

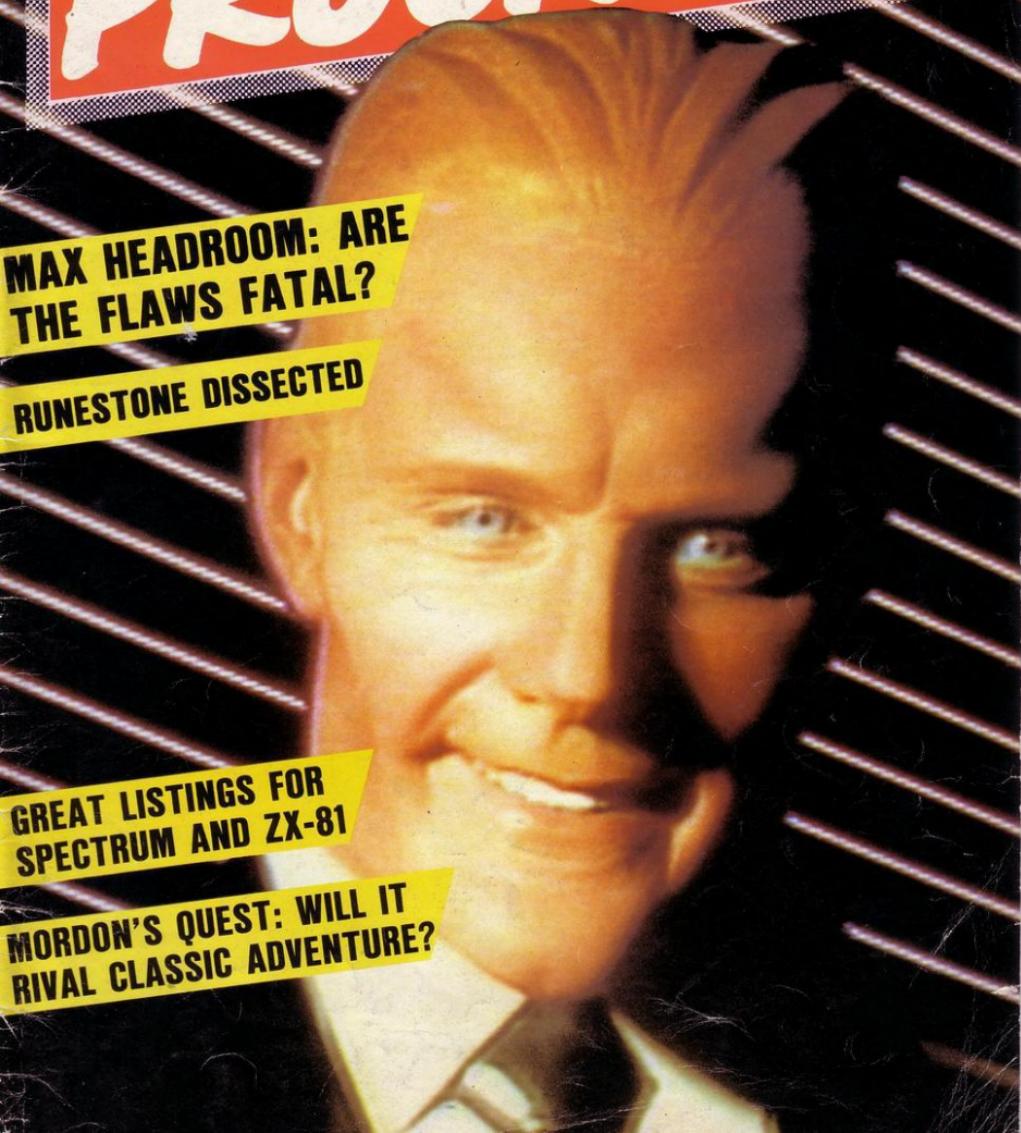
R340 SiNCLAiR PROGRAMS

MAX HEADROOM: ARE
THE FLAWS FATAL?

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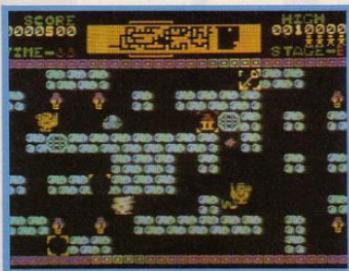
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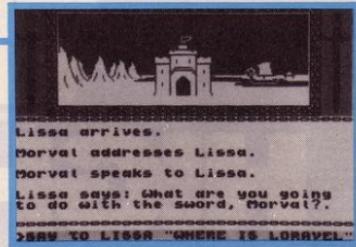


CONTENTS

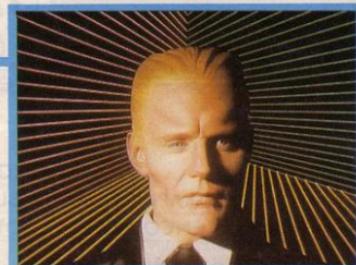
Soft focus



Graphics	5
Editorial	5
Letters	7
News	10
Soft Focus	14
<hr/>	
Questline	20
<hr/>	
Listings	22
Pro printout	26
Notice board	30
Beginners	32
Listings	36
Sprogs	37
Listings	38
Max Headroom	46
<hr/>	
Mordon's	
Quest	49
Listings	52
Chart	58
Program tutor	39
Listings	42
Holiday offer	45
<hr/>	



Questline



Max Headroom

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WAY BACK, in the farthest reaches of software history, before **Lords of Midnight**, before **Valhalla**, before **The Hobbit**, was **Adventure**; the first of its kind.

It was originally written for a machine with 200K memory and no graphics capability, but such was its attraction that it has since been developed, modified and converted for the Spectrum.

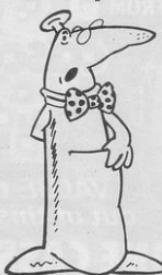
Melbourne House produced their version, **Classic Adventure**, early in 1984 and by now most Spectrum adventurers will be familiar with its complexities.

Melbourne House have now gone one further and brought out a sequel, called **Mordon's Quest**, which aims to rival the complexity and appeal of the original. We look at this new classic in a special preview on page 20.

Also in this issue we interview **Max Headroom**, the computer generated television presenter. Max asked us to let his public know that he is really not that special, in fact he is very ordinary and mundane; just

like them.

We'll be checking
the truth of that claim
on page 46.



Instructions for graphics characters are printed in lower-case letters in our listings. They are enclosed by brackets and separated by colons to distinguish them and the brackets and colons should not be entered.

Inverse characters are represented by the letter "i" and graphics characters by "g". Thus an inverse W would be represented by "iw", a graphics W by "gwg", and an inverse graphics W by "igwg".

Spaces are represented by "sp" and inverse spaces by "isp". Whenever any character is to be used more than once, the number of times it is to be used is shown before it, together with a multiplication sign. Thus "6★isp" means six inverse spaces and "(g:4:4★i:g:3)" would be entered as a graphic four, followed by an inverse four repeated four times, followed by a graphics three.

Where whole words are to be written in inverse letters they appear in the listings as lower-case letters. Letters to be entered in graphics mode on the Spectrum are underlined.

Inverse characters may be entered on the ZX-81 by changing to graphics mode and then typing the appropriate characters and on the Spectrum by changing to inverse video and typing the appropriate letters. Graphics characters may be entered on the ZX-81 by changing to graphics mode and then pressing symbol shift while the appropriate characters are entered. On the Spectrum graphics characters may be obtained by changing to graphics mode and then pressing the appropriate character. User-defined graphics will appear as normal letters until the program has been RUN.



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- Popular Computing Weekly 7/3/85

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

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

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"Incredibly frustrating!" - that's the verdict on Cassette-50's FROGGER. Satisfied users tell us it's a great game. If you're not sure if you find it's not as good as the arcade version CARGO has you trying desperately to avoid the alien invasion. It's a fast, frantic attack. Plus 48 other tactical, logical and adventure games featuring multi-coloured and multi-level graphics, sound and full use of the Spectrum's sound capabilities.

No	Game	No	Game	No	Game
1	MUNCHER	18	SKI RUN	35	DRAGGOLD
2	SHOOTER	19	SCARAB	36	SCARAB
3	BASKETBALL	20	SEARCH	37	INTVNG
4	SHOOTING	21	PIPS	38	PIPS
5	GREED	22	CAR PINS	39	VOYAGER
6	SHOOTING	23	PILOT	40	PILOT
7	SHOOTING	24	CARRIER	41	SKETCH PAD
8	SHOOTING	25	PIPER	42	PIPER
9	SHOOTING	26	PIPER	43	PIPER
10	SHOOTING	27	PIPER	44	PIPER
11	SHOOTING	28	PIPER	45	PIPER
12	SHOOTING	29	PIPER	46	PIPER
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Mega-boring software

I, AS A ZX-81 owner, one of a quarter of a million such people, am becoming very annoyed at the lack of new software available for my machine. The only games which come out of it now are shoot 'em up games which only show up the things wrong with the machine: no sound and low-res graphics.

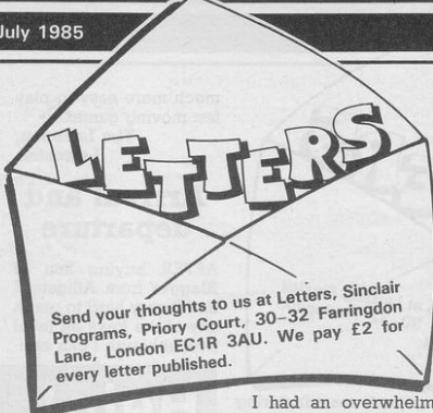
Software Farm's hi-res range looked very original and Rocket Man and Forty Niner are worth their weight in gold. Unfortunately, the originality has disappeared and Software Farm have brought out the umpteenth version of the mega-boring **Defender**, called **ZXtricator**. The only good thing about it is the graphics. Why they should decide to copy Defender is a mystery and, what is more, a waste of the hi-res facility they have developed.

Utility programs are even more scarce than games. One program which is available is the ZX-81 toolkit from **Artic Computing**. I have found it invaluable, and never program without it. It makes up for the gaps on the Sinclair ROM with interest.

Andre Lucas,
Footscray, Kent

Scientists stranded

I WAS given **Airwolf** from Elite for Christmas. I have managed to pass both the first and second walls. When I pass the second wall, however, I can see no way of saving the scientists. My highest score so far is 375. If anyone has any hints on the game, or if anyone has beaten my high score, please let me



Send your thoughts to us at Letters, Sinclair Programs, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. We pay £2 for every letter published.

know via *Sinclair Programs*.

James Hurley,
Middle Tysoe, Warks.

Steve Davis high break

I NEED help! Since I bought **Steve Davis Snooker** I have not been able to play on my computer, it has been commandeered by my brother. He loves the game and plays it all the time. His highest break is 103. Is this a record?

David Ball,
South Shields.

Heartstealer defeated

ON APRIL 14th, 1985 I, with a little help from a friend, finished **Doomdark's Revenge**. It took me four score and six days to bring Luxor, Morkin, Tarithel and Rorthron to the gate of Varemorm and to kill Shareth the Heartstealer.

Please complete this form and enclose it with any program which you send to us for possible publication.

To: Sinclair Programs, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.
 I enclose.....Program(s) for thecomputer.
 I guarantee that each program submitted is my original work.
 Signed
 Name
 Address

wrong key than on a flat keyboard. This could crash the game, lose a life or, if you are lucky, you could just scrape away from the alien bomb or whatever.

Also I should like to make the point that I can type faster than my friend, who has one of the *Filesixty* keyboards. So I think that for ten pounds it is a waste of good money which you could spend on software.

Glen Wheeler,
Beaconsfield, Bucks.

Impossible Penetrator

I OWN the game **Penetrator** from Melbourne House. This game cannot be finished.

On the last level there is a piece of mountain which reaches from top to bottom which it is impossible to pass. You cannot change the landscape on the last level.

I have also found another bug in the pro-



gram. While you are on the last level, everything starts changing, blocks start flashing and the program crashes.

Russell Black,
Birmingham.

LETTERS

Send your thoughts to us at Letters, Sinclair Programs, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.

I HAVE had a 16K ZX-81 since Xmas 1983. Last August I purchased **Forty Niner** from Software Farm. My highest score was 16,815. I then bought **ZXtricator**, also from Software Farm.

I loaded it, but it displayed the picture of the Cosmic Cockerel, then crashed. I tried swapping the leads and using different power points, but the same thing happened.

I took it back to the shop and exchanged it for another copy, but the same thing happens every time. If anybody has any tips, please let me know via *Sinclair Programs*. My tape recorder is a Bush computer/cassette recorder.

Andrew Doun,
South Chard, Somerset.

Obliterate mono now

I AM the proud owner of a 16K ZX-81. I should like to improve my ZX-81 further by adding a 16 col-

company manufacturing these items please let me know via *Sinclair Programs*.

C Wooff,
Northallerton, Yorks.

Highly recommended

THE NEW adventure, **Gremlins**, from Adventure International is a brilliant game with amazing graphics which appear on the screen very quickly. I have also found that the hint sheet for which you can send away arrives very quickly and is full of useful hints.

Andy Herrod,
Leatherhead, Surrey.

Drive for success

I HAVE conquered typing errors on the ZX-81. A couple of weeks ago I was typing in a game. My little brother was playing with his cars at the time, and one of them rolled under my palm. I found that it was very easy to type, my hand was moving quick-

ly pass the other four levels. Could someone please explain how to reach these keys?

In **Finders Keepers** from Mastertronic, I have no idea how to get past the cat. I have tried

up the banyan tree is blocked by an orange block which should not be there. The following POKEs cure the attic bug and remove the orange block. Once removed you can jump into the banyan tree, then jump up and right to reach those elusive bottles.

The official Software Projects modifications are as follows: MERGE

Help!

Spiderman: How do you deal with the Ringmaster? How do you remove the fan? Paul Gibbons.

Help!

Pyjamarama: I have reached the moon and entered the room with the magnetic lock. How do I switch off the lock? M Hughes.

Help!

Jack and The Beanstalk/ Soft Aid: How can I move from the top of the beanstalk to the castle? I keep falling down. Lee Davis.

POKE 59901,82 POKE 56876,4

To save the modified game SAVE "Jetset" LINE 10: SAVE "JSW" CODE 32768,32768

W Pooley,
Liverpool.



Clear the conservatory

I WAS interested in the letter from Peter Lawrence in the May issue concerning **Jet Set Willy**. As you know, the program is full of bugs, most famous of which is the attic bug. As Peter said there is no way of reaching the bottles under the conservatory roof.

The problem is that the only route into and

I WOULD like to make one small addition to your accurate review of Ocean Software's **Kong Strikes Back**. You said that it was 'successful and addictive'. I should

our board or any other sort of colour board, and a light pen.

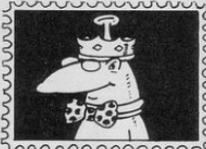
If anyone knows of a

ly next to the keyboard and, what is more, the games did not crash. I also found that it became

like to add the word 'very' in front of this quote.

What a great game! I would even go so far as to say that it matches its more illustrious Ocean brother, Daley Thompson's Decathlon. **Martin McRandal, Larne, Co. Antrim.**

Does anyone know? **Russell Black, Birmingham.**



Help!

Planet of Death: How can I get past the forcefield? **David Bertiaume.**

Enter the Spectrum

ON APRIL 11th I played **Bruce Lee** for four hours and scored 1 010 028. Is this a record? I have a Sinclair Spectrum Plus. If anyone has a higher score I should like to hear from them.

Peter Dawson, Bristol.

Warlords: what is the point?

CAN ANYONE help me? I recently purchased **Warlords** from Century Software. I have been playing it but I have not yet found out what the object of the game is, or how I can achieve it.

I SHOULD like to hear from **Manic Miner** and **Jet Pac** whiz kids who have beaten these two high scores: 30,518 for **Manic Miner** and the staggering score of 11 59 080 for **Jet Pac**. I should like to declare myself king of these two games (unless someone else beats my score, that is).

Fulvio Baiavola, London SE23

Help!

Clear ship in Booty

I AM writing to you regarding the **Booty** letter



written by Mark Simpson. I agree with him about **Booty**. It is the only game that I ever play these days.

To answer his questions. Yes, I have reached key five, and my highest score is 125 pieces of **Booty**. After collecting all these you have 45 seconds in which to find a golden key, which I have not managed to do.

Key five looks impossible to reach but it is actually not that hard.

If anyone has found the golden key, let me know where it is. Please! **Simon Haines, Southampton, Hants.**

Goalkeeper's antics

WHILE playing **Match Day** from Ocean I came across an unusual bug. The bug is that, if the football stops in the middle of the goal line, and

which I enjoy very much. When I came to enter the store I found that I was short of money, so I cleverly bought half a pack of bullets by typing 0.5 when asked for quantity. I then went on to buy half a gun.

I tested this by starting a gunfight, and it worked! So, now I have worked out the money problem, but I still have to work out the strength problem.

James Smith, Colchester, Essex.



I HAVE recently bought **Knight Lore**. I find it extremely hard, for the 3D scenery makes it difficult to judge how far to walk or to jump. Some things disappear and some sink beneath your weight. If anything looks safe you can bet that it is not. My highest score so far is 41% with six charms. If anyone has beaten that score I should like to know.

Eoin McLeod, Aberdeen.

Brilliant graphics

I HAVE recently purchased the game **Monty is Innocent** and think it is great. I bought the game before reading your review of it. The review said that the graphics were appalling. I think that they are brilliant.

Darren Munn, Nottingham.

the goalkeeper has dived and is lying on the ground, if the goalkeeper then gets up and stands on the ball no one will then be able to kick the ball. I should like to know whether there is a **POKE** that will solve the bug. I think **Match Day** is an excellent game.

Allan Blackett, Carlisle, Cumbria.

Wild Bunch bugged

I WAS playing a new game I had bought called **The Wild Bunch**

Runes of Zendos: How can I kill the monsters? What is the flag in the left hand corner for? **Sarah Hume.**

Help!

NEWS

James Bond

007 is back with a *View To A Kill*.

Bond, James that is, returns this summer in a new film called *A View To A Kill* and a computer game following his adventures has also been produced.

Domark Ltd won the exclusive rights to produce the computer game and the thrill of the kill could not be disguised by the company chiefs Dominic Wheatley and Nigel Boyle.

They describe the game as closely following the plot of the film. There are three games on the tape. The lead-in shows Bond crossing the floor with us watching him through the rifle sight or eye, a shot and the Bond theme tune.

The fun starts in Paris. Bond must stop the evil Max Zorin, electronic whizkid, who plans to steal valuable silicon chips and use them for his own ends. Bond meets an agent high up on the Eiffel Tower. Suddenly a cloaked figure appears, kills the agent and hurls herself from the Tower. Her cloak becomes a parachute and she flies away. Your task is to help Bond pursue her in his car. Features include handbrake turns, shooting police cars and more.

The program includes three games which closely follow the film. In addition, the original music by Duran Duran is expected to be included on the cassette.



Dragontorc's 1st High Lorelord

EMON McGING of Camberley, Surrey, has been awarded a citation by Hewson Consultants for being the first player to finish *Dragontorc*.

He finally attained the rank of High Lorelord on April 7th, having bought the game six days earlier.

Hewson have been inundated with requests for clues. If you write, enclosing an sae, and stating where you are

stuck, they will send you a hint sheet. Write to:

Hewson Consultants, 568 Milton Trading Estate, Abingdon, Oxon.

Most callers have come unstuck when they have been bitten by the snakes or spiders. Sometimes the poison can cause tunnel vision; the screen goes blank, leaving only Maroc and the scroll visible. The solution is to use the Healing spell.



Will Nick Faldo's Open play rough?

A GOLF inspired game is to be released in July to coincide with the British Open.

Nick Faldo's Open

from Mind Games will follow the complete Royal St. George's course in detail.

Peter Holme, marketing manager at Mind

Games describes the game. "Using scrolling scenery you control the game from an elevated position. The top two thirds of the screen show the course, the map of the course, your player and the caddy who follows you around handing over clubs and shaking his head when you pick the wrong one."

"The bottom third displays a wind direction scale, angle at which the shot will go when the ball is played, and power-behind-shot scale." You move through each new location taking with you your player and caddy.

Successful Softaid

SOFTAID, at the time of going to press, had sold 75,000 copies, making the total amount donated to the appeal "about £200,000," as Penny Jeffrey, speaking on behalf of the appeal, explained.

"It should top the quarter of a million mark within the next few days," she continued. "We've had a report that the HMV shop in Newcastle has already sold 1,000 copies.

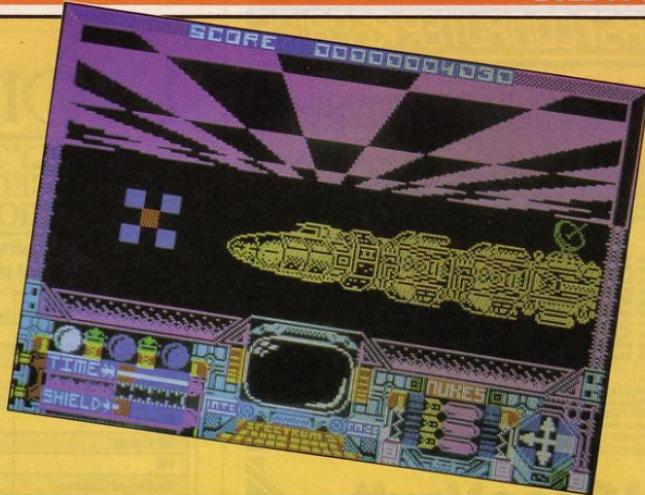
In a glass of its own

PLANET Glass is the setting for the new space arcade game from Quicksilva.

Quicksilva marketing manager Peter Holme describes the new game, **Glass**, as "Very fast, difficult and colourful. It has been designed with all would-be alien-busters in mind."

Set in deep space you must rid the planet of the "Evil force which is inhabiting it."

It goes on sale in mid June and costs £7.99.



KP COLIN GOES SOFT

CUMSY Colin, Action Biker is featured in a new Mastertronic game, which is being launched with a special promotion run in conjunction with KP foods.

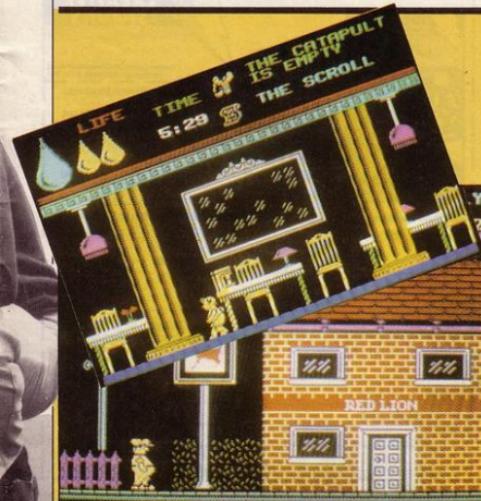
Colin has been a regular character in a comic strip and advertisements

for the food giants.

He stars in this arcade game travelling around 150 houses where various objects such as motorbike parts must be collected.

The game progresses to more difficult levels as your skill improves.

It is to be released at the end of June at the value for money price of £1.99.



HORACE IS RESCUED

TWO NEW arcade games from Melbourne House are to be released for the summer.

The latest program in the Horace series, **Horace to the Rescue** develops the love story. Horace, lucky boy, gets himself a girlfriend.

Unlike the previous series which was produced by Psion, Melbourne House are sole publishers of this game, so we should see some change in presentation.

Way of the Exploding Fist, the second release, is set around the martial art, karate.

Paula Byrne of Melbourne House informs us that they have gone to great trouble to reproduce an authentic game which is far superior to anything currently available.

The game allows the karate player 18 movements and the graphics are very sophisticated.

Tranquil tone

A NEW telephone helpline has been set up to soothe Wally's fans.

Mikro-gen have installed this special service and call it the Telephone Tranquilliser.

It has a pre-recorded set of clues which will be updated monthly, including clues to **Everyone's A Wally**.

The number to call is Bracknell (0344) 56447.

Meanwhile, some clues to **Everyone's A Wally**:

1. Dick should visit the Zoo, but make sure he gets the nuts first or he will make a monkey of himself. If he takes the plunger he can fix the fountain.
2. If Harry makes cement with the sand and bucket of water he can build the wall with his trowel.
3. Harry should use his screwdriver to replace the bad insulator on top of the pylon, but you'll need to make a telephone call first.

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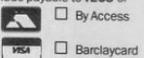
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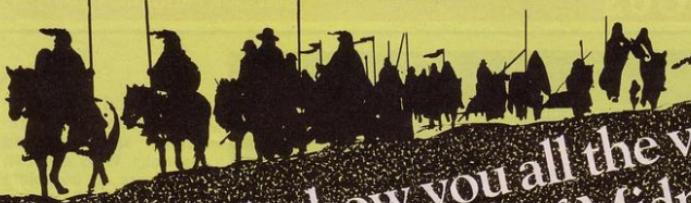
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SMASHING

SHADOWFIRE

BEYOND have taken the traditional text adventure, smashed it to pieces, thrown it on the scrapheap and put something radically different in its place. *Shadowfire* is a completely text free adventure, allowing quicker decisions, faster movement and more action than ever before.

You control six characters, of varying strengths and capabilities, who must work as a team to board the spaceship Zoff V, locate and rescue the captured Ambassador Kryxix, capture the evil General Zoff and then capture or destroy the entire spaceship. In case you find all this slightly too easy for your taste, you have only an hour and forty minutes in which to accomplish these tasks.

First impression of *Shadowfire* is of a complex, unapproachable game. Using no text in

the game has meant that the instruction manual is difficult to follow, especially without the game in front of you. With as many as thirty images on screen at one time, it is essential to understand all of them to be able to progress with the game.

The game is played by the use of icons. For example, to enter battle, you would select the picture of the character you want to move, select the attack icon, pick out the direction in which they should attack, and leave them to it. As with all good adventures, the sequence of events is logical. You must remember to pick up a gun before you attack anyone, and you must remember to choose which of your weapons you are going to use before you lurch blindly at someone.

Strategy is very important in the game.

There is no need to use all the characters together, and you must always bear in mind the different capabilities of each character. It is important to make a map, and it is also important to make the best possible use of the objects you collect.

The use of icons rather than text means that events can move very

quickly, and the important decisions can require split second reactions. With less than two hours to complete your mission, it is useless to hang around in safe corners for too long, you must keep on the move.

The initial panic caused by complicated instructions is quite unjustified, for the icons are, in practice, far more easy to use than the restricted and specialist vocabulary required by most adventures. If you are stuck in *Shadowfire* it is because you are not thinking on your feet, not because the program's vocabulary is inadequate for your needs.

Shadowfire beats traditional adventure, strategy and war programs at their own game. The plot is strong, the graphics excellent and the possibilities endless.

Shadowfire is produced for the 48K Spectrum by Beyond, Lector Court, 151 Farringdon Road, London EC1.

Price: £9.95

Game type: Icon adventure

Rating: 95%



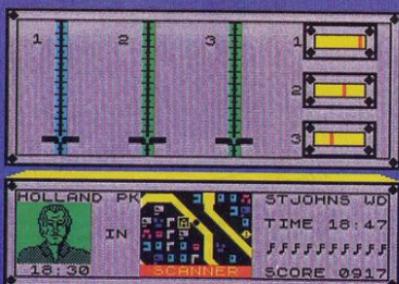
GIVE MY REGARDS TO BROADSTREET

GIVE MY regards to Broadstreet is great fun. Great fun that is, if you disregard the game description and do what you want to do, not what Argus have told you to do.

You play the part of Paul McCartney. It is your task to spend Saturday meeting seven friends, collecting part of a song from each of them, and then taking it back to Abbey Road studios for mixing. Now, if I

the appropriate station and wait outside for them; and wait; and wait. Trouble is, there is not much of a game there either, is there? A certain amount of deduction is fine, but where is the fun in standing outside a tube station all day, waiting for someone who may never emerge?

What the instructions neglect to tell you is that you can grab your friends as they go into the station, as well as



were Paul, I would phone all my friends and meet them at the studios. Not much of a game there, though.

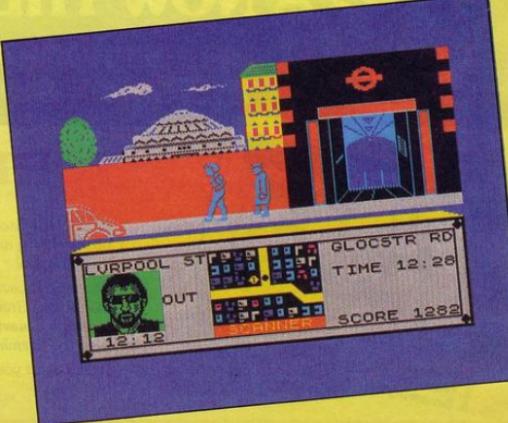
Instead, you have to track them down in the centre of London. By keeping a careful eye on your in-car computer, which tells you when they were last spotted at a tube station; and on your character summary, which tells you where they are likely to spend their days, you are supposed to predict where they will emerge from the tube!

With the help of your London road map you can then drive over to

when they leave. This makes more sense. If, for example, Linda left the tube at Bond Street in order to go shopping, she will have to leave at some time, and five thirty looks like a good bet.

Matters become even more easy when you realise that the characters always play the same game when the program has just been loaded. This means that, after a couple of runs through, you can drive to Kilburn first thing in the morning, pick up part of the tune there, go on to Maida Vale and then head into town.

The game suddenly



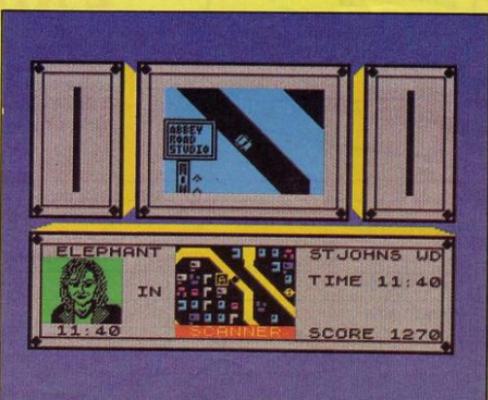
becomes much more fun. Instead of wandering disconsolately past tube stations for hours on end, with no one to talk to except the traffic warden, you can zoom around London, knowing exactly where everyone will be and when. The trick then becomes to navigate the routes fast enough, to learn to take the bends at speed, and to work out the fastest route from the Elephant and Castle to Camden Town.

Londoners certainly

have a built in advantage over everyone else. After all, if even Paul McCartney has not noticed that there is no tube at Broad Street, what chance is there for anyone else?

Give My Regards to Broadstreet is produced for the 48K Spectrum by Argus Press Software, 222 Regent St, London W1.

Price: £7.99
Rating: 78%

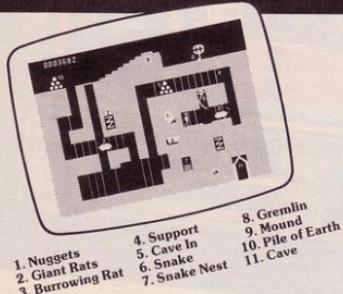


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3



FORTY NINER

In 1849 the Great American Gold Rush started. Almost everyone who could sold up everything and dashed to the west coast to look for this precious metal – including you!

You must excavate this precious metal – but can you survive the giant rats and that vicious Gremlin which will come to infest your mine? Can you trick the snakes into leaving their comfortable nests and destroy the rats for you? Can you keep the Gremlin at bay?

Riches await you – but so do the hazards!

ROCKET MAN

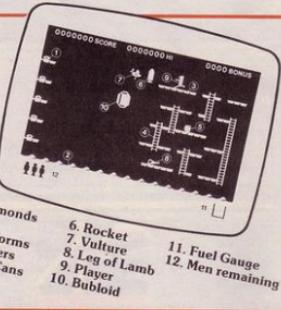
Get rich quick by collecting Diamonds that are simply lying there waiting for you!

Oh... I forgot to mention that there are one or two problems!

There is an expanse of shark infested water between you and the Diamonds and a strange breed of Bubble that seems hell bent on getting you in it! Somehow you must cross it ...

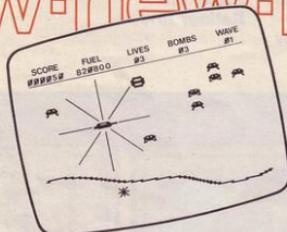
You have a Rocket Pack to help you (a Vulture on higher levels) but you must rush around the platforms and ladders collecting cans of fuel (legs of lamb with the Vulture) and cursing that weird Bubble. Once you have enough fuel then it's Chocks Away!

Oh... but don't run out of fuel on the way – otherwise it's... SPLASH!



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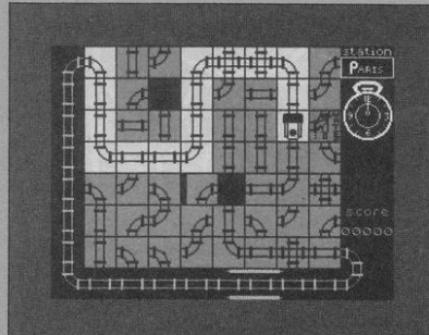
LOCOMOTION

REMEMBER those sliding puzzles you used to win as prizes in lucky dips, or buy for a few pence in the shop on the corner? They contained 15 plastic squares and one empty space. By sliding the squares into the space you could form them into a picture.

Mastertronic have taken up this theme with **Locomotion**. The idea is introduced by an excellent loading screen which starts with a mixed up picture and then shuffles the elements around until the screen is complete.

The aim of the game is to move your train from the top left to the bottom right of the screen by sliding tracks around to keep it on the rails. Moving the track would be straightforward if it were possible to keep a level head, but the train keeps moving, and the pressure is on all the time.

As the levels progress the track becomes more confused and obstacles such as trees begin to appear more frequently. Eventually it is necessary to push the pause button which allows you to hold the train for a minute



whilst you frantically push track around.

A gripping game, excellent value for money, Locomotion is produced for the 48K Spectrum by

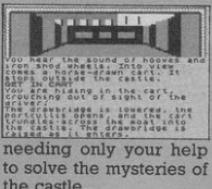
Mastertronic, 54 George Street, London W1.

Price: £1.99

Rating: 59%

ASHKERON

IN THE dim and distant past, Stephen the Blacksmith entered the castle of the evil wizard to recover the five stolen treasures of **Ashkeron**. The castle was vast and labyrinthine, its inhabitants numerous and its owner possessed of a cruel sense of humour. Stephen, though, was brave and resolute,



needing only your help to solve the mysteries of the castle.

Ashkeron is a graphics and text adventure, containing pictures of each

location. These are clear and quick to appear but seem to be of little help in the adventure.

Interaction with other characters is important. The stable boy and the executioner seem friendly enough, but the slimy green dwarf proves lethal after a while and will not be put off by your disappearing. Various magical creatures prove a hindrance in your travels,

and the wizard is a real nuisance when it suits him.

There is a lot to do and a lot to explore in Ashkeron. Once you have solved the adventure, your next move is to complete it in as few turns as possible.

Produced for the 48K Spectrum by Mirrortsoft, Hoborn Circus, London.

Price: £7.95

Rating: 70%

QUACKSHOT

MID MAY saw the launch of a new range of budget software from EMI called **Sparklers**. First release is **Quackshot**.

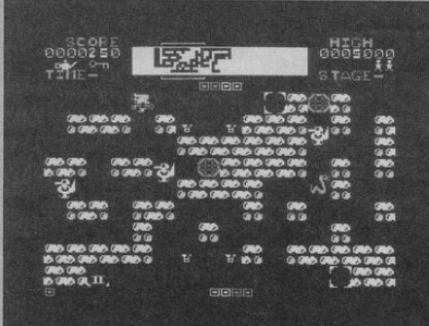
As night watchman in the Acme Toy Factory you must get through your nightly routine of checking in at various points and patrolling the factory, whilst avoiding the lethal windups rolling around the passages.

The game takes the form of a maze through which you must move,

avoiding as many toys as you can, stunning and bombing the rest. Bonuses can be collected at certain points, as can keys to unlock the doors in your section.

The toys are fast moving and the maze layout complex. Scrolling is screen by screen rather than continuous so, until you know a section of the maze it is possible to be almost on top of one of the toys before you know it.

Not an outstanding game, but certainly



good value at the price, Quackshot is produced for the 48K Spectrum by Thorn EMI, 296 Farnborough Road, Farnbor-

ough, Hampshire.

Price: £2.50

Rating: 54%

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CATS

IT IS the night of the Jellicle ball. Tonight the leader of all *Cats*, Deuteronomy, will choose one of the cats to be reborn into a new life. Two problems face Deuteronomy this year. The first is that ten kittens have strayed and must be collected. The second is that the cats' bitterest enemies, the Pollicle Dogs, have stolen the source of the Jellicle cats' power. Now they intend to form a pack and destroy it altogether.

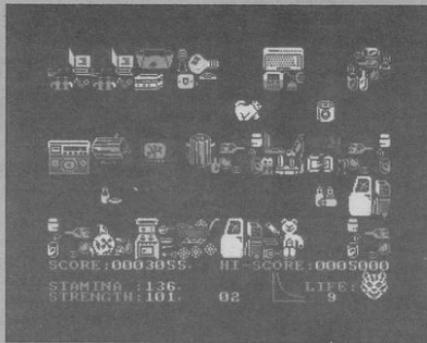
Deuteronomy must make his way through the maze of woodland, town and scrapyard, de-

stroy the dogs, collect the kittens and eat enough food to maintain his strength.

This task is made easy by the introduction of a maze plan which can be viewed at any time. This shows the position of all cats, dogs and kittens and allows efficient routes to be planned quickly and easily.

In line with tradition, Deuteronomy has nine lives. This allows plenty of time to complete all tasks, save the Jellicle cats and defeat the Pollicle dogs.

Cats would prove a good maze game for a newcomer to maze



games, or for the exceptionally fumble-fingered. Experienced players will find it too easy to represent any sort of challenge.

Produced for the 48K

Spectrum by Artic Computing, Main Street, Brandesburton, Driffield.

Price: £6.95
Game type: Maze
Rating: 46%

CONFUZION

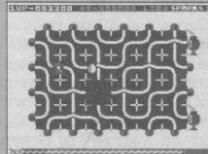
LIKE Locomotion, which is also reviewed in Softspot this month, *Confuzion* takes up the theme of the sliding puzzle in which blocks are slid into order by way of a space on the board.

The aim in *Confuzion* is to lay a fuse from the bouncing spark to bombs placed around the board. This must be done before the fuse at

the bottom of the screen burns out; and it burns faster whenever you make a mistake.

The fuse patterns are complicated, and there are two pieces of fuse to each block, making it difficult to visualise how the board will look when certain blocks have been moved.

The puzzle is easy on the early levels, with a long time limit and only



one bomb. By the end of the game though, you will be struggling with short time limits, multiple bombs, holes in the board and moving obstacles.

Confuzion does have many points in common

with Locomotion and it is likely that players will prefer whichever they play first. *Confuzion* is more frustrating, *Locomotion* is cheaper. *Confuzion* offers a wider variety of screens but consequently appears more bitty than *Locomotion*.

Confuzion is produced for the 48K Spectrum by Incentive Software, 64 London Street, Reading.

Price: £6.95
Rating: 54%

CHOCOLATE FACTORY

CHARLIE and the chocolate factory is a singular book, which looks bound to convert to an original computer game. Hill MacGibbons have done such a conversion in five parts. Four games chart the fates of those obnoxious characters Augustus Gloop, Violet Beauregarde, Veruca Salt and Mike Teavee while the fifth and longest game takes you through the chocolate factory.

The first four games

are simple arcade-style puzzles. Mike Teavee, for example, involves a platforms and ladders style game while Veruca Salt tries out a game reminiscent of *Breakout*. Augustus Gloop has the most original game, in which you must twist the pipes of a fantastic machine in order to steer Augustus to safety.

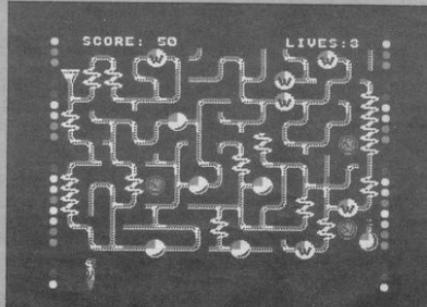
The arcade games, although difficult, hold no long term appeal, and fail to catch the anarchic humour of the book.

Charlie and the Chocolate Factory comes complete with the original book by Roald Dahl.

Produced for the 48K

Spectrum by Hill MacGibbons, 8 Grafton Street, London W1.

Price: £9.95
Rating: 53%



Questline

Runestone from Games Workshop

Cathy Foot has just saved the world from its doom. Here she suggests how you can help Morval do the same.

MY FIRST thought, on receiving the pre-publication copy of *The Runestone*, was that Games Workshop were set up to cash in on the Role Playing Game and on the *Lords of Midnight* trilogy from Beyond Software but, after a reasonable exposure to the game, I think I must admit that their similarities come from the fact that they are all based on *Dungeons & Dragons*.

One of the better points of Runestone is that, since there are three characters available, it CAN be played as a three player game — if you can agree on the length of any one turn!

The Runestone is very similar in character to the *Lords of Midnight* series and, as I know to my cost, is as difficult to map, since, although it boasts of "about 2000 locations, most of which may be visited", the sheer scale of such a game world as depicted on the Spectrum makes many of the locations indistinguishable one from the other. This can lead to problems if you are distracted while mapping, since it is not always possible to remember just how many squares of beechwood, open ground or water you have already committed to the map. All in all, I got lost on mapping runs more times than I like to think of, and can only hope that the result was worth it. Happily, the map I received with the game was sufficiently detailed for most journeys, else I would never have got the flavour of the game.

If you are doing a mapping run,

I am not sure which is worse, falling into the water (splash!!!), to emerge dripping wet, or for ever parking the boat and walking off it without ever intending to — Morval, at least, has no thought of either swimming or wading to the OTHER side of any water he might encounter — once I found me a Dragonship, it did seem that the most logical thing to do was to use it to map the river banks and the edges of the lake and the sea.

Slowly but surely the Dungeons & Dragons type role playing games are being translated to the computer-assisted small screen and I do believe that this one has its mite to add to the whole. In The Runestone you have the choice of playing Morval, who is "a dab hand with a sword", Eliador "a crack shot with a bow and arrow" or Greymarel, a wizard of sorts — all you are told about him is that he is the only one of the party capable of casting spells. All three must be present at Kordormir's fortress in order to defeat him and bring the game to an end, which can be done with as little as 40% of the total score available.

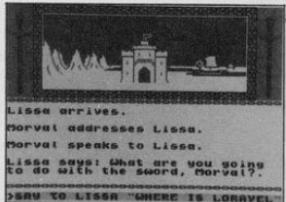
One thing I hope comes with the final booklet is a reasonable vocabulary. I received instructions on movement, on deleting or recalling commands and on changing between the three characters, but not a single clue, apart from the text shown on a couple of pictures taken from the screen.

The trick is to use good ol' "say to". They may not respond, but they will have heard you, and you will escape being sneered at by the computer. One thing, DO use "say TO", just "say" has you muttering to yourself — you cannot address the world at large.

Among the characters you will meet along your way, by far the most annoying is Skrinnal the Sly, who will steal you blind as soon as look at you — sooner, perhaps. He is referred to in the fact sheet I

received as being "another problem"; his presence annoyed me so much that I occasionally forgot that you can neither kill nor be killed in this universe, and did my best to delete Skrinnal the Sly from the list of characters as permanently as possible.

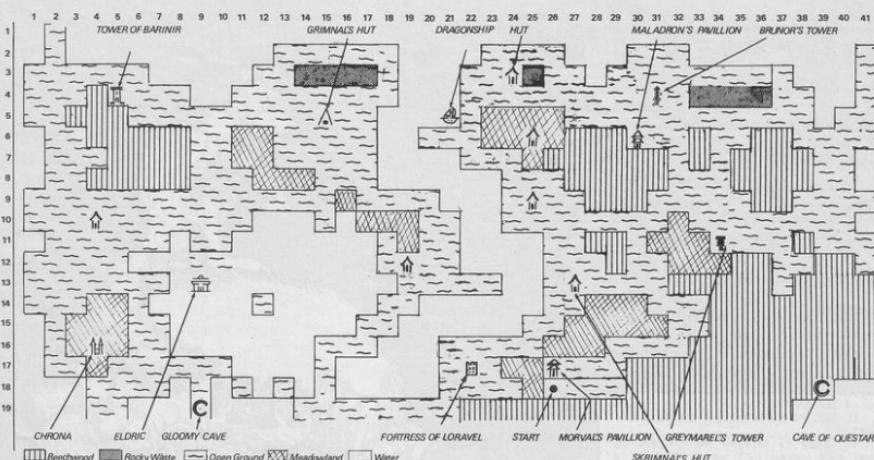
On one occasion he annoyed me while I was keeping uneasy company with a group of orcs. I aimed a blow at Skrinnal, then another, but, unfortunately for me, he dodged behind an orc, who, having taken the full brunt of the blow aimed at Skrinnal, was most annoyed and joined into the melee closely followed by his compatriots and there was I, in the middle of a full-scale battle (for this game) and all be-



cause Skrinnal could not keep his light fingers to himself!

If ever he starts enthusing about some item in his possession, you had better check your belongings — what he is holding was probably yours, and you had better get it back smartish-like. It is no good just trying to repossess your lost item, you will simply be told that it is not available at that time. Tell Skrinnal to drop everything and then give him his marching orders. That will get him out of your hair long enough for you to repossess your goods in peace.

My first attempt to change to running Eliador came at an unfortunate moment in his life. I took him over just as six orcs wandered unopposed into his tower where he was chatting with Lissa and Greymarel. These uninvited guests were later joined by



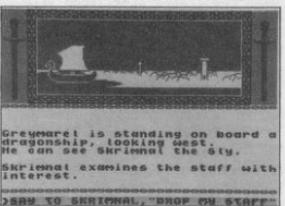
Skriminal, who was most certainly not invited — frankly, I preferred the company of the orcs, but, as it was, we ended up duffing each other over while Skriminal beat a hurried, but not a permanent, retreat.

Each of the three characters you can choose start from a recognised point, after that, it is up to you — save the world, or act the tourist whilst it digs its own grave! Just remember, as long as one of your characters is mobile, you are still in with a chance. Food and drink are essential there as here. Unfortunately, so is money — get that coin from Lissa, Maladron the Merchant holds bread and wine but is not into this charity thing. Money up front is his bag, honesty is not — be careful, you have been warned! There is a bottle of real jungle juice to get those groggy fighters back on their feet, while the Book and Staff are as essential equipment for Greymarel as the Sword, Shield and Hauberk for Morval or the Bow and Arrow for Eliador. If Eliador gets in first shot, you have a better chance to duff up those orcs!

Moral is the muscle, he needs to collect his shield and some coin, but the others have to get the party together if they are going to Save the World. Try sending Eliador to collect Eldric and

Chrona (don't forget the potion) and Greymarel, WITH his staff, to have a chat with Questor. They can all rendezvous at Loravel's fortress, before dropping in on Brunor for provisions, and inviting him to join you.

If you are mounting a full-scale expedition, Barinir can also be persuaded to join you in your quest. Perhaps you take a boat trip to his place. Eliador and Greymarel are not great fighters but are targets for the orcs, who look to Kordomir for orders. Un-



less you are into mounting rescue parties, the group is safer at sea. Don't worry if they are kidnapped, though — Morval is well capable of saving them and the world.

The Tower in the Sea is important, a heartless group could leave Chrona there — but make sure she has completed her task before you leave her to the winds of fate. Jobs to do on setting foot in the Northern Wastes include col-

lecting the inevitable ring of power, and rescuing any of the party who have been made captive by the orcs, before heading off to find Saromundor and the Talisman — for this you need Greymarel who alone can defeat Saromundor. There is also the statutory Ancient Manuscript to find before Kordomir can be destroyed.

While your main task is the perennial one of Saving the World from its Doom, extra score can be made by recovering the stolen treasure of Belorn. In fact you seem to be able to achieve a higher score by regaining the treasure than from saving the world — a 60-40 split! Oh, one more thing, your success will be celebrated in countless ballads and tales which will echo through the centuries.

I append a variorum edition of a verse from one of the ballads: it is said that this holds major clues as to how the valourous trio destroyed the power and being of Kordomir the Dark: The one may be its bearer. It may be

That two shall draw their comfort from its sight.
But three shall wield its power, and shall see
The Talisman of Zaphoril end the night.

Treasure Trail

Take part in a very speedy treasure hunt. Remember to keep adequate supplies of food, helpers and digging equipment. Above all, keep moving! Revolve right with key 8, left with key 5 and dig with key zero. The time bomb on the left of the screen is lethal, so keep as far away from it as possible.

Treasure Trail was written for the Spectrum or Spectrum Plus by Harvey Stroud of Burtonwood, Cheshire. Underlined characters are those to be entered in graphics mode.



```

1 GO SUB 9100
10 GO SUB 8000: LET gd=1: LET d=3
15 OVER 1: BRIGHT 8: GO SUB 90
00: LET x=16: LET y=11: PRINT A
T y,x: INK 6;"C": PRINT BRIGHT
1: INK 5: AT 1,31;"J"
20 LET ti=0: PAPER 8: OVER 1

40 GO SUB 3200: GO SUB 3210
100 INK 9: LET i#= INKEY#: GO
SUB 3000
101 PRINT OVER 1: AT y,x: CHR#
(143+d)
102 IF i#=0" THEN GO SUB 1000
110 IF i#=8" THEN LET d=d+1:
IF d>8 THEN LET d=1
120 IF i#=5" THEN LET d=d-1:
IF d<1 THEN LET d=8
145 GO SUB 998
147 IF x=31 AND y=1 THEN GO SU
B 8510: LET y=2: LET d=5
148 IF CODE SCREEN#(y,x)=0 T
HEN BEEP .5,.0: GO SUB 4000
149 PRINT OVER 1: AT y,x: INK
5: CHR#(143+d)
150 GO SUB 3000
200 LET st=1: PRINT OVER 0:
AT 21,21: PAPER 8: INK 8;st: "
: IF st <= 0 THEN GO SUB 4000

```

```

500 GO TO 100
998 LET x*x+((d=4 OR d=5 OR d=6
) AND x<31)-((d=1 OR d=2 OR d=8
) AND x>0): LET y=y-((d=3 OR d=2
OR d=4) AND y)+((d=8 OR d=7 OR
d=6) AND y<20)
999 RETURN
1000 IF de<1 THEN BEEP .05,-20:
RETURN
1010 LET de=d-1: LET st=st-50:
INK 8: PLOT OVER 1,0,0: DRAW 0
VER 1,y#*8+3,175-(y#8)-5
1020 PLOT OVER 1,255,0: DRAW 0
VER 1,-(255-(x#8+3)),175-(y#8)-5

```

```

1030 PLOT OVER 1,0,175: DRAW 0
VER 1,(x#8+3),-((y#8)-5)-8
1035 PLOT OVER 1,255,175: DRAW
OVER 1,-(255-(x#8+3))-1,-(y#8)-
4

```

```

1050 FOR f=1 TO 3: BEEP .1,20: N
EXT f

```

```

1060 PLOT OVER 1,0,0: DRAW O
VER 1,(x#8+3),175-(y#8)-5
1070 PLOT OVER 1,255,0: DRAW 0
VER 1,-(255-(x#8+3)),175-(y#8)-5

```

```

1075 PLOT OVER 1,0,175: DRAW 0
VER 1,(x#8+3),-((y#8)-5)-8
1080 PLOT OVER 1,255,175: DRAW
OVER 1,-(255-(x#8+3))-1,-(y#8)-
5

```

```

4
2000 PRINT PAPER 1: OVER 0: AT
0,10: TAB 32: PRINT OVER 0: INK
7: AT 0,10;"STATUS":("North "
AND y>b);("South " AND y<b);("We
st " AND x>a);("East " AND x<a)
2005 PRINT FLASH 1: PAPER 2: IN
K 6: AT y,x;"I"
2010 IF x <> a AND y <> b THEN
RETURN
2020 FOR f=-20 TO 20: PRINT AT
0,10: INK 7: OVER 0;"STATUS": P
APER RND .5+2;"Right On!": BEEP
.008,f: NEXT f: LET a=m+250: GO
SUB 9040: GO SUB 3210
2100 RETURN
3000 LET ti=ti+.0625: BEEP (ti=
INT ti)*.02,t: PRINT INK 7: OV
ER 0: AT 0,0;"Ti": 0" AND INT
ti<10: INT ti: IF INT ti < 1
0 THEN RETURN
3010 LET m=m+20: GO SUB 9040: LE
T di=0: OVER 0: LET ti=0: PRINT
AT y,x;"": FOR g=1 TO 2: FOR f
=2 TO 14 STEP 3: CIRCLE INK 8;
BRIGHT 8: OVER 1,1+bx*8+4,175-(by*
8)-4,f
3020 LET di= SCREEN#(y,x) <> 1
: NEXT f: NEXT g: GO SUB 3
200: PRINT AT y,x: INK 6: CHR#
(143+d): IF NOT di THEN RETURN
3100 GO TO 4000
3200 LET bx=3+ INT ( RND *25 ): L
ET by=5+ INT ( RND *15 ): RETURN
3210 LET a= INT ( RND *31 ): LET
bx= INT ( RND *21 ): IF ATTR ( b,a
) <> 7 THEN GO TO 3210
3220 RETURN
4000 LET mh=mh-1
4020 IF st<1 THEN PRINT AT 11,
0;"Your Men Have Died Of Exhaust
ion": FOR f=10 TO 40 STEP -5:
BEEP .35,f: NEXT f: LET mh=mh-
4030 PRINT AT 21,11; OVER 0:mh:
PRINT AT y,x: OVER 0: PAPER 0:
"
4040 FOR g=6 TO 0 STEP -3: BORDE
R g: OVER 0: LET cd=1: LET de=0:
LET fd=0: LET mh=0: LET st=500:
INK 6: BORDER 0: LET m=500
8505 PRINT AT 2,2;"5 - Decrease
8 - Increase": AT 4,10;"0 - "

```

In this game you must guide your team around the island digging for treasure. This may seem easy but their are mines, trees & notto forget the holes you dug, to avoid.

8030 PRINT INK 7;"Becareful financially as the money has to buy food for the crew and spades, ropes etc. If the crew is feeling weak then you may return to the hut (J) to restock."

8040 PRINT INK 6;"Risk money is rewarded & also treasure means # \$! but remember the AIM OF THE GAME IS TO COME OUT AS RICH AS POSSIBLE, NOT DEAD!!"

8100 PAUSE 0: PAPER 0: FOR f=0 T
O 21: LET l=1: UST 3280: PRINT IN
K 1; AT 21,0;"|||||||||||||||||||"
|||||||||||||||||||": NEXT f

8500 OVER 0: LET cd=1: LET de=0:
LET fd=0: LET mh=0: LET st=500:
INK 6: BORDER 0: LET m=500
8505 PRINT AT 2,2;"5 - Decrease
8 - Increase": AT 4,10;"0 - "

```

Select"
8510 LET pq=50: LET s$$="Digging
Equipment Sets": GO SUB 8800: LE
T d$$=d+a
8520 LET pq=200: LET s$$="Men To
Hire": GO SUB 8800: LET mh=mh+a
1
8540 LET pq=20*mh: LET s$$="Food
& drink Sets": GO SUB 8800: LET
fd=fd+a
8560 LET cd=0: LET m2=m: LET pq=
1: LET mfd: LET st$$="Feed men? ("
AMOUNT)": GO SUB 8800: LET m2=:
LET fd=fd-a: LET st$$=sta$$*100
8700 GO SUB 9045: RETURN
8800 POKE 23659,1: LET a$$=0: PRIN
T OVER 0: AT 22,0;a$$;"": TAB 3
2
8810 LET i$$= INKEY$: PRINT INK
6: OVER 0: AT 22,0+LEN s$$+2; i
NK 3;a$$: " IF i$$ <> "" THEN BE
EP,0,b
8820 IF i$$=="5" AND a$$>0 THEN LET
a$$=1: LET m$$=pq
8830 IF i$$=="8" AND m$$-pq >= 0 THE
N LET a$$=1: LET m$$=pq
8880 IF i$$=="0" THEN POKE 23659,
2: INPUT "": RETURN
8885 IF i$$ <> "" AND cd THEN PR
INT PAPER 6: INK 2: OVER 0: AT
18,2;"Money Left"; INVERSE 1;m;
PAPER 0;"(2*isp)"
8890 GO TO 8810
8900 RETURN
9000 OVER 0: PAPER 0: BORDER 0:
INK 7:CLS
9010 PRINT BRIGHT 1: PAPER 1;""
9022 FOR f=1 TO 20: LET x$$= RND *
31: LET y$$= RND *19+1: LET z$$= RND
*34+1
9030 LET c$$= INT ( RND *2): PRINT

```



```

OVER 0: AT y$$,x$$ INK z$$: CHR$(1
54+c): NEXT f
9040 PRINT AT 21,0; BRIGHT 1; P
APER 1; INK 7; OVER 0;"# ME
N: STAMINA:
9045 PRINT OVER 0: INK 7; BRIGH
T 1; PAPER 1; AT 21,1;m;"": AT
21,1;mh
9050 RETURN
9100 FOR f$$= USR "a" TO USR "m"+
7: READ a$$: POKE f$$,a$$: NEXT f$$
9120 DATA 16,48,95,129,a,95,48,1
6,252,132,136,132,162,209,10,4

```

```

9130 DATA 24,36,66,231,36,a,a,60
,63,33,17,33,69,139,80,32,8,12,2
50,129,a,250,12,8,32,80,139,69,3
3,17,33,63,60,36,a,a,231,66,36,2
4,4,10,209,162,132,136,132,252
9140 DATA 126,129,153,165,a,153,
129,126,24,36,66,-1,129,153,a,-1
9150 DATA 8,8,20,12,22,42,95,8,1
2,54,75,215,110,40,12,8,129,90,5
2,1B,82,60,90,129
9400 RETURN

```

To collect a vast quantity of jewels you must cross the fifteen rooms of a Scottish castle. Each of these rooms is inhabited by a monster which must be avoided. From time to time the monsters will drop bags of gold, tempting you to take a risk by trying to pick them up.

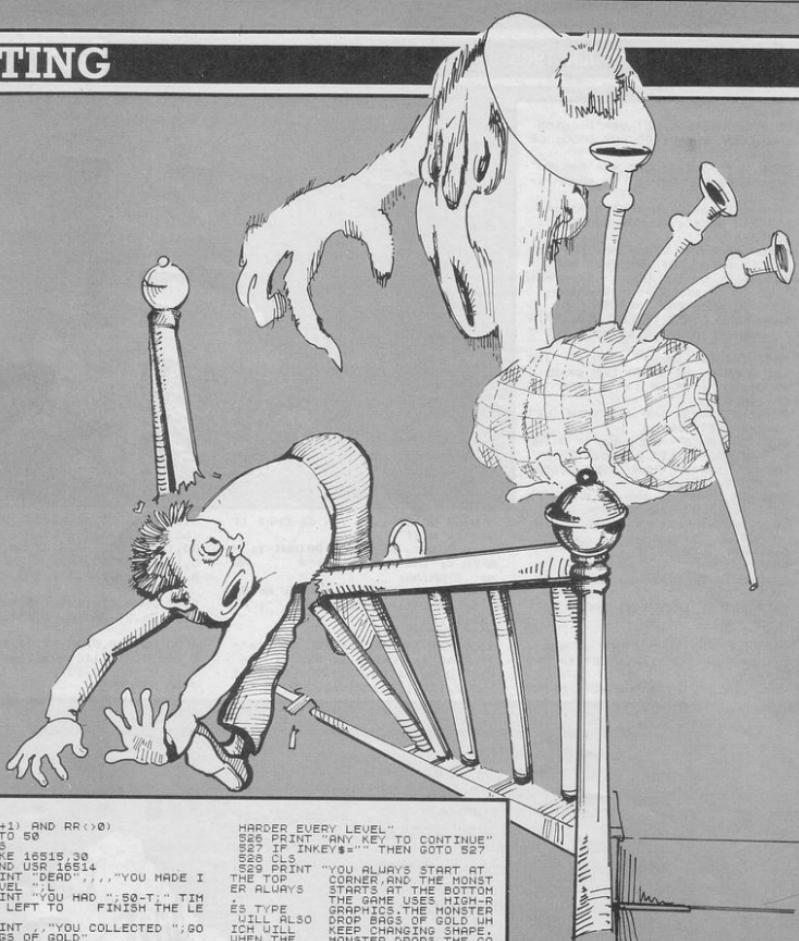
To enter line one you should originally enter 1 REM 00000. Then enter as direct commands POKE 16514,62 POKE 16515,0 POKE 16516,237 POKE 16517,71 POKE 16518,201.

Horror House was written for the 16K ZX-81 by Michael Chadwick of Heywood, Lancashire.

```

1 REM Y2 60SUB ?TRN
2 LET L=1
3 LET L$$=1
4 LET L=1
5 60SUB 500
6 PRINT "LEVEL ",L," BAGS 0
F GOLD=0: GOLD
7 60SUB 1000
8 60SUB 1000
9 60SUB 1000
10 60SUB 1000
11 60SUB 1000
12 60SUB 1000
13 60SUB 1000
14 60SUB 1000
15 LET T=0
16 LET B=4.5
17 LET B$$=4.5
18 LET D=20
19 LET E=30
20 LET F=40
21 LET G=50
22 LET H=60
23 LET I=70
24 LET J=80
25 LET K=90
26 LET L=100
27 LET M=110
28 LET N=120
29 LET O=130
30 LET P=140
31 LET Q=150
32 LET R=160
33 LET S=170
34 LET T=180
35 LET U=190
36 LET V=200
37 LET W=210
38 LET X=220
39 LET Y=230
40 LET Z=240
41 LET A=250
42 LET B=260
43 LET C=270
44 LET D=280
45 LET E=290
46 LET F=300
47 LET G=310
48 LET H=320
49 LET I=330
50 LET J=340
51 LET K=350
52 LET L=360
53 LET M=370
54 LET N=380
55 LET O=390
56 LET P=400
57 LET Q=410
58 LET R=420
59 LET S=430
60 LET T=440
61 LET U=450
62 LET V=460
63 LET W=470
64 LET X=480
65 LET Y=490
66 LET Z=500
67 LET A=510
68 LET B=520
69 LET C=530
70 LET D=540
71 LET E=550
72 LET F=560
73 LET G=570
74 LET H=580
75 LET I=590
76 LET J=600
77 LET K=610
78 LET L=620
79 LET M=630
80 LET N=640
81 LET O=650
82 LET P=660
83 LET Q=670
84 LET R=680
85 LET S=690
86 LET T=700
87 LET U=710
88 LET V=720
89 LET W=730
90 LET X=740
91 LET Y=750
92 LET Z=760
93 LET A=770
94 LET B=780
95 LET C=790
96 LET D=800
97 LET E=810
98 LET F=820
99 LET G=830
00 LET H=840
01 LET I=850
02 LET J=860
03 LET K=870
04 LET L=880
05 LET M=890
06 LET N=900
07 LET O=910
08 LET P=920
09 LET Q=930
10 LET R=940
11 LET S=950
12 LET T=960
13 LET U=970
14 LET V=980
15 LET W=990
16 LET X=1000
17 LET Y=1010
18 LET Z=1020
19 LET A=1030
20 LET B=1040
21 LET C=1050
22 LET D=1060
23 LET E=1070
24 LET F=1080
25 LET G=1090
26 LET H=1100
27 LET I=1110
28 LET J=1120
29 LET K=1130
30 LET L=1140
31 LET M=1150
32 LET N=1160
33 LET O=1170
34 LET P=1180
35 LET Q=1190
36 LET R=1200
37 LET S=1210
38 LET T=1220
39 LET U=1230
40 LET V=1240
41 LET W=1250
42 LET X=1260
43 LET Y=1270
44 LET Z=1280
45 LET A=1290
46 LET B=1300
47 LET C=1310
48 LET D=1320
49 LET E=1330
50 LET F=1340
51 LET G=1350
52 LET H=1360
53 LET I=1370
54 LET J=1380
55 LET K=1390
56 LET L=1400
57 LET M=1410
58 LET N=1420
59 LET O=1430
60 LET P=1440
61 LET Q=1450
62 LET R=1460
63 LET S=1470
64 LET T=1480
65 LET U=1490
66 LET V=1500
67 LET W=1510
68 LET X=1520
69 LET Y=1530
70 LET Z=1540
71 LET A=1550
72 LET B=1560
73 LET C=1570
74 LET D=1580
75 LET E=1590
76 LET F=1600
77 LET G=1610
78 LET H=1620
79 LET I=1630
80 LET J=1640
81 LET K=1650
82 LET L=1660
83 LET M=1670
84 LET N=1680
85 LET O=1690
86 LET P=1700
87 LET Q=1710
88 LET R=1720
89 LET S=1730
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91 LET U=1750
92 LET V=1760
93 LET W=1770
94 LET X=1780
95 LET Y=1790
96 LET Z=1800
97 LET A=1810
98 LET B=1820
99 LET C=1830
00 LET D=1840
01 LET E=1850
02 LET F=1860
03 LET G=1870
04 LET H=1880
05 LET I=1890
06 LET J=1900
07 LET K=1910
08 LET L=1920
09 LET M=1930
10 LET N=1940
11 LET O=1950
12 LET P=1960
13 LET Q=1970
14 LET R=1980
15 LET S=1990
16 LET T=2000
17 LET U=2010
18 LET V=2020
19 LET W=2030
20 LET X=2040
21 LET Y=2050
22 LET Z=2060
23 LET A=2070
24 LET B=2080
25 LET C=2090
26 LET D=2100
27 LET E=2110
28 LET F=2120
29 LET G=2130
30 LET H=2140
31 LET I=2150
32 LET J=2160
33 LET K=2170
34 LET L=2180
35 LET M=2190
36 LET N=2200
37 LET O=2210
38 LET P=2220
39 LET Q=2230
40 LET R=2240
41 LET S=2250
42 LET T=2260
43 LET U=2270
44 LET V=2280
45 LET W=2290
46 LET X=2300
47 LET Y=2310
48 LET Z=2320
49 LET A=2330
50 LET B=2340
51 LET C=2350
52 LET D=2360
53 LET E=2370
54 LET F=2380
55 LET G=2390
56 LET H=2400
57 LET I=2410
58 LET J=2420
59 LET K=2430
60 LET L=2440
61 LET M=2450
62 LET N=2460
63 LET O=2470
64 LET P=2480
65 LET Q=2490
66 LET R=2500
67 LET S=2510
68 LET T=2520
69 LET U=2530
70 LET V=2540
71 LET W=2550
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74 LET Z=2580
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15 LET O=2990
16 LET P=3000
17 LET Q=3010
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29 LET C=3130
30 LET D=3140
31 LET E=3150
32 LET F=3160
33 LET G=3170
34 LET H=3180
35 LET I=3190
36 LET J=3200
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39 LET M=3230
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14 LET J=3980
15 LET K=3990
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25 LET U=4090
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29 LET Y=4130
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31 LET A=4150
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33 LET C=4170
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35 LET E=4190
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41 LET K=4250
42 LET L=4260
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44 LET N=4280
45 LET O=4290
46 LET P=4300
47 LET Q=4310
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53 LET W=4370
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14 LET F=4980
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31 LET W=5150
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43 LET I=5270
44 LET J=5280
45 LET K=5290
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55 LET U=5390
56 LET V=5400
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63 LET C=5470
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80 LET T=5640
81 LET U=5650
82 LET V=5660
83 LET W=5670
84 LET X=5680
85 LET Y=5690
86 LET Z=5700
87 LET A=5710
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06 LET T=5900
07 LET U=5910
08 LET V=5920
09 LET W=5930
10 LET X=5940
11 LET Y=5950
12 LET Z=5960
13 LET A=5970
14 LET B=5980
15 LET C=5990
16 LET D=6000
17 LET E=6010
18 LET F=6020
19 LET G=6030
20 LET H=6040
21 LET I=6050
22 LET J=6060
23 LET K=6070
24 LET L=6080
25 LET M=6090
26 LET N=6100
27 LET O=6110
28 LET P=6120
29 LET Q=6130
30 LET R=6140
31 LET S=6150
32 LET T=6160
33 LET U=6170
34 LET V=6180
35 LET W=6190
36 LET X=6200
37 LET Y=6210
38 LET Z=6220
39 LET A=6230
40 LET B=6240
41 LET C=6250
42 LET D=6260
43 LET E=6270
44 LET F=6280
45 LET G=6290
46 LET H=6300
47 LET I=6310
48 LET J=6320
49 LET K=6330
50 LET L=6340
51 LET M=6350
52 LET N=6360
53 LET O=6370
54 LET P=6380
55 LET Q=6390
56 LET R=6400
57 LET S=6410
58 LET T=6420
59 LET U=6430
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85 LET U=6690
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34 LET R=7180
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12 LET J=9960
13 LET K=9970
14 LET L=9980
15 LET M=9990
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17 LET O=10010
18 LET P=10020
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43 LET O=10270
44 LET P=10280
45 LET Q=10290
46 LET R=10300
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49 LET U=10330
50 LET V=10340
51 LET W=10350
52 LET X=10360
53 LET Y=10370
54 LET Z=10380
55 LET A=10390
56 LET B=10400
57 LET C=10410
58 LET D=10420
59 LET E=10430
60 LET F=10440
61 LET G=10450
62 LET H=10460
63 LET I=10470
64 LET J=10480
65 LET K=10490
66 LET L=10500
67 LET M=10510
68 LET N=10520
69 LET O=10530
70 LET P=10540
71 LET Q=10550
72 LET R=10560
73 LET S=10570
74 LET T=10580
75 LET U=10590
76 LET V=10600
77 LET W=10610
78 LET X=10620
79 LET Y=10630
```

LISTING



```

RND=60+1) AND RR<>0)
110 GOTO 50
120
130 POKC 1515,30
135 RAND USA 16514
140 PRINT "DEAD",":","YOU MADE"
145 PRINT "UNITS LEFT TO FINISH THE LI"
150 PRINT "UNITS LEFT TO FINISH THE LI"
155 PRINT "YOU HAD":$0-T: TI"
160 PRINT "UNITS LEFT TO FINISH THE LI"
165 PRINT "YOU COLLECTED":$0-L: TI"
170 PRINT "KEY TO PLAY":$0-L: TI"
175 LD$ "BAGS OF GOLD"
180 PRINT "TOTAL SCORE":$0-L: TI"
185
190 RUN
195 CLS
200 POKC 1515,30
205 RAND USA 16514
210 LET L=L+2
215 LET J=J+2
220 GOTO 5
225
230 LET B$="R"
235 LET B$="R"
240 IF L=2 THEN LET A$="E"
245 IF L=4 THEN LET A$="N"
250 IF L=5 THEN LET A$="S"
255 IF L=6 THEN LET A$="O"
260 IF L=7 THEN LET A$="D"
265 IF L=8 THEN LET A$="I"
270 IF L=9 THEN LET A$="U"
275 IF L=10 THEN LET A$="Z"
280 IF L=11 THEN LET A$="P"
285 IF L=12 THEN LET A$="T"
290 IF L=13 THEN LET A$="H"
295 IF L=14 THEN LET A$="G"
300 IF L=15 THEN LET A$="V"
305 IF L=16 THEN LET A$="U"
310 IF L=17 THEN LET A$="I"
315 IF L=18 THEN LET A$="O"
320 IF L=19 THEN LET A$="D"
325 IF L=20 THEN LET A$="E"
330 IF L=21 THEN GOTO 600
335
340 RETURN
345 CLS
350 PRINT " HORIZON HOUSE"

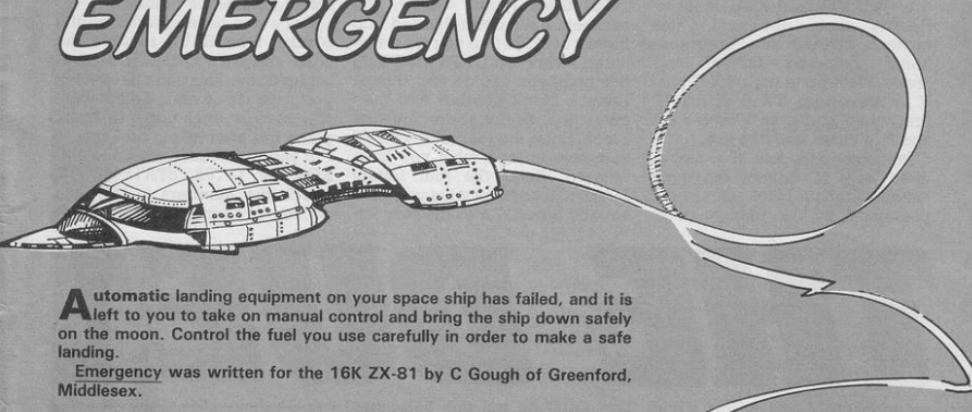
```

```

HARDER EVERY LEVEL"
520 PRINT "ANY KEY TO CONTINUE"
527 IF INKEY$="" THEN GOTO 527
529 CLS
530 PRINT "YOU ALWAYS START AT
THE TOP CORNER AND THE MONST
ER ALWAYS STARTS AT THE BOTTOM
531 ES TYPE THE SAME USED TO
532 WILL ALSO GRAPHICS, THE MONSTER
533 WHEN THE DROPS BAGS OF GOLD UP
534 LD THE MONSTER DROPS THE GOLD
535 BARS, SOMETIMES THERE IS GOLD
536 ALREADY THERE.
537 CLS
538 PRINT ",USE CURSOR KEYS TO
539 MOVE"
540 LET GOLD=0
541 LET X$1=0
542 LET X$2=0
543 LET S$=0
544 IF INKEY$="" THEN GOTO 550
545 CLS
546 RETURN
547 POKE 16515,30
548 POKE 16515,30
549 POKE 16515,30
550 PRINT "YOU, YOU HAVE DONE IT, AN
D YOU HAVE FOUND SOME JEWELS, YOU
551 REPORT BACK TO BASE AND GET A
552 PROMOTION"
553 FOR G1=1 TO 100
554 NEXT G1
555 FOR I1=1 TO 30
556 POKE 16515,I
557 FOR I2=1 TO 30
558 POKE 16515,I
559 NEXT I2
560 PRINT "ANY KEY TO PLAY AGAIN"
561 CLS
562 IF INKEY$="" THEN GOTO 510
563 CLS

```

EMERGENCY



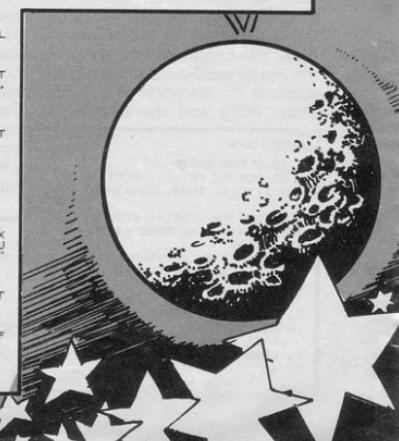
Automatic landing equipment on your space ship has failed, and it is left to you to take on manual control and bring the ship down safely on the moon. Control the fuel you use carefully in order to make a safe landing.

Emergency was written for the 16K ZX-81 by C Gough of Greenford, Middlesex.

```

1000 DIM Y$(3)
1010 PRINT "HOUSTON CONTROL CALL
ING APOLLO 99."
1014 FOR J=1 TO 1000
1020 PRINT AT 8,6,"THIS IS AN EM
ERGENCY"
1022 NEXT J
1025 CLS
1030 PRINT "YOUR AUTOMATIC LANDI
NG COMPUTER HAS CRASHED AND MANU
AL CONTROL IS NECESSARY."
1031 PRINT
1032 PRINT "YOU MAY RESET THE FU
EL BURN RATE TO ZERO OR TO ANY VA
LUE BETWEEN 8 AND 200 LBS PER SE
COND."
1041 PRINT
1050 PRINT "YOUR CAPSULE WEIGHS
32500 LBS., AND YOU HAVE 16000 L
BS OF FUEL."
1051 PRINT
1050 PRINT "THE ESTIMATED FREE-F
ALL IMPACT TIME IS 120 SECONDS.
1061 PRINT
1070 PRINT "THE RADAR WILL INFOR
M YOU OF YOUR STATUS EVERY 10
SECONDS."
1071 PRINT
1081 PRINT "GOOD LUCK APOLLO 99.
1081 PRINT"
1083 PRINT "PRESS ANY KEY TO CON
TINUE"
1086 IF INKEY$="" THEN GOTO 1086
1025 CLS
1030 PRINT AT 7,0;"ENTERING MAIN
PROGRAM"
1316 PRINT
1320 FOR R=5 TO 0 STEP -1
1330 PRINT AT 15-R,12-R,R
1332 PAGE 10
1340 NEXT R
1350 LET A=120
1351 LET B=0
1352 LET U=3
1353 LET M=33000
1360 LET N=16500
1361 LET T=.001
1362 LET Z=.8
2100 SCROLL
2101 PRINT AT 17,0;"THE MOON"
2102 PRINT SECS MILES/FEET M
PH
LBS
1203 PRINT
2105 PRINT L:TRB-(?);INT(A):TRB
(12):INT((5200*(A-INT(A))):TRB
(12):INT((3600*U)):TRB (26):INT
(M))
2106 SCROLL
2107 PRINT
2108 SCROLL
2109 SCROLL
2110 PRINT "ENTER THE FUEL RATE"
2120 SCROLL
2275 INPUT K
2285 PRINT AT 20,22;"=";K
2286 SCROLL
2287 IF K<0 THEN GOTO 2700
2288 IF K>200 THEN GOTO 2700
2701 IF K>200 THEN GOTO 2700
2702 IF K<8 THEN GOTO 2710
2703 IF K>8 THEN GOTO 3100
2710 IF K>8 THEN GOTO 3100
2720 PRINT "THIS IS NOT POSSIBLE
2725 SCROLL
2728 PRINT
2729 SCROLL
2748 GOTO 5110
3100 IF M-N,.001 THEN GOTO 4100
3200 IF T,.001 THEN GOTO 2105
3300 LET U=1
3400 IF N-S*(H-N)/K THEN GOTO 3500
3450 LET S=S*(H-N)/K
3500 GOTO 5100
3550 IF J=1000 THEN GOTO 7100
3560 IF V>0 THEN GOTO 3600
3700 IF U>0 THEN GOTO 8100
3750 LET U=U-1
3800 GOTO 5100
4100 CLS
4105 PRINT "YOUR FUEL RAN OUT AT
TER"
4110 PRINT AT 8,6;"FUEL IS IMM
EDIATELY"
4115 LET U=INT (3600*U)
5100 PRINT "THE IMPACT VELOCITY
IS",U," MPH"
5130 PRINT
5132 PRINT "THE AMOUNT OF FUEL L
EFT IS",U,INT (M-N),"; LET S=
5200 PRINT
5201 LET U=10 THEN GOTO 5500
5400 PRINT "CONGRATULATIONS THAT
UAS A PERFECT LANDING...."
5441 PRINT"
5450 GOTO 5900
5500 IF U>20 THEN GOTO 5600
5505 PRINT "NOT BAD COULD BE BET
TER"
5555 PRINT
5575 GOTO 5900
5600 IF U>30 THEN GOTO 5700
5650 PRINT "THAT WAS A DREADFUL
LANDING...."
5675 PRINT
5700 GOTO 5900
5750 IF U>70 THEN GOTO 5800
5750 PRINT "YOU HAVE SUFFERED EX
TERIOR CRAFT DAMAGE AND COU
LD NEVER RETURN TO EARTH...."
5755 PRINT
5775 GOTO 5900
5800 PRINT "YOU LIVED BUT YOU LANDED MUCH TOO
FAST, YOUR CRAFT EXPLODED AND T
HERE WERE NO SURVIVORS."
5820 PRINT
5830 PRINT "IN FACT YOU CREATED
A NEW CRATER";INT (U+.277777); F
EET DEEP"
5850 PRINT
5870 PRINT
5900 PRINT "TRY AGAIN? Y/N"
5965 IF INKEY$="Y" THEN GOTO 122
5970 IF INKEY$="N" THEN GOTO 598
5975 GOTO 5950
5980 PRINT
5981 PRINT "THIS IS HOUSTON CONT
ROLL SAYING OVER AND OUT....."
5985 STOP
5100 LET L=L+5
5200 LET T=T-5
5300 LET U=U-5*K
5400 LET R=R-1
5500 LET U=J
5600 RETURN
5700 LET S=S-3005 THEN GOTO 5100
5700 LET S=2*U/(V-SQR (U+U+R*(G-
Z*K)))^1/2
5750 GOSUB 5100
5760 GOSUB 5100
5750 GOTO 7100
5800 LET U=(1-H*G)/(Z*K)/(U+50R (U+U-
Z*Z))^.5
5850 GOSUB 9100
5900 IF I=1 THEN GOTO 7100
5950 IF U=0 THEN GOTO 3100
6000 GOTO 3100
9100 LET U=V
9200 LET U=U+G*5+Z*(-0-0+*2/2-0-
*3/4)
9300 LET I=I+1
9400 LET I=I-G+5*5/2-U+5+Z+5*(0/
2+0+*2/6+0+*3/12)
9500 RETURN
9999 STOP

```



THE DUEL is a two player game in which the players must each use their skill and judgement to destroy their opponent. The game is divided into three sections, including fifteen skill levels. Player one uses Z,X,C and V to move and CAPS SHIFT to fire, while player two uses 6,7,8 and 9 to move and 0 to fire.

In game one, use the movement keys to deflect the ever moving fireball. Lives left are represented by the energy rings

numbers are eight numbers of machine code.

To make typing easier, the numbers have been divided into blocks of 32. Before you type anything, switch on CAPS LOCK. At this point you can do four things. Enter a block number and then enter the 32 numbers for that block. Enter the four letters SAVE and save to tape what you have entered. Enter the four letters LOAD to load back what you have already typed. Enter the four let-

ters BEEP and you will then return to the stage where you are asked for a block number.

Once you have entered all the blocks, type SAVE to save the tape, and then QUIT. Now load listing three. This will check what you have typed and, if all is well, will save a final copy to tape; place this after listing one.

If you receive the message ERROR IN DATA STATEMENTS, check the numbers in the data section of listing three and then

THE DUEL

around you. A life is lost if the fireball passes you and reaches the edge of the screen.

In game two, guide your laser bike over a 64×64 grid, avoiding your trail and your opponent's trail. To make matters more difficult, you can only see a small portion of the grid at any one time.

In game three, move your tank around the maze. Press the fire key to launch a missile at your opponent. Lives are represented by coloured squares at the bottom of the screen.

To enter

Enter and SAVE listing one. Take another tape, enter and SAVE listings two and three. Now reload listing two, and RUN it. Look at listing four, this is the machine code that makes up the game, written in hexadecimal form. The number on the far left is the block number, the next is the address in memory of the machine code and the next eight

letters QUIT to tell the computer that you have finished.

If you select the first option by entering a block number, you will be confronted by a display which looks rather like listing four. Try typing in a few numbers to see what happens. Notice that if you



press enter without entering a number, the next number that you enter will be the first number in the next row of eight.

If you make a typing error and receive the report B: Integer out of range, type RUN. You will find that the numbers are still there. Look at the numbers on the black background above the numbers that you typed in. These are the numbers that were there before you entered your numbers.

Once you have entered all numbers in one block you will

listing two

```
10 CLEAR 26999
20 DEF FN x$(x) = (CODE x$-48 AND x$ < "9") + (CODE x$-55 AND x$ >= "A")
40 INPUT "BLOCK NUMBER? "; LIN E a$: IF a$="QUIT" THEN BEEP 1,3: STOP
50 IF a$="SAVE" THEN BEEP 1,3: LOAD "DUEL CODE" CODE 27000,4523: GO TO 40
60 IF a$="LOAD" THEN BEEP 1,1: LOAD "DUEL CODE" CODE : GO TO 40
70 IF LEN a$ <> 2 THEN BEEP
```

```
.1,0: GO TO 40
80 GO SUB 210: LET h=27000+y*3
2: LET a=y: GO SUB 180: PRINT a$: "
90 FOR n=0 TO 3: IF n <> 0 THEN N PRINT " ";
100 LET a=INT ((h+B*n)/256): LET b=h+B*n-256*a: GO SUB 180: PR INT x$: LET a=GO SUB 180: PR INT x$: "
110 FOR f=0 TO 7: LET a=PEEK (h+B*n+f): GO SUB 180: PRINT " ";
INVERSE 1:y$: NEXT f
120 PRINT " ";
130 INPUT "HEX.? "; LINE a$: IF
```

listing one

```
10 CLEAR 26999: LOAD "DUEL CO DE" CODE
20 BORDER 1: PAPER 0: INK 6: R ANDOMIZE : CLS
30 RANDOMIZE USR 27000: GO TO 30
9999 SAVE "THE DUEL" LINE 0: SAV E "DUEL CODE" CODE 27000,31523 -27000
```

save it to tape once again. Now rerun it.

If the program tells you that there is an error in one of the blocks, make a list of the block number, reload listing two and run it. Enter the block number you have been given, and correct the mistakes in that block. Repeat this exercise until the computer tells you that all is well. After saving it, you can load and run listing one which will load the machine code and allow you to play the game.

Duel was written for the 48K Spectrum by Roger S Allen of Gerrards Cross, Bucks.

```
a$="" THEN BEEP .1,-10: PRINT : GO TO 160
140 IF LEN a$ <> 2 THEN BEEP 1,0: GO TO 130
150 PRINT " "; a$: GO SUB 210: POKE (h+B*n+m),y: NEXT m
160 NEXT N: BEEP 1,20: PRINT " ";
LET h=h+321: GO TO 40
170 STOP
180 LET x= INT (a/16): LET y=a- x*16
190 LET x$= FN x$(x)+ FN x$(y)
200 RETURN
210 LET y=16* FN x*(a$(1))+ FN x*(a$(2))
220 RETURN
```

listing three

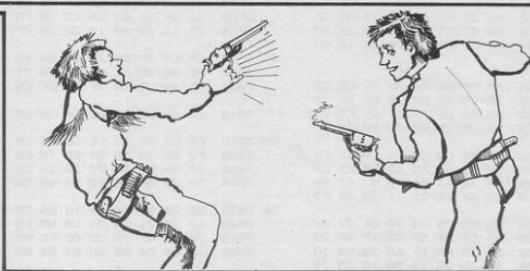
```
10 DEF FN x$(x)=( CHR# (48+x)
AND x<10)+CHR (55+x) AND x>9)
```

```
20 RESTORE : LET x=0: FOR n=0
TO 141: READ a: LET x=x+a: NEXT
n: IF x < > 414061 THEN PRINT A
T 10,4;"ERROR IN DATA STATEMENTS
": STOP
30 RESTORE : FOR n=0 TO 141
40 LET x=0: FOR m=27000 TO 270
31: LET x=x+PEEK (m+n*32)
50 NEXT m: READ a: IF a < > x
HEN LET a=a: GO SUB 90: PRINT
AT 10,7;"ERROR IN BLOCK "x$": ST
OP
60 LET a=a: GO SUB 90: PRINT
AT 5,7;"BLOCK "x$": VERIFIED":
NEXT n
```

```
70 PRINT AT 10,5;"VERIFICATIO
N COMPLETE": AT 15,6;"NOW SAVING
TO TAPE"
80 SAVE "DUEL CODE" CODE 270
00,4523: STOP
90 LET x=INT (a/16): LET y=a-
x*16
100 LET x#=FN x$(x)+FN x$(y)
```

110 RETURN

```
120 DATA 2891,3226,2589,3083,45
28,2903,3266,3130,2695,2727,2232
```



```
,2536,2016,4432,3065,4164,2908,2
296,2705,2942,3501
130 DATA 4172,4293,4546,4501,47
62,3021,3398,4155,3717,3051,4008
,3193,4437,3343,3963,4352,2594,2
343,2615,4041,3777
140 DATA 3968,3599,2963,3919,30
83,2027,2386,2582,4668,3642,3719
,3292,2482,2706,4358,4648,4172,3
774,2887,3625,4656
150 DATA 2469,2659,2046,2883,29
35,3189,3809,4012,3940,3149,3744
,2856,3560,3481,3450,3312,3260,2
```

453,3147,3083,1921

```
160 DATA 2412,3777,3204,4460,39
34,3359,3778,3254,3655,4190,3683
,3349,3392,2233,3702,4252,4896,4
251,1718,3918,2957
170 DATA 2031,1356,1637,1862,77
31,467,749,1232,1664,1951,1368,18
73,1104,1199,851
180 DATA 1061,1453,2095,2298,21
68,2452,1821,1838,2194,1769,2314
,2276,2600,1995,1916,1479,310,67
5,138,548,3969,1966
```

listing four

```
00 6979 CD 6B 8D 3E 32 CD 76 70
```

```
00 6A6B FE 38 20 00 21 01 91 11
6A6B DC 71 1B 05 21 03 21 11
6A6B 30 6C 18 BD FE 31 20 1C
6A6B 7E FE 30 20 05 21 03 85
```

```
6C6B C5 CD 25 70 DD 22 B3 B3 76
6C6B CD 3A 7D DD 22 B3 76 C1
6C70 11 B5 76 CD 00 6E CD F0
```

```
6980 21 CB 5B 3E 01 16 18 1E
6980 02 CD 0D 6F 3E 64 11 81
6979 68 01 41 BC CD 21 6B 3E
```

```
0C 6AFB 18 15 FE 31 20 05 21 02
6B00 59 18 0C FE 32 20 05 21
6B00 04 B1 18 03 21 05 14 22
6B10 BD 76 11 BF 6B 01 47 67
```

```
6C7B 6D 06 FF CD FA 6F 11 AA
6C80 76 01 FE FC 5D 25 70
6C80 DD 24 B1 76 CD 3A 6F DD
6C90 22 B1 76 C1 11 B9 76 CD
```

```
01 6979 CD 13 81 41 90 CD 21 6B
6980 01 18 25 CD D9 0D 21 93
6980 6B 7D 7A 20 CD 74 70 01
6980 1C 1A CD D9 0D 21 A6 6B
```

```
0D 6B1B 36 9C 2D 11 6B CD 74 70
6B20 32 6E 6B D5 CD AA 22
6B30 CD 76 70 C9 D5 E5 E5 ED
```

```
6C9B D0 6E CD F0 6D 06 FA CD
6CA0 FA 6F 01 13 17 CD 99 0D
6CA0 CD 8C 70 08 AC CD C5
6CB0 70 C5 CD AA 22 C1 CD DB
```

```
02 6980 CD 7A 70 FA 32 08 5C 06
6980 07 21 88 SE 02 16 10
69C8 5B CD 0D 6F 0E 28 76 3A
6980 08 SC 57 20 08 0B 28 F6
```

```
0E 6B3B 4B 36 5C 26 00 6F 29 29
6B40 29 09 D1 3E 0B 0B E5 D5
6B40 7E 06 0B 1F 5C CB 1A CB
6B50 1B F1 CB 1A CB 1B 10 F3
```

```
6C9B 6F C9 67 18 47 18 87 3B
6C9B 27 3B 57 48 56 77 6B
6CD0 37 8B 47 98 57 A6 87 B8
```

```
03 69DB 05 29 E6 18 E2 21 04 04
69E8 22 B7 2F 21 30 38 22 C5
69E8 6B CD 86 EA CD 72 0D
69FB 66 6A 21 6A 70 36 0B E5
```

```
0F 6B5B E1 72 23 73 CD 9F 70 73
6B60 72 2D 09 F0 7D 01 E3 B2
6B60 08 3D 20 09 76 03 32 CD
6B70 FA 6F 7B C6 14 47 CD FA
```

```
6CDB 27 BB 67 DB 47 DB FF 46
6CE0 12 13 13 10 FB C9 01 21
6CE0 2E CD 09 0D CD 24 6D 01
6CF0 21 18 CD 09 0D CD 24 6D
```

```
04 69FB CD 7C 71 E1 36 04 CD 06
6A00 6A CD 06 6B 18 E3 SE F0
```

```
10 6B7B 6F E1 23 23 D1 13 C3 29
6B80 6B 5F 3F 5F 5F 5F 5F 5F
6B80 5F FF 54 4B 45 26 44 55
6B90 45 4C FF 10 07 11 00 42
```

```
1C 6CFB DD 2A B1 76 ED 4B A7 76
6D00 78 41 4F CD C5 7B 0D 2A
6D00 B3 76 ED 4B C6 78 41
6D10 4F CD CS 70 01 1E 2E CD
```

```
6A00 06 FA F5 CD FA 6F 7B D6
6A10 0A 47 F1 BB 20 FA D6 0A
```

```
1D 6D1B D9 0D 21 DF 76 CD 7A 70
6D20 01 13 17 CD 09 0D CD BC
6D20 7B C9 3E 04 32 8C 5C 06
6D30 40 3E BB D7 10 FB C9 E5
```

```
05 6A1B 2B EE CD 6B 0D 6E 32 CD
6A2B 76 78 3A 7F 67 A7 28
6A2B 3E 32 3C FF 6B 21 0B 58
6A3B 3E 14 16 2B 1E 03 CD DD
```

```
1E 6D3B D5 2A 76 5C 54 5B 29 29
6D40 29 19 29 29 11 22 76 SC
6D40 7C D1 E1 C9 1E 21 00
6D50 7C CD 37 6D FE 0E 30 F9
```

```
06 6A3B 6F 01 18 67 11 CB 6B 3E
6A4B 32 CD 21 6B 21 0B 5C 36
6A4B 06 0B 0D CD FA 6F 7B ED
6A5B 44 47 CD FA 6F 7B ED 44
```

```
1F 6D5B E6 0F 57 D6 07 ED 44 77
6D60 78 92 57 23 CD 37 6D E6
6D60 0F F5 06 07 F1 B1 23
6D70 72 23 77 28 C5 CD 09 6D
```

```
07 6A5B C6 05 47 3A 0B 5C A7 28
6A6B EA C1 C9 3A CB 76 A7 28
6A6B 04 3E 31 18 BB 21 C6 6B
6A7B 7E 3C FE 3A 20 0B 28 34
```

```
20 6D7B C1 23 23 1D 20 D3 06 2B
6D80 21 06 7C 0E 1E 03 C5 3E
6D80 29 98 C6 14 CB 27 CB 27
6D90 47 CD FA 6F 7B C9 04 47
```

```
08 6A7B 23 3E 30 77 2B 7E 23 FE
6A8B 38 2B 69 7E FE 31 28 07
6A8B 21 02 59 3E FE 18 44 FE
6A9B 32 2B 8C 21 01 91 11 F4
```

```
21 6D9B CD FA 6F CD 37 6D 47 CD
6DAB FA 6F C1 E1 C5 54 23 SE
6DAB 23 CD 09 6D 7B 02 FE CB
6D80 38 01 AF FE 9F 38 02 3E
```

```
09 6A9B 71 ED 53 DA 71 18 70 FE
6A9B 33 2B 8C 21 03 21 11 43
6A9C 6C ED 53 2E 6C 6B 6E FE
6A9C 34 2B 8C 21 03 08 15 87
```

```
22 6DBB 9F 47 7B 79 83 FE F7 3B
continued on p 28
```

```
0A 6A8B FE 35 2B 85 21 02 59 18
6A8B 4E FE 36 29 05 21 04 B1
6A8B 18 45 FE 37 20 0B 21 02
6A8B 59 3E 04 32 DE 76 1B 37
```

```
17 6C5B 74 7B 11 AF 76 01 FE EF
```

6DC0	02 3E F7 FE 08 30 02 3E	6FD0	19 DD 7E FB FE FF C0 11	7240	42 5B CD 49 73 21 42 40
6DCB	08 4F 23 71 2B CD D9 6D	6FB0	91 FF DD 19 C9 F5 7A 32	7248	CD A5 72 11 AF 76 01 FE
6DD0	23 23 C1 0D 2B CE 1B 0B	6FE0	E9 6F 7B 32 EB 6F F1 E5	7250	EF CD 25 70 CD BD 73 11
23 6DD8	C9 E5 D5 46 23 4E C5 CD	6F80	16 20 36 03 23'15 28 FA	47 7258	52 5B CD 49 73 21 52 40
6DE0	AA 22 47 04 3E FE 0F 10	6F80	E1 11 20 00 19 3D 2B EF	7260	CD A5 72 01 13 19 CD 09
6DEB	FD AE 2F 77 C1 D1 E1 C9	7010	2F CB E7 D3 FE 60 25 28	7268	0D CD 8C 70 CA AC 74 18
6DF0	7E A7 20 0A CD 1F 74 01	7010	3A 4B 5C CB 2F CB 2F CB	7270	C2 16 06 C5 D5 CS CD E5
24 6DF8	BB 04 CD 23 74 C9 1A F5	7008	0C 80 3F FC CB 21 CB 21	48 7278	22 01 00 57 11 00 FF CD
6E00	CD F5 6E E5 62 6B E5 CD	7008	4F 2B 04 06 01 18 16 CB	7280	B4 24 C1 79 C6 18 AF D1
6E08	BB 20 01 D1 7B 82 47 79	7038	57 2B 04 06 02 18 0E CB	7288	15 2B E9 C1 16 06 03 C5
6E10	B3 4F 7B 23 71 23 34 F1	7038	57 2B 04 06 02 18 0E CB	7290	CD E5 22 01 51 00 1E 01
25 6E18	E5 3D 2B 15 7B D6 07 57	36 7038	5F 2B 04 06 04 18 06 CB	7298	CD B4 24 C1 78 D6 18 47
6E20	79 C6 0E 5F CD 1F 6F 20	7040	67 2B 21 06 03 1A BB F5	7298	FD 72 C9 CD BB 72 C9 06
6E26	56 15 CD 1F 6F 20 50 18	7040	78 FE AF 7B 28 00 FE 03	72C8	0A 76 C5 54 51 21 28 00
6E30	45 3D 2B 15 58 15 15 79	7050	30 04 C6 02 18 02 D4 02	72C8	7B 07 07 07 E6 07 E6 07 FE 07
26 6E38	C6 0B 5F CD 1F 6F 20 06	37 7058	C1 BB F5 12 F1 2B 05 13	72D0	2B 03 21 20 07 19 E5 01
6E40	1C 1D 2F 6B 28 14 18	7060	3E FF 2B 1B 13 1A 3D 3D	7060	10 00 00 00 00 00 00 00
6E48	36 3D 2B 17 7B 06 07 57	7060	12 1B 04 47 CD FA 6F 1B	4B 72D8	10 00 ED BB E1 C1 10 E2
6E50	59 1C 1C 1C CD 1F 6F 20	7070	1B 1B 1B C9 06 64 76 1B	72E0	EB 21 C0 FF 19 01 0C 00
27 6E58	06 15 CD 1F 6F 28 17 1D	38 7078	FD C9 7E FE FF C0 23 07	72E8	7E FE FF 2B 00 12 13 0D
6E60	1D 1B 1C 7B D6 0D 57 79	7008	18 4F 26 23 04 E5 CD 85	72F0	2B FB CD 20 74 CD 28 74
6E68	C6 0B 5F CD 1F 6F 20 0F	7008	78 E1 23 C9 21 BD 76 46	4C 72F8	C9 ED B0 18 F5 CD 28 74
6E70	1C 1D 2F 6B 28 09 CD 95	7008	23 4E 0B 71 CB 7B 78 FE	7300	06 00 ED BB 1A FE FF 2B
28 6E78	70 E1 44 CD FA 6F C9 E1	39 7098	FF CB CD 2B 1A A7 C9 24	7310	09 FE 00 20 04 3E 00 18
6E80	7D FE BB 20 0C 21 AE 76	7040	7C E6 07 02 TD 7C 2B 6F	7040	01 AF 12 E1 C0 9F 70 C1
6E88	01 A7 76 2D 2A B1 76 1B	7040	7C 9F E6 FB 84 67 C9 2B	7328	10 E9 C9 D5 21 00 7C 58
6E90	0A 21 A9 76 01 AC 76 DD	7040	7C B5 2B FB C9 7B DD BE	7328	16 00 CB 23 CB 23 03
29 6E98	2A B3 76 36 00 0A 14 14	3A 7098	FB 76 3B 09 09 66 FE CD 05	7330	CB 12 CB 23 CB 12 19 16
6EAB	13 3C BA D6 0C BA D0	7098	66 FD CD AF 70 C5 DD E5	7330	CB 12 CB 23 CB 12 19 16
6EAB	03 0A 3C 3C BB D6 0C	7098	3E AF 9B 30 0C 47 37 1F	4E 7338	00 59 CB 2B CB 19 CB
6E8B	BB D6 0B 69 2B CD 82 70	7098	47 0B 0A 0B 0B 0B 0B 0B	7340	23 CB 23 79 93 87 01 3C
2A 6E8B	DI 05 CD 4C 6D E1 7D FE	3B 7098	03 CD AA 22 DD 5E FE DD	7348	C9 7E 23 D6 05 38 02 C6
6EC0	49 2B 05 21 BF 76 1B 03	7098	46 FF CB 2B CB 2B CB 2B	7350	40 47 TE 0D 06 06 38 02 C6
6ECB	21 C0 76 35 CB C3 D6 6B	7098	3C 4B E5 CS FE 05 38 1B	7098	4F 7358 40 AF 23 E3 CD 23 73
6ED0	ED 7B 46 23 4B 23 CB 47	7098	4F DD 56 0B 06 00 3F CB	7368	F5 CD 1F 74 F1 0E 0B 06
2B 6ED8	C8 7E AF 36 01 E5 23	3C 7098	1A CB 1B 0D 2B F9 1B 18	7368	0E E5 C5 47 4E 05 28 04
6EE0	7E 12 D5 CD F5 6E 7B 12	7100	16 00 DD 46 0B 0D 0B 0D	7370	CB 19 1F 47 79 E6 03
6EE9	79 13 12 13 3E 1E 12 CD	7100	44 2B 09 3F 4F CB 1B CB	50 7378	FE 03 20 02 3E 07 07 07
6EF0	7C 0B 7D 01 E1 C9 13 3D 2B	7100	44 2B 09 3F 4F CB 1B CB	7388	07 C6 06 12 13 78 3C 3C
2C 6EF8	0B DD 21 6F 7A 21 02 0B	3D 7118	DD 23 4F 7E AA 77 23'7D	7388	09 20 11 23 7D 0E 0F
6FF0	C9 3D 2B 0B DD 21 94 7A	7120	E6 IF 2B 09 7D 04 2B FE	7398	2B 09 7D FE 00 2B 01 25
6FF0	21 00 02 C9 3D 2B 0B DD	7120	E8 2B 01 25 6F 7E AB 77	7120	51 7398 D6 10 6F 3E 01 C1 10 CA
6F10	21 B9 7A 21 FE 0B C9 D0	7120	79 C1 2D 0B 2B 6F 7D 71	73A0	E1 F3 3E 14 B3 38 01 14
2D 6F18	21 DE 7A 21 00 FE C9 C5	3E 7138	CD 9F 79 1B 09 09 0B DD E1	73A8	5F 0D C6 10 6F 38 00 24
6F20	42 4B 2A FE FA 3B 02 1B	7140	C1 C9 F5 D5 05 CD 23 73	73B0	7C FE 00 20 02 26 7C F1
6F28	0F D5 E5 CD AA 22 47 04	7140	47 3E 03 CD D1 74 C1 D1	52 7388	0D 28 AC D1 C9 1A 47 D5
2E 6F38	C1 C9 62 6B CD B2 70 23	7140	78 02 47 79 03 0F 01 F1 3D	73C0	13 1A 4F 13 CB 23 73 C5
6F40	7E 23 3D 2B 1B 50 15 15	7140	78 02 47 79 03 0F 01 F1 3D	73CB	47 1A CD D1 74 13 1A C1
6F48	79 C6 0F 5F CD 1F 6F 20	7140	78 02 47 79 03 0F 01 F1 3D	73D0	3B 2B 0A 0C 79 FE 4B 0B
6F50	0A 7A D6 0B 57 CD 1F 6F	7140	78 02 47 79 03 0F 01 F1 3D	73D8	0B 00 20 02 26 7C F1
2F 6F58	20 01 CC 01 BB 79 1B 54	3F 7158	2B E9 C9 3E 0B 11 01 00 00	73E8	18 15 3D 28 0A 00 79 FE
6F60	3D 20 1A 50 15 59 1C 1C	7140	CD 42 71 3E 04 11 00 00 00	73F0	FF 2B 0C 00 3F 1B 00 00 00
6F68	1C 0D 6F 2B 0B 7A BB C6	7140	CD 42 71 3E 04 11 00 00 00	73F8	7F FE 4B 28 02 04 00 1B 00 04
6F70	0B 5F CD 1F 6F 20 01 0A	7140	CD 42 71 3E 04 11 00 00 00	7400	18 79 12 18 78 12 CD 23
30 6F78	11 AF 7B 1B 37 3D 20 1A	7140	CD 42 71 3E 04 11 00 00 00	7408	73 57 47 4E 05 28 04 CB
6F80	50 15 15 59 1C 1C CD 1F	7140	CD 42 71 3E 04 11 00 00 00	7410	3F 18 F9 E6 03 28 12 42
6F88	6F 20 0A 7A 0D 0B 57 CD	7140	CD 42 71 3E 04 11 00 00 00	7418	3E 03 CD D1 74 E1 C9 76
6F90	1F 2B 01 0D 11 FF 79	7140	CD 42 71 3E 04 11 00 00 00	7420	01 BC 02 0B 78 3C 28 FB
31 6F98	18 1A 7B D6 0E 57 59 1C	7140	CD 42 71 3E 04 11 00 00 00	7428	C9 E1 22 8C 74 E5 7D FE
6FA0	1C 1C CD 1F 6F 20 0A 7B	44 71F8	C1 76 01 0A 00 ED BB 01	7430	A7 28 11 1F 76 21 52
6FB0	6C 0B 5F CD 1F 6F 20 01	7200	1E 1E CD 09 2D 01 2F 0E	56 7438	48 CD A5 72 21 FB 58 11
6FB0	05 11 1F 79 CD C3 6F 2B	7200	1E 1E CD 09 2D 01 2F 0E	7440	52 58 18 0F 11 AA 76 21
32 6FB8	2B 71 2B 0B 75 CD C5	7200	1E 1E CD 09 2D 01 2F 0E	7448	42 48 CD A5 72 21 EB 58
6FC0	70 E1 C9 7E FE FD 2B 04	7200	1E 1E CD 09 2D 01 2F 0E	7450	11 42 58 ED 53 BF 74 06
6FC0	05 DD E1 C9 11 25 0B DD	7210	00 CD 8C 70 11 44 5A 21	57 7458	00 78 4B CD 71 74 7B ED
46 7238	FE CD 25 70 CD BD 73 11	7210	00 CD 8C 70 11 44 5A 21	7478	87 47 CD FA 6F 78 C6 1E
46 7238	FE CD 25 70 CD BD 73 11	7210	00 CD 8C 70 11 44 5A 21	7480	47 CD FA 6F 78 C6 1E 47
46 7238	FE CD 25 70 CD BD 73 11	7210	00 CD 8C 70 11 44 5A 21	7488	CD FA 6F 21 AC 76 11 52
46 7238	FE CD 25 70 CD BD 73 11	7210	00 CD 8C 70 11 44 5A 21	7490	58 CD 49 73 D9 04 78 FE
46 7238	FE CD 25 70 CD BD 73 11	7210	00 CD 8C 70 11 44 5A 21	7498	00 20 BE E1 C1 7D FE A7
46 7238	FE CD 25 70 CD BD 73 11	7210	00 CD 8C 70 11 44 5A 21	7500	21 BF 76 28 01 23 35 28
46 7238	FE CD 25 70 CD BD 73 11	7210	00 CD 8C 70 11 44 5A 21	7508	03 C3 7C 71 21 58 27 D9



You've got it



IN Underwurde stand right next to one of the guardians so that the head of your knight overlaps with the guardian. Now wait and, eventually, the flying creatures will knock you past the guardian.

Darren Heaton,
Malvern, Worcestershire

WANT to win by bat-
tle in *The Lords of
Midnight*? Move Luxor
to Shimexil, to Brith, to
Gard and then to Xajor.
Morkin, Corleth and
Rorthon should go to
Kumar, to Ithrom, to
Dreams and then to the
Tower of Doom. Luxor
should then move north
to Ushgarak.

Richard Perry,
Tunbridge Wells

STILL stuck in *The Hobbit*? Move NE from Beorn's house, then go east twice to reach the Black River. Throw rope across river then pull. Tell Thorin to climb into the boat, then climb in yourself. On the other side climb out and go east. Tell Thorin to break web then pick you up and go NE. Tell him again to break the web, then go north, wear the ring, examine the door and then wait twice.

Alan Slater,
Great Yarmouth

WHEN playing the
part of a toad in
Witch's Cauldron do not
drink the bottle of whisky
under the couch or
you will turn into a newt
and drown.

Trevor Guyton,
Halesworth, Suffolk



NOT enough money
in *Ghostbusters*?
Give your name as Jay
Sean and 44244020 as
your account number.
You will then start the
game with \$109,100.

S Jay,
Filton, Bristol

STUCK in Hampstead?
Try looking under the
bench on the Heath, ex-
amining the display in
the Estate agents or
opening the desk in the
furniture department.

M Bridges,
Sittingbourne, Kent

EARN £50 in *Every-
one's a Wally* by
choosing to be Wilma
and then taking the bun-
sen burner to the labora-
tory. This can be done
by taking book one from
the school, making sure
that it is the lower of your
two items and then ex-
changing it for the
burner in the supermarket.
Take it to the
KEMCO laboratory and
place it under the
strange shaped bottle.

Take the gas mask into
the sewer and take the
letter R in order to earn
another £50.

Mark Thompson,
Southport, Merseyside

STUCK outside the
temple in *Inca
Curse*? Remove leaves
from the branch in the
clearing. Then pick up
the branch and **BREAK
LATCH**. When asked
how to do this, reply
WITH BRANCH.

D Greenwood,
Leigh-on-Sea, Essex

SAVE memory on your
ZX-81 by entering SIN
PI instead of zero, -COS
PI instead of one and
INT PI instead of three.
Using CODEs also saves
memory. I GOTO CODE
"A", for example, uses
two bytes fewer than 1
GOTO 38.

M Davies,
Llandeilo, Dyfed

pen-friends

Stuart Pattullo, 33 Elmfield Road, Gosforth, Newcastle upon Tyne is 10 years old and owns a 48K Spectrum with joystick and interface. He enjoys writing programs and is looking for someone around his own age with whom he can swap tips and programs.

Marcus Grundy, 51 Guillermot Close, South Beach, Blyth, Northumberland is looking for a ZX-8 owner in the north east of England with whom he can swap listing and sort out problems.

Christopher Megginson, 61 Rosedale Road, Nunthorpe, Middlesbrough, Cleveland is 12 years old and owns a 48K Spectrum. He would like someone with whom he can swap hints and programs.

Stephen Davis, 95 Cistowel Road, Kings Heath, Birmingham is looking for a penfriend who is around the age of 12 and who would be able to supply POKEs for games.

Steven Bryant, 8 Worthy Road, New Milton, Hampshire would like to contact other English Spectrum owners to exchange hints, tips and programs.

John Tryggi Jonsson, Skolavortustig 26, Reykjavik 101, Iceland is 12 years old and enjoys using business programs on his 48K Spectrum. He would like a penfriend his own age, to whom he will write in English.



Steven Collett, 34 Oldany Way, Glendale Estate, Nuneaton, Warwickshire is 13 years old and has owned a Spectrum for six months. He would like to write to anyone who is just learning machine code or who is also interested in adventure games.

Andrew Cooper, 185 Wakeley Road, Rainham, Kent is looking for another 16K ZX-81 owner around the age of 13.

Simon Jones, 23 Granville Road, Cradley Heath, Warley, West Midlands designs his own games on the 48K Spectrum and would like to write to someone who is interested in programming.

Chris Tate, 25 Millbrook Drive, West Leigh, Havant, Hampshire is 14 years old and is looking for a pen friend of about the same age who is interested in Spectrum adventure games.

Stephen Coombe, 34 Kirby, 34 minster, Essex is 13 years old and owns Spectrum. His favourite games are Ghostbusters, Decathlon and Steve Davis Snooker. He would like to swap games and ideas.

Duflos Pascal, Jean Jaures, 92190 Meudon, France is 22 years old and would like to write to a 48K Spectrum owner with whom he can swap ideas as well as tips and programs.

Mark Edser, 60 Bradmore Way, Old Coulsdon, Surrey would like a penfriend with a 48K Spectrum.

D
E
L
E

HOW IT WORKS

10 Clears screen. DIMensions a\$ and w\$ to store a random selection of up to 30 letters each. (These are now called string arrays. In other words, they are undefined as to contents at this stage, but at least the computer knows that a string is to be set up). The POKE does a CAPS LOCK, while the GOSUB prints instructions.

20 Sets up v\$ and c\$

30-40 Set up co and vo

45-60 Scan through a\$ and w\$ to select randomly vo vowels and co consonants. n is a less important variable, known as a loop counter, counting each character as another one until the correct number has been done.

70-80 Read word entered by player and set le to length (number of characters) in string as entered.

90-140 This is the umpire part of the program. We have what are called "nested" loops here, meaning one inside the other. In fact, there are two inside the other. The outer loop works through each let-

ter of the word as entered, using loop counter n again. The two separate inner loops, both using counter m because they are separate, look at the computer's selection of consonants and vowels respectively, to make sure that letters chosen are amongst those given. When a match is found the corresponding letter is a\$ or w\$ is nulled or blanked out, and the search moves on to the next n (or letter of the player's choice). No match in the consonants loop passes control to the vowels loop. No match in the vowels loop causes an exit to the CHEAT routine at 1010.

Y

150

160

170-190 Exits from the outer loop above which means that all letters are valid (not necessarily the word!) so program gives "o.k by me" message.

Calculates and prints score. Depends on length of word entered and number of consonants and vowels asked for.

Prompt for "another game?" and re-start if "y". Note that NEW is used if "n" which is bet-

ter than STOP if player is sure he does not want to continue.

900-950 Print instructions.

1000-1020 Print "Cheat" message". Note how OUT is used to obtain a flashing BORDER.

Dexam was written for the Spectrum or Spectrum Plus by Claudio Schiller of Haifa, Israel.

VARIABLES

A variable is a name given to one or more locations in memory. In this game, using letters and words, many of the variables are known as string variables, because they usually contain a string of letters. On the Spectrum, a string variable name must be a single letter followed by \$. The main variables are:

v\$ is a 5 character string containing the vowels.

C\$ is a 21 character string containing the consonants.

vo is number of vowels asked for.

co is number of consonants asked for.

w\$ is a random selection of vowels into a string of vo length.

a\$ is a random selection of consonants into a string of co length.

n\$ is a string to contain word entered by player.

le is length of n\$ (found after word has been entered, so string length does not have to be pre-set).

A
M

WHAT IT DOES

This is really a game between human players, with the computer acting as umpire. It starts by prompting the current player to enter the number of vowels and consonants from which he wishes to make a word. A random selection is then made from the correct number of each and these are displayed on the screen. The player must now make a word from the computer's selection of letters. Obviously, a program this simple cannot have any kind of vocabulary of its own, so all it now does is make sure that the letters used are those it has given to the player. It is up to other players to say whether the word can be allowed or not.

```

10 CLS : BEEP .1,-5: DIM q$(30)
: DIM w$(30): POKE 23658,8: GO
SUB 900
20 LET w$="AEIOU": LET c$="QWR
TVP$DFGHJKLMNPKLZCVBNM"
30 INPUT "HOW MANY CONSONANTS?
";c$: IF c$>30 THEN GO TO 30
40 INPUT "HOW MANY VOWELS? ";v
50 IF v$>30 THEN GO TO 40
45 PRINT AT 2,1;"CONSONANTS":
PRINT AT 3,2;
50 FOR n=1 TO c$ LET q$(n)=c$=
( INT ( RND *21)+1): PRINT q$(n)
55 PRINT AT 5,1;"VOWELS": PRI
NT AT 6,2;
60 FOR n=1 TO v$ LET w$(n)=v$=
( INT ( RND *5)+1): PRINT w$(n);
: BEEP .05,10: NEXT n
70 INPUT "GIVE ME A WORD? "; LI
NE N#
80 LET le= LEN N#
90 FOR n=1 TO le: FOR m=1 TO c
:
100 IF N$(n)=q$(m) THEN LET q$(
m)="": GO TO 140
110 NEXT m: FOR m=1 TO v
120 IF N$(n)=w$(m) THEN LET w$(
m)="": GO TO 140
130 NEXT m: GO TO 1000
140 NEXT n
150 BEEP .7,0: PRINT AT 10,2;"YOUR
WORD IS O.K. FOR ME"
160 PRINT AT 14,2;"YOU HAVE ";
INT (Ie+c+v)+100;" POINTS"
170 INPUT "WANT TO TRY AGAIN(Y/
N? "; LINE y$;
180 IF y$="N" THEN BEEP .7,30:
PRINT AT 20,3;"COME ON, YOU CAN

```

```

DO BETTER!!!!", ARE YOU SURE
YOU WANNA QUIT? "; INPUT LINE m
$: IF m$="Y" THEN NEW
190 CLS : GO TO 20
200 PRINT AT 0,13;"DEXAM"
190 PRINT AT 3,1;"IN THIS GAME
, YOU'RE SUPPOSED TO DEMONSTRATE
YOUR ENGLISH KNOWLEDGE BY
COMPOSING WORDS OUT OF RANDOM
LETTERS."
210 PRINT " THIS IS A GAME FOR
TWO AS THE COMPUTER CAN'T SEE
IF YOUR WORD HAS REALLY ANY MEAN-
ING. YOUR CONCURRENT WILL TAKE
CARE OF THAT"
220 PRINT " THE POINTS YOU'LL
GET ARE ACCORDING TO THE LENGTH
OF THE WORD AND THE NO. OF
LETTERS YOU ASKED FOR."
230 PRINT AT 20,10;"GOOD LUCK!
"
240 PAUSE 0: CLS : GO TO 20
250 BEEP .5,-10: PRINT AT 10,2
; FLASH 1;"BAD BOY!!!!" YOU
CAN'T CHEAT A COMPUTER!"
260 FOR N=1 TO 200: OUT 254,16:
OUT 254,63: OUT 254,3: NEXT N:
CLS : GO TO 20
9999 SAVE "DEXAM" LINE 1

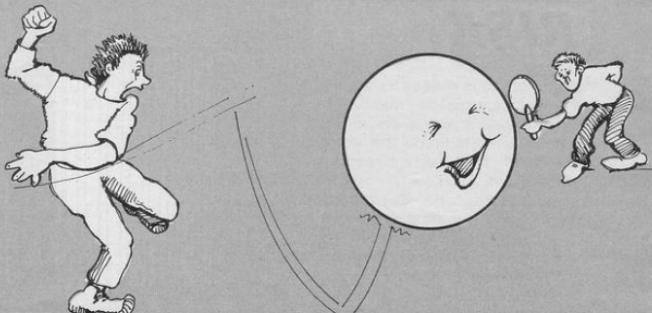
```

BEGINNER

BAT 'N' BALL

Move your bat with keys 5 and 8 in order to hit the bouncing ball. As the game progresses, your bat will become smaller and smaller. Keep the ball bouncing for as long as possible.

Bat 'n' Ball was written for the 1K ZX-81 by P Raistrick of Shipley, West Yorkshire.



```

10 LET VV=5GN PI
20 LET HH=VV
30 LET S=NOT F
40 LET V=HH
50 LET H=INT (RND*CODE "?") +CO
DE " "
50 LET A=CODE " "
70 FOR F=CODE " " TO CODE " "
80 PRINT AT NOT PI,F;" "
90 NEXT F
100 FOR F=5GN PI TO CODE " "
110 PRINT AT F,CODE "+";" ";AT
F,5GN PI;" "
120 NEXT F
130 LET A=A+ (INKEY$="8") - (INKEY
$="5")

```

```

140 PRINT AT VAL "11",A;" "
150 LET V=+VV
160 LET H=+HH
170 PRINT AT V,H;"O"
180 IF H=A+CODE " " AND V=CODE
" " THEN LET VV=-VV
190 IF H=A+CODE " " AND V=CODE
" " THEN LET S=S+ABS VV
200 IF H>A+CODE " " AND V=CODE
" " THEN PRINT "SCORE=";S:X
210 IF H=CODE " = " OR H=CODE " "
THEN LET HH=-HH
220 IF V=5GN PI THEN LET VV+=VV
230 PRINT AT V,H;" "
240 GOTO VAL "130"

```

PEST SPRAY

It is summertime, and your garden looks beautiful. Flowers are blooming, vegetables are sprouting, fruit is ripening. It is all a great temptation to the garden pests which have begun flooding into your garden. Flatten as many of them as possible with your roller to avoid being completely overrun.

Pest Spray was written for the Spectrum or Spectrum Plus by Terry Walker of Ipswich, Suffolk.



```

1 CLS : PRINT AT 5,00;"LEFT
5" : PRINT "RIGHT B" : PRINT AT 10,7;"A
N, KEY TO START": PAUSE 0
2 BORDER 4
3 CLS
4 RANDOMIZE 0
10 POKE 23658,B
20 LET M=0
21 LET MM=0
30 LET D=1
35 LET S=0
40 LET X=15
50 DIM B(30)
60 DIM A(30)
100 FOR N=12-D TO D+19
101 IF A(N)=0 THEN NEXT N
110 PRINT AT B(N),N;"("sp)""
111 PRINT AT B(N)-1,N;" "

```

```

120 LET B(N)=B(N)+1
130 IF B(N)=13 THEN LET M=M+1
131 IF B(N)=21 THEN LET B(N)=0
: LET A(N)=0; PRINT AT 20,N;" "
140 IF INKEY$="5" AND X>1 THE
N LET X=X-1
150 IF INKEY$="8" AND X<30 TH
EN LET X=X+1
160 PRINT AT 11,X-1;" + "
170 IF B(N)=12 AND N=X THEN LE
T A(N)=0; LET B(N)=0; LET MM=MM+
1; LET S=S+1
200 IF S=7 THEN GO TO 300
210 IF M=10 THEN GO TO 350
220 PRINT AT 21,0;"SCORE":MM;
AT 21,15;"-MISSES":M
225 NEXT N
230 LET A= INT ( RND *2)
231 IF A<1 THEN GO SUB 250
240 GO TO 100
250 LET A= INT ( RND *30)+1
260 LET A(A)=1
270 RETURN
300 CLS
301 PRINT "MISSION COMPLETED"
310 BEEP 1,20
320 LET D=D+1
330 LET S=0
335 CLS
340 GO TO 40
350 CLS
351 PRINT "OVERRUN BY BUGS"
360 STOP

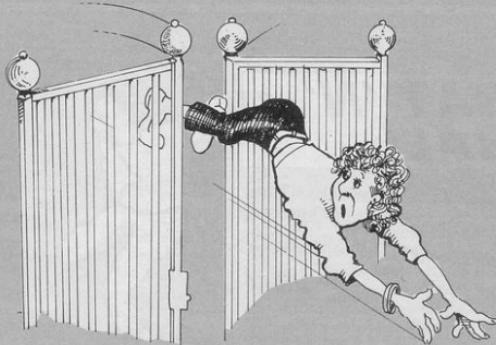
```

BEGINNER

RISK

The screen is divided by walls in which are set a number of gates. Touching the walls means instant death, but you are determined to cross as many screens as possible. The gates only open for fractions of a second, so you must take a Risk every time you move.

Risk was written for the 16K ZX-81 by Anthony Hill of Bradford, West Yorkshire.



```

10 GOSUB 9000
15 LET S=0
20 LET T=10
25 LET B=INT ((RND*20)+2)
30 PRINT AT 0,10;"#"+RISK+"#";AT
1,10;"#"+RISK+"#";AT
35 LET C=13
37 PRINT AT 16,0;"#"+RISK+"#";AT
38 PRINT AT 17,0;"#"+RISK+"#";AT
39 PRINT AT 18,0;"#"+RISK+"#";AT
40 PRINT AT 5,0;"#"+RISK+"#";AT
50 PRINT AT 13,0;"#"+RISK+"#";AT
55 PRINT AT 9,0;"#"+RISK+"#";AT
70 LET R=INT ((RND*20))
80 LET S=0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
85 PRINT AT 0,0;"#"+RISK+"#";AT
901 FOR N=1 TO 16
902 LET S=S+1
903 IF INKEY$="" THEN GOTO 40
1000

```

```

110 PRINT AT R,B;" "
120 LET R=R-2
130 PRINT AT R,B;
140 LET E=E-2
150 IF E<0 THEN GOTO 160
155 IF E>16398+256+PE
160 GOTO 165
165 IF E>16399+CODE THEN GOTO 160
170 PRINT AT R,B;" ";AT R,B;" "
175 LET C=C-4
180 LET R=R-2
185 IF R<0 THEN GOTO 185
190 GOTO 200
195 CLS
200 PRINT AT R+2,B;" ";AT R,B;" "
210 PRINT AT 16,0;" ";CODE
215 PRINT AT 16,0;"YOU GOOD";AT 18,0;"YO
220 U THIS TIME"
225 PAUSE 200
230 LET S=S+5
235 IF S>100 THEN GOTO 240
240 IF E>1 THEN LET E=1
245 CLS
250 PAUSE 10
255 EPOINT AT A+1,B;" "

```

BEGINNER

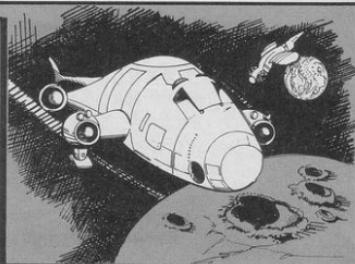
SURVIVAL

Flying on a top secret mission you find you are being pursued by a drone. Fortunately the drone is confused by the heat of stars, and will bounce away when it hits one.

Survival was written for the Spectrum or Spectrum Plus by Andrew Galbraith of Oban, Argyll.

```
5 BORDER 1: PAPER 0: INK 7: C
LS
 8 GO SUB 60
10 PRINT AT 5,7; FLASH 1; BRIGHT 1;"SURVIVAL"; PRINT AT 7,0;"IN THIS GAME YOUR SPAC
E CRAFT("; INK 5;"A"; INK 7;) IS BEING PURSUED BY AN ALIEN SPAC
E CRAFT(18). AND WHEN IT RE
ACES YOU, YOU ARE DEAD. HO
WEVER, WHEN THE ALIEN SP
ACECRAFT FLIES INTO ONE OF TH
E STARS ("; BRIGHT 1; INK 6;"*;
BRIGHT 0; INK 7;) IT REBOUNDS IN ANOTHER DIRECTION."
15 PRINT AT 16,0;"IF YOU MANA
GE TO SURVIVE LONG ENOUGH A RE
SCUE SHIP COMES TO RESCUE YOU."
;"USE CURSOR KEYS (5,6,7 AND B
) TO MOVE YOUR SPACESHIP."
18 PRINT #1:"PRESS ANY KEY": P
AUSE 0: CLS
```

```
20 LET a=0: LET x=21: LET y=31
30 LET a=0: LET d=0: LET y=0
40 LET ox=0: LET oy=0: LET oa=
a: LET od=d
50 FOR n=1 TO 35: PRINT AT R
ND *21, RND *31; BRIGHT 1; INK 6
;n: NEXT n
55 GO TO 100
60 FOR n=32300 TO 32309: READ
z: POKE n,z: NEXT n: DATA 62,255
,211,254,61,254,0,32,248,201
70 FOR n=0 TO 100: USR "c"+n
: READ z: POKE n,z: NEXT n: RET
URN : DATA 24,24,60,255,255,60,
0
80 DATA 0,0,60,255,255,255,60,
0
90 DATA 192,96,60,255,255,60,9
192
100 PRINT AT od,oa;" "; AT d,a
;"B"
110 PRINT AT ox,oy;" "; AT x,y
; INK 5;"B"
115 LET ox=oy: LET oy=oy: LET oa=
a: LET od=d
120 LET x=x+( INKEY$ = "6" AND x
<21)-( INKEY$ = "7" AND x>0)
130 LET y=y+( INKEY$ = "8" AND y
<31)-( INKEY$ = "9" AND y>0)
140 LET d=d+(x>d)-(x<d)
150 LET a=a+(a<y)-(a>y)
160 IF SCREEN$ (d,a)="*": THEN
BEEP .1,.50; BEEP .1,.50: LET a=
-a: LET d=d
200 IF x=d AND y=a THEN GO TO
250
205 IF s=500 THEN GO TO 300
210 LET s=s+1: BEEP .01,(d+a+x+
y)/5; BEEP .007,20: GO TO 100
250 PRINT #1: AT 0,0;"YOU ARE D
```



```
EAD! YOU SCORED ";s;"PRESS ""P"" TO PLAY AGAIN"
240 IF INKEY$ = "P" OR INKEY$ = "p" THEN FOR a=60 TO 0 STEP -2
1 BEEP .01,a; BEEP .01,a+5: NEXT
a: RUN
270 LET t=USR 32300: GO TO 260
300 FOR n=0 TO 31: PRINT AT x,
n;"C": PAUSE 5
302 IF n=y THEN BEEP .1,40
304 PRINT AT x,n;" "; NEXT n
305 PRINT #1: AT 0,0: BRIGHT 1;
" WELCOME HOME! YOU WON! SCORE=";
s;"PRESS ""P"" TO PLAY AGAIN"
307 FOR n=0 TO 10: READ a: BEEP
.2,.2,0,1,4,3
310 IF INKEY$ = "P" OR INKEY$ = "p" THEN FOR a=0 TO 60 STEP 2:
BEEP .01,a; BEEP .01,a+5: NEXT
a: RUN
320 GO TO 310
```

BEGINNER

SNIPER 81

Life is tough on the streets in the Wild West. A Sniper is out to get you. He will appear on screen in one of nine positions. Select one of your stun guns, one to nine, in order to hit him before he can kill you.

Sniper 81 was written for the 16K ZX-81 by Jane Haslam of Wirral, Merseyside.



```
10 PRINT " *** SNIPER *** "
110 LET R=INT (RND*10+.5)
120 IF R=1 THEN GOTO 100
130 PRINT AT 3,A#3-2,B#5
135 LET Z$=INKEY$
140 IF CODE Z$=CODE "0" OR CODE
Z$=CODE "Z" THEN GOTO 180
150 IF R=VAL Z$ THEN GOTO 230
155 IF R=VAL Z$ THEN GOTO 170
160 NEXT Z$: PAUSE 20
170 IF RND *5 = 5 THEN GOTO 250
180 PRINT AT 3,A#3-2,C$;AT 8,A+
3,B#5
190 LET L=L+1
200 PAUSE 20
210 IF L>1 THEN GOTO 270
220 GOTO 250
230 PRINT AT 3,A#3-2;B$
```

```
240 LET S=S+1
250 PRINT AT 3,0;" "
260 GOTO 90
270 PRINT AT 10,S;"YOU'RE DEAD"
280 PRINT AT 0,5;"YOU SCORED ";S
285 PRINT AT 12,S;"YOU SCORED ";S
290 PRINT "PRESS A KEY TO PLAY AGAIN"
300 PAUSE 1000
310 CLS
320 RUN
330 SAVE "SNIPE"
340 RUN
```


S-P-R-O-G-S



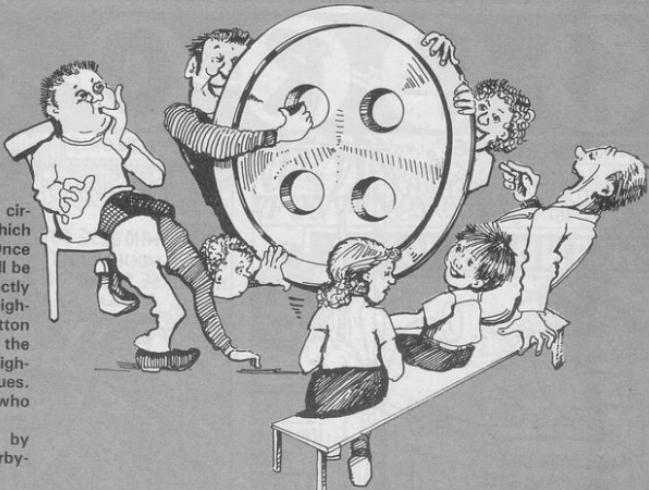
LISTING

SINCLAIR PROGRAMS July 1985

BUTTON

Eight people are sitting in a circle, and you must guess which of them is holding the Button. Once you have made a guess you will be told whether you guessed correctly or not, whether one of the neighbouring characters holds the button and whether the person holding the button has passed it to her neighbour since you made your guess. How quickly can you guess who holds the button?

Written for the 16K ZX-81 by Robert Street, of Belper, Derbyshire.



```

1 SAVE "THE BUTTON"
200 CLS
300 REM INITIALISE
10 PRINT "THE BUTTO
20 PRINT " " R"
30 PRINT " H B"
40 PRINT " G C"
50 PRINT " F D"
60 PRINT " E "
70 PRINT " "
80 PRINT " "
90 PRINT " "
100 PRINT " "
110 LET A$="468ACRA86"
120 LET B$="69B96313"
130 LET POS=1
140 LET GOS=0
150 LET R$=""
160 PRINT AT 4,13;" "
170 PRINT AT 12,13;" "
180 FOR F=5 TO 11
190 PRINT AT F,13;" "
190 NEXT F
200 PRINT AT 15,0;">>MOVE
LEFT" ;"/">>MOVE RIGHT" ;"/">>ENTER CHOICE"
210 LET RES=0
220 LET PIP=INT (RND*8)+1
245 REM MAIN GAME
250 IF GOS>5 AND LEN R$<=17 THEN
N PRINT AT 5,14;R$;
260 IF GOS>5 AND LEN R$>17 THEN
PRINT AT 5,14;R$(TO 17);AT 6,1
4,18 TO 17;AT 18,14
270 PRINT AT 11,14;"YOUR GUESS?
:CHR$(POS+37)
280 LET U$=INKEY$
290 PRINT AT CODE A$(POS)-28,CD
DE B$(POS)-28;CHR$(POS+165);AT
11,14;"YOUR GUESS? ";CHR$(POS+3
7);AT CODE A$(POS)-28,CD B$(PO
S)-28;CHR$(POS+37)
310 IF U$<>"N" AND U$<>"M" AND
U$<>" " THEN GOTO 280
320 LET POS=POS+(U$="M")-(U$="N
")
330 IF POS=0 THEN LET POS=8
340 IF POS>9 THEN LET POS=1
350 IF U$<>" " THEN GOTO 280
360 PRINT AT 11,14;" "
370 LET GOS=GOS+1
380 LET RES=0
390 LET CCK=0
400 IF POS=PIP THEN LET CCK=1
410 IF POS=PIP+1 OR POS=PIP-1 O
R (POS=8 AND PIP=1) OR (POS=1 AN
D PIP=8) THEN LET CCK=2
420 IF CCK=0 THEN PRINT AT 8,15
;"I DON/T HAVE IT."
430 IF CCK=1 THEN PRINT AT 8,17
;"CORRECT."
440 IF CCK=2 THEN PRINT AT 8,14
;"MY NEIGHBOUR HAS";AT 9,21;"IT.
450 IF CCK=1 THEN GOTO 600
460 LET RES=1
470 IF CCK=0 THEN LET RES=INT (
RND*2)
480 IF RES=0 THEN LET R$=" WHOE
VER HAS IT " ;KEEP3 IT."
490 IF RES=1 THEN LET R$=" WHOE
VER HAS IT " ;PASSES IT."
500 IF RES=2 THEN LET R$=" X=INT (RND*2)
510 IF RES=1 AND X=0 THEN LET P
PIP=PIP+1
520 IF R$=1 AND X=1 THEN LET P
PIP=PIP-1
530 IF PIP=9 THEN LET PIP=1
540 IF PIP=0 THEN LET PIP=8
550 FOR X=1 TO 30
560 NEXT X
570 PRINT AT 8,14;" "
;AT 9,14;" "
580 GOTO 250
595 REM END SPME
600 FOR X=5 TO 11
610 PRINT AT X,14;" "
620 NEXT X
630 PRINT AT 5,14;"GOES";GOS
640 IF GOS<0 THEN LET R$=" VE
RY LUCKY."
650 IF GOS>4 AND GOS<12 THEN LE
T R$=" VERY GOOD"
660 IF GOS>11 AND GOS<20 THEN L
ET R$=" GOOD"
670 IF GOS>19 AND GOS<30 THEN L
ET R$=" NOT BAD"
680 IF GOS>29 THEN LET R$=" NO
T VERY GOOD"
690 PRINT AT 7,14;R$
700 PRINT AT 11,14;"ANOTHER GO?
710 IF INKEY$="" THEN RUN 2
720 IF INKEY$="L" THEN LOAD ...
730 IF INKEY$="S" THEN RUN
740 GOTO 700

```

Give your power pills more punch

Tony Rickwood demonstrates how much faster a game will work when Basic is replaced by machine code in key areas.

IF YOU have followed this series on machine code so far, you will by now, be raring to go with some practical games applications. Most commercial games are 100% machine coded for speed and animation quality, but it would be much too ambitious for us to present and explain what might be an enormous assembler listing in these few pages.

A much more practical approach is to see how a traditional maze type game, written in Basic, can be made much more fun to play by replacing some of the routine basic programming with machine code. Admittedly, maze games are a bit old hat now, but the game I will be presenting here has been specially written to give readers a rare opportunity to



see, at a glance, just how much better than Basic m/c really is.

At the touch of a key, you will be able to get your Spectrum to throw out a large chunk of Basic and call in a m/c routine instead. See for yourself how much more energy a diet of power pills and m/c will give Pacman and the four ghosts.

First, enter and run Program one which POKEs 199 bytes of machine code into memory, starting at location 64000 (the game is designed for the 48K Spectrum). As a wrong number may cause the computer to crash, a check is made to make sure data is entered correctly. When you have got the "data entry o.k." message, SAVE program 1 to tape.

Now enter Program two. When entering a long Basic program, I find that the best plan is to start by entering and testing the part which sets up the User Defined Graphics. This is contained in lines 6000 onwards. Now RUN this part (do not worry about the RETURN WITHOUT GOSUB" message) and go into graphics mode (Caps/9). Pressing any letter from a to n are for the maze walls, o to u are for Pacman (moving in four directions), ghosts, power pills, and dots.

The next part to enter and check is the subroutine which sets up the screen (in this case, by printing the maze). Lines 5000-5040 do this. With the graphics already set up in memory, you will see the maze emerge as you enter the two PRINT statements, which will help you to correct any mistakes as they are made. Now type RUN 6000 to make sure that the maze is printed complete with dots and power pills. You should have everything in white on a black background.



As the way the program works depends on different objects having different colours, these are best put into the PRINT statements using colour control characters. The colours you MUST

```

10 REM Machine Code Setup for
Ghostchase @ Tony Rickwood
20 CLEAR 639999: LET s=0: FOR i
=64000 TO 64198: READ n: POKE i,
n: LET s=s+n: NEXT i
30 READ sum: IF s <> sum THEN
PRINT "error in data entry": ch
eck line 40": STOP
40 DATA 97,107,98,108,99,109,1
00,110,101,111,102,112,103,113,1
04,114,120,121,97,98,99,100,101,
102,103,104,0,221,33,0,250,6,8,2
05,153,250,126,87,221,35,205,153
,250,114,221,35,16,241,205,153,2
50,70,221,35,205,153,250,78,221,
35,221,126,0,254,0,200,205,153,2
50,94,221,35,205,153,250,86,221,
43,120,147,40,28,56,11,28,205,16
9,250,254
50 DATA 6,32,14,29,24,15,29,20
5,169,250,254,6,32,3,28,24,4,205
,153,250,115,221,35,121,146,40,2
8,56,11,20,205,169,250,254,6,32,
14,21,24,15,21,205,169,250,254,6
,32,3,20,24,4,205,153,250,114,22
1,35,205,169,250,54,6,24,163,197
,42,75,92,1,200,0,221,126,0,237,
177,35,35,193,201,213,197,33,0,8
8,75,90,22,0,6,5,203,35,203,18,1
6,250,123,137,48,1,20,95,25,126,
193,209,201,209,201,22690
60 PRINT "Data entry o.k.": m/c
now ready for running": STOP
70 SAVE "GCODE" CODE 64000,199

```



Program two

```

20 REM GHOSTCHASE @ Tony Rickw
ood
20 GO SUB 100
25 LET a$="0" LET v$="5
30 GO SUB 6000
45 GO SUB 5000
50 INPUT "Basic or m/c(b/m)?" ;
g$=
51 IF g$ <> "b" AND g$ <> "m"
THEN GO TO 50
60 GO SUB 1000
100 REM Initialize control vari
able
110 LET a$="3" LET b$="1" LET c$="27";
LET d$="1" LET e$="3" LET f$="19" LET g$="27" LET h$="19" LET i$="15" LET j$="y
=10
120 LET k$="a" LET l$="b" LET m$="c";
LET n$="d" LET o$="e" LET p$="f" LET q$="g" LET r$="h"
130 RETURN
1000 REM Main Control Routine
1005 LET di$="1" LET s$="s+1
1010 LET xx$="x" LET yy$="y" PRINT
AT yy$,"x"
1020 PRINT INK 1; OVER i$; AT b$,
a$;"T"; INK 2; AT d$; c$;"T"; INK 3;
AT f$;"T"; INK 4; AT h$; j$;"T";
BEEP .005;.45
1025 IF ATTR (y,x) <= 4 THEN B
OD TO 3000
1030 LET x$=x-(INKEY$="w")*(< IN
KEY$="a")+(< INKEY$="d")*(< IN
KEY$="s")+(< INKEY$="s")*(< INKEY$="w
")+2*(< INKEY$="d")*3*(< INKEY$="a")*4*(< INKEY$="s")
1035 LET x$=x+1 THEN LET x$=x
1037 IF x$=29 THEN LET x$=2
1040 IF ATTR (y,x$)=6 THEN LET
x$=x+1; LET y$=y+1 GO TO 1070
1055 IF ATTR (y,x$)=5 THEN LET
s$=+101 FOR i$=1 TO 10: BEEP .005
,20: BEEP .005,30: NEXT i$: GO TO
1070
1060 IF POINT (3*x$+8,y$)=1
THEN LET s$=+1: BEEP .005,30
1070 PRINT AT 21,8;s$ PRINT AT
y$;"DPOR"(di)
1080 IF ATTR (y,x) < 4 THEN B
OD TO 3000
1082 IF g$="m" THEN RANDOMIZE
USR 64027
1090 IF g$="b" THEN GO SUB 4000
1100 PRINT OVER 1; AT l$;"T";
AT n$;"T"; AT p$;"T"; AT r$;"T";
T"
1110 GO TO 1010
2000 REM Screen Cleared
2010 GO SUB 100
2020 GO SUB 5000
2030 GO SUB 1000
2040 RETURN
3000 REM Pacman eaten
3010 LET v$="1": PRINT AT 21,28;
v
3020 FOR i$=1 TO 20: BEEP .01,20:
BEEP .01,30: NEXT i$
3030 IF v$=0 THEN GO TO 3040
3035 PRINT INK 7; OVER i$; AT b$,
a$;"T"; AT d$; c$;"T"; AT f$; e$;"T";
AT h$; j$;"T"
3036 GO SUB 100
3037 GO SUB 1000
3040 CLR : PRINT AT 10,0;"YOU S
CORED ";s$; AT 11,0;"ANOTHER GAME
?";y$)
3050 IF INKEY$="" THEN GO TO
3050
3060 IF INKEY$="n" THEN STOP
3070 RUN
4000 REM Ghost Control
4010 LET k$=a$ LET l$=b$ LET m$=c$;
LET n$=d$ LET o$=e$ LET p$=f$ LET q$=g$;
LET r$=h$
```

```

4020 LET a=+(>x)-(<x): IF AT
TR (b,a)=6 THEN LET a=#
4030 LET b=+(>y)-(<y): IF AT
TR (b,a)=6 THEN LET b=#
4040 IF a < b OR b < c THEN P
RINT OVER 1; INK 6; AT b,a;""
4050 LET c=+(>x)-(<x): IF AT
TR (d,c)=6 THEN LET c=#
4060 LET d=+(>y)-(<y): IF AT
TR (d,c)=6 THEN LET d=#
4070 IF c < d OR d < n THEN P
RINT OVER 1; INK 6; AT d,c;""
4080 LET e=+(>x)-(<x): IF AT
TR (e,e)=6 THEN LET e=#
4090 LET f=+(>y)-(<y): IF AT
TR (f,f)=6 THEN LET f=#
4100 IF e < f OR f < n THEN P
RINT OVER 1; INK 6; AT f,e;""
4110 LET g=+(>x)-(<x): IF AT
TR (h,g)=6 THEN LET g=g#
4120 LET h=+(>y)-(<y): IF AT
TR (h,h)=6 THEN LET h=h#
4140 RETURN
5000 REM Print Maze
5005 PAGE 0; BORDER 0; INK 7; C
5010 PRINT " CAAAAAAAANAAAAAA
AAAAAAAD"*
SSSSSSSSSSSSSSSSSSSS
SSCADCSANAAI1SSJAA
SSCADCSANAAI1SSJAA
5020 BSS "B"*
BSSCAEAFJAAI1SSJAA
BSSCAEAFJAAI1SSJAA
EAFSEAFS#*
BSSCAEAFJAAI1SSJAA
BSSSSSSSSSSSSSSSSSS
BSSSSSSSSSSSSSSSSSS
5030 PRINT " CAAAAADHSBSSSSSSSS
SHCSAAIAA"*
CAAAAGFSSAEAAAMAF
BSSSSSSSSSSSSSSBSSS
SSSSSSSSSSSSSSBSSS
5040 BSSJADSSA11SSJAA
A11AISCA1SB#*
BSSBSSSSSSSSSSSSSS
SSSSSSSSSSSSSSBSSS
5050 KAISEAISSHJAA1
SSHJAFSJAL#*
BSSSSSSSSBSSBSSBSS
SSSSSSSSSSSSSSBSSS
5060 BSBJAAAAMAA1SSGJA
BSSSSSSSSSSSSSSSSSS
5070 EAAAAAAAIAAF"*
EAAAAAAAIAAF"*
5080 PRINT AT 21,2;"LIVES";#v
5090 RETURN
6000 REM UDE Setup
6010 FOR i=USR "A" TO USR "u"+
71 READ j1 POKE i,j1: NEXT i
6020 DATA 0,255,j1,j1,j1,j1,0
6030 DATA 126,j1,j1,j1,j1,j1,j1
6040 DATA 0,31,63,127,j1,j1,j1,126
6050 DATA 0,248,252,254,j1,j1,j1,12
6060 DATA 126,127,j1,j1,j1,63,31,0
6070 DATA 126,254,j1,j1,j1,252,248,
0
6080 DATA 126,j1,j1,j1,j1,60,24,0-
6090 DATA 0,24,60,126,j1,j1,j1,j1
6100 DATA 0,248,252,254,j1,j1,j1,22
8,0
6110 DATA 0,31,63,127,j1,j1,63,31,0
6120 DATA 126,127,j1,j1,j1,j1,126
6130 DATA 126,254,j1,j1,j1,j1,126
6140 DATA 126,255,j1,j1,j1,j1,0
6150 DATA 0,255,j1,j1,j1,j1,126
6160 DATA 62,127,248,240,j1,248,1
27,62
6170 DATA 124,255,31,15,j,31,254
,124
6180 DATA 66,195,j,231,255,j,126
,60
6190 DATA 60,126,255,j,231,195,j
,66
6200 DATA 0,0,0,24,24,0,0,0
6205 DATA 60,126,219,255,255,255
,165,165
6210 DATA 0,0,60,126,j,60,0,0
6220 RETURN

```

use are: WALLS=yellow, DOTS=white, POWER PILLS=cyan.

The way to put these codes into the PRINT statements is described in Chapter 16 of the Spectrum manual, but to get you started, first bring down line 5010 with edit. Run the cursor to just past the quotes and change to extended mode (caps shift/symbol shift). Now hold the Capitals key and press key 6. You will see that everything that follows is now printed in yellow ink. Now run the cursor right by one space (to just before the first dot), change cursor to Extended again, and press Caps/7 to change back to white ink. Continue throughout until everything is the correct colour.



IMPORTANT NOTE: The game depends on having these colours right. It also depends on the two exits from the maze being sealed to the ghosts (but not to Pacman), to allow Pacman to shake them off. This is done by putting an invisible wall at the two exits by printing the blank character positions to the left and right of the middle row of dots in yellow ink with the appropriate colour code in line 5010. You will see how this works when I explain ghost control.

Now you can enter the rest of the program and test it as a whole, although it would be a good idea to do an intermediate SAVE of your work so far.



When RUNNING the whole program, it will begin by asking whether you want Basic or M/C? This gives you the option of letting your Spectrum control the ghosts, using EITHER the Basic in lines 4000-4140 OR by using the machine code set up by Program one. They do exactly the same



job, though with a remarkable difference in speed. To satisfy yourself that these are directly interchangeable, look at lines 1082/1090 which call the appropriate routine according to the response to the only prompt used. Make sure you give the program a thorough testing in



each mode, although I guarantee you will not be using the Basic option for very long!

If you want to keep **Ghostchase** in your library of games, it would be a good idea to put the m/c itself (not Program one, which only sets it up) onto tape immediately after your dump of Program two. First, get a new dump of Program two onto tape with the



following line added: 15 LOAD "GCODE" CODE. If you want auto start, then dump by typing SAVE "ghost" LINE 1. Assuming that the m/c is in memory, dump it onto tape using SAVE "GCODE" CODE 64000,199. LOADING "ghost" will now automatically LOAD the m/c and RUN.

A few words about playing the game, as I have not included instructions in the program. Pacman control is by cursor keys. As usual, eat as many dots and power pills (10 point bonus) without getting caught, though you do have five lives. A screenful (300 points) earns you another screenful.

Obviously, you want to know how the machine code works, because, unlike routines I have presented so far, this one is not



portable. Special effects m/c routines seen previously can be used by any Basic program. They

are portable in the sense that they do not depend on, or affect anything else, and are also relocatable to use any available memory space. The routine used here obviously does affect, and is affected by, the environment in which it operates. So, if you want to supercharge a chase routine of your own (not necessarily of the maze variety), you really must be able to understand it and adapt it to your own program.

The key to understanding the machine code is the Basic routine in lines 4000-4140. The principle is always to get the computer to calculate intelligently the new coordinates of the chaser(s) in order to place it nearer the character being chased. There are many levels of artificial intelligence which could be used (to prevent the chaser from staying blocked for example). Here, though, it is simply a matter of getting the four ghosts nearer without going through walls. Line 4010 starts by storing all the old coordinates as figure one:

Fig. one

Ghost	New/Current Coords		Coords	
	x	y	x	y
Blue	a	b	k	l
Red	c	d	m	n
Magenta	e	f	o	p
Green	g	h	q	r

Pacman coordinates are called x,y. Before calculating new positions, current positions must be stored. This is to be able to erase old ghosts and for re-setting positions if a move is invalid. Lines



4020 and 4030 deal with x and y coordinates for the blue ghost (a,b). Using $x > a$ and $x < a$ for pacman to right or left of the blue ghost, a is increased or decreased by one.

Similarly for b in the vertical sense (note: $x = a$ or $y = b$ means no change). Both a and b must be tested separately to allow the ghost to move horizontally, vertically or diagonally toward Pacman. The only test for a valid move is that it does not collide

with a wall.

No off screen tests are necessary because the ghosts can never get out of the maze. So all we need to test is ATTR(b,a)=6 to tell the computer that there is a (yellow) wall at the new position



calculated for the blue ghost. If true, the position reverts back to k and/or l. Other ghosts are handled in the same way.

What about collision with Pacman and other ghosts? The "Pac-



man eaten" condition is picked up in the main control routine at line 1080. Collision with another ghost is a bit more subtle. We cannot test ATTR(b,a) < 4, for example, to see if there is another ghost already there, for the simple reason that no new ghosts can be printed until ALL new positions have been calculated. Line 4030 solves the problem for the blue ghost (4070 and 4100 for magenta and green). In effect, this line is saying that, if the blue ghost has been moved ($a < > k$) or ($b < > l$) then temporarily PRINT a piece of invisible wall OVER the new position (to preserve the dot) to prevent it from being occupied by another ghost. This is only temporary while computer control is inside the ghost control subroutine.



Soon after control is returned to the main program (starting at line 1000), the ghosts are printed and so overwrite the invisible wall. Obviously, no such device is required for the green ghost as this is the last to be moved.

Do try to understand thoroughly how the subroutine starting at line 4000 works. You will then have a much better chance of understanding the machine coded version which I will be explaining in the next article.



Something has gone drastically wrong with the transport policy in your town. It has been judged best to repair roads only when something has collapsed. Now the major bridge in the town has several holes in it. You must fly over and fill the holes with blocks of stone. If you do this successfully you will be paid well. If you have not succeeded by 4pm the rush hour will start, drivers will fall to their deaths, and you will not be paid.

Drop a Block was written for the Spectrum or Spectrum Plus by David Dunsmore of Kilmarnock, Scotland. Press space to drop blocks. Underlined letters are those to be entered in graphics mode.

DROP A BLOCK

```

2 BORDER 0: PAPER 0: INK 7: E
RIGHT 18 BD SUB 8e3: LET hi=le=4

5 LET bi=le4
6 LET fu=po: LET a=0: LET d=1:
LET m=le4: LET v="ANY KEY"
10 IF d=16 AND m=le4 THEN PRINT
  AT 0,0;"NO PROFIT WAS MADE, YOU
  ARE FIRED";"ANY KEY TO REPLACE
  Y"; PAUSE 0: GD TO 6
11 IF d=16 AND m >= 1e4 THEN
  GO SUB 7e3
12 CLS : FOR n=0 TO RND *12+2
: PRINT AT 21-n,1; INK 2;"EE
  EE   EE   EEE": NEXT
  n
30 PRINT AT 21-n,0; INK 2;"FE
  E": AT 21-n,7;"FEEL"; AT 21-n,1
4;"FEEL"; AT 21-n,2;"FEEL"; AT
21-n,28;"FEEL"; LET w==""
  "
40 PRINT AT 21-n,1; INK 2;"E
  EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE

```

```
85 INPUT "1 OR 2? ";S  
86 IF S>2 OR S<1 THEN GO TO 8
```

```

87 IF S1=1 THEN LET M=M-3E3: L
ET I=1: LET W$=W$+" "
88 IF S2=2 THEN LET M=M-1E3: L
ET I=5: LET W$=W$+" "
89 FOR W0=0 TO 3E3 PRINT AT W0,
W$; NEXT W: PRINT AT 0,0;"#";#
; AT 0,10;"DAYS":I; AT 0,0;"BL
OCKS":I; INPUT "HOW MANY BLOCKS
":I;W

```

```

91 LET jk= INT ( RND #2)+1: IF
jk=1 THEN LET jk=5
92 IF jk=2 THEN LET jk=12
97 LET a=a+aw
100 IF s=1 AND a>5 THEN LET a=
a-aw: GO TO 89

```

```

105 IF s==2 AND a>3 THEN LET a=
a-aw: GO TO 89
110 LET mmm=aw*100
115 IF m<0 THEN PRINT AT 3,0;
    "YOU HAVEN'T ENOUGH MONEY!": LET
mmm=aw*100: LET a=a-aw: PAUSE 10
120 LET j = INT ( RND *25)+4: LE
T j:= INT ( RND *25)+4
125 PRINT AT 21-n-1,j; BRIGHT
0;": AT 21-n-1,j; "
127 PRINT AT 0,0;"#";": " ; A
T 0,10;"DAYS";: AT 0,20;"BLOCK
S";: "a
128 PRINT AT 20,jk; INK 6;"MN"
; AT 20,jk+7;"MM"
130 PRINT AT 0,0;"#";": " ; A
T 0,10;"DAYS";: AT 0,20;"BLOCK
S";: "a
140 IF INT y>28 THEN PRINT A
T x,y;": LET y=2
141 IF s==1 THEN PRINT AT x,y;
INK 5;"AB": GO TO 144
142 IF s==2 THEN PRINT AT x,y;
INK 4;"K": AT x+y,y; "
143 IF s==2 THEN LET t=t+.4
144 PRINT AT 1,0;"TIME: 3";: I
NT t
145 LET y=y+4
146 IF s==1 THEN LET t=t+.45
147 IF t >= 59 THEN PRINT AT
1,6; FLASH 1;"4:00": GO TO 300
148 PRINT AT 3,30; "
150 IF INKEY$="" AND a < 0
THEN GO SUB 170
160 GO TO 140
170 LET a=a-1: LET g=y: FOR f=
+2 TO 20: PRINT AT f,g; INK 2";
E": AT f-1,g;" "
171 IF y >= 28 THEN PRINT AT
x,y;": LET y=2
172 IF s==1 THEN PRINT AT x,y;
INK 5;"AB": LET y=y+1
173 IF s==2 THEN PRINT AT x,y;
INK 4;"K": AT x+y,y; "
LET y=y+1
174 PRINT AT 3,29; "
177 IF f=19-then GO SUB 250:
RETURN
178 PRINT AT 0,20;"BLOCKS";: a
180 IF s=1 THEN LET t=t+.5
181 IF s=2 THEN LET t=t+.25
185 IF t >= 59 THEN PRINT AT
1,6; FLASH 1;"4:00": GO TO 300
190 PRINT AT 1,0;"TIME: 3";: I
NT t: NEXT f: RETURN
250 PRINT AT f+1,g; INK 2;"E";
AT f,g; INK 7;"J": RETURN
305 LET p = INT ( RND *3)+1: IF
p=1 THEN LET a=a-2: LET inkt=
1 ( RND *6)+2: GO TO 310
306 IF p=2 THEN LET a=a-10: LE

```

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A

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C

Defuse a bomb hidden on the complex planet, Lattica, before it blows!! . . . action packed game . . . addictive" — Sinclair user.



D

The mobs out to get ya' in this no-holds-barred 32 screen, action-packed game. "Tricky and highly entertaining" — Personal Computing News.



E

50 different screens of mayhem. "A fun game for all ages . . . which I thoroughly enjoyed" — Home Computing Weekly.

NIBBLER

Your city is under constant attack from aliens which nibble the dam which protects the city from being flooded. Fire at them with your one working missile launcher in order to save your city.

Nibbler was written for the Spectrum or Spectrum Plus by Jason Adair of Camberley, Surrey. Underlined characters are those to be entered in graphics mode.

```
1 BORDER 4; PAPER 1; PRINT I
  NIK 7; AT 1,8;"1984 J. ADAIR @"
PAUSE 50
  2 CLS : LET m$$= " NIBBLERS "
; FOR 0=19 TO 1 STEP -2: PRINT
  AT q,B; INK 0; PAPER 7; BRIGHT
  1; FLASH 1;M$$: BEEP .021,*.010;
BEEP .018,q+13; BEEP .008,q+16;
NEXT q; PAUSE 60; CLEAR
  3 PRINT INK 6; INSTR
  UCT I O N S"; PRINT " ---"
```

```
4 PRINT INK 3; AT 2,4;"AAAAA"
  AAAAAAAAAAAAAAA
```

```
5 PRINT INK 7; AT 3,11;"NIB
  LERS"; AT 3,4;"YOUR CITY IS UNDE
  R CONSTANT"; AT 6,4;"ATTACK FROM
  ALIENS"; AT 7,4;"THEY TAKE GRE
  AT"; AT 8,4;"PLEASURE IN NIBBLIN
  G"; THE"; AT 9,4;"WALLS OF YOUR CI
  TY'S DAM"
```

```
6 PRINT INK 7; AT 11,4;"UNFO
  RTUNATELY,ONLY ONE"; AT 12,4;"MI
  SILE LAUNCHER IS IN"; AT 13,4;""
  WORKING ORDER. YOU MUST"; AT 14,4
  ;"FIRE IT AT THE ALIEN"; AT 15,4
  ;"NIBBLERS IN ORDER TO"; AT 16,4
  ;"SAVE YOUR CITY"
```

```
7 PRINT INK 6; AT 19,5;"USE
  0'R'O'TO FIRE"; AT 20,8;"'O'TO
  START"
```

```
8 PRINT INK 6; AT 17,4;"SHOO
  T"; 'TO SAVE THE CITY!"
```

```
10 PAUSE 1000
  20 FOR f=0 TO 7; READ z; POKE
  USR "a"+f,z; NEXT f
```

```
30 FOR f=0 TO 7; READ z; POKE
  USR "b"+f,z; NEXT f
```

```
31 FOR f=0 TO 7; READ z; POKE
  USR "c"+f,z; NEXT f
```

```
32 FOR f=0 TO 7; READ z; POKE
```

```
1020 PRINT INK 1; AT f,B;"C": B
  EEP .1:10
1030 NEXT f
1050 FOR f=20 TO h STEP -1
1060 PRINT OVER 1; INK 5; AT f;
  9;"CCCCCCCCCCCCCCCCCCCC": PAU
  SE 3; BEEP .1,10: NEXT f
1070 PRINT INK 7; AT 0,10;"YOUR
  CITY IS FLOODED"; AT 2,10;"YOU
  R SCORE=";sc; AT 4,10;"PRESS ANY
  KEY TO "; AT 5,10;"START AGAIN."
  1080 IF INKEY$="" THEN GO TO
  1080
  1090 RUN
  2000 FOR w=1 TO 15: PRINT INK 7
  ; AT f,11;"D": PAUSE 2; PRINT
  7
  AT f,11;" "; PAUSE 1; BEEP .02,w
  *2: NEXT w
  2010 FLASH 0: PRINT AT f,11;" "
  2020 LET sc=$c+1
  2025 PRINT AT 15,2;sc
  2026 IF sc<6 THEN GO TO 155
  2029 PRINT INK 7; AT 0,10;"YOU
  HAVE SAVED YOUR": AT 1,10;"CITY"
  ; AT 3,10;"YOUR SCORE=";sc; AT 5
  ,10;"PRESS ANY KEY TO "; AT 6,10
  ;"START AGAIN...."
  2020 IF INKEY$="" THEN GO TO
  2030
  2030
  2040 RUN
  9005 DATA BIN 00111100, BIN 011
  0110, BIN 11111111, BIN 0000111
  1, BIN 00001111, BIN 11111111, B
  IN 01111110, BIN 0011100
  9010 DATA BIN 11111111, BIN 100
  000001, BIN 10000001, BIN 100000
  01, BIN 100000001, BIN 1000000001,
  BIN 1000000001, BIN 11111111
  9020 DATA BIN 10101010, BIN 010
  01010101, BIN 0, BIN 10101010, BIN
  01010101, BIN 0, BIN 10101010, B
  IN 01010101
  9030 DATA BIN 10011001, BIN 010
  01010, BIN 0101010, BIN 111111
  1, BIN 11111111, BIN 01010101
  9040 DATA BIN 00011000, BIN 000
  11000, BIN 00011000, BIN 001110
  0, BIN 00111100, BIN 11111111
  9050 DATA BIN 00111100, BIN 001
  1100, BIN 00111100, BIN 00111100, B
  IN 01111110, BIN 01111111
  9060 DATA BIN 00111100, BIN 001
  1100, BIN 00111100, BIN 01111100, B
  IN 01111110, BIN 01111111
```

SINCLAIR PROGRAMS COMPUTER HOLIDAY



Sinclair Programs and Dolphin Holidays have combined to produce a computer holiday offer unique to this magazine.

All participants will have exclusive use of a Spectrum (or a ZX-81 if you so choose), help from a computer expert, access to the camp's extensive software library and to a vast variety of hardware ranging from speech synthesis systems to robot buggies.

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Wellington college

ture over £30 worth of top quality software free to participants; a visit from the editorial team of *Sinclair Programs* to explain how a computer magazine is produced; on the spot evaluation of your software for inclusion in *Sinclair Programs*, visits from top games programmers and much more.

The Sinclair Program will run at Wellington College, Crowthorne, Berkshire for a week, beginning on August 3rd, 1985. It is open to all readers aged 12-17.

To apply for any of the holidays, simple complete the form below, make sure your parent or guardian has signed it, and post it to Dolphin Holidays.

See you at Wellington College!

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What time of day is best for Dolphin to phone?

Max Headro

Max Headroom is possibly the only TV presenter who has to be turned on to be interviewed. Colette McDermott managed it.

ADAMP morning in Belfast. Rain clouds darken the streets, which are occasionally flooded with light from the displays of the stores and shops.

An army tank trundles loudly into the street and stops opposite a large crowd of waiting shop-pers and onlookers.

A squad of soldiers dressed in combat uniform dash from the now silent machine. They cross to the crowd and join in the con-versation.

They are all here for the first public appearance of **Max Headroom**. The venue, a furniture store somewhere in Belfast.

Max works 24 hours a day on Big-Time Cable TV so he can only make his appearance via a sat-el-lite link-up. Screens have been erected around the area to allow total visual display. After a few moments the screens burst into life. Max is on air, grinning.



"I should like to express my thanks for The Save The Children Fund for asking me to appear here today on their behalf..."

A roar of laughter rises from the assembled crowd.

A puzzled expression flits across his face. Somebody back at the station obviously speaks to him.

"Did I get that right?" he en-quires, the disarming smile re-ap-pears and he continues to wreak havoc upon the ceremony to the delight of the crowd.

Max Headroom first appeared on our screens in April as a com-



puter-generated presenter of pop videos for Big-Time Cable tele-vision.

He was created by the nasty, runny-nosed Bryce at Network TV. His brain pattern, taken from top investigative reporter Edison Carter, has ensured a highly de-veloped computer being.

Big-Time TV, which is run by Black Reg and Dominic, stum-bled upon him when he acciden-tally appeared on their station. Overnight he turned their ailing station into a going concern.

His show broadcasts around the clock featuring his own taste in contemporary music. Channel 4 tune into him for a brief 30 minutes every Saturday.

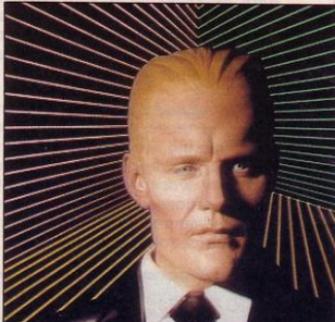
Despite being computer orien-tated Max is not, as yet, completely bug-free. His speech is frequently interrupted as he loses control of his vocal cords. His conversation is garbled and his movements jerky. As he turns his head he does not always manage to coordinate his body move-ments.

All these points make him a likeable near-human being and we love to watch him make mis-

takes.

During breaks between each video Max entertains us with jokes and all sorts of useless in-formation.

His skin has a deep tan, with a shiny plastic quality, his hair is blonde although solid in appear-ance and his eyes are pale blue



and non-reflective. A ready smile gives him a likeable quality that all previous machines lacked.

Following the live link-up with Belfast Max has agreed to an in-terview with *Sinclair Programs*.

The interview takes place from a special studio. A large screen holds centre spot in the room with two smaller televisions on either side.

The lights go down and the screens flicker into life. Max ap-pears, grinning broadly, and the screens go black again.



An interval of seconds, then Max re-appears, dancing to a tune playing in the background. One of his aides informs him that he is being viewed. He turns his gaze towards the screen, says "Hi!" and continues to dance.

Max, I venture, thanks for see-

om

ing me. "Sure, wha... ." His voice trails away. He stops, shakes his head from side to side as though attempting to dislodge a foreign object.

"Aah! that's better." He grins, sits back and starts to hum to himself.

I ask Max to tell us his future plans. He continues to hum for a few minutes and then replies.

"Well, I don't have much spare time, and most of it is taken up with organisational work for the World Golf Foundation. I want to interview people on the programme, but I have to join the Clive James party set to meet the really interesting people."

I ask him his views on drinking, smoking and drugs, and expect at least a restrained answer, but he informs me that "I may be accused of being old-fashioned, but I like them all."

I speculate that perhaps Max has visions of becoming a news reader.

"Oh, no! I find them very sad, sitting there, just heads and shoulders — for all we know they haven't got any legs!" he exclaims, with a shocked expression at this thought, and then a broad grin.

What about hobbies; languages perhaps? I heard you speak German once on your show.

"Yes I can converse in 23 languages, but that will soon be 24.



This is despite the fact that I had to give up my Turkish evening class, it clashed with 'Around with Alice', I am currently struggling with Farsi!"

Excuse me Max, isn't that 'Aliiss.'

"No, I mean Farsi."

Throughout our conversation Max has continued to hum to himself and to shake his head to the



rhythm. I begin a question, attempting to bring a note of commonsense back into the proceedings, which I feel are getting out of hand. Max, is now vanishing from the screen as he becomes further engrossed in the tune.

Max, I try again, we all think we know your taste in music from watching your show, but do you have a favourite?

"My pride and joy is 'Digital Watch Tunes, Vol. 2', and '20 Golden Golf Signature Tunes', which contains all the best stuff between the '82..."

Max disappears from the screen, his voice fades and he

returns still dancing.

"... '84 Dunhill Masters. I also have a bootleg version of Balles-teros whistling..."

He disappears again. At this point I protest. He apologises, sits down and looks out of the screen attentively.

Can you distinguish between video and reality, Max? He looks serious.

"Yes, of course — what do you think I am, some kind of artificial creation?"

Well, are you independent of outside forces, can you think for yourself?

"Of course I can — when the producer says so."

My allotted time with Max is now drawing to a close. I thank him for talking with me. He grins and I leave.

The show has already produced a viewing audience of over one million according to producer, Peter Wagg and he promises that Max has lots more plans for the future.

"Max appears for over three minutes soon being interviewed by someone," said Peter refusing to say who. As I leave the studio a large poster of Max smiles down at me.



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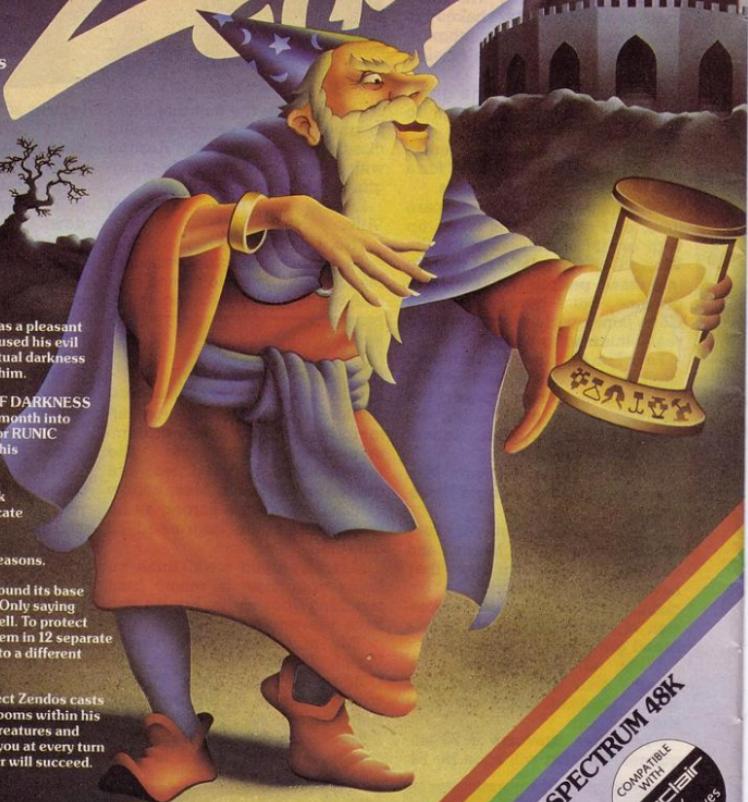
The tiny principality of DORCASIA was a pleasant fertile land until the wizard ZENDOS used his evil powers to cast the country into perpetual darkness until all citizens pledge obedience to him.

It is known that through the SPELL OF DARKNESS Zendos has trapped the spirit of each month into one of 12 GOLDEN TEMPUS RUNES or RUNIC HOUR GLASSES hidden deep within his mysterious and magical castle.

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Each glass has a RUNIC inscription around its base which you must read and understand. Only saying these words will lift that part of the spell. To protect the hour glasses Zendos has placed them in 12 separate rooms in his castle, each room linked to a different exterior gateway by a devious route.

Depending on which entrance you select Zendos casts spells which change the locations of rooms within his castle to confuse you. The menacing creatures and challenging problems which confront you at every turn mean that only the brave and the clever will succeed.



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You awake from a deep, troubled sleep, to find you have fallen from a large four-poster bed.....

HOW do you follow the granddaddy of all adventure games? Melbourne House think that they know. Their latest adventure **Mordon's Quest**, written by John Jones-Steele, has been designated the sequel to **Classic Adventure**.

Classic Adventure was released by Melbourne House in January 1984. It was adapted by John Jones-Steele from the original Crowther and Woods game **Adventure**.

In its original form **Adventure** was designed for a 200K computer and written in Fortran. Different versions of it have since been launched by several software houses.

John used to run his own soft-

features 156 different locations and a vocabulary of more than 400 words.

John has designed the text to fit 50 characters to a line, rather than the usual 32 characters. He achieved this by redefining the character set and believes this has created the impression of a 'page' of text.

The adventure begins in the world of reality time Lords.

Mordon is a Lord of reality who

reveal some of it without giving too much away.

In the first stages of the game you will come upon creatures such as wild pigs, pygmies, Tarzan and a frog.

You must also safely pass quicksand and a waterfall before proceeding to the next set of tasks, the time zones.

All the parts of Mordon's machine are hidden within the zones

Mordon's QUEST

ware house, Abersoft, and had produced several ZX-81 and Spectrum games before Melbourne House discovered him.

Classic Adventure was originally published under the Abersoft label. By then John was feeling the pressure of running a business and maintaining his link with the University College of Wales where he worked full-time on the main research computer.

When Melbourne House asked him to work with them and publish the game under their label he quickly realized that this was his chance to keep both feet dipped in the water and avoid the headaches of administering a business.

The original idea for **Mordon's Quest** was developed by Peter Moreland and Peter Donne, hence the title of the game. They wrote the book form, while John adapted it to fit the Spectrum.

Like its predecessor **Mordon's Quest** is a pure text adventure. It

must seek out pieces of his machine, which is vital to the structure of our universe.

He is the highest amongst the Ancient Order of The Lords of Reality. They are locked in a struggle which, if lost, will cause the destruction of the many realities that co-exist in our universe." PHEW!

He must seek out a champion to travel through reality to solve the daunting tasks that will save the fabric of the universe.

The introduction to the game explains how you awake from a troubled sleep upon a four poster bed.

"Despite the richness of the bed and the oriental carpet underfoot, the room is sparsely decorated. An indefinable atmosphere permeates the room, as if some great tragedy once occurred here..."

I don't want to spoil your fun in playing this adventure but I can

and you may enter any one at will, assuming you are in total control of your circumstances.

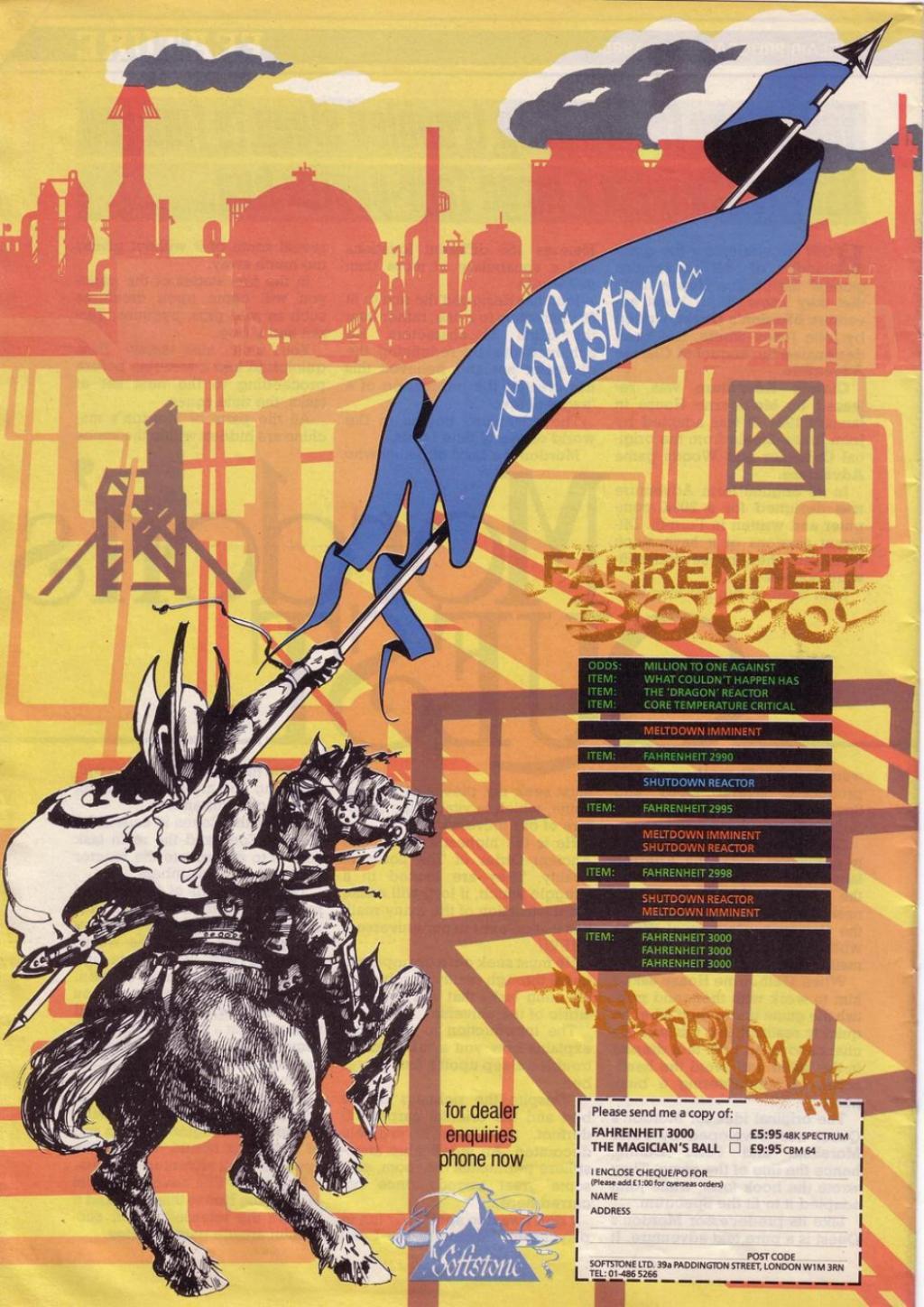
One of the Zones is called the Metallic Zone and the main task here is to de-activate the reactor held within its chambers.

The main peril of the second zone, is that it is underwater. This is known as the Underwater zone and you must search the water, equipped with your aqua-lung but avoid running out of oxygen.

The Roman zone involves you in a battle with Gladiators and taking part in a puzzle. Within this section is the Greek subzone and the main task here involves a confrontation with a Minotaur.

John is at great pains to emphasise that his game has not been designed for beginners. This sort of remark is bound to whet the appetite of all adventure players.

This is the first adventure from Melbourne House this year, and it follows the release of their successful arcade game **Starion**.



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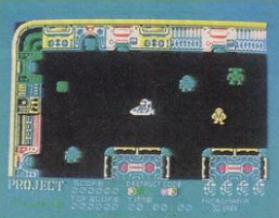
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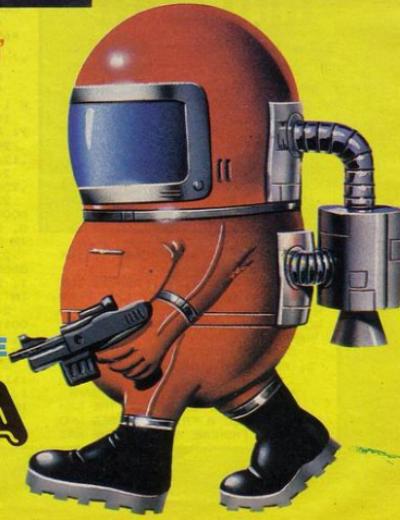
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Frogger Jr

Before Frogger was a frog, what was he? A tadpole, of course. Life was not particularly easy as a tadpole either. Keep Frogger Jr alive by eating as much algae as possible. Missing any piece of algae will result in lethal bacteria being shot at you. Move up and down with keys 6 and 7 and check your energy by pressing key zero.

Written for the Spectrum or Spectrum Plus by Nicholas Taylor of Burton-on-Trent, Staffordshire. Underlined letters are those to be entered in graphics mode.

```
10 GO SUB 9000: REM GRAPHICS
```

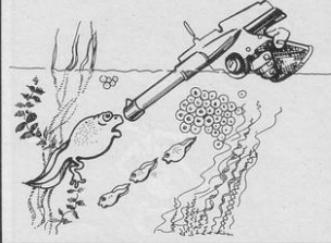
```
20 GO SUB 8000: REM SET UP
100 REM *****VARIABLES*****
110 LET x=11: LET y=30
120 LET en=0
125 LET n=0
130 LET a= INT ( RND *19)
135 LET n+=1
140 LET b+=1
150 LET f=18: LET h=29
1000 REM ***MAIN GAME***
1005 PRINT AT 0,20;"LEVEL=";k
1010 PRINT AT x,y; PAPER 5;"AC"
1020 PRINT AT x,y; PAPER 5;"AB"
1030 IF INKEY# = "6" OR INKEY# = "7" THEN GO SUB 5000: REM MOVE
SUB
1040 PRINT AT a,b; INK 2; PAPER 5;" "; PRINT AT a,b-1;" "
1050 LET b+=1
1055 PRINT AT f,h;"(g5)": AT f+1,h;"(g5)"
1060 IF a=x AND b=y THEN LET en =en+10: PRINT AT a,29;" "; BEEP
.1,10: GO TO 130
1070 IF INKEY# = "0" THEN GO SU
B 6000
1075 IF en=-100 THEN PRINT AT
```

```
0,0;"YOU RAN OUT OF ENERGY AND DIED": GO TO 7000
1100 IF b=31 THEN PRINT AT a,30;" "; LET en=en-10: GO TO 1310
```

```
1300 IF n=51 THEN GO TO 7000: REM END OF GAME
1305 GO TO 1000
1310 REM SHOT
1313 FOR j=1 TO 20
1315 PRINT AT x,y;"AC"
1320 LET p= INT ( RND *18)
1330 FOR q=k TO 30
1340 PRINT AT p,q;" "
1345 IF p=x AND q=y THEN GO TO 7000
1350 BEEP .01,50
1360 NEXT q
```

```
1365 IF INKEY# = "7" OR INKEY# = "6" THEN GO SUB 5000
1370 PRINT AT p,q;" "
1380 NEXT j
1400 GO TO 130
5000 REM MOVE SUBROUTINE
5010 IF INKEY# = "6" AND x<19 TH
EN LET x=x+1
5020 PRINT AT x-1,y;" "
5030 IF INKEY# = "7" AND x>THE
N LET x=x-1
5040 PRINT AT x+1,y;" "
5100 RETURN
6000 REM ENERGY REPORT
```

```
6100 IF en>100 THEN PRINT AT 2,1;"ENERGY REPORT=0,K."
6200 IF en <= 100 THEN PRINT A
T 21,0;"ENERGY REPORT=NOT GOOD"
6300 IF en<-10 THEN PRINT AT 2,1;"ENERGY REPORT=DANGER"
6400 PRINT AT 0,0; FLASH 1; BRI
GHT 1;"ENERGY=";en: BEEP .01,5
6500 PAUSE 1: PAUSE 1: PAUSE 0
6600 PRINT AT 21,0;"": PRINT A
T 0,0;"": PRINT B
6700 RETURN
7000 PRINT AT 10,13; FLASH 1; B
RIGHT 1;"GAME OVER": FOR n=0 TO
50: BEEP .01,n: NEXT n
7030 PRINT AT 14,10;"ENERGY=";n
7050 LET en=en/5
7060 PRINT FLASH 1; BRIGHT 1; A
T 12,14; INT en;""
7100 PAUSE 1: PAUSE 0: GO TO 20
8000 BORDER 5: PAPER 5: CLS : IN
K 0
8050 PRINT AT 0,10;"FROGGER JR"
: PRINT OVER 1; AT 0,10;"
```



```
8070 PRINT
8100 PRINT "YOU ARE A SMALL TADP
OLE IN A ""RIVER, TO GROW INTO A
FROG YOU ""MUST EAT THE ALGAE AS
IT SWIMS"" BY YOU."
8200 PRINT FLASH 1; BRIGHT 1;"6
=DOWN""7=UP""ENERGY REPORT=0"
8205 PRINT AT 10,0;"THE ENERGY
REPORT TELLS YOU HOW ""MUCH ENER
GY YOU HAVE LEFT"" ""AND YOUR ENER
GY STATUS. """"IF YOU MISS ANY AL
GAE YOU'LL ""HAVE BACTERIA SHOT
AT YOU. """"IF THIS HAPPENS GET TO
YOUR ""BASE AT THE BOTTOM OF TH
E""SCREEN."":*="10"
8210 INPUT "ENTER LEVEL (2 TO 15
(2=EASY)";k
8220 IF k<2 OR k>15 THEN GO TO
8210
8300 PRINT AT 20,0;"PRESS ANY K
EY TO PLAY"
8400 PAUSE 1: PAUSE 0: CLS
8450 FOR g=1 TO 20: PRINT AT g,
k-1; INK 4; FLASH 1; BRIGHT 1;"(
*)": NEXT g
8500 RETURN
9000 FOR n=0 TO 7: READ a: POKE
USR "a"+n,a
9100 DATA 0,62,79,255,255,255,12
6,0
9200 NEXT n
9300 FOR n=0 TO 7: READ a: POKE
USR "b"+n,a
9400 DATA 0,0,240,252,254,255,15
7
9500 NEXT n
9600 FOR n=0 TO 7: READ a: POKE
USR "c"+n,a
9700 DATA 7,31,255,252,240,224,0
,0
9800 NEXT n
9999 RETURN
```

```
10 BEEP .5,0
20 BEEP .2,2
30 BEEP .2,5
40 BEEP .2,4
50 BEEP .2,2
60 BEEP .35,7
70 BEEP .3,7
75 PAUSE 5
80 BEEP .2,7
90 BEEP .2,9
100 BEEP .2,4
110 BEEP .2,5
120 BEEP .35,2
130 BEEP .3,2
135 PAUSE 5
140 BEEP .2,2
150 BEEP .2,5
160 BEEP .2,4
170 BEEP .2,2
180 BEEP .3,0
190 BEEP .35,12
200 BEEP .35,11
210 BEEP .35,9
220 BEEP .35,7
230 BEEP .35,5
240 BEEP .35,4
250 BEEP .35,2
260 BEEP .45,0
```

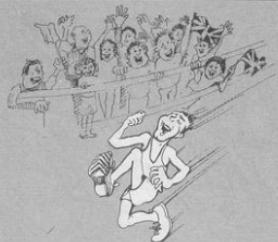
Play the famous Can Can tune with this simple program written for the Spectrum or Spectrum Plus by Anthony Haas of Yate, Bristol.

```
270 BEEP .2,2
280 BEEP .2,5
290 BEEP .2,4
300 BEEP .2,2
310 BEEP .35,7
320 BEEP .35,7
330 BEEP .2,7
340 BEEP .2,9
350 BEEP .2,4
360 BEEP .2,5
370 BEEP .35,2
380 BEEP .35,2
390 BEEP .2,2
400 BEEP .2,5
410 BEEP .2,4
420 BEEP .2,2
430 BEEP .2,0
440 PRINT AT 11,4; FLASH 1; IN
K 3;"PRESS ANY KEY TO RUN AGAIN"
```

CAN CAN



LISTING



Seb Coe

Up to three players can race to beat each other's time in Sebastian Coe. Move Sebastian's right and left legs alternately by pressing keys one and two. Run from one side of the screen to the other. It does not look far, but it is as taxing as the 1500 metres!

Written for the Spectrum or Spectrum Plus by Andrew Toumazou of West London.

```
10 BORDER 4: PAPER 4: INK 0: C
15 GO SUB 4000
18 LET SC=0
19 LET NI=0
20 LET X=40
30 LET Y=60
35 LET H=0
50 FOR T=60 TO 100
60 PLOT 0,126: DRAW 110,0: DRA
W 0,22: DRAW -110,0: DRAW 0,-22
70 PLOT 0,175: DRAW 110,0: DRA
W 0,-22: DRAW -110,-0: DRAW 0,2
2
```

ARGON LANDER

You must land on the planet Argon without hitting any of the many asteroids in the asteroid belt. If you do succeed in landing you will be propelled into the upper atmosphere and forced to restart your descent again and again. How many times can you land successfully? We could only manage one successful landing in the *Sinclair Programs* office.

Argon Lander was written for the 16K ZX-81 by Anthony Hill of Bradford, West Yorkshire.

```

1  GOSUB 9000
2  POKE 16418,0
3  LET S=0
4  LET N=INT (RND*50)+20
5  FAST
6  FOR L=1 TO N
7  PRINT AT (RND*20), (RND*30);
8  *
9  NEXT L
10 SLOW
11 PRINT AT 21,0;
12
13
14
15
16
17
18
19
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92
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94
95
96
97
98
99
100 LET A=_

```

```

BO PLOT 113,175; DRAW 142,0; D
RAW -0,-50; DRAW -142,-0; DRAW 0
,50
90 PRINT AT 1,1;"TIME"; AT 1
,8;H
100 PRINT AT 1,15;"NUMBER 1";
AT 3,15;"NUMBER 2"; AT 5,15;"NUM
BER 3"
110 PRINT AT 1,24;"000"; AT 3,
24;"000"; AT 5,24;"000"
120 IF SC=0 THEN PRINT AT 4,1
; INK 0;"ATHLETE (1)"
130 IF SC=1 THEN PRINT AT 4,1
; INK 0;"ATHLETE (2)"
140 IF SC=2 THEN PRINT AT 4,1
; INK 0;"ATHLETE (3)"
150 IF SC=3 THEN GO TO 4200
160 PRINT AT 20,0; INK 1; PAPE
R 6;"(4*ispig5*ispig5*ispig5
*ispig5*ispig5*ispig5*ispig5"
190 FOR A=13 TO 19
195 PRINT AT A,0;" : NEXT A
200 CIRCLE X,Y;5; PLOT X-4,Y-7;
DRAW 8,0; DRAW -0,-20; DRAW -8,
-0; DRAW 0,20
205 PLOT X-3,Y-29; DRAW 6,0; DR
AW -9,-6; DRAW -6,-5; DRAW 4,-3;
DRAW -7,-0; DRAW -2,3; DRAW 5,-5;
DRAW -4,-3; DRAW -3,-0; DRAW -4,-
7; DRAW -5,-0; DRAW -0,-4; DRAW
-3,-6; DRAW 4,1; DRAW 4,7
208 PLOT X-5,Y-9; DRAW -4,-4; D
RAW 4,-4; DRAW 0,3; DRAW -2,-1; P
LOT X-2,Y-29; DRAW 9,-6; DRAW -0
,-4; DRAW -9,6
300 IF INKEY$="2" THEN LET X=
X+2; LET T=T+5; LET H=H+1; PRI
NT AT 1,8;H; GO TO 2000
320 LET H=H+1; PRINT AT 1,8;H
1000 FD 200
2000 FDR A=10 TO 19
2001 PRINT AT A,0;" : NEXT A
2009 CIRCLE X,Y;5; PLOT X-4,Y-7;
DRAW 8,0; DRAW -0,-20; DRAW -8,
-0; DRAW 0,20
2010 PLOT X-3,Y-29; DRAW 8,0; DR
AW 8,-10; DRAW 5,0; DRAW 0,-2;
DRAW -8,-0; DRAW -8,10; DRAW -6,
-5; DRAW -8,-0; DRAW -0,-5; DRAW
-3,-0; DRAW 0,7; DRAW 7,0; DRAW
3,4
2015 PLOT X-1,Y-9; DRAW -8,-9; D
RAW 10,0; DRAW 0,3; DRAW 4,-0
2020 PLOT X-4,Y-9; DRAW 5,6; DRA
W 5,-10; DRAW -5,0; DRAW -5,-10

```

SINCLAIR PROGRAMS July 1985

```

W =0,-4: DRAW -5,-6
2040 IF T >= 100 AND SC=0 THEN
PRINT AT 1,7;27;N1+H LET SC=SC+1
: PRINT AT 1,8;" "; BEEP .6,1
5; BEEP .2,15; BEEP .4,15; BEEP
.2,10; BEEP .2,-15; BEEP .4,15; BEEP
.5,-15; BEEP .6,15; BEEP .4,15; BEEP
.5,1; BEEP .2,15; BEEP .4,15; BEEP
.2,10; GO TO 20
2050 IF T >= 100 AND SC=1 THEN
PRINT AT 3,27;N1+H LET SC=SC+1
: PRINT AT 1,8;" "; BEEP .6,15
; BEEP .2,-15; BEEP .4,15; BEEP
.2,10; BEEP .6,15; BEEP .2,15; BEEP
.4,15; BEEP .4,15; BEEP .2,-10; BEEP .2,15; BEEP .4,15; BEEP
.2,15; BEEP .4,15; BEEP .2,-10; BEEP .6,15; BEEP .5,15; BEEP
.2,10; GO TO 20
2060 IF T>100 AND SC=2 THEN PRI
NT AT 5,27;N1+H LET SC=SC+1: P
RINT AT 1,8;" "; GO TO 20
2100 IF INKEY$="1" THEN LET X
=X+2: LET T=T+5: LET H=H+1: PRI
NT AT 1,8;H: GO TO 190
2110 IF INKEY$="Y" THEN CLS :
GO TO 1
2120 IF INKEY$="N" THEN CLS :
STOP
2300 LET H=H+1
2400 PRINT AT 1,1;"TIME": AT 1
,8;H
3000 GO TO 2009
4000 PRINT AT 2,7; INK 1;"SEBA9
TIAN COE'S"
4010 PRINT AT 4,9; INK 1;"100 M
ETRES"
4020 PRINT AT 8,7; INK 0;"KEYBO
ARD": AT 10,7; INK 7;"i:LEFT LEG
"; AT 12,7;"i:RIGHT LEG"
4030 PRINT AT 14,7; INK 7;"INTE
RFACE 2"
4100 PAUSE 0: FOR a=0 TO 50: BEE
P .002,a: NEXT a: CLS : GO TO 17

4200 PRINT AT 21,9;"ANOTHER GAM
E(Y/N)"
4210 IF INKEY$="y" OR INKEY$="Y" THEN CLS : GO TO 16
4220 IF INKEY$="n" OR INKEY$="N" THEN CLS : STOP
5000 GO TD 4200

```

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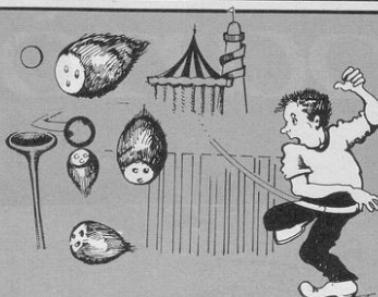
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CARNIVAL

At the carnival you spy the coconut shy. Rows of objects rotate on the screen above you, and must be knocked off using a very limited number of coconuts. Can you knock off all the objects using the coconuts available?

Carnival was written for the 16K ZX-81 by Anthony Hill of Bradford, West Yorkshire.

The engineers' enormous tractor must make its way through the maze on screen. Because it leaves such enormous tracks behind it, it has been decided that its route should be programmed in advance in order to avoid churning up the ground any more than is necessary. Give directions to Big Track for the entire route and then watch to see whether you will make it through the maze.

Written for the 16K ZX-81 by
Anthony Hill of Bradford, West
Yorkshire.

```

    GOSUB 9000
    CLS
    PRINT AT 0,0; "INPUT DIFFICUL
    T" (100 TO 500)
    INPUT D
    IF D>500 OR D<100 THEN GOTO
    9000
    D=D/100
    CLS
    PRINT AT 0,0; "INPUT N=1 TO 5
    FOR I=N TO 5
    PRINT AT (RND*20), (RND*31),

```

Snails

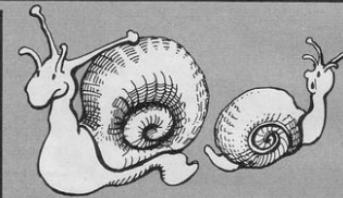
Your snail and the computer's snail each move around a board, leaving a slimy trail. Contact with another snail or with any slime means death. Can you trap the computer's snail before it traps you?

Snails was written for the Spectrum or Spectrum Plus by Sven Knowles of Burley in Wharfedale, West Yorkshire.

```

100 LET c$= SCREEN$ (c1,c2)
200 IF c$="" THEN LET n=u+5:
LET c1<c3: LET c2=c4: LET u=u+1:
GO TO 150
220 PRINT AT c1,c2; INVERSE 1;
"_
240 GO TO 40
1000 PRINT AT c1,c2; FLASH 1;_
"
1010 LET hs=hs+1: FOR p=1 TO 30:
BEEP .008,p: NEXT p
1020 PRINT AT 0,0;"SCORE COMP "
;c$;" HUMAN ";hs
1030 PRINT INVERSE 1;"_
"
1040 FOR I=1 TO 19
1050 PRINT INVERSE 1;"_"; INVER
SE 0;"_
"; INVERSE 1;"_"
1060 NEXT I
1070 PRINT INVERSE 1;"_
"
1080 LET c1=10: LET c2=10
1090 LET h1=10: LET h2=20
1100 IF hs=10 THEN GO TO 3000
1110 RETURN
2000 PRINT AT h1,h2; FLASH 1;"_
"
2010 LET c$=c$+1: FOR p=1 TO 30:
BEEP .008,p: NEXT p
2020 PRINT AT 0,0;"SCORE COMP "
;c$;" HUMAN ";hs
2030 PRINT INVERSE 1;"_
"
2040 FOR I=1 TO 19
2050 PRINT INVERSE 1;"_"; INVER
SE 0;"_
"; INVERSE 1;"_"
2060 NEXT I
2070 PRINT INVERSE 1;"_
"
2080 LET c1=10: LET c2=10
2090 LET h1=10: LET h2=20
2100 IF cs=10 THEN GO TO 3000
2110 RETURN
3000 PRINT AT 5,8; ("COMPUTER "
AND cs>hs) + ("HUMAN " AND hs>cs);

```



```

"WINNS!!"
3010 INPUT "Press ENTER to play
again "; LINE a$ 
8000 LET j=1: LET c1=10: LET c2=
10
8010 LET h1=10: LET h2=20
8020 LET hs=0: LET c$=0
8030 BORDER 0: PAPER INT ( RND
*6): INK 9: CLS
8040 PRINT "SCORE ";
8050 PRINT "COMP 00 HUMAN 00"
8060 PRINT INVERSE 1;"_
"
8070 FOR I=1 TO 19
8080 PRINT INVERSE 1;"_"; TAB 3
1; INVERSE 1;"_"
8090 NEXT I
8100 PRINT INVERSE 1;"_
"
8110 LET m=5: LET n=0: RETURN
9000 PRINT AT 1,12;"SNAILS"
9010 PRINT AT 3,0;" TRAP THE O
THER SNAIL WITH OUTHITTING YOUR
DUN TRACK, THE SIDEOR THE OTH
E R SNAILS TRACK."
9020 PRINT
9030 PRINT "      S   LEFT
                      6   DOWN
                      7   UP
                      8   RIGHT
"
9040 PRINT AT 20,10; INK 2; FLA
SH 1;"PRESS ENTER": PRINT "
TO START": INPUT V$
9050 GO TO 20

```

Across the rocky cliffs fly the mutant lizards, bent on terror and destruction. Move up and down with keys 6 and 7 and shoot as many mutants as you can using key zero.

Landscape of Fear was written for the Spectrum or Spectrum Plus by Paul Noakes of Kingswinford, West Midlands. Underlined characters are those to be entered in graphics mode.



LANDSCAPE OF FEAR

```
5 LET H=0: LET D=1: BORDER 0:
PAPER 0: INK 6: BRIGHT 1: CLS
```

```
6 LET S=0: LET T=0: LET X=0:
POKE 23658,255: POKE 23613,0
10 RESTORE 11: IF N$=USR "A" THEN
TO USR "B"+7: READ A1: POKE N$A:
NEXT N$: IF D=1 THEN GO SUB 90
```

```
11 DATA 0,0,64,96,126,127,240,
0,200,236,126,255,255,254,127,3
```

```

12 PRINT AT X,2; INK 3;"A": F
OR G=3 TO 0 STEP -1: PRINT AT 0
,0; INK 4;"SHIP"; INK 5;G: SCD
RE:; INK 6;S; INK 6;" HIGH":;
INK 7;H:"_
"
13 LET A= INT ( RND *14): FOR
B=1 TO ( RND *20)+11 TO 0 STEP -
1-5*(S>3000)-5*(S>6000): PRINT
OVER 1; INT ( RND *6)+1;
AT A,B;"B"
15 IF INKEY$ <> "" THEN PRI
NT AT X,2;": LET X=X+( INKEY$-
"6" AND X14)-( INKEY$="7" AN
D X>1): PRINT AT X,2; INK 3;"A"
16 IF INKEY$ = "0" THEN IF B>
2 THEN PLOT OVER 1;25,2+B*(21-
X): DRAW INK INT ( RND *6)+1;
OVER 1;230,0: BEEP .007,p: BEEP
.005,20: BEEP .003,40: DRAW OVE
R 1,1-231,0: IF X>A THEN LET S=-
1+INT B+10: PRINT AT 0,0; INK 4
;"SHIP"; INK 2; INK 5;" SCORE "
;INK 6;S; INK 6;" HIGH":; I
NK 7;H:"_: BEEP .05,-30: BEEP .
07,-40: BEEP .09,-50: PRINT AT
A,B;" "
18 IF INKEY$ = "" THEN FOR Y =
1 TO 3: NEXT Y
20 IF B>4 THEN GO TO 32

```

```

22 IF INKEY$ <> "" THEN PRI
NT AT X,2; INK 3;"A": LET X=X+( INKEY$-
"6" AND X14)-( INKEY$="7" AN
D X>1): PRINT AT X,2; INK 3;"A"
25 IF INKEY$ = "" THEN FOR Y =
1 TO 3: NEXT Y
28 PRINT OVER 1; AT A,B;"B":
LET A=A+( RND <.4 AND X14)-( RND
*.6 AND A>1): NEXT B
30 LET S=S-10: LET T=T+1: PRIN
T AT 0,13; INK 6;B;" : GO TO 1
3
32 IF X <> A OR B<2 THEN GO T
O 2
35 PRINT AT X,2; FLASH 1; INK
2;"B": PRINT AT X,3;" : BEEP
.1,-50: BEEP .1,-10: RND *510-
10: BEEP .2,-30: BEEP .1,-40: PRIN
T AT X,2; INK 3;"A"
40 NEXT B: PRINT AT X,2;" : "
PRINT AT 10,10; INK 2;"GAME OVE
R": AT 12,11;YOU LET "T1" ASTER
OIDS THROUGH": FOR X=1 TO 350: N
EXT X
41 PRINT AT 10,10; OVER 1; IN
K 2;"GAME OVER": AT 12,11;YOU LE
T "T1" ASTEROIDS T ".34H"
45 IF H$S THEN . . . : S
46 PAUSE 0: GO TO 1
50 LET D=0: LET Y=28: PLOT 0,2
B: FOR A=0 TO 14
100 LET DY= INT ( RND *56)-Y
110 DRAW 16,DY
120 LET Y=Y+DY
130 NEXT A
140 DRAW 15,28-Y
185 FOR N=1 TO 70: PLOT RND *2
,55, RND *175: NEXT N
190 RETURN

```

1 Knight Lore	Ultimate
2 Decathlon	Ocean
3 Lords of Midnight	Beyond
4 Matchday	Ocean
5 Hobbit	Melbourne House
6 Manic Miner	Software Projects
7 Sabre Wulf	Ultimate
8 Skooldaze	Microsphere
9 Doomdark's Revenge	Beyond
10 Underwurld	Ultimate

↑ HEIGHTS ↓ DEPTHS

1 Make a Chip	Sinclair
2 Transylvanian Tower	Richard Shepherd
3 Airwolf	Elite
4 Horace goes Skiing	Psion
5 Chequered Flag	Psion

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