will also send the order to you post and packing free!
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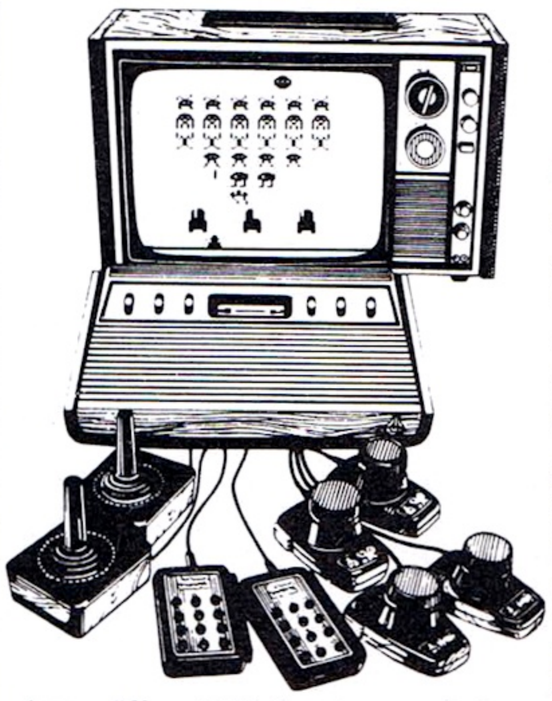

ATARI

ATARI VCS (2600) — THE NO 1 BRAND LEADER IN THE U.K.

ATARI: The Atari Video Computer System known as the Atari VCS or the 2600 has now become the T.V. game brand leader. In the U.K. there are over 700,000 owners of the VCS with access to a range of over 200 different plug in cartridges, each having a multitude of different variations and difficulty levels. Every system comes complete with the main console, two individual joystick controllers, a pair of paddle controllers, aerial splitter, mains adaptor, a 27 game Combat cartridge and a **FREE PAC-MAN** cartridge, which is worth £29.95. The console also incorporates special circuits designed to protect your T.V.

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EXTENSIVE CARTRIDGE RANGE: The Atari VCS is so popular that in addition to Atari's own cartridges, there are over 150 compatible cartridges, produced by at least a dozen different third party manufacturers. Silica Shop has one of the largest cartridge selections available in the U.K. Our range of over 200 titles (printed either side of this column), includes items in stock now, as well as many of the new releases for later in 1983.

SILICA ATARI CLUB: Silica Shop has over 20,000 Atari VCS club members registered on our computer. As a specialist company we are able to obtain advance information about new developments and send detailed catalogues to all of our club members, enabling them to evaluate new products before they buy. This is a totally FREE service, to receive your copies complete the coupon below.

SERVICE CENTRE: Atari International (UK) Inc has recently appointed Silica Shop as an authorised Atari Service Centre. This means that we can now service your Atari VCS or 400/800 (under guarantee if applicable), whether or not you purchased it from us.

VCS COMPUTER KEYBOARD: A keyboard will soon be launched to convert the VCS into a fully programmable home computer. For further details, join our club by completing the coupon below. We will then let you know when further information is available.

STARPATH SUPERCHARGER: The Supercharger costs only £29 and plugs into the cartridge socket of your VCS and expands its RAM almost 50 fold, from 128 to 6,272 bytes. This increased memory adds vivid high-resolution graphics capabilities and significantly lengthens the game playing time. Supercharger has a range of £17.95 multi-load games offering the facility to play a game in several distinct parts (great for adventures), the next section being loaded only when you have completed the previous one. For a detailed Supercharger colour catalogue please complete the coupon below. **£69**

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ACCESSORIES

We stock a wide range of accessories for the Atari VCS and 400/800 personal computers. The same accessories can be used on the Commodore VIC range of computers. The Wico range can also be used with the Texas Instruments computers on purchasing a special adaptor. To give you an idea of the range available, just take a look at the following list:

Trackball by Wico

LE STICK: A mercury filled joystick specially made for one handed operation, with thumb fire button.

QUICK - SHOT: This joystick features a contoured handle grip, thumb trigger and optional base fire button. It is supplied with 4 sure foot suction grips.

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WICO RED-BALL: An arcade type joystick with a red ball handle, it features 2 fire button locations, one at the base and one on the stick. It comes supplied with 4 grip pads for easier table top use.

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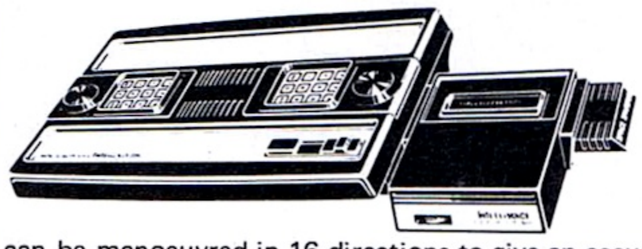
MATTEL INTELLIVISION



MATTEL INTELLIVISION: The Mattel games unit is a most versatile T.V. game which offers 3-D graphics quality for only £98. Each cartridge comes with 2 overlays which fit over the unique hand controller giving easy directions for game play. Using the handset's control disc, objects can be manoeuvred in 16 directions to give an accurate simulation of lifelike movement. From 1st September 1983, the Mattel Intellivision T.V. Games Console will come with a voucher which entitles you to claim a **FREE VOICE SYNTHESIS MODULE**, normally priced at **£50.** This unit creates voices as part of game play on certain cartridges.

NEW MATTEL CARTRIDGE RELEASES: Why not complete the coupon below and join the Silica Mattel Owners Club and receive our **FREE** news bulletins and 16 page catalogues detailing new Mattel releases. There will soon be over ninety cartridges available for the Mattel, and a small selection from these is listed below:

MATTEL: Arctic Squares, Burger Time, Buzz Bombers, Chess, Cloudy Mountain, Loco Motion, Mission X, Mystic Castle, Sharp Shot, Solar Sailor, Space Shuttle, Vectron, Winter Olympics. **ACTIVISION:** Happy Trails, Pitfall, Stampede. **C.B.S:** Blue Print, Carnival, Donkey Kong, Gorf, Mousetrap, Smurf, Solar Fox, Turbo, Venture, Wizard of Wor, Zaxxon. **IMAGIC:** Beezer, Dracula, Ice Trek, Nova Blast, Safecracker, Swords & Serpents, Tropical Trouble, White Water. **PARKER:** James Bond 007, Lord of the Rings, Popeye, Q-Bert, Spiderman, Star Wars, Super Cobra, Tutankham.

COMPUTER KEYBOARD: In November 1983, Mattel will be launching their new £89, 49-key computer keyboard attachment called 'LUCKY' which is fully programmable and has microsoft basic built in. It will transform your Master Component into a home computer. The adaptor also accepts a 6 note polyphonic music synthesiser and full size 49-key piano keyboard that will make learning music as easy as playing games. **£98**

MATTEL + VOICE — £85.22 + VAT = £98.00

VIDEO GAME CLUB

In a fast moving market like video games, it is difficult to keep up to date with all the developments that take place. With new programmes and accessories being introduced at a fast rate by several different manufacturers, it is impossible to get all the information you require from one manufacturer alone. It is for this reason, that we have set up owners clubs for the more popular video games and home computers, to keep you fully up to date with what is going on with your particular machine. As far as we know, Silica Shop are the only company to offer such clubs, but that is not surprising since we are the specialists. We currently have **FREE** clubs for the **Atari VCS, Atari 400/800** home computers, and **Mattel Intellivision.** Soon we will have clubs for **Colecovision, Aquarius** and **Vectrex.** So if you own one of these machines, fill in the coupon opposite, and we will enrol you **FREE OF CHARGE** in the club relevant to your computer or video game.

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FREE LITERATURE

Minefield is a program based around a very simple idea. All you have to do is cross the minefield, but this is not as easy as it may at first seem.

For a start, all the mines are hidden. The solution for this is obvious — get a mine detector. Unfortunately, yours is defective. While it will tell you how many mines surround you, it won't tell you where they are. You've got to work that out for yourself. The only help you've got is the fact that as you move over a square it is filled in. This means you can see the 'safe' areas.

Incidentally, if your detector (top left corner) reads safe, that means there are no mines either up, down, left, or right. To move, enter **U**(p) **D**(own) **L**(eft) **R**(ight). Head for the H and once you've made it (or been blown up) you'll get a chance to review your moves with the mines on the screen (no, you can't change a move!). This can be very revealing. There are six levels, each higher level adds 25 more mines. Good luck!

Inside the Game

Due to the fact that the array which holds the position on screen of all the mines takes up so much space, the program has to be both memory saving and as unrepetitive as possible. This is the reason for all those GOSUBS, the lack of instructions and a whole lot more! This also means that there is not a lot of room for changes, and none for REMS. However, for those who love to fiddle and for those who want to understand how the program is written, I have written a line-by-line explanation and a variable list. I hope this will make the program easier to understand. Incidentally, I'll point out the areas where those of you who are independently minded may like to make some changes to give that personal touch!

RUNdown

Line	Action
10	Define variables for start of screen and start of colour map. The peek used means that the program automatically adjusts for any memory size.
30-40	Input starting level. If you want to have more than six levels, change here.
110	GOSUB to work out mine positions, then to draw borders, etc.
150	Set player starting position on screen and colour maps.
200	Start of move loop. Print how many moves used so far.
205	GOSUB for mine detector reading.
210	Set M to O, to ensure that a move cannot 'autorepeat'. Also clears keyboard buffer, to ensure that an accidental key push cannot trigger move.
215-252	Loop which repeats until key is pressed, and which then gives a value for M.
255	Tells if you're trying to move onto a border, and prevents you doing so.
257	Set LP to where the player is now. Increase PP by M, giving the new player position. Also give new location on colour map, and increase count by one.
260	Test if you'e made it home, by peeking for H.
263	POKEs up player's character on screen and colours maps.
265	Check if lines after 220 have been called as a GOSUB from line 10000. If so, return there.
270	Increase string B$ by the latest movement instruction entered (AS/). This is for use in line 10000.
280	Check if the player has stepped on a mine.
320	Complete movement loop if

MINEFIELD

nothing special has happened and the game is to continue.

1000 Loop to create and store the positions of mines at the start of a game. Line 1000 sets up loop, variable T here is number of mines in the game. To change the number of increases at each level the 25 here must be among the numbers changed.

1010 Random number is created between 22 and 484. This is the area on the screen where the mines must be. This number is added to SM to give number POKED onto screen map. Then perform checks to see if number is in three safe squares at start or at H + 22.

1020 If mine position is O.K., store in array A.

1200 POKE border, and starts characters. Line 1200 POKES borders on screen and colour maps at top and bottom moving left to right.

1210 POKE lines left and right moving down sides of screen.

1220 POKE up H on screen and colour maps. Also POKE up three safe squares at bottom.

1700-1720 Sound routine.

1800 Routine to POKE the mines and colour maps onto the screen. The 25 here would have to be changed if you want to increase the number of mines increased per level.

1900 Sound routine.

3000 Mine detector GOSUB routine. Line 3000 sets variables to ensure that a maximum of one mine can be read in each direction. This is important because the routine at line 1000 does not trap the location of two mines on one location.

By Stephen Knight

3010 Start of loop to read array A where the locations on screen are stored. The 25 here would also have to be changed if a greater increase of mines per level is wanted.

3020-3045 For each line-check if mine already read in that direction. If not, set variable to show that one has the increased number of mines by one.

3055 If no mines are detected, prints 'safe' message.

3062-3064 If mine detected, print number found and play suitable sound effect.

4000 Sound effect.

5000 GOTO routine for when you've made it home. Set character for use in GOSUB 9900, print up mines, print borders, play sound, re-play game, wait till key is hit, and print results title page.

5010 Jumps to questions about what to do next.

6000 GOTO routine for stepping on a line. Line 6000 sets a character to inverse mine for use in 9000.

6010 GOSUB to sound, clear screen, print mines, print borders, sound, re-play game, wait for key press, and display results title screen.

6520-6560 Prepare to re-play game, or end if required.

7000-7020 Display results title screen.

8500 End program routine.

8700 Wait for key press.

9000 Display character number 170 at position PP. Flick between 170 and a blank space, with sound effects as well. Leave 170 on screen at end.

10000 GOSUB routine to re-play game. Display character CH at present player position then reset player position to start.

10010 Set loop to length of B$. Make A$ = each character of B$ in turn. Then GOSUB to 220, which will take A$ to be a key input from line 215. It will then move the player's character on screen as in the original game at that time. Because the flag X9 is set, it will return at line 265. The program will then wait for a key press, print the number of moves, and continue the loop. Once the loop ends the character on the screen will be in the same place as it was at the start of this routine.

Variable List

SM Start point of screen map. Adjustable for different sized memories automatically.

CM Start point of colour screen. Adjustable for different memories automatically.

SO First of the 3 voices. SO+1–SO+5 gives 2 other voices, volume and screen/border colour. This is used throughout the program.

Array A used to store positions on screen of mines.

C Count of number of moves made each game.

RN Random number used to position the **H**(ome) position (from 1-22).

X9 Flag used in GOSUB routine in lines 10000-10020.

PP Present position of player on screen (including SM number).

PC Present position of player on colour screen map (including CM number).

M Number used to work out new PP and PC.

L Level of play at present time.

M1-M4 Variables used as flags in GOSUB at 3000.

NM Number of mines detected by the mine detector routine (3000) each time.

CH Character to be used in GOSUB at 10000.

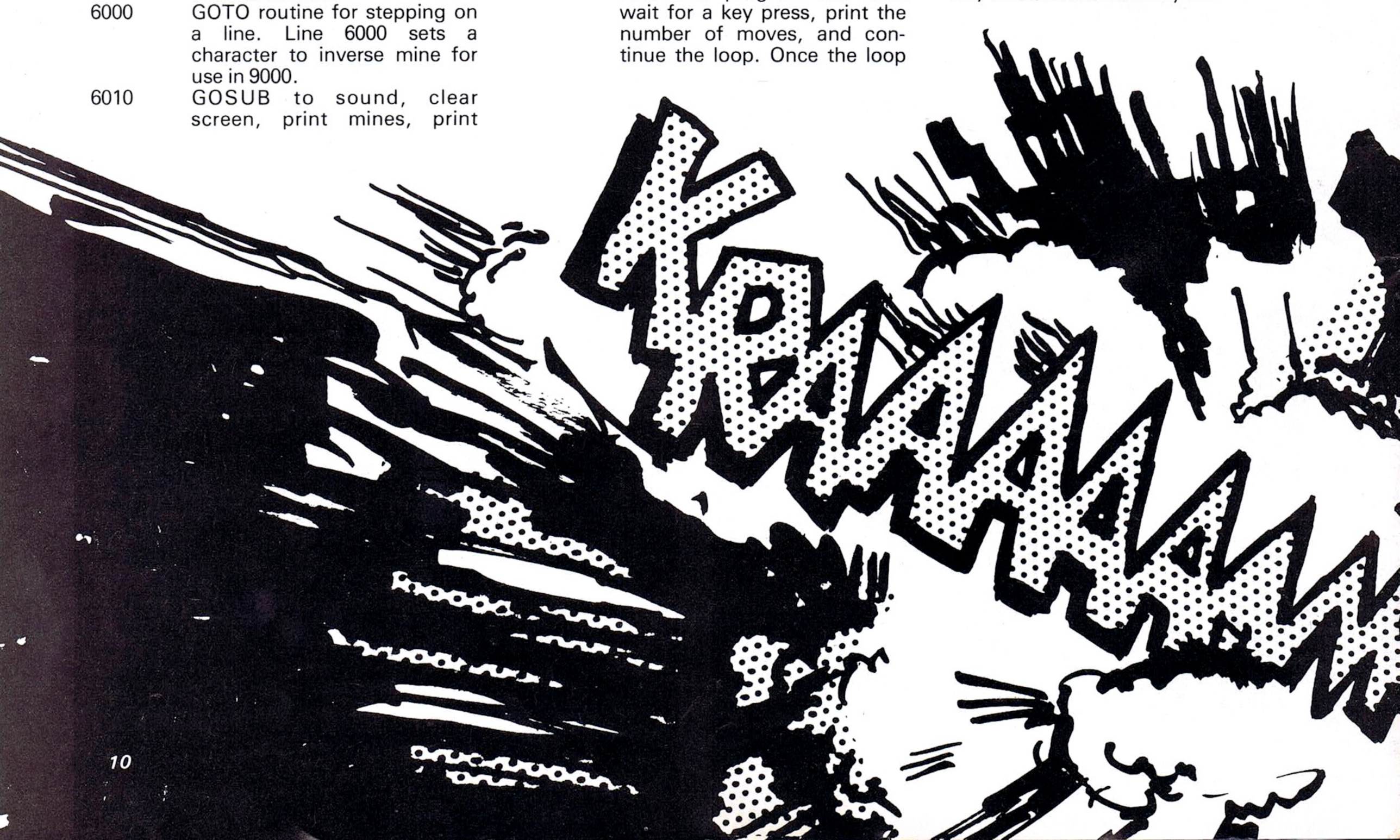
T,T2,T3 Variables used in sound and other loops.

A$ String used in get statement.

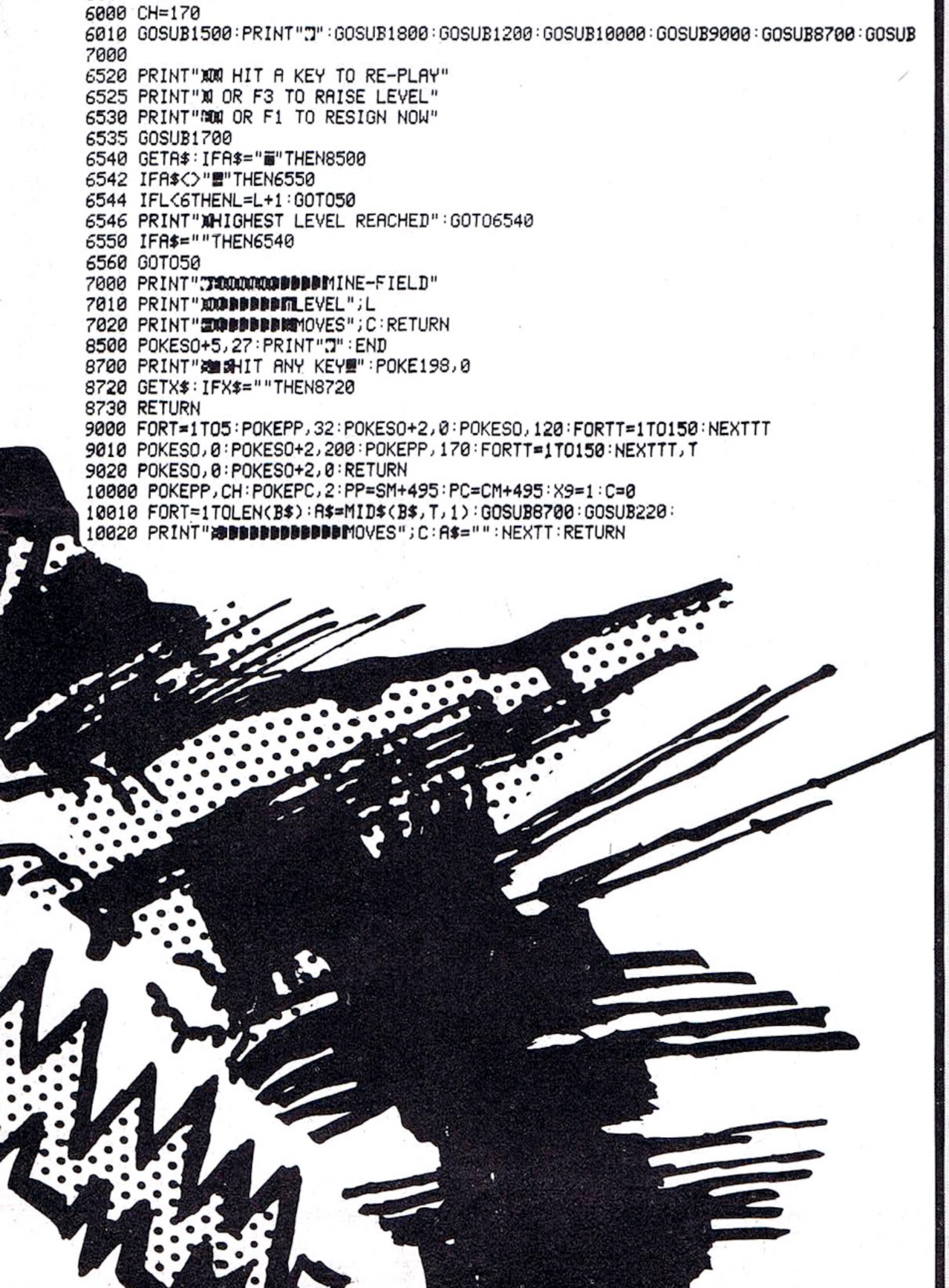
B$ String used in line 270 to keep a record of players movements.

X$ String used in wait for key press in GOSUB at line 8700.

Key in and tread carefully . . .



```
10 SM=7680:CM=38400:IFPEEK(644)>32THENSM=4096:CM=37888
20 DIMA(150):SO=36874
30 GOSUB7000:PRINT"XXSTARTING LEVEL(1-6)"
40 INPUTL:IFL<1ORL>6THEN30
50 PRINT"J":POKESO+4,15:C=0:RN=INT(RND(0)*20+23):B$="":X9=0
100 POKESO+5,26
110 GOSUB1000:GOSUB1200
150 PP=SM+495:PC=CM+495
160 POKEPP,218:POKEPC,0
200 PRINT"XXXXXXXXXXXXXXMOVES";C
205 GOSUB3000
210 M=0:POKE198,0
215 GETA$
220 IFA$="U"THENM=-22
230 IFA$="D"THENM=22
240 IFA$="L"THENM=-1
250 IFA$="R"THENM=1
252 IFM=0THEN215
255 IFPEEK(PP+M)=230THENGOSUB4000:GOTO210
257 LP=PP:PP=PP+M:PC=PC+M:C=C+1
260 IFPEEK(PP)=8THENGOTO5000
263 POKEPP,218:POKEPC,0:POKELP,160
265 IFX9=1THENRETURN
270 B$=B$+A$
280 FORT=1TOL*25:IFPP=SM+A(T)THENGOTO6000
290 NEXTT
320 GOTO200
999 END
1000 FORT=1TOL*25
1010 X=INT(RND(0)*462+22):IFX=495ORX=473ORX=451ORX=RN+22THEN1010
1020 A(T)=X:NEXTT
1030 RETURN
1200 FORT=0TO21:POKESM+T+22,230:POKECM+T+22,5:POKESM+484+T,230:POKECM+T+484,5:NE
XTT
1210 FORT=22TO506STEP22:POKESM+T,230:POKECM+T,5:POKESM+T-1,230:POKECM+T-1,5:NEXT
1220 POKESM+RN,8:POKECM+RN,4:POKESM+495,160:POKECM+495,0:POKESM+473,160:POKECM+4
73,0
1230 POKESM+451,160:POKECM+451,0:RETURN
1500 FORT=180TO200:POKESO,T:POKESO+3,T:FORTT=1TO5:NEXTTT,T
1510 FORT=200TO120STEP-1:POKESO,T:POKESO+3,T:POKESO+1,T-10:FORTT=1TO10:NEXTTT,T
1515 POKESO+3,0:POKESO+1,0:POKESO,0
1520 RETURN
1700 FORT=219TO239:FORT2=1TO5:POKESO+2,16+T-T2:NEXTT2,T
1710 FORT=239TO219STEP-1:FORT2=1TO5:POKESO+2,16+T-T2:NEXTT2,T
1720 POKESO+2,0:RETURN
1800 FORT=1TOL*25:POKESM+A(T),42:POKECM+A(T),2:NEXTT:RETURN
1900 FORT=1TO4:FORT2=1TO20:POKESO,251-T2:NEXTT2,T:POKESO,0:RETURN
3000 M1=1:M2=1:M3=1:NM=0:M4=1
3005 PRINT"XWAIT       "
3010 FORT=1TOL*25
3020 IFM1=1THENIFSM+A(T)=PP-22THENM1=0:NM=NM+1
3030 IFM2=1THENIFSM+A(T)=PP-1THENM2=0:NM=NM+1
3040 IFM3=1THENIFSM+A(T)=PP+1THENM3=0:NM=NM+1
3045 IFM4=1THENIFSM+A(T)=PP+22THENM4=0:NM=NM+1
3050 NEXTT
3055 IFNM=0THENPRINT"XSAFE":GOTO3070
3060 PRINT"XNO.MINES";NM
3062 FORT=239TO210STEP-1:FORT2=1TO5:POKESO+2,16+T-T2
3064 NEXTT2,T:POKESO+2,0
3070 RETURN
4000 POKESO+2,150:FORT=1TO100:NEXT:POKESO+2,100:FORT=1TO100:NEXT:POKESO+2,0:RETU
RN
5000 CH=136:PRINT"J":GOSUB1800:GOSUB1200:GOSUB1900:GOSUB10000:GOSUB8700:GOSUB700
0
5010 GOTO6520
6000 CH=170
6010 GOSUB1500:PRINT"J":GOSUB1800:GOSUB1200:GOSUB10000:GOSUB9000:GOSUB8700:GOSUB
7000
6520 PRINT"XX HIT A KEY TO RE-PLAY"
6525 PRINT"X OR F3 TO RAISE LEVEL"
6530 PRINT"X OR F1 TO RESIGN NOW"
6535 GOSUB1700
6540 GETA$:IFA$="■"THEN8500
6542 IFA$<>"■"THEN6550
6544 IFL<6THENL=L+1:GOTO50
6546 PRINT"XHIGHEST LEVEL REACHED":GOTO6540
6550 IFA$=""THEN6540
6560 GOTO50
7000 PRINT"JXXXXXXXXXXXXMINE-FIELD"
7010 PRINT"XXXXXXXXXXLEVEL";L
7020 PRINT"XXXXXXXXXXMOVES";C:RETURN
8500 POKESO+5,27:PRINT"J":END
8700 PRINT"X■XHIT ANY KEY■":POKE198,0
8720 GETX$:IFX$=""THEN8720
8730 RETURN
9000 FORT=1TO5:POKEPP,32:POKESO+2,0:POKESO,120:FORTT=1TO150:NEXTTT
9010 POKESO,0:POKESO+2,200:POKEPP,170:FORTT=1TO150:NEXTTT,T
9020 POKESO,0:POKESO+2,0:RETURN
10000 POKEPP,CH:POKEPC,2:PP=SM+495:PC=CM+495:X9=1:C=0
10010 FORT=1TOLEN(B$):A$=MID$(B$,T,1):GOSUB8700:GOSUB220:
10020 PRINT"XXXXXXXXXXXXXXMOVES";C:A$="":NEXTT:RETURN
```



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ON SALE FROM

Friday 13th January

GAMES COMPUTING

MIXING AT MIJID

By Sue Denham

At the beginning of October a French exhibition was held which was supposed to herald the start of the home computer and video games front in Europe. Showing off their products were all the major video games firms like Atari, Mattel (with the Intellivision), CBS (with the Colecovision), Vectrex, and on the computer software side were the likes of Quicksilva, Dragon Data, Abbex Electronics, and Cable Software. Here's a report of the events.

Pele Foots the Press

Half way through the Cannes located show was one of the week's high spots. Former Brazilian world class soccer star Pele made a special guest appearance on the Atari stand in the exhibition hall and immediately the place was swamped with small boys tearing all over the place clad in bright football kits.

There was no stopping them! The kids were clambering on stands playing their favourite computer and video games, (joystick clutched in both hands and football under an arm) and when they weren't hogging all the games (and not just on the Atari stand either) the kids were generally causing havoc. Computer games fever certainly seems to have spread worldwide, even the smallest of kids were hooked on one game or another — and beating the adults hands down!

Pele was there primarily as a publicity stunt to attract not only the press photographers but also public and trade on to the Atari stand. Video games aficionados will already know that Pele has for some time given his name to promote Atari's soccer cartridge.

Seeing stars of any field is always exciting but I was hoping to see the great master of football to at least hold a football, if not kick it around a few times. I really did have to spot the ball! Instead he was wearing a plain old dark suit — very formal indeed — and not a football in sight. But still, the event brightened up an otherwise dull week.

Vectrex

Without exception the biggest stands went to the biggest exhibitors, but unfortunately there was precious little on them that was brand new to the public or trade.

Makers of the popular Vectrex games system came out tops in this respect with a brilliant invention in the form of the Vectrex 3D Imager. This is a specially designed pair of goggles which the player wears and must plug directly into the Vectrex console. This clever device truly transports the player into the realms of a three dimensional world.

The 3D Imager's special features (apart from the fact that it is 3D) is that you don't need a special adaptor to plug the game into the main game console in order to use the device, the Imager can be worn by anyone because the head strap is adjustable (even if you wear glasses you can use the Imager) and the goggles automatically adjust to the colours of the game being played.

At Mijid the Imager on show was only a prototype, but if that is anything to go by the final shop-shelf product will be mind-blowing! The effect on screen is remarkable and made the Vectrex games all the more addictive.

At present MB Electronics is planning to bring out three games for use with the Imager. These are Pole Position, Mine Storm and Narrow Escape. The game I played was Narrow Escape (I think — all the relevant literature was in French!). And it had me hooked and it took a very irate colleague to drag me away from the Vectrex stand.

Narrow Escape's object of play is to roam the galaxies and destroy an interstellar fortress belonging to an evil enemy people. You must wipe out the gigantic arms arsenal in order to free the galaxy's system. You operate a space craft and have to travel down the fortresses's corridors, being constantly on the alert for enemy laser gunfire, while firing your own ship's weapon's at the arsenal. And, for a change, it really is as exciting as it sounds. The Vectrex's linear screen graphics lend themselves ideally to 3D and the effect is very similar to graphics used in computer aided design.

Unfortunately, at present there is no set date for the UK release of the 3D Imager, the compatible cartridges nor has the selling price yet been fixed. Rumour at the show was that they would be available at some time during the first quarter of next year — once the final production version of the Imager is working to everybody's satisfaction.

Imagic

Having had a good run with several cartridges when this firm first set up a couple of years ago the magic is now fizzling out for the VCS side of Imagic.

This VCS games cartridge manufacturer came on to the scene with a splash of publicity and good packaging but the downturn in sales experienced by many VCS compatible manufacturers has had a terminal detrimental effect. Imagic has decided to stop producing their own games and will concentrate on games design and development instead.

The demise of Imagic stems from problems which took root at the beginning of the year when the firm abandoned its plans to go public, instead securing more venture capital in order to bring out more best selling games. But the best sellers didn't come and not one matched the success of Demon Attack (brought out in 1982).

Things were obviously not going very well and in an effort to save the business Imagic's men at the top opted to go into the computer software market which was slap bang in the middle of a boon. This year similar moves by rival VCS software makers have proved successful (Atari has always done so, Activision went into it in the summer and Parker has just announced new computer games titles). Even so, it didn't work for Imagic. Cash flow problems still carried on.

And as a result one firm roaming the video games jungle has fallen into a very large trap.

In Brief . . .

British software maker **Abbex Electronics** was in evidence at the show although they may be better known as 'Abbex the Games People'. I must admit that I had never heard of them but what I saw was a pleasant surprise. The Abbex lads specialise in writing games software for the Sinclair ZX Spectrum and have done so for over a year.

But recently the boys from Bedford, including one Gareth Levingston (sales director) have branched out into producing other popular micro computer software. Now their talents are used to write games for the Commodore 64, VIC 20, Oric 1 and Laser 200.

Abbex's games range from space games, to pacman versions, adventure, war games, strategy and arcade games. The firm's coup at Mijid was that they pulled off a deal to supply Dragon Data with a trial Abbex game with a view to marketing it for use with the Dragon computers (the 32K and 64K machines).

Atari's VCS cartridge E.T. sold in such low numbers in America that drastic action was taken. In the dead of night 14 trucks were loaded with the games, driven off in to the desert — and dumped. It is general knowledge that the video games market has lurched into a decline in recent months and Atari's problem was that shops wouldn't stock further new games until old stocks had sold out.

But when Jim Levy, **Activision's** president was asked for his prediction on business and whether or not the slump would continue he said: 'There are two definite sections in the market, computer software and VCS software, which I feel will carry on selling well despite rumours to the contrary.'

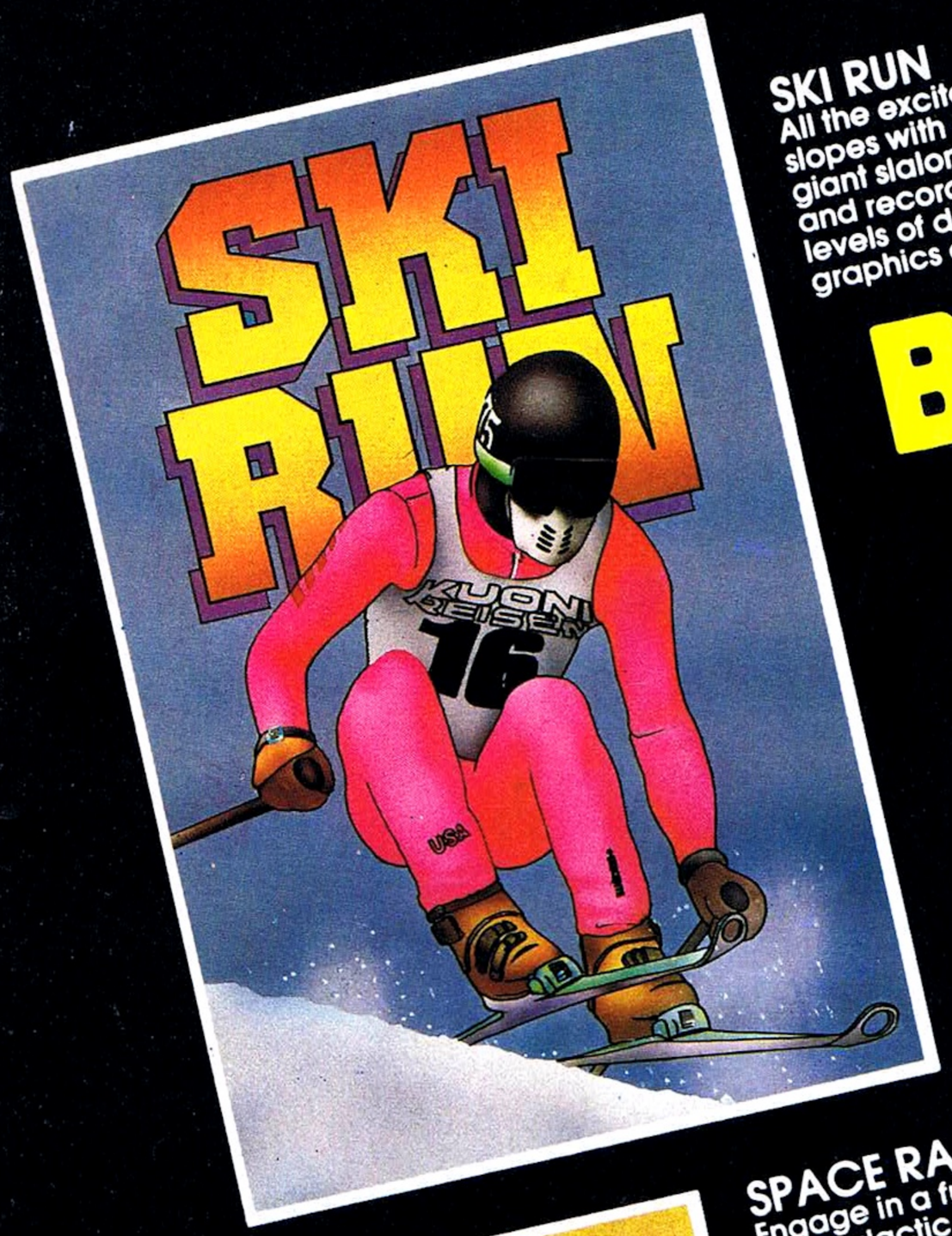
'We have just released games for the Atari 400 and will continue to do so in the future — it was always the plan to do so. We didn't do it because the VCS sales were dropping. Hardware sales are still good, as are software sales.'

In fact, Activision's whole operation has expanded so much that it has recently set up its own UK division to concentrate purely on marketing strategies. Until then, **CGL** one of Britian's largest electronic games distributors, was responsible for Activision's products in the UK.

CBS had a prototype of their forthcoming new home computer the Adam on show but the news is that the machine won't be on sale generally until some time in 1984. Production problems at the development meant that the Adam's launch date was put back indefinitely because CBS 'wanted to come out out with a product which is as near perfection as possible'. Let's hope that when the Adam finally joins the now enormous family of home micros it will be a worthy and lasting member.

Last Words

Not even somebody with the wildest of imaginations could say that the first Mijid was a runaway success. Nevertheless a few snipets of interesting information were uncovered as reported here.



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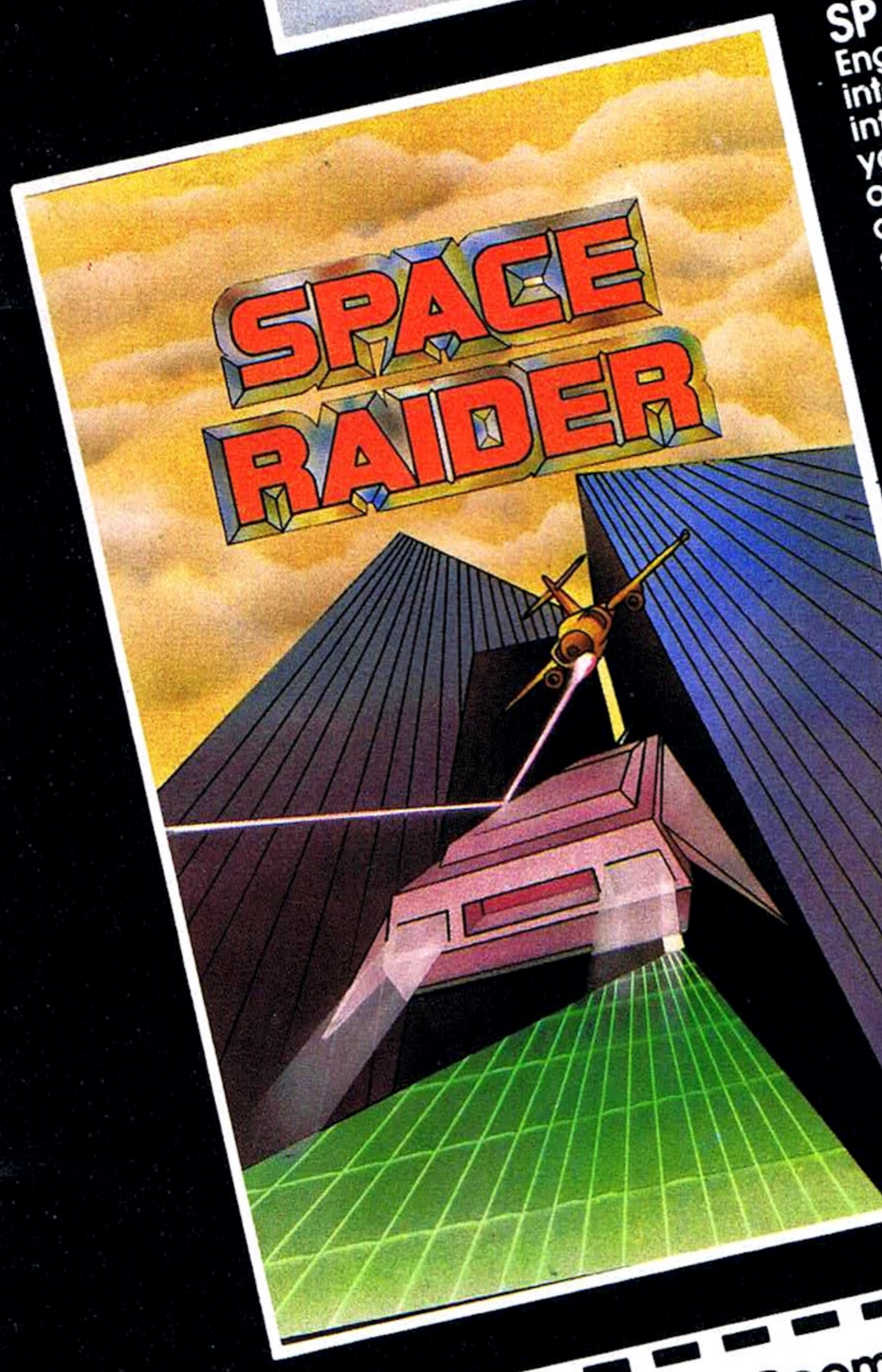

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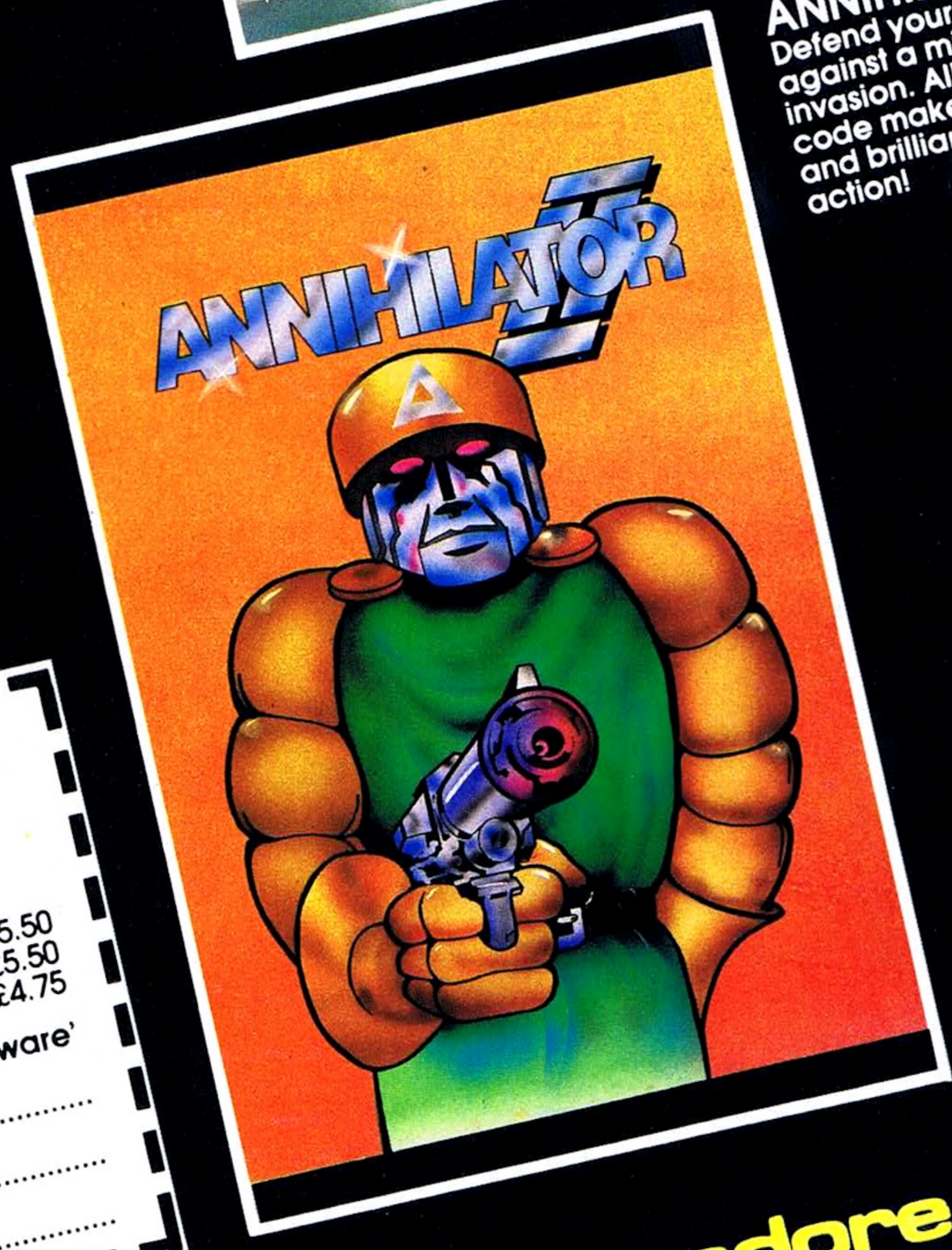

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By Jeremy Rickards

FISHERMAN FRED

Fishing Fred's way needs utmost cunning and speed if you want to haul in a huge catch during an illegal fishing trip.

Armed with three rods with which to catch the river-living victims Fred runs up and down the river bank in an attempt to reel in the objects pulling on the end of each line, (they're not always fish either). The key to reeling in a rod is to stand one space to the left of the rod rest.

Sounds simple? . . . You might think so but while you frantically try to reel in your rods Percy The Pike swims around the screen. Should he hit any of the objects on the lines the object will disappear and you will lose a point. From time to time it will rain (cyan squiggles coming from the cloud) and the sun will go in. When this happens you must position Fred over the 'U' on the river bank, and press 'U' on the keyboard to put up your fishing umbrella. Until this task is completed you cannot reel in any of the rods. The game lasts two minutes and you must score as many points as possible in this time.

Keys to use

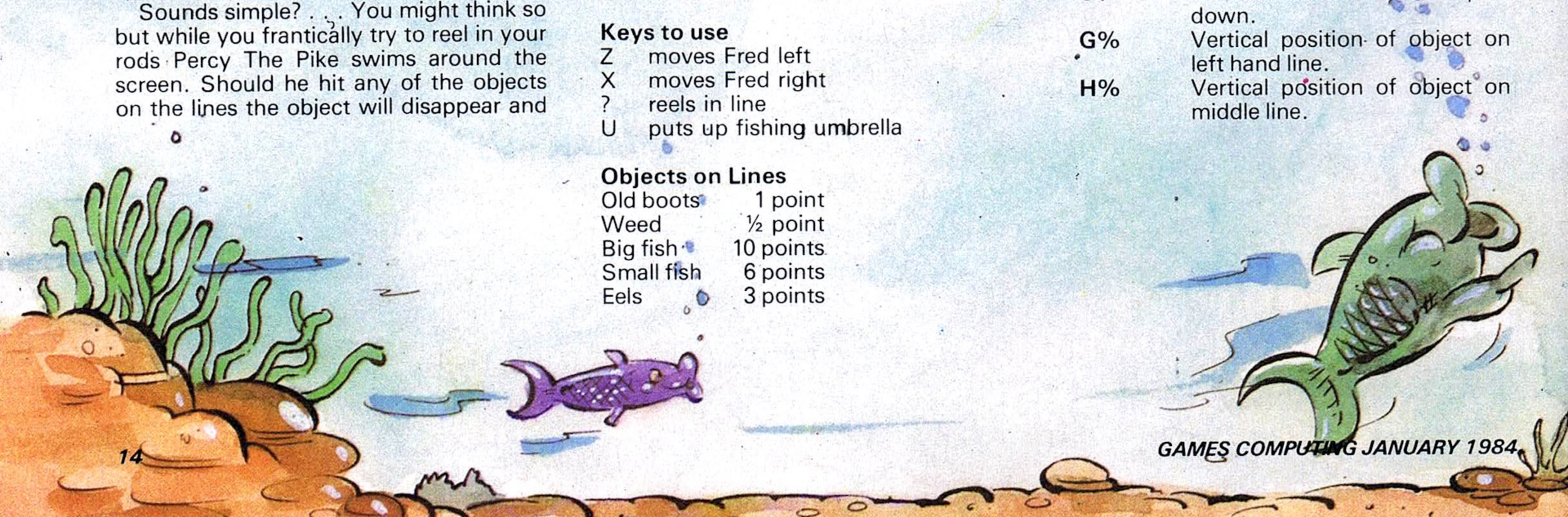
Z	moves Fred left
X	moves Fred right
?	reels in line
U	puts up fishing umbrella

Objects on Lines

Old boots	1 point
Weed	½ point
Big fish	10 points
Small fish	6 points
Eels	3 points

VARIABLE LIST

HS%	High score value.
S%	Present score value.
T%	Time.
UMB%	Random number between one and ten (defines whether it rains or not).
UMB$	Whether it is raining or not.
U$	Whether the umbrella is up or down.
G%	Vertical position of object on left hand line.
H%	Vertical position of object on middle line.



I%	Vertical position of object on right hand line.	410-430	Initial variables for pike and object positions.
PD%	Horizontal position of pike.	440	Sets background colour to blue and clears screen.
PL%	Vertical position of pike.		
V%	FOR/NEXT loop variable.	450-580	Draws initial graphical display.
M%	Determines whether Fred has his arms up or down.	590-910	MAIN PROGRAM LOOP.
X%	Horizontal position of man.	920-1080	DEFPROCLEFT procedure to move man to the left.
P%	Determines what is on the end of line 1.	1090-1250	DEFPROCRIGHT procedure to move man to the right.
Q%	Determines what is on the end of line 2.	1260-1360	DEFPROCREDRAW procedure to redraw lines deleted by man.
R%	Determines what is on the end of line 3.	1370-1640	DEFPROCSETUP procedure to reprint characters in their new positions.
G$	Searches for movement key to be pressed ie 'Z' or 'X' etc.	1650-1710	DEFPROCREELIN1 procedure to reel in left hand line.
K%	Determines position of pike's tail.	1720-1780	DEFPROCREELIN2 procedure to reel in middle line.
		1790-1850	DEFPROCREELIN3 procedure to reel in right hand line.
		1860-2030	DEFPROCSCORE procedure to calculate new score.
		2040-2120	DEFPROCRESTART procedure to restart the game at end.
		2130-2530	DEFPROCPIKEMOVE procedure to move pike across screen deleting characters which it hits.
		2540-2580	DEFPROCDRAWUMB procedure to draw umbrella.
		2590-2620	DEFPROCUMBUPORRD procedure if umbrella is up or down.
		2630-2660	DEFPROCRAIN procedure to draw rain in sky.
		2670-2700	DEFPROCREDRAWLINE procedure to redraw fising lines when they are deleted.

RUNdown

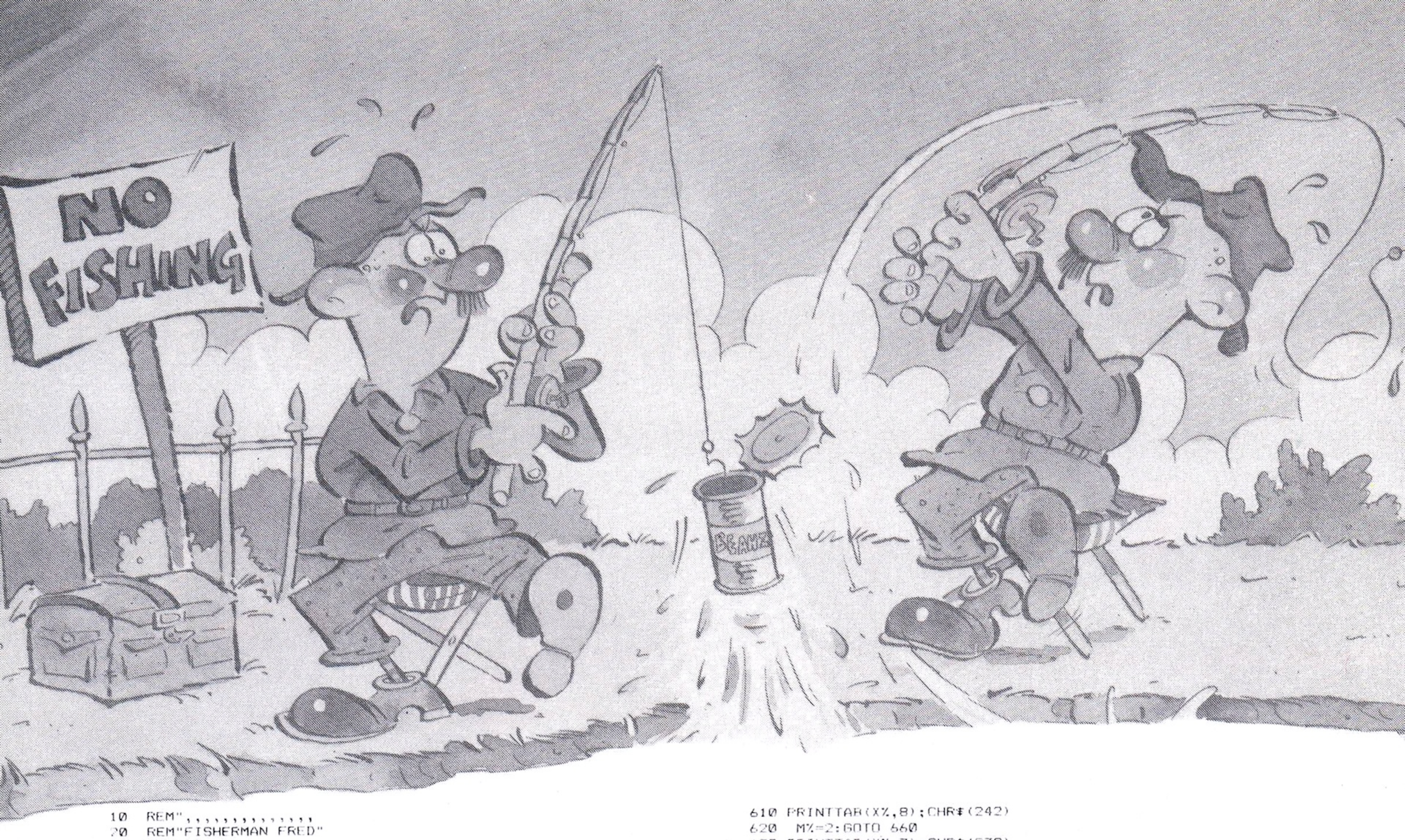
Lines	Action
120-130	Set auto repeat delay.
140-180	Set initial variables and set graphics mode 5.
190-220	Reset logical graphical colours.
230-370	Define user defined characters for man, pike and objects.
380-400	A random number from 1 to 10 defining whether or not it will rain.

Conversion Clues

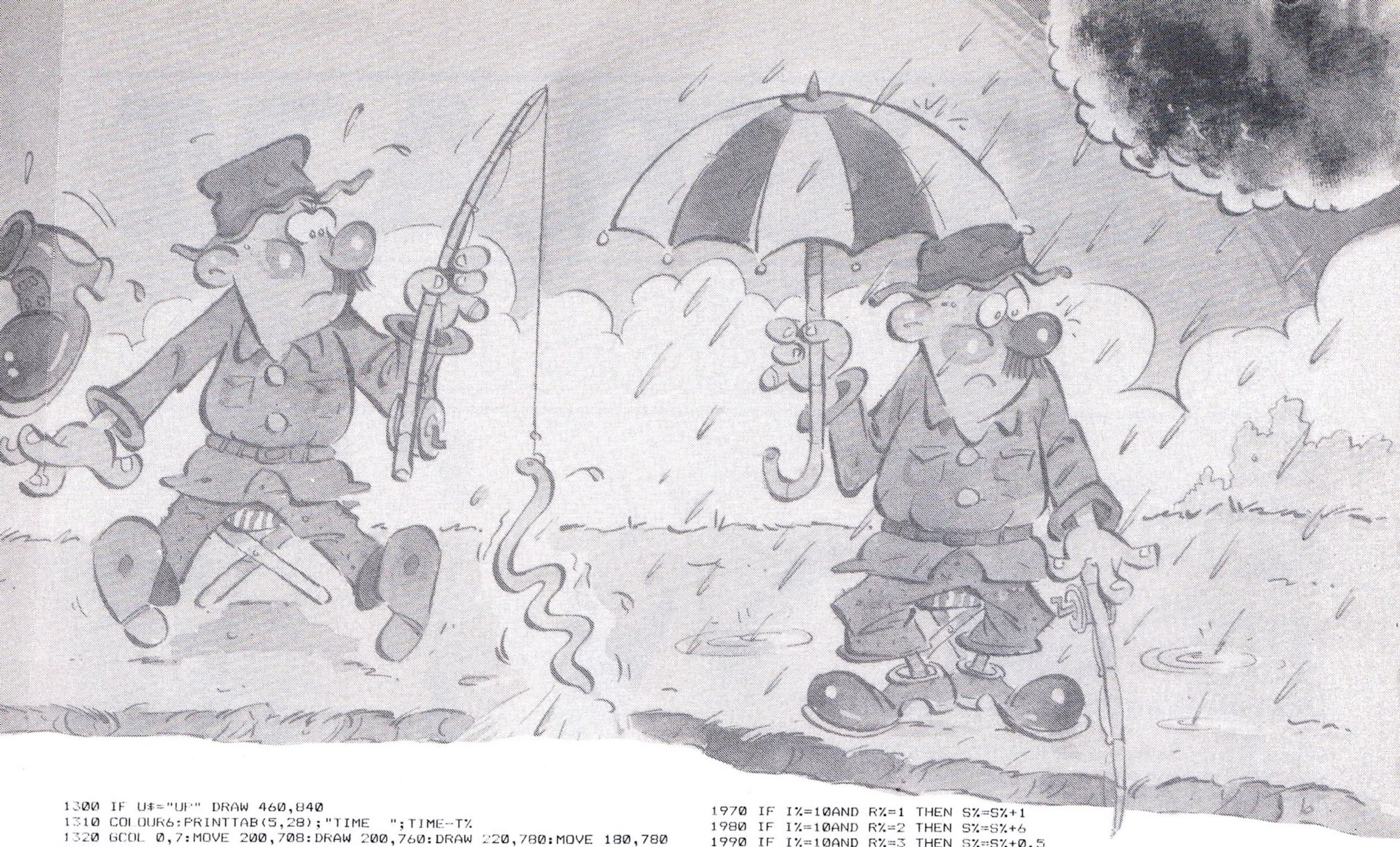
BBC Basic is fairly standard, however, it does permit the use of procedures and functions. These are defined using DEFPROC (procedure name), ended with ENDPROC and called using PROC (procedure name). Other BASICs may not have this facility, however, it should be relatively easy to replace these procedures using subroutines.

In the graphics mode 5 the BBC Micro's screen size is 20 characters by 32 rows and it may therefore be necessary on some computers to change a number of the PRINT statements.

The BBC Micro uses the SOUND and ENVELOPE commands to create sound effects and these will have to be omitted or replaced with the appropriate commands. One other command peculiar to the BBC Micro is the PRINT TAB command which serves the same purpose as the PRINT AT or PRINT @ commands on other computers.

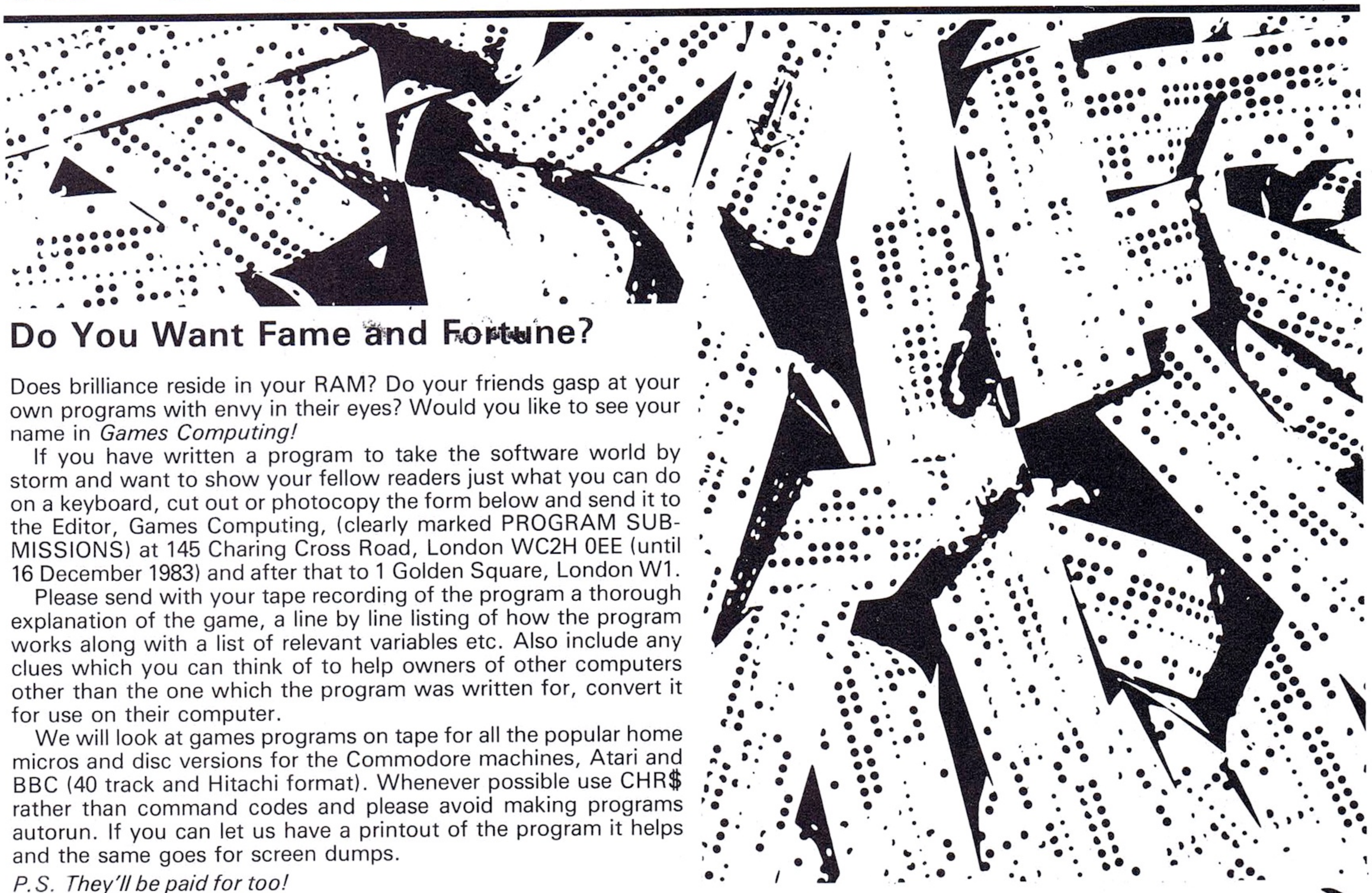



```
10  REM",,,,,,,,,,,,,,,
20  REM"FISHERMAN FRED"
30  REM",,,,,,,,,,,,,,,
40  REM"By J.Rickards."
50  REM",,,,,,,,,,,,,,,
60  REM"  VERSION 4"
70  REM",,,,,,,,,,,,,,,
80  REM" 3rd AUGUST 83"
90  REM",,,,,,,,,,,,,,,
100 REM" Copyright(C)"
110 REM",,,,,,,,,,,,,,,
120  *FX 11,35
130  *FX 12,35
140  *KEY 10 OLD|MRUN|M
150 HS%=0:K%=1:M%=1
160  MODE 5
170 X%=10:S%=0
180  T%=TIME
190 VDU23,1,0;0;0;0;
200  VDU 19,2,2,0,0,0
210  VDU 19,1,6,0,0,0
220 VDU 19,0,4,0,0,0
230  VDU 23,254,128,227,247,127,63,127,251,224
240  VDU 23,255,48,32,64,88,48,0,0,0
250 VDU23,241,24,60,60,24,126,255,189,153
260  VDU 23,238,153,189,189,153,255,126,126,24
270  VDU 23,239,24,60,60,36,36,36,36,102
280 VDU23,242,153,189,60,126,102,66,66,195
290 VDU23,240,252,244,124,40,112,118,255,207
300 VDU23,243,40,124,246,254,124,56,124,238
310 VDU23,250,128,224,252,239,248,255,254,192
320 VDU23,251,15,159,255,255,255,255,255,255
330 VDU23,252,0,195,247,127,63,127,243,192
340 VDU23,244,56,120,184,86,101,181,73,82
350 VDU23,245,131,101,23,102,140,184,96,0
360 VDU23,246,36,110,114,243,255,255,255,255
370 VDU23,247,255,255,126,60,24,60,126,231
380 UMB%=RND(10)
390 IF UMB%<4 THEN UMB$="UP" ELSE UMB$="DOWN"
400  REM
410 U$="DOWN"
420 G%=17:H%=22:I%=12:PD%=0:PL%=RND(23)
430 IF PL%<11 THEN PL%=12
440 GCOL0,132:CLG
450 MOVE0,735:GCOL0,2:DRAW1280,735
460 FOR V%=1TO25:MOVE0,735-V%:GCOL0,2:DRAW1280,735-V%:NEXT
470 MOVE0,202:GCOL0,0:DRAW1280,202
480 FOR V%=1TO15:GCOL0,3:MOVE0,202+V%:DRAW 1280,202+V%:NEXT
490  IF UMB$="UP"GOTO 510
500 GCOL0,3:MOVE0,940:DRAW20,940:DRAW40,950:DRAW50,960:DRAW60,98
0:DRAW60,1000:DRAW50,1020:MOVE10,920:DRAW10,860:MOVE80,990:DRAW140
,990:MOVE60,940:DRAW100,900
510 GCOL0,3:MOVE400,1020:DRAW420,980:DRAW440,960:DRAW460,950:DRA
W480,925:DRAW500,975:DRAW520,960:DRAW560,920:DRAW580,910:DRAW600,9
10:DRAW660,940:DRAW670,960:DRAW680,980:DRAW700,980:DRAW720,990:DRA
W740,1020
520 GCOL0,7:MOVE200,708:DRAW200,760:DRAW220,780:MOVE180,780:DRAW
200,760
530 GCOL0,7:MOVE1080,708:DRAW1080,760:DRAW1100,780:MOVE1060,780:
DRAW1080,760
540 GCOL0,7:MOVE640,708:DRAW640,760:DRAW660,780:MOVE620,780:DRAW
640,760
550 GCOL0,2:MOVE120,740:DRAW340,800:MOVE560,740:DRAW800,800:MOVE
1000,740:DRAW1240,800
560 GCOL0,1:DRAW1240,640:MOVE800,800:DRAW800,300:MOVE340,800:DRA
W340,480
570 MOVE400,740:GCOL0,3:DRAW440,780:MOVE440,740:DRAW400,780:GCOL
0,1:DRAW420,773:DRAW440,780
580 COLOUR3:PRINTTAB(8,9);"U"
590  IF M%=2 GOTO 630
600 PRINTTAB(X%,7);CHR$(241)
610 PRINTTAB(X%,8);CHR$(242)
620  M%=2:GOTO 660
630 PRINTTAB(X%,7);CHR$(238)
640 PRINTTAB(X%,8);CHR$(239)
650  M%=1
660 COLOUR6:PRINTTAB(5,26);"SCORE ";S%
670 P%=RND(6):O%=RND(6):R%=RND(6)
680 COLOUR6:PRINTTAB(5,27);"HIGH  ";HS%
690 COLOUR6:PRINTTAB(5,28);"TIME  ";TIME-T%
700 IF TIME-T%>12000 PROCRESTART
710 PROCPIKEMOVE
720 PROCSETUP
730 COLOUR6:PRINTTAB(5,28);"TIME  ";TIME-T%
740 G$=INKEY$(5)
750 IF UMB$="UP"PROCRAIN
760 PROCPIKEMOVE
770 IF G$="Z"THEN PROCLEFT
780 IF G$="X"THEN PROCRIGHT
790 IF X%=8 AND UMB$="UP" AND G$="U" THEN PROCDRAWUMB
800 IF X%=8 AND UMB$="DOWN" AND G$="U" AND U$="DOWN" GOTO 830
810 IF X%=8 AND UMB$="DOWN" AND G$="U" AND U$="UP" PROCUMBUPORD
820 GOTO840
830 IF X%=8 AND UMB$="DOWN" AND G$="U" AND U$="DOWN" PROCUMBUPOR
D
840 IF UMB$="UP" AND U$="UP" GOTO 870
850 IF UMB$="DOWN" AND U$="UP" THEN GOTO 910
860 IF UMB$="UP" AND U$="DOWN" GOTO 910
870 IF UMB$="UP" AND U$="UP" GOTO 880
880 IF G$="/" AND X%=2 THEN PROCREELIN1
890 IF G$="/" AND X%=9 THEN PROCREELIN2
900 IF G$="/" AND X%=16 THEN PROCREELIN3
910 GOTO730
920 DEFPROCLEFT
930 X%=X%-1
940 IF X%<0 THEN X%=0
950 COLOUR3
960  IF M%=2 GOTO 1000
970 PRINTTAB(X%,7);CHR$(241)
980 PRINTTAB(X%,8);CHR$(242)
990  M%=2:GOTO 1030
1000  PRINTTAB(X%,7);CHR$(238)
1010 PRINTTAB(X%,8);CHR$(239)
1020  M%=1
1030 PRINTTAB(X%+1,7);CHR$(32)
1040 PRINTTAB(X%+1,8);CHR$(32)
1050 SOUND1,-15,101,1
1060 PROCREDRAW
1070  PROCREDRAWLINE
1080 ENDPROC
1090 DEFPROCRIGHT
1100 X%=X%+1
1110 IF X%>19 THEN X%=19
1120 COLOUR3
1130  IF M%=2 GOTO 1170
1140 PRINTTAB(X%,7);CHR$(241)
1150 PRINTTAB(X%,8);CHR$(242)
1160 M%=2:GOTO1200
1170  PRINTTAB(X%,7);CHR$(238)
1180 PRINTTAB(X%,8);CHR$(239)
1190  M%=1
1200 PRINTTAB(X%-1,7);CHR$(32)
1210 PRINTTAB(X%-1,8);CHR$(32)
1220 SOUND1,-15,88,1
1230 PROCREDRAW
1240  PROCREDRAWLINE
1250 ENDPROC
1260 DEFPROCREDRAW
1270 MOVE400,740:GCOL0,3:DRAW440,780:MOVE440,740:DRAW400,780:GCOL
0,1:DRAW420,773:DRAW440,780
1280 GCOL0,3
1290 IF U$="UP" MOVE 460,740
```



```
1300 IF U$="UP" DRAW 460,840
1310 COLOUR6:PRINTTAB(5,28);"TIME  ";TIME-T%
1320 GCOL 0,7:MOVE 200,708:DRAW 200,760:DRAW 220,780:MOVE 180,780
:DRAW 200,760
1330 GCOL 0,7:MOVE 1080,708:DRAW 1080,760:DRAW 1100,780:MOVE 1060
,780:DRAW 1080,760
1340 GCOL 0,7:MOVE 640,708:DRAW 640,760:DRAW 660,780:MOVE 620,780
:DRAW 640,760
1350 GCOL 0,2:MOVE 120,740:DRAW 340,800:MOVE 560,740:DRAW 800,800
:MOVE 1000,740:DRAW 1240,800
1360 ENDPROC
1370 DEFPROCSETUP
1380 COLOUR6:PRINTTAB(5,28);"TIME  ";TIME-T%
1390 COLOUR2
1400 PRINTTAB(PD%,PL%);CHR$(252);CHR$(251);CHR$(250)
1410  COLOUR 3
1420 IF P%=1 PRINTTAB(5,G%);CHR$(240)
1430 IF P%=2 PRINTTAB(5,G%);CHR$(243)
1440 IF P%=3 PRINTTAB(5,G%);CHR$(244)
1450 IF P%=4 PRINTTAB(5,G%);CHR$(245)
1460 IF Q%=1 PRINTTAB(12,H%);CHR$(240)
1470 IF Q%=2 PRINTTAB(12,H%);CHR$(243)
1480 IF Q%=3 PRINTTAB(12,H%);CHR$(244)
1490 IF Q%=4 PRINTTAB(12,H%);CHR$(245)
1500 IF R%=1 PRINTTAB(19,I%);CHR$(240)
1510 IF R%=2 PRINTTAB(19,I%);CHR$(243)
1520 IF R%=3 PRINTTAB(19,I%);CHR$(244)
1530 IF R%=4 PRINTTAB(19,I%);CHR$(245)
1540 IF P%=6 THEN PRINTTAB(5,G%);CHR$(246)
1550 IF P%=6 THEN PRINTTAB(5,G%+1);CHR$(247)
1560  COLOUR 2
1570 IF Q%=5 PRINTTAB(12,H%);CHR$(255)
1580 IF R%=5 PRINTTAB(19,I%);CHR$(255)
1590 IF P%=5 PRINTTAB(5,G%);CHR$(255)
1600 IF Q%=6 THEN PRINTTAB(12,H%);CHR$(246)
1610 IF Q%=6 THEN PRINTTAB(12,H%+1);CHR$(247)
1620 IF R%=6 THEN PRINTTAB(19,I%);CHR$(246)
1630 IF R%=6 THEN PRINTTAB(19,I%+1);CHR$(247)
1640 ENDPROC
1650 DEFPROCREELIN1
1660 G%=G%-1
1670 PROCSETUP
1680 IF P%=6 THEN PRINTTAB(5,G%+2);" ":GOTO 1700
1690 PRINTTAB(5,G%+1);" "
1700 IF G%=10 PROCSCORE
1710 ENDPROC
1720 DEFPROCREELIN2
1730 H%=H%-1
1740 PROCSETUP
1750 IF Q%=6 THEN PRINTTAB(12,H%+2);" ":GOTO 1770
1760 PRINTTAB(12,H%+1);" "
1770 IF H%=10 PROCSCORE
1780 ENDPROC
1790 DEFPROCREELIN3
1800 I%=I%-1
1810 PROCSETUP
1820 IF R%=6 THEN PRINTTAB(19,I%+2);" ":GOTO 1840
1830 PRINTTAB(19,I%+1);" "
1840 IF I%=10  PROCSCORE
1850 ENDPROC
1860 DEFPROCSCORE
1870 IF G%=10AND P%=1 THEN S%=S%+1
1880 IF G%=10AND P%=2 THEN S%=S%+6
1890 IF G%=10AND P%=3 THEN S%=S%+0.5
1900 IF G%=10AND P%=4 THEN S%=S%+3
1910 IF G%=10AND P%=6 THEN S%=S%+12
1920 IF H%=10AND Q%=1 THEN S%=S%+1
1930 IF H%=10AND Q%=2 THEN S%=S%+6
1940 IF H%=10AND Q%=3 THEN S%=S%+0.5
1950 IF H%=10AND Q%=4 THEN S%=S%+3
1960 IF H%=10AND Q%=6 THEN S%=S%+10
1970 IF I%=10AND R%=1 THEN S%=S%+1
1980 IF I%=10AND R%=2 THEN S%=S%+6
1990 IF I%=10AND R%=3 THEN S%=S%+0.5
2000 IF I%=10AND R%=4 THEN S%=S%+3
2010 IF I%=10AND R%=6 THEN S%=S%+12
2020 GOTO 380
2030 ENDPROC
2040 DEFPROCRESTART
2050 PRINTTAB(2,30);CHR$(136);"NEW GAME? (Y/N)"
2060 IF S%>HS% THEN HS%=S%
2070 COLOUR 6:PRINTTAB(5,27);"HIGH  ";HS%
2080 REPEAT:G$=GET$:UNTIL G$="Y"OR G$="N"
2090 IF G$="Y" THEN GOTO 170
2100  IF G$="N" THEN *FX 12,0
2110  IF G$="N" THEN END
2120 ENDPROC
2230 IF PD%=3 AND PL%=G% THEN S%=S%-1
2240 IF PD%=3 AND PL%=G% THEN SOUND 1,-15,5,1
2250 IF PD%=12 AND PL%=H% THEN Q%=5
2260 IF PD%=12 AND PL%=H% THEN S%=S%-1
2270 IF PD%=12 AND PL%=H% THEN SOUND 1,-15,5,1
2280 IF PD%=11 AND PL%=H% THEN Q%=5
2290 IF PD%=11 AND PL%=H% THEN S%=S%-1
2300 IF PD%=11 AND PL%=H% THEN SOUND 1,-15,5,1
2310 IF PD%=10 AND PL%=H% THEN Q%=5
2320 IF PD%=10 AND PL%=H% THEN S%=S%-1
2330 IF PD%=10 AND PL%=H% THEN SOUND 1,-15,5,1
2340 IF PD%=19 AND PL%=I% THEN R%=5
2350 IF PD%=19 AND PL%=I% THEN S%=S%-1
2360 IF PD%=19 AND PL%=I% THEN SOUND 1,-15,5,1
2370 IF PD%=18 AND PL%=I% THEN R%=5
2380 IF PD%=18 AND PL%=I% THENS%=S%-1
2390 IF PD%=18 AND PL%=I% THEN SOUND 1,-15,5,1
2400 IF PD%=17 AND PL%=I% THEN R%=5
2410 IF PD%=17 AND PL%=I% THEN SOUND 1,-15,5,1
2420 IF PD%=18 THEN PRINTTAB(PD%-1,PL%);"   "
2430 SOUND 1,-5,1,1:SOUND 1,-5,4,1
2440 IF PD%=18 THEN PD%=0
2450  IF K%=2 GOTO 2490
2460 PRINTTAB(PD%,PL%);CHR$(252);CHR$(251);CHR$(250)
2470  K%=2
2480  GOTO 2510
2490 PRINTTAB(PD%,PL%);CHR$(254);CHR$(251);CHR$(250)
2500  K%=1
2510 PRINTTAB(PD%-1,PL%);" "
2520  IF PD%=5 OR 12 OR 19 PROCREDRAWLINE
2530 ENDPROC
2540 DEFPROCDRAWUMB
2550  GCOL 0,3:MOVE 460,740:DRAW 460,840:GCOL 0,2:MOVE 560,840:DR
AW 380,840:DRAW 400,880:DRAW 460,900:DRAW 520,880:DRAW 560,840:MOV
E 510,840:DRAW 460,900:MOVE 460,840:DRAW 460,900:MOVE 410,840:DRAW
460,900
2560 UMB$="UP"
2570 U$="UP"
2580 ENDPROC
2590 DEFPROCUMBUPORD
2600 IF U$="UP"PROCUMBDOWN
2610 IF U$="DOWN"PROCDRAWUMB
2620 ENDPROC
2630 DEFPROCRAIN
2640 GCOL0,1
2650  MOVE 540,900:DRAW 560,860:MOVE 580,880:DRAW 600,840:MOVE 62
0,900:DRAW 640,860:MOVE 660,880:DRAW 680,840:MOVE 680,920:DRAW 700
,880:MOVE 700,960:DRAW 720,920:MOVE 700,860:DRAW 720,820:MOVE 740,
960:DRAW 760,920:MOVE 740,900:DRAW 760,860
2660 ENDPROC
2670  DEFPROCREDRAWLINE
2680  GCOL 0,1
2690  MOVE 340,800:DRAW 340,37*(30-G%):MOVE 1240,800:DRAW 1240,37
*(30-I%):MOVE 800,800:DRAW 800,37*(30-H%)
2700  ENDPROC
```

PROGRAM SUBMISSIONS



Do You Want Fame and Fortune?

Does brilliance reside in your RAM? Do your friends gasp at your own programs with envy in their eyes? Would you like to see your name in *Games Computing!*

If you have written a program to take the software world by storm and want to show your fellow readers just what you can do on a keyboard, cut out or photocopy the form below and send it to the Editor, Games Computing, (clearly marked PROGRAM SUBMISSIONS) at 145 Charing Cross Road, London WC2H 0EE (until 16 December 1983) and after that to 1 Golden Square, London W1.

Please send with your tape recording of the program a thorough explanation of the game, a line by line listing of how the program works along with a list of relevant variables etc. Also include any clues which you can think of to help owners of other computers other than the one which the program was written for, convert it for use on their computer.

We will look at games programs on tape for all the popular home micros and disc versions for the Commodore machines, Atari and BBC (40 track and Hitachi format). Whenever possible use CHR$ rather than command codes and please avoid making programs autorun. If you can let us have a printout of the program it helps and the same goes for screen dumps.

P.S. They'll be paid for too!

★ **PLEASE COMPLETE IN BLOCK CAPITALS**

Your Name _____ Age _____

Program Name _____

Computer/memory size it runs on _____

Amount of memory program occupies _____

Other computers/memory size which your program runs on _____

Does your game need joysticks? Yes No

Any known bugs? If so, what are they? _____

Have you sent your game to another magazine Yes No

Is it original/or a variation on a theme? _____

Your Address

_____

Telephone Number

Times to contact you _____

Alligata's Big Byte

Alligata Software is evidently aiming to bite a chunk out of the software market with the firm's recent games releases.

There are various games out for the BBC, Commodore 64 and Dragon 32. For the BBC micro come such titles as Bugblaster, which is the Alligata version of a great favourite arcade game called Centipede. Alligata boasts the fast implementation of the game will make it a winner. Other titles are a car racing game called (surprise, surprise) Monaco, a new version of an old game in the form of Lunar Rescue, Fruit machine, Cosmic Asteroids (which sounds like a version of the original asteroids game) and ABM — which sounds suspiciously like another old favourite, Missile Command. Prices are from £5.95 to £7.95.

Commodore 64 games from Alligata's range are an adventure game called Haunted House featuring the standard nasties found in such a place. Squash a Frog — could this be the game by the name of Frogger, or another version of it? Bat Attack features killer bats and clusters of asteroids (a strange combination that one), while Aztec Tomb is a graphics adventure with the scenario set in the depths of the Amazon where you must find the lost Aztec tomb. Other titles are Balloon Rescue, Damsel in Distress and Brands. Again prices vary from £5.95 to £7.95.

And the offerings for Dragon owners are a version of the classic arcade game Space Invaders. Alligata says the game features 'excellent sound and graphics'. The other game just released for the Dragon is called Jaws.

At least the theme is different in this game, being set under water in the middle of a shark patch. Your job is to search the seas of survivors of an ocean disaster before the sharks gobble them up. Could put you off swimming for life. Each game for the Dragon costs £7.95.

Alligata Software is located at 178 West Street, Sheffield S1 4EGT.

Stop Press . . .

Following hot on the heels of Game Lords Quicksilva's music program for the BBC Micro comes an even better piece of software with a musical vent.

Quicksilva's Mark Eyles was over the moon when he heard that the program had been given the thumbs up. 'It's amazing,' he said, 'it sounds just like a real synthesiser.' The firm is now concentrating on producing as much quality Commodore 64 software as possible and the music program will be on streets very quickly, so it could make an excellent last minute Christmas present for somebody you know — or maybe yourself. Watch out for it in your local software shops.

Annihilator Coming Soon

US Chart topper Annihilator is soon to be on sale in the UK for VIC 20 and CMB 64 computer owners.

Mogul 'The new force in computer software' are planning to rush-release this great game, presumably just in time to make the most of the Christmas market, having just acquired the UK, European and Scandinavian marketing rights to the game. At present the game is sitting prettily near the top of the *Computer Gazette Top 10* in America and looks like zipping to be a top seller in England. Mogul plans to put a price tag of £5.99 on Annihilator and the firm intimates that it will be available on other computers in the course of time.

Annihilator is an arcade style game revolving round invading aliens but it's NOT Space Invaders. The action apparently is fast and furious and the game is written entirely in machine code in order to achieve this high speed action. Watch out for a review of Annihilator in a future issue of *Games Computing*.

Commodore 64s to Win

If you can't afford to buy your own Commodore 64 computer but like the look of it Galactic Software have dreamed up a way to give you one.

All you need to make all your Christmasses come at once is to buy one of the firm's games before December 25. Galactic Software's brain bogglers have made their computer churn up a list of 120 numbers which will be selected at random by the machine. When you buy one of Galactic's games all you need to do is send in a section of the inlay card with your guessed number written on it. And the 20 people who either guess correctly to match up with the computer's list, or are closest, will each win a Commodore 64 computer. There are also 100 runners up who will receive a great games control joystick. That's surely worth the cost of one of Galactic's games?

And while we're on the subject of Galactic the firm has news of a new software pack called Games Designer. It sounds similar to the pack brought out by Quicksilva in which you can put user defined characters into your own programs at the touch of a fingertip without any extra effort from you. Things like monsters, asteroids, moonscapes, spaceships, aliens, and kangaroos can all be picked for your own use. It's an excellent way to learn about programming too, apart from just being fun to use. Games Designer is available for the VIC 20 for £9.50 and Commodore 64 for £11.50. One not to be missed.

Galactic Software can be contacted at Unit 7, Larchfield Estate, Dowlish Ford, Ilminster, Somerset TA19 0PF or telephone them on 04605 5161.

Roll Up, Roll Up

If you want to buy a computer or some new software for your present machine make the most of a 'try and buy' show to be held in London in early January.

Run by Argus Specialist Exhibitions the London Home Computer Show will be open from Friday January 6 to Sunday January 8 1984. If you're under sixteen you get a special bonus in the shape of a cut-price entrance ticket of £1.50 instead of £2.00, so you'll be able to afford that piece of software you have been hankering after for weeks with those saved pennies.

Last year the London Home Computer Show pulled in the crowds so that this year's event has to be held in a larger hall. Names of firms exhibiting at the show are not yet definite, but if last year is anything to go by many of the household software makers

Not only will you be able to try out software on show by exhibitors you will also have the chance to look at hardware and add-ons and take goodies away from the stands, once you've bought them of course.

At present its early days for the exhibition but firms who have so far booked stands include Buffer Micro, Shard Software, Computersolve, Mikrogen, Compusound, Saxxon Computing and Computer Lock. No doubt many more will follow.

If you fancy trotting down to the show to spend a few quid you'll find the exhibition at the New Hall, Royal Horticultural Society just behind Victoria Street in Westminster.

Ostriches and Eggs from Rabbit

Somebody at Rabbit Software has been working overtime on the new games currently landing with a thump on shop shelves.

Amongst the new games is one called Lancer Lords. Now this title is a little misleading — it conjours up visions of medieval knights jousting on horseback. But its not. The knights are there all right, but ostriches take the place of the more conventional horse! Sounds crazy but makes for an interesting theme for a game. It all involves lances and eggs which both the player and the enemy seem to have. If you hit any of these your knight is instantly transformed into a rusty heap of tin. Can't wait to review this one.

Paratroopers is another new release from Rabbit which is an arcade style game incorporating invading helicopters and paratroopers which are out to get you and your command post, preferably for good. In Rabbit's words if you lose you get 'a ticket to watch Gateshead' — surely a fate worse than death and definitely something at the back of your mind to keep you on a winning streak.

Potty Painter's title gives nothing of the game away. It's a continuing saga of a game played out in a jungle scenario and is apparently 'more than a bit potty,' with natives brandishing assigi and the terrifying Teddy Twins who try to paint you off the screen!

Rabbit's games are now on sale in branches of Boots, W H Smith and Rumbelows. Prices for the games are £00.00.

New Generation in Genon

3D games are up and coming in software circles these days and New Generation has come up with a goody in this field.

Called Corridors of Genon this 3D game doesn't mean you have to don a silly pair of cardboard goggles with coloured lenses. It's a graphical adventure game. You have to locate and destroy the computer which has been programmed to wipe out the world (universe included) and is located in the very heart of the Corridors of Genon. There are 30 circular corridors in total which lead to the centre and you must pass through various doors on your way. It sounds very confusing. Some of them you can open and some of them you can't — only by trial and error will you find out which door codes can be broken. There's also a nasty guardian of the corridors to contend with whenever he rears his ugly head. He's called Bogul and has the power, unfortunately for you, to discover your whereabouts and 'Bogulise' you. It all sounds very nasty indeed.

To destroy the computer you must crack a special three digit code, but this you must do within a time limit. The longer you take the more times Bogul will produce clones of himself! And even when you wipe out the compter you're still in danger of dying. For you must escape the corridors and avoid the clones of Bogul — if you don't you're dead.

Corridors of Genon runs on the 48K Spectrum and comes with a keyboard overlay card for you to play the game more easily. If you don't fancy using key controls you can also plug a joystick in and use that. The price is £5.95 and is available from software retailers or New Generation themselves.

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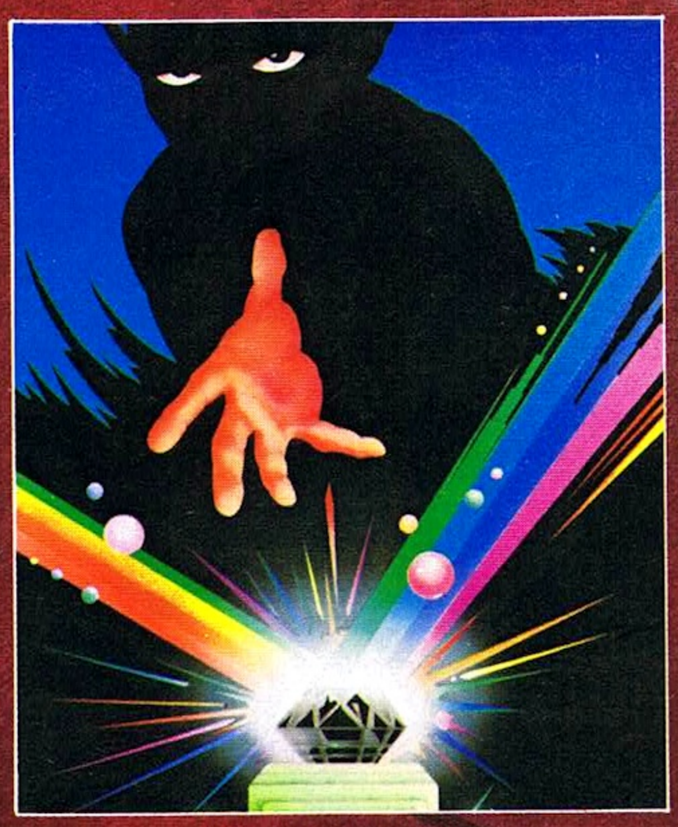


BLACK CRYSTAL

The Classic, six program adventure game for the 48K Spectrum and 16K ZX-81 computers. No software collection is complete without it.

"BLACK CRYSTAL is an excellent graphics adventure and a well thought out package" (Sinclair User, April '83).

"BLACK CRYSTAL has impressed me by its sheer quantity and generally high quality of presentation. I am afraid I have become an addict" (Home Computing Weekly, April '83).

SPECTRUM 48K 180K of program in six parts . . . only £7.50
ZX-81 16K over 100K of program in seven parts . . . only £7.50

Why pay more for less of an adventure?

ZX-81 COMPENDIUM

Alien Intruder, Wumpus Adventure, Numerology, Hangman, Hieroglyphics, Movie Mogul.

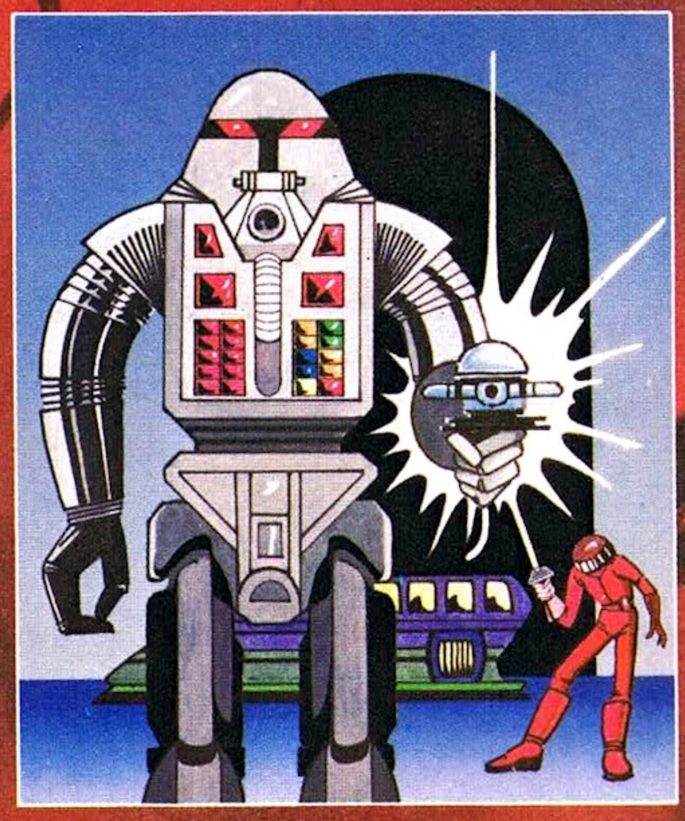
The ideal software package for all 16K ZX-81 owners. Six major programmes on two cassettes for only £6.50.

"Alien Intruder/Hieroglyphics — Both programs make good use of graphics and words to make a very entertaining package." (Sinclair User, Aug '82)

"Alien/Hieroglyphics/Wumpus/Movie — A varied mix from Carnell, all featuring imaginative responses and graphics and all of them good games for all ages (Hieroglyphics is particularly good for children)." (Popular Computing Weekly, Aug '82)

THE ADVENTURES OF ST. BERNARD

An exciting, fast moving, machine code, arcade game where you guide your intrepid St. Bernard through the perils of the icy wastelands to rescue his Mistress from the clutches of the abominable snowman. 48K Spectrum £5.95.



STARFORCE ONE

Take on the robot guardians of the central computer in a superbly stylised three dimensional battle game. 48K Spectrum £5.95.

(100% MACHINE CODE ARCADE ACTION)

THE CRYPT

written by Stephen Renton

Prepare yourself for the many challenges that shall confront you when you dare to enter "THE CRYPT".

You will battle with giant scorpions, Hell spawn, Craners, Pos-Negs and if you are unlucky enough — the Dark Cyclops in this arcade style adventure.

Available now for the 48K Spectrum @ £4.95

THE DEVIL RIDES IN

I uttered the last incantations as the clock struck thirteen. All fell silent except for a faint rustling in the corner. From out of the shadows they came, all Hell's fury against me but I was not defenceless until the Angel Of Death, astride a winged horse, joined the battle. Avoiding his bolts of hell fire, I took careful aim. My chances were slim, but if my luck held . . . 48K Spectrum £5.95.

(Fast moving, machine code, all action, Arcade game)

RANGE FROM CARNELL SOFTWARE

COMING SOON

"THE WRATH OF MAGRA"

The first born has been destroyed. The Black Crystal of Beroth has been banished. The alliance of Evil has been defeated by the armies of Lord Fendal. So ends the Third Age. Now we invite you to write your name in the history of the Fourth Age of the Third Continent.

You will meet friends and enemies, old and new, in the long awaited sequel to Volcanic Dungeon. Using high resolution graphics and combining the best qualities of "Black Crystal" and "Volcanic Dungeon", we will allow you to become part of this tale of revenge.

"The Wrath Of Magra" comes as three, 48K programs on cassette, boxed with instruction manual and book detailing the history of the Third Continent and the many spells you will be using throughout the game.

NOTE: "The Wrath Of Magra" is a complete adventure. You need not buy "Volcanic Dungeon" or "Black Crystal" to play it.

Available through most good computer stores or direct from:
Carnell Software Ltd, North Weylands Industrial Estate, Molesey Road, Hersham, Surrey KT12 3PL.
Dealers: Contact us for your nearest wholesaler.

CARNELL SOFTWARE LTD

ASTEROID CHASE

By Daniel J. Bishop

Ever tried chasing space cows in the asteroid belt? If not, try this game for the BBC Micro Model B and Acorn Electron — it could send you crazy! These creatures are really awkward. . . .

The game has been tested on both the BBC and the Electron. It has been especially written to be equally good on both machines, taking full advantage of their speed, hi-res graphics and superb synthesiser sound. It also works with discs and joysticks.

When you run the program, you are presented with a title page. You may press 'I' to see the set of brief instructions included in the program. You may press 'S' to start the game, or if you have a joystick you may start the game by pressing its firebutton.

The screen display is drawn and the game starts immediately with an audible bleep. At the top of the screen is the title of the game. At the bottom left is the current high score. The time elapsed since the start of the game is printed at the bottom right. The rest of the screen is randomly filled with twenty white asteroids of varying size. In the centre is a flashing square pattern — this is the teleport. Below it is a flashing 'cross' — this is the robot ship under your control. Somewhere else on the screen is a magenta coloured 'round thing', with legs and head sticking out — this is the space cow!

Moving the Ship

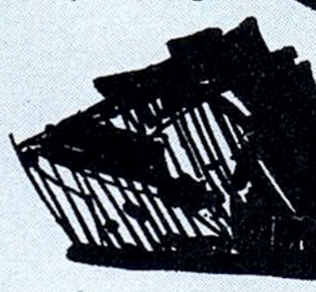
You can move your robot ship around the screen by using a joystick or by using the following keys: Z — left, X — right, : — up, / down. The cow will always try to run away from you, but you have to chase it onto the teleport in the centre of the screen in the shortest possible time. Try not to hit too many asteroids with your robot ship or drive the poor cow into the asteroids. If you do, you hear a nasty crunching, scraping sound as the asteroid disintegrates. You then get penalty points added to your elapsed time.

Try to get as many cows onto the teleport as quickly as possible. When a cow moves onto the teleport, the teleport flashes madly and emits an amazing sound effect as the cow vanishes. You are also given your score for that cow at the bottom of the screen. Then, with a bleep, a new cow appears for you to chase. The game becomes progressively faster. At top speed it can be a hair-raising experience. The game ends of either you crash onto the teleport yourself or you crash your robot ship into the cow. There is a colourful, noisy explosion and the game finishes.

If you have scored among the top nine players, you will be told your position and asked for your name. Finally you are presented with the 'Hall Of Fame' which lists the top nine scores and the players who achieved them, ranked in order. Press any key to play again, if you can stand the frustration.

Variables Used

ASTPOS%(19, 1) Co-ordinates of asteroids (graphics absolute).
COWPOS%(1) Co-ordinates of space cow (text absolute).
SBOTPOS%(1) Co-ordinates of robot ship (text absolute).
SCORE%(8) Top nine scores.
NAME$(8) Top scorers' names.
JPOS0%, JPOS1% Joystick positions.
TP0%, TP1%, TP2%, TP3% Boundaries of teleport region (graphics absolute).
SID0%, SID1%, SID2%, SID3% Boundaries of playing area (graphics absolute).
A% Always has value of 135, i.e. puts 135 into accumulator for the OSBYTE calls in lines 800 and 860.
SPEED% Current speed of game.
SCORE% Total score for current player.
HISCORE% The current hiscore.
TITLE$ Program title, i.e. "ASTEROID CHASE".
JOYSTICK% Whether a joystick is in operation or not.
GAMEND% Whether game has ended or not.
N0%, N1%, N2%, etc. Utility numeric variables.
L0%, L1%, L2%, etc. Utility loop control variables.
X0%, X1%, Y0%, Y1%, etc. Utility co-ordinate variables.
S0%, S1%, S2%, etc. Utility string variables.



RUNdown

Lines	Action
10-50	Remarks.
60	Error handling.
70-180	Procedure calls.
190-1620	Procedure calls.
190-400	DEF PROCinitO: all the once-only initialising is done.
410-490	DEF PROCinit1: rest of initialising is done.
500-650	DEF PROCtitlepage: produces title page.
660-740	DEF PROCdisplay: produces game display
750-930	DEF PROCgame: the main game procedure which is repeated until the game ends. Note lines 800 and 860 contain OSBYTE calls (A = 135) which return zero if the character at the text cursor is unreadable — i.e. an asteroid is there. See Acorn Electron User Guide page 237 or BBC Micro User Guide page 432.
940-960	DEF PROcow: picks a random position for the cow.
970-1050	DEF PROCexplosion: graphic and sound effects.
1060-1200	DEF PROCgone: cow is teleported.
1210-1470	DEF PROCscorepage: calculates new rank and displays 'Hall of Fame'.
1480-1620	DEF PROCINSTRUCTIONS: displays brief instructions on how to play.

```
   10  REM/ ASTEROID CHASE / A GAME FOR ONE PLAYER /
   20  REM/ WRITTEN BY DANIEL J. BISHOP /
   30  REM/ VERSION 1.0 / 1 OCT 1983 /
   40  REM/ NEEDS : BBC MICRO MODEL B / ACORN ELECTRON /
   50  REM/ DISKS & JOYSTICKS COMPATIBLE /
   60  ON ERROR MODE6:PRINT':REPORT:PRINT" at line ";ERL:
END
   70  PROCinit0
   80  REPEAT
   90    MODE6
  100    PROCtitlepage
  110    MODE5
  120    PROCdisplay
  130    REPEAT
  140      PROCgame
  150      UNTIL GAMEND%=TRUE
  160    MODE6
  170    PROCscorepage
  180    UNTIL FALSE
  190  DEF PROCinit0
  200  LOCAL N0%,L0%
  210  DIM ASTPOS%(19,1),COWPOS%(1),SBOTPOS%(1),SCORE%(8)
,NAME$(8)
  220  JPOS0%=1000:JPOS1%=64520:TP0%=640:TP1%=800:TP2%=38
4:TP3%=480:SID0%=944:SID1%=1264:SID2%=48:SID3%=48
  230  A%=135:HISCORE%=900:TITLE$="ASTEROID CHASE"
  240  N0%=HISCORE%
  250  FOR L0%=0 TO 8
  260    SCORE%(L0%)=N0%
  270    N0%=N0%-100
  280    NAME$(L0%)="*"
  290    NEXT
  300  VDU23,224,66,165,90,60,60,90,165,66
  310  VDU23,226,186,124,57,127,127,57,124,186
  320  VDU23,227,96,80,72,100,114,50,52,24
  330  VDU23,228,120,196,226,209,233,242,250,108
  340  VDU23,229,0,16,56,52,52,52,24,0
  350  VDU23,230,128,72,16,4,32,2,72,1
  360  VDU23,231,16,1,34,16,64,20,128,32
  370  VDU23,232,64,4,32,0,2,16,68,0
  380  VDU23,233,126,195,189,165,165,189,195,126
  390  ENVELOPE1,1,126,-20,-126,12,3,12,30,0,0,-1,126,126
  400  ENDPROC
  410  DEF PROCinit1
  420  LOCAL N0%,N1%,N2%,N3%,N4%,N5%,N6%,L0%
  430  N3%=TP0%+32:N4%=TP1%+64:N5%=TP2%-32:N6%=TP3%-32
  440  N1%=SID1%-SID3%:N2%=SID0%-SID2%:FOR L0%=0 TO 19:N0
%=FALSE:REPEAT:REPEAT:ASTPOS%(L0%,0)=RND(N1%)+SID3%:ASTPO
S%(L0%,1)=RND(N2%)+SID2%:UNTIL ASTPOS%(L0%,0)<N6% OR ASTP
OS%(L0%,0)>N4% OR ASTPOS%(L0%,1)<N5% OR ASTPOS%(L0%,1)>N3
%
  450      UNTIL N0%=FALSE:NEXT
  460  PROCcow
  470  SBOTPOS%(0)=10:SBOTPOS%(1)=18
  480  GAMEND%=FALSE:SCORE%=0:SPEED%=6
  490  ENDPROC
  500  DEF PROCtitlepage
  510  LOCAL S0$,N0%
  520  REPEAT
  530    VDU23;8202;0;0;0;
  540    VDU19,1,5,0,0,0
  550    PRINTTAB(12,7)TITLE$TAB(8,9)"A Game For One Play
er"TAB(9,11)"BY DANIEL J. BISHOP"
  560    PROCinit1
  570    PRINTTAB(6,14)"Press 'I' for instructions"TAB(2,
15)"Press 'S' or 'firebutton' to start"
  580    *FX15,1
  590    REPEAT
  600      S0$=INKEY$(1):N0%=ADVAL(0)AND3
  610      UNTIL S0$="I" OR S0$="S" OR N0%=1
  620    IF S0$="I" THEN PROCinstructions
  630    UNTIL S0$<>"I"
  640  IF N0%=1 THEN JOYSTICK%=TRUE ELSE JOYSTICK%=FALSE
  650  ENDPROC
  660  DEF PROCdisplay
  670  VDU23;8202;0;0;0;
  680  VDU19,1,7;0;19,2,9;0;19,3,5;0;
  690  PRINTTAB(3,1)TITLE$TAB(0,31)"HI=";HISCORE%;" TIME=
0";
  700  COLOUR2:VDU30,31,10,16,233
  710  VDU5:GCOL0,1:FOR L0%=0 TO 19:MOVE ASTPOS%(L0%,0)-3
2,ASTPOS%(L0%,1)+16:VDU RND(3)+226:NEXT
  720  VDU4
  730  SOUND0,-10,0,3:TIME=0
  740  ENDPROC
  750  DEF PROCgame:LOCAL N0%:VDU30:COLOUR0:PRINTTAB(SBOT
POS%(0),SBOTPOS%(1))CHR$224;
  760  IF (INKEY-73 OR (JOYSTICK%=TRUE AND ADVAL(2)>JPOS1
%))AND SBOTPOS%(1)>2 THEN SBOTPOS%(1)=SBOTPOS%(1)-2
  770  IF (INKEY-105 OR (JOYSTICK%=TRUE AND ADVAL(2)<JPOS
0%)) AND SBOTPOS%(1)<29 THEN SBOTPOS%(1)=SBOTPOS%(1)+2
  780  IF (INKEY-67 OR (JOYSTICK%=TRUE AND ADVAL(1)<JPOS0
%)) AND SBOTPOS%(0)<18 THEN SBOTPOS%(0)=SBOTPOS%(0)+2
  790  IF (INKEY-98 OR (JOYSTICK%=TRUE AND ADVAL(1)>JPOS1
%)) AND SBOTPOS%(0)>1 THEN SBOTPOS%(0)=SBOTPOS%(0)-2
  800  VDU31,SBOTPOS%(0),SBOTPOS%(1):N0%=(USR(&FFF4)AND&F
F00)DIV&100:IF N0%=0 THEN SOUND0,-15,4,2:TIME=TIME+100
  810  VDU30:COLOUR2:PRINTTAB(SBOTPOS%(0),SBOTPOS%(1))CHR
$224;:VDU30:COLOUR0:PRINTTAB(COWPOS%(0),COWPOS%(1))CHR$22
6
  820  IF COWPOS%(0)<SBOTPOS%(0) AND COWPOS%(0)>2 THEN CO
WPOS%(0)=COWPOS%(0)-1
  830  IF COWPOS%(0)>SBOTPOS%(0) AND COWPOS%(0)<16 THEN C
OWPOS%(0)=COWPOS%(0)+1
  840  IF COWPOS%(1)<SBOTPOS%(1) AND COWPOS%(1)>4 THEN CO
WPOS%(1)=COWPOS%(1)-1
  850  IF COWPOS%(1)>SBOTPOS%(1) AND COWPOS%(1)<28 THEN C
OWPOS%(1)=COWPOS%(1)+1
  860  VDU31,COWPOS%(0),COWPOS%(1):N0%=(USR(&FFF4)AND&FF0
0)DIV&100:IF N0%=0 THEN SOUND 0,-10,4,2:TIME=TIME+50
  870  VDU30:COLOUR3:PRINTTAB(COWPOS%(0),COWPOS%(1))CHR$2
26
  880  IF COWPOS%(0)=SBOTPOS%(0) AND COWPOS%(1)=SBOTPOS%(
1) THEN PROCexplosion(SBOTPOS%(0),SBOTPOS%(1)):GAMEND%=TR
UE
  890  IF COWPOS%(0)=10 AND COWPOS%(1)=16 THEN PROCgone:P
ROCcow
  900  IF SBOTPOS%(0)=10 AND SBOTPOS%(1)=16 THEN PROCexpl
osion(SBOTPOS%(0),SBOTPOS%(1)):GAMEND%=TRUE
  910  VDU4,30:PRINTTAB(0,31);"HI=";HISCORE%;" TIME=";TIM
E;
  920  N0%=TIME:REPEAT:UNTIL TIME>N0%+(SPEED%*5)
  930  ENDPROC
  940  DEF PROCcow
  950  REPEAT:COWPOS%(0)=RND(10)+5:COWPOS%(1)=RND(10)+5:U
NTIL COWPOS%(0)<>10
  960  ENDPROC
  970  DEF PROCexplosion(X0%,Y0%)
  980  X0%=32+64*X0%:Y0%=16+(31-Y0%)*32
  990  LOCAL L0%:VDU5
 1000  FOR L0%=0 TO 30
 1010    FOR L1%=0 TO 400 :NEXT
 1020    MOVE X0%,Y0%:PLOT0,RND(128)-64,RND(64)-32:GCOL3,
RND(4)-1:VDU RND(3)+229:SOUND &10,-15,RND(3)+3,-1:NEXT
 1030  VDU4
 1040  *FX15,0
 1050  ENDPROC
 1060  DEF PROCgone
 1070  LOCAL N0%,L0%
 1080  N0%=TIME
 1090  N0%=(100000/N0%)
 1100  SCORE%=SCORE%+N0%
 1110  SOUND 1,1,0,40
 1120  FOR L0%=0 TO 100
 1130    COLOUR RND(4)-1:VDU30,31,10,16,233
 1140    PRINTCHR$30TAB(0,31);STRING$(19," ");CHR$30TAB(6
,31)"SCORE=";N0%;:NEXT
 1150  COLOUR2:VDU30,31,10,16,233
 1160  COLOUR3
 1170  PRINTCHR$30TAB(0,31)"HI=";HISCORE%;" TIME=0     ";
 1180  IF SPEED%>0 THEN SPEED%=SPEED%-1
 1190  SOUND0,-10,0,3:TIME=0
 1200  ENDPROC
 1210  DEF PROCscorepage
 1220  LOCAL N0%,N1%,N2%,S0$,S1$,L0%
 1230  VDU19,1,5;0;
 1240  N0%=-1:REPEAT:N0%=N0%+1:UNTIL SCORE%>=SCORE%(N0%)
OR N0%=8
 1250  IF N0%=8 AND SCORE%<SCORE%(N0%) THEN 1370
 1260  N1%=SCORE%:S1$="?"
 1270  FOR L0%=N0% TO 8
 1280    N2%=SCORE%(L0%):S0$=NAME$(L0%):SCORE%(L0%)=N1%:N
AME$(L0%)=S1$
 1290    N1%=N2%:S1$=S0$
 1300    NEXT
 1310  HISCORE%=SCORE%(0)
 1320  VDU19,1,5,0,0,0
 1330  PRINTTAB(13,3)TITLE$
 1340  PRINT'''"Congratulations...you have a rank of ";N0
%+1
 1350  INPUT''"What is your name",S0$
 1360  NAME$(N0%)=LEFT$(S0$,12)
 1370  CLS
 1380  PRINT''STRING$(12,CHR$227);" ";TITLE$;" ";STRING$
(12,CHR$227);
 1390  PRINT'TAB(14)"Hall Of Fame"'
 1400  FOR L0%=0 TO 8
 1410    PRINTTAB(6);L0%+1;TAB(14);NAME$(L0%);TAB(31);SCO
RE%(L0%)
 1420    NEXT
 1430  PRINT''"Press any key to play again..."
 1440  TIME=0:REPEAT:UNTIL TIME>100
 1450  *FX15,0
 1460  N0%=GET
 1470  ENDPROC
 1480  DEF PROCinstructions
 1490  LOCAL N0%
 1500  CLS
 1510  PRINT'STRING$(12,CHR$227);" ";TITLE$;" ";STRING$(1
2,CHR$227);
 1520  PRINT'TAB(14)"INSTRUCTIONS"''"You are catching spac
e cows in the      asteroid belt.  Use your robot ship to
 guide the cow into the central teleport.";
 1530  PRINT"Be as fast as you can and try not to hittoo
many asteroids.  Do not crash your  ship into either the
teleport or the    cow."
 1540  PRINT"You may use a joystick or the keyboard  to c
ontrol your robot ship.  The keys   are as follows:"
 1550  PRINTTAB(15)"Z  -left"'TAB(15)"X  -right"'TAB(15)"
:  -up"'TAB(15)"/  -down"
 1560  PRINT''"Happy hunting!"
 1570  PRINT''"<Press any key to continue>";
 1580  TIME=0:REPEAT:UNTIL TIME>100
 1590  *FX15,1
 1600  N0%=GET
 1610  CLS
 1620  ENDPROC
```

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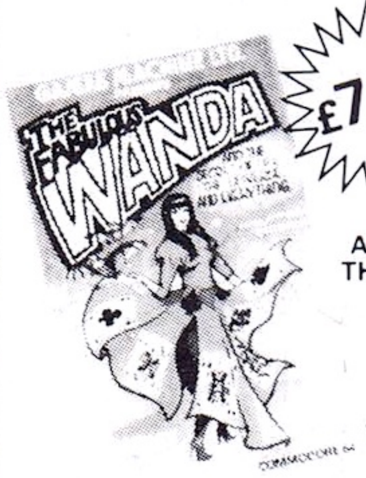

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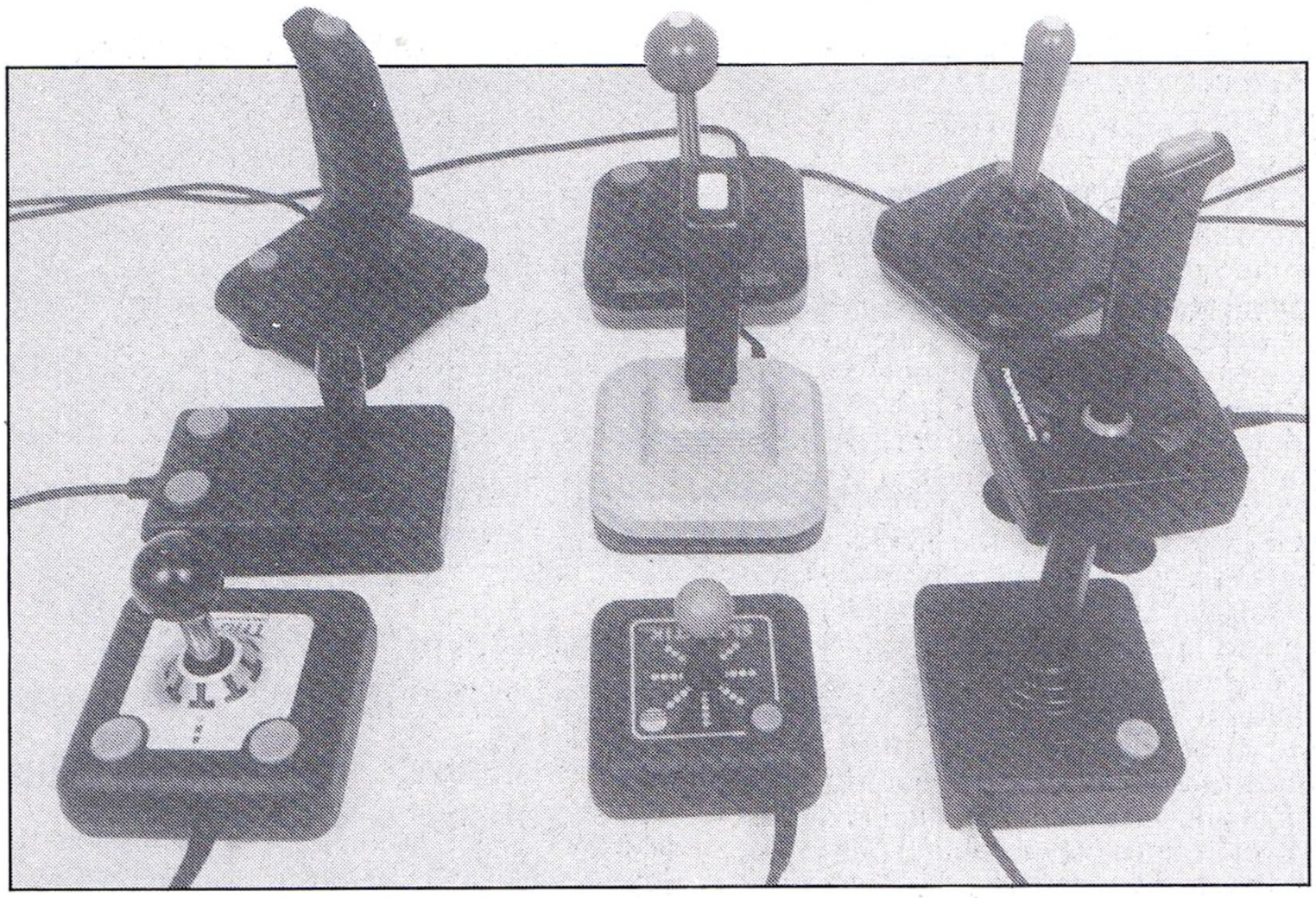


Playing computer and video games to the full relies very heavily on a really good joystick. In *Games Computing* Simon Rockman looks closely at a selection of those now on sale.

JOYSTICK JAMBOREE

In the battle for higher high scores a new joystick is often a wise choice for the hardened games player but costs £7.50 to about £30 and beyond. I have not included any trackballs, (large boxes which have a billard-type ball protruding from the top which can be spun in any direction in joustick fasion) in this review because they are still quite rare and expensive to buy.

All of these joysticks are reasonably good standard but value for money varies tremendously. So here goes . . . . .

COOKBRIDGE SURESHOT £15.95

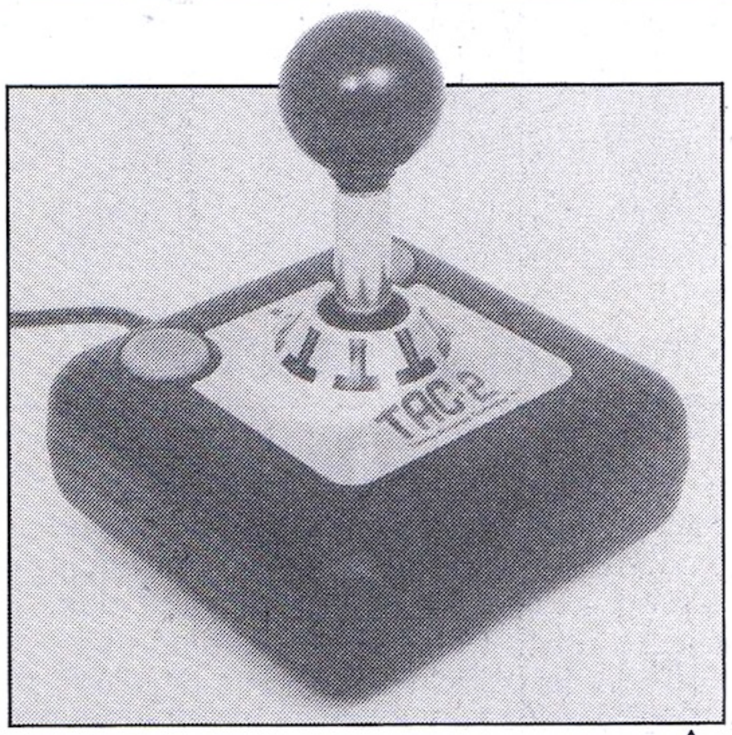
Cookbridge computer supplies have called their new joystick the Sureshot, a version of which is also available for the BBC and Dragon micro computer. Unlike any of its rivals it uses microswitches which give a very positive feel being both fast and accurate. It does not look as professional as some of its rivals but under the casing lurks a steel plate and some excellent design. The mechanism which works the fire button has superb feedback allowing some rapid fire. The only joystick which I think is superior is The Boss (also reviewed here).

THE BOSS £16.80

The Boss is not one of Wico's Command Control range, it is aimed at a cheaper market. This is not a very attractive joystick but what matters is the way it performs. The speed at which you can change direction is amazing and although not as positive as the Cookbridge it is just as much a pleasure to use. The handle is a comfortable grip shape which tends to make your hands sweaty. The single fire button is mounted on top of the stick and has the best spring I've come across. Coupled with its medium price and Wico's contruction this is my personal favourite and I thoroughly recommend it.

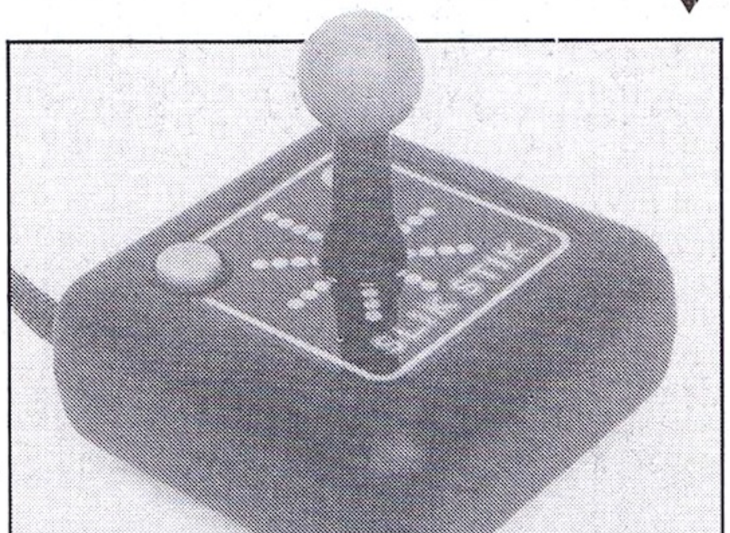
SUNCOM TAC2 £18.95

The TAC2 is the pride of Suncom's range. TAC stands for Totally Accurate Controller — a boast which I feel is justified. The way in which it succeeds in being so accurate is by using the central shaft of the joystick as part of the electrical circuit, so that when you move it the shaft has only to touch a contact rather than close a switch. This makes for a very fast joystick with very accurate control. Minor complaints are the lack of play in the stick and lack of spring in the fire button.



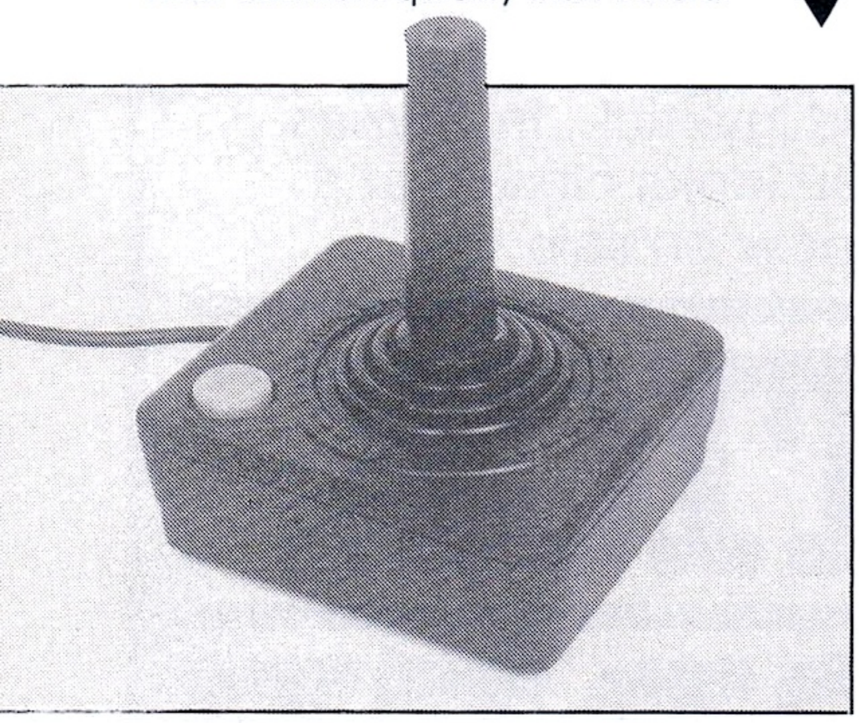
SUNCOM SLICKSTICK £9.95

The Suncom Slickstick is tiny, the stick hardly moves at all and cannot really be classed as a premier joystick. The fire button does not have sufficient bounce and feels like a calculator key. Having said that it is really rather nice to use especially for the zapping aliens school of games, although it may lose out to its similarly priced rivals in maze games. It is cheap and probably the stick to buy with your new computer or to get the shop to throw in as a discount, if you can talk them into doing so! Dealers watch out!



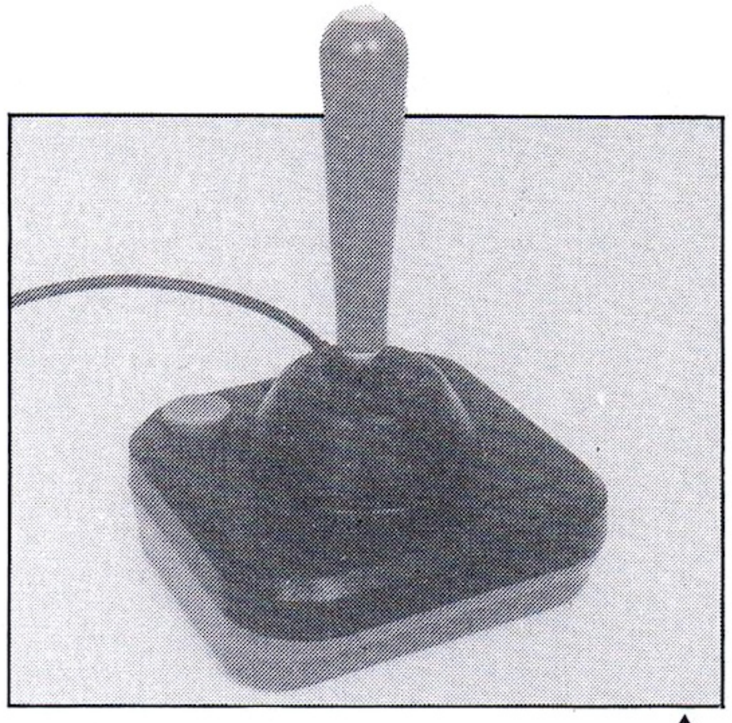
ATARI STANDARD JOYSTICK £7.50

The first joystick is the Standard Atari product. It is the cheapest at £7.50 and also the most commonly used. By being the biggest firm in the games market Atari have succeeded in forcing a standard so that their joysticks will not only fit Atari machines (both computers and VCS) but Commodore, Sinclair ZX, Interface 2 and many American computers. Interface cards are available for everything from the IBM PC and Apple to the Sinclair ZX81 and Texas TI99/4A. All the joysticks in this review are Atari compatible. The Standard joystick is rather good. It uses pressure sensors such as those under the Spectrum keyboard pressed by extensions to the central shaft. It is a bit 'wooden' especially when new but once worn in it is excellent. The Atari is not for the over zealous player though because it is made purely of plastic and tends to wear out more quickly than others.



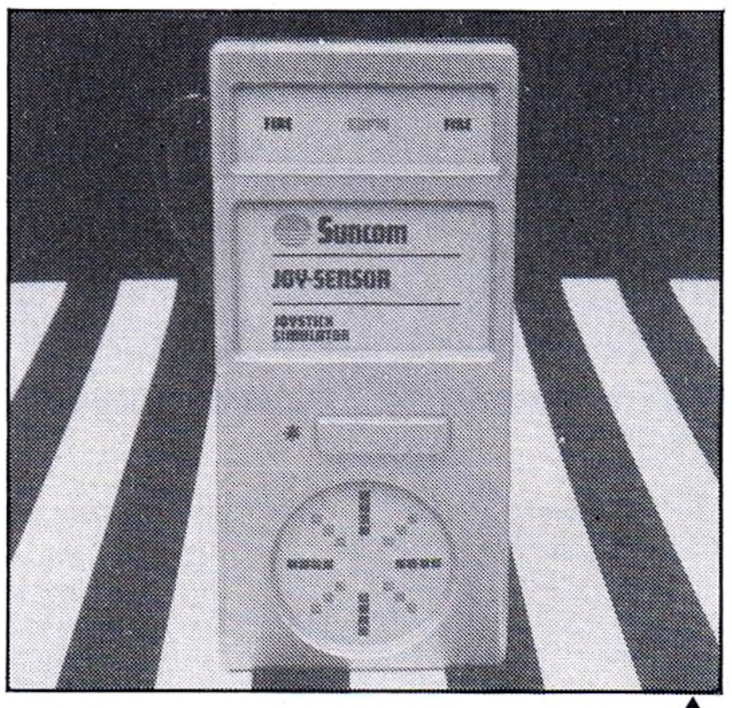
POINTMASTER JOYSTICK £14.65

The Pointmaster is a very large joystick and suffers from slackness. While the forward movement is good, side to side movement feels vague. The base has large suckers to hold it on to a table but the suction is not usually sufficient for a hectic game like Frogger. One nice feature is the auto repeat on the fire button which means that as long as you hold down the fire button it will keep firing, which is very useful if you're under constant attack. The soggy feel and lack of ruggedness are serious detriments to the Pointmaster, however the packaging is of a high quality.



COMMAND CONTROL STRAIGHT STICK £25.25

Wico's Command Control Joystick is the bottom of Wico's extensive range of high quality joysticks. Using leaf springs it has a real arcade feel to it. The narrow, tapered handle has a nice feel and gives a good sense of direction. The use of steel for any part which may be subject to wear makes for an exceptionally strong joystick. This is one of the few joysticks which has bouncy enough fire buttons. There are two buttons, one on the base in a conventional fashion and the other on the top of the stick. You select one of the two buttons with a small switch on the base. This is a good joystick but the price limits it to only the dedicated games player.



SUNCOM JOYSENSOR £29.95

The Suncom Joysensor calls itself a joystick simulator. It has a touch sensitive pad where the stick should be. In practice you tend to run your finger around this similar to using Intellivision paddles. It is more like a set of buttons than a joystick. For the type of game which requires accuracy but not speed it is very good. However, the need to stop and work out where your finger should be slows you down too much for quick reaction games, despite the maker's claim that it is faster because you do not have the friction of the stick to overcome. The fire buttons are very poor, probably because you have to lift your finger as well as press down due to the lack of a spring. There is a rapid fire button but this was unreliable, often not firing and sometimes only in short bursts. With its "Beam me up, Scotty" looks I feel it is really an expensive novelty, but perhaps worth having for a Christmas present!

SPECTRAVIDEO QUICKSHOT £9.95

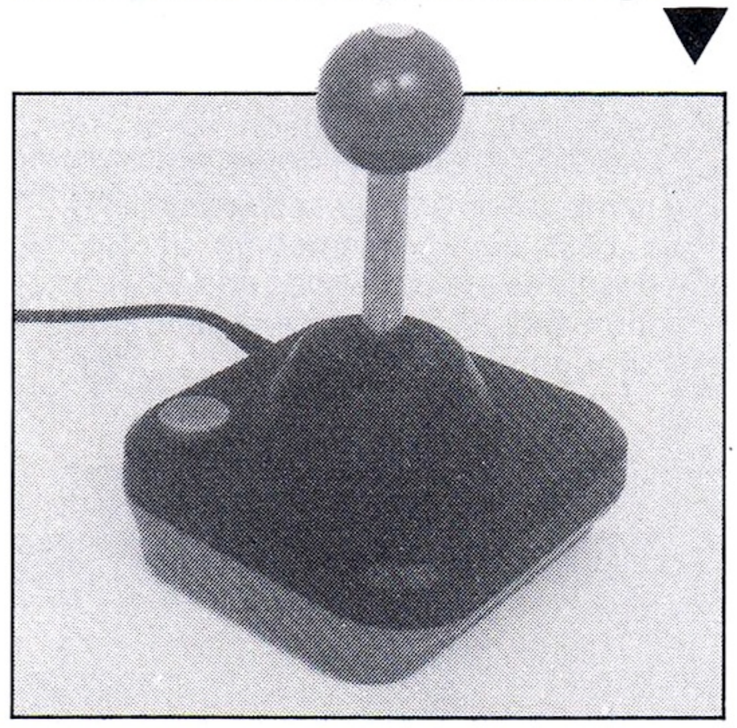
The Spectravideo Quickshot looks great, having suckers on the bottom and a banana shaped handle which is very comfortable to hold. As with the Pointmaster the suckers are not really strong enough to ensure stability. Fire response is fair, although like most of the joysticks it would benefit from a stronger spring. The internal workings are very similar to those of the standard Atari joystick using pressure pads. It is entirely plastic in construction and therefore may not stand up to rough use.

WICO 'FAMOUS RED BALL' £29.95

This is a really first-class joystick for the true arcade games enthusiast.

Like the basic Command Control joystick it has fire buttons on the stick and base with a switch to select between them. The ball handle is comfortable to grip, while the steel shaft and springs make for a robust joystick with the kind of excellent responses you would expect at this price.

My only criticism is that the shaft is a little on the long side of comfortable. As with all the WICO joysticks firing is smooth and rapid. Thisis a very good joystick, but taking the price into consideration is only worth buying if you play arcade games morning, noon and night!



WHERE TO BUY YOUR JOYSTICK

These joysticks can be obtained from the Silica Shop (01-301 1111) who loaned them to *Games Computing* for the review. Cookbridge Computer Supplies can be contacted direct on 0532 670625.

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ELECTRONIC

With Christmas just around the corner now's the time to look for the odd present or two — maybe something expensive or a couple of smaller stocking fillers.

Jane Price took time out to find out what she wants (or doesn't want) for Christmas and helps you decide too.

SYSTEM: VECTREX

Manufacturer: Milton Bradley
Price: £129.95

This exciting system is a leader in the field of electronic video games. The unit consists of a large upright screen underneath which is a control panel, fitting neatly inside the machine for storage but which can be moved away for more efficient operation when the game is in use. This control panel is equipped with a mini-joystick and four buttons, for movement and FIRE.

Design

The screen is angled and has perspective (a function which is intensified and used brilliantly during game play) and each game cartridge is supplied with a screen overlay providing coloured graphics. This is a clever idea allowing the machine to produce black and white graphics, which are then converted to colour when viewed through the overlay. Added advantages of this overlay are that flicker is kept to a minimum and the vectors in use in the game can be explained.

Revolutionary Graphics

The Vetrex system frees the ordinary domestic TV for other things, though any family owning this system probably has litle time for watching mundane TV programmes! In addition to this, having a dedicated system allows for the luxury of a vector plotted display. This works by physically drawing the pattern to be displayed on to the phosphor screen and to continually redraw the same pattern to give the illusion of solid lines and therefore of solid objects instead of moving dots. Consequently all the lines are smooth, even the steep curves in 'Pole Position'. All this means that the Vectrex can achieve the quality of graphics normally possible only on a system costing thousands of pounds.

Outer Limits

However, little is perfect and the Vectrex is limited in two respects. It doesn't actually have screen colour, as explained, and there is a limit as to how much can be on the screen at any one time. When the action is too intense flickering becomes a problem. The reason for this is that the system doesn't have enough time to continually overdraw all the images and some consequently begin to disappear before they can be redrawn, hence flicker.

Since the screen content at any one time is limited, all shapes are drawn in outline only. The speed of refresh and the good straight lines make it an ideal medium for 3D rotation, a facility which it carries out extremely well and which is demonstrated to good advantage in many of the cartridge games, particularly 'Web Wars', one of the latest releases.

The sound is good, comparable with the BBC micro for example, and one of the new cartridges 'Spike' has quite good, and certainly understandable, speech synthesis.

Although expensive the Vectrex system is the best of its kind, versatile with good software back-up. As for entertainment value, all I can say is that the one we had for review was in constant use by anyone 'who just happened to be passing by' the office, and these all hardened computer game addicts so they knew what to look for! Higher recommendation I cannot give and I'm sure any family would derive hours of entertainment (and not a little frustration) from such a high quality product.

WHAT'S IN STORE

TITLE: ART MASTER AND VECTREX LIGHT PEN

Manufacturer: GCE (Distributed by Milton Bradley)
Price: £30.35 including Cartridge (approximately)

This is the most educational cartridge which with the light pen proved to be extremely popular entertainment. The software is of such high quality that the light pen worked perfectly. The cartridge contains three major programs called Sketch, Connect and Animate.

Sketch allows you to draw lines and points, drag and stretch these lines across the screen and to draw fans. *Connect* just allows you to draw dots and to connect them with lines, all with high resolution. *Animate* is the program which really makes the cartridge, giving a real animation effect to all your pictures.

This program gives you all the features of Sketch bar the fans but you can divide the pictures up into frames and then play them through one at a time. The only un-

fortunate thing is that when the machine is switched off, your masterpieces disappear because there is no way of storing them, which can be soul-destroying if you've taken a long time drawing them.

All in all this cartridge will without doubt provide every member of the family with hours of fun — it really is a pleasure to play and relax with.

TITLE: BEDLAM

Manufacturer: GCE (Distributed by Milton Bradley)
Price: £22.95

I found this the least exciting of the new releases for the Vectrex system.

The plan is to control a spaceship fixed in the centre of the screen. The play area is confined to a sector which consists of a collection of triangles. Initially this is a diamond but this progresses level by level up to a six pointed star. After this the shape starts to rotate. From the apex of each point comes a nasty assortment of aliens, escort ships, astral defenders, droids and colonist transports.

You are armed with an 'anti-molecular' cannon and a smoke bomb. The game is a bit like 'Asteroids' in that you have to blast all approaching baddies with a bonus cannon every 10,000 points. Quite entertaining for short periods but has limited graphics.

TITLE: SPINBALL

Manufacturer: GCE
Price: £29.95

Pinball on a computer has never been the greatest of games but this implementation is very impressive.

There is a pause facility and buttons for LEFT and RIGHT flippers. The table can be nudged by tapping the joystick, but not too much or it tilts like the real arcade machine. There are drop targets which must be hit in sequence and 'hidden' bonuses. Some very high combination scores are possible.

One slight criticism is that the high level of detail causes the screen to flicker rather noticeably. Definitely a game to get hooked on!

TITLE: WEB WARS

Manufacturer: GCE
Price: £22.95

Another new release for the Vectrex system. This is an excellent cartridge with good use of colour overlays and shifting perspective. Having, by the magic of Web Wars, been transformed into a Hawk King, you must fly down a Tempest-style web and destroy the drones which act as an escort to the fantasy creatures.

With your capture rod you must impale the fantasy creatures and then fly down the tunnel and out through a porthole. On the other side of the portholes lies the Trophy Room, a store room for all the fantasy creatures you capture. With each creature attack the speed at which you fly down the tunnel increases making the game harder and harder. This was the most popular game out of those we reviewed until we discovered Fortress of Narzod, a review of which follows shortly.

TITLE: FORTRESS OF NARZOD

Manufacturer: GCE
Price: £29.95

Armed with only a hovercraft (?) you have to fly along lower, middle and upper roadways blasting Doomgrabbers, Tarantualas and Ghouls. The roadways are not straight however, and bullets bounce off the walls making it difficult to prevent shooting yourself!

It takes a while to master the use of the gun and ricochets, but the game is all enveloping and compulsive. Each level brings you closer and closer to the fortress, the game exhibiting excellent use of persepctive while flying you down the tunnels.

The mystic Hurler lives in the fortress and he delights in throwing spikers at you. His life is worth a mere 10 points, but he has to be shot six times before he dies and rewards you with a bonus hovercraft.

An absolutely gripping game which kept staff quiet for ages!

All the cartridges were supplied with detailed instructions and we had no problem loading them and lots of fun playing them. Look out for the other new releases: Football/Soccer at £29.95 and Bedlam at £22.95. Available from all good toy shops. Also coming in the future is a pair of 3D goggles which truly transform the system into a marvellously exciting game. On show at a French exhibition the game we saw was a version of the Star Wars trench shoot out in which the player flies a space ship down a narrow shaft, shooting enemy craft along the way and ultimately destroying the Death Star.

Watch out in your newsagent for *Games Computing* and this incredible new addition from Vectrex.

GAME: DR DENTAL

Manufacturer: Bandai UK
Price: £11.00

The name suggests that this might be a game to get your teeth into! Compared to the other Bandai electronic small screen games I tried, this one at least had a sensible and understandable theme.

The game involves a dental nurse shooting at 'bugs' in a patient's mouth, an occurrence which might be commonplace in Japan but which is thankfully rare enough here to cause some confusion as to how the game is played.

In fact, the 'bugs' attack the teeth (the dreaded plaque attack strikes) and must be destroyed before they have eaten their way through three layers. If they succeed in their unpleasant purpose they cause pain to the patient, tears ensue and the game is over. There are two levels of play — fast and faster!

The packaging, like the other Bandai toys is sturdy enough, though lacking the quality feel and look of the GLC products. The keys, LEFT, RIGHT and FIRE are rubbery and slow to respond and the sounds are unimaginative — not one scream was audible! The led graphics are simple, but detailed enough for this level of game. The highest score for each game is remembered and displayed and a clock is included.

Not a game which held my interest for long and which I feel is overpriced and not likely to fire anyone's imagination.

GAME: BURGER BAR

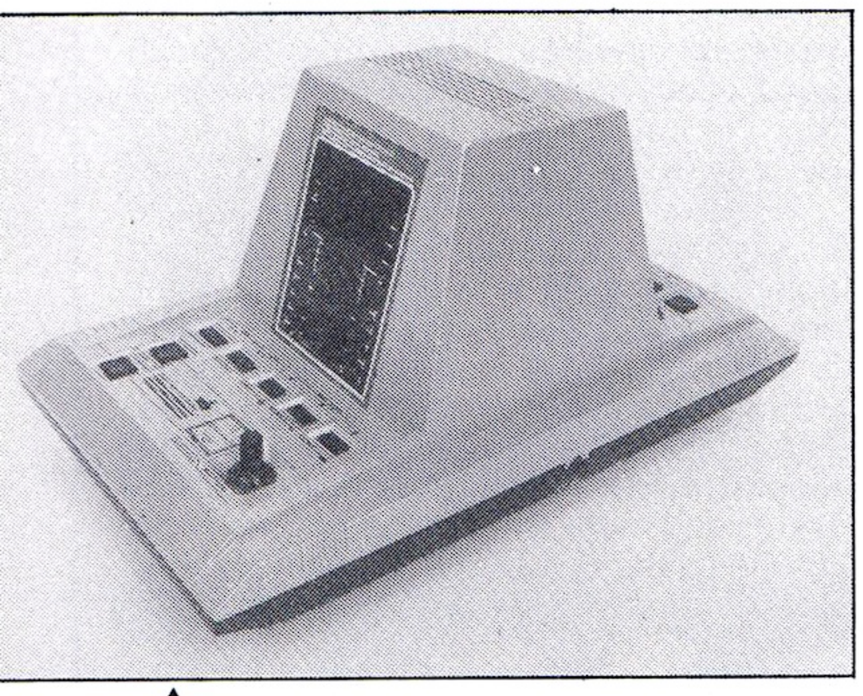
Manufacturer: Bandai UK
Price: £11.00

This game defeated me completely! A cheap plastic case with tightly packed, unresponsive keys surrounded a tiny screen showing simple black graphics.

From what I could gather of the game through watching the action and reading the instruction leaflet, an order of one to four items is displayed pictorially. One blink and it's gone! The waitress must be moved to one of three hatches through whch the various items pass in a random and constantly changing pattern. Everything happened too fast for the keys to cope with and consequently frustration ran high!

The idea behind the game was quite novel and could have proved entertaining had the design been better and more thought gone into its production. Again the highest score was recorded on the screen and a digital clock was included in the game.

The price, however, is unwarranted.



GAME: U BOAT

Manufacturer: Bandai UK
Price: £39.00

The only two player game we had the chance to review and one which left us somewhat confused.

Like 'Vampire' the casing is in sturdy plastic, and shaped rather like a U Boat. The sloping screens were placed back to back with each player's set of control buttons in a panel below the screen. Again a miniature joystick controlled the action, in addition to two FIRE buttons.

There are three games possible: two player action, COM versus U Boat and COM versus Destroyer. All are somewhat dificult to understand even with the instructions supplied. The screen displays the situation either from the Destroyer's side or from the U Boat's. Coloured striations give some idea of the depth of the U Boat which is firing torpedoes at the Destroyer while the latter drops depth charges in retaliation.

A confusing game with little novelty value and a *very* high price!

GAME: VAMPIRE

Manufacturer: Bandai UK
Price: £35.50

At this price you would expect a game not only of outstanding and lasting entertainment value but also one packed in a durable casing with efficient action keys.

The casing is of sturdy plastic painted grey and black with an angled screen showing coloured graphics of limited detail. There is a miniature joystick, which is quite difficult to manoeuvre, and a START/JUMP button. The grating sounds can thankfully be switched off.

Now to the game itself and how it's played. The ultimate aim is for the prince (he's the one with legs) to rescue the fair princess (plus crown but without the legs) from the evil clutches of the vampire, who tries to put a spoke in the works by throwing bats down the floor of the castle.

The prince is able to move in four directions — upwards being achieved by means of the JUMP key which is very temperamental and likely to fail you at the time you need it most. By this method the prince should jump over the bats. If he fails he gets a very nasty attack of bloodletting.

When the princess has been rescued the poor prince must start climbing through the floors all over again, but this time he has to manoeuvre not only blood sucking bats, but also gaping holes which appear in the floors. After a further rescue and several more points being gained, the third and final scene is set up.

This time the prince uses a lift to collect various pieces of hardware (and points) before releasing the princess for a final time from the clutches of Vampire Victor. We are left to imagine whether or not they live happily ever after! You probably won't having paid out this exorbitant price for a game, which although novel in idea lacks the necessary quality of design to make it entertaining.

GAME: BREAKOUT

Manufacturer: Bandai UK
Price: £16.99

Another cunningly oriental solar powered travel pack with use limited to within 12 inches of an artificial light source!

The game appears to be based on 'What is the time, Mr Wolf?' and entails a convict moving from his bed to saw through the bars of his cell window. If he is seen doing this by the prison warden, who randomly patrols the cell, he loses a life. Three lives later, the game is over.

However, if you survive the evil eye and saw ten times through each of the four bars, the convict escapes to the prison yard where he has to evade dogs and bullets to reach a getaway car. Bonuses are given for successfully sawing through the bars and for reaching the car without mishap. All these bonuses are well-deserved especially in the prison yard since there are no UP and DOWN keys and dodging the various hazards is very difficult indeed as the action happens so quickly.

Again, not a very involved game but play is possible and not frustrated by poor design and insensitive movement keys. Quite addicitive too!

The game is housed in two parts which are joined by a hinge and close up to form a case which is ideal for travelling or carrying in a briefcase or satchel.

Game and Watch

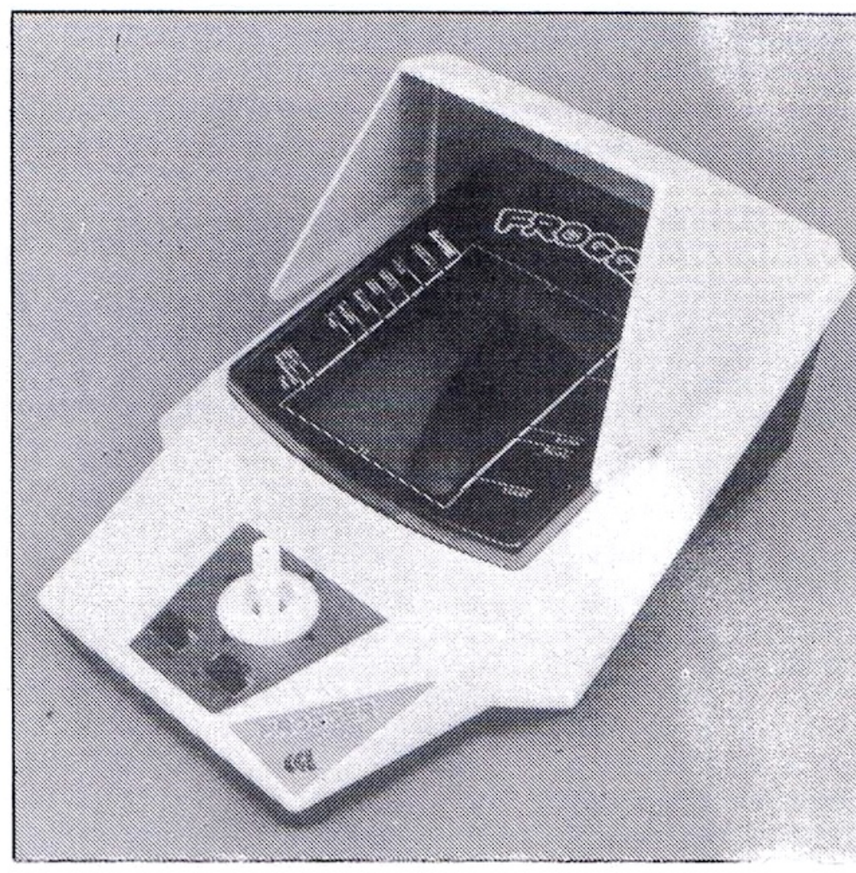
Game and Watch have been steadily popular toys for a couple of years now and seem to go from strength to strength with each new batch they bring out.

This trio is no exception and sport great graphics and colour screens. The first one I looked at was called **Donkey Kong Junior**. This is a single game with a digital clock tucked away to the top left of the LCD screen. What you have to do in this game is move a monkey up through a path and grab a swinging key with which to unlock the cage containing Kong. It's really difficult to play because you must watch out all the time for snapjaws and birdies, both of which will kill you if your monkey makes contact with them. The game seems to be over all too soon as your three monkey lives are notched up on the screen. You can get rid of either the birds or snapjaws by dropping a specially positioned cherry on them. You can also score points for each one you dodge. Grabbing the key at the top of the screen is extremely hard to judge. In one way this is good because it makes you so frustrated that you want to keep on playing! If you miss the key your monkey falls straight through a hole into a pit at the bottom of the screen. Another life lost . . . so start again.

GAME: FROGGER

Distributor: CGL
Price: £32.95

A well made, well designed version of the classic arcade game. Encased in tough, yellow plastic, the angled screen is colourful and easy on the eye. Markers up the edge of the screen describe the different



levels of passage and the obstacles to be avoided on each. The score is brightly displayed in the centre of the screen and flashes when the game is over.

For those unfamiliar with the game of Frogger, the object is to move a frog across a road dodging traffic as it goes. Once across you then have to move it over a river by using a variety of obstacles as stepping stones.

Control is achieved by a centrally positioned joystick which is perhaps a little too touch sensitive, making manoeuvring more difficult than it need be — but this adds to the skill required.

All in all, an entertaining game giving value for money in a neat package.

GAME: DONKEY KONG

Donkey Kong was the most difficult of the CGL games to play. Another of the

two screened variety it really is complicated. The best way to approach it is to read the instructions very carefully and then have a go at the game itself. Once more you have to free the enchained Kong who is positioned at the top of the second screen. You must move a monkey along the lower screen avoiding snapjaws and bursts of overhead electricity current.

Once you get the monkey to the top of that screen, by jumping and hanging on to trailing vines he pops up on the top screen. There he has to climb and grabs the key to unlock Kong's chains.

On each of these games there is a four directional key and a jump button which is vital to use if you want to come out on top. All three games are really good fun to play even if they are anti-social. Once you start playing you'll find you'll just want to better your score each time.

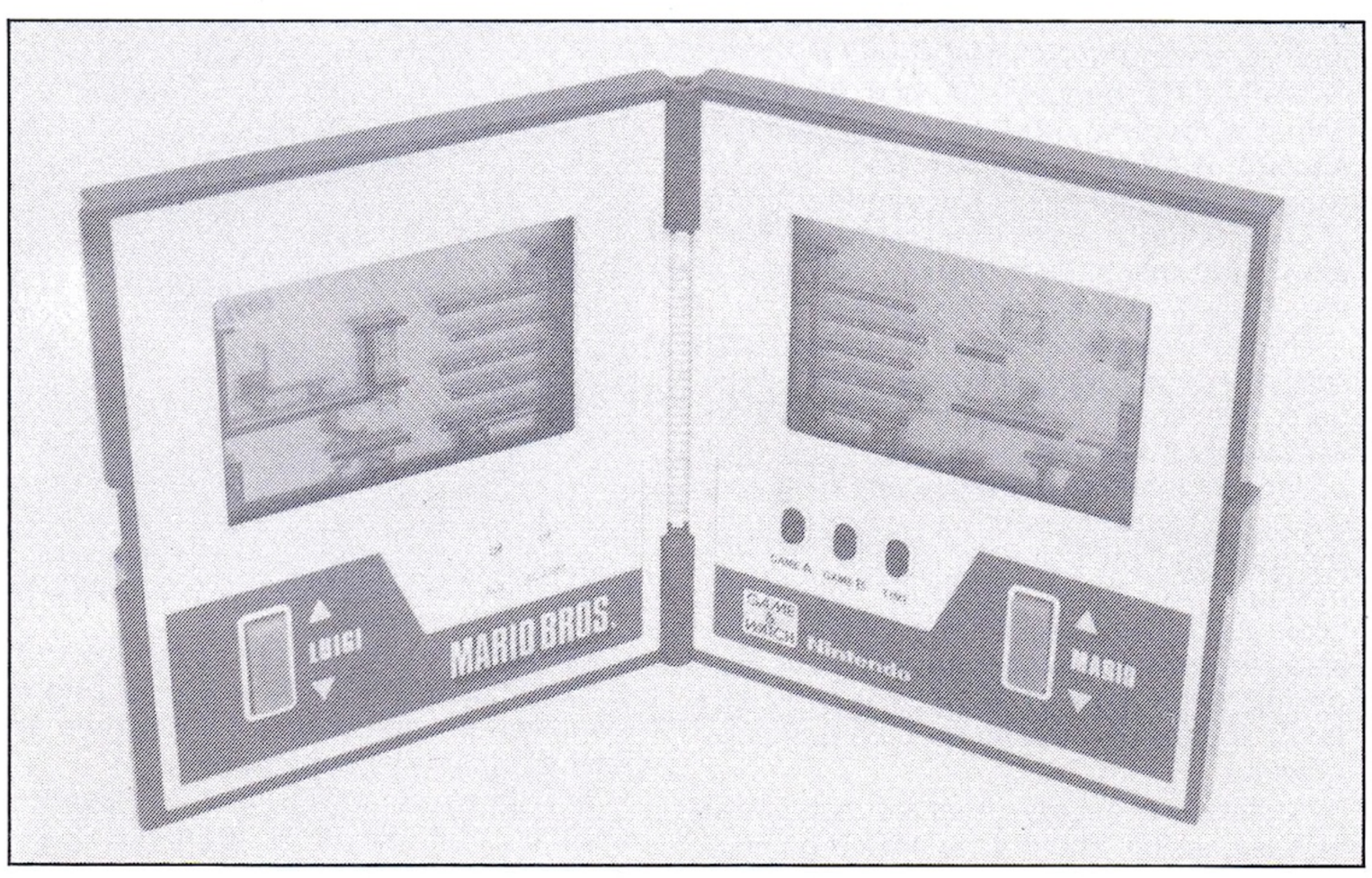
And precious little will stop you. These then are only a few of a whole range of similar type games. Value for money at times seems hard to justify, particularly Donkey Kong Junior which has a price tag of £19.95 with the other two games selling for £23.95 each including VAT. Perhaps you could twist a generous uncle or aunt's arm into buying you one for Christmas. Finally, in comparison to the Bandai range of similar products CGL's beat them into a cocked hat, and make them seem better value for money.

GAME: MARIO BROS.

Mario Brothers was the second *Game and Watch* that I attempted to conquer, this time with more success I'm glad to say. This is a double screen game set in a plastic casing and joined by a hinge so the two games form a neat little case which you can easily carry in a jacket pocket or your school satchel. So those bored moments on the bus will be no more!

Here the aim of the game is for Mario to pass cases of bottles to his brother Luigi, who ultimately flings each one on to a truck until it's full up. The graphics in this game are superb. As the crates pass along a conveyor belt vack and forth between screens you can see them being filled, packed and wrapped in minute detail. If Mario or Luigi let a crate fall there's a delightful sequence in which the foreman comes running out of the office and screams at the culprit for dropping the case.

Another similar graphics feature is the lorry driver. When six cases are safe and sound inside the lorry the driver pops up from the cab and starts screaming at Luigi for the final two to make up his load. If you get those two into the truck it pulls away and after a victory tune the game begins again but more faster and furiously. The scoring system is one point for each case loaded on to the lorry and 10 points for a full lorry load. It sounds fairly easy to play but in actual fact is is quite difficult because the cases move along the conveyor belt quickly and at random intervals making it awkward for you to move either Mario or Luigi to the belt level in order to catch the case. Of all this type of game tried the Mario Brothers proved the most popular in our office and it would make a great present for little and 'big' kids alike.



MY TALKING COMPUTER

Manufacturer: Electroplay
Price: aprrox £60.00

My Talking Computer has been designed as a 'first' computer for children of three years and upwards. There is now so mcuh good educational software on the market that I'm not too sure of the logic behind paying out £60 for such a limited machine.

However, on review the unit proved to be extremely user friendly — an important point when such tiny fingers and minds are involved. Instead of a keyboard, there is a touch sensitive panel upon which various illustrated 'programs' are placed. Pressing the 'on' area produces an 'hello' (spoken in an American accent). Longer words and more complex sentences show up the limitations of this simulated voice, which to adult ears was fairly offensive

and at times, more than a little incomprehensible. Younger ears had less difficulty in understanding the commands.

The program inherent in the machine is aimed at teaching the time, identifying pictures and numbers and basic maths. The clock program is probably the best and proved to be the most popular with my young reviewers. The clock face is complete with raised movable hands which are pressed to pass on the information to the computer. Remember, although this is called a computer you can't program it yourself.

The data socket on the front of the unit is easily removed (perhaps a little too easily for busy, exploring fingers) and new cartridges can be inserted with different programs such as spelling, vocabulary, music and 'many more'.

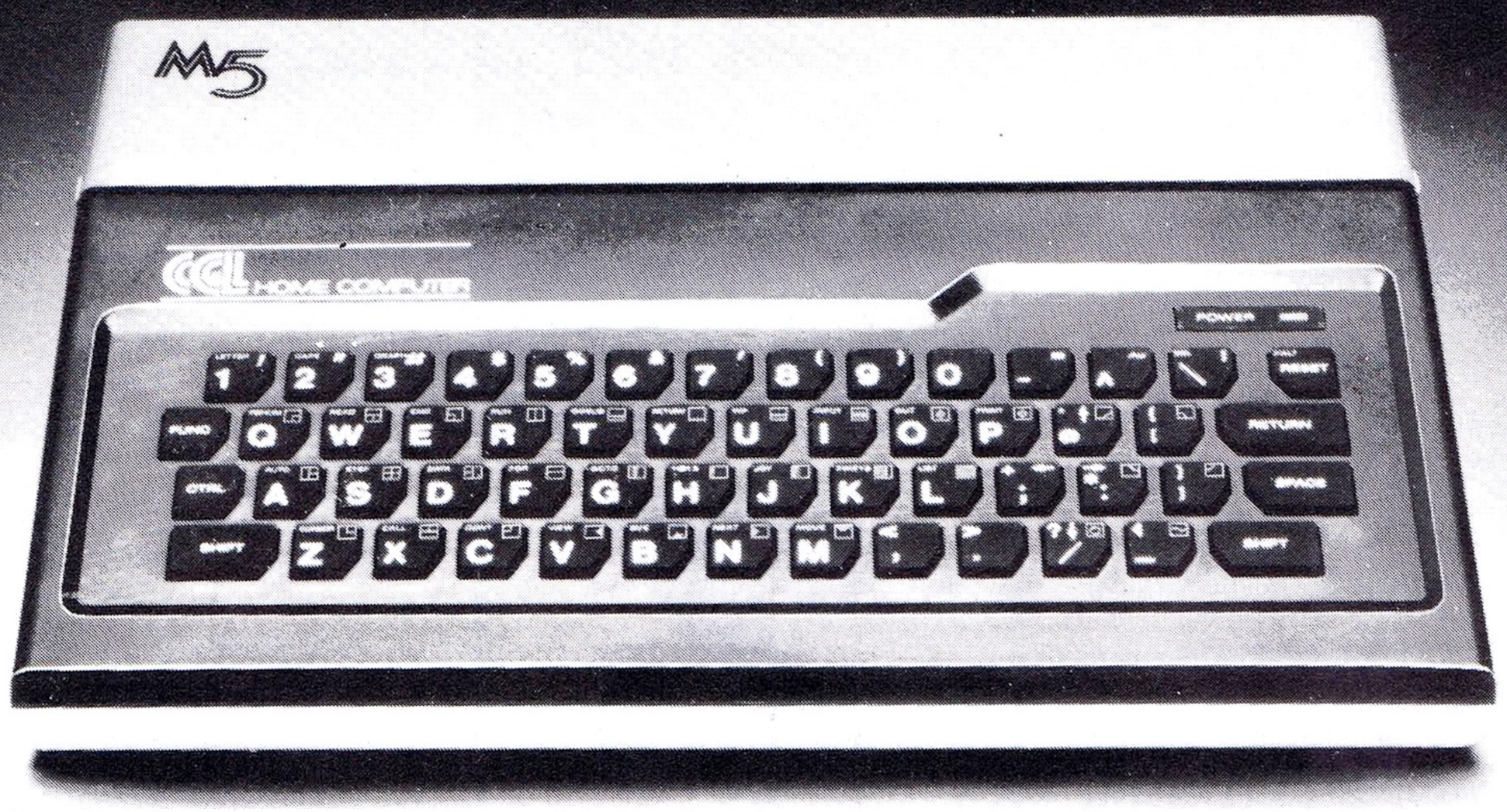
Design

The unit is attractively packaged in tough beige and cream plastic. All parts are easily removable and most importantly, have rounded childproof edges. One criticism is that the data socket cover is too easily removed, exposing an area damage-prone to exploring fingers. Another plus point is that the surface and all the 'program' sheets are wipe clean.

In summary therefore, *My Talking Computer* is quite a clever, user friendly machine which kids will love. Thus learning should be quick and fun.

However, I must stress that there are many user friendly educational programs available for the major home computers and such a system would be capable of instructing the *whole* family from toddler to grandpa, which would seem to be a more economical way of educating the family.

AT LAST, A HOME COMPUTER THAT IMPROVES WITH AGE.



It's surprising how many first-time relationships with a home computer go sour with age.

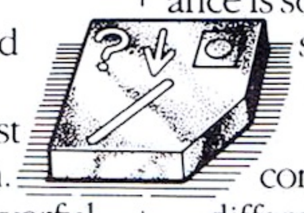
You buy an attractive, discounted little machine so that you and the children can learn about computers.

Instead, you learn about its limitations: the dull graphics. The plugs that fall out. The cheap power supply. The unalterable "beginners" language. The stiff, fragile keys. No provision for future developments. If only you'd looked around a bit in the beginning... *"Quality costs a little more, but it's usually worth paying for"* (Personal Computer News – CGL M5 Review, June '83.)

The CGL M5 is designed and built by Sord, one of Japan's leading computer specialists, with three main ideas in mind.

First, to be easy and fun to learn and operate.

Second, to be rugged enough to last through hours and hours of operation.

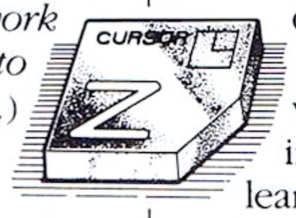


And third, to form the basis of a powerful, versatile home computer system that won't need replacing until you're ready for a dedicated business system.

Built to learn

The CGL M5 is designed to be easy for non-geniuses to use.

"On the M5, most of the work is done for you, and all that is left is the need to work out what to do next, rather than how to do it." (Personal Computer News, June '83.)



If you make a mistake, you can correct it with a simple movement of the cursor. So you only correct that mistake, not a whole line; nor do you have to indulge in complex edit commands.

Budding video game designers and computer artists will love to get their hands on the 16 colour graphics and 32 moveable images called "sprites."

"The M5 makes professional graphic effects very simple for even the beginner to achieve." (Personal Computer World, Aug. '83.)

Built to last

"It works first time, doesn't need a lot of mollycoddling and jiggery-pokery to persuade it to continue to do so, and what's even better, it continues to work well. You don't have to balance cold cartons of milk on the top, shove matches in the back to keep the plugs in, or press the keys with several pounds force to make them respond." (Personal Computer News, June '83.)

Being able to build things that work and carry on working without endless maintenance is something at which the Japanese seem to excel.

Built to grow

To be truly versatile, a home computer has to understand very different things.

So you need different "languages," which the M5 provides by supplying part of its memory in plug-in cartridges.

"The M5 eliminates the worst limitations on machines at this level, which is that they tend to be stuck with whatever language is provided by the management." (Personal Computer News, June '83.)

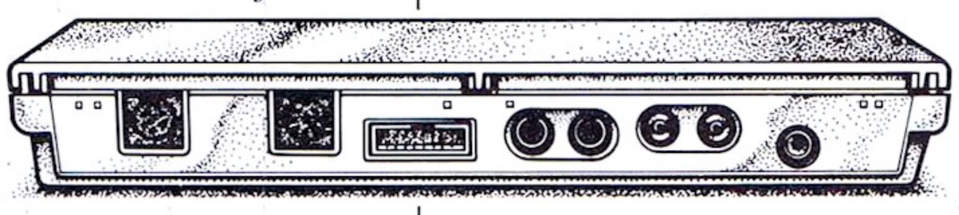
The computer is supplied complete with a Basic-I cartridge, a standard integer BASIC language and a simple learning text.

Plug in the Basic-G cartridge, and you can access the M5's incredibly sophisticated graphic and sound capabilities which are far in advance of similarly-priced computers.

Move on to the Basic-F cartridge, and you have scientific, technological and statistical computing power usually available only on big computers with equally big price tags.

The FALC cartridge provides a tailor-made language for data management, spreadsheet accounts and business problems. Combine FALC with a disc and you could *"turn the M5 into a small business machine."* (Personal Computer Magazine, August '83.)

Now, take a look at the back of the M5.



Notice the sockets (usually an extra) for a standard Centronics-type printer, the separate video monitor and hi-fi sound output.

Even the language cartridge socket has hidden potential:

"Unlike most such sockets, this one has 56 internal lines connected to it giving access to just about every function in the computer. This means that just about everything you can think of can be added onto the computer, ranging from a Prestel interface to second processor to use as an intelligent terminal on a timesharing computer"... (Electronics – The Maplin Magazine, March '83.)

Take a look at the home computer that will improve with age.

For a full technical specification of the CGL M5, details of the wide range of supporting software and to find out where to see a complete demonstration, send the coupon to:
CGL, CGL House, Goldings Hill, Loughton, Essex IG10 2RR. Telephone number: 01-508 5600.

I'd like to know more about the CGL M5. Please send me a brochure and a list of dealers.

Name_____

Address_____

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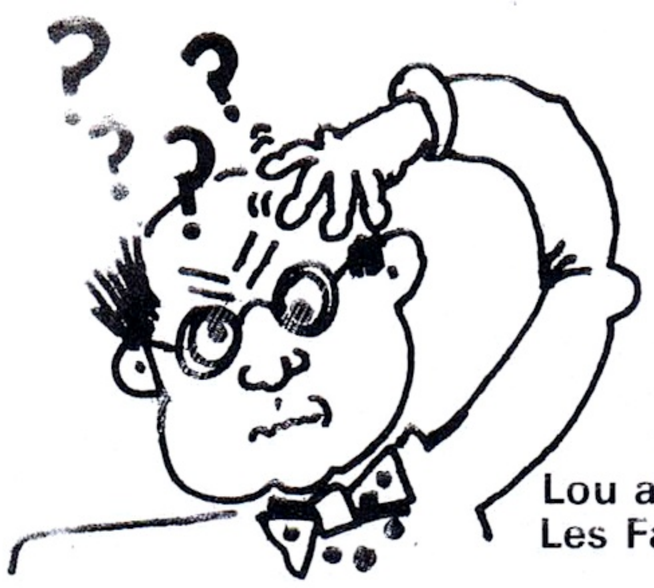
CGL M5 HOME COMPUTER

BUILT TO LEARN. BUILT TO LAST. BUILT TO GROW.



By Lou and Les Falk

Fancy doing yourself some brain damage? If so, put your hand to some of our puzzles put together by a couple of reprobates from Hull called Lou and Les Falk. They have joined forces to make sure you don't have a moment's peace of mind with these brain teasers.

Mindbenders is a silly serious page which will appear in every issue of *Games Computing* to give you some relaxation from the more physical side of games playing.

There aren't any prizes for working out the correct solutions (well, maybe the odd one or two) but we hope you enjoy doing them anyway. And if you have any brain twisters which are particularly difficult why not send them to us and well see what Lou and Les think of them. You'll notice that some of the puzzles are dead easy, some excruciatingly difficult and some are plain silly.

You'll find the solutions to the puzzles in the following issue — so you'll have to contain yourselves for the answers until then.

Happy mindbending!

1: 'FIVE FINGER EXERCISE'
What are the next two letters in the following series —

Z X C V B . . . .

2: 'LOST LETTER'
Every so often our word processor goes haywire and we lose one letter of the alphabet. Take the following sentence — what should it read?
ETERIERICKEDAECKOFICKLEDEER

3: 'ALL THE EIGHTS'
Eight eights are sixty four on most calculators. But can you make eight eights equal one thousand?

4. Rearrange the letters of the Mac-Pouter, the famous Scottish inventor and you will come up with a computer!

5: 'GAMES GAME'
In the following grid we have hidden the names of some well known computer games — reading across or down, backwards, forwards and diagonally. List as many as you can, and put the one you would like to win at the top. The longest list sent in wins the game of your choice. In the event of a tie we will cut up the cassette and send you a piece each!

H C T A C Z F O R T H E L L P
T O S P S D R O L R A W O A I
A P E P N F O S S E N D A M N
E D U E A A G D P M G Y S G B
D R Q N M C G S O A M B T I A
F A E E C L E L K T A U E N L
O G D T A U R I E H N G R E L
T O A R P X K F N S F L O G U
E N K A Y A N E T V R U I N A
N S C T L U N A R L A N D E R
A L O O C A R W A R S D S L E
L A L R S T P O O L S S E H C
P I B R E A K O U T T G K R O
L R B K S N A I X A L A G N S
E Z R P A R A C H U T E O B S

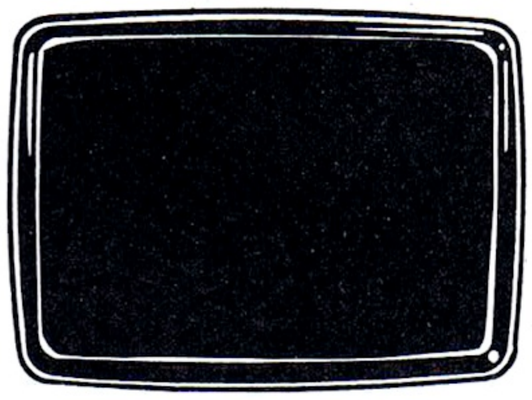
PUZZLE

6: 'CROSSNUMBER'

5	11	9	16	14	8	11	12	16
11	2	16	2	1	2	12	2	10
13	2	9	1	19	16	20	2	1
11	5	1	2	6	2	3	13	13
17	2	20	2	2	2	13	2	7
3	10	15	2	14	2	18	11	8
11	2	9	3	4	20	1	2	3
6	2	11	2	11	2	1	2	1
14	7	12	16	20	12	13	11	6

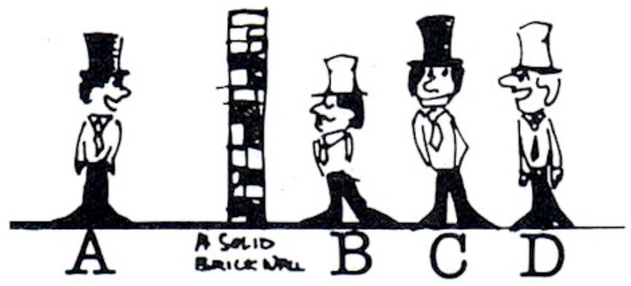
Given that 19 letters of the alphabet are used, and 14 7 9 is the sum, can you complete the following crossword? By the way, the twentieth number represents black squares — look for the pattern.

6-
a: Irish Game —



Spot the Cursor!

7: 'LOGIC CHOPPING'
Each month we shall pay a brief visit to the imaginary land of Falkovia. This island is chiefly famous for its cruel and sadistic king and its whimsical legal system. The last time we were there, for instance, four condemned men were awaiting execution. In a sudden fit of clemency the king produced four hats, two black, two white, and put them on the heads of the four men after arranging them, shown in Fig 1.



The rules of the game were simple; the first man to deduce the colour of his own hat would be pardoned. There were four provisions though — anyone who looked at his own hat would be fed to the sharks. Anyone who turned round would be cut up and then fed to the sharks. Anyone using mirrors, or even moving would be boiled in Brylcreem! And anyone taking a wild guess would suffer an unnamed fate. The men were informed of all the rules.

What the king didn't mention was that only one of the four stood a chance. If you were one of the condemned men which would you choose to be — A,B,C, or D? And Why?

Next month — we visit an experimental penal institution, and tell you this month's answers.

PLAY IT AGAIN...
WITH AN ACE IN YOUR HAND

- 100% BRITISH MADE
- 1½ METRE CABLE
- HIGH IMPACT PLASTIC CASE
- PLASTIC STICK WITH STEEL SHAFT

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NOTHING PLAYS LIKE THE PRO-ACE

COMMODORE VIC 20/64 AND ATARI COMPATIBLE PLUS NUMEROUS VIDEO GAMES MACHINES

PLUS LEFT OR RIGHT HAND FIRE BUTTON

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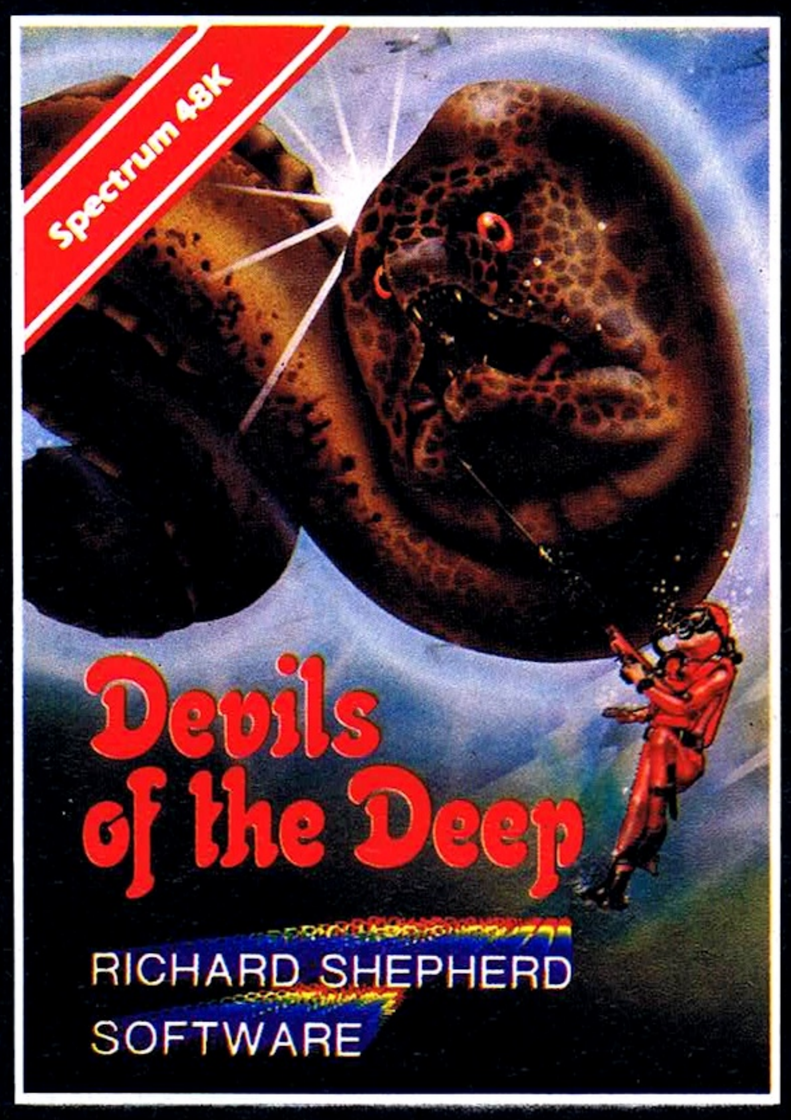

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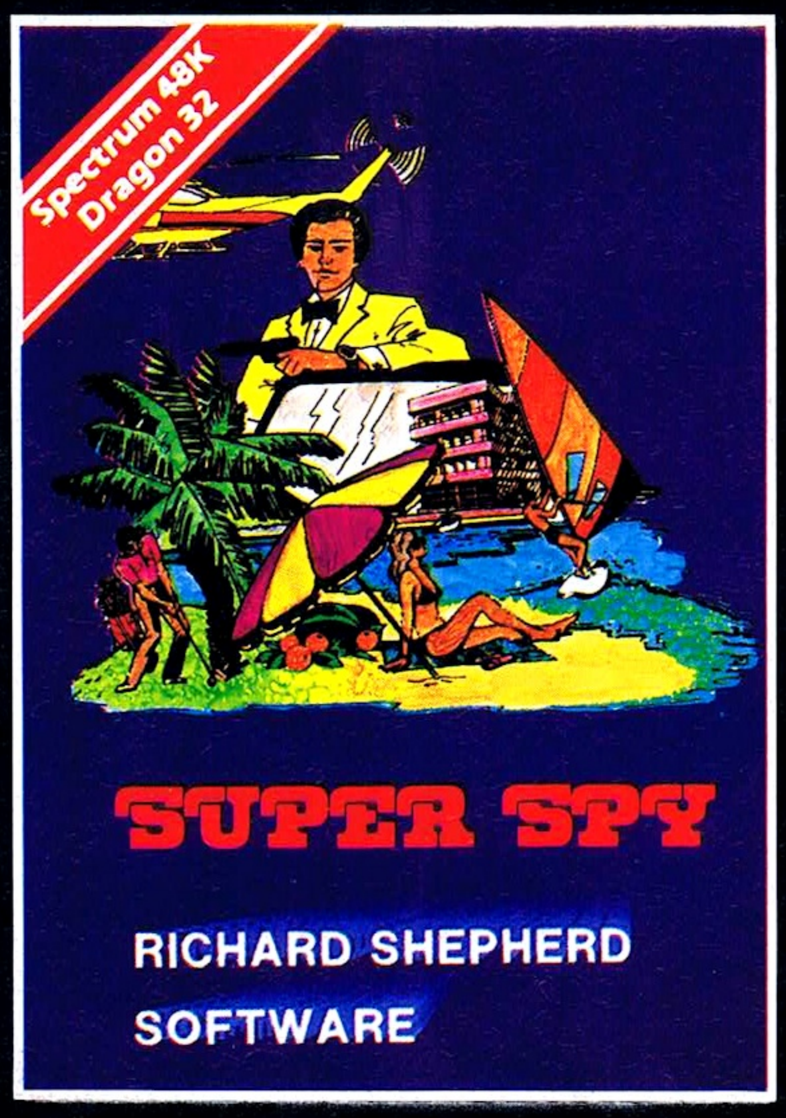

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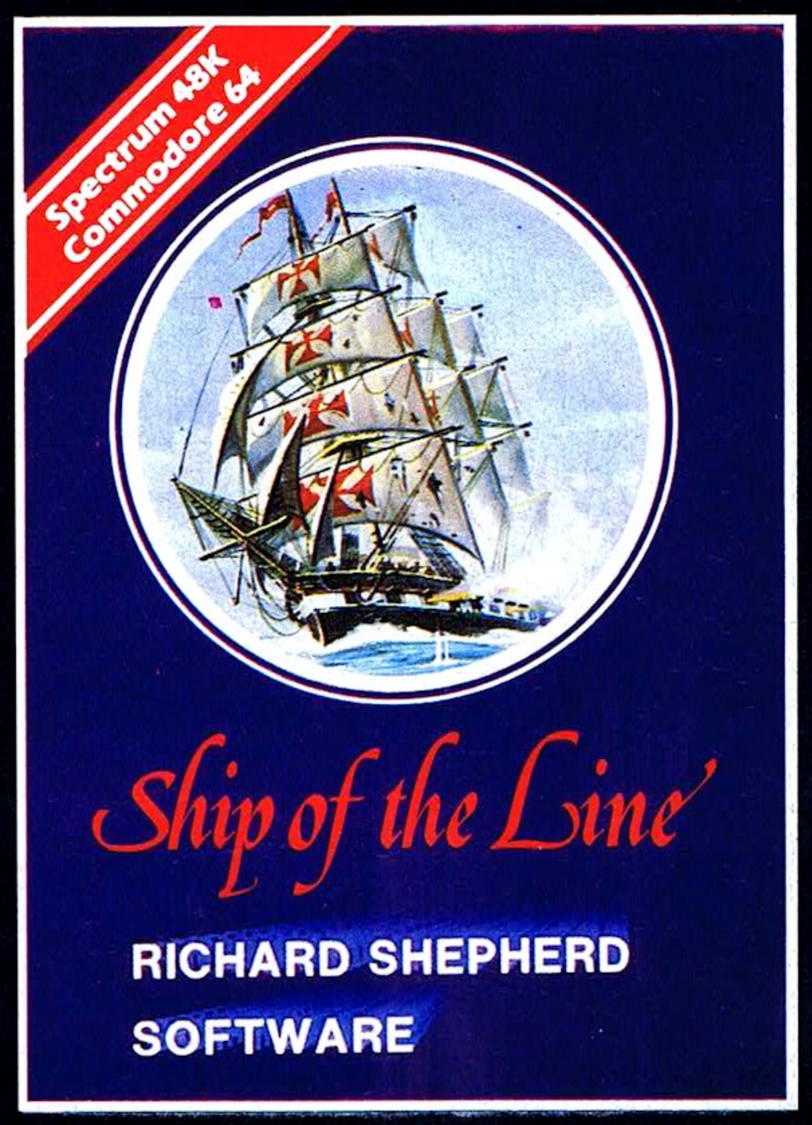

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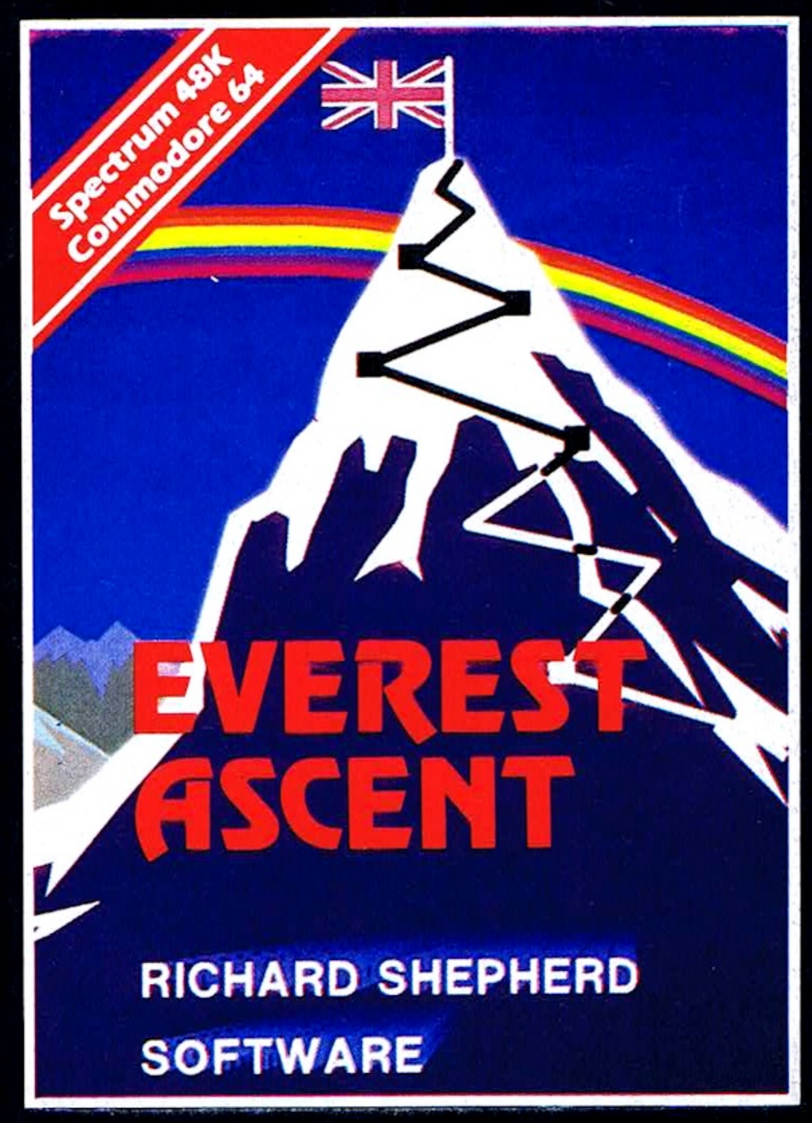

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RUNdown

Lines	Action
1-8	Sets up various flags and counters.
10-90	Sets up title screen.
110-370	Decides which subroutine to go to.
1000-1660	Prints the decsription of the location and sets a new location number into the flags.
1999-1092	The 'go' subroutine.
2300-2420	The 'inventory' subroutine.
2500-2540	The 'row' subroutine.
2600-2690	The 'examine' subroutine.
2700-2710	The 'swim' subroutine.
2800-2900	The 'look' subroutine.
2999-3110	The 'get' subroutine.
3600-3756	The 'drop' subroutine.
3800-3840	The 'pull' subroutine.
4000-4050	The 'remove' subroutine.
4100-4130	The 'unlock' subroutine.
4200-4230	The 'open' subroutine.
4300-4320	The 'read' subroutine.
4400-4476	The 'fight' subroutine.
4500-4590	The 'saw' subroutine.
4600-4620	The 'press' subroutine.
4700-4730	The 'insert' subroutine.
4800-4840	The 'turn' subroutine.
8000-8040	Initialisation.
10000-10056	The splitting up of the players input into a verb and a noun.
10060-10280	Deciding which location to go to.
12000-12050	The failure routine.
13000-13070	The successful end.

Conversion Clues

There should be no problem in converting this adventure to run on other computers. People with Spectrums or BBCs need to type:

```
10060 IF DI = 0 THEN PRINT "I CAN'T GO THAT WAY":DI=SE:GOSUB DI : GOTO 10000

10070 GOSUB DI : GOTO 10000
```

N.B. The numbers in the data are the notes for the song 'Smile' which are as follows.

Number	Note
209	middle f
215	middle g
219	middle a
207	low e
201	low d
195	low c
221	middle a sharp
212	middle f sharp
225	high c
228	high d
227	high c sharp

POKE 36879	Color control.
POKE 36876	Music channel.
POKE 36878	Volume control.

```
1 Z=0:W=0:R=0:Q=0:I=0:U$="":DI=1000:V=0:Y=0:P=0:T=0:Q=0:L=0:E=0:J=0:N=0:M=0:F=0
:S=0
2 H=0:A=0:B=0
5 POKE36879,25:PRINTCHR$(14)
6 POKE36878,14
7 Y$="SLAMMED SHUT":T$="CROSS"
8 K$="↖ CAN SEE A GUARD":F$="↖ CAN SEE AN ATTENDANT"
10 PRINT"■■                              ■";:PRINT"■■                              ■";
20 PRINT"■■                             ■";
30 PRINT"■■■
```

```
 4229 IFB$="GLASS BOX"ANDDI=1620ANDN=1THENPRINT"OK..":M=1:GOTO10000
 4230 PRINT"␣ CAN'T OPEN A ":PRINTB$:GOTO10000
 4300 IFB$=""THENPRINTA$" WHAT ?":GOTO10000
 4310 IFB$="BOOK"ANDQ=1ANDK(5)=0THENPRINT"␣T SAYS TURN KEY LEFT THEN RIGHT!!":GO
TO10000
 4315 IFB$="BOOK"ANDQ=0THENPRINT"␣ DON'T HAVE A BOOK":GOTO10000
 4320 PRINT"␣ CAN'T "A$" A "B$:GOTO10000
 4400 IFB$=""THENPRINT"␣ CAN'T FIGHT MYSELF":GOTO10000
 4405 IFB$="ATTENDANT"ANDDI<>1100THENPRINT"␣ CAN'T SEE HIM HERE":GOTO10000
 4410 IFB$="ATTENDANT"ANDK(9)=1THENPRINT"␣ CAN'T SEE HIM":GOTO10000
 4420 IFB$="ATTENDANT"ANDK(3)=0ANDDI=1100THENPRINT"␣ WAS GOOD BUT HE WAS BETTER.
IE SLIT"
 4430 IFB$="ATTENDANT"ANDK(9)=0ANDDI=1100THENPRINT"MY THROAT":GOTO12000
 4440 IFB$="ATTENDANT"ANDDI=1100THENPRINT"␣ HAVE NO SWORD.␣ SEE BLOOD SQUIRT"
 4445 IFB$="ATTENDANT"ANDDI=1100THENPRINT"EVERYWHERE"
 4449 IFB$="ATTENDANT"ANDDI=1100THENPRINT"␣ SEEMED TO HAVE BEEN STABBED":GOTO120
00
 4450 IFB$="GUARD"ANDJ=1THENPRINT"HE IS ALREADY DEAD":GOTO10000
 4451 IFB$="GUARD"ANDK(3)=0ANDK(4)=0ANDK(8)=0ANDDI=1490THENGOTO4470
 4452 IFB$="GUARD"ANDK(3)<>0ANDK(4)=0ANDK(8)=0ANDDI=1490THENGOTO4475
 4453 IFB$="GUARD"ANDK(3)=0ANDK(4)<>0ANDK(8)=0ANDDI=1490THENGOTO4475
 4454 IFB$="GUARD"ANDK(3)=0ANDK(4)=0ANDK(8)<>0ANDDI=1490THENGOTO4475
 4455 IFB$="GUARD"ANDK(3)=0ANDK(4)<>0ANDK(8)<>0ANDDI=1490THENGOTO4475
 4456 IFB$="GUARD"ANDK(3)<>0ANDK(4)=0ANDK(8)<>0ANDDI=1490THENGOTO4475
 4457 IFB$="GUARD"ANDK(3)<>0ANDK(4)<>0ANDK(8)=0ANDDI=1490THENGOTO4475
 4459 IFB$="GUARD"ANDDI<>1490THENPRINT"␣ CAN'T SEE HIM HERE":GOTO10000
 4460 PRINT"␣ DO NOT UNDERSTAND   YOU":GOTO10000
 4470 PRINT"␣ WON!!THE GUARD LIES DEAD ON THE FLOOR":J=1:K$="":GOTO10000
 4475 PRINT"␣ WALKED UP TO HIM    AND STARTED TO FIGHT. ΓOOPS ␣ MADE A MISTAKE"
 4476 PRINT"AND HE CUT MY HEAD OFF":GOTO12000
 4500 IFB$=""THENPRINTA$" WHAT ?":GOTO10000
 4510 IFB$="BARS"ANDK(1)=0ANDDI=1520THENPRINT"OK..":P$="␣ CAN SEE A HOLE":L=1:GO
TO4590
 4525 IFB$="BARS"ANDK(1)<>0ANDDI=1520THENPRINT"␣ CAN'T DO THAT YET":GOTO10000
 4526 IFB$="BARS"ANDK(1)=0ANDDI<>1520THENPRINT"␣ CAN'T SEE ANY BARS":GOTO10000
 4527 IFB$="BARS"ANDK(1)<>0ANDDI<>1520THENPRINT"␣ CAN'T DO THAT YET":GOTO10000
 4530 PRINT"␣ DON'T UNDERSTAND YOU":GOTO10000
 4590 DI=1160:GOSUB1160:GOTO10000
 4600 IFB$=""THENPRINTA$" WHAT ?":GOTO10000
 4610 IFB$="BUTTON"ANDDI=1570ANDS=1THENPRINT"CLICK":E=1:GOTO10000
 4615 IFB$="BUTTON"ANDDI<>1570ANDS=0THENPRINT"␣ CAN'T DO THAT YET":GOTO10000
 4620 PRINT"␣ DON'T UNDERSTAND YOU":GOTO10000
 4700 IFB$=""THENPRINTA$" WHAT":GOTO10000
 4710 IFB$="KEY"ANDDI=1620ANDK(7)=0THENPRINT"OK..":H=1:GOTO10000
 4720 IFB$="KEY"ANDDI<>1620ANDK(7)<>0THENPRINT"␣ CAN'T DO THAT YET":GOTO10000
 4721 IFB$="GRAIL"ANDDI=1620ANDM=1THENGOTO13000
 4722 IFB$="GRAIL"ANDDI<>1620ANDM=0THENPRINT"␣ CAN'T DO THAT YET":GOTO10000
 4730 PRINT"␣ DON'T UNDERSTAND YOU":GOTO10000
 4800 IFB$=""THENPRINTA$" IT IN WHICH":PRINT"DIRECTION":GOTO10000
 4810 IFB$="LEFT"ANDDI=1620ANDH=1THENPRINT"OK..":A=1:GOTO4830
 4820 IFB$="RIGHT"ANDDI=1620ANDH=1THENPRINT"OK..":B=1:GOTO4830
 4830 IFB=1ANDA=1THENN=1:GOTO10000
 4831 IFB=1ANDA=0THENGOTO10000
 4832 IFB=0ANDA=1THENGOTO10000
 4840 PRINT"␣ DON'T UNDERSTAND YOU":GOTO10000
 8000 D$(1)="SAW":D$(2)="HAMMER":D$(3)="SWORD":D$(4)="SHIELD":D$(5)="BOOK":D$(6)
="GRAIL"
 8010 D$(7)="KEY":D$(8)="SUIT OF ARMOUR":D$(9)="GOLD BAR":D$(0)="CHEST"
 8020 K(1)=1370:K(3)=1520:K(2)=1100:K(4)=1400:K(5)=1:K(6)=1490:K(7)=1570:K(8)=11
90
 8030 K(9)=1430:K(0)=1650
 8040 RETURN
 10000 INPUT"WHAT SHALL ␣ DO NOW";C$
 10010 FORX=1TOLEN(C$)
 10020 IFMID$(C$,X,1)=" "THENGOTO10040
 10030 NEXTX:A$=C$:GOTO10055
 10040 A$=LEFT$(C$,X-1)
 10050 B$=RIGHT$(C$,LEN(C$)-X)
 10055 IFC=1THENGOTO105
 10056 GOTO107
 10060 IFDI=0THENPRINT"␣ CAN'T GO THAT WAY":DI=SE:PRINT"N":GOTO10070
 10070 IFDI=1000THENGOSUB1000:GOTO10000
 10080 IFDI=1030THENGOSUB1030:GOTO10000
 10090 IFDI=1060THENGOSUB1060:GOTO10000
 10100 IFDI=1100THENGOSUB1100:GOTO10000
 10110 IFDI=1130THENGOSUB1130:GOTO10000
 10120 IFDI=1160THENGOSUB1160:GOTO10000
 10130 IFDI=1190THENGOSUB1190:GOTO10000
 10140 IFDI=1220THENGOSUB1220:GOTO10000
 10150 IFDI=1250THENGOSUB1250:GOTO10000
 10160 IFDI=1280THENGOSUB1280:GOTO10000
 10170 IFDI=1310THENGOSUB1310:GOTO10000
 10180 IFDI=1340THENGOSUB1340:GOTO10000
 10190 IFDI=1370THENGOSUB1370:GOTO10000
 10200 IFDI=1400THENGOSUB1400:GOTO10000
 10210 IFDI=1430THENGOSUB1430:GOTO10000
 10220 IFDI=1460THENGOSUB1460:GOTO10000
 10230 IFDI=1490THENGOSUB1490:GOTO10000
 10240 IFDI=1570THENGOSUB1570:GOTO10000
 10250 IFDI=1540THENGOSUB1540:GOTO10000
 10260 IFDI=1620THENGOSUB1620:GOTO10000
 10265 IFDI=1520THENGOSUB1520:GOTO10000
 10270 IFDI=1590THENGOSUB1590:GOTO10000
 10280 IFDI=1650THENGOSUB1650:GOTO10000
 10290 PRINT"HUH":GOTO10000
 12000 FORT=1TO5000:NEXT
 12005 PRINT"YOU FAILED IN FINDING THE  HOLY GRAIL,BETTER LUCK NEXT TIME"
 12010 PRINT"DO YOU WISH TO PLAY AGAIN"
 12020 GETP$:IFP$=""THEN12020
 12030 IFP$="Y"THENGOTO1
 12040 IFP$="N"THENEND
 12050 GOTO12020
 13000 FORT=1TO1000:NEXT
 13010 PRINT"CONGRATULATIONS"
 13015 PRINT"■■■
```

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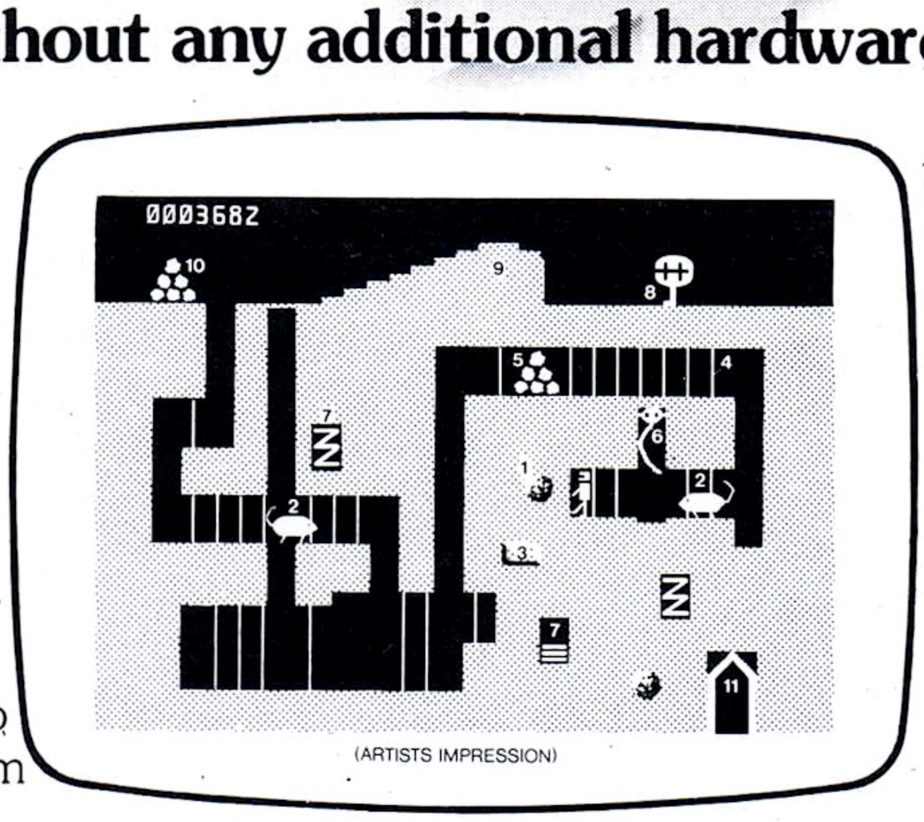

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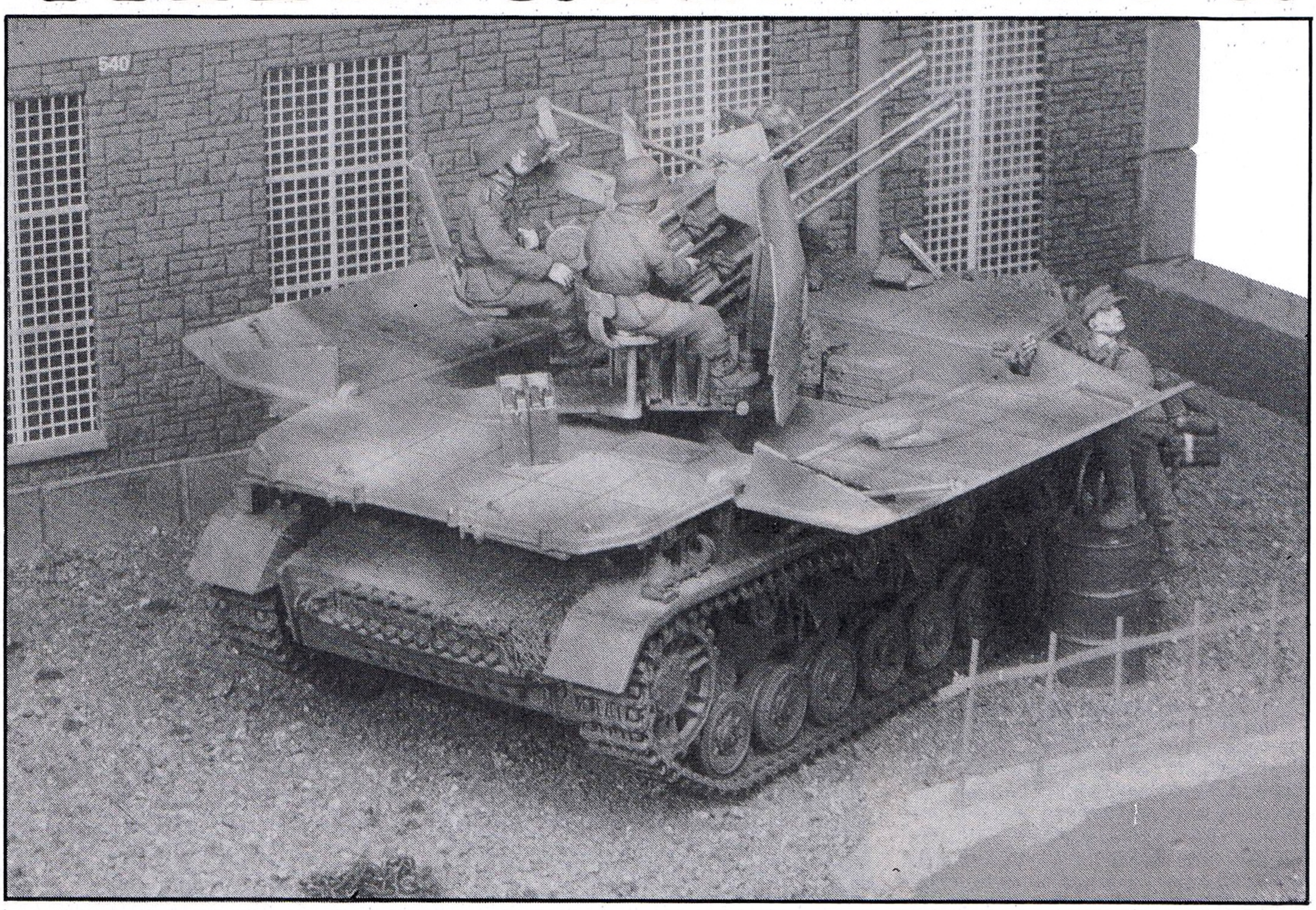


From Rome to RAM

War has been a human pursuit since the time when one tribe took exception to habits of their neighbours, and decided to educate them by wiping them out!

As human societies developed cities and nations they discovered new reasons to attack their neighbours, new ways of killing them, and new ways of protecting themselves from death and destruction. No longer was it a matter of individuals fighting against other individuals, war became a subject for massed forces. Slowly came the realisation that if a bit of thought was applied to warfare then it was possible to beat the enemy by outmanoeuvring them rather than by meeting them head on. The science of strategy and the art of tactics were born.

In the beginning

With the scientific abstraction of warfare came the inevitable translation into a game. In India Chess became the teaching tool for aristocratic warlords, while in China and Japan the emphasis was placed on territorial games such as Go. In the West there is no doubt that the Egyptian, Greek and Roman Empires had various wargames, but these were lost in the Barbarian invasions of the fifth century. Chess, carried from India to the Eastern Roman Empire, became the wargame of the West.

Nothing much happened in wargaming for many centuries, Chess continued to be the mainstay of strategic teaching despite the changing nature of warfare. But wth the Renaissance came the great leap forward: toy soldiers.

At first they were just toys and owned by the children of the rich in ones or twos — a sort of boy's doll. But children of the very rich began to realise that if they had large numbers of these toy soldiers they could play out the battles that their parents were fighting for real. The soldiers got smaller and the toy armies got larger. Teachers began to see the educational possibilities for young princes and toy armies became common in the nurseries of Europe. The young Frederick the Great is said to have had an army of over 2,000 figures, while Louis XIV of France had his army made out of solid silver.

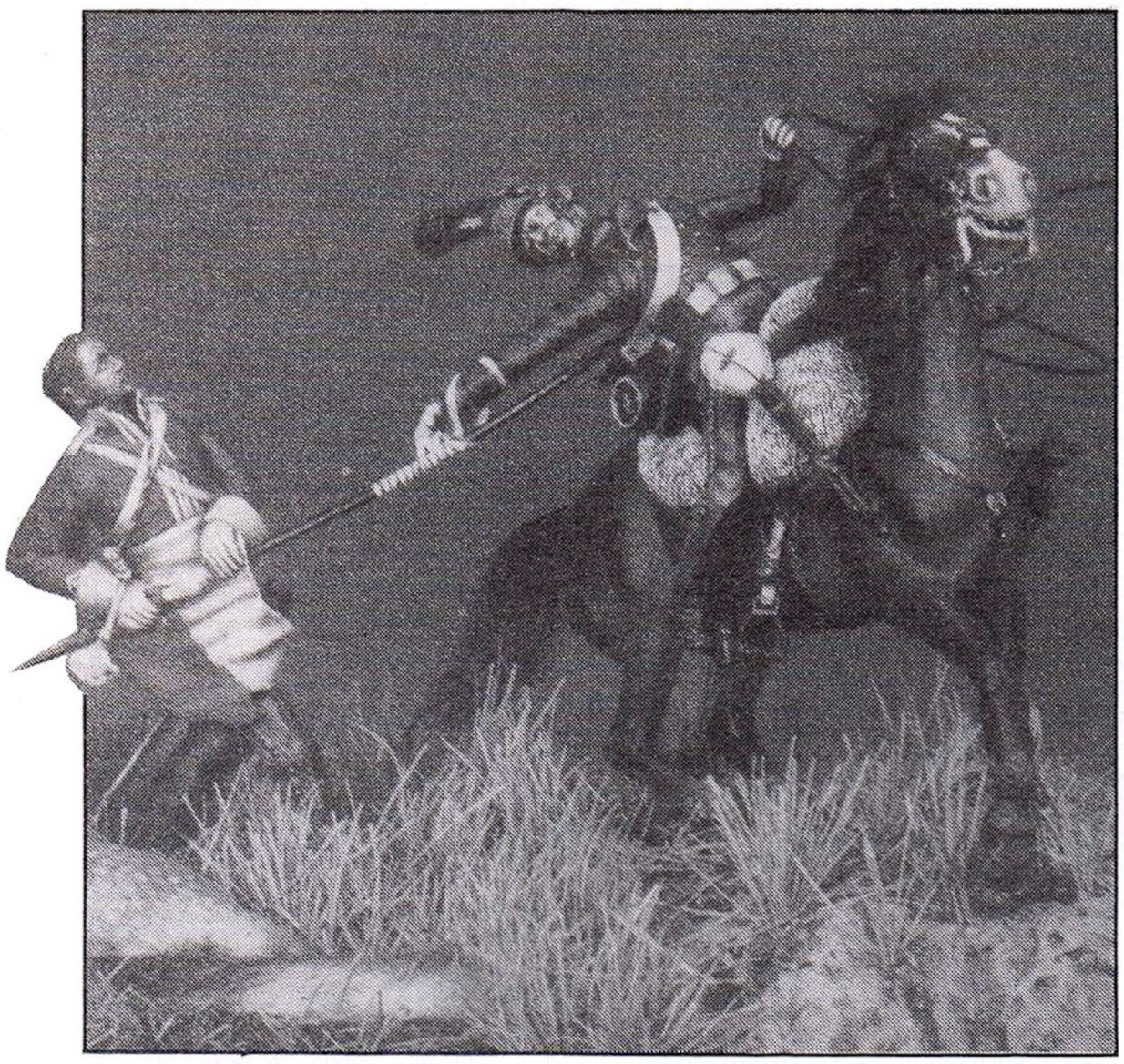
In the late 18th century rules began to be written to cover various forms of wargames. Helwig, the Master of Pages to the Duke of Brunswick, introduced the concept that one figure could represent not one man but a unit. And in the early 19th century the Von Reisswitzes (father and son) brought in the use of dice to give a controlled random element in wargames. They also invented the *Kriegspiel* in which each side has only limited information about the enemy — a technique that is used in military wargaming to this day (the old game of Battleships is a very basic form of *Kriegspiel*).

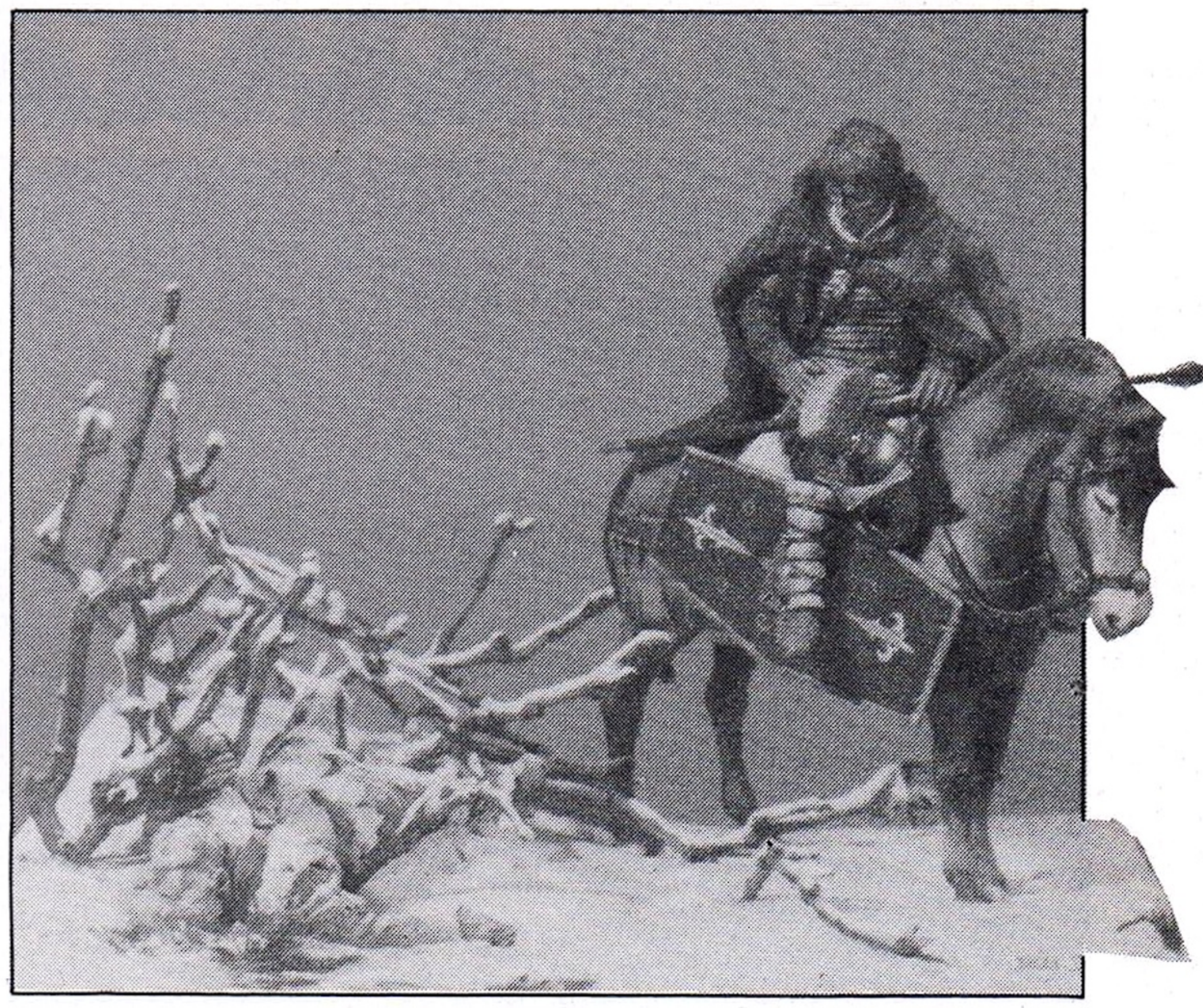
In 1880 Lieutenant Charles Totten of the US army published a game Strategies, which was a cross between Chess and the *Kriegspiel.* All the elements of modern wargaming were now developed.

Books to borrow or buy

However, to date all wargames had been used primarily as teaching tools. Even Strategos was 'for the education of civilians in the principles of modern warfare'. In 1913 the father of modern wargaming (with the emphasis on gaming) published his most important book on the subject entitled *'Little Wars'.* The author was the famous Herbert George Wells. who also wrote such lesser works as *'War of the Worlds'* and the *'Time Machine'.*

In *'Little Wars'* H. G. Wells set out rules





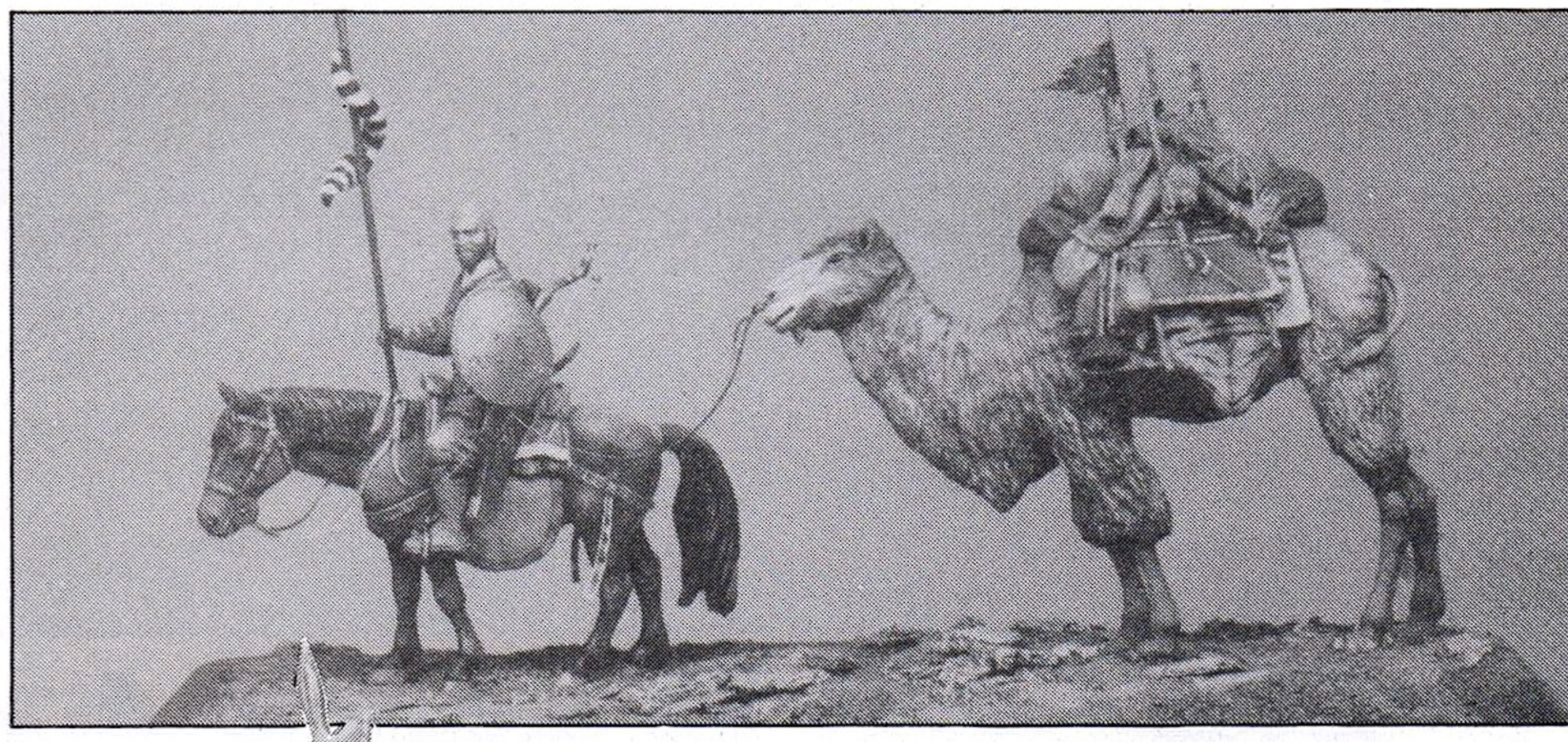
for the playing of battles using Britain's miniature soldiers. The movement was very basic, melees were settled by simple numerical superiority, and gunfire results were produced by using guns that fired wooden pellets! The less informed of the general public think that this is how wargames are still played. They're not.

But a year later the 'War to end all wars' was fought. While it proved completely unsuccessful in ending all wars it did end nearly all wargaming for thirty years. In the horrendous slaughter of World War I people had seen generals use their troops as if they were just toy soldiers — 'knock over 1,000 today, they can be replaced by another thousand tomorrow'. This callous attitude led to an abhorrence of all things military, whether upon the battlefield or on the playing board.

The Second World War ended this situation. It was a crusade of democracy against Facism; it proved that ignoring military problems did not make them go away; and most importantly it was a total victory — this war was won so all wars were winnable, the ultimate vindication.

After the Second World War wargaming went through a massive growth period, notably from the early '60s onwards. Figure wargaming continued to be an important part of the hobby, but it was gradually overtaken by board wargaming. Modern board wargames began with the invention and sale of *Tactics* by Charles S. Roberts in 1953. He founded a company called Avalon Hill, which is still a Great Power in the wargaming world today.

Another major wargames producer was Simulations Publications Inc (SPI), now unfortunately defunct. They produced a monthly magazine which included a wargame in every issue, as well as a regular output of standard wargames. Unfortunately, they over-reached themselves by producing a series of monster games (5' by 5' boards, 10,000 playing pieces, 100 hours to play) which cost the earth to make and didn't sell. They were subsequently taken over by TSR (Tactical Studies Rules) which had come up through another line of wargaming.



TSR was formed to publish wargames rules for fantasy miniatures. As a sideline they invested a game called Dungeons and Dragons, a role playing game where players could take on the role of an adventurer in a fantasy world. This genius idea earned millions for the inventors, and D&D (as it's known) is still a very popular game — it is the base from which most computer adventure games evolved.

The Modern Wargame

So where do computer wargames fit into all this? Well, computer wargaming is still very much in its infancy. Some games have been produced, but few can be called classics yet. One problem is, believe it or not, the amount of storage space available in modern home computers. 16K is not sufficient, 32K will just about do, but the really challenging games are going to require 64K of memory or more. Only recently have machines of this size begun to appear, but by next year they should be common. Then wargaming on computers will really take off.

In next month's edition of *Games Computing* **'ROME to RAM'** will take you through the intial steps involved in programming wargames on your home micro computer. Ask your newsagent to reserve a copy for you.

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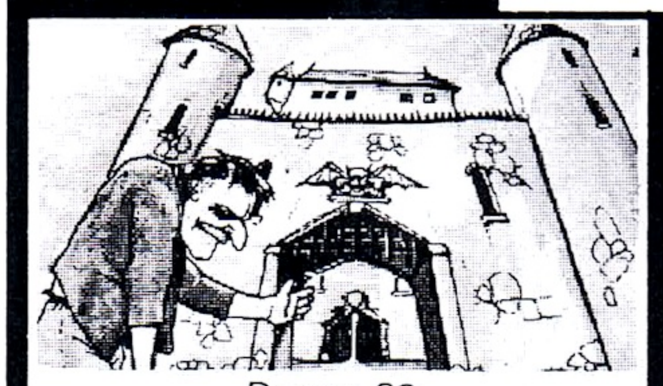

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video games

FROGGER
ATARI VCS

Persuading your friendly frog to cross a road and then a river is no easy task when you have to dodge trucks, cars, vans, and leap on to logs, lily pads and drift wood.

The idea is to move the frog which you control from the pavement to the home bays on the opposite side of the river bank, with another strip of pavement in between acting as a stepping stone on your journey.

Making matters more traumatic you have only 30 seconds in which to get your frog to the safety of the home bays.

Using the joystick controllers to operate the game you must try and guide your frog through the perilous lanes of traffic dodging the cars and trucks. When you first pick up the joystick you're bound to think that 'this is a doddle', but a few minutes later and you'll be cursing this marvellously simple, yet so tricky game! For somehow, the traffic seems to pick up speed just when you think it's safe to cross the road, and then you find your frog 'splooched' into a green mess on the road surface. And believe it or not, that's the easiest part of the game to play.

If you make it safely to the opposite pavement it's even tougher to survive. You have to use good timing and quick thinking to leap on to the alligators, diving turtles and logs. Watch out for the blue turtles because they are the divers and unless you hop on and off them very quickly you'll find your frog will be treading water — and not very successfully. Three frogs splooched and that't it, the game's over.

This game is deceptively difficult to play. Often you think you have only just cleared a car or a lorry only to find you have caught the edge of it and so die. There are many features in Frogger which make it an extremely challenging and interesting game to play that is almost bound to keep you tied to the telly until you have mastered the Frogger technique.

Full marks must go to Parker for producing such a comprehensive game which sticks very closely to the original arcade games yet compiles with the constraints of the memory limitations which the Atari VCS dictates.

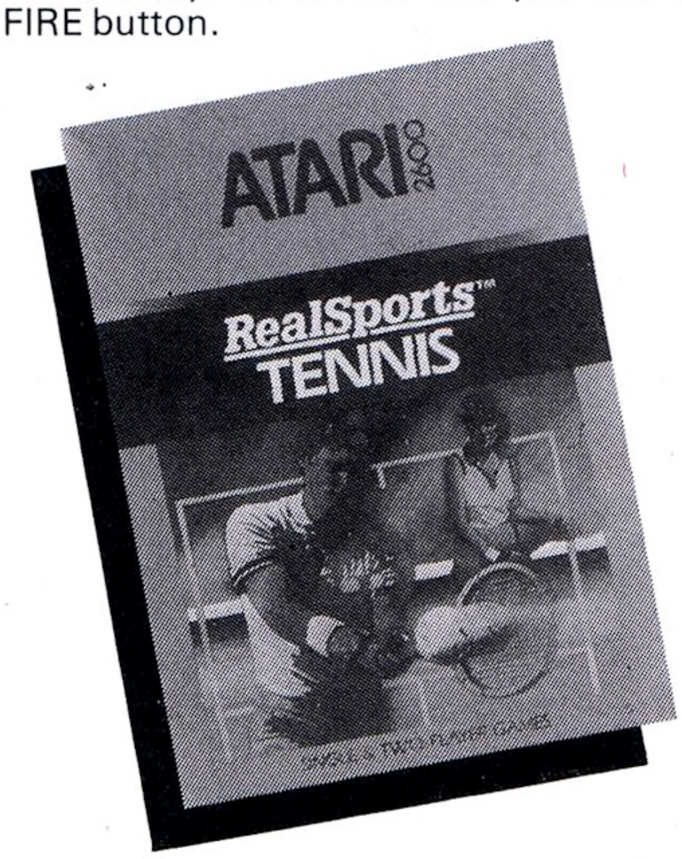
Made by Parker Video
Price: £29.95

TENNIS
ATARI VCS

You won't get tennis elbow when you plug into this Real Sport VCS game but are more likely to be struck down with a severe case of joystick jitters.

One of the first games to be put onto computer/VCS systems was the bat and ball type of game. Atari's TENNIS cartridge is an extension of the original idea but has been vastly improved to get the most out of the concept. And it has done so admirably. What you see on screen is a perspective view of a tennis court, minus all the court lines for the tram and service areas. At the top of the screen is a score board recording the games (as they are played and who wins each), the set being played and the score of each game. At either end of the court is a tennis player (just as well), one wearing a pink shirt, the other sporting blue.

It is possible to play against the computer, but it's far more fun to rope a friend into being your opponent and battling it out on the court. We found that the best tactic to adopt was to place the body of your player in front of the ball as it is being played to you, rather than lining up the player's tennis raquet in order to hit the ball directly. To hit the ball you use the FIRE button.



At first you can try the slow speed to develop your tennis technique and once mastered there'll be no stopping you on the fast speed games. Even if your forte is space arcade style games I am positive this game will enthrall you into playing it with the relentless verve that you normally associate with arcade game players.

Programming wise the quality is very good. Once again the Atari devoted programmers have used all their cunning and expertise to produce a game of fast action and good graphics, right down to the shadow of the ball as it is in play and appropriate sound to boot. And when the two players move up to the net the action is scorching hot and almost as good as watching the top notch players at Wimbledon! On sale from standard Atari retail outlets.

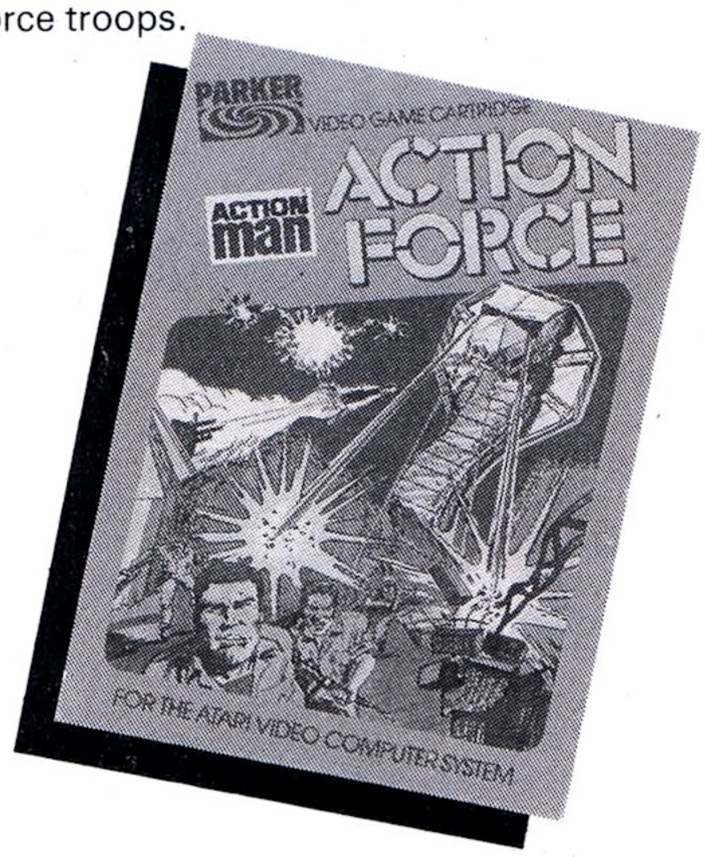
Made by Atari
Price: £19.99

ACTION FORCE
ATARI VCS

Action stations all action force followers. . . .

Here's a video game just for you. The evil minded Baron Ironblood is bent on destroying Action Force in a bid to rule the world. You must stop him from doing so and save the world from a pending reign of terror and oppression.

Baron Ironblood has devised a super weapon system taking the shape of a giant computer controlled Cobra. This weapon shoots laser beams and the only way to put an end to its wicked capers is to shoot out the monster creature's eyes which form the nerve centre of the beast. The Cobra's metal body is inpenetrable by normal bullets or laser beams. Ironblood's first course of action in his masterplan is to smash the training camp of Action Force troops.



If you want to win the game you must destroy the Cobra, but you'll find that if you thwart Baron Ironblood's first attempt at world domination he'll make a speedy come-back with a Mark II version of the Cobra which the Action Force troops must attack in order to survive.

This is a fun death and destruction game (which sounds incongruous but is actually true) and makes a very pleasant change from all the space games thrown down your throats. And with the current publicity given to Action Force (who came up with the idea of the very successful Action Man doll) along with the comic and dolls of the same name, this new cartridge should do well. It's certainly an enjoyable game to play.

Made by Parker
Price: £29.95

PLAQUE ATTACK ATARI VCS

Preventing tooth decay is the job in hand in this unlikely sounding game called Plaque Attack.

It makes a great change from the space theme games which have saturated the shop shelves over the past 18 months. Whoever dreamed up this idea for a computer game must have applied some lateral thinking to the ever popular space invaders game. In Plaque Attack your laser gun becomes a tube of toothpaste, your defence bases are a row of top and bottom teeth, and the alien invaders become plaque. Yuk!

Using the joystick controls you operate the tube of toothpaste and it's up to you to destroy the pieces of plaque by squirting a blob of toothpaste at any lurking plaque pieces. The plaque has a nasty habit of attacking both rows of teeth at the same time (more or less) so you must try and develop peripheral vision in order to keep a check on the position of the plaque. Your joystick can make the tube of toothpaste turn upside down (depending on which way you are initially facing) so that you can get a good squirt at the plaque!

As the game progresses and you complete the first wave of plaque, further waves of decay-causing foods appear on-screen and these become increasingly bad for the teeth if left to take root. Each time you shoot down a particle of food you score points — the score depends on the type of food you destroy. The sort of food you will encounter during the game are candy sticks, ice cream cornets, junk food, strawberries, chips and sticky sweets.

A leaflet comes with the cartridge and is called the Dental Defense Manual; this proved to be very helpful in understanding the basics of the game and working out a good strategy to adopt if you don't want to wind up with NHS dentures or an acute case of gum disease. If nothing else, Plaque Attack will probably put you off sweets for life. And if cleaning your teeth has never been a strong point of yours there's a short, amusing cartoon sketch which tells you a few facts about tooth decay and and how *not* to lose YOUR teeth.

But apart from the moral of the story the game itself is a delight to play, offering a challenging alternative to the many space games on sale for the Atari VCS, You'll find Plaque Attack in the usual Atari retail outlets, such as some large department stores, and high street electrical chain stores. Some people reckoned they should also be on sale in dental surgeries but that idea didn't go down too well in the office!

Made by Activision
Price: £29.95

GALAXIAN ATARI VCS

Atari has come up with a small gem in this version of the original arcade game which features swooping aliens of several different types. You, the player, of course have to destroy them.

If that sounds familiar to you, you'll be right in thinking that Galaxians is a variation on the old theme of space invaders. But the green meanies in this game are tremendously tougher than those filling the screen in space invaders.

When you switch on the game you'll see the frightening sight of four different types of alien. At the very top of the screen are Flagships, next row down are the Escorts whose job it is to protect the Flagshps. Next row down are the Emissaries followed by three rows of Drones. Your initial task is to wipe out the first and subsequent waves of different invaders. You have to do it all at once.

It's not as easy as it sounds though, because the aliens have a nasty, unnerving habit of suddenly swooping down towards your laser gun in strict formation and destroy your laser gun in a Kami-Kazi style death dive. Be warned, more often than not it works! Be careful when your firing base is positioned either to the extreme left or right of the screen. Although the instruction booklet supplied with the cartridge tells you these are safe spots, they're not. On occasions the aliens will dive towards your gun and destroy it.

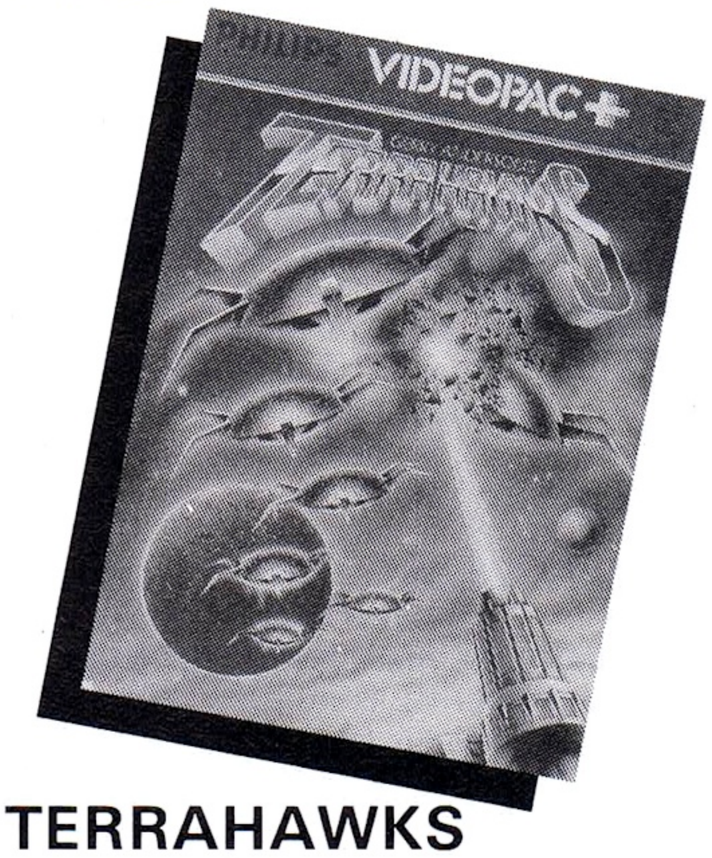
Another important thing to watch are the numerous bombs which the aliens drop. These rain down in random places on the screen and must be avoided by your laser base. If not, contact with the bombs ensure instant destruction of the base. In total you have three lives with which to play during the game. Extra lives are given at certain stages throughout the game awarded on a high score points basis.

Difficulty increases with the number of attacking waves you succeed in destroying, marked by faster screen action and many more bombs being released from the aliens' special hatches.

Considering the limitations of the Atari VCS and other similar systems the graphics and speed of Galaxians is of a high standard. It certainly proves to be an addictive play and is much more interesting than the space invader game which it came from. Definitely a game to keep you out of the kitchen while Mum cooks the Christmas dinner.

Produced by Atari itself, Galaxians is on sale at all the normal retail outlets and High Street electrical chain stores.

Made by Atari
Price: £29.99



TERRAHAWKS PHILIPS G7000

Under attack from the evil alien forces of Commander Zelda is the nerve centre of the Terrahawks whose sole reserve is to defend the earth from dangerous space enemies.

The Terrahawks' highly trained men use a specially equipped energy laser beam to shoot down Zelda's flying saucers before they release deadly rockets. During the first part of the game these rockets aren't too difficult to deal with. But when you progress to the second wave in the attack Zelda's mother ship calls up saucers which release more deadly Antimatter Mines. These have a special computer device designed to home in on the Terrahawks moveable energy base.

If you manage to survive the attack a further battle in the third phase ensues in which you have to fight off the deadly green Anihilators. These weapons are Zelda's penultimate resource and are extremely sneaky. They descend from her mother ship but beware, they don't explode on contact with the ground. On touchdown they slide along the ground towards your laser base exploding on contact with you. The best way to get rid of these nasties is to blow them up during their descent.

But don't think you can stop there. Zelda's last resort is to send her nucleonic space mines in search of your laser firing base. At the same time all the other previously encountered weapons appear on the screen and the Terrahawks nest is getting swamped by the attackers. Only the very fastest of action can get you out of the many tight spots that you'll find your energy laser beam gets into.

Once you've discovered your playing technique you just play away through the different attack waves until your energy firing station is destroyed — then that's it, the game's up.

Made by Philips
Price: £27.95

COMPETITION
COMPETITION 2

Win a Super Vectrex System

More competitions with piles of prizes up for grabs in the launch issue of *Games Computing.*

Here's a chance in a life-time to win your own **Vectrex** System reviewed in this issue's feature on *'Toys for Christmas'.* Since this game playing system was first brought out about a year ago it has grown rapidly in popularity and provides a superb alternative to the VCS, Intellivision or Colecovision machines. You don't need to plug it it into the telly (something which your Mum and Dad will probably be thankful for). Instead it's a free standing micro processor controlled machine which you plug straight into a normal power point.

Software Galore

There's a huge range of software on sale for use with the **Vectrex** System which won't damage your wallet too much. The games are priced between £11 and £25. The **Vectrex** works differently from other games systems in that the lines displayed on the phosphor screen are vectorgraph lines and not 'dots' which form blocks on a screen. For that reason each game played on the **Vectrex** consists of linear pictures only, yet despite that they give a marvellous effect of 3D because they are drawn in perspective.

One drawback is that the screen only displays graphics in black and white, but **Vectrex** has overcome that by producing games with coloured overlays to place over the system's screen giving it much more variety and depth. Making the system even more interesting is the forthcoming launch of a pair of 3D goggles which make a tremendous difference in realism to the games. News of the goggles' availability will be reported in *Games Computing* as soon as we get wind of them. Turn to our report on MIJID for more details.

And now for the Competition itself

This is a quick and easy task for you to complete if *you* want to win a **Vectrex** System.

Below you'll see two pictures of the covers of one of the games produced for the **Vectrex**. We've been a bit sneaky here at *Games Computing* and have blocked out some of the elements in the picture on the right. So it's a sort of spot the difference competition. The pack pictured on the left is complete and you must note down the 10 things missing from the **Vectrex** pack on the right.

When you've sorted them out send in the coupon, stuck on the back of a postcard to VECTREX/GAMES COMPUTING COMPETITION at ASP Ltd, 145 Charing Cross Road, London WC2E 0HH, or after the 19th December to 1 Golden Square, London W1. In case you're wondering why there are two addresses it's because *Games Computing's* publishers Argus Specialist Publications is moving offices at the time mentioned above.

Fill in the form below and send it to us. Good luck and happy hunting!

Competition Rules

1. This competition is open to all UK and Northern Ireland readers of *Games Computing,* except employees of Argus Specialist Publications Ltd, their printers and distributors, employees of Milton Bradley Ltd, or anyone else connected with the competition.
2. As long as the correct coupon is used for each entry, there is no limit to the number of entries per person, photocopies of it will not be accepted.
3. All entries must be postmarked before January 31, 1984.
4. The prize will be awarded to the first correct entry picked at random which satisfies the rules of the competition.
5. No correspondence will be entered into with regard to the results and it is a condition of entry that the Editor's decision is accepted as final.
6. The winner will be notified by post and the results will be published in a future issue of *Games Computing.*

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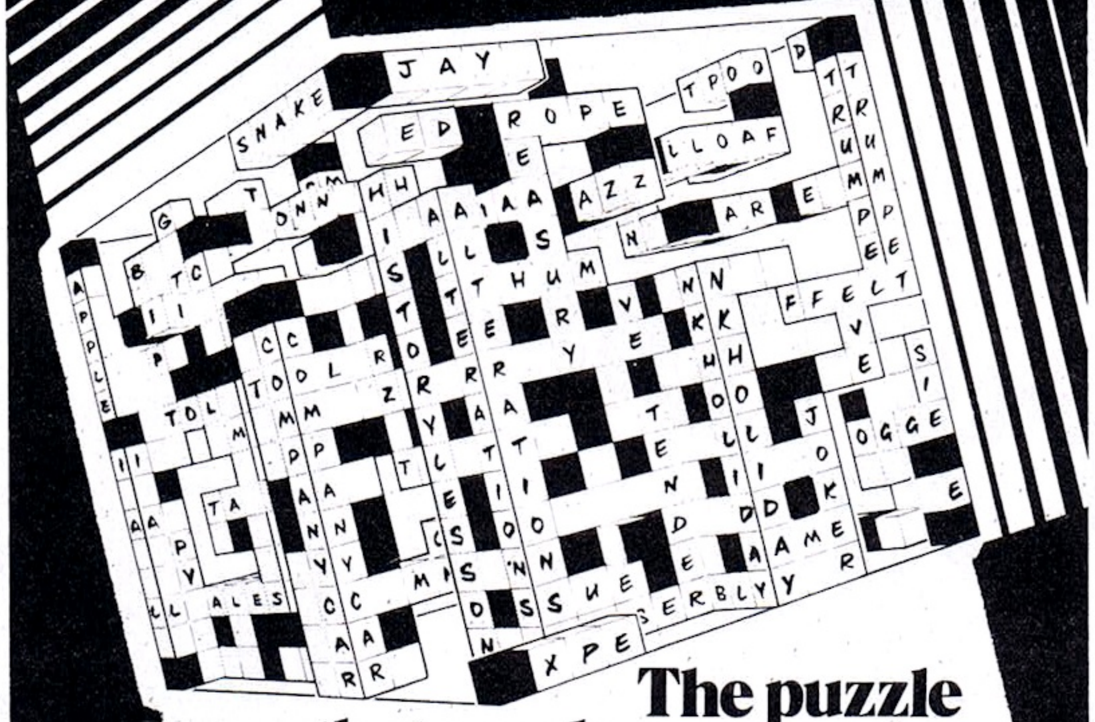
The ultimate Crossword



The puzzle that needs a computer

Alien present the ultimate in word puzzles – 30 integrated crosswords which form a cube.

All locations of this 3 dimensional puzzle are contained in the computer programme and you can complete any part you wish using the display on your T.V. and computer keyboard. Understanding all the relationships between the crosswords is not possible without the computer but as you proceed you will discover new routes to help achieve the solution.

Features: Solution Store, Instant Display, Anagram Function, Character Location in memory.

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MOON RESCUE

Runs on a SPECTRUM

By David Harwood

In the year 2020 an exploratory space mission to the far side of the moon was aborted leaving stranded astronauts with only their backpacks to survive until a rescue team arrived.

Your job in this game of skill and daring is to take the part of the rescue team and safely pick up the stranded men from the moon's surface, at the same time avoiding the many meteors that float above the moon. You must rescue as many men as possible by guiding your spaceship and releasing a ladder from the special *'help hatch'* to the surface of the moon. When correctly positioned, the stranded astronauts can climb up the ladder into the safety of the ship. But BE CAREFUL, if the meteors make contact with either the ladder or your rescue ship a massive explosion will blast you to smithereens! Not a happy ending to the rescue mission.

Playing the Game

To get the game rolling the keys to use are the **'1'** to move to the right, the **'2'** to move your ship to the left, **'9'** to move the ship downwards, **'O'** to move it upwards, **'3'** to release tha ladder and **'4'** to make the man climb the ladder. A word of advice, REMEMBER to hold down key **'4'** until the ship has been reached, and when successfully done you will be serenaded with a well known melody!

In total you have three ships to play with and the game ends when all three have been destroyed. One of the game's features is that there is a running total displayed throughout the game. The points system works on the basis of 100 points awarded for each astronaut rescued. For details on the user defined graphics operation see the program itself.

RUNdown

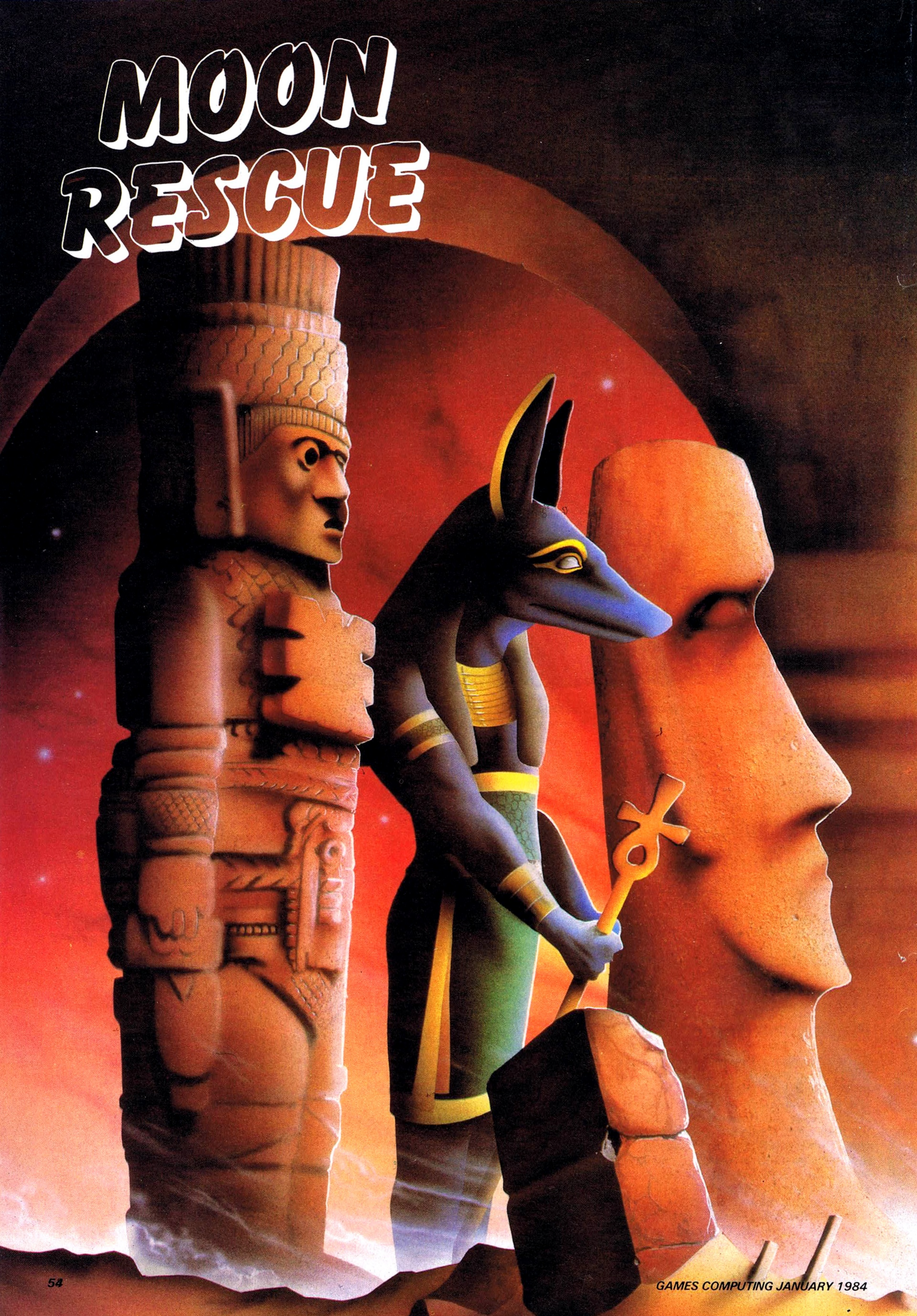
Line	Action
100	Sets colour.
105	Program initialise.
110	Sets up user defined graphics.
115	Sets up array used for co-ordinates of meteors.
123-135	Draws moon surface.
140-150	Program initialise.
155	Prints score.
160	Prints man on moon surface.
165	Moves ship depending on key pressed.
175	Prints ship.
180	If the ship is above the man and the '3' key is pressed, goes to routine to print ladder.
185	Checks to see if ladder is present.
195	Moves man up ladder.
200	Detects if man has reached ship or not.
205-230	Prints meteors and checks if ship is blown up.
240-270	Routine to print ladder.
275	Man reaching ship routine.
280-290	Updates points. Returns to main program.
295-360	Ship blowing up routine. If you have no more ships left, will start playing tune.
365-480	Data for user defined graphics.
490	Data for meteor co-ordinates.
500-520	Data for tune for man reaching ship.
530	Data for music for ship blowing up.

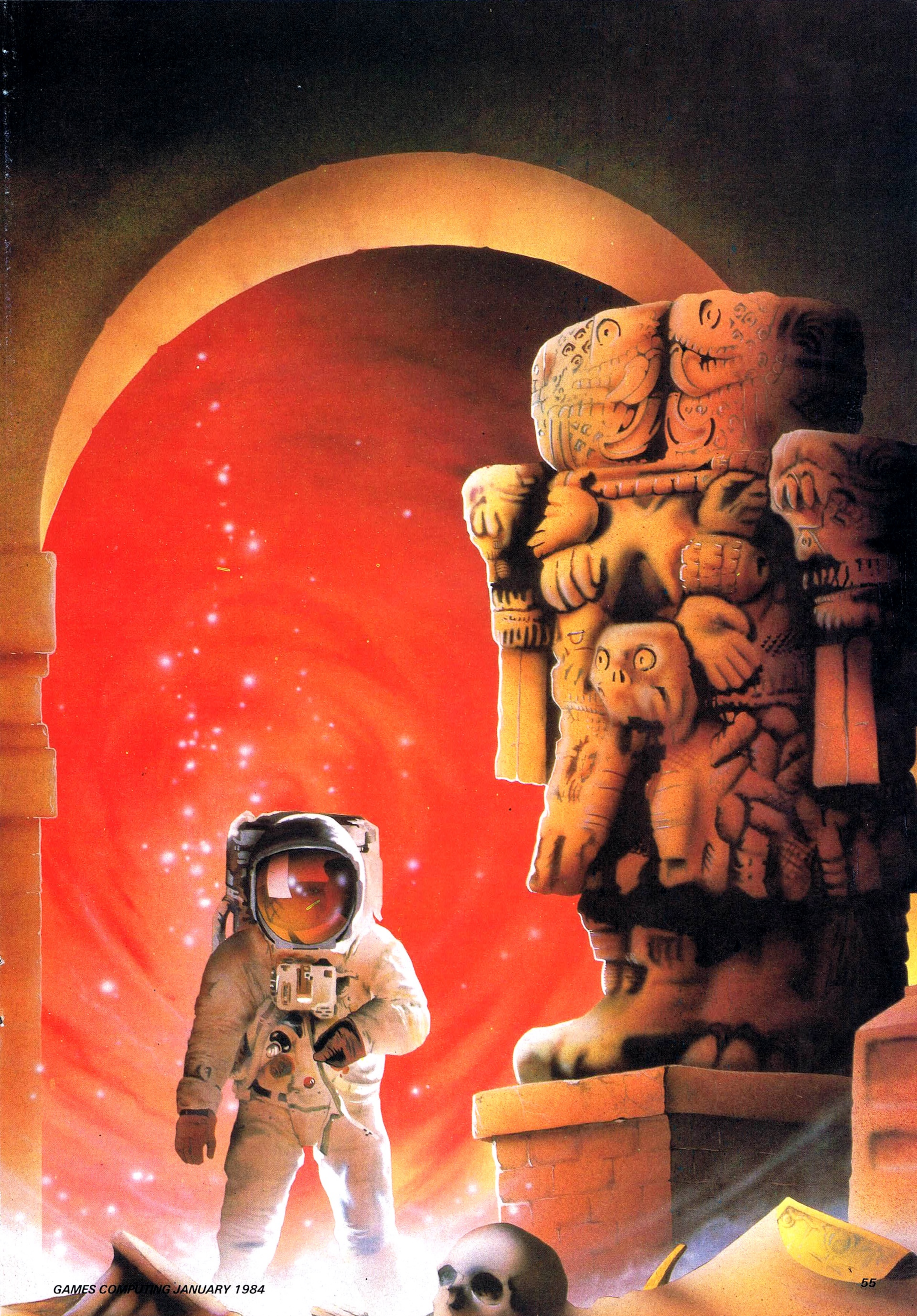
Conversion Clues

Most of the program is self explanatory, with the variables explaining themselves.

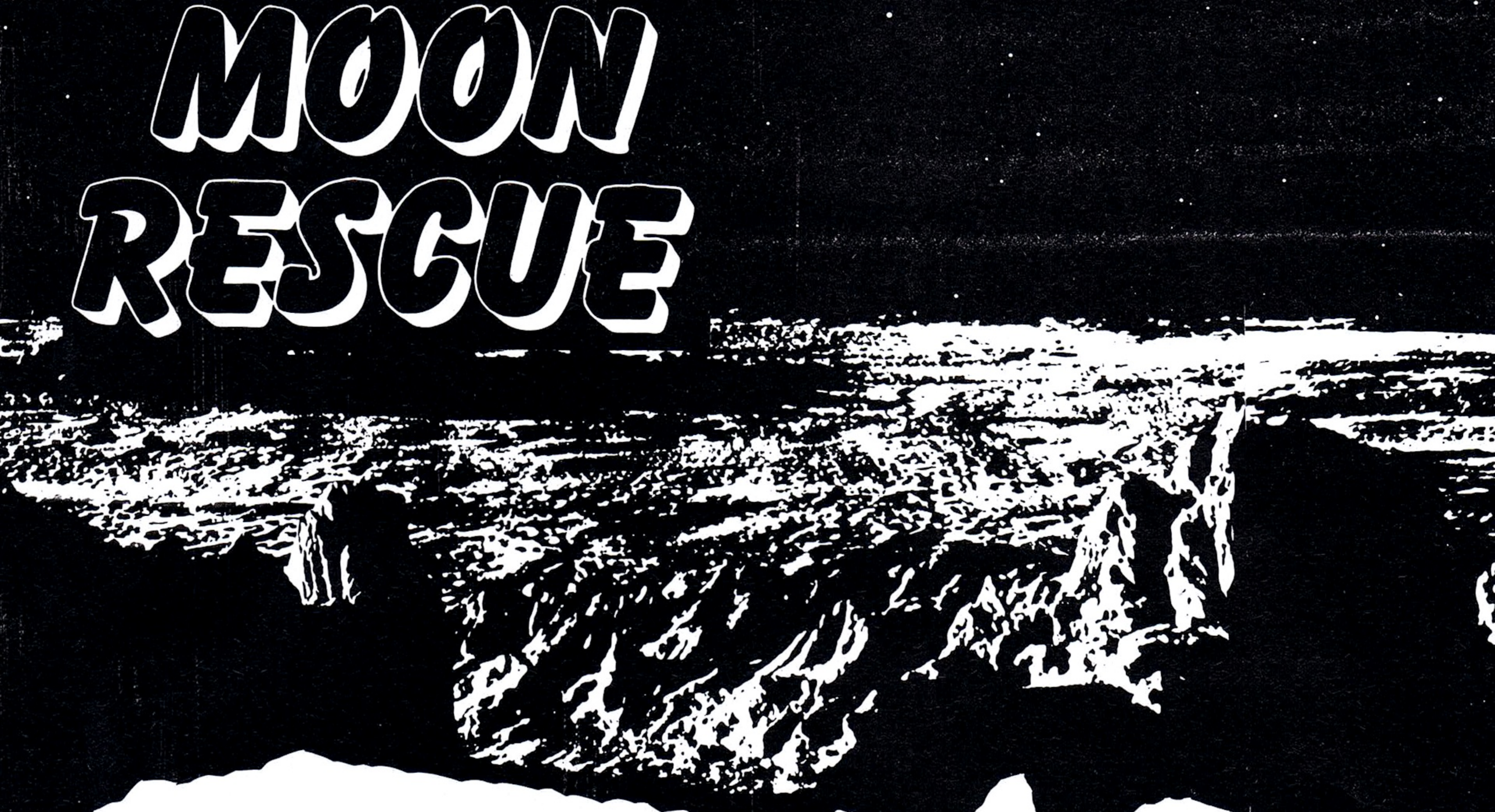
Line	Action
110	Will need changing to suit your machines requirements to use the user defined graphics.
115	Is used to store the co-ordinates of the meteors and unless your machine has a PRINT AT facility, this line and others incorporating PRINT AT will have to be changed to enable the screen POKES to work.
135	Uses a system varaible, 23677, which looks at the co-ordinate of the last x-point plotted.
145	This function of INKEY $ will need to be changed to GET$.
225	ATTR will need to be changed to a screen PEEK.
275	The BEEP will need to be changed to suit your micro's requirements.
490	Co-ordinates of meteors. If you are screen POKEing these will need to be changed.
500-530	Data for BEEP statement will need to be changed.

MOON RESCUE





MOON RESCUE



```
  10 REM **************************
  20 REM **** moon rescue *****
  30 REM *** © dave harwood ***
  40 REM **** august, 1983 ****
  50 REM **************************
 100 PAPER 0: INK 7: BORDER 0: C
LS
 105 LET ship=3: LET points=0: D
IM a(5,2)
 110 FOR i=1 TO 13: READ a$: FOR
 a=0 TO 7: READ b: POKE USR a$+a
,b: NEXT a: NEXT i
 115 RESTORE 490: FOR i=1 TO 5:
FOR j=1 TO 2: READ a: LET a(i,j)
=a: NEXT j: NEXT i
 120 PLOT INK 6;0,4
 125 DRAW INK 6;0,((RND>.5)*2)-(
(RND>.5)*2*(PEEK 23676>1))
 130 DRAW INK 6;3,0
 135 IF PEEK 23677<250 THEN GO T
O 125
 140 LET mcol=INT (RND*29)+1
 145 DEF FN a(c)=INKEY$=STR$ c
 150 LET line=10: LET col=14: LE
T ladder=0: LET mline=20: LET a=
01
 155 PRINT AT 0,0; INK 4;"Score-
";points
 160 BEEP .01,50: PRINT AT 20,mc
ol; OVER 1; INK 6;"Q";AT 21,mco
l;"^"
 165 IF (FN a(9) AND (line<=19))
 OR (FN a(0) AND (line>0)) OR (F
N a(2) AND (col<28)) OR (FN a(1)
 AND (col>=0)) THEN PRINT AT lin
e,col;"  ";AT line+1,col;"
": LET line=line+(FN a(9)-FN a(0
)): LET col=col+(FN a(2)-FN a(1)
)

 170 REM to get ▲ type in 'gh' i
n graphics mode  to get ◢◣ ty
pe in 'ijkl' in graphics mode
 175 PRINT AT line,col; INK 4;"
▲ ";AT line+1,col;"◢◣"
 180 IF FN a(3) AND line>=9 AND
ladder<>1 AND mcol=col+1 THEN GO
 SUB 0240
 185 IF RND>.8 AND ladder<>1 THE
N GO TO 165
 190 REM to get ├┤ type in 'ab'
in graphics mode  to get Q
type in 'ef' in graphics mode
to get ^ type in 'cd' in graphi
cs mode
 195 IF FN a(4) AND ladder=1 THE
N BEEP .01,50: PRINT AT mline,mc
ol; OVER 1; INK 6;"Q";AT mline+
1,mcol;"^": PAUSE 10: PRINT AT
mline,mcol; INK 6;"├┤";AT mline+
1,mcol;"├┤": LET mline=mline-1
 200 IF ladder=1 AND mline=line+
1 THEN GO SUB 275
 205 LET dnum=1
 210 IF a(dnum,2)=-31 THEN LET a
(dnum,2)=31
 215 REM to get ● type in 'm' in
graphics mode
 220 PRINT AT a(dnum,1),a(dnum,2
);" ": LET a(dnum,2)=a(dnum,2)-1
.5: PRINT AT a(dnum,1),a(dnum,2)
; INK 2;"●"
 225 IF ATTR (a(dnum,1),a(dnum,2
)+1)<=6 OR ATTR (a(dnum,1),a(dnu
m,2)-1)<=6 THEN GO TO 0295
 230 LET dnum=dnum+1: IF dnum<=5
THEN GO TO 210
 235 GO TO (155*(ladder<>1))+(18
0*(ladder=1))
 240 LET counter=line+2: LET Lli
ne=col+1: LET ladder=ladder+1
 245 FOR i=counter TO 21
 250 PRINT AT i,Lline; OVER 1; I
NK 6;"├┤"
 255 NEXT i
 260 PRINT AT mline,mcol; OVER 1
; INK 6;"Q";AT mline,mcol;"^"
 265 IF ladder=2 THEN LET ladder
=0
 270 RETURN
 275 RESTORE 500: FOR i=1 TO 56:
 READ length,pitch: BEEP length,
pitch: PRINT AT mline,mcol; INK
 7;"Q";AT mline+1,mcol;"^": N
EXT i
 280 PRINT AT 8,10; INK 1; PAPER
 7; FLASH 1;"You get 100 points"
 285 LET points=points+100
 290 FOR i=1 TO 100: NEXT i: CLS
: GO TO 115
 295 CLS
 300 RESTORE 530: FOR i=1 TO 10
 305 BORDER 7: BORDER 0: BORDER
7: BORDER 0
 310 READ length,pitch
 315 BEEP length,pitch
 320 BORDER 7: BORDER 0: BORDER
7: BORDER 0
 325 PRINT AT line,col+1;"▲";AT
```

```
line+1,col;"◢▬◣"
330 PRINT AT line,col+1;"   ";AT
line+1,col;"   "
335 NEXT i
340 LET ship=ship-1: IF ship<=0
THEN PRINT AT 8,0; INK RND*7; P
APER RND*7; FLASH 1; BRIGHT 1;"G
ame Over  Game Over  Game over":
GO TO 0000
345 PRINT AT 8,0; INK 1; PAPER
7; FLASH 1;"You only have ";ship
;" ships left"
350 FOR i=1 TO 100: NEXT i
355 PRINT AT 10,0;"

                    "
360 CLS : GO TO 115
365 DATA "a",BIN 11000000,BIN 1
1000000,BIN 11000000,BIN 1111111
1,BIN 11000000,BIN 11000000,BIN
11000000,BIN 11000000
370 REM **
375 DATA "b",BIN 00000011,BIN 0
0000011,BIN 00000011,BIN 1111111
1,BIN 00000011,BIN 00000011,BIN
00000011,BIN 00000011
380 REM **
385 DATA "c",BIN 00000001,BIN 0
0000010,BIN 000001100,0,0,0,0,0
390 DATA "d",BIN 10000000,BIN 0
1000000,BIN 00110000,0,0,0,0,0
395 REM **
400 DATA "e",0,BIN 00000001,BIN
00000010,BIN 00000010,BIN 00100
010,BIN 00010001,BIN 00001001,BI
N 00000111
405 REM **
410 DATA "f",0,BIN 10000000,BIN
01000000,BIN 01000000,BIN 01000
100,BIN 10001000,BIN 10010000,BI
N 11000000
415 REM **
420 DATA "g",BIN 00001100,BIN 0
0000100,BIN 00001111,BIN 0001111
1,BIN 00111111,BIN 01111111,BIN
01011111,BIN 01001111
425 REM **
430 DATA "h",BIN 00110000,BIN 0
0100000,BIN 11110000,BIN 1111100
0,BIN 11111100,BIN 11111110,BIN
11111010,BIN 11110010
435 REM **
440 DATA "i",0,0,BIN 00000001,B
IN 00001111,BIN 00010000,BIN 001
00000,BIN 01111111,BIN 10000000
445 REM **
450 DATA "j",BIN 01000000,BIN 1
0000000,0,BIN 11111111,0,0,BIN 1
1111111,BIN 11111111
455 REM **
460 DATA "k",BIN 00000010,BIN 0
0000001,0,BIN 11111111,0,0,BIN 1
1111111,BIN 11111111
465 REM **
470 DATA "l",0,0,BIN 10000000,B
IN 11110000,BIN 00001000,BIN 000
00100,BIN 11111110,BIN 00000001
475 REM **
480 DATA "m",BIN 00111100,BIN 0
1111110,BIN 11111111,BIN 1111111
1,BIN 11111111,BIN 11111111,BIN
01111110,BIN 00111100
485 REM **
490 DATA 10,31,12,15,14,8,16,0,
18,24
495 REM **
500 DATA .4,0,.4,2.039,.7,3.86,
.3,0,.3,3.86,.3,0,.7,3.86,.7,2.0
39,.4,3.86,.3,4.98,.3,4.98,.3,3.
86,.3,2.039,.7,4.98,.7,3.86,.4,4
.98,.4,7.02,.3,3.86,.3,7.02,.3,3
.86,.3,7.02
505 REM **
510 DATA .7,4.98,.4,7.02,.3,6.6
4,.3,6.64,.3,7.02,.3,4.98,.7,6.6
4,.7,7.02,.3,0,.3,2.039,.3,3.86,
.3,4.98,.3,7.02,.4,6.64,.7,6.64,
.3,2.039,.3,3.86,.3,4.98,.3,7.02
,.3,6.64,.4,10.88,.7,10.88
515 REM **
520 DATA .3,3.86,.3,4.98,.3,7.0
2,.3,6.64,.3,10.88,.4,12,.4,12,.
4,10.86,.4,6.64,.4,4.98,.4,6.64,
.4,2.039,1,0
525 REM **
530 DATA 1,0,1,0,.5,2,.5,0,.5,3
,.5,0,.5,-1,.5,0,.5,1,1,0
```

'NOW WIN THE POOLS'

THIS IS MEANT FOR YOU — ESPECIALLY IF YOU USE A SINCLAIR SPECTRUM COMPUTER
or even ANY COMPUTER — OR NO COMPUTER AT ALL.

HAVE YOU EVER HAD THAT DREAM OR EVER WISHED THAT YOU HAD "WON ON THE POOLS" —
AT LAST YOU CAN TURN IT INTO REALITY.

THERE **IS** A SECRET OF "HOW TO WIN ON THE FOOTBALL POOLS" — **IT CAN BE DONE.** I DISCOVERED THE SECRET A LONG TIME AGO — NOW, **FOR THE FIRST TIME** I'M PREPARED TO SHARE IT WITH YOU.

HOW DOES THIS INTEREST YOU — I HAVE DOCUMENTARY EVIDENCE BY WAY OF POOLS WINNINGS DIVIDEND SLIPS/ CANCELLED CHEQUES, etc, SHOWING MY PRESENT WINS ON THE POOLS AS FOLLOWS:—

First Dividends	Second Dividends	Third Dividends	Fourth Dividends	Fifth Dividends	Sixth Dividends
765	1,818	2,942	1,952	631	93

A GRAND TOTAL OF 8,201 (EIGHT THOUSAND, TWO HUNDRED AND ONE DIVIDENDS — so far).

I HOLD THE UNCHALLENGED WORLD'S RECORD FOR POOLS WINS

I AM MAKING THIS VERY SPECIAL, REDUCED PRICE OFFER TO READERS OF HOME COMPUTING WEEKLY FOR A LIMITED PERIOD ONLY.

Do not let anyone tell you that it is impossible to "WIN ON THE POOLS" — since I perfected my method, **I HAVE WON REGULARLY** for over **TWENTY-FIVE YEARS** — proof that it is no 'flash-in-the-pan'.

I have CHALLENGED THE WORLD with my record of wins and with all the evidence that I possess — NO ONE has ever been able to accept the Challenge — I KNOW NO ONE EVER WILL.

MY SECRET IS NOW PLACED ONTO COMPUTER CASSETTE FOR YOU.

THE METHOD IS THE GREATEST TREBLE CHANCE WINNER IN THE HISTORY OF FOOTBALL POOLS — IT WILL LAST FOREVER — BOTH FOR ENGLISH AND AUSTRALIAN FOOTBALL POOLS, WITH EQUAL SUCCESS.

I now intend to give a limited number of people the opportunity of making use of my method — perfected over 25 years and proving itself on **EVERY ONE OF THOSE TWENTY-FIVE YEARS.**

You will have noted details of my personal achievements so far, as given to you above.

A GRAND TOTAL of 8,201, yes 8,201 POOLS DIVIDENDS, including **765 FIRST DIVIDENDS.**

My Pools Winnings Dividend slips now number so many, that they fill a very large suitcase and will stand as my evidence of all claims in **ANY COURT OF LAW IN THE WHOLE WORLD.**

Taking just the past 25 years into consideration, I have won ON AVERAGE over 328, (THREE HUNDRED AND TWENTY—EIGHT) Pools Dividends **EVERY YEAR** — or — AN AVERAGE of over **SIX DIVIDENDS EVERY WEEK** for **TWENTY—FIVE YEARS.**

You have my absolute Guarantee of the complete authenticity of every claim, cheque, document, letter, etc, contained herein.

I do have losing weeks, but ON AVERAGE my winnings show over SIX DIVIDENDS **EVERY WEEK** for the past 25 years.

I know that you are now utterly flabbergasted, it always happens to everyone with whom I come into contact. Please just sit back and **imagine** for a moment my **FIRST DIVIDEND** wins alone — they now number 765 (seven hundred and sixty-five) and will probably be even more by the time this advertisement appears in print.

I AM NUMBER ONE IN THE WORLD AND NO ONE DISPUTES IT.

For as long as I continue to enter the Football Pools my wins will continue. I have already said, they apply, with equal success to both English and Australian Football Seasons.

I intend to release a STRICTLY LIMITED NUMBER of copies of my cassette — DO NOT DELAY AND FIND YOU ARE TOO LATE, in which case I would have to refund your money.

I am so confident of **YOUR** success that if do **not** win at least THREE FIRST TREBLE CHANCE DIVIDENDS in the first 20 weeks of entering, I will completely cancel the balance of the purchase price and you do not have to pay me another penny, at any time, no matter how vast your winnings.

I only wish that space would allow me to give you photographs of my winnings slips, cancelled cheques, etc, but it is of course impossible — they now number 8,201 dividends. I have however given JUST A FEW EXTRACTS from ORIGINAL LETTERS I hold from my small Clientele.

I am the Inventor and Sole Proprietor of my method, Registered as EUREKA — ('I have found it'). I am known as The Professor in Pools Circles — I am of the Highest Rank in Forecasting — this is beyond dispute. I am marketing a limited number of Computer Cassettes, under my Registered Company — FOOTBALL ENTERPRISES.

My initial charge for a copy was £75, but for this SPECIAL REDUCED PRICE OFFER I will send you a copy, for £20, (twenty pounds) ONLY, plus your Promise to pay me the balance of £55 — **ONLY** IF YOU WIN AT LEAST THREE FIRST TREBLE CHANCE DIVIDENDS IN YOUR FIRST 20 WEEKS OF ENTERING — otherwise you owe me NOTHING FURTHER.

This is surely proof absolute of my supreme and utter confidence in my own abilities and in the capabilities of my discovery. I could easily CHARGE £2,000 per cassette on the evidence I possess, but that would not be fair to everyone, which is what I want to do.

My method is WORLD COPYWRIGHT, any infringement and immediate proceedings will be taken, without prior warning. It is truly ingenious and has stood the test of time.

My cassette is simplicity itself to operate and you'll be given FULL DETAILS for weekly calculating. Your entry need not involve you in any large weekly stakes, you can enter for as little as 25p, if you wish.

I charge NO COMMISSION on any of your wins — no matter how BIG they may be.

I realised a long time ago, that it was no good sitting down and **dreaming** about winning the pools, so I burnt the candle at both ends, working late into the night, occasionally RIGHT THROUGH THE NIGHT, I **KNEW** there was a way, eventually it all paid off and has been doing so ever since.

I am unable to vary my offer to anyone, so please do not request it, as I shall very easily dispose of the cassettes I have prepared and am making available.

IMMEDIATELY I perfected my method I commenced winning right away, (first with just a little £163, the first week I used it), I HAVE NEVER LOOKED BACK SINCE, amongst all those dividends was one for over **EIGHT THOUSAND POUNDS** for just **one eighth of a penny stake.**

I will release a copy on cassette, to you, on receipt of the completed order form and your Signature thereon, confirming you will treat it in the STRICTEST CONFIDENCE between us and retain it for your **OWN USE ONLY.**

PLEASE NOTE:
If you happen to be the proud owner of a Computer, **other than** a Sinclair Spectrum, you can still purchase a copy of my method, for the same price and program it YOURSELF on to YOUR OWN COMPUTER — or even if you do not have a COMPUTER.

Don't take my word for it, read what people write about me and my method:—

I won on Zetters last weekend. It was not a big sum, but all the same it was a very nice surprise for me. J.C., Lancs.

I appreciate the straightforward method you adopt, which is such a contrast to the rubbish of misrepresentation which is so common in the Betting World, by unscupulous and self-opinionated charlatans. C.H., Devon

Winnings cheque received today, sincere thanks. D.N., Devon

I congratulate you on your achievement. R.R., Wales

I should like to thank you for a most exciting season and look forward to hearing from you again. J.C., Hants.

I would like to acknowledge cheque and say how much I appreciate your integrity. J.M., Scotland

Many thanks for your system, it is all you say and more. J.C., Lancs.

Your wonderful system won me £3,527. I intend to visit London soon and will be able to come and see you personally. (Overseas Client). P.M., Kampala.

Many thanks for trying so hard to please us all, your brother should be thanked also. One of our daughters, WHOSE HUSBAND YOU HELPED ENORMOUSLY, has just phoned, the four of them have just spent a lovely holiday in Spain. K.R.,Isle of Man.

I sent in my FIRST entry last week and won 2nd and 3rd dividends, as you will see from the enclosed certificate. One more and I would have collected over £400 for FIRST dividend. Once I've won a fair amount I shall be staking from winnings and at 2p per line, A FIRST DIVIDEND last week at this would have been over £3,000. C.A., Yorks.

I am very interested indeed and enclose £20 herewith. I agree to pay you the balance of £55 **ONLY** if I win at least THREE FIRST TREBLE CHANCE DIVIDENDS in my first 20 weeks of entering — otherwise I owe you NOTHING FURTHER at any time — no matter how much money I win. My Signature below is my Undertaking to retain complete and absolute confidence about the method.

Name.....

Address.....

.....

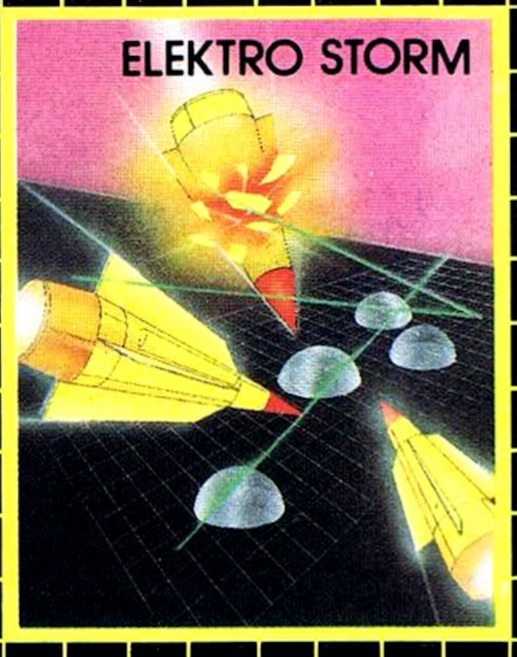
.....

Signature .....

The Managing Director,
Football Enterprises,
'Anvon',
9 New Road,
Haverfordwest, Pembs.

Please tick if cassette is for:
Sinclair ZX81 (16K) ☐
Sinclair Spectrum (48K) ☐
Any other Computer ☐
No Computer at all ☐

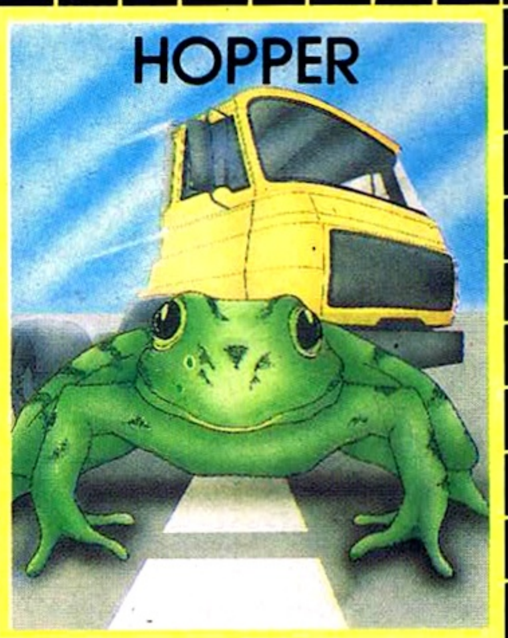
Arcade Action for Spectrum and ZX81 16K, 48K



ELEKTRO STORM

Earth is under attack from wave after wave of intergalactic missiles – your mission is to blast them out of the sky with your laser cannon before the whole human race is wiped out.

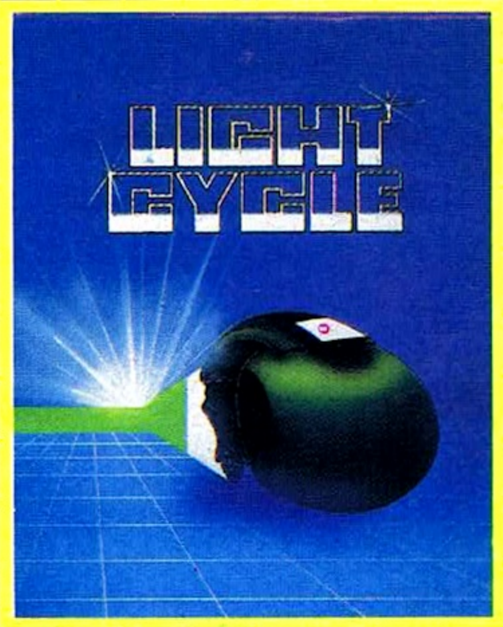
SPECTRUM 48K 5·95



HOPPER

Help FERGUS and his friends across the highway avoiding the traffic, and then over the treacherous river on the backs of turtles and logs to the safety of the lilly pond.
Features include: 6 lanes of traffic, diving turtles, crocodiles & flies.

ZX81 16K 3·95
SPECTRUM
16K 48K 5·95



LIGHT CYCLE

The MASTER CONTROL PROGRAM has ordered you to race your light cycle on the infamous grid. This is an incredibly fast, adrenalin pumping game that is very addictive. There is an option to race against either another player or the computer – but we warn you its very very good!

SPECTRUM
16K 48K 5·95

MAZE DEATH RACE

Drive your 500b.h.p. racing car around a giant maze (9 times the size of the TV screen on the ZX81 version, 32 times for the spectrum). Watch out for the hazards – oil, ice, fallen rocks etc. Not the least of your worries are the chase cars also in the maze – one touch with these means instant death!

ZX81 16K 3·95
SPECTRUM 48K 4·95

PANIC

"It must be a nightmare" he screamed as he ran around the maze of floors, desperately climbing ladders to different levels in a vain attempt to evade the monsters.
He had only his neutron hammer to dig holes for the vile creatures to fall into, but even then he had to repeatedly hit them before they dropped to their deaths. As if that wasn't bad enough, the oxygen supply was running out!

SPECTRUM 48K 5·95

CHEQUE OR P.O. TO P.S.S. 452 STONEY STANTON RD. COVENTRY CV6 5DG.
INSTANT CREDIT CARD SALES TEL (0203)667556.

PSS

KRAZY KONG

Can you rescue Jane from the evil clutches of KRAZY KONG? Fight your way through three screens of fire-balls, barrels and conveyor belts to the top of the girders and save the damsel in distress. Entirely written in machine code to give super fast arcade action.

ZX81 16K 3·95
SPECTRUM 48K 5·95

LASER

On the planet Zonka robots ZOK and ZAK are always fighting, they fight in the courtyard just outside their homes. They have lasers in the centre of their heads and must move their targeting dot to the opponent's body and then shoot as fast as possible with their lasers.

In this game for two players the two robots are drawn in random positions in the courtyard and you move the appropriate joystick to move your targeting dot to the centre of the opponent's body and hit the joystick button as fast as possible — as your opponent is trying to kill you at the same time!

Each robot only has two shots per go and has only 9 lives per game. There are also constant displays of laser energy, lives left and scores for each player and also a high score for the best and fastest robot.

One or two points when typing in the program: Chars that are underlined should be typed in inverse video and my printer prints the char # as a £ sign, the ← sign is typed as ESC CTRL-CLEAR, and the ↓ sign is typed as ESC CTRL −↓.

Runs on any ATARI computer

PRACTICE

```
10 DIM X(2),Y(2),A(2),B(2),SCORE(2),ENERGY(2),LIVES(2):HIGH=0:HITCLR=53277:GOT
O 10000
100 CHAR=0:IF STRIG(0)=0 THEN GOSUB 23000:GOSUB 24000:GOSUB 22000:CHAR=1:GOSUB
 22000
101 GOSUB 26000
110 CHAR=1:IF STRIG(1)=0 THEN GOSUB 23000:GOSUB 24000:GOSUB 22000:CHAR=0:GOSUB
 22000
115 COLOR 0:GOSUB 1000
120 FOR CHAR=0 TO 1:A=STICK(CHAR):GOSUB 24100:NEXT CHAR
128 COLOR 1
129 TRAP 23950:GOSUB 1000
131 REM NEXT I
132 TIME=TIME+1:IF TIME=10 THEN SETCOLOR 0,RND(0)*15,9:TIME=0
200 GOTO 100
1000 FOR CHAR=0 TO 1:PLOT A(CHAR),B(CHAR):NEXT CHAR:RETURN
10000 REM START/INTRO
10010 GRAPHICS 18:REM SE.S HERE
10012 GOSUB 20000:POKE DL+10,6:POKE DL+12,6:POKE 53277,4
10013 POSITION 2,0:? £6;"XXXXXXXXXXXXXXXX"
10015 POSITION 2,1:? £6;"XLASER PRACTICEX"
10016 POSITION 2,2:? £6;"XXXXXXXXXXXXXXXX"
10020 POSITION 2,5:? £6;"      by"
10022 POSITION 3,7:? £6;"e.h.beresford."
10024 POSITION 4,9:? £6;"..........."
10025 POSITION 4,10:? £6;".press fire."
10030 POSITION 4,11:? £6;"..to start.."
10035 SOUND 0,255,10,8:SOUND 1,254,10,8:POKE 53768,1
10036 SCORE(0)=0:SCORE(1)=0:LIVES(0)=9:LIVES(1)=9
10040 FOR I=0 TO 255:POKE 708,I:NEXT I
10050 IF STRIG(0)=1 AND STRIG(1)=1 THEN 10040
10051 POKE HITCLR,0
10060 SOUND 0,0,0,0:SOUND 1,0,0,0
11000 REM SCREEN SET UP FOR GAME
11010 GRAPHICS 7:SETCOLOR 2,0,0:SETCOLOR 0,RND(0)*15,8:SETCOLOR 1,3,6
11011 SETCOLOR 2,14,0
11012 GOSUB 20000:POKE DL,0:POKE DL+1,0:POKE DL+3,70:POKE DL+6,6
11013 GOSUB 21000:TIME=0
11014 POKE 752,1:COLOR 1:PLOT 0,1:DRAWTO 159,1:DRAWTO 159,78:DRAWTO 0,78:DRAWT
O 0,1
11025 GOSUB 25100
11100 GOSUB 20010
11205 GOSUB 24000
19999 GOTO 100
20000 DL=PEEK(560)+256*PEEK(561):RETURN
20010 ? "↰ LASER   LIVES          LIVES   LASER"
20015 ? "ENERGY1   LEFT          LEFT   ENERGY2"
20020 ? " ";ENERGY(0);:IF ENERGY(0)=0 THEN ? "    ";
20025 ? "      ";LIVES(0);"              ";LIVES(1);"     ";ENERGY(1)
20030 RETURN
21000 POKE 87,1
21010 POSITION 0,0:? £6;" 1UP     high     2UP"
21012 POKE 87,1
21015 POSITION 0,1:? £6;SCORE(0):POSITION 8,1:? £6;HIGH:POSITION 15,1:? £6;SCO
RE(1)
21020 POKE 87,7:RETURN
22000 REM DRAW CHAR(CHAR)
22001 REM X()=XPOS CHAR , Y()=YPOS CHAR TLFTH CORNER
22010 X=X(CHAR):Y=Y(CHAR)
22011 COLOR 1:PLOT X,Y+1:PLOT X+8,Y+1
22015 COLOR 2:PLOT X+2,Y:DRAWTO X+6,Y:DRAWTO X+6,Y+4:DRAWTO X+2,Y+4:DRAWTO X+2
,Y:PLOT X+3,Y+5:DRAWTO X+5,Y+5
22020 PLOT X,Y+12:DRAWTO X,Y+6:DRAWTO X+8,Y+6:DRAWTO X+8,Y+12:PLOT X+2,Y+9:DRA
WTO X+2,Y+17:DRAWTO X,Y+17
22025 DRAWTO X,Y+19:DRAWTO X+8,Y+19:DRAWTO X+8,Y+17:DRAWTO X+6,Y+17:DRAWTO X+6
,Y+9:PLOT X+4,Y+18:DRAWTO X+4,Y+13
22030 COLOR 1:PLOT X+4,Y+1:PLOT X+4,Y+2:PLOT X+3,Y+3:DRAWTO X+5,Y+3
22031 PLOT X,Y+12:PLOT X+1,Y+12:PLOT X+7,Y+12:PLOT X+8,Y+12
22035 IF CHAR=0 THEN PLOT X+4,Y+8:DRAWTO X+4,Y+11
22040 IF CHAR=1 THEN PLOT X+3,Y+8:DRAWTO X+5,Y+8:PLOT X+5,Y+9:DRAWTO X+3,Y+10:
PLOT X+3,Y+11:DRAWTO X+5,Y+11
22045 PLOT X+1,Y+1:PLOT X+7,Y+1
22050 PLOT X+1,Y+18:DRAWTO X+3,Y+18:PLOT X+5,Y+18:DRAWTO X+7,Y+18
22060 COLOR 0:PLOT X,Y+1:PLOT X+8,Y+1
22999 RETURN
23000 POKE 77,0:XT=X(CHAR)+4:YT=Y(CHAR)+1
23001 IF ENERGY(CHAR)=0 THEN GOTO 25000
23002 IF CHAR=0 THEN SOUND 0,200,12,10
23003 IF CHAR=1 THEN SOUND 0,50,10,10
23004 TRAP 23950:COLOR 0:PLOT A(CHAR),B(CHAR)
23005 FOR I=1 TO 10
23010 COLOR 1:PLOT XT,YT:DRAWTO A(CHAR),B(CHAR):COLOR 0:PLOT XT,YT:DRAWTO A(CH
AR),B(CHAR)
23015 NEXT I:SOUND 0,0,0,0
23020 CT=CHAR+1:IF CT=2 THEN CT=0
23030 IF A(CHAR)>X(CT)+1 AND A(CHAR)<X(CT)+7 AND B(CHAR)>Y(CT)+6 AND B(CHAR)<Y
(CT)+12 THEN GOTO 24200:REM EXP
23040 ENERGY(CHAR)=ENERGY(CHAR)-1000:GOSUB 20010:IF ENERGY(CHAR)=0 THEN GOSUB
25000
23041 RETURN
23950 A(CHAR)=X(CHAR)+4:B(CHAR)=Y(CHAR)+1:GOTO 100
24000 SOUND 0,0,0,0:POKE 53768,24:POKE 53761,168:POKE 53763,168:POKE 53765,168
:POKE 53767,168:POKE 53760,240
24005 POKE 53764,252:POKE 53762,28:POKE 53766,49:RETURN
24100 IF A=15 THEN RETURN
24103 A(CHAR)=A(CHAR)+5*((A=7)+(A=6)+(A=5)-(A=11)-(A=10)-(A=9))
24105 B(CHAR)=B(CHAR)+3*((A=13)+(A=5)+(A=9)-(A=14)-(A=10)-(A=6)):RETURN
24200 SOUND 0,0,0,0:SOUND 1,0,0,0:SOUND 2,0,0,0:SOUND 3,0,0,0:GOSUB 26200
24203 SETCOLOR 4,8,12:SOUND 0,10,10,4:FOR I=0 TO 10:NEXT I:SETCOLOR 4,0,0
24204 COLOR 1:SOUND 0,0,0,10
24205 FOR I=0 TO 100 STEP 3:POKE 53760,I:XT=RND(0)*10+X(CT):YT=RND(0)*20+Y(CT)
:PLOT X(CT)+4,Y(CT)+8:DRAWTO XT,YT
24206 NEXT I
24207 FOR XT=0 TO 10:SETCOLOR 4,8,12:FOR I=0 TO 3:NEXT I:SETCOLOR 4,0,0:SOUND
0,XT*10,10,14
24210 SOUND 0,0,0,0:FOR I=0 TO 3:NEXT I:NEXT XT
24212 LIVES(CT)=LIVES(CT)-1:IF LIVES(CT)=0 THEN GOTO 27000
24215 SCORE(CHAR)=SCORE(CHAR)+250*ENERGY(CHAR)/1000:IF LIVES(CT)=0 THEN 27000
24220 POP :POP :GOTO 11000
24299 RETURN
25000 SOUND 1,0,0,0:SOUND 2,0,0,0:SOUND 3,0,0,0
25005 ? "↰↓       PLAYER ";CHAR+1;" - NO ENERGY LEFT"
25010 FOR I=100 TO 0 STEP -1:SOUND 0,I,12,I:NEXT I:SOUND 0,0,0,0
25040 IF ENERGY(0)<>ENERGY(1) THEN GOSUB 20010:RETURN
25050 FOR I=0 TO 120:NEXT I:? "↰↓         PLAYERS 1 AND 2":? "          OUT OF E
NERGY"
25055 POP :POP :SOUND 0,0,8,10:FOR XT=0 TO 6:FOR I=255 TO 20 STEP -6:POKE 5376
0,I:NEXT I:NEXT XT
25060 SOUND 0,0,0,0:FOR I=0 TO 15:NEXT I:GOTO 11000
25100 FOR CHAR=0 TO 1:ENERGY(CHAR)=2000
25105 X(CHAR)=2+RND(0)*145:Y(CHAR)=3+RND(0)*55
25130 A(CHAR)=X(CHAR)+4:B(CHAR)=Y(CHAR)+1
25135 NEXT CHAR
25140 IF ABS(X(0)-X(1))<9 OR ABS(Y(0)-Y(1))<20 THEN GOTO 25100
25150 FOR CHAR=0 TO 1:GOSUB 22000:NEXT CHAR
25190 RETURN
26000 RETURN
26200 COLOR 1:PLOT X(CT)+4,Y(CT)+1
26201 FOR XT=40 TO 0 STEP -3:FOR I=0 TO 1:COLOR I:GOSUB 26250:FOR YT=0 TO 5:NE
XT YT:SOUND 0,0,0,0
26203 FOR DL=0 TO 5:NEXT DL
26205 SOUND 0,XT,12,8:NEXT I:NEXT XT:RETURN
26250 X=X(CT):Y=Y(CT)
26252 PLOT X,Y+1:PLOT X+8,Y+1:PLOT X+4,Y-1
26260 PLOT X+3,Y+1:PLOT X+5,Y+1
26299 RETURN
27000 SCORE(CHAR)=SCORE(CHAR)+500*LIVES(CHAR)
27010 IF SCORE(CHAR)>HIGH THEN HIGH=SCORE(CHAR)
27020 GRAPHICS 18
27030 POSITION 5,1:? £6;"game over"
27040 POSITION 6,3:? £6;"PLAYER ";CHAR+1
27050 POSITION 6,5:? £6;"IS CHAMP"
27060 POSITION 2,8:? £6;"score : ";SCORE(CHAR):FOR XT=0 TO
27070 FOR I=0 TO 250 STEP 7:SOUND 0,I,10,8:POKE 710,I:NEXT
27071 NEXT XT
27999 POP :POP :GOTO 10000
```

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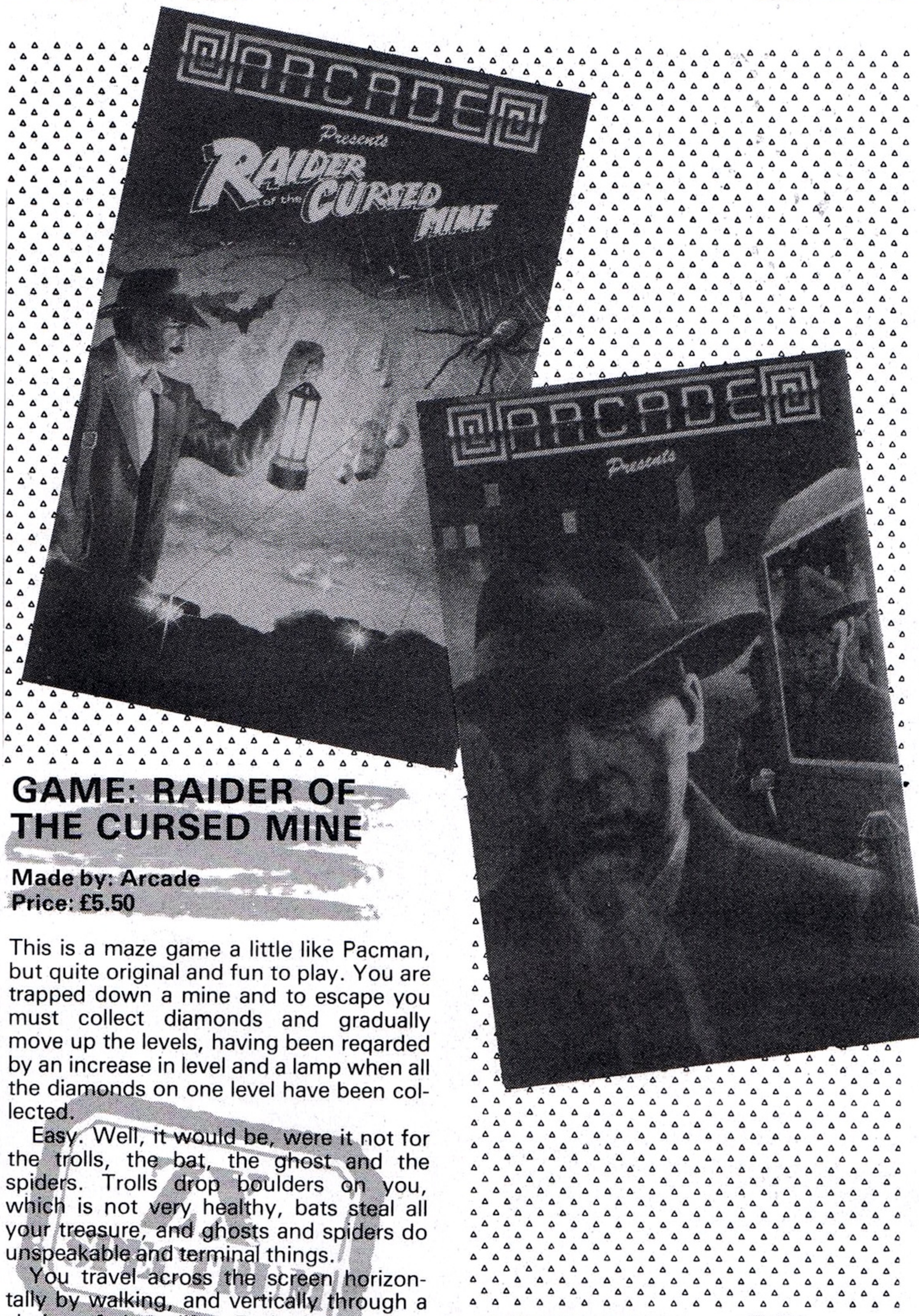


GAME: RAIDER OF THE CURSED MINE

Made by: Arcade
Price: £5.50

This is a maze game a little like Pacman, but quite original and fun to play. You are trapped down a mine and to escape you must collect diamonds and gradually move up the levels, having been reqarded by an increase in level and a lamp when all the diamonds on one level have been collected.

Easy. Well, it would be, were it not for the trolls, the bat, the ghost and the spiders. Trolls drop boulders on you, which is not very healthy, bats steal all your treasure, and ghosts and spiders do unspeakable and terminal things.

You travel across the screen horizontally by walking, and vertically through a choice of three lifts. Each time you attempt to recover a diamond you must choose a level without ghost, bat or spider, and time your journey so that it is boulder-free. So not only is arcade dexterity needed but a degree of strategy is also involved. This is an interesting variant and well thought out. I could find no bugs in the program though I quickly discovered a slight flaw in design which makes play rather easier than it should be. I won't tell you what it is, because getting there is half the fun. . . .

GAME: THE DETECTIVE

Made by: Arcade Software Ltd
Price: £5.50

This game has you playing the part of a brave detective who must make his way through 'dagger alley'.

You are attacked by different waves of robots, helicopters, aeroplanes and spaceships, to mention but a few which increase with speed as you kill them off. To top this there is also a mad dog that chases you across the bottom of the screen, if he catches you before you can escape your score is reset back to nought. In addition you are attacked by a row of tyres, which collect on the screen and descend in an attempt to crush you. These are immune to your fire and must be avoided.

In all, there are twenty-five levels to cope with, nearly every level introduces a new type of object to combat, although their formation and movement does not differ much. On reaching the final level you must attempt to open a safe by guessing its combination (a number between 1000-9999).

The game loaded first time without problem and is compatable with Kempston and AGF joysticks. The high score is recorded but unfortunately the players name is not. The graphics and sounds are not exactly exciting but the game proves to be addictive. Overall its' a game of fairly good quality but don't be fooled by the title, it's just another version of invaders. Fun to play but by no means a classic

GAME: GALAXIANS

Made by: Artic Software
Price: £4.95

This is a good version of a great game. The original contains some of the meanest, noisiest aliens around — this reproduction does not let the original down.

Keys are well chosen, the left/right keys being well away from the fire and reset keys. Hi-res graphics are a very good feature of the Spectrum — and are only rarely exploited to the fullest by commercial software: Artic, though, make full use of them is in this fast, smooth game — no jerky movement at all.

The sound is surprisingly good — especially where amplified — and really moans as the aliens scream down, twisting and turning towards you. A nice touch is the "loop the loop" that all the Galaxians do after each "bombing mission." The actual graphic characters — especially the laser base — are almost identical to the arcade original's, and are very colourful. Nine skill levels are also available — but I strongly recommend that you start with the first!

Also available is a two player option — surprisingly rare on most Spectrum games. Minimal instructions are needed, but adequate are provided, and the game loaded first time. When compared with similar games at several pounds more money, this game is excellent value for money, and is a must for your software library.

REVIEWS

SOFTWARE

GAME: CAMELOT

Made by: Cases Computer Simulations
Price £5.50

Camelot starts with a copyright notice with dire warnings for any would-be software pirates. The writers need not worry as copying this tape is hardly worth the effort.

The game is set in medieval England where you have just been deposed from your rightful throne. The object is to roam the countryside with faithful warriors trying to collect enough treasure to ensure that you can reign the crown. At every move a rudimentary map is displayed with just over a dozen locations shown. When a move is made the scene is depicted on the screen. The graphics are low resolution and crude and do not do justice to what the Spectrum is capable of. Besides there are only four scenes that are ever displayed.

Various situations may arise, such as bands of warriors attacking your party. Pressing the 'fight' option means you invariably win and may continue. You can but as your supplies are at various bazaars that are scattered around, the method for purchasing goods is, to say the least, tedious. The program responds (?) to single key entry but since it is written in BASIC is incredibly slow.

There are three levels ranging from pointlessly easy to impossibly hard. Well, the graphics are colourful (but no where near the standard of such masterpieces like 'The Hobbit') and the tape did LOAD first go. It may keep the kids amused for a few minutes.

GAME: STAR FIGHTER

Made by: Durell Software
Price £5.50

A good, fast, action adventure game in which you play the part of Captain of an intergalactic starship on a mission to clear the Andromedan galaxy of alien intruders.

On your way you battle with alien ships and have to avoid collision with anti-matter mines and planets as you work through each sector of space passing through star gates, refuelling as you go. You are armed with long range photon torpedoes and phasors and are provided with all the necessary energy status gauges and warning devices you could need. Skill level can be varied from 0 to 9.

The program is written in machine code and makes really excellent use of graphics and sound. The close range dog-fighting with alien ships is tremendous. I found the program entirely crashproof but had difficulty loading from tape at fast speed, not because of errors introduced but the initial signature at commencement of loading had been cut short. There were no problems at slow speed however.

Operation of the four cursor shift keys, space bar and on occasions the return bar proved to be rather too difficult to match the speed of the game; it would be so much better with a joystick controller.

Supplied instructions were comprehensive. An excellent game for anyone who likes plenty of noise and excitement and very good value at the price.

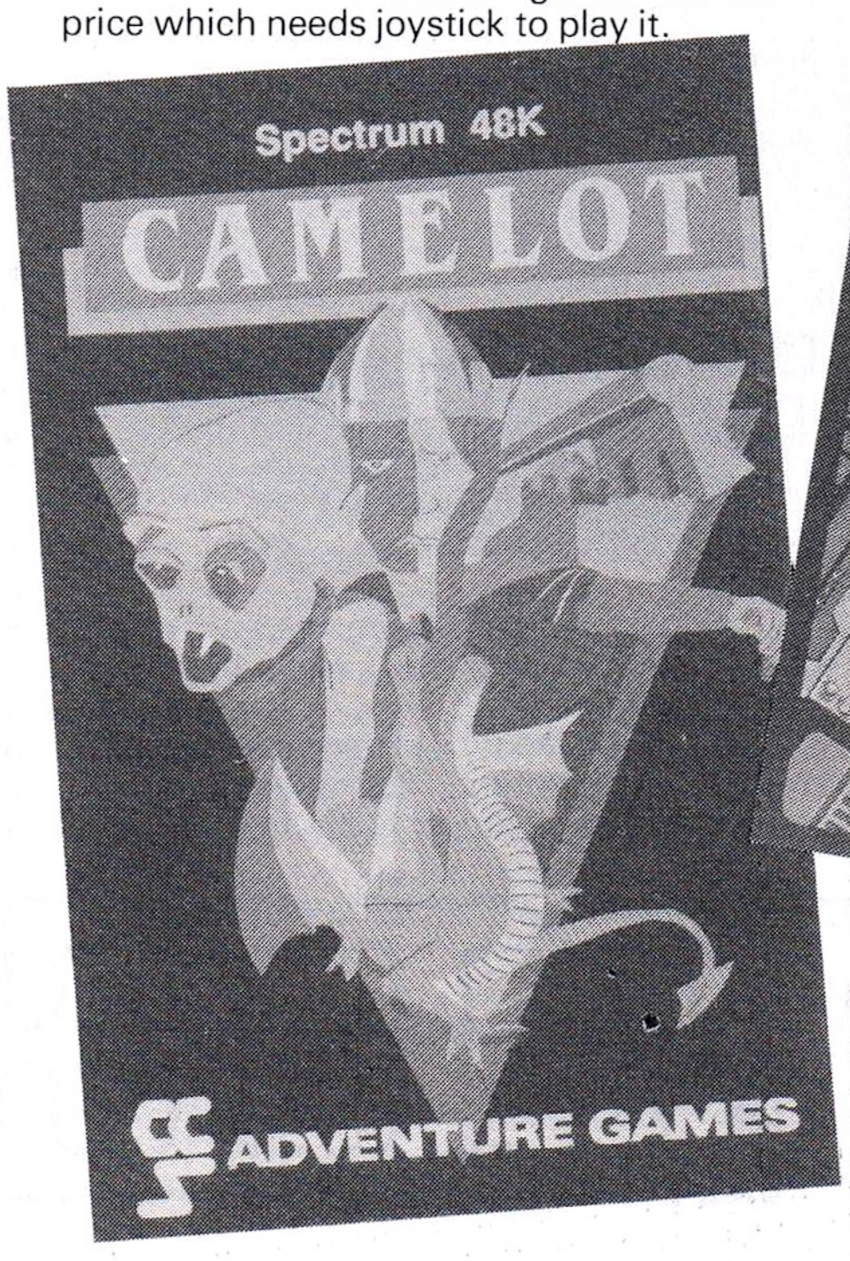
GAME: A.B.M. CONTROL/CAVERN HUNT

Made by: Timeless Software
Price: £4.95

A.B.M. Control is not an original game although it is a reasonable version of the arcade favourite Missile Command.

For those of you who don't know the game you have four cities to defend from a never ending stream of bombs, low flying missiles, etc. You have to explode them using joystick to control a cross located on the screen by pressing the fire button. With an option of 1 or 2 players, multi-level screens, it's quite addictive. I managed to reach level 12. The screen colour changes and the level is displayed at the beginning of each successful screen you manage to clear.

Cavern Hunt loads in two parts, the first containing all the instructions for the game, in which you search out the wumpit, a creature who is invisible until he's shot with your arrow. The game takes place in a 3D maze with hazards such as bats that pick you up and drop you elswhere, slime pits and one or more wumpits. Clues are given as to whereabouts of the wumpits, and pressing the spacebar displays your footprints and any slime pits or bats you have encountered. An excellent game for the price which needs joystick to play it.



GAME: STORM ARROWS

Made by: Dragon Data
Price: £7.95

Storm Arrows is the second program from Dragon Data and the game is very fast and addictive. The idea is to shoot all the arrows on one level before going onto the next maze.

To do this you control a laser, moved with the joystick, blasting all enemies in sight. Not easy to do as a master arrow (?) drop eggs that hatch into more arrows as the game proceeds.

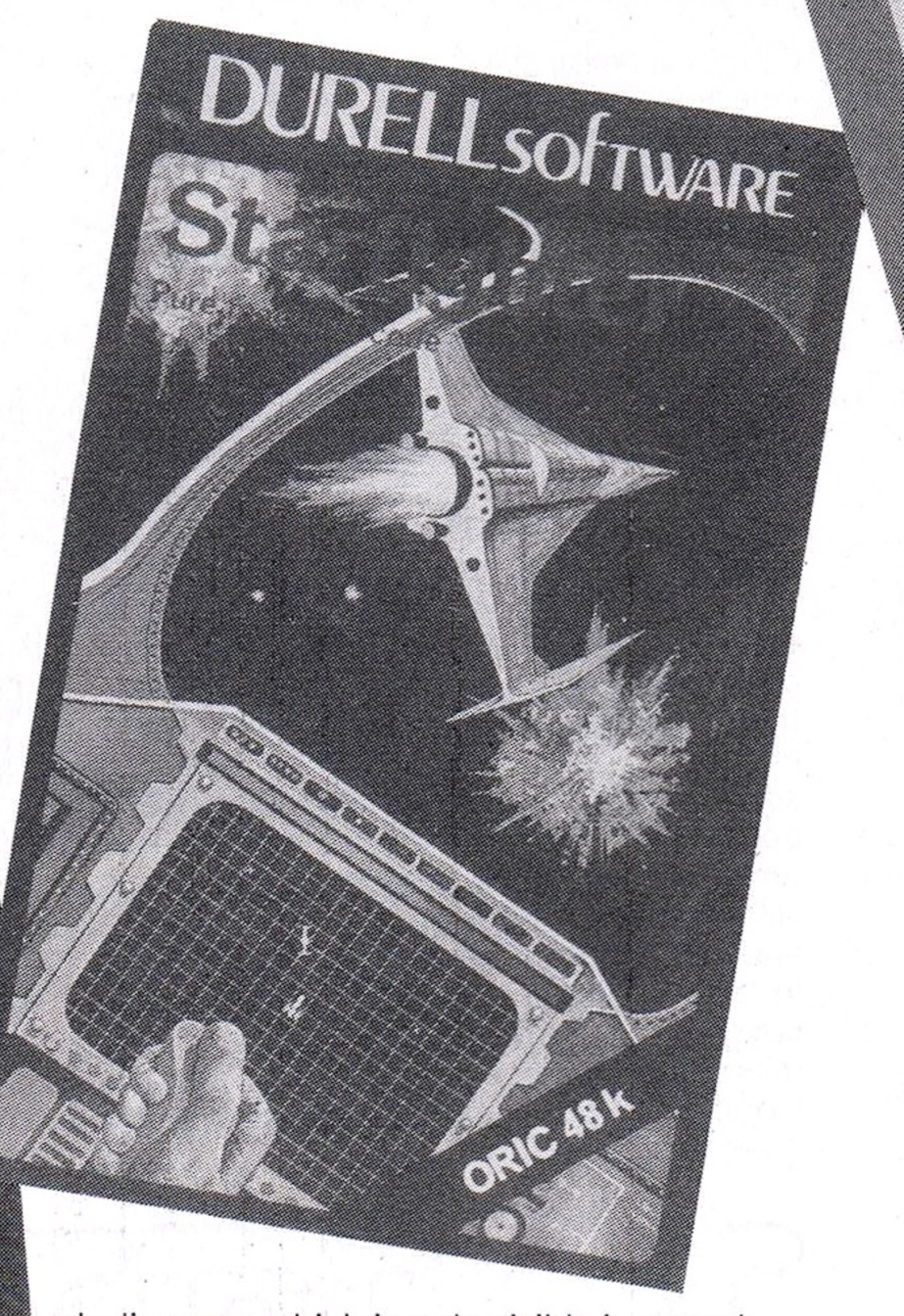
A well written machine code program with good graphics and a nice random colour change with each new screen. The only fault is the sound, arrows don't sound like that! Every Dragon owner should own this highly entertaining game.

GAME: ROBBER

Made by: Virgin Games
Price £7.95

I found the cassette inlay much more exciting than the actual game. There is a promise of a three screen game, each with its own particular problems.

The first scene is a guarded room where you have to retrieve various objects, including one which is only visible in a torch beam. Success there leads you to a bridge built of many sections which disappear at apparently irregular times. After this the scene becomes subaquatic with deadly jellyfish to overcome, before fending off



the man eating birds in the catacombs. Eventually the safe in the castle vault is at your mercy.

With great expectations, I loaded the program and then found the whole thing to be very disappointing indeed. The graphics are small, fiddly and rather amateurish, while the movement is jerky and difficult to judge. The program was written in BASIC and then compiled, and the results fall far short of that which Spectrum owners have come to expect.

GAME: QUETZALCOATL

Made by: Virgin Games
Price: £6.95

This strange-sounding program takes its name from a temple in which you have been cast by bandits.

The program is rather like a graphical adventure set in a three dimensional maze, with an excellently drawn screen display. The object is very simple to state but difficult to achieve . . . to survive. There are four levels in the maze with an intricate pattern of passageways. The only movements necessary are forward, turn left and turn right, and these are conveniently grouped together at keys 1, 2, and 3.

Within this framework there are various distractions. Along the passageways groups of beads are sprinkled which will be useful later in the game. There is also a guardian on each level, either benevolent or not. For instance, Huyitzilopochtli will give you a compass and map, while Tialoc sets you a puzzle with only a 25% chance of success and survival. The movement between levels is by shafts — blue ones being safe while black shafts deplete your store of beads.

The action is fast and smooth, with completely accurate orientation as one moves through the maze. I found it original, challenging and fascinating.

GAME: PUZZLE PACK

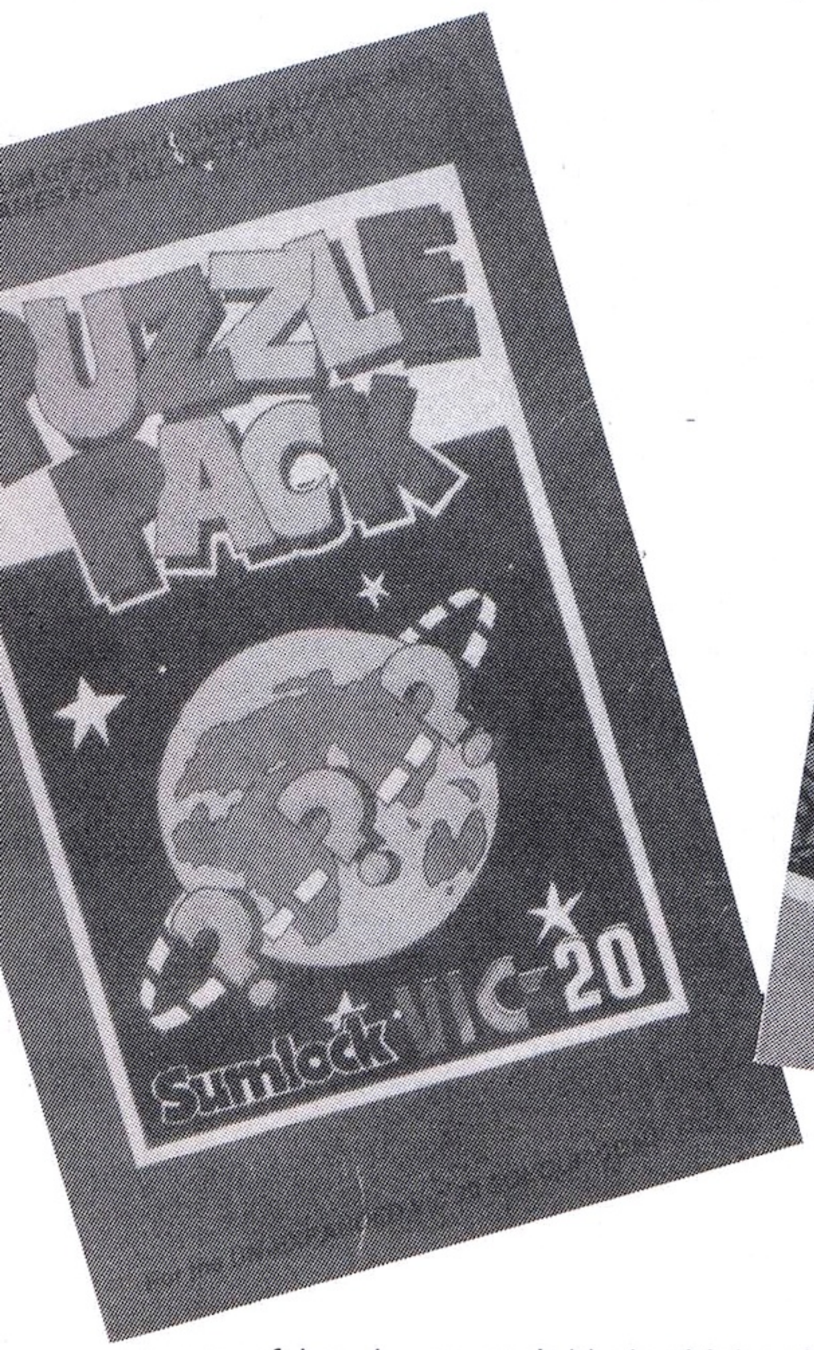
Made by: Sumlock
Price: £6.95

Sumlock puzzle pack consists of six games as follows:

Orbits — The object of Orbits is to land your ship — four of one shape in a line — on the correct landing pool. To make the game slightly hard the landing pad moves continuously.

Knight's Move — the object is to land on all the squares in an eight by eight grid using the Knight's move (two squares one way and one another). You are not allowed to land on squares you have already been on.

Graphic Twister — Match the shape given by rotating your block of Graphics in various directions.



Rainbows — Complete the rainbow by typing in the next three letters of a series of letters.

Slide Puzzle — Move blocks around — by sliding them into the empty space — to make a set pattern. Version of traditional hand-held puzzle.

Digits — Make your way around a screenful of numbers getting the highest score possible with 25 moves.

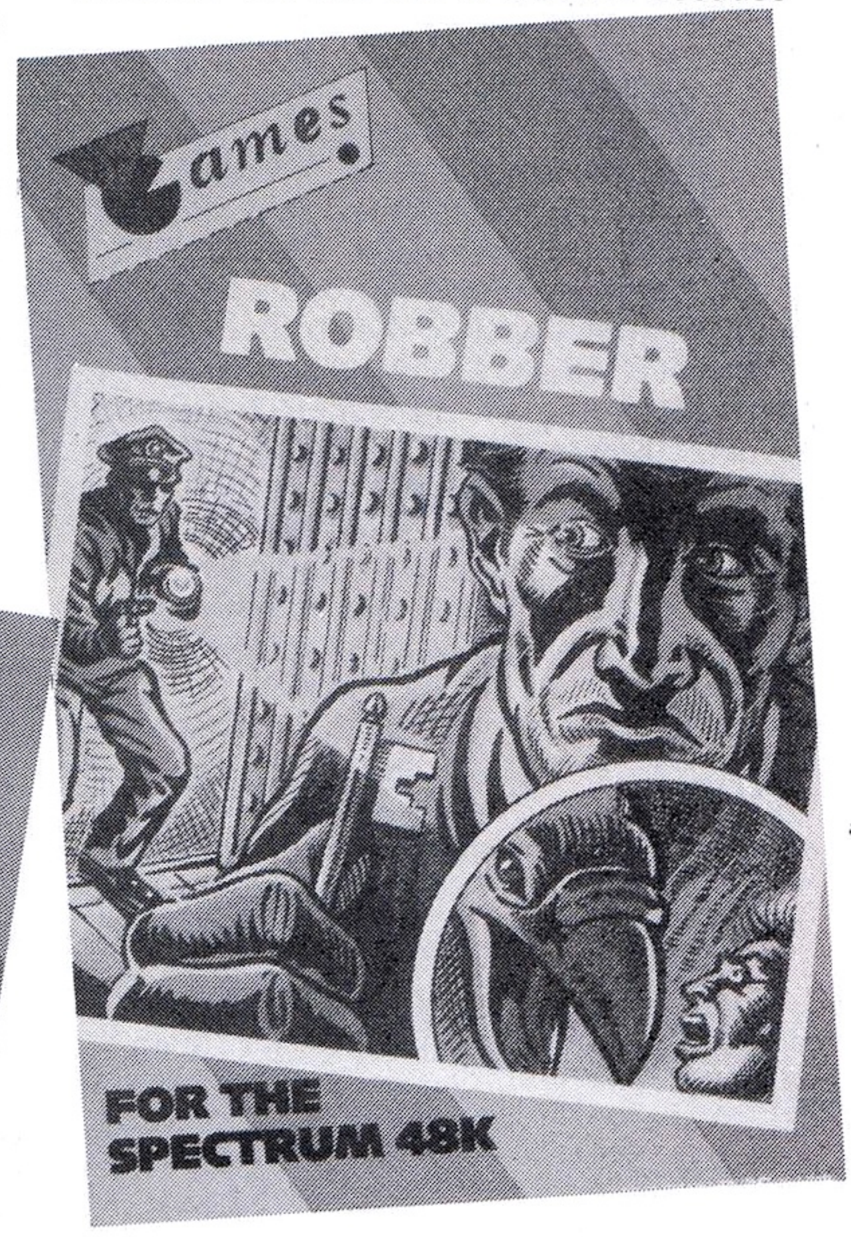
All of these puzzles use keyboard graphics not user defined and do not have very good sound.

Not suitable for anyone over the age of ten.

GAME: POOL

Made by: Bug-Byte
Price: £5.95

This game is not actually a simulation of Pool, or Billiards or Snooker or any similar game, but uses the basic idea of those games to create a simplified version for the Spectrum. You only have six balls to pot, plus a cue ball, and all seven are the same colour. It seems a shame that the cue ball could not be a different colour. However the cue ball is distinct because the other six are numbered.



You must try to pot all six, scoring ten times the number on the ball for each pot. However if you pot your cue ball the game resets and you must start again. You also have three 'lives' and lose a life for each successive run of three misses. When all three lives have gone, the game starts again.

The game has a two-player option in which both players try to pot the same six balls. However, unlike Pool proper, play does not pass to the other player when you miss your pot, but when three lives have been lost. This means that a player can take two free strokes to line up the cue ball before attempting your pot, so trying to snooker your opponent is a waste of time.

I think a game which attempts to simulate a real game should do a better job than this.

REVIEWS

SOFTWARE

GAME: BUGABOO (THE FLEA)

Made by: Quicksilva
Price. £6.95

Perhaps the greatest compliment I could pay to this superb game is that it ranks alongside Jetpac and Penetrator in my collection. Like many of the best programs, it is beautifully simple in concept, yet delightfully difficult in practice.

After an entertaining loading sequence, the program autoruns to a distant planet and reveals the hero in the most unlikely guise of a flea! This flea, in the introductory animation, leaps around on the surface of the planet and then falls down a deep shaft to a rocky base. The simplicity of the program is that you have to guide our itchy friend back to the surface.

However (there's always a 'however') there are two main problems, one being to avoid the superbly animated monster which prowls around the screen and which appears to be very hungry. The other main problem is in finding a successful exit so that the flea actually lands safely on each ledge, rock or grass clump. There is an excellent scrolling facility which allows a glimpse of what lies above, below or to the side.

The speed, colour and animation of this program are superb, and I thoroughly recommend it in anyone's collecton. It is delightful not to be zapping anything!

GAME: KILLER CAVERNS

Made by: Virgin Games Ltd.
Price: £5.95

This is an adventure game in which "poor helpless Harold" has to venture through a system of caverns avoiding the deadly perils within to find a number of dispersed pieces of a ladder. With these he can eventually reach the treasure hidden at the bottom of awell.

Written in BASIC the program uses a colourful although slow moving display and makes appropriate sounds as you venture through the game. The low resolution graphics made up from redefined lower case letters are adequate but not very exciting. The program is completely devoid of REM statements but for anyone interested is straightforward to LIST, there being no devices to protect it from intruding eyes.

In fact this was just as well because I had extreme difficulty in LOADING the program from tape; each time I tried I got syntax errors in a variety of places. Eventually I decided this was due to a low recording level on the tape and had to work through the LISTING correcting errors before I could bet the program to RUN. Lets hope Virgin Games get this right for production.

The program is simple to use, requiring only left and right curser keys and the instructions are adequate. Value for money was considered somewhat less than average as for me the game quickly lost interest.

GAME: SUPER SKRAMBLE

Made by: Terminal Software
Price: £9.95

This is, if you haven't guessed it already — a version of the arcade game scramble.

The program quality is overall good but overdoes it slightly on the sound side. It plays tunes at the beginning of each attempt using all three voices excellently.

The game is played using the joystick control. When you press fire bottom on the joystick you both fire the laser and drop a bomb, which with a bit of practice is very very handy.

The pricing of this game is warranted with its quality.

There isn't much you can say about such a popular game as this, although left to its own devices the frame will show the whole 'Tunnel' to the very end. A help to see where you've got to go.

There are no instructions supplied with the game apart from those on the screen. As usual no-one has found a run/stop disable and this game is no exception.

A game which would keep the youngster programmers — and some older ones too — happy for hours.

GAME: CRAZY KONG

Made by: Interceptor Software
Price: £5.95

I cannot confess to liking Crazy Kong and this package did not do anything to raise my interest.

The program is based on luck I reckon, as when you jump over the barrel — clear it on the way to the happy landing — 'bang' — your dead for no apparent reason!

If using a joystick — beware — the game disregards diagonal values; the keyboard layout for people without joysticks must have been designed for Zaphod Beeblebrox!

The game claims to be written in machine code but after a tap on the non/stop key quite an extensive program can be listed?!

The game kept me occupied for two days, after that I, and everyone else trying, decided that sheet two perhaps was a bit too higher 'luck' standard for us.

Most of the graphics are made up of sprites, even Kong who seems a bit squared off at the edges.

The instructions are the bare minimum — how to move your little man and battle your way through the screens.

REVIEWS

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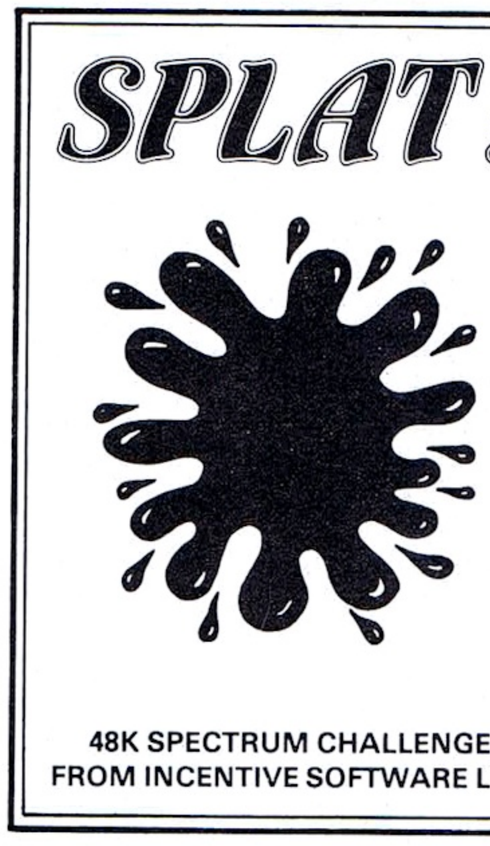

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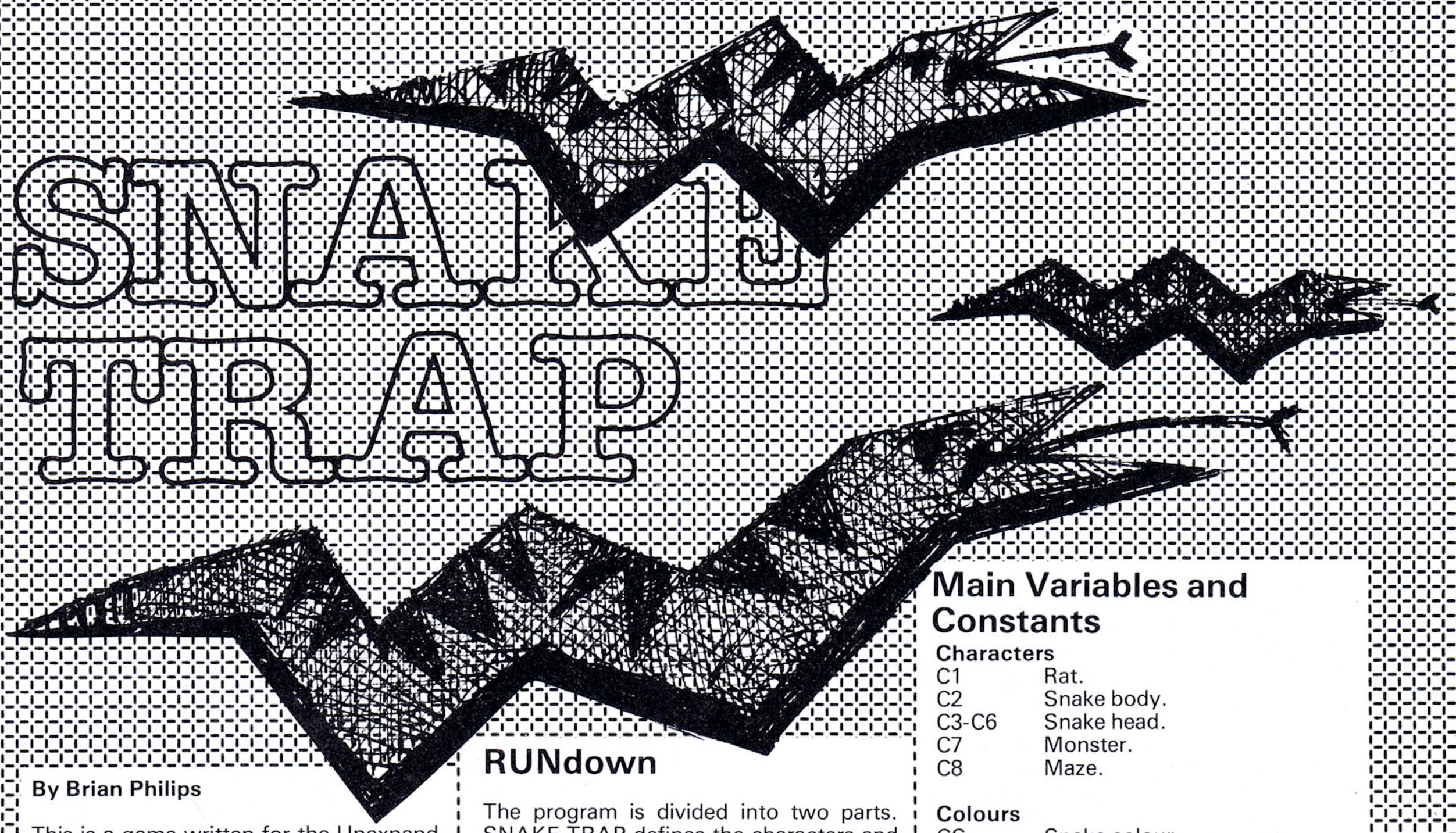
SNAKE TRAP



By Brian Philips

This is a game written for the Unexpanded VIC 20. All you have to do is guide a snake around a maze, eating dead rats. The more rats he eats the longer he gets, and the point value of the rats increases. Sounds simple? Unfortunately there's a catch. The rats are bait! Nine monsters lurk in the dens which make up the maze, and their aim is to catch the snake. If a monster jumps on you, or you run into a monster, the game is over.

The snake is controlled by keys S,X,/, and . but the snake will only turn if there is a clear path ahead.

RUNdown

The program is divided into two parts. SNAKE TRAP defines the characters and gives the instructions, and MONSTERS LAIR contains the game. The overall structure of the main program is as follows.

Line	Action
10-140	Initialises.
150-400	Draws maze.
410-580	Moves snake.
590-850	Moves monsters and drops rats.
860-880	Scoring subroutine.
920-970	Game over/start new game.

Main Variables and Constants

Characters

C1	Rat.
C2	Snake body.
C3-C6	Snake head.
C7	Monster.
C8	Maze.

Colours

CS	Snake colour.
RC	Rat colour.
MC	Monster colour.
PC	Maze colour.

Miscellaneous

SN	Current snake character.
X%(I),Y%(I)	Monster position.
DX%(I),DY%(I)	Monster direction.
SC	Score.
LN	Length snake.
SL%(I)	Snake position.
A%(I)	Monster central position.

```
10 POKE36869,255
20 DIMSL%(20)
30 CS=0:RC=6:MC=4:PC=2
40 POKE36879,250
50 FORI=1TO9:READA%(I):NEXT
60 FORI=1TO4:READM%(I),C%(I):NEXT
70 PRINT"■"TAB(11)"HIGH";HH
80 FORI=1TO9
90 X%(I)=0:Y%(I)=0:DX%(I)=1:DY%(I)=1:M=0:SC=0
100 NEXT
110 BD=0:TL=0:N=0
120 D=30720:C1=33:C2=34:C3=35:C4=36:C5=37:C6=38:C7=39:C8=40:C=32
130 FORI=0TO4:SL%(I)=8143:NEXTI:SN=C3
140 S1=36874:V=36878:P1=8164:P2=38884:LN=5:FR=0
150 FORJ=2TO8 STEP2
160 FORI=-3TO3
170 YM=0:XM=I
180 IFI=-3THENYM=22:XM=-2
190 IFI=3THENYM=22:XM=2
200 POKEA%(J)+XM+YM-44,C8:POKEA%(J)+XM+YM-44+D,PC
210 YM=-YM
220 POKEA%(J)+XM+YM+44,C8:POKEA%(J)+XM+YM+D+44,PC
230 NEXTI,J
240 FORJ=1TO9STEP2
250 FORI=-3TO3
260 XM=0:YM=I
270 IFI=-3THENXM=1:YM=-2
280 IFI=3THENXM=1:YM=2
290 POKEA%(J)+XM+YM*22-2,C8:POKEA%(J)+XM+YM*22+D-2,PC
300 XM=-XM
310 POKEA%(J)+XM+YM*22+2,C8:POKEA%(J)+XM+YM*22+D+2;PC
320 NEXTI,J
330 FORX=0TO20
340 POKEP1+X-440,C8:POKEP2+X-440,PC:POKEP1+X,C8:POKEP2+X,PC
350 NEXT
360 FORY=0TO20
370 POKEP1+20-22*Y,C8:POKEP2+20-22*Y,PC:POKEP1-22*Y,C8:POKEP2-22*Y,PC
380 POKEP1+21-22*Y,C8:POKEP2+21-22*Y,PC
390 NEXT
400 POKE7723,C8:POKE38443,PC:POKE7701,C8:POKE38421,PC
410 Z=PEEK(197)
420 IFZ=41THENM=-22:SN=C5
430 IFZ=26THENM=22:SN=C6
440 IFZ=30THENM=1:SN=C3
450 IFZ=37THENM=-1:SN=C4
460 PK=PEEK(SL%(N)+M):IFPK<>C8ANDPK<>C2THEN500
470 FORJ=1TO4
480 M=M%(J):SN=C%(J):GOTO890
490 NEXTJ
500 N=N+1:IFN=LNTHENN=1
510 BD=N-1:IFBD=0THENBD=LN-1
520 TL=N+1:IFTL=LNTHENTL=1
530 SL%(N)=SL%(BD)+M
540 POKESL%(TL),32:POKESL%(BD),C2:POKESL%(N),SN:POKESL%(N)+D,CS
550 IFPK=C1THENGOSUB860
560 IFPK=C7THEN920
570 IFIN=4THENLN=LN+1:IN=0
580 IFLN=21THENLN=20
590 I =INT(RND(1)*9)+1
600 IFI /2=INT(I/2)THENGOTO 640
610 IFI /2<>INT(I /2)THENGOTO 750
620 IFPK=32ORPK=33THEN410
630 GOTO920
640 X%(I)=X%(I)+DX%(I)
650 IFX%(I)=3THENDX%(I)=-1
660 IFX%(I)=-3THENDX%(I)=1
670 IFABS(X1%(I))=3THENC=C1
680 PK=PEEK(A%(I)+X%(I))
690 POKEA%(I)+X1%(I),C
700 POKEA%(I)+X1%(I)+D ,RC
710 POKEA%(I)+X%(I),C7
720 POKEA%(I)+D+X%(I),MC
730 C=32:X1%(I)=X%(I)
740 GOTO620
750 Y%(I)=Y%(I)+DY%(I)
760 IFY%(I)=3THENDY%(I)=-1
770 IFY%(I)=-3THENDY%(I)=1
780 IFABS(Y1%(I))=3THENC=C1
790 PK=PEEK(A%(I)+22*Y%(I))
800 POKEA%(I)+22*Y1%(I),C
810 POKEA%(I)+22*Y1%(I)+D,RC
820 POKEA%(I)+22*Y%(I),C7
830 POKEA%(I)+D+22*Y%(I),MC
840 C=32:Y1%(I)=Y%(I)
850 GOTO620
860 SC=SC+LN*5:PRINT"■SCORE"SC:IN=IN+1
870 POKEV,15:FORT=1TO25:POKES1,200-T:NEXTT:POKEV,0
880 RETURN
890 PK=PEEK(SL%(N)+M)
900 IFPK<>C8ANDPK<>C2THEN500
910 GOTO490
920 PRINT"■■■■■■■■■■GAME OVER"
930 GETA$:PRINT"■■■■■PRESS SPACE BAR"
940 IFSC>HHTHENHH=SC
950 PRINT"■■                    "
960 IFA$=" "THEN70
970 GOTO920
980 DATA7816,7822,7828,7948,7954,7960,8080,8086,8092
990 DATA1,35,22,38,-1,36,-22,37
READY.
```

fantasy SOFTWARE

THE PYRAMID is an arcade style game which has a very adventurous feel to it.

The Pyramid contains 120 chambers on 15 levels. In order to get from one chamber to another you must fight off the indigenous aliens to collect an energised crystal which will neutralize the force field guarding the two exits.

The Pyramid is inhabited by a total of 60 wierd and exotic alien types, all of which are beautifully animated. You will meet a whole variety of demons, droids, insects and monsters, with a sprinkling of the more unusual, the extra-terrestrial tweezers, galactic strawberry, cosmic claw, mutant eye, plus a whole host of entities that defy rational description. You will no doubt invent your own nicknames.

You proceed to explore the Pyramid from top to bottom with the difficulty generally increasing with the depth of level. Depending on the choice of exit from each chamber you are likely to have a different game every time you play.

Apart from the challenge of trying to achieve the highest score possible the pyramid contains a number puzzle to solve. The more chambers you successfully visit the more information is gathered to enable you to discover the secret numbers of the pyramid. The puzzle won't take you a few days to solve, it will probably take you a few months.

This is "ZIGGY". He is shown above in his exploratory capsule and is a true representation of the on screen graphics. You have total control over his movements as you explore the many chambers of "THE PYRAMID".

FANTASY SOFTWARE is available from W.H.Smiths, John Menzies and Computers For All

THE PYRAMID

Compatible with all leading joysticks.

For 48K Spectrum

THE PYRAMID is available at £5.50 from
FANTASY SOFTWARE, FAUCONBERG LODGE, 27A ST. GEORGES ROAD, CHELTENHAM, GLOS GL50 3DT
despatched by return first class post together with a membership number entitling you to discount on our forthcoming blockbusting software.
Trade Enquiries welcome – telephone 0242-583661

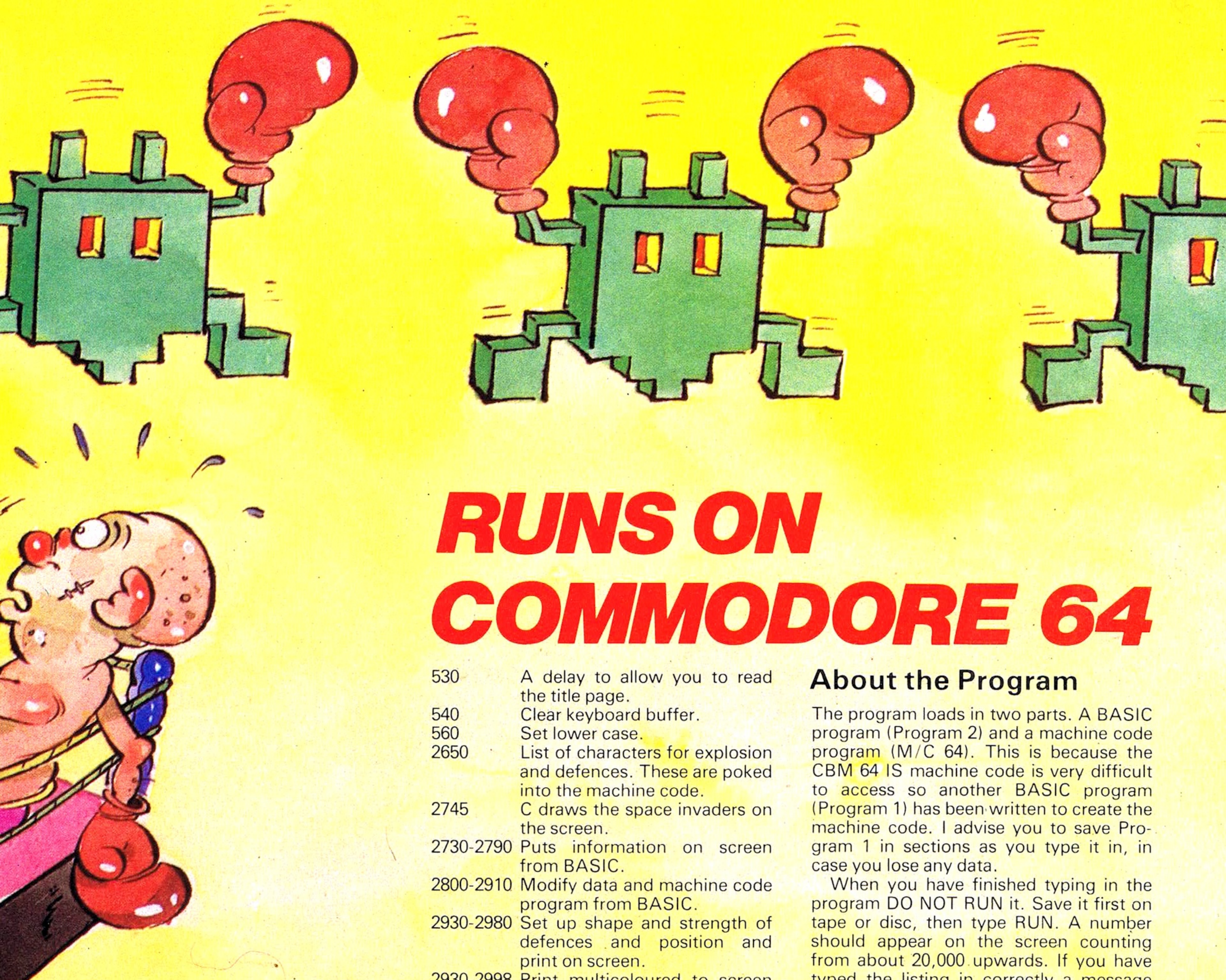
Although this is another version of the over-worked game of Space Invaders our version is well-worth the effort of typing it into your Commodore 64.

Despite the machine code contained in the program listing and the length of it you'll find this game displays many of the features of the original game. The graphics are great although awkward to achieve because the CBM 64 must be screen POKEd. But don't let that deter you from trying it out. Those long hours of keying will be worth it in the end.

Rundown

Line	Action
90	Sets up the CBM 64 to look like a PET screen.
100-220	The high scores and names are POKEd into this part of the program so it is important that you do not change the length of any of these lines, although you can cheat by changing the names (as long as you always use 16 characters).
230	This is a delay. The GET A$ is used to slow down the loop. It can be omitted but it has the effect of clearing the keyboard buffer.
240	Checks to see if the machine code has been POKEd in and if so runs the game.
250-320	Gives you the option of poking in the game from data or loading from tape.
330	Sets upper case.
340-520	Sets up the data for and draws the title page.

64 INV



RUNS ON COMMODORE 64

530	A delay to allow you to read the title page.
540	Clear keyboard buffer.
560	Set lower case.
2650	List of characters for explosion and defences. These are poked into the machine code.
2745	C draws the space invaders on the screen.
2730-2790	Puts information on screen from BASIC.
2800-2910	Modify data and machine code program from BASIC.
2930-2980	Set up shape and strength of defences and position and print on screen.
2930-2998	Print multicoloured to screen to set up colour maps. The string is 2995 must be always the same length but you can change the colours you use to suit your television.
3050-3730	End of game and High Score routines.
3720-3815	INPUT level routines.
3830-3980	Modify machine code program to make it harder on the higher levels.
4000-4030	Move the screen so that it cannot be seen, fill it with different coloured hashes to alter colour map, then put screen back at 32767 — line 4020 controls the colours on the screen. These can be changed to improve the quality of the display on different monitors.

About the Program

The program loads in two parts. A BASIC program (Program 2) and a machine code program (M/C 64). This is because the CBM 64 IS machine code is very difficult to access so another BASIC program (Program 1) has been written to create the machine code. I advise you to save Program 1 in sections as you type it in, in case you lose any data.

When you have finished typing in the program DO NOT RUN it. Save it first on tape or disc, then type RUN. A number should appear on the screen counting from about 20,000 upwards. If you have typed the listing in correctly a message will appear giving you the option of saving the machine code from memory, saving the BASIC program or loading Program 2.

Program 2 is a normal BASIC program requiring the machine code to be in memory in order to run. Otherwise it will not load from tape.

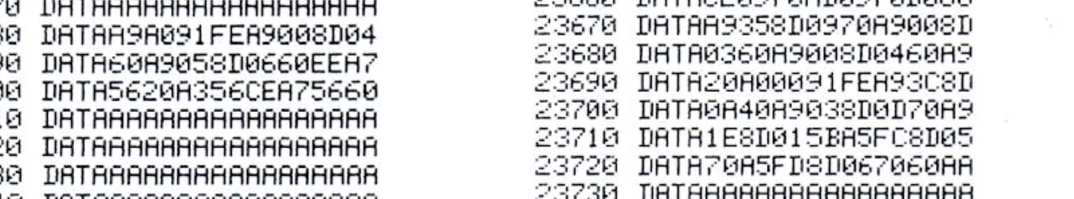
There are two ways of RUNning 64 Invasion. The first is to load the RUN Program 1, then take option 3 and type Y "are you sure" prompt. The second is to have M/C 64 on tape, load Program 2 and let this load M/C 64. While the program is setting up you may get a load of odd characters filling the screen but don't worry about this, it's quite normal.

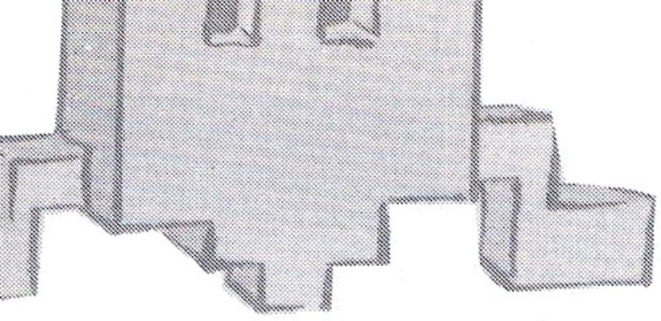
A tape of this program is available from *Games Computing,* **Invaders Tape, 145 Charing Cross Road, London WC2H 0EE. Price £3.50.**

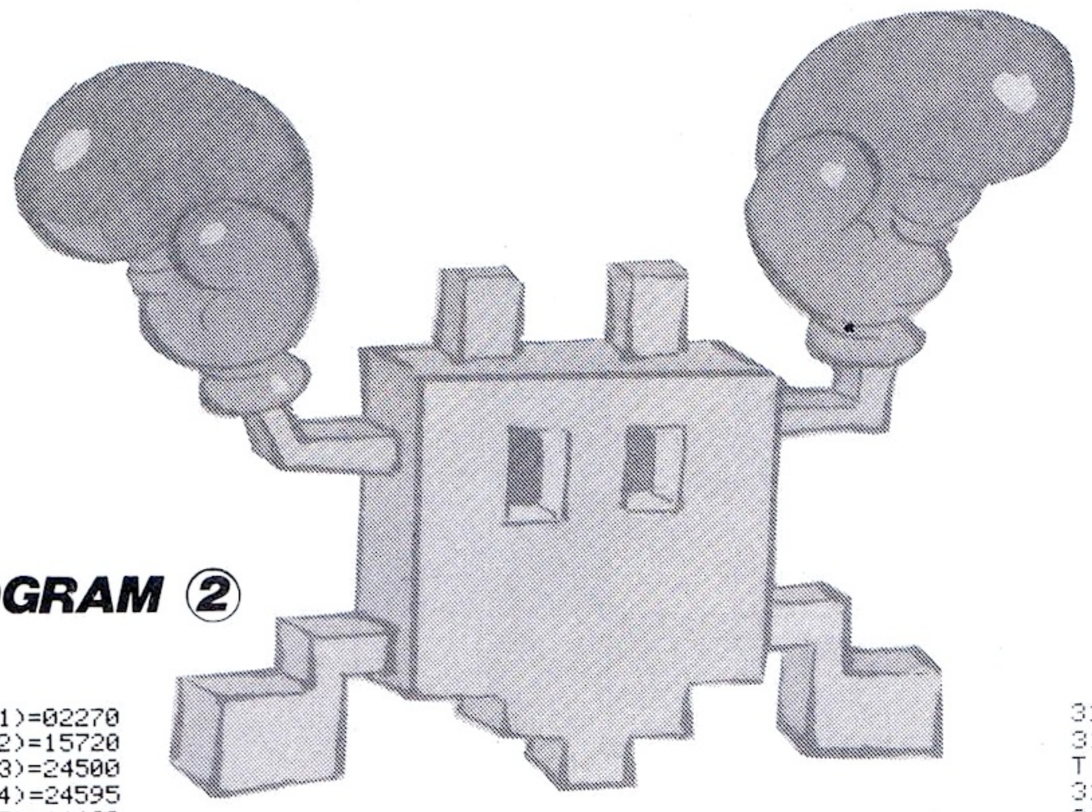
INVASION

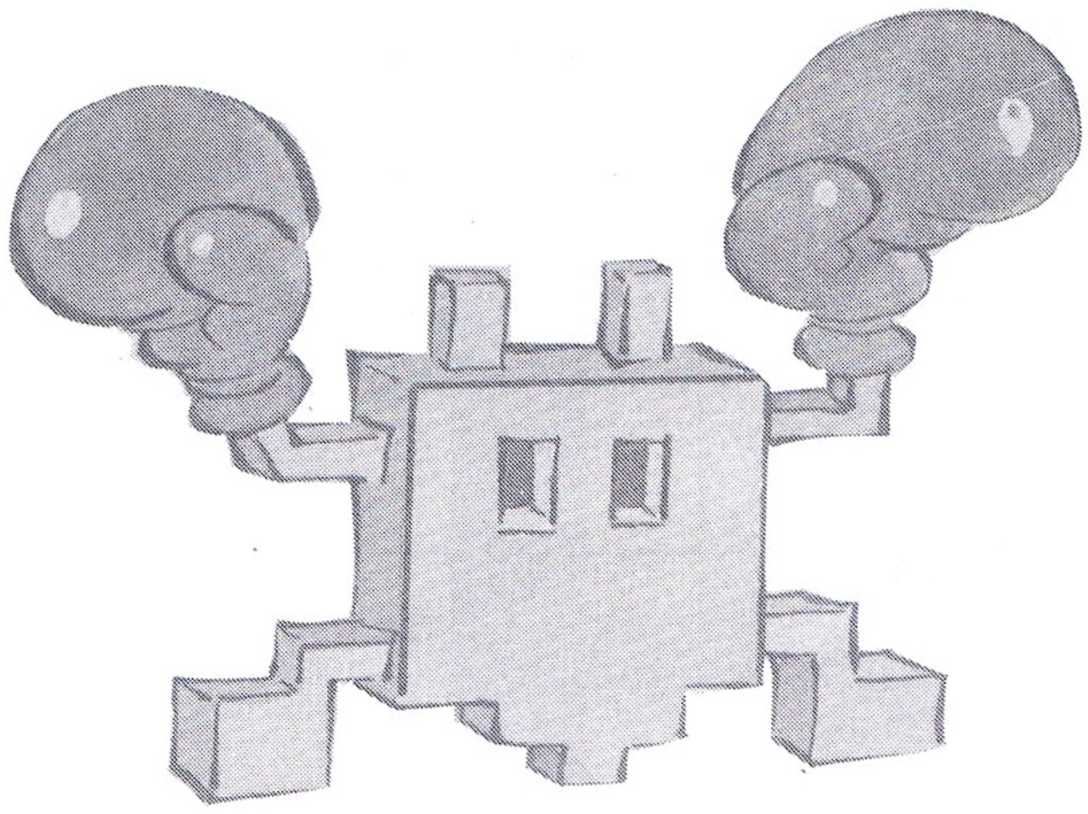
PROGRAM ①

```
100 P=5*4096:PRINT"LOADING..."
110 READ A$:IFA$="XXX"THEN200
120 FORI=0TO7
130 H=ASC(MID$(A$,I*2+1,1))-48:IFH>9THENH=H-7
140 L=ASC(MID$(A$,I*2+2,1))-48:IFL>9THENL=L-7
150 POKEP+I,H*16+L:PRINTP+I"□":NEXT:P=P+8:GOTO110
200 IFP+I<>23664THENPRINT"INSUFFIENT DATA":STOP
205 PRINT" THIS PROGRAM HAS NOW TURNED THE DATA"
210 PRINT" THAT YOU HAVE SPENT HOURS TYPING IN"
220 PRINT" INTO A MACHINE CODE PROGRAM WHICH IS "
230 PRINT" USED BY PROGRAM 2 TO PLAY "
240 PRINT" THE GAME. IN FUTURE YOU WILL NEED THE "
250 PRINT" DATA ON TAPE IN THE FORM OF THE MACHINE"
260 PRINT" CODE PROGRAM LOADED BY LINE 310 OF "
270 PRINT" PROGRAM 2. IT WOULD ALSO BE WISE TO "
280 PRINT" SAVE A COPY OF THIS IN CASE YOU LOSE"
300 F=0:PRINT" THE MACHINE CODE.":PRINT
320 PRINT" TYPE 1 TO SAVE AS MACHINE CODE FILE"
340 PRINT"          CALLED"CHR$(34)"M/C.64"CHR$(34)
360 PRINT"       2 TO SAVE AS A BASIC PROGRAM "
380 PRINT"          CALLED"CHR$(34)"DATA"CHR$(34)
400 PRINT"       3 TO LOAD PROGRAM 2 FROM TAPE"
420 GETS$:IFVAL(S$)<1ORVAL(S$)>3THEN420
440 ONVAL(S$)GOSUB500,550,600
500 POKE43,0:POKE44,5*16:POKE45,13*16:POKE46,5*16+2:SAVE"M/C.64":F=1
520 PRINT"□":GOTO320
550 POKE43,1:POKE44,8:POKE45,152:POKE46,47:SAVE"DATA":F=1
570 PRINT"□":GOTO320
600 IFFTHEN700
610 PRINT"YOU HAVE NOT SAVED A COPY OF THIS DATA"
620 PRINT" IF YOU CONTINUE WITH THIS OPTION YOU "
630 PRINT" WILL LOSE THE BASIC PROGRAM AND MAY"
640 PRINT" NOT BE ABLE TO SAVE THIS DATA LATER"
650 PRINT" DO YOU WISH TO LOAD PROGRAM 2 (Y/N)
660 GETR$:IFR$=""THEN660
670 IFR$="N"THENPRINT"□":GOTO320
680 IFA$="Y"THEN700
690 GOTO610
700 LOAD"PROGRAM 2":END
20000 DATAA9008DE783A92985
20010 DATA0FA9808510A003E6
20020 DATA0FA50FD002E610B1
20030 DATA0FC920F0F2C93CF0
20040 DATA034C3050A93E910F
20050 DATA8820405OC84C0F50
20060 DATAC93ED006A920910F
20070 DATAD0D5C900D0D160AA
20080 DATAE10FC96CF013C97B
20090 DATAF00FC97CF00BC97E
20100 DATAF007A93C910F4C67
20110 DATA50A9A0C8EA910F88
20120 DATAEA910F20505AEAA5
20130 DATA10C983F00160A50F
20140 DATAC9BFB001604CC05A
20150 DATAAAAAAD0C60D00160
20160 DATAA5C5C92AF04AC932
20170 DATAF026A900F00260AA
20180 DATAAD8D02F0EAEAA920
20190 DATA8D136020A05860AA
20200 DATAAAAAAAAAAAAAAAAA
20210 DATAAAAAAAAAAAAAAAAA
20220 DATAA9258D136020A058
20230 DATAA9238D136020A058
20240 DATA60AAAAAAAAAAAAAA
20250 DATAAAAAAAAAAAAAAAAA
20260 DATAA91B8D136020A058
20270 DATAA91D8D136020A058
20280 DATA60AAAAAAAAAAAAAA
20290 DATAAAAAAAAAAAAAAAAA
20300 DATAAAFAAAAAAAAAAAAA
20310 DATAAAAAAAAAAAAAAAAA
20320 DATAA9008D2880A9E685
20330 DATA0FA9838510A001C6
20340 DATA0FA50FC9FFD002C6
20350 DATA10B10FC920F0F0C9
20360 DATA3EF0034C3351A93C
20370 DATA910FC8204251884C
20380 DATA0F51EAC93CD006A9
20390 DATA20910FD0D2C900D0
20400 DATACE60B10FC96CF013
20410 DATAC97BF00FC97CF00B
20420 DATAC97EF007A93E910F
20430 DATA4C6851A9A088EA91
20440 DATA0FC8EA910F20505A
20450 DATAA510C983F00160A5
20460 DATA0FC9BFB001604CC0
20470 DATA5AAAAAAAAAAAAAAA
20480 DATAAAAAAAAAAAAAAAAA
20490 DATAAAAAAAAAAAAAAAAA
20500 DATAAAAAAAAAAAAAAAAA
20510 DATAAAAAAAAAAAAAAAAA
20520 DATACE0870F00160A903
20530 DATA8D0870A9208D7780
20540 DATAA027B94F80C9D1F0
20550 DATA0688C000D0F46099
20560 DATA5080A920994F804C
20570 DATAB251AAAAAAAAAAAA
20580 DATACE0870F00160A903
20590 DATA8D0870A9208D5080
20600 DATAA000B94F80C9D1F0
20610 DATA06C8C029D0F46099
20620 DATA4E80A920994F804C
20630 DATAE951AAAAAAAAAAAA
20640 DATAA9008D2880A9E685
20650 DATA0FA9838510A001C6
20660 DATA0FA50FC9FFD002C6
20670 DATA10B10FC920F0F0C9
20680 DATA3EF0034C3552A920
20690 DATA910FA029206052A0
20700 DATA014C0F52EAC93CF0
20710 DATA034C5552A920910F
20720 DATAA02920A052A0014C
20730 DATA0F52AAAAAAAAAAAA
20740 DATAAAAAAAAAAAEAEAEA
20750 DATAEAC900D0B260AAAA
20760 DATAB10FC96CF013C97B
20770 DATAF00FC97CF00BC97E
20780 DATAF007A93E910F4C8F
20790 DATA52A9A088EA910FC8
20800 DATAEA910F20505AA000
20810 DATAA920910FA029EAA5
20820 DATA10C983F00160A50F
20830 DATAC9BFB001604CC05A
20840 DATAB10FC96CF013C97B
20850 DATAF00FC97CF00BC97E
20860 DATAF007A93C910F4CD1
20870 DATA52A9A0C8EA910F88
20880 DATAEA910F20505AA001
20890 DATAA920910FA029EAEA
20900 DATAEAA510C983F00160
20910 DATAA50FC9BFB001604C
20920 DATAC05AA9008D2880A9
20930 DATAE6850FA9838510A0
20940 DATA01C60FA50FC9FFD0
20950 DATA02C610B10FC920F0
20960 DATAF0C93CF0ECC93EF0
20970 DATAE8C92EF0E4C966F0
20980 DATAE0C998D0054820B0
20990 DATA5B68EAEAEAEAEAEA
21000 DATAEAEAC916D00FA920
21010 DATA910FA02920F055A0
21020 DATA014CF152EAC900F0
21030 DATA0E8D0560205055AD
21040 DATA0560910F4CF15260
21050 DATAAAAAAAAAAAAAAAAA
21060 DATAAAAAAAAAAAAAAAAA
21070 DATAAAAAAAAAAAAAAAAA
21080 DATA00AAAAAAAAAAAAAA
21090 DATAAAAAAAAAAAAAAAAA
21100 DATAAAAAAAAAAAAAA900
21110 DATA8D0460A9038D0660
21120 DATACEA75620A356EEA7
21130 DATA56EAEAEAEAEAEAEA
21140 DATAA000A9AE91FEC8C8
21150 DATA91FEC8C891FEA001
21160 DATAA99891FEC8C891FE
21170 DATAEE2060600AAAAAAAA
21180 DATAAAAAAAAAAAAAAAAA
21190 DATAAAAAAAAAAAAAAAAA
21200 DATAAAAAAAAAAAAAAAAA
21210 DATAAAAAAAAAAAAAAAAA
21220 DATAAAAAAAAAAAAAAAAA
21230 DATAAAAAAAAAAAAAAAAA
21240 DATAAAAAAAAAAAAAAAAA
21250 DATAAAAAAAAAAAAAAAAA
21260 DATAAD0460D00960AAAA
21270 DATAAAAAAAAAAAAAA002
21280 DATAA5FFC980D014A5FE
21290 DATAC94FB00EEAEAA9A0
21300 DATA91FEA9008D046060
21310 DATAEAEAAD0460D00160
21320 DATAA002B1FEC97ED018
21330 DATAA92091FEA5FE38E9
21340 DATA28B002C6FF85FEA9
21350 DATA7B8D006020005760
21360 DATAC97CD018A92091FE
21370 DATAA5FE38E92885FEB0
21380 DATA02C6FFA96C8D0060
21390 DATA20005760C97ED005
21400 DATAA97E91FE60C96CD0
21410 DATA05A97C91FE60A900
21420 DATA8D04606060AAAAAAAA
21430 DATAAAAAAAAAAAAAAAAAA
21440 DATAAD2060C9B0903018
21450 DATAA58FEA6A9013A900
21460 DATA8D2160A9D18D7780
21470 DATA8D76808D75804CB1
21480 DATA54A9018D2160A9D1
21490 DATA8D50808D51808D52
21500 DATA80A9208D206060AD
21510 DATA2160D00420D05160
21520 DATA20A05160AAAAAAAA
21530 DATAAAAAAAAAAAAAAAAA
21540 DATAAAAAAAAAAAAAAAAA
21550 DATAAAAAAAAAAAAAAAAA
21560 DATAAAAAAAAAAAAAAAAA
21570 DATAAAAAAAAAAAAAAAAA
21580 DATAAAAAAAAAAAAAAAAA
21590 DATAAAAAAAAAAAAAAAAA
21600 DATAAAAAAAAAAAAAAAAA
21610 DATAAAAAAAAAAAAAAAAA
21620 DATAAAAAAAAAAAAAAAAA
21630 DATAAAAAAAAAAAAAAAAA
21640 DATAAAAAAAAAAAAAAAAA
21650 DATAAAAAAAAAAAAAAAAA
21660 DATAAAAAAAAAAAAAAAAA
21670 DATAAAAAAAAAAAAAAAAA
21680 DATAAAAAAAAAAAAAAAAA
21690 DATAAAAAAAAAAAAAAAAA
21700 DATAA9FF8D5955EE5955
21710 DATAAD1761CD0560F005
21720 DATAC921D0F160EE5955
21730 DATAAD59558D6F55AD0B
21740 DATA618D056060AAAAAA
21750 DATAAAAAAAAAAAAAAAAA
21760 DATAAAAAAAAAAAAAAAAA
21770 DATAAAAAAAAAAAAAAAAA
21780 DATAAAAAAAAAAAAAAAAA
21790 DATAAAAAAAAAAAAAAAAA
21800 DATAAAAAAAAAAAAAAAAA
21810 DATAAAAAAAAAAAAAAAAA
21820 DATAAAAAAAAAAAAAAAAA
21830 DATAAAAAAAAAAAAAAAAA
21840 DATAAAAAAAAAAAAAAAAA
21850 DATAAAAAAAAAAAAAAAAA
21860 DATAAAAAAAAAAAAAAAAA
21870 DATAAAAAAAAAAAAAAAAA
21880 DATAAAAAAAAAAAAAAAAA
21890 DATAAAAAAAAAAAAAAAAA
21900 DATAB10FC920F010C9FE
21910 DATAD0034C005AC9FCD0
21920 DATA0A4C005AEAEAA916
21930 DATA910F60C97EF048C9
21940 DATA7CF044C97BF035C9
21950 DATA6CF0268DFF5FA9FF
21960 DATA8D2756EE2756AD0C
21970 DATA62CDFF5FF004C921
21980 DATAD0F1EE2756AD2756
21990 DATA8D3C56AD0C62910F
22000 DATA60C8B10F88C9FCD0
22010 DATA0E4C005A88B10FC8
22020 DATAC9FED0034C005AA9
22030 DATAAE910FA9008D0460
22040 DATAC6FF60AAAAAAAAAA
22050 DATAAAAAAAAAAAAAAAAA
22060 DATAAAAAAAAAAAAAAAAA
22070 DATAAAAAAAAAAAAAAAAA
22080 DATAAAAAAAAAAAAAAAAA
22090 DATAAAAAAAAAAAAAAAAA
22100 DATAAAAAAAAAAAAAAAAA
22110 DATAAAAAAAAAAAAAAAAA
22120 DATACE0A408CFF5FA004
22130 DATAB9FF7F186D066099
22140 DATAFF7FC93AB005ADFF
22150 DATA5FA86038E90A99FF
22160 DATA7FA9018D06608898
22170 DATAD0DEACFF5F60AAAA
22180 DATAAAAAAAAAAAAAAAAA
22190 DATAAAAAAAAAAAAAAAAA
22200 DATAAAAAAAAAAAAAAAAA
22210 DATAAAAAAAAAAAAAAAAA
22220 DATAAAAAAAAAAAAAAAAA
22230 DATAAAAAAAAAAAAAAAAA
22240 DATAB1FEC920D006AD00
22250 DATA6091FE60C93CD003
22260 DATA4C9057C93ED0044C
22270 DATA805760C916D0034C
22280 DATAC057C9D1D0044C76
22290 DATA53EA8DFF5FA9008D
22300 DATA0460EAA9FF8D3C57
22310 DATAEE3C57AD1462CDFF
22320 DATA5FF004C921D0F1EE
22330 DATA3C57AD3C578D5157
22340 DATAAD146291FE60AAAA
22350 DATAAAAAAAAAAAAAAAAA
22360 DATAAAAAAAAAAAAAAAAA
22370 DATAAAAAAAAAAAAAAAAA
22380 DATAAAAAAAAAAAAAAAAA
22390 DATAAAAAAAAAAAAAAAAA
22400 DATAA99888EA91FEC8EA
22410 DATA91FE4C705AAAAAAA
22420 DATAA998C8EA91FE88EA
22430 DATA91FE4C705AAAAAAA
22440 DATAA9018D0460EAA5FC
22450 DATA38E90085FEA5FD85
22460 DATAFF20005760AAAAAA
22470 DATAAAAAAAAAAAAAAAAA
22480 DATAA9A091FEA9008D04
22490 DATA60A9058D0660EEA7
22500 DATA5620A356CEA75660
22510 DATAAAAAAAAAAAAAAAAA
22520 DATAAAAAAAAAAAAAAAAA
22530 DATAAAAAAAAAAAAAAAAA
22540 DATAAAAAAAAAAAAAAAAA
22550 DATAAAAAAAAAAAAAAAAA
22560 DATAA9008D0260AD0160
22570 DATA850FA980851OA50F
22580 DATA186928850F9009E6
22590 DATA10A510C984D00160
22600 DATAB10FC93CD0E8EE02
22610 DATA6060AAAAAAAAAAAA
22620 DATAAAAAAAAAAAAAAAAA
22630 DATAAAAAAAAAAAAAAAAA
22640 DATAAAAAAAAAAAAAAAAA
22650 DATAAAAAAAAAAAAAAAAA
22660 DATACE0D70F00160CE01
22670 DATA5BA9028D0D7060AA
22680 DATAAAAAAAAAAAAAAAAA
22690 DATAAAAAAAAAAAAAAAAA
22700 DATAA91C8D0F60A9E785
22710 DATA0FA9838510C60FA5
22720 DATA0FC9FFD008C610A5
22730 DATA10C97FF009B10F49
22740 DATA80910F4C7D5820A0
22750 DATA5ACE0F60D0D760AA
22760 DATAA5FD8510A5FC38E9
22770 DATA1E850FB002C610AC
22780 DATA1360A50F38E92885
22790 DATA0FB008C610A510C9
22800 DATA7FF017B10FC93CF0
22810 DATA04C93ED0E5981869
22820 DATA28A8EAA916910FA0
22830 DATA0160A00160AAAAAA
22840 DATAAAAAAAAAAAAAAAAA
22850 DATAAAAAAAAAAAAAAAAA
22860 DATAAD0C60D0086020E2
22870 DATA52EAEAEAEA207A50
22880 DATAAD20600902BD2060
22890 DATAAD0360F019A9258D
22900 DATA0160200058AD0260
22910 DATAD00520005160EA20
22920 DATA0052CE036060A927
22930 DATA8D0160200058AD02
22940 DATA60D004200050602O
22950 DATA0052EE036060AAAA
22960 DATAA5FCC9BBD00160AD
22970 DATA206049018D2060EA
22980 DATAA02AB1FCC9FCD011
22990 DATAA9FE91FC88A92E91
23000 DATAFCA02BA97B91FC88
23010 DATA60C9FEF0016088A9
23020 DATA2E91FCC8A96C91FC
23030 DATAE6FCA9FC91FC60AA
23040 DATAAAAAAAAAAAAAAAAA
23050 DATAAAAAAAAAAAAAAAAA
23060 DATAA5FCC998D00160AD
23070 DATA206049018D2060EA
23080 DATAA02AB1FCC9FED011
23090 DATAA9FC91FCC8A92E91
23100 DATAFCA029A96C91FCC8
23110 DATA60C9FCF00160C8A9
23120 DATA2E91FC88A97B91FC
23130 DATAC6FCA9FE91FC60AA
23140 DATAAD0460F00160EE20
23150 DATA60AD0C60D0016020
23160 DATAE05BEAB1FCC9FED0
23170 DATA0BA002A96C8D0060
23180 DATA20A05760A002A97B
23190 DATA8D006020A05760AA
23200 DATAA9008D0C60A99691
23210 DATA0FC60F910FE60FE6
23220 DATA0F910FC60F20205A
23230 DATA60AAAAAAAAAAAAAA
23240 DATA20705860CE0E70F0
23250 DATA034C005BA9058D0E
23260 DATA704C655B20B05B60
23270 DATAAAAAAAAAAAAAAAAA
23280 DATAAAAAAAAAAAAAAAAA
23290 DATAAAAAAAAAAAAAAAAA
23300 DATAEE2060A9018D0660
23310 DATA20A05620505BA900
23320 DATA8D0460A9A0910F60
23330 DATAAAAAAAAAAAAAAAAA
23340 DATAEE2060A9028D0660
23350 DATA20A05620505BA900
23360 DATA8D0460A9AE91FE60
23370 DATAAAAAAAAAAAAAAAAA
23380 DATAAAAAAAAAAAAAAAAA
23390 DATAAAAAAAAAAAAAAAAA
23400 DATAA9108D1070A9108D
23410 DATA1170CE1170D0FBCE
23420 DATA1070D0F160AAAAAA
23430 DATAAAAAAAAAAAAAAAAA
23440 DATAA9018D15604C005A
23450 DATAAAAAAAAAAAAAAAAA
23460 DATAAAAAAAAAAAAAAAAA
23470 DATAAAAAAAAAAAAAAAAA
23480 DATAAAAAAAAAAAAAAAAA
23490 DATAAAAAAAAAAAAAAAAA
23500 DATAAAAAAAAAAAAAAAAA
23510 DATAAAAAAAAAAAAAAAAA
23520 DATAA9198D0070A9038D
23530 DATA017020F053CE0170
23540 DATAD0F820335BCE0070
23550 DATAD0EB20105CAD0C60
23560 DATAF040A5C5C939D001
23570 DATA60AD0A40C900D0D0
23580 DATA4C705BA5C5C92AD0
23590 DATA062090594C465BC9
23600 DATA32D00320405920B0
23610 DATA54AD8D02F00320D0
23620 DATA5920E25260A9108D
23630 DATA0D6020E252CE0D60
23640 DATAD0F84C245AA5FC8D
23650 DATA0570A5FD8D067060
23660 DATACE0970AD0970D088
23670 DATAA9358D0970A9008D
23680 DATA0360A9008D0460A9
23690 DATA20A00091FEA93C8D
23700 DATA0A40A9038D0D70A9
23710 DATA1E8D015BA5FC8D05
23720 DATA70A5FD8D067060AA
23730 DATAAAAAAAAAAAAAAAAA
23740 DATAA9808D04D4A9008D
23750 DATA00D4A9308D01D4A9
23760 DATA198D05D4A9008D06
23770 DATAD4A90F8D18D4A981
23780 DATA8D04D460AAAAAAAA
23790 DATAAAAAAAAAAAAAAAAA
23800 DATAA9808D04D4A9008D
23810 DATA00D4A9C08D01D4A9
23820 DATA198D05D4A9008D06
23830 DATAD4A90F8D18D4A981
23840 DATA8D04D4A02A60AAAA
23850 DATA060504AAAAAAAAAA
23860 DATAEEFF60ADFF60C903
23870 DATA9005A9008DFF60AA
23880 DATABD085C8D08D4A900
23890 DATA8D07D4A9208D0BD4
23900 DATAA900EAA9188D0CD4
23910 DATAA9008D0DD4A90F8D
23920 DATA18D4A9218D0BD420
23930 DATAF05860FFFFFFFFFF
23940 DATAFFFFFFFFFFFFFFFF
23950 DATAFFFFFFFFFFFEFFF
23960 DATA0000000000000000
24000 DATA XXX
READY.
```





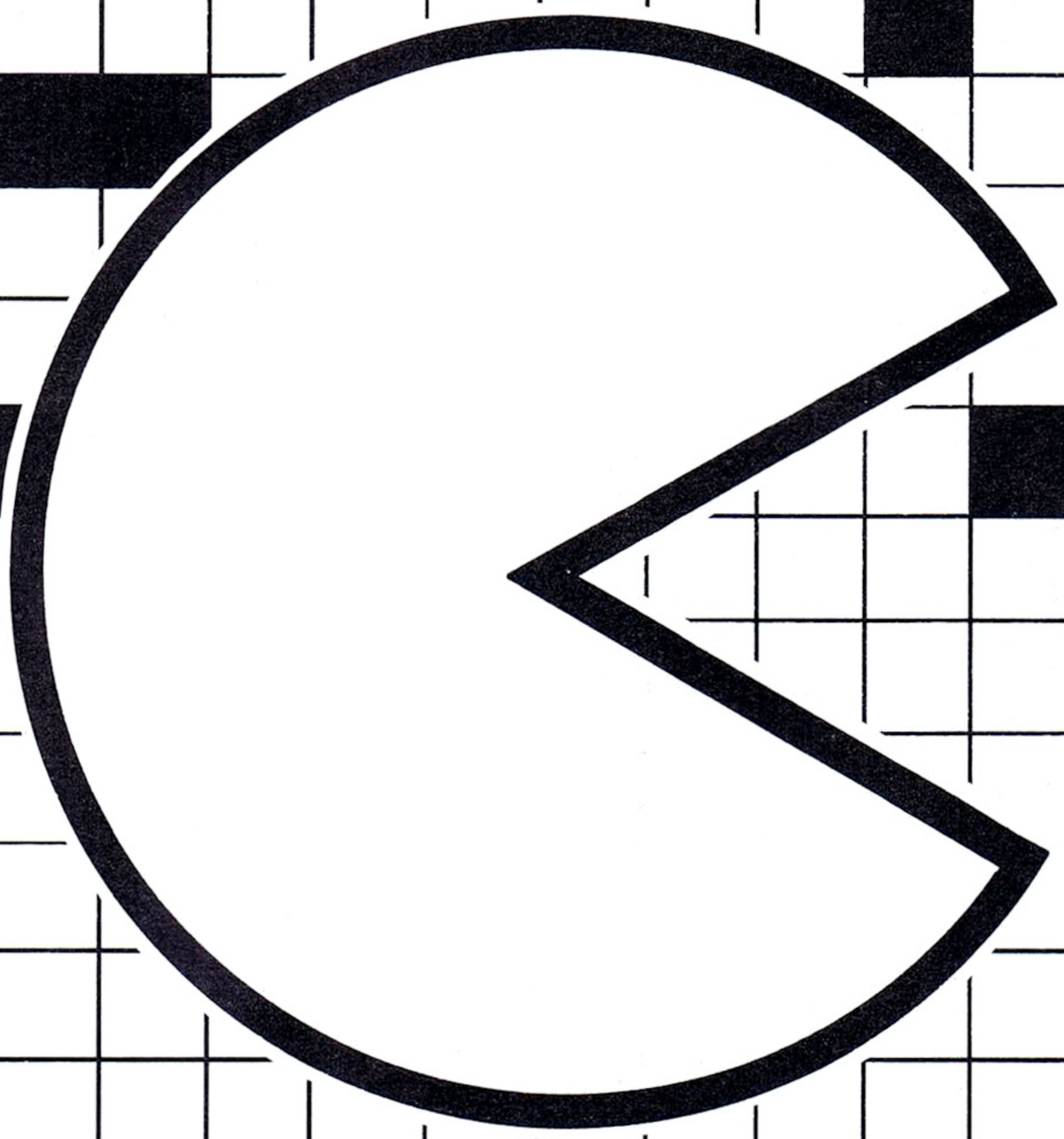




PROGRAM ②

```
100 HC(1)=02270
110 HC(2)=15720
120 HC(3)=24500
130 HC(4)=24595
140 HC(5)=11130
150 HC(6)=12230
160 N$(1)="                    "
170 N$(2)="OWEN MANDERFIELD"
180 N$(3)="OWEN MANDERFIELD"
190 N$(4)="OWEN MANDERFIELD"
200 N$(5)="OWEN MANDERFIELD"
210 N$(6)="GAMES COMPUTING!"
220 REM THE ABOVE LINES ARE CHANGED BY THE PROGRAM
225 POKE56,80
230 FORI=1TO10:GETA$:NEXT
235 PRINT"■";:POKE56,80:POKE53272,5:POKE56576,1:POKE648,128
236 POKE13*4096+32,9:POKE13*4096+33,8
240 IFPEEK(5*4096)=169ANDPEEK(5*4096+1)=0ANDPEEK(23456)=112THEN330
310 LOAD"M/C.64",1,1
320 REM HI SCORE= 06960
330 PRINT"■":POKE32730,0
331 CA$="■■■    G A M E S   C O M P U T I N G ."
332 FORSR=1TOLEN(CA$):SR$=MID$(CA$,SR,1)
333 PRINTSR$;:FORDL=1TO10:NEXT:POKE53280,ASC(SR$):NEXT
334 CA$="■              C O M M O D O R E   6 4"
335 FORSR=1TOLEN(CA$):SR$=MID$(CA$,SR,1)
336 PRINTSR$;:FORDL=1TO10:NEXT:POKE53280,ASC(SR$):NEXT
390 DATA "■■■■■■■■■■■■■"
400 DATA "■  ■■■■ ■■■■ ■■■■ ■■■■ ■■■■  ■■"
410 DATA "■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■"
420 DATA "■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■"
430 DATA "■■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■"
440 DATA "■  ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■"
450 DATA "■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■"
460 DATA "■■■  ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■"
470 DATA "■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■"
480 FORI=1TO9:READA$:
490 FORJ=1TOLEN(A$):PRINTMID$(A$,J,1);:NEXT:NEXT:PRINT"■"
510 PRINT"■■■■■■■■■■■■■
```

Tempo



By Daniel Bridge

This is a Pacman type of game but instead of battling against Blinky, Inky and cronies you have to thwart time.

Tempo is used to slow you down. In this maze the power pills are poisounous and can have rather a detrimental effect on your score. If you do hit a power pill you won't be able to renew your sheet unless you eat an eye. Sounds revolting!

Movement of your man is controlled with the traditional **W, X, A,** and **D** keys.

This would probably be quite an easy game to convert for other machines such as the Commodore 64. It would be necessary to replace the USR routine with a BASIC substitute.

Using the keys W, X, A, D, manoeuvre your man around the 'Pac-Man' style maze, eating up the dots as you go. Instead of having the traditional ghosts chasing you, you are up against the clock. Choose the speed you desire to gobble up the most dots in the least time. Your final score is your score divided by your time, multiplied by the number of sheets completed.

If you swallow a 'power pill' points will be deducted from your score! So try to avoid them; if you do hit one, you won't be able to renew your sheet unless you eat the character just below the box of the maze on the right.

Lines 4000 onwards are a USR function which make an INKEY effect work on the Sharp.

Rundown

Lines	Action
1-9	Set up machine code, variables and strings to be used later on.
10-62	Draw maze and dots.
63-70	Draw more poison pills the higher the level.
80	Uses tempo for delay. For a fast game omit this line.
100-119	Check to see what has been eaten, if enough dots have been devoured it calls for a new sheet or if the game is over.
120-145	Decide on direction to be moved in.
150-180	Move, if not trying to go into a wall.
2000-2080	Game over message.
3000-3070	Input speed and time for playing game.
4000-5020	Machine code GET routine.

MEANIE MUNCHIES

```
: LIMIT 24320:GOSUB 4000
2 P=54700:V=1
5 PRINT"■";
7 GOSUB3000
8 AC$="                                        ":REM 36 CURSOR RIGHTS
9 DW$="                          ":REM 24  CURSOR DOWNS
10 REM*PAC-TIMER BY DANIEL BRIDGE*
20 REM ***COPYRIGHT 16/8/83*****
35 REM*******MAZE SUBROUTINE*******
36 PRINT"■SCORE=■■■■TIME=■■■■■■"
40 PRINT"████████████████████████████████████████"
41 PRINT"█.........█....█...█...█.........█"
42 PRINT"█.████.█.█.█..█...█...█...█.█.████.█"
43 PRINT"█.█...█.█.█.████████████.█.█.█...█.█"
44 PRINT"█.█.█.█.█.█.....███...█...█.█.█.█.█"
45 PRINT"█...█.█.....█...███.....█...█.█...█"
46 PRINT"█.█.█.█.█.███.██████████....█.█.█.█.█"
47 PRINT"█.█.█.█.█....█       ███..███.█.█.█.█"
48 PRINT"█.......███..███      ███..███.......█"
49 PRINT"█.█.████.█...███......█....█.████.█.█"
50 PRINT"█.█.████...███.........███...████.█.█"
51 PRINT"█...████.█....█......█....█.████..●."
52 PRINT"..█.....███..███      ███..███.....█.█"
53 PRINT"█.█.█.█.███..███      ███..███.█.█.█.█"
54 PRINT"█.█.█.█.█....█        █....█.█.█.█.█"
55 PRINT"█.█.█.█...███.█       █.███...█.█.█.█"
56 PRINT"█.█.█.█.█....████████....█.█.█.█.█"
57 PRINT"█.█.█.......█...███Φ..▯.......█.█.█"
58 PRINT"█.█.███████....█.███Φ..▯..███████.█.█"
59 PRINT"█.█.........████████.........█.█"
60 PRINT"█.██████████.█...█...█..██████████.█"
61 PRINT"█.............█...█.............█"
62 PRINT"████████████████████████████████████████"
63 FORSR=0TO5*V:REM MAKE MORE DIFFICULT FOR HIGHER SHEETS
65 PRINT"■";LEFT$(AC$,RND(1)*35+1);LEFT$(DW$,RND(1)*22+2);"●"
68 NEXT SR
70 REM
80 MUSIC"R0":TEMPOM
100 USR(24320):L=PEEK(24560)
105 IF S>=361 THEN V=V+1:GOTO36:REM        CLEARED A SHEET
106 IF Y=191 THEN S=S+50
107 IF Y=71 THEN S=S-20:MUSIC"D5C3B2A0"
108 IF Y=46 THEN S=S+1:MUSIC"A#A0"
109 IF VAL(TI$)=T GOTO2000
110 POKE P,0
119 IF L=0 THEN X=P:GOTO145
120 ON L GOTO 125,130,135,140
125 X=P+40:GOTO145
130 X=P-40:GOTO145
135 X=P+1:GOTO145
140 X=P-1:GOTO145
145 Y=PEEK(X):IF Y<>67 THEN P=X
150 POKE P,206
160 PRINT"■■■■■■";S;"■■■■■■■";TI$
180 GOTO100
2000 PRINT"■  TIME UP! YOUR SCORE IS ";S
2010 PRINT"YOUR SCORE DIVIDED BY YOUR TIME         MULTIPLIED BY";
2020 PRINT" THE NUMBER OF SHEETS YOU  HAVE COMPLETED IS";
2030 PRINT S/T*V
2040 PRINT"ANOTHER GAME(Y/N)";
2050 GET Q$
2060 IF Q$="Y" THEN S=0:GOTO2
2070 IF Q$="N" THEN STOP
2080 GOTO2050
3000 PRINT"■HOW MUCH TIME DO YOU WANT";
3010 INPUT T:IFT=0THENGOSUB3060:GOTO3010
3020 PRINT"WHAT SPEED(1-SLOWEST:7-FASTEST)";
3030 INPUT M:IF(M=0)+(M)7)THENGOSUB3060:GOTO3030
3040 LET TI$="000000"
3050 PRINT"■";:RETURN
3060 PRINT" Don't be silly"
3065 FORSR=1TO1000:NEXT
3070 MUSIC"▔C_D":PRINT"■                    ■":RETURN
4000 FOR A=24320 TO 24342
4010 READ B:POKE A,B
4020 NEXT A
4030 RETURN
4040 DATA 205,27,0,33,16,95,1,5,0,237,177,121,50,240,95,201
4050 DATA 65,68,87,88,0,0,0
4060 REM RESULT IN(5FF0H)****
5000 LIMIT24320:GOSUB 4000
5010 USR(24320):PRINT PEEK(24560);
5020 GOTO5010
```

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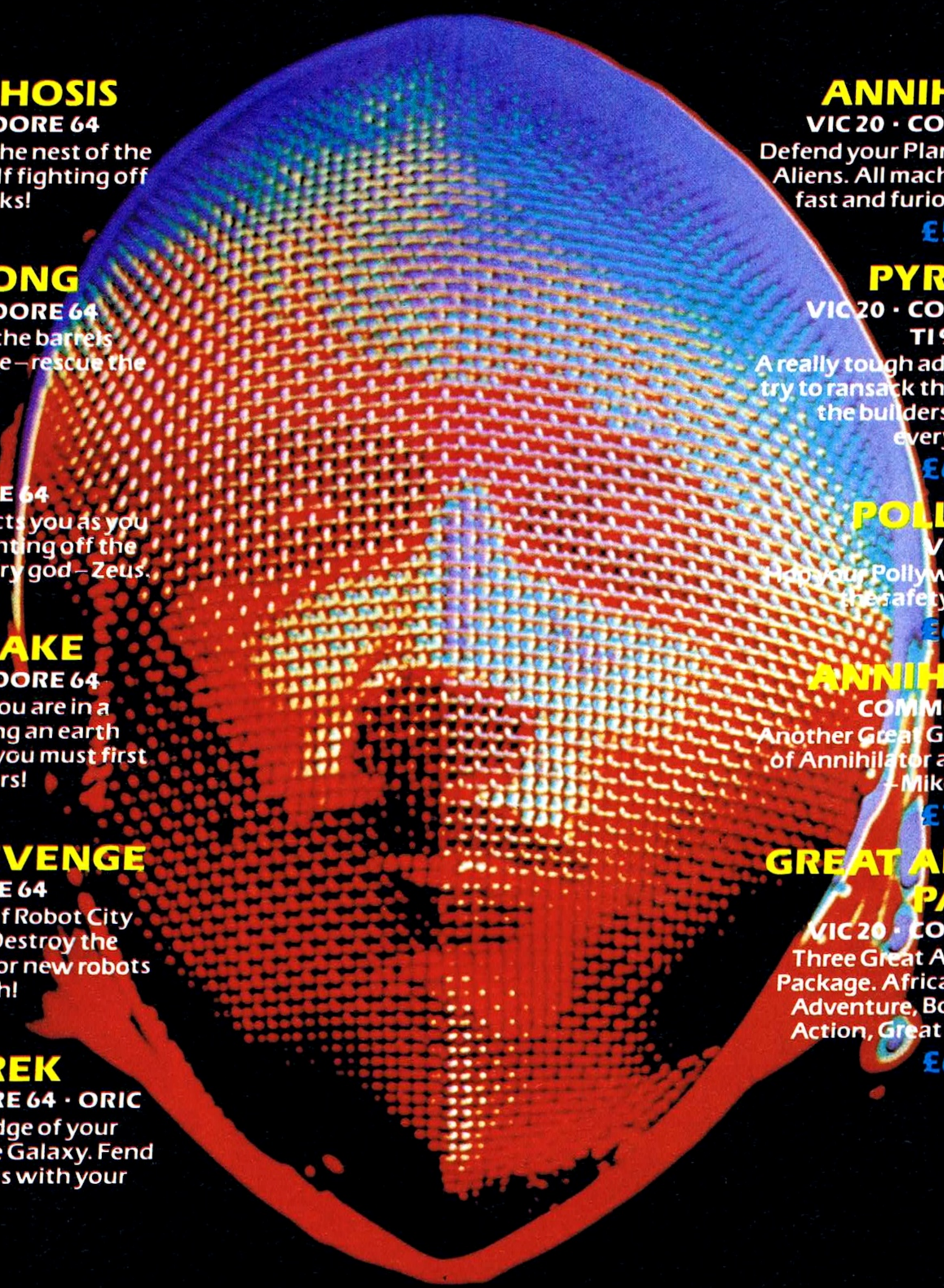

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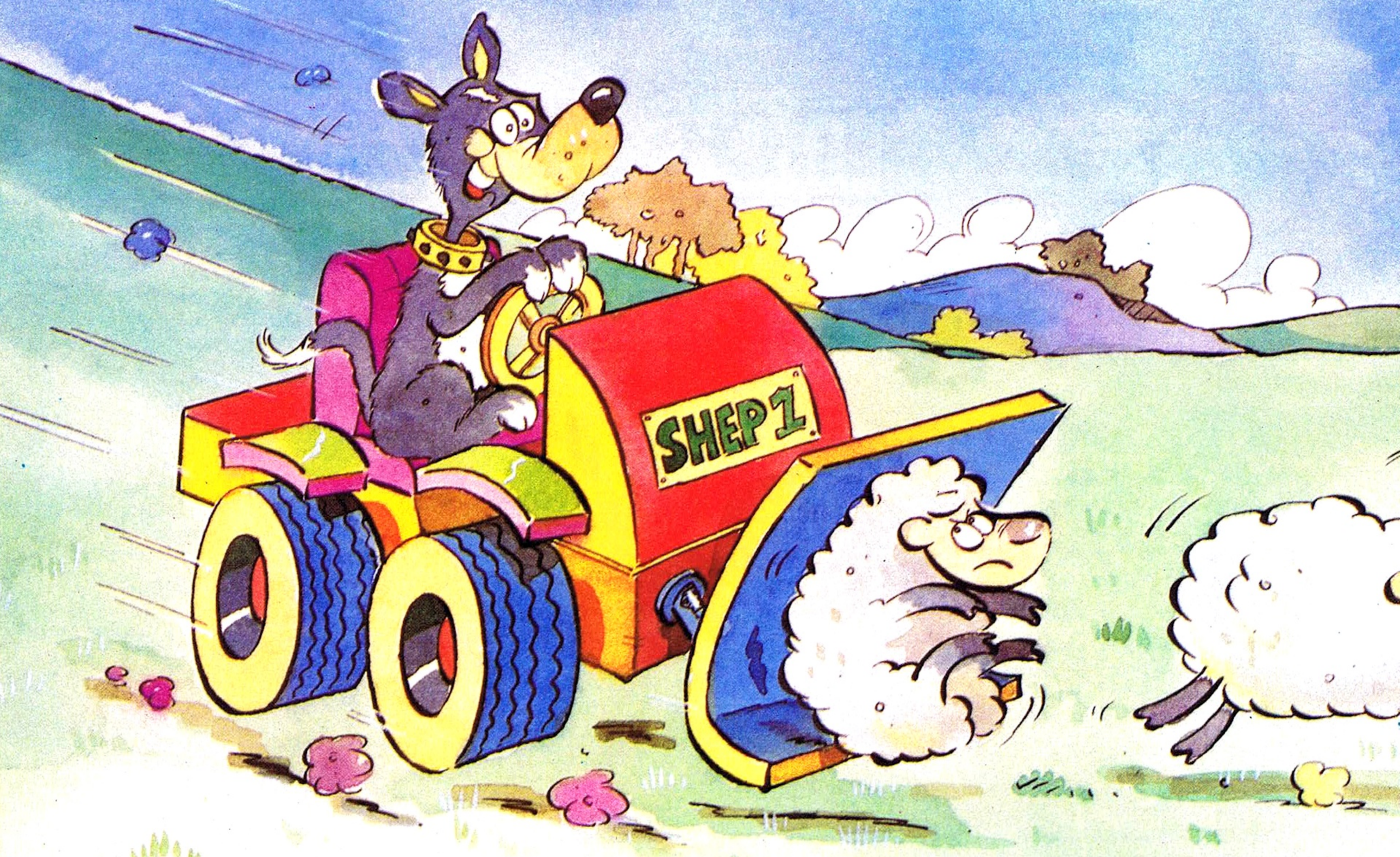


SHEEPDOG TRIALS

By Steven Bonnett

This Texas game could alter your thoughts of a peaceful life down on the farm to a more frenetic and frustrated outlook.

Sheepdog trial, let's face it, is not an entirely new game as far as the concept goes. But that doesn't detract from the program, nor the game, which will give you a challenging, entertaining and colourful time with your TI. The idea of the game is for you to round up a flock of bleating, lost sheep using your skill as a dog handler to guide your dog to successfully round up the sheep, putting them safely in the farm's pen.

A simple yet fun game for all the family.

Conversion Clues

The screen on the TI99/4A consists of 24 rows by 32 columns, with 1,1 being the top left corner. The screen is accessed by the following built-in routines:

CALL CLEAR fills the screen with spaces.

CALL SCREEN (COLOR) sets screen border to color.

CALL GCHAR (row,col,ch) sets character to ASCII value of character at row, column.

CALL HCHAR (row, col, CH,N) repeats character with ASCII value c, N times horizontally from left to right starting at row, column.

CALL VCHAR (row,col,CH,N) as for HCHAR except the characters are repeated vertically.

CALL CHAR (CH,A$) sets the character with ASCII code CH to the bit representation specified by A$, where A$ is a string of hex digits. The characters are 8 by 8 pixels, so each set of two hex digits represents one row of the character.

CALL COLOR (G,F,B) sets the foreground color to F and the background color to B of the 8 characters in group G, where characters 32-39 are in group 1, 40-47 are in group 2, etc.

RUNS ON T199/4A

The colour codes are as follows:

TRANSPARENT	1
BLACK	2
MEDIUM GREEN	3
LIGHT GREEN	4
DARK BLUE	5
LIGHT BLUE	6
DARK RED	7
CYAN	8
MEDIUM RED	9
LIGHT RED	10
DARK YELLOW	11
LIGHT YELLOW	12
DARK GREEN	13
MAGENTA	14
GREY	15
WHITE	16

RUNdown

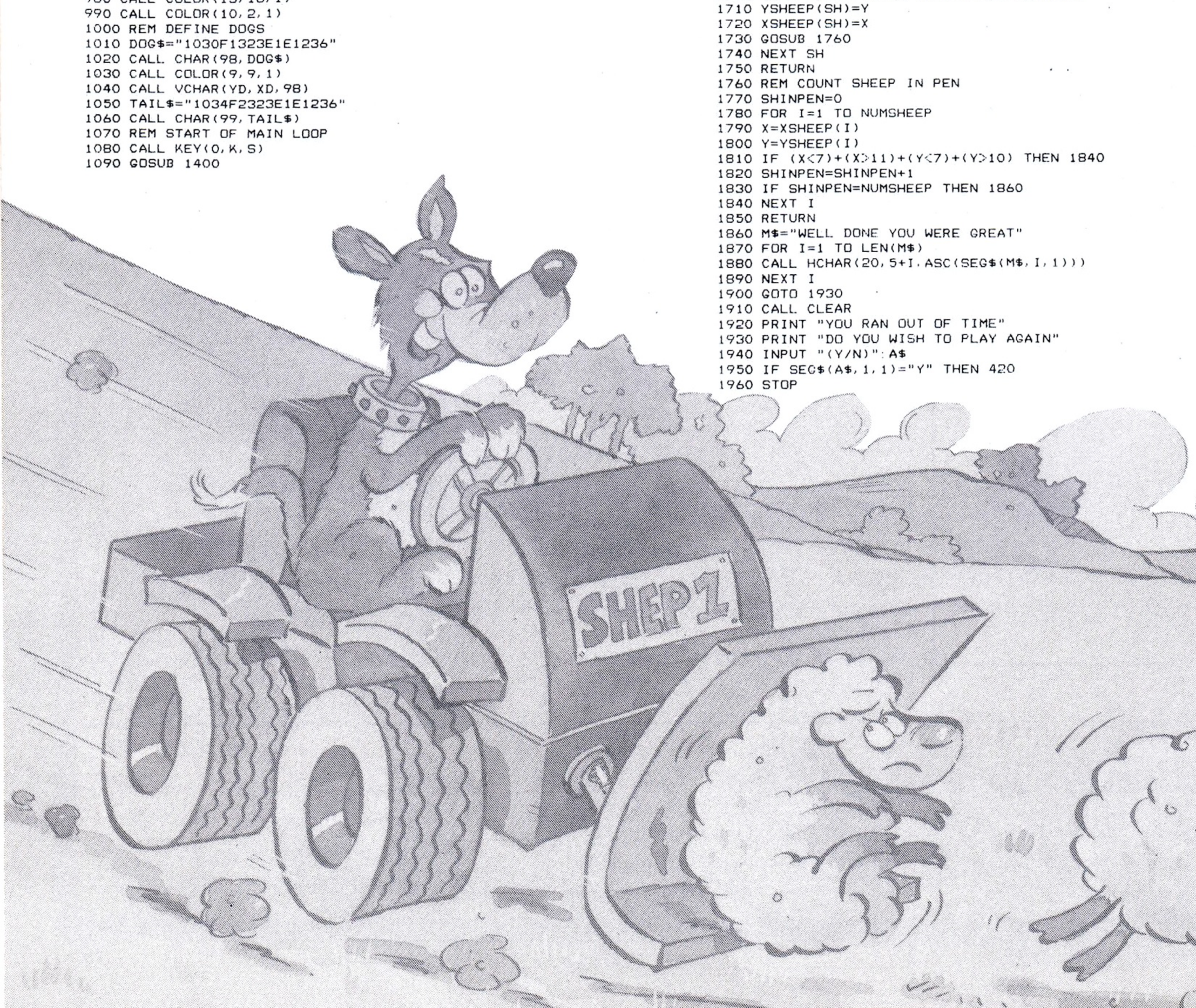
Lines	Action
100-410	Print instructions.
420-440	Make sheep transparent while they are being placed.
470	Sets the limit.
490-620	Place the sheep in field.
630-690	Define fence characters.
700-890	Draw pen and boundary fences.
900-920	Place dog.
940-990	Define sheep shape and colour.
1000-1060	Define dog.
1080	Get any input into K (memory).
1100-1110	Decrement and check time limit.
1120	Check keyboard status.
1150-1270	Check new dog position.
1280-1290	Bark.
1320-1390	Draw dog in new position.
1400	Random sheep movement routine.
1430	Picks a sheep to move.
1470-1490	Calculate new position of sheep.
1500-1540	Draw sheep in new position.
1550-1570	Update sheep position.
1590-1650	Move sheep away from barking dog.
1660-1700	Draw sheep in new position.
1760-1850	Count number of sheep in pen.
1860-1960	Print appropriate stop message.

Main Variables

XSHEEP, YSHEEP	X,Y co-ordinates of sheep.
TIME	Time left to play.
XD, YD	X,Y co-ordinates of dog.
SHINPEN	Number of sheep in pen.

```
110 REM   SHEEP-DOG
120 REM  BY  S.BONNETT
130 REM
140 CALL CLEAR
150 PRINT "DO YOU WANT INSTRUCTIONS"
160 INPUT "(Y/N)":A$
170 IF SEG$(A$,1,1)="N" THEN 420
180 CALL CLEAR
190 REM  PRINT INSTRUCTIONS
200 PRINT "MOVE THE DOG USING"
210 PRINT
220 PRINT "THE ARROW KEYS (ESXD)"
230 PRINT
240 PRINT "SPACE MAKES THE DOG BARK
250 PRINT
260 PRINT "HERD THE SHEEP INTO THE "
270 PRINT
280 PRINT "PEN BY MOVING ROUND BEHIND"
290 PRINT
300 PRINT "THEM AND BARKING."
310 PRINT
320 PRINT "GET ALL THE SHEEP INTO THE"
330 PRINT
340 PRINT "PEN BEFORE YOU RUN OUT OF "
350 PRINT
360 PRINT "TIME."
370 PRINT
```

```
380 PRINT
390 PRINT "PRESS ANY KEY TO CONTINUE"
400 CALL KEY(0,K,S)
410 IF S=0 THEN 400
420 RANDOMIZE
430 CALL CLEAR
440 CALL COLOR(10,1,1)
450 CALL COLOR(13,1,1)
460 DIM XSHEEP(10),YSHEEP(10)
470 TIME=450
480 NUMSHEEP=INT(RND*8)+1
490 REM PLACE SHEEP
500 FOR SH=1 TO NUMSHEEP
510 XSHEEP(SH)=INT(RND*15)+15
520 YSHEEP(SH)=INT(RND*22)+2
530 IF (XSHEEP(SH)<10)*(YSHEEP(SH)<10) THEN 510
540 CALL GCHAR(YSHEEP(SH),XSHEEP(SH),CH)
550 IF CH<>32 THEN 510
560 REM .8 IS PROBABILITY OF WHITE SHEEP
570 IF RND>.8 THEN 610
580 CALL HCHAR(YSHEEP(SH),XSHEEP(SH),128)
590 GOTO 620
600 REM  BLACK SHEEP
610 CALL HCHAR(YSHEEP(SH),XSHEEP(SH),110)
620 NEXT SH
630 CALL CHAR(104,"0000FF")
640 REM INITIALISE EDGE CHARACTERS
650 CALL CHAR(105,"0808080808080808")
660 CALL CHAR(106,"00000F0808080808")
670 CALL CHAR(107,"0000F80808080808")
680 CALL CHAR(108,"08080F")
690 CALL CHAR(109,"0808F8")
700 REM  DRAW BOUNDARY
710 CALL HCHAR(1,1,104,32)
720 CALL HCHAR(24,1,104,32)
730 CALL VCHAR(1,1,105,24)
740 CALL VCHAR(1,32,105,24)
750 REM DRAW PEN
760 CALL HCHAR(6,6,104,6)
770 CALL VCHAR(6,6,105,5)
780 CALL VCHAR(6,12,105,5)
790 CALL HCHAR(10,6,104,2)
800 CALL HCHAR(10,11,104,2)
810 REM DRAW CORNERS
820 CALL HCHAR(1,1,106)
830 CALL HCHAR(6,6,106)
840 CALL HCHAR(1,32,107)
850 CALL HCHAR(6,12,107)
860 CALL HCHAR(10,6,108)
870 CALL HCHAR(24,1,108)
880 CALL HCHAR(24,32,109)
890 CALL HCHAR(10,12,109)
900 REM PLACE DOG
910 YD=5
920 XD=5
930 CALL SCREEN(12)
940 REM DEFINE SHEEP
950 A$="003C7FDFFF3F1212"
960 CALL CHAR(128,A$)
970 CALL CHAR(110,A$)
980 CALL COLOR(13,16,1)
990 CALL COLOR(10,2,1)
1000 REM DEFINE DOGS
1010 DOG$="1030F1323E1E1236"
1020 CALL CHAR(98,DOG$)
1030 CALL COLOR(9,9,1)
1040 CALL VCHAR(YD,XD,98)
1050 TAIL$="1034F2323E1E1236"
1060 CALL CHAR(99,TAIL$)
1070 REM START OF MAIN LOOP
1080 CALL KEY(0,K,S)
1090 GOSUB 1400
1100 TIME=TIME-1
1110 IF TIME<1 THEN 1910
1120 IF S=0 THEN 1170
1130 NEWY=YD
1140 NEWX=XD
1150 ON POS("EXDS ",CHR$(K),1)+1 GOTO 1170,1200,1220,1240,1260,1290
1160 REM NO INPUT-WAG TAIL
1170 CALL GCHAR(YD,XD,CH)
1180 CALL HCHAR(YD,XD,98+99-CH)
1190 GOTO 1080
1200 NEWY=YD-1
1210 GOTO 1330
1220 NEWY=YD+1
1230 GOTO 1330
1240 NEWX=XD+1
1250 GOTO 1330
1260 NEWX=XD-1
1270 GOTO 1330
1280 REM BARK
1290 CALL SOUND(65,131,2,-6,2)
1300 GOSUB 1590
1310 GOTO 1080
1320 REM RE-DRAW DOG
1330 CALL GCHAR(NEWY,NEWX,CH)
1340 IF CH<>32 THEN 1080
1350 CALL HCHAR(NEWY,NEWX,98)
1360 CALL HCHAR(YD,XD,32)
1370 XD=NEWX
1380 YD=NEWY
1390 GOTO 1080
1400 REM MOVE SHEEP
1410 REM .3 IS PROBABILITY OF NO SHEEP MOVING
1420 IF RND>.3 THEN 1580
1430 SH=INT(RND*NUMSHEEP)+1
1440 X=XSHEEP(SH)
1450 Y=YSHEEP(SH)
1460 REM .5 IS FLOCKING FACTOR
1470 FLOCK=-(RND>.5)
1480 X=X+(1-FLOCK)*(2*(RND>.5)+1)+SGN(XSHEEP(1)-XSHEEP(SH))*FLOCK
1490 Y=Y+(1-FLOCK)*(2*(RND>.5)+1)+SGN(YSHEEP(1)-YSHEEP(SH))*FLOCK
1500 CALL GCHAR(Y,X,CH)
1510 IF CH<>32 THEN 1580
1520 CALL GCHAR(YSHEEP(SH),XSHEEP(SH),CH)
1530 CALL HCHAR(Y,X,CH)
1540 CALL HCHAR(YSHEEP(SH),XSHEEP(SH),32)
1550 XSHEEP(SH)=X
1560 YSHEEP(SH)=Y
1570 GOSUB 1760
1580 RETURN
1590 REM MOVE SHEEP AWAY FROM BARK
1600 FOR SH=1 TO NUMSHEEP
1610 X=XSHEEP(SH)
1620 Y=YSHEEP(SH)
1630 IF ((X-XD)^2+(Y-YD)^2)>17 THEN 1740
1640 X=X+SGN(X-XD)
1650 Y=Y+SGN(Y-YD)
1660 CALL GCHAR(Y,X,CH)
1670 IF CH<>32 THEN 1740
1680 CALL GCHAR(YSHEEP(SH),XSHEEP(SH),CH)
1690 CALL HCHAR(Y,X,CH)
1700 CALL HCHAR(YSHEEP(SH),XSHEEP(SH),32)
1710 YSHEEP(SH)=Y
1720 XSHEEP(SH)=X
1730 GOSUB 1760
1740 NEXT SH
1750 RETURN
1760 REM COUNT SHEEP IN PEN
1770 SHINPEN=0
1780 FOR I=1 TO NUMSHEEP
1790 X=XSHEEP(I)
1800 Y=YSHEEP(I)
1810 IF (X<7)+(X>11)+(Y<7)+(Y>10) THEN 1840
1820 SHINPEN=SHINPEN+1
1830 IF SHINPEN=NUMSHEEP THEN 1860
1840 NEXT I
1850 RETURN
1860 M$="WELL DONE YOU WERE GREAT"
1870 FOR I=1 TO LEN(M$)
1880 CALL HCHAR(20,5+I,ASC(SEG$(M$,I,1)))
1890 NEXT I
1900 GOTO 1930
1910 CALL CLEAR
1920 PRINT "YOU RAN OUT OF TIME"
1930 PRINT "DO YOU WISH TO PLAY AGAIN"
1940 INPUT "(Y/N)":A$
1950 IF SEG$(A$,1,1)="Y" THEN 420
1960 STOP
```



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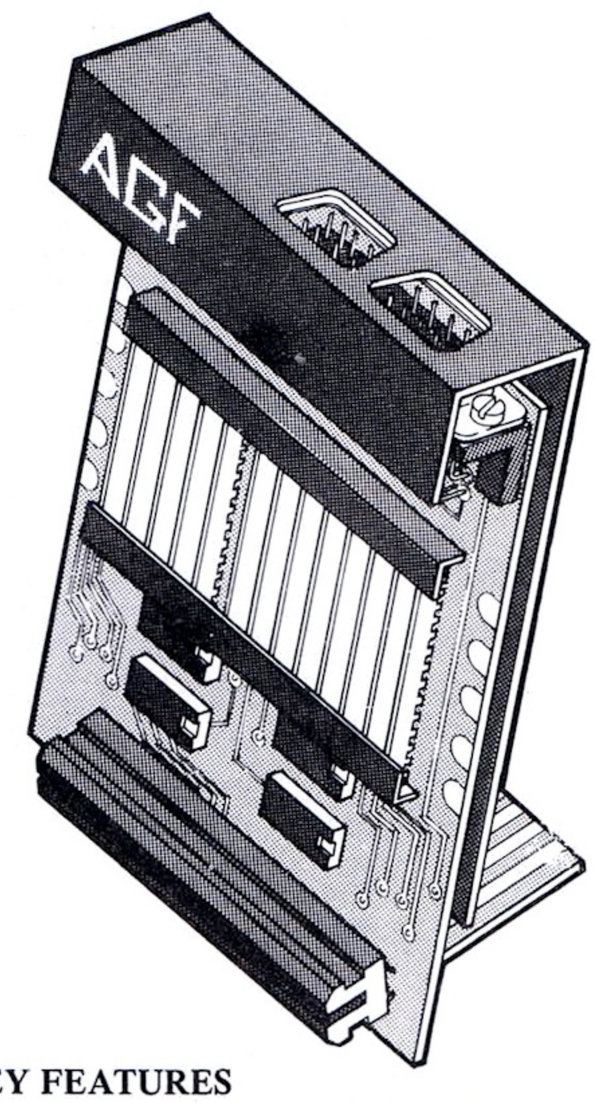

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RUNAWAY ROBOT

Runs on a SPECTRUM 48K

By Jon Smith and Simon N Goodwin

Runaway Robot is a fast, original, colour graphics game for any ZX Spectrum. The program has been carefully written so that it is relatively easy to convert for other computers.

The year is 2083, and the affairs of the planetary federation are controlled by the massive super-computer SPAM (Seven Planets Administrative Machine). SPAM is so large and intricate that it has to be maintained by a squad of robots which roam its corridors checking for faults and carrying out repairs whenever necessary. SPAM would have to be shut down completely before a human could enter its sealed environment.

Unfortunately, one of the maintenance robots has run wild. A fault in its command circuitry means that the robot cannot stop moving at top speed. It is trapped in the middle of the super-computer, careering wildly back and forth, damaging the intricate components which control the economy of seven planets. Already all the Martian income tax records for the last ten years have been scrambled. If further damage occurs inerplanetary trade could collapse!

You have been rocketed up to the SPAM control centre on Titan (one of Jupiter's moons). It is imperative that you bring the robot under control. Limited command circuits have been established, but it has not been possible to halt the robot. You must steer it away from the heart of the computer before it finally goes haywire and explodes.

Playing The Game

When you RUN the program it will ask you how many players wish to take part. Type 1 or 2. If you select the two player game, each player will have to bring a different runaway robot under control. The players take turns to guide their robots through sections of the super-computer.

Press the "**q**" key to turn the robot towards the top of the screen, and press "**a**" to turn it in the opposite direction. Use the "**o**" and "**p**" keys to turn the robot left and right. Make sure the CAPS LOCK is not set, otherwise the keys will not be recognised. You can alter them if you wish by substituting different characters in line 140.

Scattered between the wiring-banks of SPAM you will find purple storage cells — batteries for the maintenance robots. These restore the energy supply, making it possible for you to move the robot further from the critical parts of the super-computer.

You cannot leave a section of SPAM until you have collected all the batteries in it. As the game goes on you will move into increasingly complex parts of the super-computer. There are more batteries in the outer sections, but the wiring pattern is more dense so you must take extra care to avoid damaging SPAM.

Each time the runaway robot collides with the circuitry it loses energy. When the energy (shown at the bottom of the screen) reaches zero the robot will explode . . .

Hints On Play

As the game progresses the wiring inside the computer will become more and more complex, but there will always be a route to each of the storage cells.

There are 30 different 'levels' of wiring. At high levels the number of batteries is increased as well as the cost of collisions and the complexity of the maze.

It is easy to overshoot junctions unless you control the robot carefully. If you press the required key just before the robot reaches a turning you will not overshoot. Once your robot has crashed it goes out of control, bouncing randomly back and forth until you steer it away from the obstruction. Take control again quickly or the robot will destroy itself.

The key to playing *Runaway Robot* well is choosing the best possible route through the circuitry of SPAM. Try to select the shortest possible path between the storage cells. To do this you should look around the design as you move, constantly planning ahead. The robot uses up energy every time it changes direction.

There are two times at which you can study the circuitry without having to control the robot at the same time. Before you move through each section of the computer you will see the wiring build up on the screen. Once the complete section is drawn the storage cells are positioned, and a fanfare sounds. You then have four seconds in which to study the wiring before the robot starts to move. If you don't need this time then you can start immediately by pressing a direction key.

Summing Up

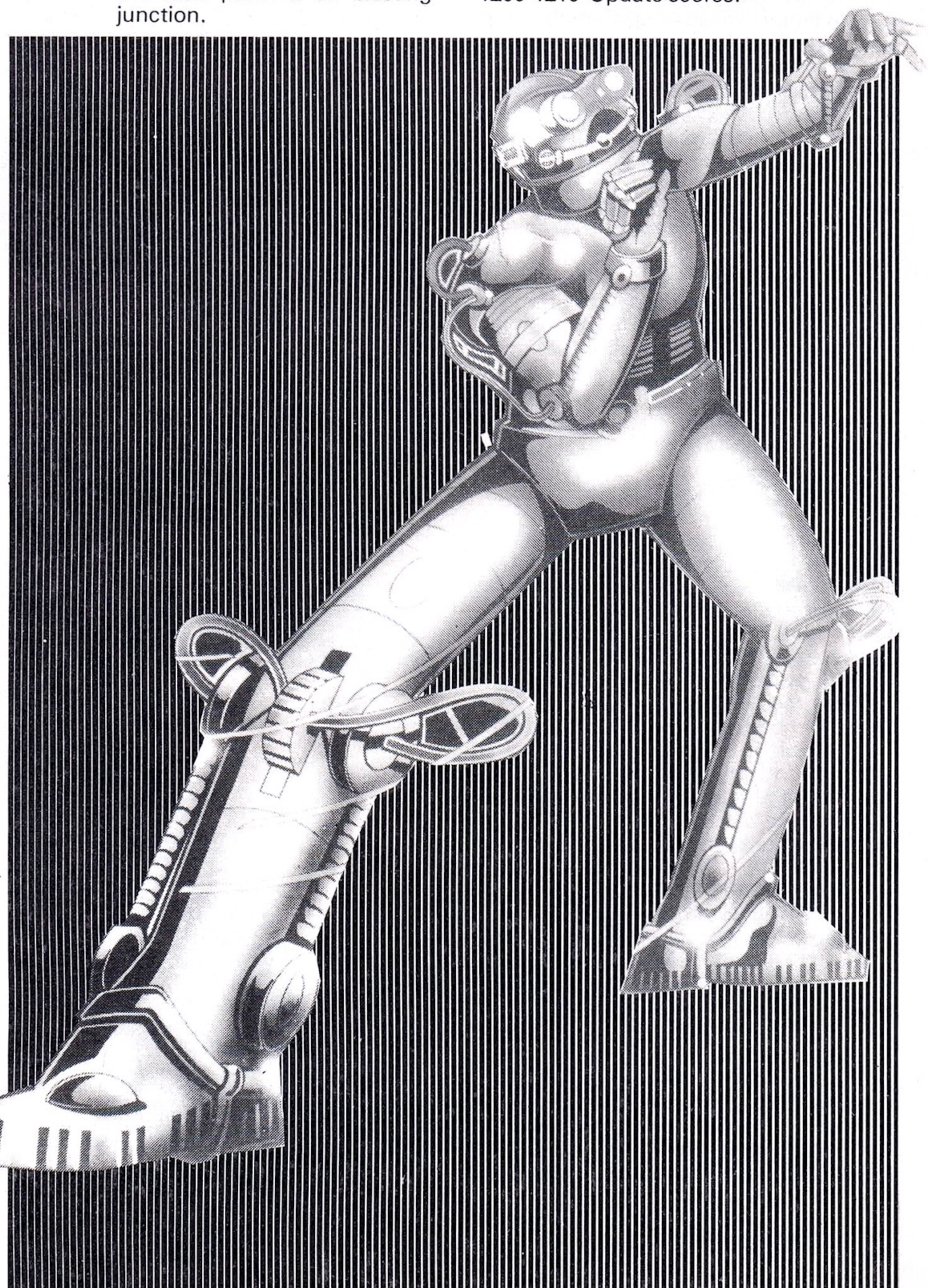
The heart of *Runaway Robot* is the random circuit generator, which produces an almost inifinite number of different mazes. In each maze you are guaranteed that a path will exist between every point, so you can never end up 'trapped' however complicated the maze is.

The random circuit generator can be used to produce mazes in any other game you care to design. it uses simple graphics (a corner, horizontal and vertical lines), and requires a minimum graphics resolution of only 31 by 21, so it should run with few changes on almost any computer.

The Solar System is counting on you. The Interplanetary Revenue Service will reward you if you can save their records from destruction. What right-thinking sentient being could resist such a challenge?

RUNdown

Lines	Action
100	The main program starts at line 200. The two most often used subordinates have been entered at the beginning of the listing so that they can be found quickly by BASIC. The game would be slower if they were at the end of the program.
110-160	Read the Spectrum keyboard. If a direction key is pressed return with the direction number (1 to 4) stored in 'direction'. If no key is pressed, keep the old direction.
170-190	Draw a 'star' (circuit junction) in the odd-numbered row and column specified by 'x' and 'y'.
200-280	Set up the program and then play the game over and over again for each player.
290-300	Store the most commonly-used values in variables. This makes the program slightly shorter, but it is not necessary unless you plan to add large amounts of extra code.
310-320	Tell the computer the size of the screen, in rows (Y) and columns (X).
330	Reserve space so that the details of two players can be stored.
340	Stop the Spectrum keyboard auto-repeat (this speeds up the game).
350-400	Set up two arrays which determine the relationship between 'direction' and X and Y coordinates. Store the graphics for the robot in each direction (right, down, left, up) in E$.
410-500	Define the graphics for the batteries and circuitry.
510-600	Let the user select a one or two player game. Put the starting energy into E(), the level into L(), and the score into S().
610-620	Let one player play. Fetch the results so far. If it is a two player game then say who is to play next.
630	Call up the parts of the program which do the real work!
640-650	Save the results so far and return.
660-670	Work out how many times you must fail to place a connection before you decide that the circuit is 'complete'.
680-690	Clear the screen to a white area 31 printing positions across by 21 down.
700-780	Draw wiring between random points unitl the circuit is complete.
790-800	Join junctions with a horizontal line (character 146) or a vertical line (character 147) depending upon the direction.
810-830	Move on, unless the edge of the screen has been reached or the next point is an existing junction.
840-870	Carry on selecting new directions, but don't go back the way you came.
880-890	Record that more wiring has been placed. If the section is not complete then try to lay another wire.
900-930	Prepare to play the game.
940-990	Position batteries (character 144) randomly. The higher the value of 'skill' the more batteries appear.
1000	Draw the robot at the start.
1010	Record how many batteries must be found.
1020	Print the scores so far.
1030	Fanfare and wait for four seconds.
1040-1050	Read the keys and prepare for movement.
1060-1080	See if we have hit a wall or a battery.
1090	Move the robot. If all the batteries have gone then stop.
1100	Read the keys. Move on unless they have changed.
1110-1120	Lose energy if the robot has turned, then move again.
1130-1150	If a wall has been hit then punish the player accordingly.
1160	Increase energy — battery found.
1170-1190	Section cleared — play a jingle.
1200-1210	Update scores.



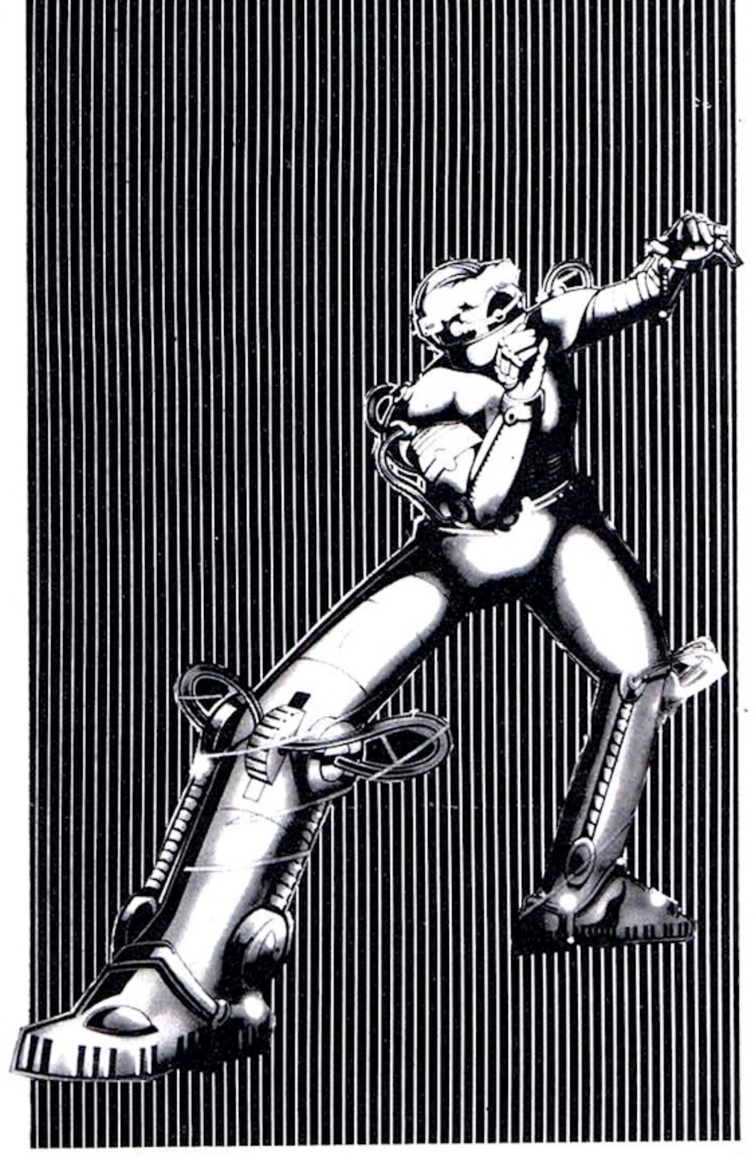
1220 The runaway robot will run no futher . . .
1230-1260 Show final score.
1270-1330 End of game. Show both scores and request another game.
1340-1370 Time delay.

Conversion Clues

Runaway Robot is not a difficult game to convert to run on a different computer, as long as the machine allows you to position characters on a 31 column by 21 row area. There are only three POKEs in the program — these should be missed out on computers other than the Spectrum. You will have to replace the Spectrum user-defined graphics with your own, so omit lines 410-490.

Characters are positioned on the Spectrum display using the PRINT AT Y,X;-CHR$(N); statement. This positions character N at row Y, column X. Co-ordinate O,O is the top left hand corner of the display. In the program the following special (user-defined) characters are used:

CHR$(144) Battery.
CHR$(145) Junction.
CHR$(146) Horizontal line.
CHR$(147) Vertical line.
CHR$(148) Robot facing left.
CHR$(149) Robot facing right.
CHR$(150) Robot facing vertically.



For example, the statement PRINT AT 31,1;''!''; would position an exclamation mark at the right-hand end of the second lines of the display.

The Spectrum does not have a convenient facility for identifying user-defined graphics once they have been printed, so the ATTR(Y,X) function is used to find the colour at a given character position. ATTR(Y,X) is 56 if the character at position Y,X is wiring, and 59 if the character is a battery.

The game uses the Spectrum's INK, PAPER and BORDER statements to select colours. In fact it will work (in principle) in black and white, so long as ATTR is replaced by a function which describes the character at a given place on the screen. the INK, PAPER and BORDER statements should, consequently, be omitted. Likewise, the BEEP statements, used for sound effects, are only needed on a Spectrum. You may replace them with the equivalent command on your computer, but the program will still work if they are absent.

Once you have converted the game as written it is possible to increase the size of the circuits generated, so that the whole of your display area is used. Alter the X and Y values in lines 310 and 320 to change the size of circuits. The number of columns is stored in sxmax' and the number of rows is in 'symax'. Both values must be even.

The CODE function is the equivalent of ASC in other versions of BASIC — it returns the ASCII code of a character. INKEY$ returns a single character if a key is pressed — otherwise it returns an empty soring (''''). The CLS command clears the display.

Armed with all that useful information to help you play this great game, you're bound to have the time of your life. So go out and get those robots!

```
100 GO TO 200
110 REM look for a key
120 LET t$=INKEY$
130 IF t$="" THEN RETURN
140 LET d=(one AND t$="p")+(two AND t$="a")+(three AND t$="o")+(four AND t$="q"
150 IF d<>0 THEN LET direction=d
160 RETURN
170 REM draw a star
180 PRINT AT y+y+one,x+x+one;CHR$ (145)
190 RETURN
200 REM Start of program
210 GO SUB 0290: REM initialize
220 GO SUB 0510: REM setup vars
230 FOR n=one TO numplayers
240  GO SUB 0610: REM do this player
250 NEXT n
260 IF more THEN GO TO 230: REM still alive?
270 GO SUB 1270
280 GO TO 220
290 REM initialize
300 LET zero=0: LET one=1: LET two=2: LET three=3: LET four=4: LET seven=7
310 LET sxmax=30
320 LET symax=20
330 DIM s(two): DIM l(two): DIM e(two): REM player data
340 POKE 23562,0
350 DIM X(four): DIM Y(four): REM steps to take to move in each cardinal direct
ion
360 DATA 1,0,149,0,1,150,-1,0,148,0,-1,150
370 DIM E$(four): DIM p$(one): REM pictures
380 FOR i=one TO four
390  READ X(i),Y(i),x: LET E$(i)=CHR$ (x)
400 NEXT i
410 REM define user graphics
420 FOR x=zero TO 55: READ y: POKE USR "A"+x,y: NEXT x
430 DATA 63,67,253,133,133,133,134,252
440 DATA 24,60,126,231,231,126,60,24
450 DATA 0,0,0,255,255,0,0,0
460 DATA 24,24,24,24,24,24,24,24
470 DATA 28,28,4,124,28,12,4,12
480 DATA 56,56,32,62,56,48,32,48
490 DATA 60,60,24,60,60,126,66,231
500 RETURN
510 PAPER four: BORDER four: CLS
520 PRINT AT 9,4; INK one; PAPER 5;"HOW MANY PLAYERS[1,2]?"
530 LET t$=INKEY$: IF t$="" THEN GO TO 0530
540 IF t$>"2" OR t$<"1" THEN CLS : PRINT AT 9,7; PAPER 5; INK one;"PLEASE ENTER
1 or 2";: GO SUB 1340: GO TO 0510
550 LET numplayers=CODE (t$)-48
560 FOR i=one TO numplayers
570  LET s(i)=zero: LET e(i)=400: LET l(i)=5
580 NEXT i
590 LET more=numplayers
600 RETURN
610 LET energy=e(n): LET score=s(n): LET skill=l(n): IF energy<=zero THEN RETUR
N
620 IF numplayers=two THEN PAPER four: BORDER four: CLS : PRINT AT 9,12; PAPER
5; INK one;"PLAYER ";n;: GO SUB 1340
630 GO SUB 0660: GO SUB 0900: REM draw maze and play
640 LET e(n)=energy: LET s(n)=score: LET l(n)=skill: IF energy<=zero THEN LET m
ore=more-one
650 RETURN
660 REM draw maze
670 LET maxcount=skill*20: IF maxcount>300 THEN LET maxcount=300: REM set compl
exity of maze
680 BORDER zero: PAPER seven: INK two: CLS : INK zero
690 FOR x=zero TO 31: PRINT AT 21,x;CHR$ (143);: NEXT x: FOR y=21 TO zero STEP
-one: PRINT AT y,31;CHR$ (143);: NEXT y
700 LET count=zero
710 REM chose a random start
720 LET x=INT (RND*sxmax/2): LET y=INT (RND*symax/2)
730 LET sxloc=x+x+one: LET syloc=y+y+one: IF ATTR (syloc,sxloc)=56 THEN GO TO 0
880
740 LET direction=one+INT (RND*four): LET oppdir=direction+two: IF oppdir>four
THEN LET oppdir=oppdir-four
750 LET len=one+INT (RND*two)
760 LET dx=X(direction)
770 LET dy=Y(direction)
780 GO SUB 170: PRINT AT y+y+dy+one,x+x+dx+one;
790 IF dx=zero THEN PRINT CHR$ (147);: GO TO 0810
800 PRINT CHR$ (146);
810 LET x=x+dx: LET y=y+dy
820 IF x<zero OR x>sxmax/2 OR y<zero OR y>symax/2 THEN GO TO 0880
830 IF ATTR (y+y+one,x+x+one)=56 THEN GO TO 0880
840 LET len=len-one
850 IF len<>zero THEN GO TO 0780
860 LET direction=one+INT (RND*four): IF direction=oppdir THEN GO TO 0860: REM
no double back
870 GO TO 750
880 LET count=count+one: IF count<maxcount THEN GO TO 0720
890 RETURN
900 REM play the game
910 PAPER seven: INK one
920 LET xloc=zero: LET yloc=20: REM start coord of robot
930 PRINT AT 21,2; PAPER four; INK one;"SCORE:      ";AT 21,16;"ENERGY:      ";
940 FOR i=one TO skill
950  BEEP .05,40-i
960  LET cx=INT (RND*sxmax): LET cy= INT (RND*(symax-one))
970  IF ATTR (cy,cx)=56 OR ATTR (cy,cx)=59 THEN GO TO 0960
980  PRINT AT cy,cx; INK three;CHR$ (144)
990 NEXT i
1000 PRINT AT yloc,xloc;CHR$ (149);
1010 LET noprize=skill
1020 GO SUB 1200
1030 BEEP .5,0: BEEP 1,7: PAUSE 200
1040 REM Main loop
1050 GO SUB 110: LET olddir=direction: LET dx=X(direction): LET dy=Y(direction):
 LET p$=E$(direction)
1060 LET nxloc=xloc+dx: LET nyloc=yloc+dy
1070 IF ATTR (nyloc,nxloc)=56 OR nxloc<zero OR nyloc<zero OR nyloc>=21 THEN GO T
O 1130
1080 IF ATTR (nyloc,nxloc)=59 THEN GO TO 1160
1090 PRINT AT yloc,xloc;" ";: PRINT AT nyloc,nxloc;p$;: LET xloc=nxloc: LET yloc
=nyloc: IF noprize=zero THEN GO TO 1170
1100 GO SUB 110: IF direction=olddir THEN GO TO 1060
1110 LET energy=energy-skill: GO SUB 1200: IF energy<=zero THEN GO TO 1220
1120 GO TO 1050
1130 GO SUB 120: IF direction<>olddir THEN GO TO 1050: REM Check for last-minute
 change
1140 LET energy=energy-skill: GO SUB 1200: LET olddir=direction: LET direction=o
ne+INT (RND*four): GO SUB 110: IF energy<=zero THEN GO TO 1220
1150 BEEP 0.01,20: GO TO 1050
1160 BEEP 0.01,zero: LET score=score+skill: LET energy=INT (energy+45*RND): GO S
UB 1200: LET noprize=noprize-one: GO TO 1090
1170 LET skill=skill+one: FOR i=1 TO 20: BEEP .02,i: NEXT i
1180 GO SUB 1340
1190 RETURN
1200 PRINT AT 21,8; INK one; PAPER four;score;AT 21,23;"      ";AT 21,23;energy;
1210 RETURN
1220 FOR i=zero TO seven: BORDER 7-i: PAPER i: CLS : NEXT i: PAPER four: BORDER
four: CLS : PAPER one: INK 5: FLASH one
1230 IF numplayers=two THEN PRINT AT 8,12;"PLAYER ";n;
1240 PRINT AT 9,2;"YOU JUST RAN OUT OF ENERGY.";: PRINT AT 10,6;"YOUR SCORE WAS:
 ";SCORE;: GO SUB 1340
1250 FLASH zero
1260 RETURN
1270 PAPER four: BORDER four: CLS
1280 IF numplayers=two THEN PRINT AT 5,6; FLASH one; INK one; PAPER 5;"SCORES:";
AT 7,10; FLASH 0;"PLAYER 1 : ";s(one);AT 9,10;"PLAYER 2 : ";s(two);
1290 PRINT AT 14,7; PAPER 5; INK one;"DO YOU WANT TO PLAY";AT 15,11;"AGAIN[Y,N]?
";
1300 LET t$=INKEY$: IF t$="" THEN GO TO 1300
1310 IF t$="y" THEN GO SUB 1340: RETURN
1320 IF t$="n" THEN POKE 23562,5: PAPER seven: BORDER seven: INK zero: CLS : STO
P
1330 CLS : PRINT AT 14,6; PAPER 5; INK one;"PLEASE ENTER Y OR N";: GO SUB 1340:
CLS : GO TO 1290
1340 FOR i=one TO 200: NEXT i: RETURN : REM delay
1350 REM ** RUNAWAY ROBOT
1360 REM ** 1983 jon smith
1370 REM ** & Simon N Goodwin
```

BOMBARD

By Ben Craig

Bombard is a deadly contest fought out in deep space between Earth Base and Alien. Two players take it in turn to control these two sworn enemies, using either the keyboard or joysticks. The alien must try to land on top of the Earth Base, while the Earth Base must dodge and shoot to give him bonus time. A difficult task indeed.

Variables Used

SC( )	Each player's score.
AE	x co-ordinates of EARTH BASE (and missile).
AEM	y co-ordinates of MISSILE.
AS	x co-ordinates of ALIEN.
PL	Player one or two as EARTH BASE.
JOY	TRUE — players using joysticks. FALSE — players using keys.
T + X%	Waiting loops.
LI	Lives.
H	y co-ordinates of ALIEN.
X	Fire button tests — used in PROCFREEZE.
E%	End instructions; start game if true.
LIVES	Lives left.
F	Print LIVES.
P	Pitch of note.
D	Length of note.
Bombard$	'Bombard' in fancy letters.

'PROC' names

PROCinstructions =
Prints instructions.
PROCNOPLAY =
Plays tunes.
PROCALIENDESTROYED =
Gives ten seconds bonus.
PROCSTARS =
Printes stars.
PROCKEYS =
Checks for movement/fire keys pressed.
PROCWHATKEYS
Displays movement/fire keys.
PROCFREEZE =
Freezes game.
PROCENDGAME =
Displays scores after game.
PROCNAME =
Prints 'BOMBARD' in fancy letters.

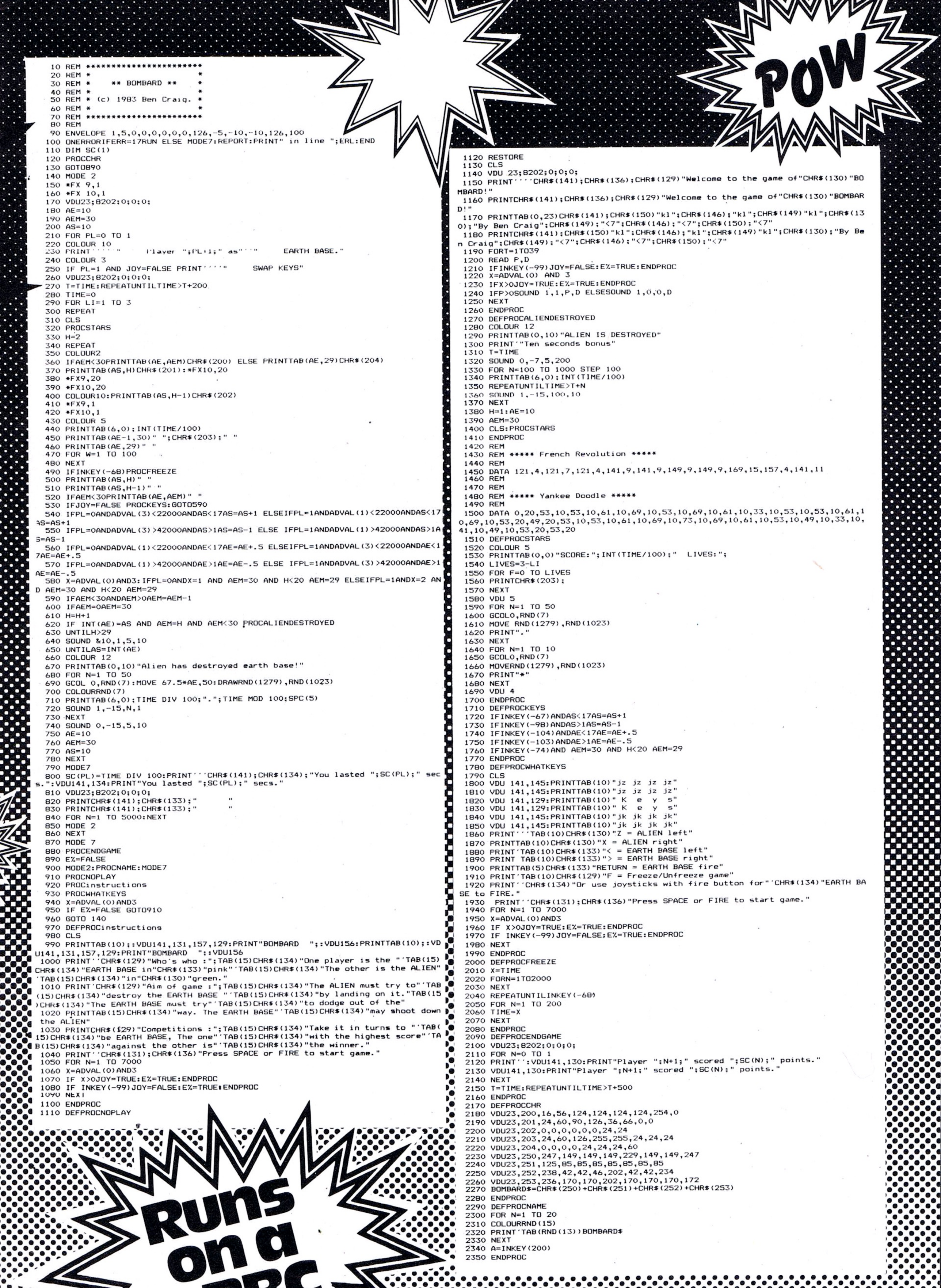
ZAP

Graphics Symbols

200	Missile
201	Alien
202	Missile when stationary
203	Earth base
204	Alien ahead
250	BO
251	M
252	BA
253	RD

Program Structure

90-110	Gets the program ready to run.
120	Transfers control to lines 890-850 which prints instructions, etc.
130-200	Defines variables.
300-650	Main loop.
660-780	Earth Base Destroyed.
810-880	End of Game.
970-2350	Various procedures.




```
 10 REM **********************
 20 REM *                     *
 30 REM *    ** BOMBARD **    *
 40 REM *                     *
 50 REM * (c) 1983 Ben Craig. *
 60 REM *                     *
 70 REM **********************
 80 REM
 90 ENVELOPE 1,5,0,0,0,0,0,0,126,-5,-10,-10,126,100
100 ONERRORIFERR=17RUN ELSE MODE7:REPORT:PRINT" in line ";ERL:END
110 DIM SC(1)
120 PROCCHR
130 GOTO890
140 MODE 2
150 *FX 9,1
160 *FX 10,1
170 VDU23;8202;0;0;0;
180 AE=10
190 AEM=30
200 AS=10
210 FOR PL=0 TO 1
220 COLOUR 10
230 PRINT''''"     Player ";PL+1;" as"''"     EARTH BASE."
240 COLOUR 3
250 IF PL=1 AND JOY=FALSE PRINT''''"     SWAP KEYS"
260 VDU23;8202;0;0;0;
270 T=TIME:REPEATUNTILTIME>T+200
280 TIME=0
290 FOR LI=1 TO 3
300 REPEAT
310 CLS
320 PROCSTARS
330 H=2
340 REPEAT
350 COLOUR2
360 IFAEM<30PRINTTAB(AE,AEM)CHR$(200) ELSE PRINTTAB(AE,29)CHR$(204)
370 PRINTTAB(AS,H)CHR$(201):*FX10,20
380 *FX9,20
390 *FX10,20
400 COLOUR10:PRINTTAB(AS,H-1)CHR$(202)
410 *FX9,1
420 *FX10,1
430 COLOUR 5
440 PRINTTAB(6,0);INT(TIME/100)
450 PRINTTAB(AE-1,30)" ";CHR$(203);" "
460 PRINTTAB(AE,29)" "
470 FOR W=1 TO 100
480 NEXT
490 IFINKEY(-68)PROCFREEZE
500 PRINTTAB(AS,H)" "
510 PRINTTAB(AS,H-1)" "
520 IFAEM<30PRINTTAB(AE,AEM)" "
530 IFJOY=FALSE PROCKEYS:GOTO590
540 IFPL=0ANDADVAL(3)<22000ANDAS<17AS=AS+1 ELSEIFPL=1ANDADVAL(1)<22000ANDAS<17
AS=AS+1
550 IFPL=0ANDADVAL(3)>42000ANDAS>1AS=AS-1 ELSE IFPL=1ANDADVAL(1)>42000ANDAS>1A
S=AS-1
560 IFPL=0ANDADVAL(1)<22000ANDAE<17AE=AE+.5 ELSEIFPL=1ANDADVAL(3)<22000ANDAE<1
7AE=AE+.5
570 IFPL=0ANDADVAL(1)>42000ANDAE>1AE=AE-.5 ELSE IFPL=1ANDADVAL(3)>42000ANDAE>1
AE=AE-.5
580 X=ADVAL(0)AND3:IFPL=0ANDX=1 AND AEM=30 AND H<20 AEM=29 ELSEIFPL=1ANDX=2 AN
D AEM=30 AND H<20 AEM=29
590 IFAEM<30ANDAEM>0AEM=AEM-1
600 IFAEM=0AEM=30
610 H=H+1
620 IF INT(AE)=AS AND AEM=H AND AEM<30 PROCALIENDESTROYED
630 UNTILH>29
640 SOUND &10,1,5,10
650 UNTILAS=INT(AE)
660 COLOUR 12
670 PRINTTAB(0,10)"Alien has destroyed earth base!"
680 FOR N=1 TO 50
690 GCOL 0,RND(7):MOVE 67.5*AE,50:DRAWRND(1279),RND(1023)
700 COLOURRND(7)
710 PRINTTAB(6,0);TIME DIV 100;".";TIME MOD 100;SPC(5)
720 SOUND 1,-15,N,1
730 NEXT
740 SOUND 0,-15,5,10
750 AE=10
760 AEM=30
770 AS=10
780 NEXT
790 MODE7
800 SC(PL)=TIME DIV 100:PRINT''CHR$(141);CHR$(134);"You lasted ";SC(PL);" sec
s.":VDU141,134:PRINT"You lasted ";SC(PL);" secs."
810 VDU23;8202;0;0;0;
820 PRINTCHR$(141);CHR$(133);"       "
830 PRINTCHR$(141);CHR$(133);"       "
840 FOR N=1 TO 5000:NEXT
850 MODE 2
860 NEXT
870 MODE 7
880 PROCENDGAME
890 E%=FALSE
900 MODE2:PROCNAME:MODE7
910 PROCNOPLAY
920 PROCinstructions
930 PROCWHATKEYS
940 X=ADVAL(0)AND3
950 IF E%=FALSE GOTO910
960 GOTO 140
970 DEFPROCinstructions
980 CLS
990 PRINTTAB(10);:VDU141,131,157,129:PRINT"BOMBARD  ";:VDU156:PRINTTAB(10);:VD
U141,131,157,129:PRINT"BOMBARD  ";:VDU156
1000 PRINT''CHR$(129)"Who's who :";TAB(15)CHR$(134)"One player is the "'TAB(15)
CHR$(134)"EARTH BASE in"CHR$(133)"pink"'TAB(15)CHR$(134)"The other is the ALIEN"
'TAB(15)CHR$(134)"in"CHR$(130)"green."
1010 PRINT'CHR$(129)"Aim of game :";TAB(15)CHR$(134)"The ALIEN must try to"'TAB
(15)CHR$(134)"destroy the EARTH BASE "'TAB(15)CHR$(134)"by landing on it."TAB(15
)CHR$(134)"The EARTH BASE must try"'TAB(15)CHR$(134)"to dodge out of the"
1020 PRINTTAB(15)CHR$(134)"way. The EARTH BASE"'TAB(15)CHR$(134)"may shoot down
 the ALIEN"
1030 PRINTCHR$(129)"Competitions :";TAB(15)CHR$(134)"Take it in turns to "'TAB(
15)CHR$(134)"be EARTH BASE, The one"'TAB(15)CHR$(134)"with the highest score"'TA
B(15)CHR$(134)"against the other is"'TAB(15)CHR$(134)"the winner."
1040 PRINT''CHR$(131);CHR$(136)"Press SPACE or FIRE to start game."
1050 FOR N=1 TO 7000
1060 X=ADVAL(0)AND3
1070 IF X>0JOY=TRUE:E%=TRUE:ENDPROC
1080 IF INKEY(-99)JOY=FALSE:E%=TRUE:ENDPROC
1090 NEXT
1100 ENDPROC
1110 DEFPROCNOPLAY
1120 RESTORE
1130 CLS
1140 VDU 23;8202;0;0;0;
1150 PRINT''''CHR$(141);CHR$(136);CHR$(129)"Welcome to the game of"CHR$(130)"BO
MBARD!"
1160 PRINTCHR$(141);CHR$(136);CHR$(129)"Welcome to the game of"CHR$(130)"BOMBAR
D!"
1170 PRINTTAB(0,23)CHR$(141);CHR$(150)"k1";CHR$(146);"k1";CHR$(149)"k1";CHR$(13
0);"By Ben Craig";CHR$(149);"<7";CHR$(146);"<7";CHR$(150);"<7"
1180 PRINTCHR$(141);CHR$(150)"k1";CHR$(146);"k1";CHR$(149)"k1";CHR$(130);"By Be
n Craig";CHR$(149);"<7";CHR$(146);"<7";CHR$(150);"<7"
1190 FORT=1TO39
1200 READ P,D
1210 IFINKEY(-99)JOY=FALSE:E%=TRUE:ENDPROC
1220 X=ADVAL(0) AND 3
1230 IFX>0JOY=TRUE:E%=TRUE:ENDPROC
1240 IFP>0SOUND 1,1,P,D ELSESOUND 1,0,0,D
1250 NEXT
1260 ENDPROC
1270 DEFPROCALIENDESTROYED
1280 COLOUR 12
1290 PRINTTAB(0,10)"ALIEN IS DESTROYED"
1300 PRINT'"Ten seconds bonus"
1310 T=TIME
1320 SOUND 0,-7,5,200
1330 FOR N=100 TO 1000 STEP 100
1340 PRINTTAB(6,0);INT(TIME/100)
1350 REPEATUNTILTIME>T+N
1360 SOUND 1,-15,100,10
1370 NEXT
1380 H=1:AE=10
1390 AEM=30
1400 CLS:PROCSTARS
1410 ENDPROC
1420 REM
1430 REM ***** French Revolution *****
1440 REM
1450 DATA 121,4,121,7,121,4,141,9,141,9,149,9,149,9,169,15,157,4,141,11
1460 REM
1470 REM
1480 REM ***** Yankee Doodle *****
1490 REM
1500 DATA 0,20,53,10,53,10,61,10,69,10,53,10,69,10,61,10,33,10,53,10,53,10,61,1
0,69,10,53,20,49,20,53,10,53,10,61,10,69,10,73,10,69,10,61,10,53,10,49,10,33,10,
41,10,49,10,53,20,53,20
1510 DEFPROCSTARS
1520 COLOUR 5
1530 PRINTTAB(0,0)"SCORE:";INT(TIME/100);"  LIVES:";
1540 LIVES=3-LI
1550 FOR F=0 TO LIVES
1560 PRINTCHR$(203);
1570 NEXT
1580 VDU 5
1590 FOR N=1 TO 50
1600 GCOL0,RND(7)
1610 MOVE RND(1279),RND(1023)
1620 PRINT"."
1630 NEXT
1640 FOR N=1 TO 10
1650 GCOL0,RND(7)
1660 MOVERND(1279),RND(1023)
1670 PRINT"*"
1680 NEXT
1690 VDU 4
1700 ENDPROC
1710 DEFPROCKEYS
1720 IFINKEY(-67)ANDAS<17AS=AS+1
1730 IFINKEY(-98)ANDAS>1AS=AS-1
1740 IFINKEY(-104)ANDAE<17AE=AE+.5
1750 IFINKEY(-103)ANDAE>1AE=AE-.5
1760 IFINKEY(-74)AND AEM=30 AND H<20 AEM=29
1770 ENDPROC
1780 DEFPROCWHATKEYS
1790 CLS
1800 VDU 141,145:PRINTTAB(10)"jz jz jz jz"
1810 VDU 141,145:PRINTTAB(10)"jz jz jz jz"
1820 VDU 141,129:PRINTTAB(10)" K  e  y  s"
1830 VDU 141,129:PRINTTAB(10)" K  e  y  s"
1840 VDU 141,145:PRINTTAB(10)"jk jk jk jk"
1850 VDU 141,145:PRINTTAB(10)"jk jk jk jk"
1860 PRINT'''TAB(10)CHR$(130)"Z = ALIEN left"
1870 PRINTTAB(10)CHR$(130)"X = ALIEN right"
1880 PRINT'TAB(10)CHR$(133)"< = EARTH BASE left"
1890 PRINT TAB(10)CHR$(133)"> = EARTH BASE right"
1900 PRINTTAB(5)CHR$(133)"RETURN = EARTH BASE fire"
1910 PRINT'TAB(10)CHR$(129)"F = Freeze/Unfreeze game"
1920 PRINT''CHR$(134)"Or use joysticks with fire button for"'CHR$(134)"EARTH BA
SE to FIRE."
1930  PRINT''CHR$(131);CHR$(136)"Press SPACE or FIRE to start game."
1940 FOR N=1 TO 7000
1950 X=ADVAL(0)AND3
1960 IF X>0JOY=TRUE:E%=TRUE:ENDPROC
1970 IF INKEY(-99)JOY=FALSE:E%=TRUE:ENDPROC
1980 NEXT
1990 ENDPROC
2000 DEFPROCFREEZE
2010 X=TIME
2020 FORN=1TO2000
2030 NEXT
2040 REPEATUNTILINKEY(-68)
2050 FOR N=1 TO 200
2060 TIME=X
2070 NEXT
2080 ENDPROC
2090 DEFPROCENDGAME
2100 VDU23;8202;0;0;0;
2110 FOR N=0 TO 1
2120 PRINT'':VDU141,130:PRINT"Player ";N+1;" scored ";SC(N);" points."
2130 VDU141,130:PRINT"Player ";N+1;" scored ";SC(N);" points."
2140 NEXT
2150 T=TIME:REPEATUNTILTIME>T+500
2160 ENDPROC
2170 DEFPROCCHR
2180 VDU23,200,16,56,124,124,124,124,254,0
2190 VDU23,201,24,60,90,126,36,66,0,0
2200 VDU23,202,0,0,0,0,0,0,24,24
2210 VDU23,203,24,60,126,255,255,24,24,24
2220 VDU23,204,0,0,0,0,24,24,24,60
2230 VDU23,250,247,149,149,149,229,149,149,247
2240 VDU23,251,125,85,85,85,85,85,85,85
2250 VDU23,252,238,42,42,46,202,42,42,234
2260 VDU23,253,236,170,170,202,170,170,170,172
2270 BOMBARD$=CHR$(250)+CHR$(251)+CHR$(252)+CHR$(253)
2280 ENDPROC
2290 DEFPROCNAME
2300 FOR N=1 TO 20
2310 COLOURRND(15)
2320 PRINT'TAB(RND(13))BOMBARD$
2330 NEXT
2340 A=INKEY(200)
2350 ENDPROC
```

VOTE
CONFIDENTIAL

WESTMINSTER

By Stephen Knight

Westminster is a role-playing game which runs on a VIC-20 with at least 8K of memory expansion. The instructions for play are in the text, so I will concentrate here on the programing side of things. The program for *Westminster,* although long, is fairly simple.

Obviously the main limitation is memory, and those of you who only have an 8K expansion should be warned the program will only just fit. If you have more, however, you may like to consider adding more features. To help you with this, and to assist the owners of other machines who wish to convert the program I will give an explanation of what the program does. Also, I have included a full variable list to help you along and those who wish to increase their chances of success may like to alter some initial values.

The idea of the game is to reach the upper echelons of power in a fictitious government. Obviously the more successful a politician you prove to be the higher your score at the end of the game will be.

Variable List

S1	The lowest of the four voices of the VIC. SI+1 to SI+5 gives all four and the screen/border colour control.
H	Support for you in the house.
E	Support for you amongst the electorate.
M	Your own morale rating.
T	The count of how many years have passed in this game.
A	The count of how many years have passed since the last election.
R	Your present rank.
D	Your allocation of time to ministerial duties.
C	Your allocation of time to constituency duties.
P	Your allocation of time to parliamentary duties.
F	Your allocation of time to family duties.
J	Number used during selection of random events.
QI-Q8	Amount of votes given to each party during election.
VI-V4	Percentages estimated in opinion poll.
A$	Generally used in input lines.

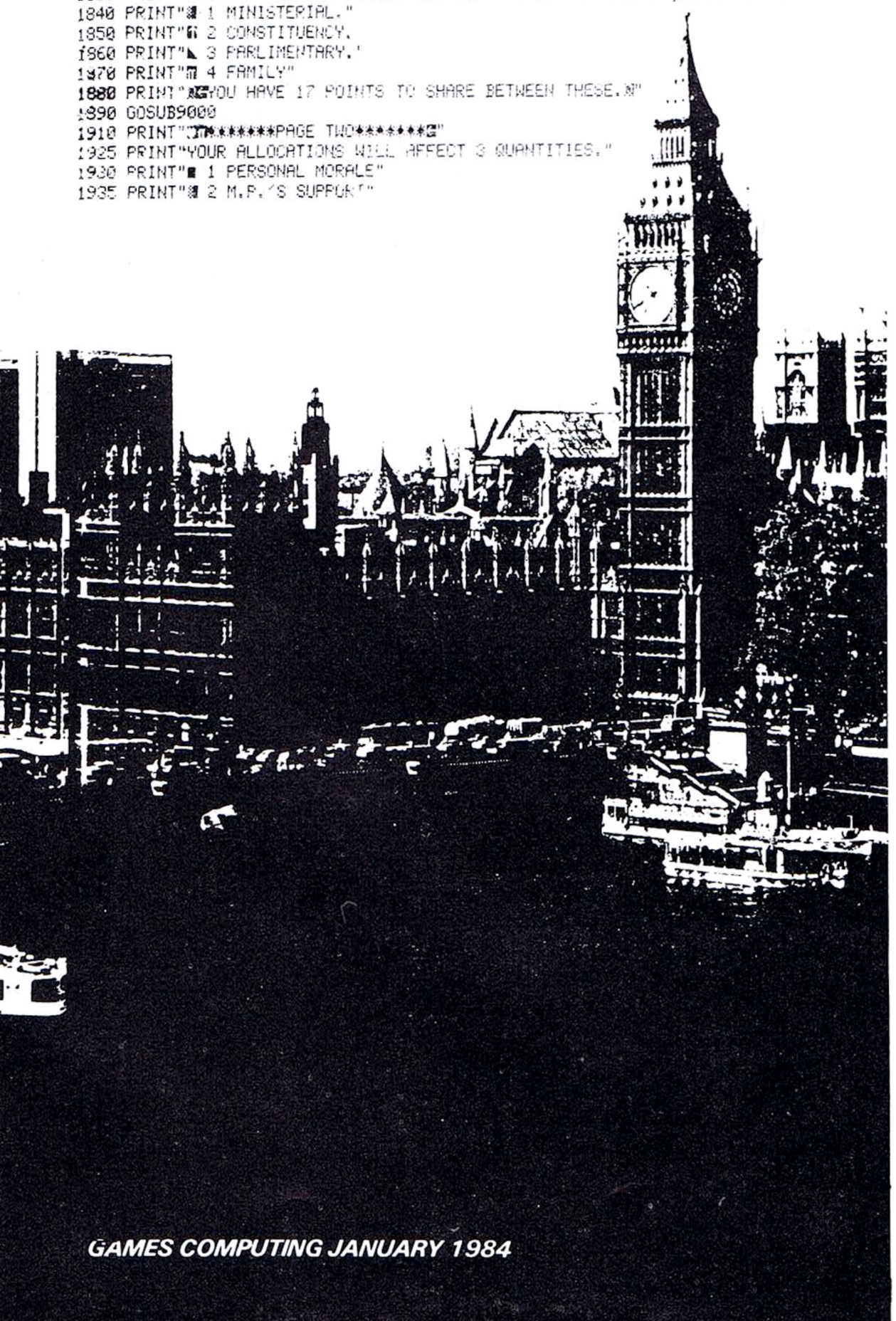
All other variables used are either local situations or as 'Flags'.

RUNdown

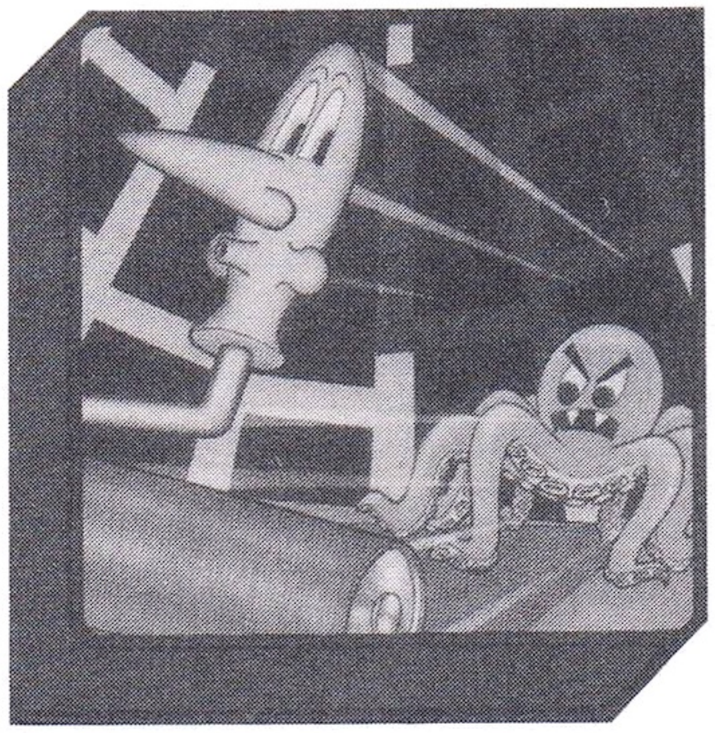
6	Clear memory, and define variable SI.
20-91	Display title screen and play suitable title music!
130-195	Ask if you want instructions. If there is no reply after a certain time (when the variable V has reached 400) a beep will sound.
200-220	Define variables H, E, and M and reset T, A, and R.
300	Increase year count by I and add I to count of years since last election.
305-320	Display prompt screen for allocation inputs.
323	Clear keyboard buffer.
330-350	See if you're too old. If so, wait for key press the GOTO end screen.
370	Clear variables D, P, and C ready for new input of allocations.
377	If instructions have been called for, set flag to ensure return to program then GOSUB to instructions.
410	Work out what family allocation is.
430	If 4 or 5 years up call election.
440	If random chance occurs call emergency early election.
500-580	Recalculate values after new allocation.
590	GOSUB to display latest popularity test.
600-799	In each separate present event possibility line (600-605, 640-650, 720, 754, 760, and 792) a random number is compared to your allocation. If the random number is higher, the event occurs. Most events can be identified by the print statements they contain.
800-850	Select if random event should occur.
860-1140	Three random events, including promotion.
1200-1250	Check to see if H, E, or M has gone over the limit. If so, correct it.
1300-1380	Display latest popularity test, giving voter, M.P and morale ratings.
1400-1484	Display rank calculated from variable R after promotion. Only on one occasion does this routine occur when not after promotion. This is when AI = I, then this routine is being used after the end of a game. The GOSUB 4000 in line 1450 uses a special sound routine to celebrate.
1500-1528	An election has been called. You are asked if you wish to stand, if so an opinion poll (which is normally inaccurate!) is displayed.
1540-1555	The variables QI-Q8 are defined. This is done here so that if a recount is needed the votes for each party will not be dramatically different.
1560-1740	The results of the election are displayed. The result is calculated, you are offered a recount if you lost or congratulated if you won. It should be noted that the variables QI, Q2, and Q8 are incremented by a random number. This gives a recount a chance to change the result if it is very close.
1805-1999	Instructions. Line 1998 checks if the instructions are being displayed during a game (after entering '999').
2000-2060	End screen. Your previous best rating and the year is displayed, as well as your latest rating. You are then offered a new game. If this is not required an end screen is displayed.
3000-3134	Random event.
3500-3600	This routine displays the dot, dot, dots just before an election.
4000-4080	This is the celebration routine for after an election or when you become Prime Minister.
5000-5100	Opinion poll is displayed. The variable A is worked out to be used in the election variables.
7000-7999	Random happening.
8000-8030	Timing loop, the length of loop increases every time until the variable W is reset.
9000	The 'Hit any key' routine. Line 9005 clears keyboard buffer to ensure a key has to be pressed after the 'Hit any key' message is displayed.

```
1 REM ****************
2 REM * (C) S.KNIGHT *
3 REM * COMPLETED ON *
4 REM * 4TH MARCH 83 *
5 REM ****************
6 CLR:S1=36874:POKES1+5,29
20 PRINT"■*****WESTMINSTER*****"
30 PRINT"■  ♦                          ┌                          ▯▯                          ▯▯
"
40 PRINT"  ▯▯............          ▯▯■**************■          ▯┌──────────┐▯"
50 PRINT"  ▯▯000000000000000┐     ▯▯000000000000000▯  ▯     ▯▯000000000000000▯  ▯"
60 PRINT"  ▯▯■■0000■■■0■■■0000■■■▯  ▯  ▯┌──────────────────────┐▯  ▯■";
70 PRINT"■                          ▯  ▯■■■■                  ■■■■";
72 PRINT"■■  ▒▒▒▒▒▒▒▒  ▯ ▒ ▒          ▯▯▒▒▒▒▯                  ▒▒▒▒▒▒▒▒  ▯■";
73 PRINT"■                                                    ■■"
74 POKES1+4,15:FORL=1TO4:POKES1+1,180:FORM=1TO50:NEXTM:POKES1+1,0:FORM=1TO800:NE
XTM
80 POKES1,180:FORM=1TO50:NEXTM:POKES1,0:FORM=1TO800:NEXTM,L
90 FORX=1TO3:POKES1,170:FORY=15TO0STEP-1:POKES1+4,Y:FORT=1TO170:NEXTT,Y:FORY=1TO
600
91 NEXTY,X
130 POKES1,0:POKES1+4,15:PRINT"■▯DO YOU KNOW THE RULES■"
185 POKE198,0
190 GETA$:IFA$="N"THEN1800
191 V=V+1:IFV<400THEN195
192 POKES1+5,57:POKES1+2,190:FORX=1TO1000:NEXTX:POKES1+2,0:V=0:POKES1+5,29
195 IFA$<>"Y"THEN190
199 REM INITIALISE****
200 H=45+INT(RND(0)*21):E=45+INT(RND(0)*31)
210 M=50+INT(RND(0)*21)
220 T=0:A=0:R=1
299 REM MAIN LOOP*****
300 T=T+1:A=A+1
305 POKES1+5,27
307 POKES1+2,230:FORX=1TO100:NEXTX:POKES1+2,0
310 PRINT"▯■**********************    ■WESTMINSTER■    **********************
■"
313 PRINT"'999' FIRST FOR HELP"
320 PRINT"■■■■■   YEAR ";T
323 POKE198,0
330 IFT<40+INT(RND(0)*(6+R))THEN370
340 PRINT"■WELL DONE SENILE-YOUR CONSTITUENCY PARTY HAS 'ENCOURAGED' YOU TO  RET
IRE."
343 GOSUB9000
350 GOTO2000
360 PRINT"▯TOTAL MUST BE <17"
370 D=0:P=0:C=0
371 PRINT"■■ENTER DUTIES IN TURN■"
375 INPUT"■■MINISTERIAL ■";D
377 IFD=999THENX1=1:GOSUB1800:GOTO305
380 INPUT"■■CONSTITUENCY ■";C
390 INPUT"■▒PARLIMENTARY ■";P
400 IFD+P+C>17THEN360
410 F=17-D-P-C
420 PRINT"■■FAMILY  IS ■";F:PRINT:FORX=1TO1000:NEXTX:POKES1+5,29
430 IFA=50RA=4+INT(RND(0)*2)THEN1500
440 IFA<>INT(RND(0)*30)THEN500
450 PRINT"▯■■■■       CRISIS !!!"
452 PRINT"■EARLY ELECTION FORCED■":FORX=1TO1500:NEXTX:GOTO1510
499 REM CALCULATIONS**
500 H=H*((D-5)+(P-5)*2)/50+H-1
510 IFH>100THENH=100-INT(RND(0)*15)
520 IFH<0THENH=INT(RND(0)*6)
530 E=E*((C-5)*3+(D-5)+(P-5)+(M-50)/5)/150+E-A+C-1
540 IFE>100THENE=99-INT(RND(0)*10)
550 IFE<0THENE=INT(RND(0)*3)
560 M=M*((F-5)*3+(E-40)/10+(H-50)/10)/100+M-A
570 IFM>100THENM=100-INT(RND(0)*5)
580 IFM<0THENM=INT(RND(0)*15)
590 GOSUB1300:PRINT"▯"
599 REM PRESENT EVENTS
600 IFD>INT(RND(0)*4)THEN640
605 IFH>40THEN640
610 PRINT"PARLIAMENT IS WORRIED ABOUT MINISTERIAL WORK"
620 PRINT"A PUBLIC INQUIRY HAS  BEEN SET UP TO CHECK  ON YOUR PERFORMENCE■■"
623 O=0:IFM<5ANDH<25ANDRND(0)<.5THENO=1
625 IFO=1THENPRINT"■THE REPORT IS SO BAD YOU RESIGN":GOSUB9000:GOTO2000
628 PRINT"■THE REPORT IS OK"
630 E=E*14/15:M=M*12/13:H=H*8/9
635 GOSUB9000
638 PRINT"▯"
640 IFC>INT(RND(0)*3)THEN720
650 IFE>40THEN720
652 PRINT"▯YOUR LOCAL PARTY ARE  ANNOYED WITH YOU"
660 PRINT"THEY STAGE A VOTE OF  NO CONFIDENCE.■"
665 GOSUB9000
670 J=INT(31-E/3-C+INT(RND(0)*3))
672 IFJ<1THENJ=INT(RND(0)*3)
673 IFJ>31THENJ=31
680 PRINT"■■VOTES ARE COMING IN"
682 PRINT"■FOR";:GOSUB3500:PRINT31-J:PRINT
690 FORX=0TO2000:NEXT
700 PRINT"AGAINST";:GOSUB3500:PRINTJ;"■"
705 E=E+(((J*5)/30)*5):E=INT(E)
710 M=M*(J+30)/60
713 FORX=1TO1000:NEXTX:IFJ<(36-J)THEN720
715 FORX=250TO120STEP-1:POKES1+2,X:NEXTX:POKES1+2,0
717 PRINT"YOU ARE HEAVILY VOTED OUT SO  RESIGN .":GOSUB9000
719 GOTO2000
720 IFP>INT(RND(0)*4)THEN754
725 PRINT"■■MAJOR SCANDEL OVER GOVDISORGANISATION■■"
740 M=M*10/11:H=H*15/16:E=E*12/13
750 GOSUB9000
754 IFF>INT(RND(0)*4)THEN760
755 PRINT"DAUGHTER ARRESTED IN  DRUGS SCANDEL. FINED  £5,000."
756 PRINT"■MUCH BAD PUBLICITY ANDFAMILY STRAIN OCCURS"
757 E=E*14/15-INT(RND(0)*5):H=H-INT(RND(0)*4+3):M=M*11/12-INT(RND(0)*3)
758 GOSUB9000
760 IFF+1>INT(RND(0)*4)THEN792
770 PRINT"■■FAMILY CRISIS LEAKED  TO THE MEDIA."
780 PRINT"BAD PUBLICITY OCCURS.■"
790 M=M*3/5:E=E*12/13:H=H+INT(RND(0)*7)-3
791 GOSUB9000
792 IFF>INT(RND(0)*3)THEN800
793 PRINT"■■YOU MAKE A MISTAKE ON YOUR TAX FORM"
794 PRINT"■BIG STORY IN A DAILY  TABLOID. AWFUL  PUBLICITY OCCURS"
795 M=M*(10/11)
796 E=E*(12/13)
797 H=H*(25/26)
798 GOSUB9000
799 REM RANDOM EVENTS*
800 J=INT(RND(0)*10):IFJ=0THEN900
807 IFJ=8THENGOSUB3000
810 IFJ=1ANDH>10THEN950
820 IFJ=5ANDH>15THEN1000
830 IFJ=6THEN1058
840 IFJ=7THEN1058
850 PRINT"■■NOTHING ELSE HAPPENED THIS YEAR■■■"
855 GOSUB9000
860 GOTO1200
900 PRINT"FAMINE IN THE FAR EAST■■"
910 PRINT"■DO YOU SEND AID?■■":POKE198,0
920 GETA$:IFA$="Y"THEN940
925 IFA$<>"N"THEN920
930 E=E*(30-INT(RND(0)*11))/25:M=M*10/9:GOTO1200
940 E=E*(30-INT(RND(0)*21))/25:H=H*13/12:GOTO1200
950 PRINT"FOREIGN REFUGEE CRISIS■"
960 PRINT"■WILL YOU ACCEPT ANY OFTHE IMMIGRANTS?■■":POKE198,0
970 GETA$:IFA$="Y"THEN990
975 IFA$<>"N"THEN970
980 E=E*(30-INT(RND(0)*11))/25:M=M*10/9:GOTO1200
990 E=E*(30-INT(RND(0)*21))/25:H=H*13/12:GOTO1200
1000 PRINT"TIME FOR M.P. PAY RISE■":J=INT(RND(0)*8)
1020 PRINT"M.P.'S WOULD LIKE";J*5+20;"%"
1030 PRINT"VOTERS WANT";J*3+5;"%"
1040 INPUT"■■WHAT DO YOU SUGEST";X:E=E-(X-(J*3+5)*2)
1050 M=M-(J*4)+X:H=H-(J*4+6)+X:GOTO1200
1058 J=RND(0):IFJ<.5THEN1070
1060 PRINT"▯YOUR SUPERIOR BECOMES ILL":GOTO1080
1070 PRINT"▯YOUR SUPERIOR DECIDES TO RETIRE"
1080 PRINT"WILL YOU TAKE OVER HIS PLACE?...■■":GOSUB9000
1100 IF(H/1.15)+(M/5)+(T*4)*5>INT(RND(0)*80+40)THEN1120
1110 PRINT"YOU STAY WHERE YOU ARE"
1115 POKES1+4,15:FORX=250TO130STEP-1:POKES1+3,X:NEXTX:POKES1+3,0:GOTO1400
1120 PRINT"YOU SUCCEED AND RISE  IN RANK":R=R+1
1130 POKES1+4,15:FORX=130TO250:POKES1+1,X:POKES1+2,X:NEXTX:POKES1+1,0:POKES1+2,0
1140 GOTO1400
1199 REM END OF LOOP**
1200 IFH>100THENH=100-INT(RND(0)*15)
1210 IFH<0THENH=INT(RND(0)*6)
1220 IFE>100THENE=99-INT(RND(0)*14)
1230 IFE<0THENE=INT(RND(0)*3)
1240 IFM>100THENM=99-INT(RND(0)*5)
1250 IFM<0THENM=INT(RND(0)*10+2)
1260 GOSUB1300:GOTO300
1300 POKES1+4,15:POKES1+5,28:POKES1+2,170:FORX=1TO50:NEXTX:POKES1+2,0
1303 PRINT"▯■■■■■■■■■■■■■■■■■■■■■■■■LATEST POPULARITY TEST■"
1305 E=INT(E):H=INT(H):M=INT(M)
1310 PRINT"■■VOTER SUPPORT■";E;"%"
1320 PRINT"■■M.P. SUPPORT■";H;"%"
1330 PRINT"■■YOUR OWN MORALE RATINGIS■";M;"■"
1340 IFM>INT(RND(0)*25)THEN1370
1350 PRINT"URGH!, YOU DECIDE TO  RESIGN FOR PERSONAL  REASONS."
1355 GOSUB9005
1360 GOTO2000
1370 GOSUB9005
1380 POKES1+5,29:RETURN
1399 REM RANK*********
1400 PRINT"■YOUR RANK NOW IS:■■"
1403 IFR=0THENPRINT"DEFEATED CANDIDATE"
1404 IFR=1THENPRINT"BACKBENCHER"
1405 IFR=2THENPRINT"PARLIAMENTARY PRIVATE SECRETARY"
1410 IFR=3THENPRINT"PARLIAMENTARY PERSONAL SECRETARY"
1420 IFR=4THENPRINT"JUNIOR MINISTER"
1430 IFR=5THENPRINT"CABINET MINISTER"
1440 IFR=6THENPRINT"MINISTER FOR DEFENCE"
1445 IFR=7THENPRINT"SECRETARY OF STATE"
1447 IFR=8ANDA1=1THENPRINT"PRIME MINESTER":GOTO1455
1450 IFR=8THENFORN1=1TO2:GOSUB4000:NEXTN1
1455 IFA1=1THENA1=0:RETURN
1460 IFR<9THEN1480
```

```
1465 PRINT"PROMOTION TO THE HOUSEOF LORDS. THIS MEANS  YOUR CAREER IS OVER.":FOR
X=1TO4000
1470 NEXTX:GOTO2000
1480 GOSUB9005
1484 GOTO1200
1499 REM ELECTION*****
1500 POKES1+4,15:PRINT"A GENERAL ELECTION HASBEEN CALLED"
1510 PRINT"DO YOU WISH TO STAND":W=800:V=0:POKES1+5,24
1520 INPUTA$:IFLEFT$(A$,1)="N"THEN2000
1525 PRINT"AFTER A LONG CAMPAIGN HERE IS YOUR LAST POLL"
1526 PRINT"REMEMBER OPINION POLLSARE UNRELIABLE":GOSUB5000:GOSUB5000
1527 POKES1+5,24:PRINT"DO YOU STILL WISH TO  STAND.":POKE198,0
1528 INPUTA$:IFLEFT$(A$,1)="N"THEN2000
1540 Q3=INT(RND(0)*300+100):Q4=INT(RND(0)*400+100):Q5=INT(RND(0)*900+100)
1545 Q6=INT(RND(0)*700+300)
1548 Q1=INT(A/2+INT(RND(0)*500))
1549 Q2=INT(A/2+INT(RND(0)*(A/2)))
1550 Q7=INT((Q1+Q2+Q3+Q4+Q5+Q6+(27000-A))/50000*100)
1555 Q8=27000-A
1560 PRINT"THE RESULTS ARE JUST  COMING IN";
1565 GOSUB3500
1577 GOSUB8000
1580 PRINT"TALLY HO PARTY";Q3
1590 GOSUB8000
1600 PRINT"FREEDOM PARTY ";Q4
1610 GOSUB8000
1620 PRINT"BIRTHDAY PARTY";Q5
1630 GOSUB8000
1640 PRINT"LOYALIST PARTY";Q1=Q1+INT(RND(0)*400-100):PRINTQ1
1650 GOSUB8000
1652 PRINT"MONARCHY PARTY";Q6
1654 GOSUB8000
1656 PRINT"FORWARD PARTY ";Q2=Q2+INT(RND(0)*500-100):PRINTQ2
1658 GOSUB8000
1660 PRINT"V.I.C. (YOU)  ";Q8=Q8+INT(RND(0)*500-200):PRINTQ8
1670 GOSUB8000
1672 PRINT"TURNOUT WAS";Q7;"%"
1673 IFV=1THENGOSUB9000:GOTO1735
1675 GOSUB8000
1680 IFQ1>Q8ORQ2>Q8THEN1700
1690 PRINT"YOU ARE ELECTED MEMBERFOR  TALE !"
1692 GOSUB4005
1694 GOSUB9000:A=0
1698 GOTO500
1700 PRINT"YOU SEEM TO HAVE LOST"
1705 POKES1+4,15:FORX=250TO130STEP-1:POKES1,X:NEXTX:POKES1,0
1707 IFV=1THEN1735
1710 PRINT"DO YOU WANT A RECOUNT":INPUTA$
1720 IFLEFT$(A$,1)<>"Y"THEN2000
1733 GOTO1740
1735 PRINT"YOU HAVE FAILED ON ONE RECOUNT. YOU ARE NOT ALLOWED ANOTHER."
1736 PRINT"YOU HAVE LOST, AND SO I'M AFRAID YOU MUST GOBACK TO ORDINARY LIFE.
"
1738 GOSUB9000:GOTO2000
1740 PRINT"O.K. HERE GOES.":FORX=1TO900:NEXTX:W=800:V=1:GOTO1560
1800 POKES1+5,31
1805 PRINT"WESTMINSTER GAME RULES"
1810 PRINT"*******PAGE ONE*******"
1820 PRINT"YOU START THE GAME AS A BACKBENCHER AND YOURAIM IS TO BECOME PRIMEMIN
ISTER
1830 PRINT"TO DO THIS YOU DECIDE HOW MUCH TIME TO SPENDON THESE DUTIES:"
1840 PRINT" 1 MINISTERIAL."
1850 PRINT" 2 CONSTITUENCY."
1860 PRINT" 3 PARLIMENTARY."
1870 PRINT" 4 FAMILY"
1880 PRINT"YOU HAVE 17 POINTS TO SHARE BETWEEN THESE."
1890 GOSUB9000
1910 PRINT"*******PAGE TWO*******"
1925 PRINT"YOUR ALLOCATIONS WILL AFFECT 3 QUANTITIES."
1930 PRINT" 1 PERSONAL MORALE"
1935 PRINT" 2 M.P.'S SUPPORT"
1940 PRINT" 3 ELECTORATE SUPPORT"
1950 PRINT"A FACTOR FALLING TO  LOW WILL END GAME."
1960 PRINT"YOU MAY BE CALLED UPONTO MAKE DECISIONS, ANDFIGHT ELECTIONS."
1970 PRINT"HOW YOU DO WILL AFFECTTHE 3 FACTORS."
1975 GOSUB9000
1980 PRINT"*******PAGE THREE*******"
1985 PRINT"EVERY SO OFTEN YOU GETA PROMOTION CHANCE."
1987 PRINT"HOW YOU DO WILL DEPENDON YOUR CURRENT RATING"
1994 PRINT"IF YOU WANT TO RE-VIEWTHESE INSTRUCTIONS IN A GAME INPUT ESS AC
";
1995 PRINT"  MINISTERIAL ALLOCATION"
1996 PRINT"THIS WILL INTERUPT THEGAME TO LET YOU VIEW  THEM THEN ALLOW YOU TOCON
TINUE."
1997 PRINT"      GOOD LUCK":GOSUB9000
1998 IFX1=1THENX1=0:RETURN
1999 GOTO200
2000 POKES1+5,25:R2=R
2005 PRINT"*****WESTMINSTER*****"
2010 PRINT"YOU LASTED";T;"YEARS"
2015 PRINT"RANK WAS:";A1=1:GOSUB1403
2020 IFTS>0THENPRINT"PRESENT LONGEST TERM  WAS";TS
2023 PRINT"YOUR PREVIOUS HIGHEST APPOINTMENT WAS:";R=R1:A1=1:GOSUB1403
2024 IFR2>R1THENR1=R2
2025 IFT>TSTHENTS=T
2027 PRINT"PLAY AGAIN(Y/N)"
2030 GETA$:IFA$="Y"THEN200
2043 IFA$<>"N"THEN2030
2045 PRINT"**********WESTMINSTER     **     PROGRAM END
";
2046 PRINT"  **********"
2047 POKES1+4,15:FORL=1TO100
2050 POKES1+2,INT(RND(1)*128)+128
2051 POKES1,INT(RND(1)*128)+128
2053 FORM=1TO10:NEXTM,L:POKES1+2,0:POKES1,0
2060 POKES1+5,27:END
3000 PRINT"MP'S REPORT RECCOMENDSTHECLOSURE OF A LOCALSCHOOL."
3010 PRINT"DO YOU WANT TO STEP INTO STOP THIS?"
3020 GETA$:IFA$="Y"THEN3100
3030 IFA$<>"N"THEN3020
3040 PRINT"SCHOOL CLOSES"
3050 PRINT"YOU ARE DAMAGED"
3060 E=E-INT(RND(0)*10+10):M=M-INT(RND(0)*5+5)
3070 H=H+INT(RND(0)*15)
3080 GOTO3134
3100 PRINT"SCHOOL STAYS OPEN."
3105 PRINT"THIS COULD ANNOY SOME M.P.'S"
3110 H=H-INT(RND(0)*15+5)
3120 E=E+INT(RND(0)*5+5)
3130 M=M+INT(RND(0)*5)
3134 GOSUB9000
3140 RETURN
3500 POKES1+4,15
3505 FORX1=1TO10
3510 FORX=1TO300:NEXTX
3515 POKES1,200:POKES1,0
3520 PRINT".";
3530 NEXTX1
3535 FORX=1TO500:NEXTX
3600 RETURN
4000 POKES1+4,15
4003 PRINT"**********PRIME MINISTER**********
******"
4005 FORX=150TO255:POKES1,X:POKES1+1,X:POKES1+2,X:FORX1=1TO40:NEXTX1,X
4040 FORX=0TO2:POKES1+X,0:NEXTX:RETURN
4080 POKES1+3,0:RETURN
4999 REM OPINION POLL*
5000 POKES1+5,29
5005 PRINT"OPINION POLL FOR THE  CONSTITUENCY OF TALE."
5010 PRINT"CARRIED OUT BY 'A.R."
5015 A=30000-(E*260)-INT(RND(0)*400)-(R^4)+INT(RND(0)*2000-500)
5017 IFA<1000THENA=1000+INT(RND(0)*500)
5018 IFA>27000THENA=26000+INT(RND(0)*500)
5020 PRINT"LATEST POLLS SHOW:"
5030 PRINT"LOYALIST";:V1=INT((A/2+INT(RND(0)*500))/46000*100):PRINTV1;"%"
5040 PRINT"FORWARD";:V2=INT((A/2+RND(0)*(A/2))/46000*100):PRINTV2;"%"
5050 PRINT"V.I.C.(YOU)";:V3=INT((27000-A)/46000*100):PRINTV3;"%"
5055 PRINT"OTHERS";:V4=INT((RND(0)*3000+6000)/46000*100):PRINTV4;"%"
5060 PRINT"DON'T KNOWS";100-V1-V2-V3-V4;"%"
5070 GOSUB9000
5100 POKES1+5,24:RETURN
7000 X=RND(0):U=0
7010 IFX>.7THENRETURN
7020 PRINT"A MAJOR STRIKE THREAT"
7030 J=INT(RND(0)*100)
7040 PRINT"THERE IS A";J;"%"
7050 PRINT"CHANCE OF SETTLMENT"
7060 PRINT"DO YOU WISH TO BECOME INVOLVED?"
7070 GETA$:IFA$="Y"THEN7080
7073 IFA$="N"THENU=2:GOTO7300
7075 GOTO7070
7080 PRINT"YOU HAVE NOW PUBLICLY INVOLVED YOURSELF.
7090 U=1:GOTO7500
7300 PRINT"YOU HAVE NOW PUBLICALYDENIED ALL INVOLVMENT":U=2
7320 PRINT"YOU MAY BE  DAMAGED BY THIS"
7330 E=E-(J/5)+INT(RND(0)*5):M=M-(J/10):H=H-(J/10)
7500 X=INT(RND(0)*40+J)
7520 PRINT"NEGOTIATIONS GOING ON"
7540 GOSUB9000
7560 IFX>70THENGOTO7700
7570 PRINT"NEGOTIATIONS FAILED   LONG STRIKE OCCURED"
7590 IFU=2THENPRINT"YOU ARE NOT DAMAGED   ANY MORE.":GOTO7740
7600 PRINT"YOU ARE DAMAGED"
7610 M=M-5:E=E-((100-J)/5)
7620 GOTO7740
7700 PRINT"STRIKE CALLED OF"
7710 IFU=2THENPRINT"YOU ARE NOT INVOLVED  SO GAIN NOTHING":GOTO7740
7720 PRINT"YOU GAIN AS INVOLVED"
7730 M=M+INT(RND(0)*3+5):E=E+INT(RND(0)*(J/10)+7)
7740 GOSUB9000
7760 RETURN
7999 REM DELAY LOOP
8000 W=W+300:IFW>2500THENW=2500
8005 FORX=1TOW:NEXTX:PRINT
8010 POKES1+2,220:FORX=1TO30:NEXTX:POKES1+2,0
8030 RETURN
9000 POKES1+2,220:FORX=1TO200:NEXT:POKES1+2,0
9005 POKE198,0
9010 PRINT"HIT ANY KEY"
9020 GETA$:IFA$=""THEN9020
9030 RETURN
```



MACHINE CODE ARCADE GAMES ON THE BBC MICRO



By Jeremy Ruston, 4 Hornton Place, London W8

This series is designed to help those who wish to start writing commercial type arcade games. The first point to make is that as soon as you enter the market place, you are in competition with games like the Hobbit, Planetoid, Rocket Raider, Zany Kong and many other quality games.

A competitive game has to be written in assembly language. A more limiting factor is that it is extremely difficult to write a game without a disc drive, but is possible to do so without one. This is because the BBC Micro's memory is not large enough to hold a MODE 2 screen, the game object code and the game source code.

Assuming you have a disc drive, the source code of the game should be written in one or more normal BASIC programs. Choose a value of PAGE that leaves enough space above OSHWM for the object code, and then CHAIN the source code files. The assembly will have to be carried out in MODE 7. Finally, use OSCLI to save the object code before attempting to run it. Please note that the author owns a BBC Micro but the series will in future be more generally aimed at other micros. If the above paragraph did not make sense to you, you are not ready to embark on such an ambitious project. You should write a few less ambitious assembly language programs first, in order to gain experience.

Game Considerations

The above details are secondary to the considerations of the game itself. The game you write should be carefully chosen. You should bear in mind that the public will not fall for Pacman, Defender, Donkey Kong or Missile Command again. Equally, don't think you can sweep the market with a game embodying the best features of all the above games – punters will see through it, and realise they have already bought your game in the guise of the other four.

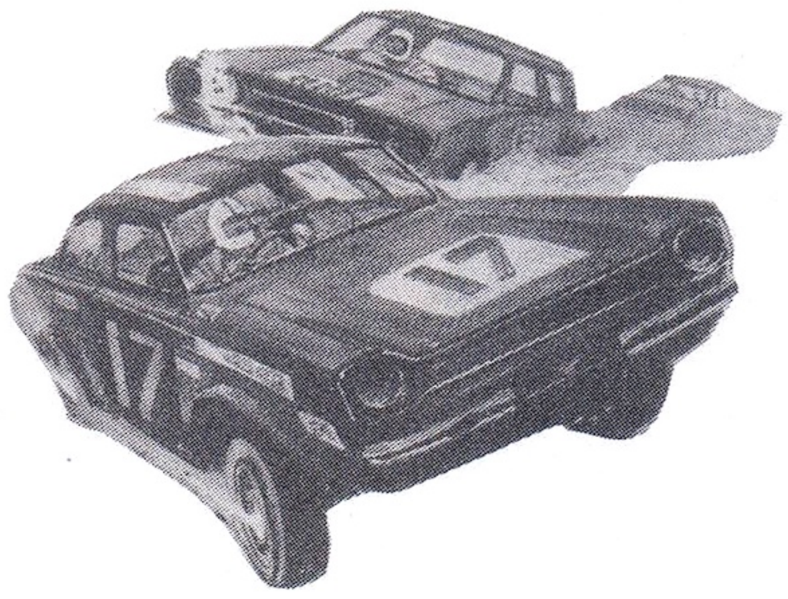
Nowadays, it isn't even enough to think of an amusing scenario and then simply incorporate a few moving shapes into it.

In a nutshell, your game must have:

1 A clearly defined aim. For example, the aim in Pacman is simply to eat everything in sight, in Defender to blow up almost everything in sight and in Zany Kong you must rescue the girl at the top of the girder. It is easy to make the mistake of making the aim of the game too unbelievable. For example, trying to rescue a damsel in distress whilst eating everything in sight and blowing up everything else would make a rather complex and silly game.

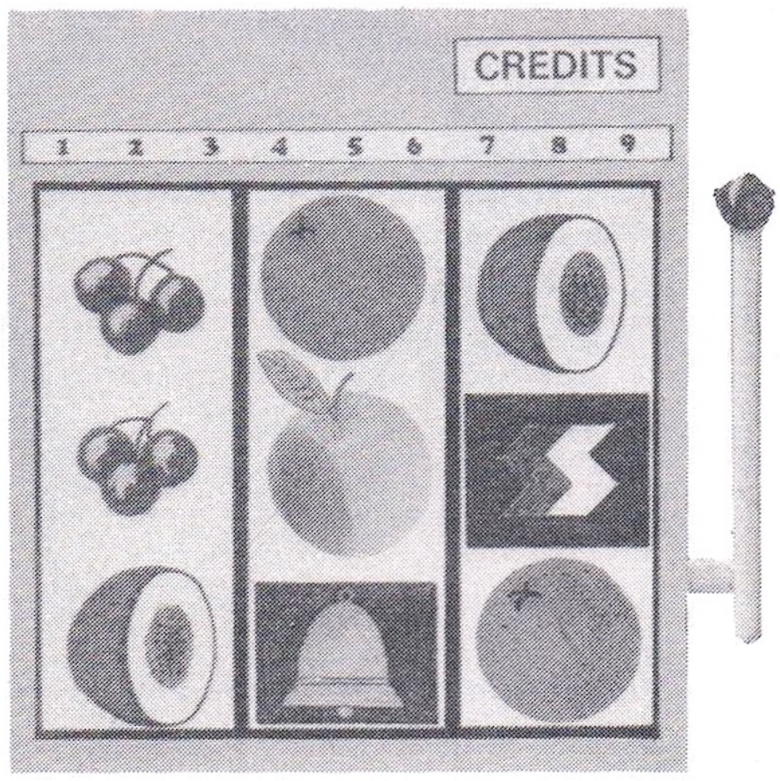
2 Some form of retribution must be incorporated should the player fail (death is almost universally popular). This is quite important, since messages like 'You failed in your mission, and so are sentenced to a five second wait before playing again' are puerile. The more awful things that happen, the better!

3 Lots of pretty colours and moving shapes. The colours are the first line of attraction at exhibitions. However, don't go over the top. For example the excellent BBC version of Snake Pit, has a large purple and yellow flashing border around the screen for the entire game, not serving any useful purpose except terminally annoying at least one player.



4 Well designed backgrounds and shapes. The graphics design of a game is the aspect that makes you stop in WH Smiths and say 'Wow!', just prior to handing over your cash for the game. Try to make the backgrounds irregular. For example a jagged mountainside as a background looks far more impressive than a series of blocks. Try to make the background look as if it was hand drawm, rather than computer generated. This seems to be because punters are attached towards the unusual. The more realistic the graphics, the more fun it is to play.

5 Simple controls. If at all possible, make it possible to change the keys used and save a version of the game with the different keys. Joystick control should be optional. Try to make the controls consistent – for example the Acornsoft Missile Base game requires you to press 'space' to go from the first instruction page to the second, but 'return' to go from the second instruction page to the main game – which shows utter idiocy.



6 Interesting, optional, sound effects. Designing sound effects is a task I find incredibly boring, but it is impossible to discount their importance. Try to make the sound effects linked to the game action. For example, the BBC version of Snake Pit asks if sound effects are required, and if they are, simply repeats a channel zero envelope which sounds vaguely like a slithering snake.

Once you have designed the game, go somewhere where you cannot touch the computer to plan the game. This stage should consist of carefully thinking out the way the game operates and how some events trigger off others etc. You needn't write anything down at this stage, but you may find it a help to do so.

Then you are ready to code the game, which will be covered by future articles in this series.

Next month find out the more technical aspects of programming in Machine Code – especially for games programs.

Mr. CHIP SOFTWARE

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Guide your every hungry snake round the screen, eating the flies and wasps, to stay alive you must avoid the deadly mushrooms, quick reactions are required for this biting game, keyboard control, for the unexpanded VIC ... **£5.50**

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

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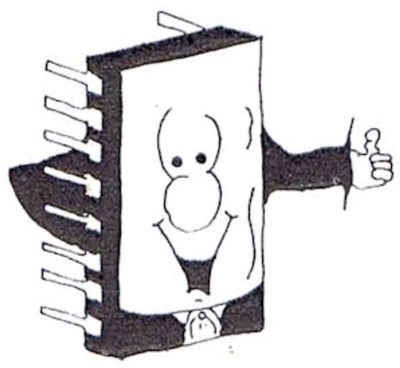

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At last its here, specially written for the 64, by the author of "JACKPOT" the ultimate Fruit Machine program for the VIC (available from 1st Nov) **£5.50**

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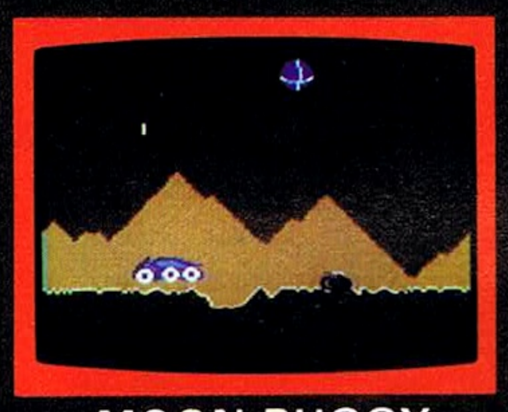

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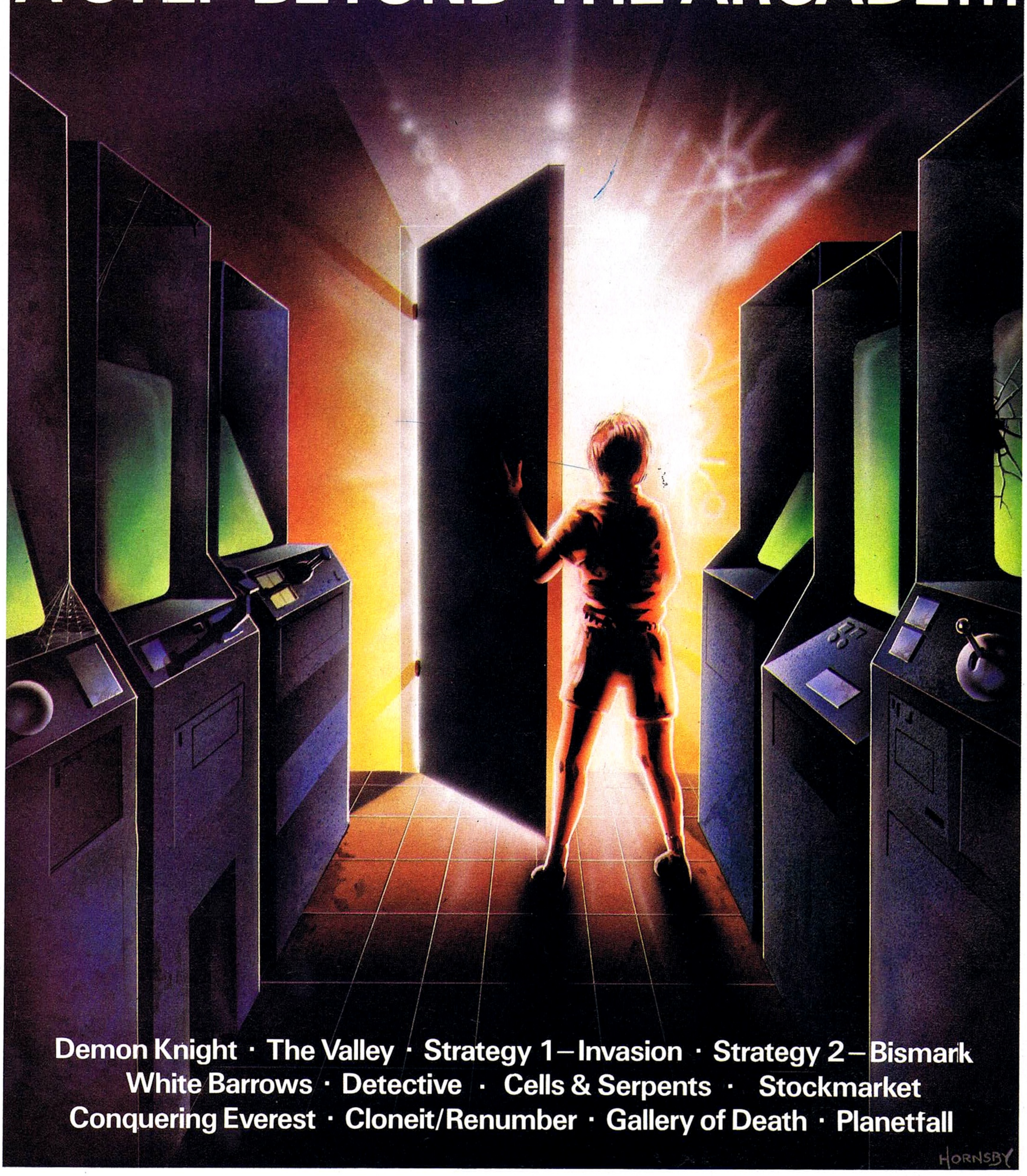

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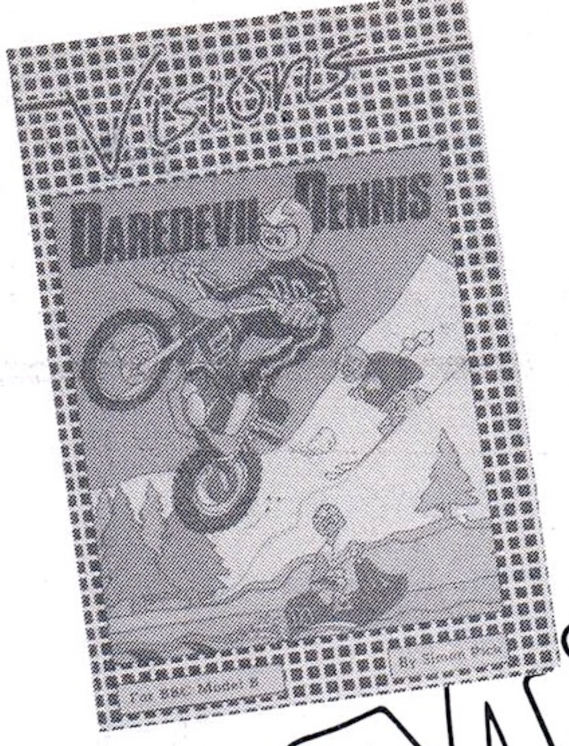
COMPETITION 1
COMPETITION 2



Visions of your own program professionally sold

Loads of competitions will appear in each issue of *Games Computing* and to kick off we've got a great one for you to try your hand at.

What to do

Visions Software Factory, a company fairly new to the business, is always on the lookout for original programs to market commercially. Already they have a string of successful titles under their belt including gems like Pitman Seven, Snooker and Sheer Panic. Most of their games are converted to run on best selling micros like the Spectrum, BBC, VIC 20 Dragon and Commodore 64.

What **Visions** would like you, the people who really know what's what in games software, to do is to create an idea for a computer game, be it an arcade game, an adventure game or any other type of game that springs to your minds. How about *that* for an easy task? You don't even have to over tax your brain by actually writing the program!

Original Thinking

If you can think up a good idea for a computer game all you need to do to win this competition is write down your game idea (preferably type written) on a sheet of paper and send it to us. Include as much of the game's details as you can, like diagrams of how you see the characters in your game, and the screen layout that you would like to see, the points scoring system and the various phases which you would like to incorporate into the game. REMEMBER that the game you submit to our competition *must* be original and not a copy of an existing game that you have seen. Also, presentation of your game idea will be taken into account when judging so do your best to submit your entry as neatly as possible.

What You Win

The winning idea will be judged by the directors of **Visions** (Sean de Bray, Martin Parmiter, Roz Evitts and Jon Burnham) will subsequently be worked upon by the firm's expert programmers who will transform the game into one which will, hopefully, be a best seller. What *you* get out of it are the standard royalties paid by **Visions** to their programmers. This is 12% of the sale of each game. You'll also receive a great **Visions** T-shirt featuring a flashing fluorescent pink **Visions** logo on the front with a *Games Computing* logo on the back — so you'll certainly cut a dash in arcade halls and computer clubs and be the envy of your friends!

Runners up (five in all) will each receive a range of **Visions** software for the computer of their choice (so does the winner), and a **Visions**/*Games Computing* T-shirt of the non-flashing variety.

So all you would-be programmers out there put your thinking cap on and let your imagination run riot.

Competion Rules

1. This competition is open to all UK and Northern Ireland readers of *Games Computing,* except employees of Argus Specialist Publications Ltd, their printers and distributors, employees of Visions Software Factory or anyone else connected with the competition.
2. As long as the correct coupon is used for each entry, there is no limit to the number of entries per person, but photocopies of it won't be accepted.
3. All entries must be postmarked before January 31, 1984.
4. The prize will be awarded by Visions' judges.
5. No correspondence will be entered into with regard to the results of the competition and it is a condition of entry that the Editor's decision is accepted as final.
6. The winner will be notified by post and the results will be published in a future issue of *Games Computing.*

Address to: VISIONS/GAMES COMPUTING SOFTWARE COMPETITION

Game type.....

Game name.....

Your name (Christian and surname).....

Age..... Tel. No.....

Address.....

.....

.....

IF YOU DON'T SEND THIS FORM WITH YOUR ENTRY YOU WILL BE DISQUALIFIED FROM THE COMPETITION.

By S. W. Lucas

Hello there. My name is Fred and I have been sent to my younger brother's school just before the caretaker is locking up to go home for the night. My mother has given me strict instructions to find the hidden five valuable items, take them to the car park and call her to come and collect them.

There are many dangers to be faced in the school and the task will not be easy.

Words Understood

E, W, N, S, CLIMB, JUMP, DOWN, SWIM, GET, TAKE, GRAB, USE, INSERT, SCORE, THROW, EXAMINE, INVENTORY, HELP, PRAY, DROP, LEAVE, QUIT, LOOK, PUSH, SHOOT, ATTACK, KILL, HIT, WAR, GIVE, BUY, READ, EAT, LOAD, CLOAD, SEARCH, KISS, SWEARING. Any of these words can be used to instruct the program and operate the game throughout.

Conversion Clues

Most of the program uses fairly standard BASIC. It should be possible to convert the program fairly easily to run on most machines:

PAPER and INK only change the colour of the display and may be left out altogether.
ZAP, PING, SHOOT and EXPLODE produce predefined sounds and may be replaced by almost any short sound effects (or left out altogether).
WAIT could be replaced with a For/Next loop to introduce a short time delay.
REPEAT/UNTIL can easily be replaced by a FOR/NEXT loop.

RUNdown

Line	Effect
40	Calls the TITLES subroutine.
60	Sets pointer for variables.
70-80	Calls subroutine to read locations, treasures and words understood into appropriate arrays.
100-160	Displays current location.
180	Displays where you can go.
250	Calls for input.
260-470	Acts upon inputted command and returns to display at line 100.

Variables Used

Integer variables are used to save memory space.
P% = current location.
X$(X) = messages.
V$(X) = what you are carrying.
S%(X,Y) = where you can go from each location.
AN = FRE("") in line 102 is a garbage collection routine not necessary in some versions of BASIC.
Z% = start location.

```
1 REM ++ AN ADVENTURE GAME WRITTEN FOR THE 48 K ORIC 1
2 REM ++ BY S.W. LUCAS 1983

--
10 TEXT:PAPER2:INK0
20 C%=0:Y%=0:X%=0:J%=0:K%=0:P%=2:M%=0:Z%=2
30 DIMQ$(53),G$(53),S%(53,4),V$(3),B%(60,1),N$(69),N%(69),X$(61)
40 GOSUB2720
60 RESTORE
70 GOSUB490
75 GOSUB2290
80 CLS
100 PRINT:PRINT:PRINT"I AM":PRINTQ$(P%):A$=""
101 PRINTCHR$(8)
102 AN=FRE("")
110 IFS%(P%,1)>0THENA$="NORTH"
120 GOSUB2770
130 IFS%(P%,2)>0ANDLEN(A$)>0THENA$=A$+",SOUTH"
131 IFS%(P%,2)>0ANDLEN(A$)=0THENA$="SOUTH"
140 IFS%(P%,3)>0ANDLEN(A$)>0THENA$=A$+",EAST"
141 IFS%(P%,3)>0ANDLEN(A$)=0THENA$="EAST"
150 IFS%(P%,4)>0ANDLEN(A$)>0THENA$=A$+",WEST"
151 IFS%(P%,4)>0ANDLEN(A$)=0THENA$="WEST"
160 IFS%(P%,1)=0ANDS%(P%,2)=0ANDS%(P%,3)=0ANDS%(P%,4)=0THENA$="NOWH
ERE AT ALL"
161 IFB%=1THENA$="DOWN":S%(P%,1)=0:S%(P%,2)=0:S%(P%,3)=0:S%(P%,4)=0
180 PRINT" I CAN GO :-":PRINTA$
200 E=0:FORT=1TO51:PP%=0:IFB%(T,1)=P%THENPP%=1
210 IFPP%=1THEN230
220 NEXT:GOTO250
230 IFE=0THENPRINT:PRINT"THAT LOOKS LIKE"
240 PRINTG$(T):E=E+1:GOTO220
250 PRINT:INPUT"WHAT SHOULD I DO NOW";Z$
260 B$=LEFT$(Z$,1)
261 C$=LEFT$(Z$,3)
270 CLS:IF LEFT$(Z$,2)="GO"THENPRINT"JUST USE THE FIRST LETTER":GOT
0100
271 PRINT:PRINT:PRINT"HOLD ON A SEC!":PRINT:PRINT
280 IFB$="N"ANDS%(P%,1)<>0THENP%=S%(P%,1):GOTO100
320 IFB$="W"ANDS%(P%,4)<>0THENP%=S%(P%,4):GOTO100
330 B$=LEFT$(Z$,2)
340 IFB$="S"ANDMID$(Z$,2,1)<>"H"ANDS%(P%,2)<>0THENP%=S%(P%,2):GOTO1
00
350 IFB$="SC"THENGOSUB2770:PRINT"YOU HAVE SCORED ";A%;" OUT OF 6":G
OTO100
360 IFB$="TH"THEN3040
370 IFC$="E"ANDS%(P%,3)<>0ANDMID$(B$,2,1)<>"X"THENP%=S%(P%,3):GOTO1
00
380 IFB$="GE"ORB$="TA"ORB$="GR"THEN1550
381 IFC$="CLI"THEN3550
385 IFB$="RE"THEN2940
390 IFB$="FU"ORB$="PI"THEN2840
391 IFC$="DOW"THEN3580
395 IFB$="HE"THEN2270
397 IFC$="SEA"THEN4100
400 IFB$="DR"ORB$="LE"ORC$="GIV"THEN1790
401 IFC$="PHO"THEN3900
405 IFB$="QU"THEN3610
410 IFC$="LOO"THEN10000
411 IFC$="KIS"THEN3930
415 IFB$="PR"THEN2890
416 IFC$="LOA"ORC$="CLO"THEN4000
420 IFB$="PU"THEN3010
421 IFC$="EAT"THEN3700
425 IFB$="AT"ORB$="HI"ORB$="KI"THENZAP:GOTO1990
430 IFB$="EX"THEN2060
431 IFC$="SWI"THENCLS:ZAP:PRINT:PRINT:PRINT"SWIM? HERE ? What do yo
u think I am?":GOTO100
435 IFC$="USE"ORC$="INS"THEN2230
440 IFC$="WEA"THEN3060
445 IFC$="JUM"THEN3500
450 IFC$="INV"THEN2150
454 IFC$="BUY"THEN3800
460 K$=LEFT$(B$,1)
461 IFLEFT$(A$,3)<>"SOR"THENLL=1 ELSELL=0
465 IFB$<>""ANDLL=1ANDK$<>"S"ANDK$<>"N"ANDK$<>"E"ANDK$<>"W"THENPRIN
TX$(60)
470 GOTO100
480 END
490 FORH=1TO51:FORD=1TO4
500 READS%(H,D):NEXT
520 READQ$(H):NEXT
530 FORH=1TO51
540 READG$(H),B%(H,1):NEXT
550 FORH=1TO69
560 READN$(H),N%(H)
565 NEXT
570 RETURN
580 DATA2,0,0,0,"IN A FISH AND CHIP SHOP"
590 DATA4,0,3,0,"ON THE PAVEMENT. THE SCHOOL IS NEARBY"
600 DATA0,0,5,2,"IN THE CAR PARK. IT IS FULL OF CARS"
610 DATA0,2,0,0,"IN THE SWEETSHOP"
620 DATA6,0,0,3,"BY THE SCHOOL'S MAIN ENTRANCE"
630 DATA11,5,13,7,"IN THE ENTRANCE HALL"
640 DATA8,0,6,0,"IN THE DINING HALL"
650 DATA0,7,0,42,"IN THE KITCHENS"
660 DATA0,0,10,0,"IN THE BOYS CHANGING ROOMS"
670 DATA43,11,17,9,"IN A GYMNASIUM"
680 DATA10,6,0,49,"IN A COVERED PASSAGEWAY"
690 DATA0,13,0,0,"IN THE DEPUTY HEAD'S OFFICE"
700 DATA12,15,14,6,"IN THE MAIN CORRIDOR"
710 DATA17,16,22,13,"IN THE MAIN CORRIDOR"
720 DATA13,0,16,0,"IN THE GENERAL OFFICE"
730 DATA14,28,0,15,"IN THE HEADMASTER'S OFFICE"
740 DATA18,14,0,10,"IN THE ASSEMBLY HALL"
750 DATA47,17,0,0,"ON THE STAGE"
```

```
760 DATA0,20,34,0,"IN THE PLAYGROUND"
770 DATA19,22,23,21,"IN A CORRIDOR"
780 DATA0,0,20,0,"IN A CLASSROOM"
790 DATA20,24,32,14,"IN A CORRIDOR"
800 DATA0,0,0,20,"IN A CLASSROOM"
810 DATA22,0,25,0,"IN A CLASSROOM"
820 DATA0,0,0,24,"IN THE MATHS STOCKROOM"
830 DATA0,0,31,0,"IN THE MUSIC PRACTICE ROOM"
840 DATA0,44,29,28,"IN THE SCHOOL LIBRARY"
850 DATA0,0,27,16,"IN THE REFERENCE SECTION OF THE        LIBRARY."
860 DATA31,30,41,27,"IN A LONG CORRIDOR"
870 DATA29,0,41,0,"AT THE DOOR OF THE STAFFROOM. "
880 DATA32,0,0,0,"IN A CORRIDOR"
890 DATA33,31,48,22,"IN A CORRIDOR"
900 DATA0,32,0,0,"IN THE GIRL'S TOILETS"
910 DATA0,35,0,19,"IN THE COMPUTER ROOM"
920 DATA34,37,0,51,"IN A PHYSICS LABORATORY"
930 DATA0,0,0,37,"IN A CHEMISTRY STOCK ROOM"
940 DATA35,38,0,0,"IN A PREP ROOM"
950 DATA37,0,0,0,"In a quadrangle. It is so icy that I  can't go So
uth!"
960 DATA38,0,0~0,"In the Common Room"
970 DATA0,0,0,31,"IN THE BOYS TOILETS"
980 DATA0,0,0,30,"IŃ THE STAFFROOM. THERE IS A TELEPHONEHERE."
990 DATA0,0,8,0,"BY THE DUSTBINS"
1000 DATA0,10,0,0,"IN THE GIRLS CHANGING ROOMS."
1010 DATA27,0,0,0,"IN A LANGUAGE LABORATORY"
1020 DATA0,19,0,46,"IN THE WORKSHOPS"
1030 DATA0,0,45,0,"IN THE ART ROOM. IT IS FULL OF        PAINTINGS.
"
1031 DATA0,18,0,0,"IN A STAGE LIGHTING BOX"
1032 DATA0,0,0,32,"IN A COOKERY ROOM"
1033 DATA50,0,11,0,"IN THE CARETAKER'S ROOM"
1034 DATA0,49,0,0,"IN THE BOILER ROOM"
1035 DATA0,0,35,0,"IN A BIOLOGY LABORATORY"
1040 RETURN
1050 DATA"A TELEPHONE",41
1060 DATA"SOME HISTORY HOMEWORK.",21
1070 DATA"A DRESS",43
1080 DATA"A PAIR OF HEADPHONES",44
1090 DATA"A PIECE OF MUSIC",26
```

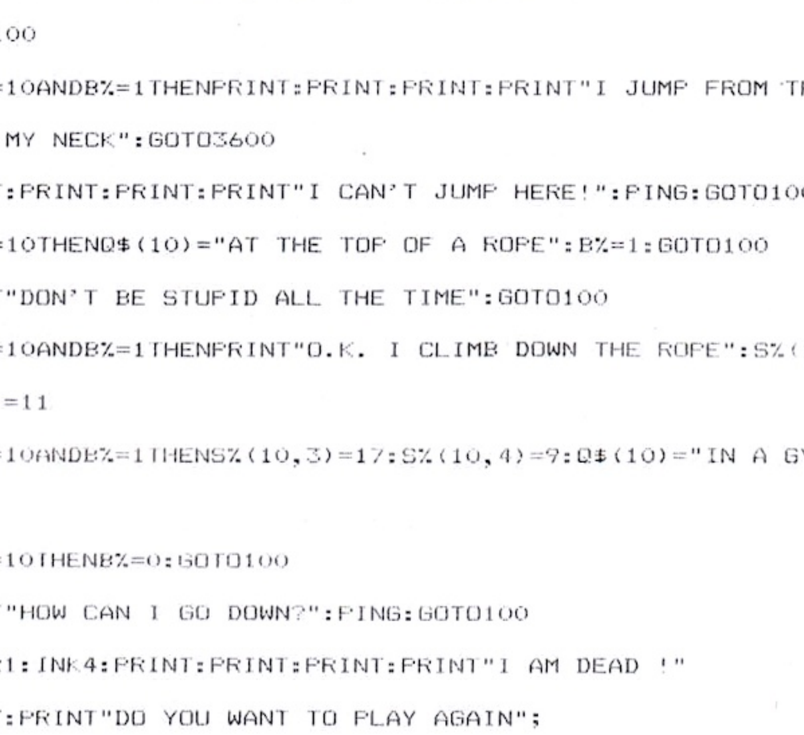
```
1100 DATA"A GANG OF THUGS BEATING UP AN OLD LADY",2
1110 DATA"A BAR OF CHOCOLATE",4
1120 DATA"A STRAY DOG",19
1130 DATA"A SCHOOL DINNER",7
1140 DATA"A VAN DE GRAAFF GENERATOR",35
1150 DATA"THE SCHOOL BULLY. HE DEMANDS A BRIBE",31
1160 DATA"A PILE OF EXCERCISE BOOKS",25
1170 DATA My valuable#WATCH# in the lost          property box",12
1180 DATA"My brother's solid #SILVER# pencil     case",23
1190 DATA"My Girlfriend",38
1200 DATA"A PACKET OF CIGARETTES",4
1210 DATA"A LABORATORY TECHNICIAN",37
1220 DATA"A CAGE OF GERBILS",51
1230 DATA"A LARGE MASTER SWITCH",47
1240 DATA"A PAINTING",46
1250 DATA"A HAMMER",49
1260 DATA"A BOTTLE OF HYDROCHLORIC ACID",36
1270 DATA"A RAW EGG",48
1280 DATA"A BAKING TRAY",48
1290 DATA"A STEEL BAR",45
1300 DATA"My #ORIC# computer",39
1310 DATA"A TOILET ROLL",40
1320 DATA"A PAIR OF SHORTS",9
1330 DATA"A ROPE",10
1340 DATA"A WALL BAR",10
1350 DATA"A BAR OF SOAP",33
1360 DATA"SOME CHIPS",1
1370 DATA"A £5 NOTE ON THE FLOOR",3
1380 DATA"A CRICKET TROPHY",6
1390 DATA"A JAR OF SODIUM CHLORIDE",36
1400 DATA"A CANE",16
1410 DATA"A REGISTER",15
1411 DATA"A SCHOOL REPORT",12
1412 DATA"AN IRATE TEACHER",23
1413 DATA" MAGAZINE",27
1414 DATA"AN ENCYCLOPEDIA",28
1415 DATA"MY MATHS WORK",30
1416 DATA"A CLOCK",14
1417 DATA"A TABLE",18
1418 DATA"A DESK",21
1419 DATA"A PACKET OF CRISPS",4
1420 DATA"A GOLD FOUNTAIN PEN",24
1421 DATA"A PILE OF RUBBISH",42
1422 DATA"A TAPE RECORDER",44
1423 DATA"A MICROCOMPUTER",34
1424 DATA"A CASSETTE TAPE",24
1430 DATATELEPHONE,1,HOMEWORK,2,HISTORY,2
1435 DATA"DRESS",3,"HEADPRETURNONES",4,"MUSIC",5,"PIECE",5
1440 DATATHUGS,6,LADY,6,CHOCOLATE,7,BAR,7
1445 DATADOG,8,DINNER,9,GENERATOR,10,VAN DE GRAAFF,10
1450 DATABULLY,11,EXCERCISE,12,WATCH,13,BOX,13
1455 DATAPENCILCASE,14,SILVER,14,GIRLFRIEND,15
1460 DATACIGARETTES,16,PACKET,16,TECHNICIAN,17
1465 DATACAGE,18,GERBILS,18,SWITCH,19,PAINTING,20
1470 DATAHAMMER,21,ACID,22,HYDROCHLORIC,22,BOTTLE,22
1475 DATAEGG,23,BAKING,24,TRAY,24
1480 DATASTEEL,25,BAR,25,ORIC1,26,COMPUTER,26
1485 DATATOILET,27,ROLL,27,SHORTS,28,ROPE,29
1490 DATAWALLBAR,30,SOAP,31,CHIPS,32,NOTE,33
1495 DATATROPHY,34,SALT,35,CANE,36,REGISTER,37
1500 DATAREPORT,38,TEACHER,39,MAGAZINE,40,ENCYCLOPEDIA,41
1505 DATAMATHS,42,CLOCK,43,TABLE,44,DESK,45,DRAW,45,CRISPS,46
1510 DATAPEN,47,RUBBISH,48,RECORDER,49,TAPE RECORDER,49,MICROCOMPUT
ER,50
```

```
1515 DATABBC,50,CASSETTE,51
1550 GOSUB2640
1560 IFL%=1THEN1580
1570 GOTO250
1580 E%=0
1590 FORH=1TO51:IFB%(H,1)=P%ANDB%(N%(R),1)=P%THENE%=1
1600 NEXT
1610 IFE%=0THEN250
1620 CLS
1621 IFR=13THENAA=1
1622 IFP%=2ANDR=8ANDAD<>1THENPRINTX$(3):PING:GOTO100
1623 IFP%=2ANDR=9ANDAD<>1THENPRINTX$(4):EXPLODE:GOTO3600
1624 IFP%=4AND(R=100RR=110RR=230RR=240RR=62)THENPRINTX$(3):ZAP:GOTO
100
1625 IFR=47THENAC=1
1626 IFP%=19ANDR=12ANDAE<>1THENPRINTX$(6):SHOOT:WAIT10:GOTO100
1627 IFP%=19ANDR=12ANDAE=1THENPRINTX$(7)
1628 IFR=100RR=11THENAB=1
1629 IFR=48THENAF=1
1630 IFP%=3ANDR=48THENG$(33)="A £5 NOTE"
1631 IFP%=41ANDR=1THENPRINT"VANDAL!!: I'LL HAVE NO PART IN SUCH  A
CTION":GOTO100
1632 IFP%=31ANDR=16THENPRINT"WHAT DO YOU TAKE ME FOR? AN IDIOT?":ZA
P:GOTO100
1633 IFP%=6ANDR=49THENPRINT"YOU MIGHT BE A THIEF, BUT I'M NOT!":PIN
G:GOTO100
1634 IFP%=27ANDR=55THENPRINTX$(16):SHOOT:WAIT20:PRINTX$(17):SHOOT:P
%=16:GOTO100
1635 IFP%=36AND(R=310RR=320RR=33)THENGOTO3870
1636 IFP%=37ANDR=25THENPRINT:PRINT:PRINT:PRINT"What do you think th
is is? a GAME?":PING:GOTO100
1637 IFP%=38ANDR=22ANDAG<>1THENPRINTX$(24):ZAP:G$(15)="":GOTO100
1638 IFP%=34AND(R=670RR=68)THENZAP:PRINT"I AM ARRESTED FOR STEALING
":GOTO3610
1639 IFP%=44AND(R=650RR=66)THENAH=1
1640 IFP%=42ANDR=64ANDAI<>1THENPRINTX$(32):GOTO100
1641 IFP%=42ANDR=64THENPRINTX$(43):G$(48)="A KEY"
1642 IFP%=23AND(R=200RR=21)ANDAJ<>1THENPRINTX$(33):ZAP:PAPER6:INK0:
GOTO100
1643 IFP%=23ANDR=54THENPRINT"Just how am I supposed to do that ?":G
OTO100
1644 IFP%=35AND(R=140RR=15)THENPRINTX$(36):PRINTX$(37):ZAP:GOTO3610
1645 IFP%=21ANDR=60THENPRINT"I'm not stupid you know!":GOTO100
1646 IFP%=18ANDR=59THENPRINT"If you think I'm carrying that FORGET
IT":GOTO100
1647 IFP%=12ANDR=19THENPRINTX$(40):PING:GOTO100
1648 IFP%=12ANDR=18ANDAK<>1THENPRINTX$(41):PING:GOTO100
1649 IFP%=12ANDR=18THENG$(13)="My valuable £WATCH£"
1650 IFP%=33ORP%=43THENPRINTX$(45):GOTO3610
1651 IFP%=47ANDR=28THENPRINT"IMPOSSIBLE":PING:GOTO100
1740 E%=0
1750 FORD=1TO3:IFV$(D)=""THENV$(D)=G$(N%(R)):E%=1:D=5
1760 NEXT
1770 IFE%=0THENPRINT"SORRY. MY HANDS ARE FULL !":PING:GOTO250
1780 B%(N%(R),1)=0:PING:GOTO100
1790 GOSUB2640
1800 IFL%=1THEN1820
1810 PRINT"I HAVEN'T GOT A ";L$:ZAP:INK1:PAPER7:GOTO250
1820 E%=0
1830 FORD=1TO3:IFV$(D)=G$(N%(R))THENV$(D)="":E%=1
1840 NEXT
1850 IFE%=1THEN1870
1860 PRINT"I DON'T HAVE IT . WHO'S A SILLY PERSONTHEN?":PING:GOTO10
0
1870 B%(N%(R),1)=P%
1880 CLS
1881 IFAA=1ANDR=13THENAA=0
1882 IFAB=1AND(R=100RR=11)THENAB=0
1883 IFAC=1ANDR=47THENAC=0
1884 IFP%=2ANDR=12THENPRINTX$(5):G$(6)="A #GOLD# PENDANT":S%(2,2)=1
:AD=1
1885 IFP%=2ANDR=12THENN$(8)="GOLD":N$(9)="PENDANT":EXPLODE:GOTO100
1886 IFP%=19ANDR=62THENAE=1:PRINTX$(7)
1887 IFAF=1ANDR=48THENAF=0
1888 IFP%=31AND(R=230RR=24)THEN3860
1889 IFP%=37ANDR=30THENGOTO3910
1890 IFP%=38AND(R=100RR=11)THENPRINTX$(27):G$(15)="A #PRESENT#":N$(
22)="PRESENT"
1891 IFP%=38AND(R=100RR=11)THENAG=1:ZAP:PAPER5:INK4:PRINTX$(28):G$(
7)="":GOTO100
1892 IFP%=38ANDR=50THENPRINTX$(29):S%(38,2)=39:0$(38)="In the quadr
angle"
1893 IFP%=38ANDR=50THENG$(35)="":PING:GOTO100
1894 IF(R=660RR=67)THENAH=0
1895 IFP%=34ANDAH=1AND(R=650RR=66)THENAH=2
1896 IFP%=23ANDR=57THENPRINTX$(34):AJ=1:PING:G$(39)="":GOTO100
1897 IFP%=23AND(R=530RR=20RR=3)ANDAJ<>1THENPRINTX$(35):ZAP
1898 IFR=34THENPRINTX$(42):G$(23)="":EXPLODE:GOTO100
1980 GOTO100
1990 IFP%=2THENPRINT"I'm not doing that!":ZAP:GOTO100
1991 PRINT"ATTACK? you're joking":PING :GOTO100
2060 GOSUB2640
2070 IFP%=2ANDR=9THENPRINTX$(1):ZAP:GOTO250
2071 IFP%=2ANDR=8THENPRINTX$(2):GOTO250
2072 IFP%=37ANDR=25THENPRINTX$(20):PRINTX$(21):GOTO100
2073 IFP%=38ANDR=22ANDAG<>1THENPRINTX$(25):PING:GOTO100
2074 IFP%=34AND(R=670RR=68)THENPRINTX$(30):GOTO100
2140 PRINT"I can't see anything special":GOTO100
2150 PRINT:PRINT:PRINT:PRINT"I HAVE:-"
2160 F%=0
2170 FORH=1TO3:IFV$(H)<>""THENPRINTV$(H):F%=1
2180 NEXT
2190 IFF%=0THENPRINT"NOT A SAUSAGE!!":ZAP:GOTO250
2200 PAPER3:INK0:PING:GOTO250
2230 CLS:PING:PAPER6:INK0:GOSUB2640
2231 IFP%=23ANDR=64THENPRINTX$(38):GOTO100
2235 IFP%=12 ANDR=64THENPRINTX$(39):AK=1:GOTO100
2236 PRINT"I'm afraid I just don't understand you" ZAP:GOTO100
2270 CLS:PING:PAPER6:INK4:
2271 IFP%=2THENPRINT:PRINT:PRINT:PRINT"THEY MUST BE FRIGHTENED OF S
OMETHING!"::PING:GOTO100
2272 IFP%=1THENPRINT:PRINT:PRINT:PRINT"THEY LOOK TASTY":PING:GOTO25
0
2273 IFP%=4THENPRINT:PRINT:PRINT:PRINT"CIGARETTES ARE BAD FOR THE H
EALTH!!!!":PING:GOTO100
```

```
2274 IFP%=7THENPRINT:PRINT:PRINT:PRINT"COULD THAT BE A RED HERRING
FOR DINNER?":ZAP:GOTO100
2275 IFP%=16THENPRINT:PRINT:PRINT:PRINT"I'D WATCH IT IF I WERE YOU!
!":GO~O100
2276 IFP%=30THENPRINT:PRINT:PRINT:PRINT"TELEPHONES CAN BE USEFUL!":
GOTO250
2277 IFP%=47THENPRINT:PRINT:PRINT:PRINT"PULL THE SWITCH. I DARE YOU
 !!":ZAP:GOTO250
2278 IFP%=26THENPRINT:PRINT:PRINT:PRINT"IT'S TOO NOISY HERE !!!":EX
PLODE:GOTO100
2279 IFP%=34THENPRINT"WHAT DO YOU DO WITH A MICRO?":PING:GOTO100
2280 IFP%=19THENPRINT:PRINT:PRINT:PRINT"I'D FIND SOMETHING QUICKLY"
:GOTO100
2281 IFP%=33THENPRINT:PRINT:PRINT:PRINT"WHAT AM I DOING IN HERE?":G
OTO100
2282 IFP%=35THENPRINT:PRINT:PRINT:PRINT"WATCH IT!! THOSE THINGS ARE
 DANGEROUS":EXPLODE:GOTO100
2283 IFP%=18THENPRINT:PRINT:PRINT:PRINT"DO YOU HAVE A SPEACH PREPAR
ED?":PING:GOTO250
2284 IFP%=27ORP%=28THENPRINT:PRINT:PRINT:PRINT"THERE MUST BE SOMETH
ING TO READ HERE!":GOTO100
2285 IFP%=36THENPRINT:PRINT:PRINT:PRINT"I DON'T KNOW ONE CHEMICAL F
ROM ANOTHER":GOTO100
2286 IFP%=52THENPRINT:PRINT:PRINT:PRINT"PHEW ! IT'S HOT HERE":PING:
GOTO100
2287 IFP%=53THENPRINT:PRINT:PRINT:PRINT"SOMETHING USEFUL HERE":PING
:GOTO100
2288 IFP%=45THENPRINT:PRINT:PRINT:PRINT"WHAT WOULD YOU DO WITH A ST
EEL BAR?:ZAP:GOTO100
2289 PRINT:PRINT:PRINT:PRINT"I'M NOT GOING TO SOLVE THIS FOR YOU
YOU KNOW !!!":ZAP:GOTO250
2290 REM READ COMMENTS
2300 X$(1)="THE LADY IS CRYING FOR HELP"
2310 X$(2)="THE THUGS LOOK NASTY. I WOULDN'T FANCYMY CHANCES"
2311 X$(3)="What do you take me for ? I'm not a   shoplifter you kn
ow."
2312 X$(4)="AS I MOVE IN TO HELP, THEY ATTACK ME"
2313 X$(5)="THE THUGS TAKE FRIGHT. THE LADY DROPS SOMETHING AND RUN
S AWAY"
2314 X$(6)="THE DOG BARKS AND RUNS AWAY. I THINK  IT THINKS THIS IS
 A GAME!"
2315 X$(7)="IT WOLFS SOME OF THEM. IT IS HAPPY AND I THINK IT WILL
COME"
2316 X$(9)="THE ASSISTANT TAKES MY MONEY AND GIVESME CHANGE"
2317 X$(8)="THE BULLY GRABS THEM AND RUSHES TO AN AREA BEHIND THE B
IKE SHEDS"
2318 X$(10)="O.K. MY MOTHER ANSWERS. SHE TELLS ME  TO MEET HER IN T
HE CAR PARK"
2319 X$(11)="My mother answers. I get some earache about not findin
g treasures"
2320 X$(12)="IN THE CAR PARK. MY MOTHER HAS BROUGHTTHE CAR TO COLLE
CT ME"
2321 X$(13)="I'M SPOILT FOR CHOICE HERE! I CAN'T   DECIDE WHERE TO
START"
2322 X$(14)="The encylopedia falls open at a page  about making sal
t"
2323 X$(15)="I'm not sure if this is a clue?, but  it's about E.T.
PHONE HOME"
2324 X$(16)="The librarian accuses me of stealing  and takes me to
the head"
2325 X$(17)="He gives me a caning and then rushes  away to answer t
he phone"
2326 X$(18)="AS I REACH FOR THE BOTTLE, IT FALLS TOTHE FLOOR AND BR
EAKS."
```

```
2327 X$(19)="The acid sprays all over me. I don't  like this !!! Yo
u fool!!"
2328 X$(20)="She is in the middle of making       something, but c
an't find"
2329 X$(21)="the hammer. She won't let me into the Chemistry lab"
2330 X$(22)="She smiles and thanks me for helping  her and says tha
t she's"
2331 X$(23)="sorry that she has to go."
2332 X$(24)="She is not pleased with me and storms off in a rage"
2333 X$(25)="She is very beautiful, but she is inabad mood"
2334 X$(26)="She slaps me across the face and      storms off in a
rage"
2335 X$(27)="She grabs the chocolate, throws a my  birthday present
 on the"
2336 X$(28)="floor and storms off, still in a bad  mood"
2337 X$(29)="As I scatter it around, the ice melts and I can safely
 go South"
2338 X$(30)="It's one of those grotty BBC micros   not an ORIC like
 mine!"
2339 X$(31)="There doesn't seem to be much here"
2340 X$(32)="If you think I'm carrying half a ton  of smelly rubbis
h FORGET IT"
2341 X$(33)="Sorry, the teacher has locked it in   a cupboard"
2342 X$(34)="The teacher takes it off me and opens the cupboard"
2343 X$(35)="That makes her MAD! 'WHAT DO I WANT   THAT FOR?' she s
houts"
2344 X$(36)="I grab hold of the Van de Graaff  ~   generator. I fee
l a "
2345 X$(37)="Bolt of electricity surge through my  body!!!!"
2346 X$(38)="WRONG KEY!"
2347 X$(39)="The key fits. I open the box"
2348 X$(40)="It's far too heavy, besides it's not  mine to take"
2349 X$(41)="The box is locked. I can't open it"
2350 X$(43)="The rubbish is everywhere"
2351 X$(42)="the egg breaks. What a mess! it is    everywhere!"
2352 X$(45)="'WHAT ARE YOU DOING IN HERE?' shouts   the teacher. I
am expelled"
2353 X$(46)="It has gone completely dark. I trip   over and break m
y neck"
2630 RETURN
2640 L$="":FORH=1TOLEN(Z$)
2650 IFMID$(Z$,H,1)=" "THENL$=RIGHT$(Z$,(LEN(Z$)-H)):H=H+60
2660 NEXT
2670 R=0
2680 L%=0:IFLEN(L$)<2THENRETURN
2690 FORH=1TO69
2695 IFLEFT$(N$(H),LEN(L$))=L$ THENL%=1:R=H
2700 NEXT
2710 RETURN
2720 CLS:PAPER3:INK4:ZAP:WAIT10:ZAP
2730 CLS
```

```
2740 PLOT4,5,"THE SCHOOL OF DEATH"
2750 PLOT10,15,"AN ADVENTURE GAME BY"
2760 PLOT12,20,"S.W. LUCAS:
2770 A%=0
2780 IFB%(6,1)=3THENA%=A%+1
2785 IFB%(15,1)=3THENA%=A%+1
2790 IFB%(26,1)=3THENA%=A%+1
2795 IFB%(14,1)=3THENA%=A%+1
2800 IFB%(13,1)=3THENA%=A%+1
2830 RETURN
2840 CLS:PAPER2:INK0:ZAP:PRINT:PRINT:PRINT:PRINT"HOW DARE YOU SPEAK
 TO ME LIKE THAT"
2841 PRINT:PRINT:PRINT"APOLOGISE TO ME NOW"
2842 REPEAT
2843 INPUTZ$
2844 UNTIL LEFT$(Z$,3)="SOR"
2845 PRINT"THAT'S BETTER:":PING:GOTO100
2890 IFP%=17THENCLS:ZAP:PRINT"WELL YOU ARE IN THE ASSEMBLY HALL!!!"
:GOTO100
2891 IFP%=2THENZAP:INK0:PAPER1:PRINT:PRINT:PRINT"I TRY PRAYING BUT
IT DOESN'T HELP":GOTO100
2892 PING:PAPER2:INK0:PRINT:PRINT:PRINT"PRAYING MAY BE GOOD FOR THE
 SOUL BUT !!!":GOTO100
2940 GOSUB2640
2941 IFP%=27ANDR=55THENPRINTX$(15):PING:GOTO100
2942 IFP%=28ANDR=56THENPRINTX$(14):PING:GOTO100
2943 IFP%=27THENPRINTX$(13):PING:GOTO100
2944 PRINT"There's not much of interest to read  here":PING:GOTO100
3000 IFP%=10ANDB%=1THENPRINT:PRINT:PRINT:PRINT"I JUMP FROM ^HE TOP
AND BREAK MY NECK":GOTO3500
3010 IFP%<>47THENPRINT"not at the moment":GOTO100
3011 GOSUB2640
3015 IFR=28THENPRINTX$(46):PING:GOTO3610
3016 PRINT"PULL WHAT?":PING:GOTO^00
3040 GOSUB2640
3060 PRINT"Now who's being silly ! ":ZAP:GOTO100
3111 GOTO100
3500 IFP%=10ANDB%=1THENPRINT:PRINT:PRINT:PRINT"I JUMP FROM THE TOP
AND BREAK MY NECK":GOTO3600
3510 PRINT:PRINT:PRINT:PRINT"I CAN'T JUMP HERE!":PING:GOTO100
3550 IFP%=10THENQ$(10)="AT THE TOP OF A ROPE":B%=1:GOTO100
3560 PRINT"DON'T BE STUPID ALL THE TIME":GOTO100
3580 IFP%=10ANDB%=1THENPRINT"O.K. I CLIMB DOWN THE ROPE":S%(10,1)=4
3:S%(10,2)=11
3581 IFP%=10ANDB%=1THENS%(10,3)=17:S%(10,4)=9:Q$(10)="IN A GYMNASIU
M"
3582 IFP%=10THENB%=0:GOTO100
3583 PRINT"HOW CAN I GO DOWN?":PING:GOTO100
3600 PAPER1:INK4:PRINT:PRINT:PRINT:PRINT"I AM DEAD !"
3610 PRINT:PRINT"DO YOU WANT TO PLAY AGAIN";
3620 INPUTX$:IFLEFT$(X$,1)="Y"THENRUN
3630 END
3700 IFAA=1THENPRINT"I EAT THE RED HERRING. AAAGGGHHH!":SHOOT:GOTO3
600
3701 GOSUB2640
```



```
3702 IF(R=100RR=11)ANDAB=1THENPRINT"DELICIOUS":PING:GOTO3710
3703 IFR=47ANDAC=1THENPRINT"THAT WAS DELICIOUS.":GOTO3710
3704 IFR=62THENPRINT"SORRY CRISPS GIVE ME INDIGESTION":PING:GOTO100
3705 PRINT:PRINT:PRINT"NOT AT THE MOMENT":GOTO100
3710 FORH=1TO3:IFV$(H)=G$(32)THENV$(H)="":G$(32)="":NEXT
3711 FORH=1TO3:IFV$(H)=G$(7)THENV$(H)="":G$(7)="":GOTO100
3712 GOTO100
3800 IFAF<>1THENPRINT"WHAT WITH?":PING:GOTO100
3810 GOSUB2640
3820 IFP%=4AND(R=100RR=110RR=230RR=240RR=62)THEN3840
3830 PRINT:PRINT:PRINT"NOT AT THE MOMENT":PING:GOTO100
3840 PRINTX$(9)
3841 FORD=1TO3:IFV$(D)=G$(33)THENG$(33)="SOME CHANGE":V$(D)="SOME C
HANGE":NEXT
3844 N$(48)="CHANGE":PING:GOTO1628
3860 PRINTX$(8):S%(31,4)=26:S%(31,2)=29:S%(31,3)=40:PING:G$(11)="":
G$(16)=""
3861 GOTO100
3870 CLS:EXPLODE:PRINTX$(18):WAIT10:PING:PRINTX$(19):GOTO3600
3900 IFP%<>41THENPRINT"I'M NOT E.T. you know! I need a phone":PING:
GOTO100
3901 GOSUB2640
3902 IFLEFT$(L$,3)<>"HOM"THENPRINT"I CAN'T REMEMBER THE NUMBER":ZAP
:GOTO100
3903 IFA%<>5THENPRINTX$(11):ZAP:GOTO100
3904 PING:PRINTX$(10):GOTO5000
3905 Q%(3)=X$(12):PING:GOTO100
3910 X$(20)="":X$(21)="":PRINTX$(22):PRINTX$(23):PING
3911 G$(17)="":S%(37,3)=36:GOTO100
3930 GOSUB2640
3940 IFP%<>38THENPRINT"What is there here to kiss ??":ZAP:PAPER2:IN
K0:GOTO100
3950 IFR=22THENPRINTX$(26):PING:G$(15)="":GOTO100
3960 PRINT"Eh?":PING:GOTO100
4000 IFP%<>34THENPRINT"I can't load a tape at the moment!":ZAP:GOTO
100
4005 GOSUB2640
4006 IFAH<>2THENPRINT"I don't have a tape recorder!":GOTO100
4010 IFR<>69THENPRINT"As usual, the tape I have won't load":PING:GO
TO100
4020 PRINT"The program loads. I thought that it  going to be anothe
r great game"
4030 PRINT"from S.W.Lucas":PING:PRINT"BUT it isn't."
4040 PRINT"It just displays the message:-"
4050 PRINT"Your task is to rescue the old lady  from the thugs, fi
nd the five"
4060 PRINT"items of treasure, phone home for yourparents to collect
 you and"
4070 PRINT"load your treasures into your parents car!!!"
4080 ZAP:PRINT:PRINT:PRINT"HINT ! What is the chemical that can  me
lt ice?":PING:GOTO250
4100 IFP%<>42THENPRINTX$(31):GOTO100
4110 CLS:PAPER7:INK0:ZAP:PRINT:PRINT:PRINT:PRINT:PRINT:WAIT10:PRINT
"In amongst all the rubbish, "
4120 PRINT:PRINT"I can see a KEY"
4130 G$(48)="A key in amongst the rubbish":A1=1:N$(64)="KEY"
4140 GOTO100
5000 PRINT:PRINT:PRINT:PRINT:PRINT"WELL DONE!!!":PRINT:PRINT"YOU HA
VE SOLVED THIS ADVENTURE!"
5001 PING:PRINT"Your parents are in the car park and  have collecte
d your treasure"
5002 END
10000 HIRES^
20000 TEXT:GOTO100
```

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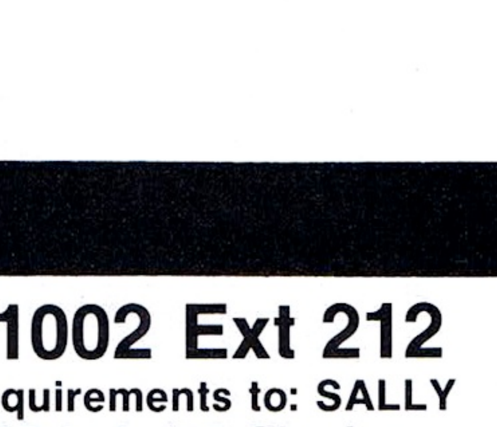

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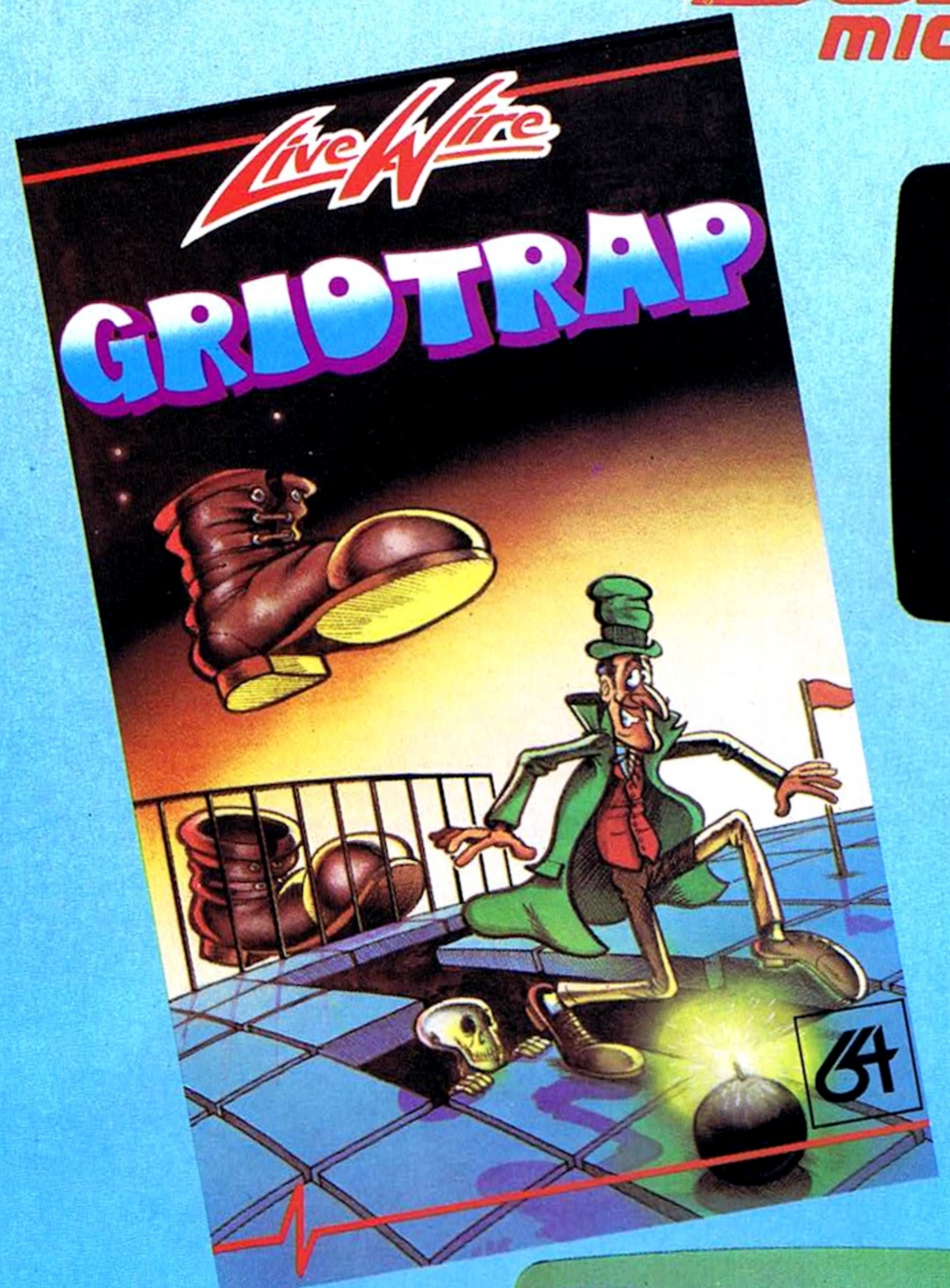

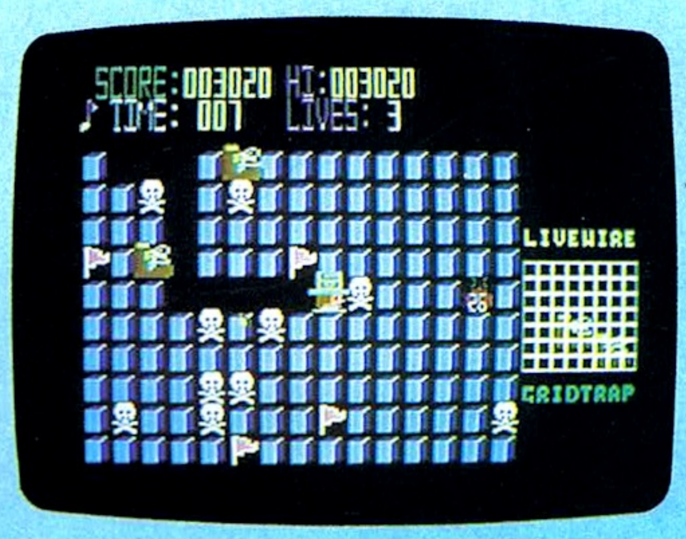

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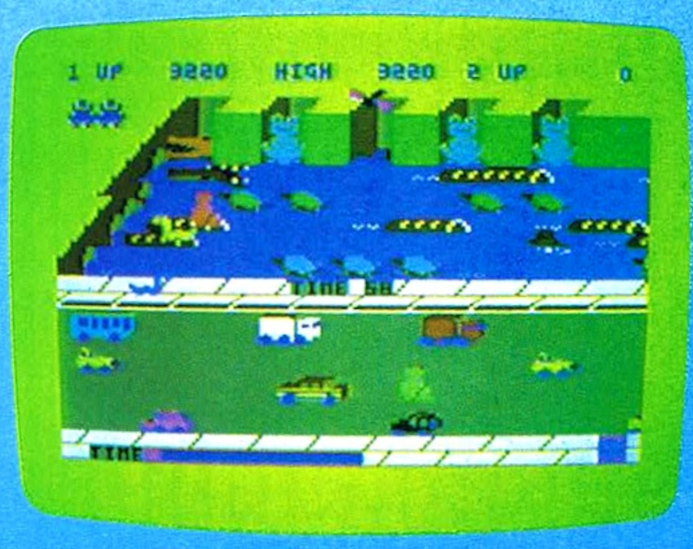

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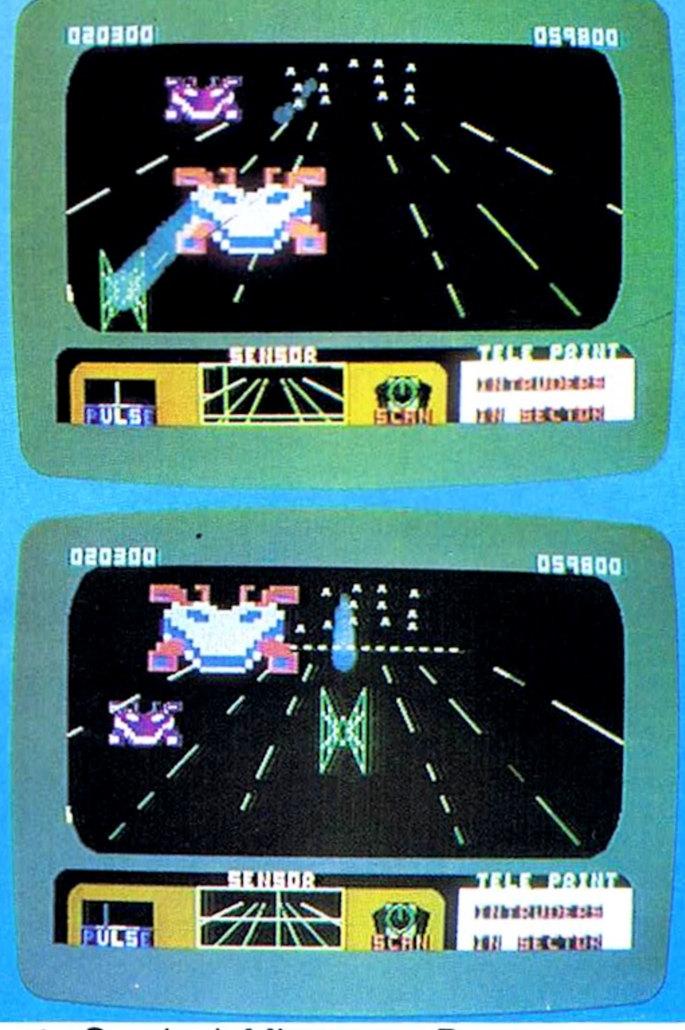

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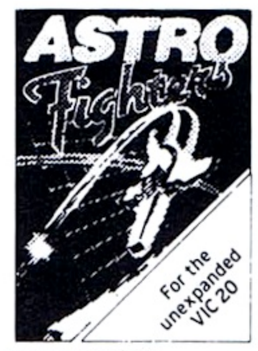

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