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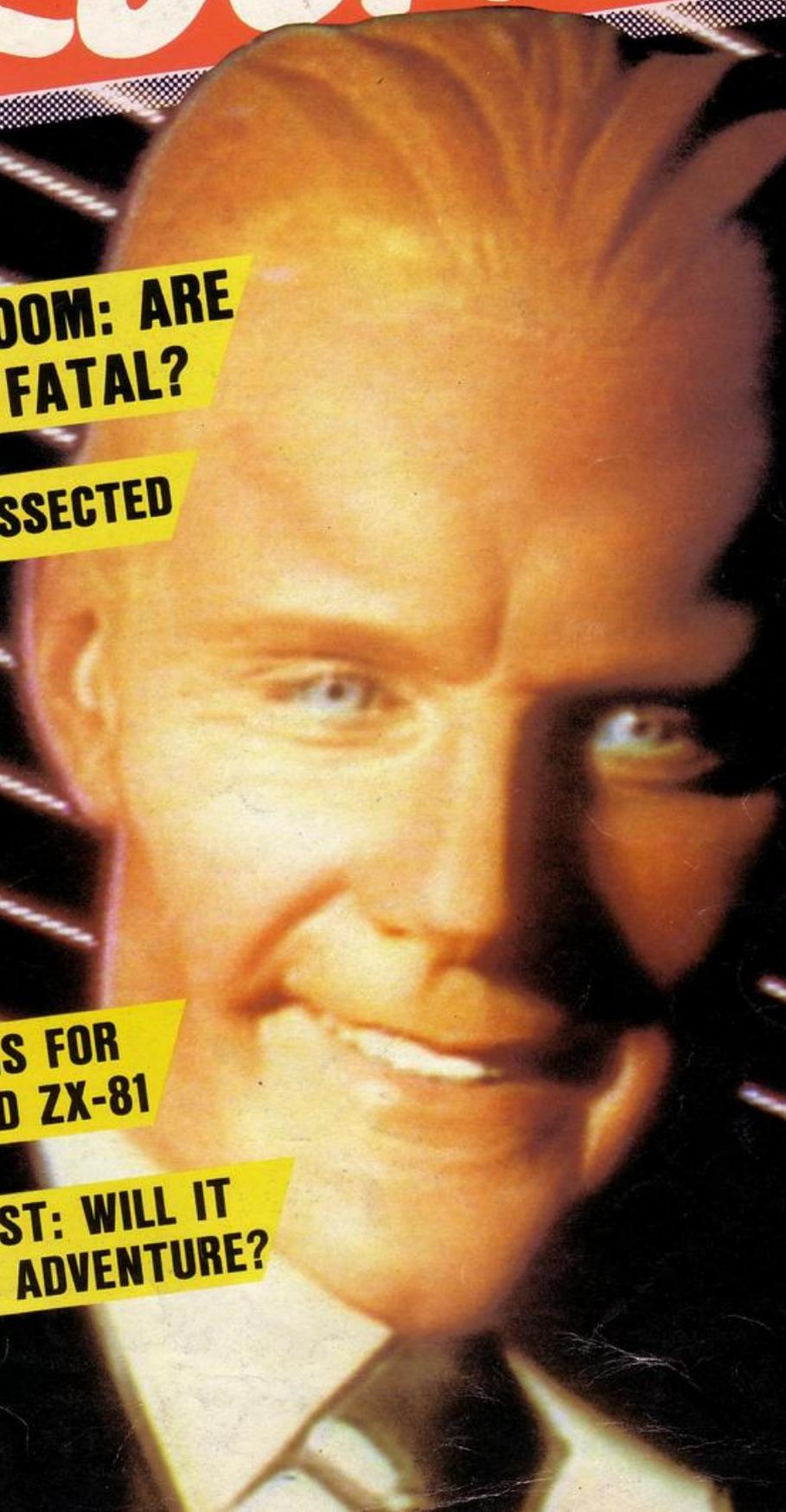


**MAX HEADROOM: ARE
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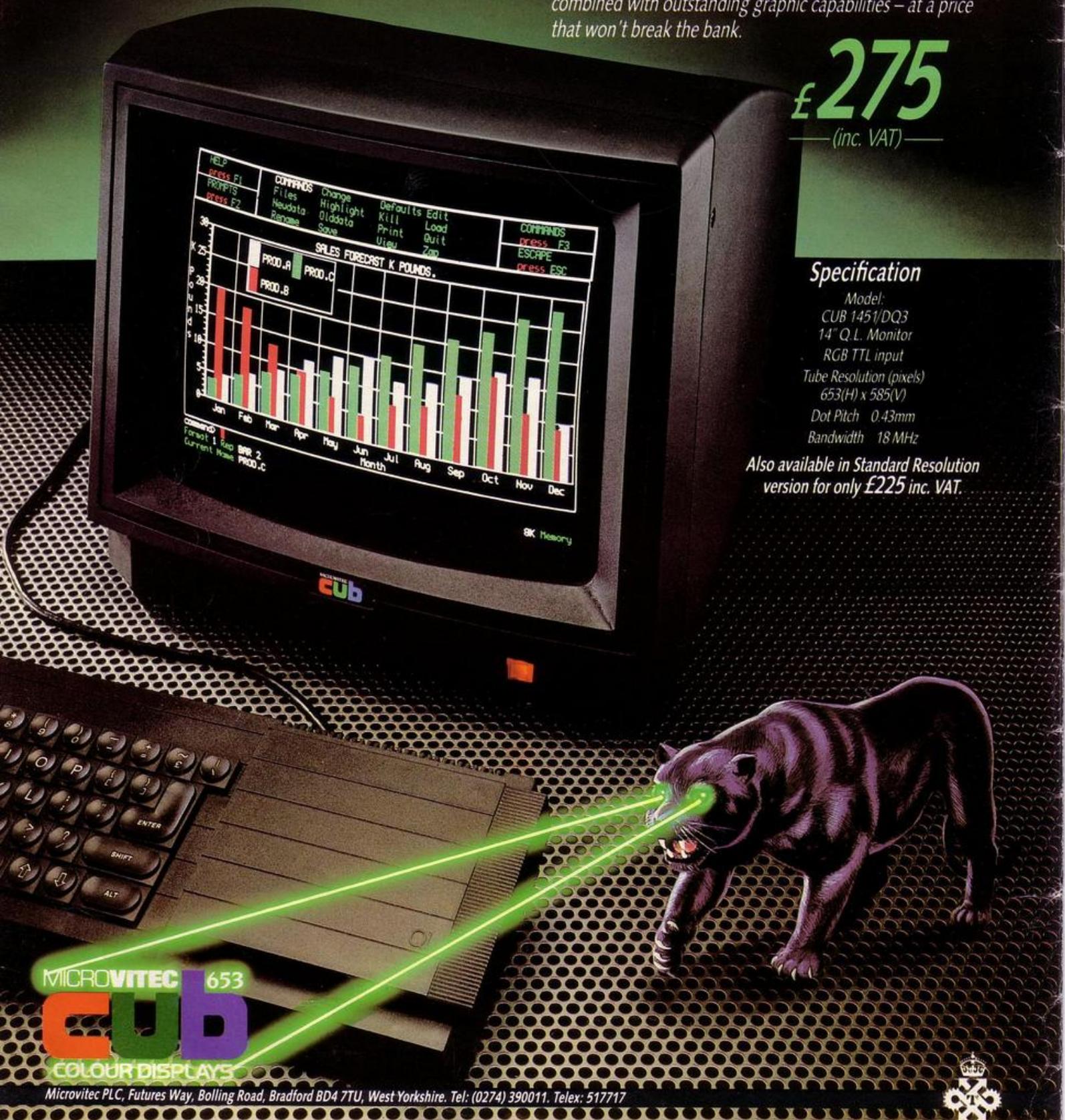
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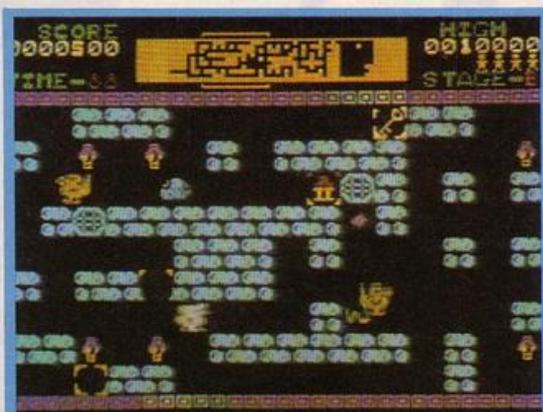


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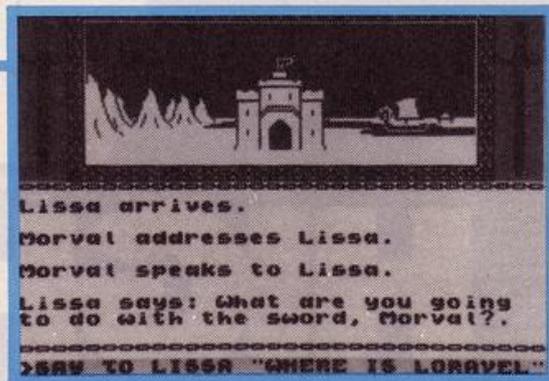
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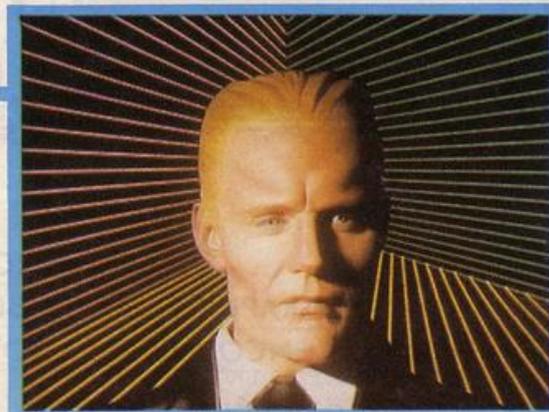
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Max Headroom

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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.



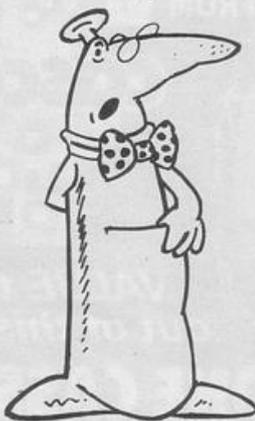
It was originally written for a machine with 200K memory and no graphics capability, but such was its attraction that it has since been developed, modified and converted for the Spectrum.

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 pre-view on page 20.

Also in this issue we interview **Max Healdroom**, 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.



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London EC1R 3AU

Programs should be on cassette. We cannot undertake to return them unless a stamped, addressed envelope is included. We pay £25 for the copyright of listings published and £10 for the copyright of listings published in the Beginners' section.

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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 "gw", and an inverse graphics W by "igw".

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 "(g4:4 * i4:g3)" 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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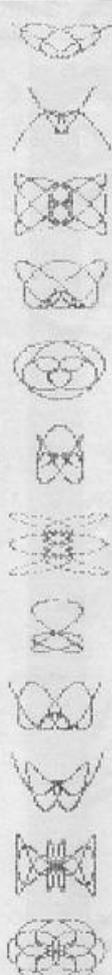
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5	BREAKOUT	22	CARS	40	VOYAGER
6	CRUSHER	23	STOMPER	41	SKETCH PAD
7	STARTRK	24	PINGALL	42	BLITZ
8	MARTIAN	25	CAVERN	43	FISHING MISSION
9	KNOCK OUT	26	LASER	44	MYSTICAL
9	BOGGLES	27	ALIEN	45	DIAMONDS
10	ALIEN ATTACK	28	CARGO	45	GALAXY DEFENCE
11	LUNAR LANDER	29	THE RACE	46	CYPHER
12	MAZE EATER	30	THE SKILL	47	JETMOBILE
13	MICROTRAP	31	ORBIT	48	BARREL JUMP
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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.

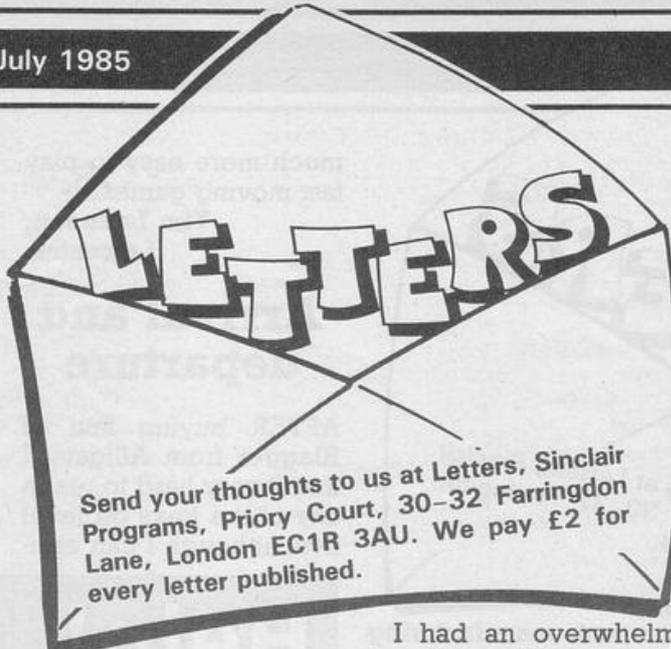
Software Farm's hi-res range looked very original and **Rocket Man** and **Forty Niner** are worth their weight in gold. Unfortunately, the originality has disappeared and Software Farm have brought out the umpteenth version of the mega-boring **Defender**, called **ZXtricator**. The only good thing 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 Shield.

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.

I had an overwhelming victory (I also bought a crown and a spell) and the watch words of Mid-night were revealed: "The brave and the free fear no foe. Forth, mighty lords of Mid-night! Unto death or victory we go"

I have also finished the **Lords of Midnight** and am now waiting for the **Eye of the Moon** in order to complete the trilogy.

Antonio Manuel.

Controversial keyboards

HAVING READ R Stephen's letter in the April issue concerning ZX-81 keyboards I disagree with his view that raised keyboards are better. I have been programming for three and a half years and I am used to the flat keyboard. Although I experienced difficulty at first, I soon got used to it.

If you slip while playing a game on a raised keyboard there is more chance of pressing a

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.

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.

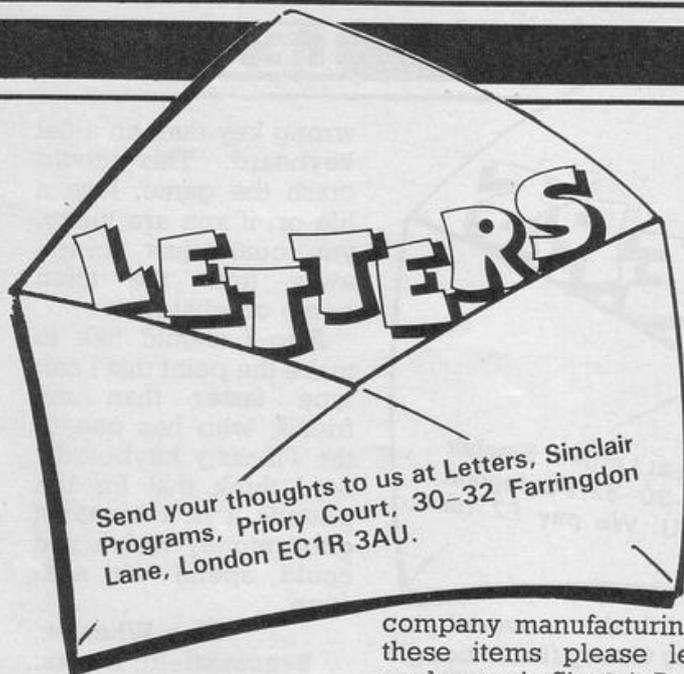
I guarantee that each program submitted is my original work.

Signed

Name

Address

.....



I HAVE had a 16K ZX-81 since Xmas 1983. Last August I purchased **Forty Niner** from Software Farm. My highest score was 16,515. 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 next to the keyboard and, what is more, the games did not crash. I also found that it became

much more easy to play fast moving games.

Tim Laundon,
Leicester.

Arrival and departure

AFTER buying **Son of Bagger** from Alligata, I find it very hard to reach any of the keys on level five, although I can easi-

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.**

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

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

"". Stop the cassette recorder at OK prompt. **CLEAR 32767:LOAD""** **CODE ENTER.** After the rest of the program has loaded, enter as direct commands: **POKE 60231,0 POKE 42183,11**

Help!

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

cheese and the hairy dog, but nothing happens. What do you use to get rid of him? Also, the inlay card says that objects may react with each other to form more useful objects. What are they, and what do they become?

Andrew Bowden,
Taunton, Somerset.

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

POKE 59901,82 POKE 56876,4

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

W Pooley,
Liverpool.



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

Help!

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

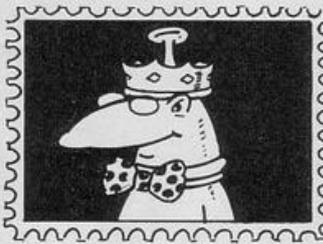
If anyone knows of a

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 1 010 025. 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!

Sherlock: How do I get to Leatherhead? **Anon.**

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

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**

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.



Help!

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

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.



Dragonforc's 1st High Lorelord

EAMON McGing of Camberley, Surrey, has been awarded a citation by Hewson Consultants for being the first player to finish **Dragonforc**.

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, 56B 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

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.

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.



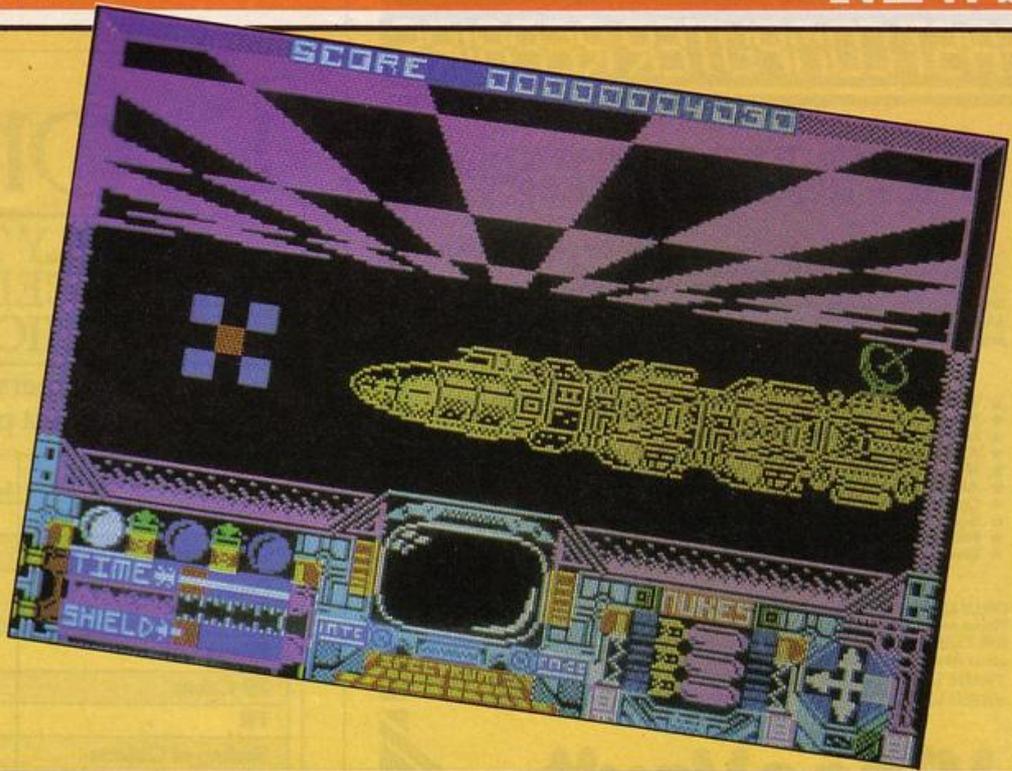
In a glass of its own

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

CLUMSY 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.

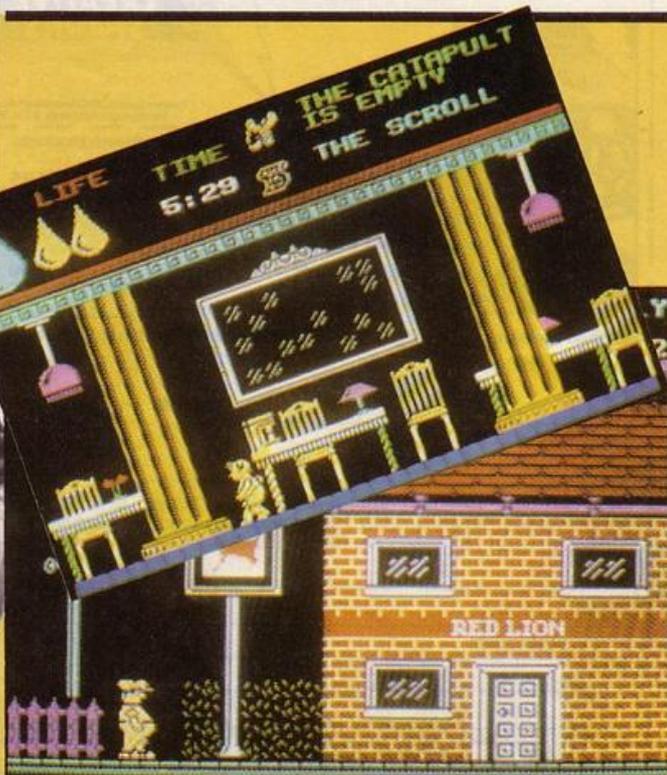
The latest program in the Horace series, **Horace to the Rescue** develops the love story. Horace, lucky boy, gets himself a girlfriend.

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

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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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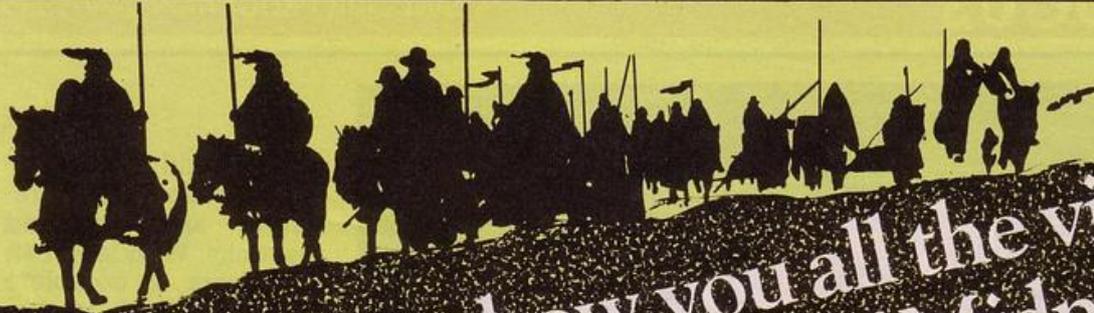
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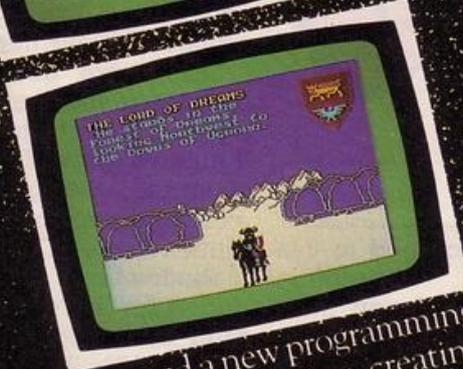
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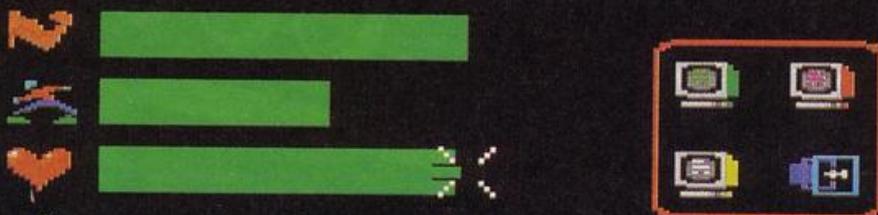
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SMASHING

SHADOWFIRE

BYOND 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 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

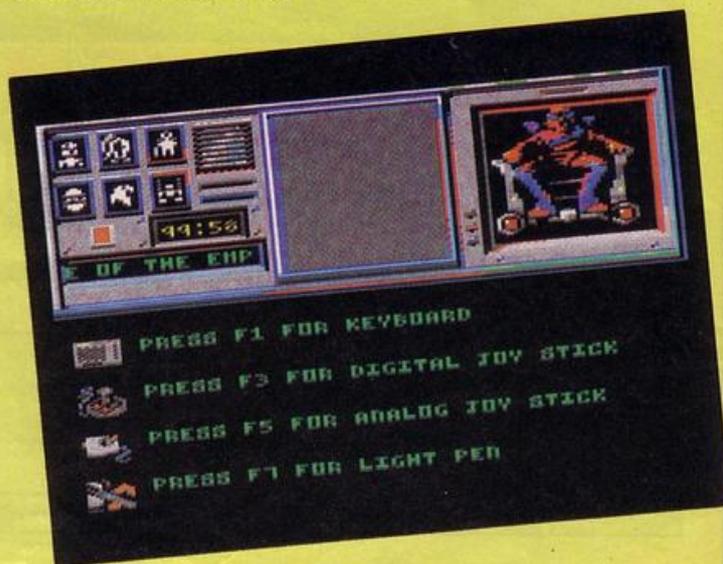
quickly, and the important decisions can require split second reactions. With less than two hours to complete your mission, it is useless to hang around in safe corners for too long, you must keep on the move.

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%



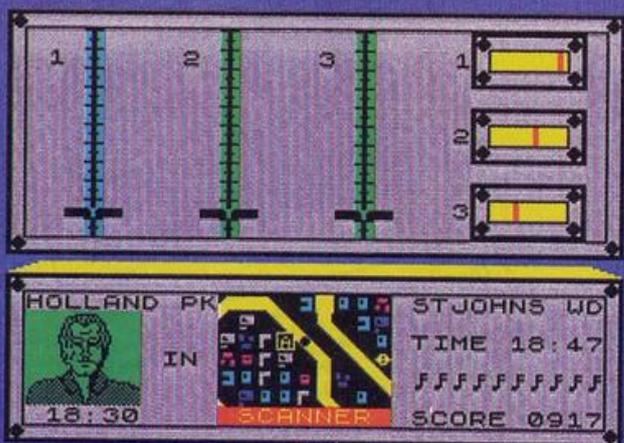
GIVE MY REGARDS TO BROADSTREET

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.

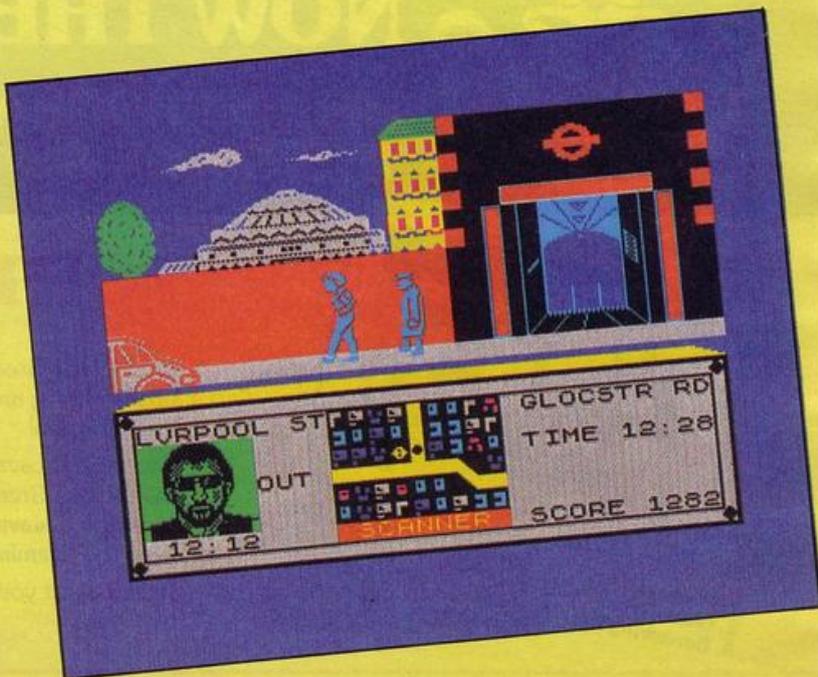
Instead, you have to track them down in the centre of London. By keeping a careful eye on your in-car computer, which tells you when they were last spotted at a tube station; and on your character summary, which tells you where they are likely to spend their days, you are supposed to predict where they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



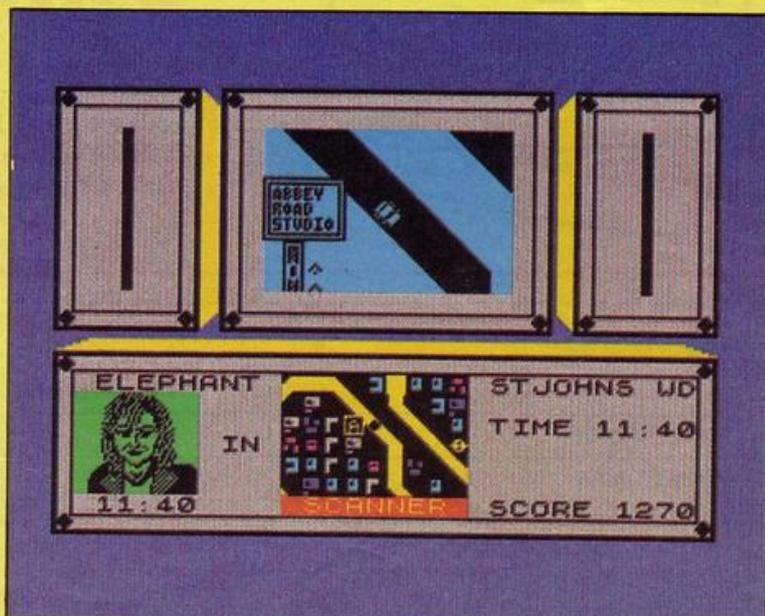
becomes much more fun. Instead of wandering disconsolately past tube stations for hours on end, with no one to talk to except the traffic warden, you can zoom around London, knowing exactly where everyone will be and when. The trick then, becomes to navigate the routes fast enough, to learn to take the 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%





LOOK!

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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!

1. Nuggets
2. Giant Rats
3. Burrowing Rat
4. Support
5. Cave In
6. Snake
7. Snake Nest
8. Gremlin
9. Mound
10. Pile of Earth
11. Cave

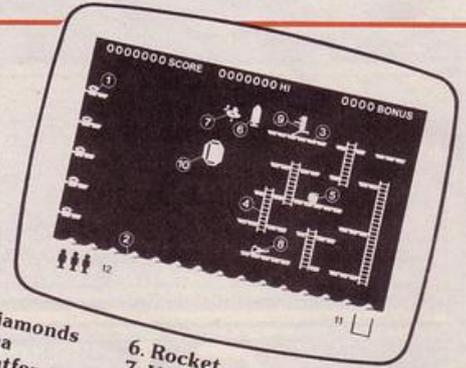
ROCKET MAN

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!

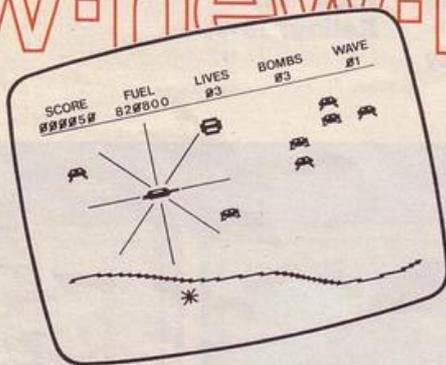
There is an expanse of shark infested water between you and the Diamonds and a strange breed of Bubble that seems hell bent on getting you in it! Somehow you must cross it...

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!



1. Diamonds
2. Sea
3. Platforms
4. Ladders
5. Fuel Cans
6. Rocket
7. Vulture
8. Leg of Lamb
9. Player
10. Bubloid
11. Fuel Gauge
12. Men remaining



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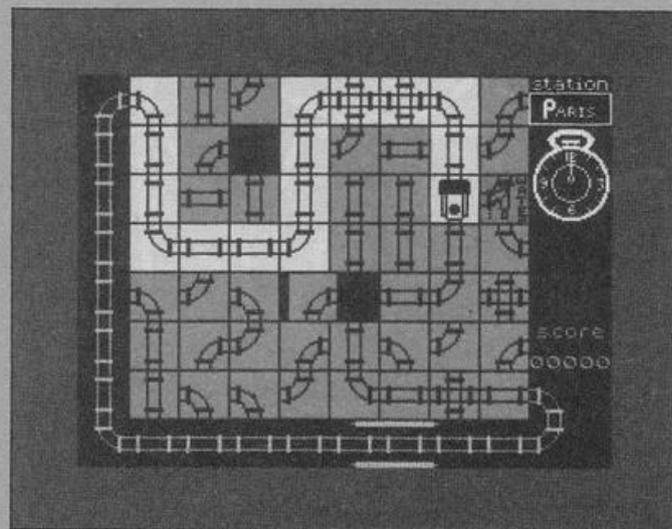
LOCOMOTION

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.

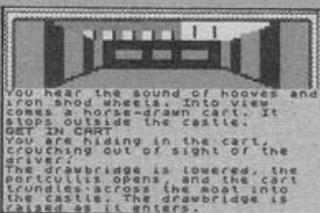
A gripping game, excellent value for money, **Locomotion** is produced for the 48K Spectrum by

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 Mirrorsoft, 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**.

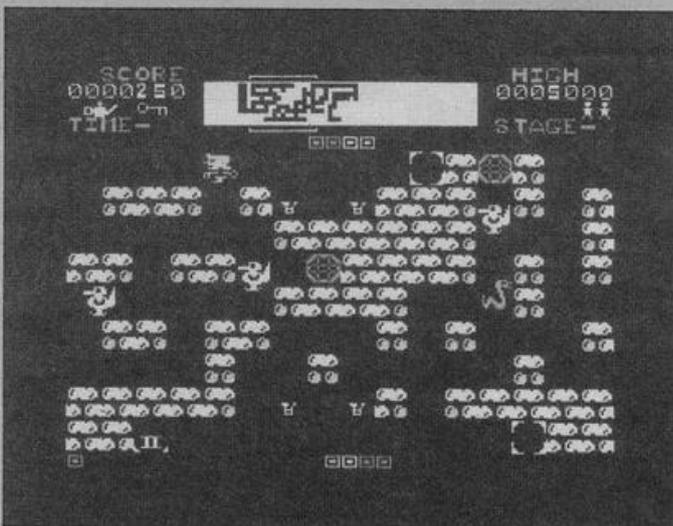
As night watchman in the Acme Toy Factory you must get through your nightly routine of checking in at various points and patrolling the factory, whilst avoiding the lethal windups rolling around the passageways.

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' bitter enemies, the Pollicle Dogs, have stolen the source of the Jellicle cats' power. Now they intend to form a pack and destroy it altogether.

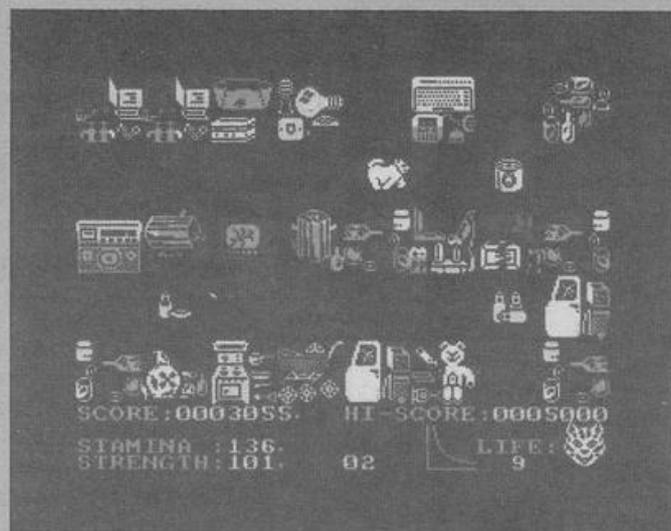
Deuteronomy must make his way through the maze of woodland, town and scrapyard, de-

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

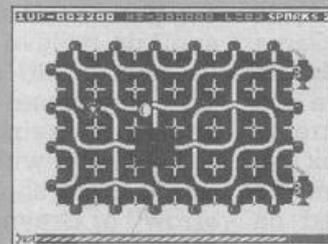
LIKE Locomotion, which is also reviewed in Softspot this month, **Confuzion** takes up the theme of the sliding puzzle in which blocks are slid into order by way of a space on the board.

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, 54 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 MacGibbon 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.

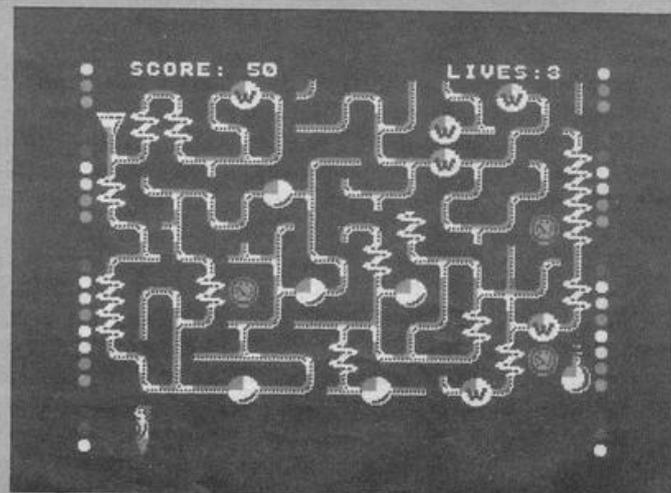
The arcade games, although difficult, hold no long term appeal, and fail to catch the anarchic humour of the book.

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

Produced for the 48K

Spectrum by Hill MacGibbon, 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.

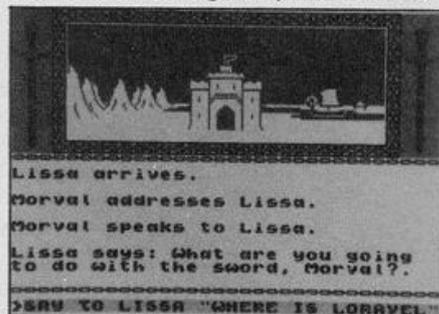
One thing I hope comes with the final booklet is a reasonable vocabulary. I received instructions on movement, on deleting or recalling commands and on changing between the three characters, but not a single clue, apart from the text shown on a couple of pictures taken from the screen.

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 Skrimnal 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 Skrimnal the Slimy from the list of characters as permanently as possible.

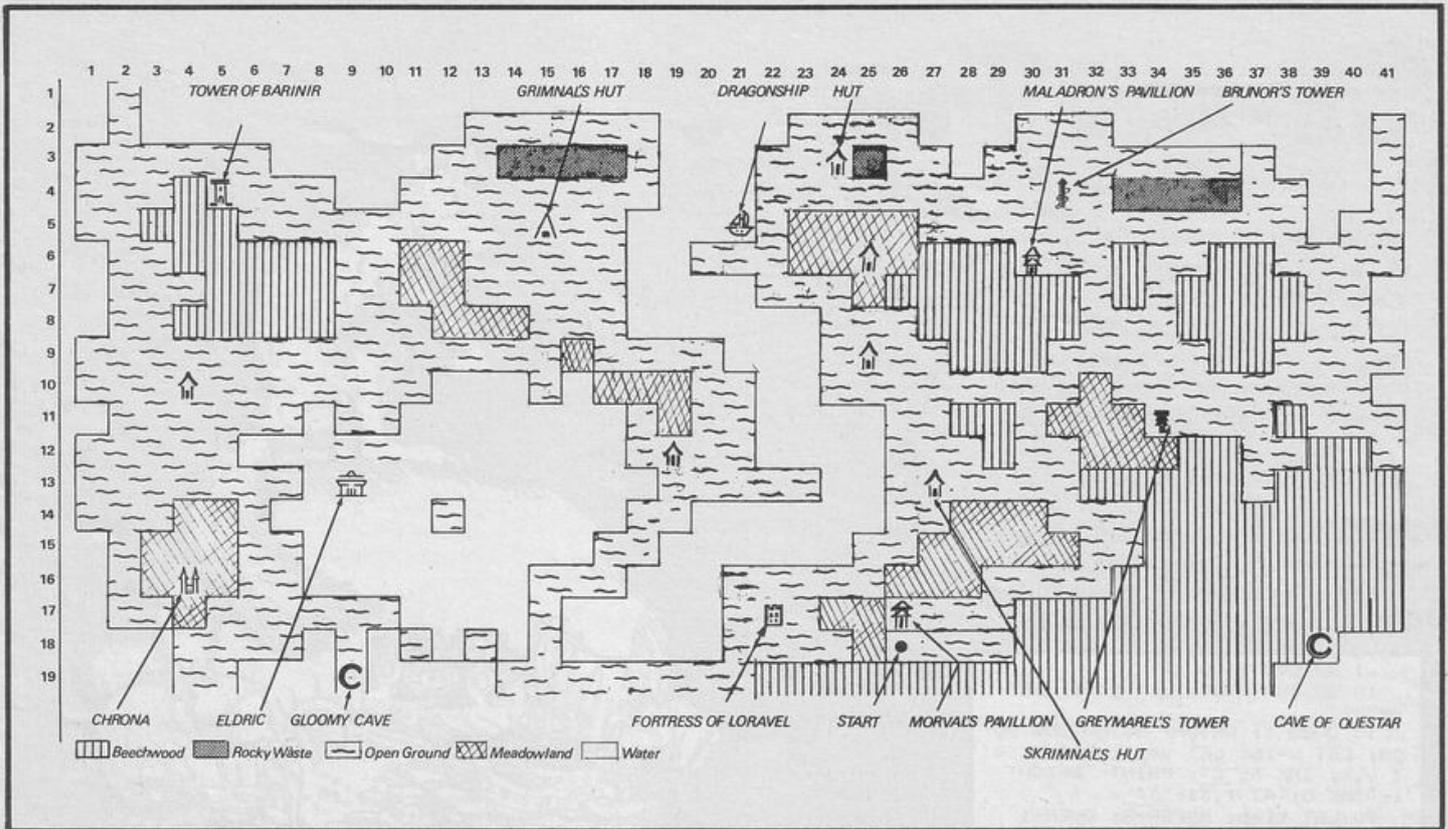
On one occasion he annoyed me while I was keeping uneasy company with a group of orcs. I aimed a blow at Skrimnal, then another, but, unfortunately for me, he dodged behind an orc, who, having taken the full brunt of the blow aimed at Skrimnal, was most annoyed and joined into the melee closely followed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



cause Skrimnal 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 Skrimnal 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



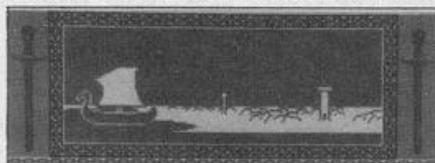
Skrimnal, who was most certainly not invited — frankly, I preferred the company of the orcs, but, as it was, we ended up duffing each other over while Skrimnal beat a hurried, but not a permanent, retreat.

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!

Morval 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-



Greymarel is standing on board a dragonship, looking west. He can see Skrimnal the spy.

Skrimnal examines the staff with interest.

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.


```

Select
8510 LET pq=50: LET s$="Digging
Equipment Sets": GO SUB 8800: LE
T de=de+a
8520 LET pq=200: LET s$="Men To
Hire": GO SUB 8800: LET mh=mh+a+
1
8540 LET pq=20*mh: LET s$="Food
& drink Sets": GO SUB 8800: LET
fd=fd+a
8560 LET cd=0: LET m2=m: LET pq=
1: LET m=fd: LET s$="Feed men? (
AMOUNT)": GO SUB 8800: LET m=m2:
LET fd=fd-a: LET st=st+a*100
8700 GO SUB 9045: RETURN
8800 POKE 23659,1: LET a=0: PRIN
T OVER 0; AT 22,0;s$;" "; TAB 3
2
8810 LET i$=INKEY$: PRINT INK
6; OVER 0; AT 22,0+ LEN s$+2; I
NK 3;a;" " : IF i$ <> "" THEN BE
EP .08,0
8820 IF i$="5" AND a>0 THEN LET
a=a-1: LET m=m+pq
8830 IF i$="8" AND m-pq >= 0 THE
N LET a=a+1: LET m=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
*3+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
2,18,82,60,90,129
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.

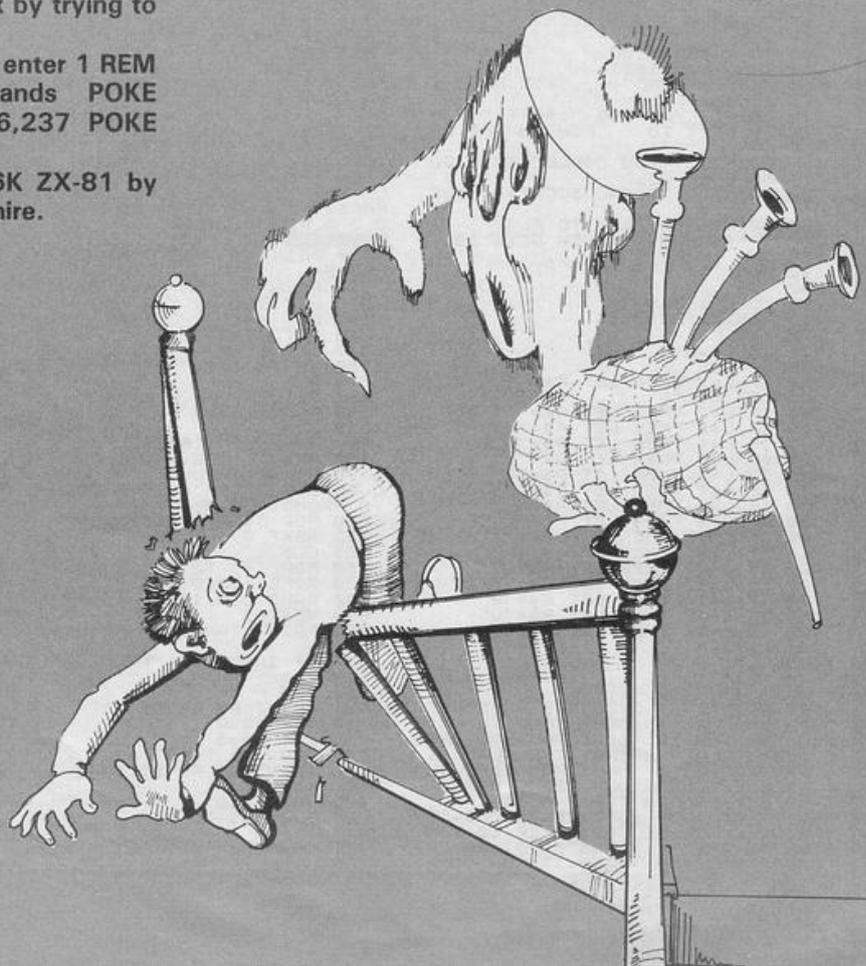
Horror House was written for the 16K ZX-81 by Michael Chadwick of Heywood, Lancashire.

Horror House

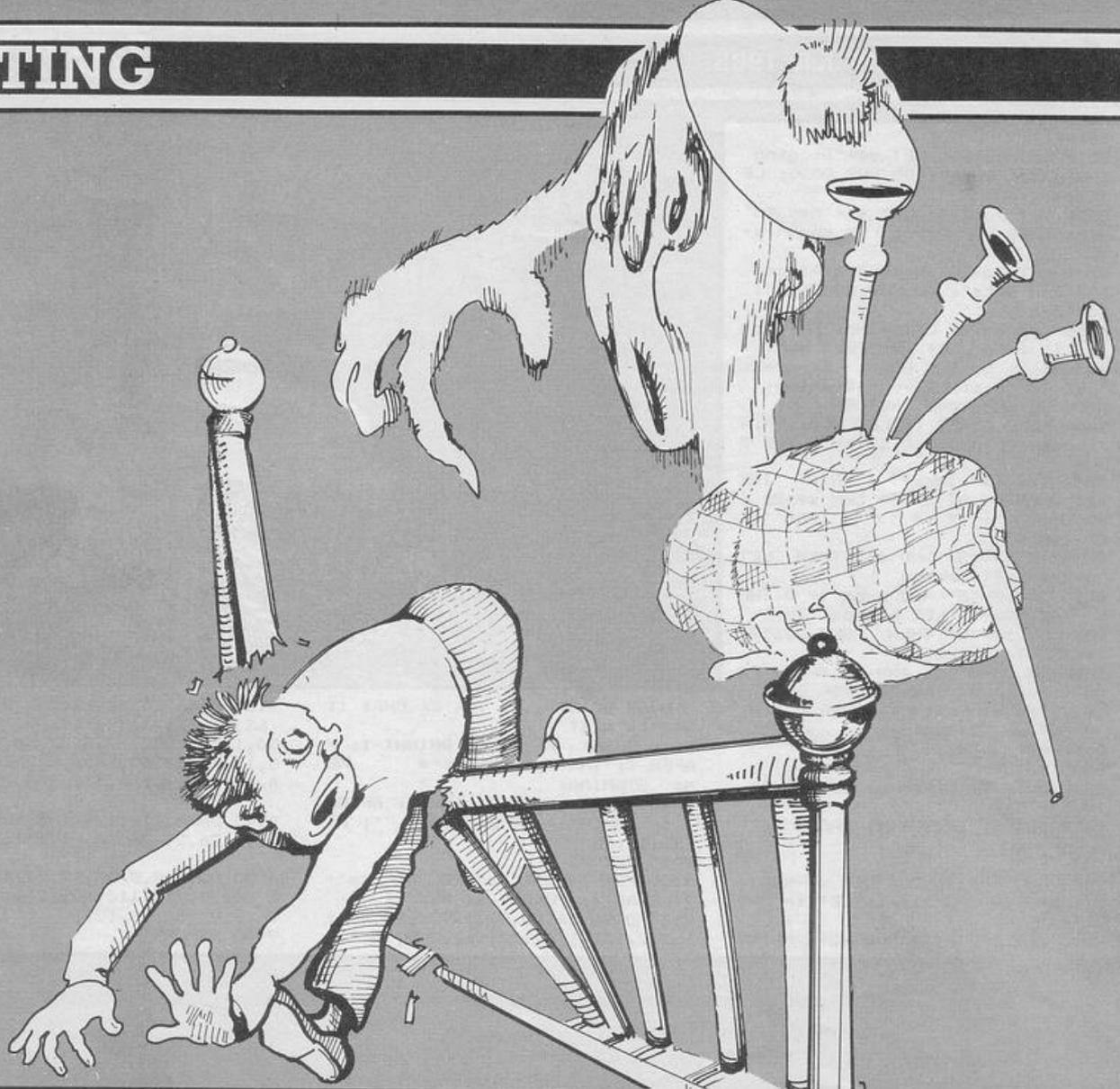
```

1 REM Y2 GOSUB ?TAN
2 LET J=1
3 LET L=1
4 GOSUB 500
5 PRINT " LEVEL ";L;" BAGS 0
F GOLD=";GOLD
6 GOSUB 1000
7 CLS
8 POKE 16515,J
9 RAND USR 16514
10 LET A=2
11 CLS
12 GOSUB 300
13 RAND
14 LET T=0
15 LET X=X+.5
16 LET B=2
17 LET D=20
18 LET E=30
19 LET U=A
20 LET V=B
21 LET R=D
22 LET S=E
23 PRINT AT A,B;A$;AT D,E;B$
24 LET B=B+(INKEY$="8" AND B<3
0)-(INKEY$="5" AND B>1)
25 LET T=T+1
26 IF T=50 THEN GOTO 200
27 LET A=A+(INKEY$="6" AND A<2
0)-(INKEY$="7" AND A>1)
28 LET I=INT (RND*X)+1
29 IF I=1 THEN GOTO 90
30 LET D=D+(D<A)-(D>A)
31 IF I<3 THEN GOTO 95
32 LET E=E+(E<B)-(E>B)
33 IF A=D AND B=E THEN GOTO 15
0
34 PRINT AT U,U;" " ;AT R,S;" "
35 IF INT (RND*20)=10 THEN GOT
0 750
36 IF A=RR AND B=SS THEN GOTO
850
37 PRINT AT RR,SS; (CHR# (INT (

```



LISTING



```

AND+60)+1) AND RR(>0)
110 GOTO 50
150 CLS
163 POKE 16515,30
155 RAND USR 16514
160 PRINT "DEAD",,,, "YOU MADE I
T TO LEVEL ";L
165 PRINT "YOU HAD ";50-T;" TIM
E UNITS LEFT TO FINISH THE LE
VEL"
167 PRINT ,,, "YOU COLLECTED ";GO
LD;" BAGS OF GOLD"
169 PRINT ,,, "TOTAL SCORE=";L*GO
LD
170 PRINT "ANY KEY TO PLAY"
180 IF INKEY$="" THEN GOTO 180
185 CLS
190 RUN
200 CLS
205 POKE 16515,30
210 RAND USR 16514
220 LET L=L+1
225 LET J=J+2
230 GOTO 5
300 IF L=1 THEN LET A$=""?
305 LET B$="A"
320 IF L=2 THEN LET A$="E"
330 IF L=3 THEN LET A$="U"
340 IF L=4 THEN LET A$="N"
350 IF L=5 THEN LET A$="S"
360 IF L=6 THEN LET A$="3"
370 IF L=7 THEN LET A$="D"
380 IF L=8 THEN LET A$="0"
390 IF L=9 THEN LET A$="+"
400 IF L=10 THEN LET A$="Z"
410 IF L=11 THEN LET A$="6"
420 IF L=12 THEN LET A$="3"
430 IF L=13 THEN LET A$="E"
440 IF L=14 THEN LET A$="0"
450 IF L=15 THEN LET A$="U"
465 IF L=16 THEN GOTO 600
460 RETURN
500 CLS
510 PRINT "          HORROR HOUS
E"
520 PRINT ,,, "YOU ARE A SECRET
SPY WHO HAS BEEN SENT TO AN
OLD MANSION IN SCOTLAND.YOU HAV
E BEEN TOLD THAT THE PLACE I
S HAUNTED WITH MANY MONSTERS AN
D PEOPLE.YOUR JOB IS TO MAKE I
T SAFELY TROUGH THE MANSION AND
REPORT AT YOUR OFFICE.THE MONST
ERS WILL CHASE YOU.AFTER 50 TIM
E UNITS THE MONSTER GIVES UP
CHASE AND YOU MAKE IT ON TO T
HE NEXT LEVEL. THERE IS 15 LEVE
LS"
525 PRINT ,,, "WATCH OUT,ITS GETS

```

```

HARDER EVERY LEVEL"
526 PRINT "ANY KEY TO CONTINUE"
530 IF INKEY$="" THEN GOTO 527
530 CLS
535 PRINT "YOU ALWAYS START AT
THE TOP CORNER,AND THE MONST
ER ALWAYS STARTS AT THE BOTTOM
ES TYPE THE GAME USES HIGH-R
E TYPE GRAPHICS.THE MONSTER
WILL ALSO DROP BAGS OF GOLD WH
ICH WILL KEEP CHANGING SHAPE.
WHEN THE MONSTER DROPS THE GO
LD THE PREVIOUS GOLD DISSAP
EARS. SOMETIMES THERE IS G
OLD ALREADY THERE."
535 CLS
530 PRINT ,,, "USE CURSOR KEYS TO
MOVE"
540 PRINT ,,, "ANY KEY TO PLAY"
543 LET GOLD=0
545 LET X=1
546 LET RR=0
547 LET SS=0
550 IF INKEY$="" THEN GOTO 550
570 CLS
580 RETURN
600 POKE 16515,30
610 CLS
620 RAND USR 16514
630 PRINT "WOW,YOUEVE DONE IT,AN
D YOUE FOUND SOME JEWELS,YO
U REPORT BACK TO BASE AND GET
A PROMOTION"
640 FOR G=1 TO 100
650 NEXT G
655 CLS
660 FOR I=1 TO 30
670 POKE 16515,I
680 RAND USR 16514
690 NEXT I
700 PRINT "ANY KEY TO PLAY AGAI
N"
710 IF INKEY$="" THEN GOTO 710
715 CLS
720 RUN
751 PRINT AT RR,SS;" "
755 LET RR=8
760 LET SS=3
770 FOR I=1 TO 9
780 PRINT AT RR,SS;CHR$ I
790 NEXT I
800 GOTO 110
850 FOR I=1 TO 10

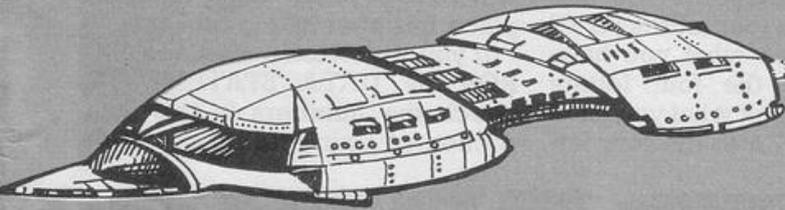
```

```

360 POKE 16515,I
370 RAND USR 16514
380 NEXT I
390 POKE 16515,J
400 RAND USR 16514
410 LET GOLD=GOLD+1
420 LET RR=0
430 LET SS=0
440 GOTO 110
1000 DIM K$(16,18)
1010 LET K$(1)="THE MAD HATTER"
1020 LET K$(2)="THE CHINESE KILL
ER"
1030 LET K$(3)="MR HOUVER BOUVER
"
1040 LET K$(4)="THE GUNNER"
1050 LET K$(5)="DEATH SLICER"
1060 LET K$(6)="THE DALEK"
1070 LET K$(7)="THE SQUIRM"
1080 LET K$(8)="THE WOLF"
1090 LET K$(9)="THE DOOM TANK"
1100 LET K$(10)="THE CELLAR DWEL
LER"
1110 LET K$(11)="THE TURANTULA"
1120 LET K$(12)="THE CYCLOPS"
1130 LET K$(13)="THE MANSION GUA
RD"
1140 LET K$(14)="THE SKULL"
1150 LET K$(15)="THE MASTER"
1160 LET K$(16)="THE EXIT"
1165 IF L=16 THEN RETURN
1170 PRINT " YOU ARE IN THE RO
OM OF ";K$(L)
1180 IF INKEY$="" THEN GOTO 1180
1190 RETURN
9997 STOP
9998 SAVE "H"
9999 RUN

```

EMERGENCY



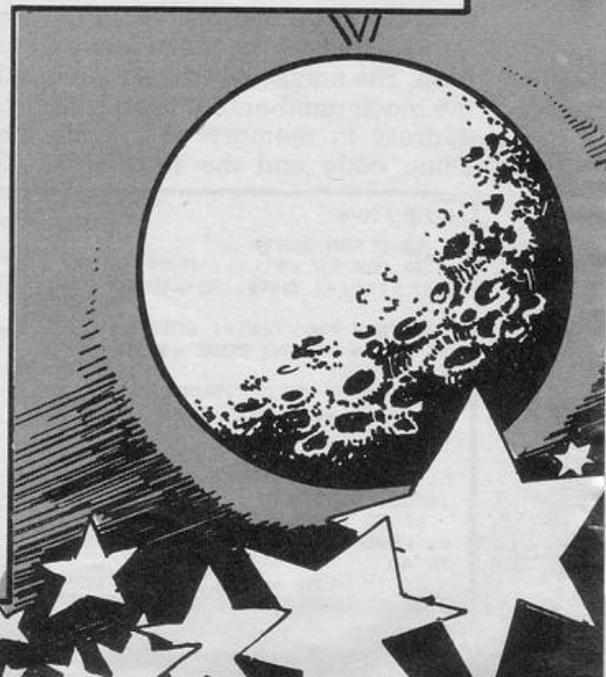
Automatic landing equipment on your space ship has failed, and it is left to you to take on manual control and bring the ship down safely on the moon. Control the fuel you use carefully in order to make a safe landing.

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

```

1000 DIM Y$(3)
1010 PRINT "HOUSTON CONTROL CALL
ING APOLLO 99."
1014 FOR J=1 TO 40
1020 PRINT AT 9,6;"THIS IS AN EM
ERGENCY."
1021 PRINT AT 9,6;"THIS IS AN EM
ERGENCY."
1022 NEXT J
1026 CLS
1030 PRINT "YOUR AUTOMATIC LANDI
NG COMPUTER HAS CRASHED AND MANU
AL CONTROL IS NECESSARY."
1031 PRINT
1040 PRINT "YOU MAY RESET THE FU
EL BURN RATE TO ZERO OR TO ANY VA
LUE BETWEEN 8 AND 200 LBS PER SE
COND."
1041 PRINT
1050 PRINT "YOUR CAPSULE WEIGHS
32500 LBS AND YOU HAVE 16000 L
BS OF FUEL."
1051 PRINT
1060 PRINT "THE ESTIMATED FREE-F
ALL IMPACT TIME IS 120 SECONDS."
1061 PRINT
1070 PRINT "THE RADAR WILL INFOR
M YOU OF YOUR STATUS EVERY 10
SECONDS."
1071 PRINT
1080 PRINT "GOOD LUCK APOLLO 99."
.....
1081 PRINT
1083 PRINT "PRESS ANY KEY TO CON
TINUE."
1085 IF INKEY$="" THEN GOTO 1086
1225 CLS
1300 PRINT AT 7,0;"ENTERING MANU
AL CONTROL."
.....
1310 PRINT
1320 FOR R=5 TO 0 STEP -1
1330 PRINT AT 15-R,12-R;R
1335 PAUSE 20
1340 NEXT R
1500 LET A=120
1525 LET L=0
1550 LET V=1
1600 LET M=33000
1700 LET N=16500
1750 LET G=.001
1800 LET Z=1.8
2100 SCROLL
2101 PRINT AT 17,0;"NAME OF CRATER"
.....
2102 PRINT "SECS MILES/FEET M
PH LBS"
2103 PRINT
2105 PRINT L;TAB (7);INT (A);TAB
(12);INT (5280*(A-INT (A)));TAB
(19);INT (3600*V);TAB (25);INT
(M-N)
2106 SCROLL
2107 PRINT
2108 SCROLL
2109 SCROLL
2110 PRINT "ENTER NEW FUEL RATE"
.....
2120 SCROLL
2275 INPUT K
2285 PRINT AT 20,22;"=" ;K
2290 SCROLL
2300 LET T=10
2700 IF K<0 THEN GOTO 2720
2701 IF K>200 THEN GOTO 2720
2702 IF K<8 THEN GOTO 2710
2703 IF K>8 THEN GOTO 3100
2710 IF K=0 THEN GOTO 3100
2720 PRINT "THIS IS NOT POSSIBLE"
.....
2725 SCROLL
2728 PRINT
2730 SCROLL
2740 GOTO 2110
3100 IF M-N<.001 THEN GOTO 4100
3200 IF T<.001 THEN GOTO 2105
3300 LET S=T
3400 IF N+S*K<=M THEN GOTO 3500
3450 LET S=(M-N)*K
3500 GOSUB 9100
3550 IF I<=0 THEN GOTO 7100
3600 IF V<=0 THEN GOTO 3800
3700 IF J<=0 THEN GOTO 8100
3800 GOSUB 6100
3900 GOTO 3100
4100 CLS
4105 PRINT "YOUR FUEL RAN OUT AF
TER ";L;" SECONDS."
4110 PRINT AT 9,6;"IMPACT IS IMM
INENT."
.....
4200 PAUSE 100
4400 LET S=(50R (V*U+2*A*G)-U)/G
4500 LET U=U+G*S
4600 LET L=L+S
4700 GOTO 5103
5100 REM LANDING PROCEDURE
5103 CLS
5105 PRINT "YOU LANDED ON THE MO
ON AFTER ";INT (L);" SECONDS."
.....
5115 LET U=INT (3600*U)
5117 PRINT
5120 PRINT "THE IMPACT VELOCITY
WAS ";U;" MPH"
5130 PRINT
5250 PRINT "THE AMOUNT OF FUEL L
EFT IS ";INT (M-N);" LBS"
5260 PRINT
5300 IF U>10 THEN GOTO 5500
5400 PRINT "CONGRATULATIONS THAT
WAS A PERFECT LANDING...."
.....
5401 PRINT
5450 GOTO 5900
5500 IF W>20 THEN GOTO 5500
5550 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...."
5655 PRINT
5675 GOTO 5900
5700 IF U>70 THEN GOTO 5800
5750 PRINT "YOU HAVE SUFFERED EX
TENSIVE CRAFT DAMAGE AND COU
LD NEVER RETURN TO EARTH...."
5755 PRINT
5775 GOTO 5900
5800 PRINT "YOU LANDED MUCH TOO
FAST. YOUR CRAFT EXPLODED AND T
HERE WERE NOSURVIVORS."
5820 PRINT
5850 PRINT "IN FACT YOU CREATED
A NEW CRATER";INT (U*.27777);" F
EET DEEP"
5860 PRINT
5870 PRINT
5900 PRINT "TRY AGAIN? Y/N"
.....
5965 IF INKEY$="Y" THEN GOTO 122
5
5970 IF INKEY$="N" THEN GOTO 598
0
5975 GOTO 5950
5980 PRINT
5981 PRINT "THIS IS HOUSTON CONT
ROL SAYING OVER AND OUT...."
5985 STOP
6100 LET L=L+S
6200 LET T=T-S
6300 LET M=M-S*K
6400 LET A=I
6500 LET V=J
6600 RETURN
7100 IF S<.005 THEN GOTO 5100
7200 LET S=2*A/(U+SQR (U*U+2*A*(
G-Z*K/M)))
7300 GOSUB 9100
7400 GOSUB 6100
7500 GOTO 7100
8100 LET W=(1-M*G/(Z*K))/2
8150 LET S=M*V/(Z*K*(U+SQR (U*U+
U/Z)))+.05
8250 GOSUB 9100
8300 IF I<=0 THEN GOTO 7100
8400 GOSUB 6100
8500 IF J>=0 THEN GOTO 3100
8600 IF V>0 THEN GOTO 6100
8700 GOTO 3100
9100 LET Q=S*K/M
9200 LET J=U+G*S+Z*(-Q-Q**2/2-Q*
S/3)
9400 LET I=A-G*S*5/2-U*S+Z*S*(Q/
2+Q**2/6+Q**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-

hear a 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 taped 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 64x64 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

ters 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 one

```
10 CLEAR 26999: LOAD "DUEL CO
DE " CODE
20 BORDER 1: PAPER 0: INK 6: R
ANDMIZE : 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.

listing two

```
10 CLEAR 26999
20 DEF FN x$(x)=( CHR$( 48+x)
AND x<10)+( CHR$( 55+x) AND x>9)
30 DEF FN x(x$)=( CODE x$-48 A
ND x$ <= "9")+ ( CODE x$-55 AND x
$ >= "A")
40 INPUT "BLOCK NUMBER? "; LIN
E a$: IF a$="QUIT" THEN BEEP 2,
5: STOP
50 IF a$="SAVE" THEN BEEP 1,3
0: SAVE "DUEL CODE " CODE 27000
,4523: GO TO 40
60 IF a$="LOAD" THEN BEEP 1,1
0: 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 THE
N PRINT " "
100 LET a= INT ((h+8*n)/256): L
ET b=h+8*n-256*a: GO SUB 180: PR
INT x$: LET a=b: GO SUB 180: PR
INT x$;" "
110 FOR f=0 TO 7: LET a= PEEK (
h+8*n+f): GO SUB 180: PRINT " ";
INVERSE 1;x$: NEXT f
120 PRINT " " "": FOR m=0
TO 7
130 INPUT "HEX.? "; LINE a$: IF
a$="" THEN BEEP .1,-10: PRINT
: GO TO 160
140 IF LEN a$ <> 2 THEN BEEP
.1,0: GO TO 130
150 PRINT " ";a$: GO SUB 210:
POKE (h+8*n+m),y: NEXT m
160 NEXT N: BEEP 1,20: PRINT "
: LET h=h+32: GO TO 40
170 STOP
180 LET x= INT (a/16): LET y=a-
x*16
190 LET x$= FN x$(x)+ FN x$(y)
200 RETURN
210 LET y=16* FN x(a$(1))+ FN x
(a$(2))
220 RETURN
```

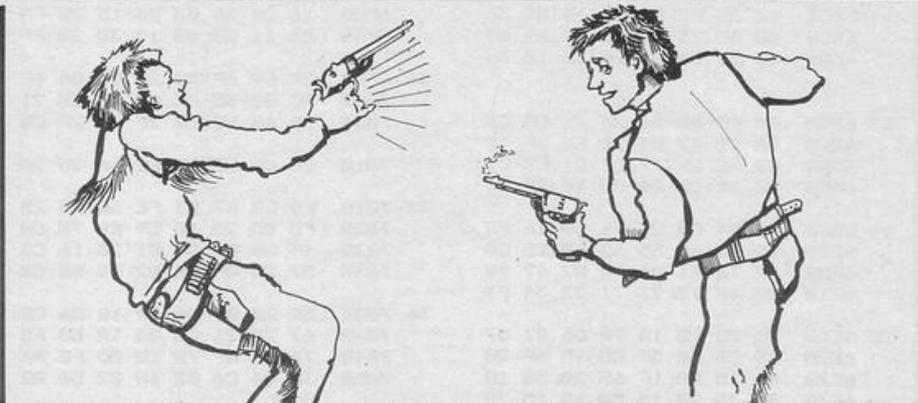
listing three

```

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 T
HEN LET a=n: GO SUB 90: PRINT
AT 10,7;"ERROR IN BLOCK ";x$: ST
OP
60 LET a=n: GO SUB 90: PRINT
AT 5,7;"BLOCK ";x$;" 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
    
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,3193,4437,3343,3963,4352,2594,2
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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
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,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
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170 DATA 2031,1356,1637,1862,77
3,467,749,1232,1664,1951,1368,18
73,1104,1199,851
180 DATA 1061,1453,2095,2298,21
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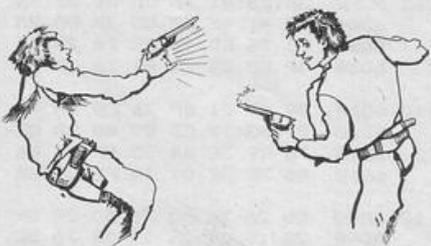
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01 6998 C8 13 01 41 90 CD 21 6B
69A0 01 18 25 CD D9 0D 21 93
69A8 6B CD 7A 70 CD 74 70 01
69B0 1C 1A CD D9 0D 21 A6 6B
02 69B8 CD 7A 70 AF 32 08 5C 06
69C0 07 21 88 58 3E 02 16 10
69C8 58 CD DD 6F 0E 28 76 3A
69D0 08 5C A7 20 08 0D 20 F6
03 69D8 05 20 E6 18 E2 21 04 04
69E0 22 BF 76 21 30 30 22 C5
69E8 6B CD 06 6A CD E2 74 CD
69F0 06 6A 21 6A 70 36 00 E5
04 69F8 CD 7C 71 E1 36 04 CD 06
6A00 6A CD D6 68 18 E3 3E F0
6A08 06 FA F5 CD FA 6F 78 D6
6A10 0A 47 F1 88 20 F4 D6 0A
05 6A18 20 EE CD 6B 0D 06 32 CD
6A20 76 70 3A BF 76 A7 20 3B
6A28 3E 32 32 CF 6B 21 00 58
6A30 3E 14 16 20 1E 03 CD DD
06 6A38 6F 01 18 67 11 C8 6B 3E
6A40 32 CD 21 68 21 08 5C 36
6A48 00 06 00 CD FA 6F 78 ED
6A50 44 47 CD FA 6F 78 ED 44
07 6A58 C6 05 47 3A 08 5C A7 28
6A60 EA C1 C9 3A C0 76 A7 20
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6A70 7E 3C FE 3A 20 05 2B 34
08 6A78 23 3E 30 77 2B 7E 23 FE
6A80 30 20 69 7E FE 31 20 07
6A88 21 02 59 3E FE 18 44 FE
6A90 32 20 0C 21 01 91 11 F4
09 6A98 71 ED 53 DA 71 18 70 FE
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6AA8 6C ED 53 2E 6C 18 60 FE
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0A 6ABB FE 35 20 05 21 02 59 18
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0B 6ADB FE 38 20 08 21 01 91 11
6AE0 DC 71 18 85 21 03 21 11
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6B90 45 4C FF 10 07 11 00 42
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14 6BF8 01 02 2D C5 CD D9 0D 3E
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6C08 FE 18 20 EF 3E 10 D7 3E
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15 6C18 0E 18 CD AE 6C 79 C6 20
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16 6C38 FF 28 08 E5 47 CD AE 6C
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6B30 6B 5F 5F 5F 5F 5F 5F
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6C68 CD 3A 6F DD 22 B3 76 C1
6C70 11 B5 76 CD D0 6E CD F0
18 6C78 6D 06 FF CD FA 6F 11 AA
6C80 76 01 FE FE C5 CD 25 70
6C88 DD 2A B1 76 CD 3A 6F DD
6C90 22 B1 76 C1 11 B9 76 CD
19 6C98 D0 6E CD F0 6D 06 FA CD
6CA0 FA 6F 01 13 17 CD D9 0D
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6CB0 70 C5 CD AA 22 C1 CD DB
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6CC8 27 38 57 48 67 58 77 68
6CD0 37 88 47 98 57 AB 87 88
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6CE0 12 13 13 10 FB C9 01 21
6CE8 2E CD D9 0D CD 2A 6D 01
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1C 6CF8 DD 2A B1 76 ED 4B A7 76
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22 6DB8 9F 47 70 79 83 FE F7 38
    
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continued on p 28

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7028	4F	20	04	06	01	18	16	CB	49 7298	CD	BA	24	C1	78	D6	10	47
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7068	12	18	04	47	CD	FA	6F	18	48 72D8	10	00	ED	B0	E1	C1	10	E2
7070	1B	1B	1B	C9	06	64	76	10	72E0	EB	21	0C	FF	19	01	0C	00
38 7078	FD	C9	7E	FE	FF	C8	23	D7	72E8	7E	FE	FF	20	0C	12	13	00
7080	18	F8	46	23	4E	E5	CD	B5	72F0	20	FB	CD	20	74	CD	20	74
7088	70	E1	23	C9	21	BD	76	46	4C 72F8	C9	ED	B0	18	F5	CD	20	74
7090	23	4E	08	71	2B	70	78	FE	7300	06	58	C5	E5	54	5D	23	01
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70A0	7C	E6	07	C0	7D	C6	20	6F	7310	09	FE	00	20	04	3E	00	18
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70F0	4F	DD	56	00	06	00	3F	CB	7360	F5	CD	1F	74	F1	0E	0B	06
3C 70F8	1A	CB	18	0D	20	F9	18	18	7368	0C	E5	C5	47	E5	05	28	04
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7108	44	28	09	3F	4F	CB	10	CB	50 7378	FE	03	20	02	3E	07	87	87
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7120	E6	1F	20	09	7D	D6	20	FE	7390	20	09	7D	FE	00	20	01	25
7128	E0	20	01	25	6F	7E	A0	77	51 7398	D6	10	6F	3E	01	C1	10	CA
7130	79	C1	0D	20	B6	4F	7D	E1	73A0	E1	F5	3E	14	83	30	01	14
3E 7138	CD	9F	70	79	10	A0	DD	E1	73A8	5F	7D	C6	10	6F	30	08	24
7140	C1	C9	F5	D5	C5	CD	23	73	73B0	7C	FE	00	20	02	26	7C	F1
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7150	78	02	47	79	83	4F	F1	3D	73C0	13	1A	4F	13	CD	23	73	C5
3F 7158	20	E8	C9	3E	08	11	01	00	73C8	47	1A	CD	D1	74	13	1A	C1
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7188	CD	DD	6F	21	21	58	3E	0D	54 73F8	78	FE	40	20	02	06	00	18
7190	16	0E	1E	18	CD	DD	6F	21	7400	18	79	12	1B	78	12	CD	23
41 7198	42	58	3E	08	16	0C	1E	06	7408	73	57	47	7E	05	28	04	CB
71A0	CD	DD	6F	21	31	58	3E	0D	7410	3F	18	F9	E6	03	20	12	42
71A8	16	0E	1E	18	CD	DD	6F	21	55 7418	3E	03	CD	D1	74	E1	C9	76
71B0	52	58	3E	08	16	0C	1E	00	7420	01	BC	02	08	78	3C	20	FB
42 71B8	CD	DD	6F	3E	06	32	8F	5C	7428	C9	E1	22	8C	74	E5	7D	FE
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71C8	9F	CD	71	72	21	00	7C	54	56 7438	40	CD	A5	72	21	F8	58	11
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71E8	01	2C	0E	CD	5B	71	01	2C	57 7458	00	78	48	CD	B1	74	78	ED
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7208	CD	7A	70	01	13	19	CD	D9	58 7478	87	47	CD	FA	6F	78	C6	1E
7210	0D	CD	8C	70	11	44	5A	21	7480	47	CD	FA	6F	78	C6	1E	47
45 7218	BF	76	3E	10	CD	DF	6C	11	7488	CD	FA	6F	21	AC	76	11	52
7220	55	5A	23	CB	2F	CD	DF	6C	7490	58	CD	49	73	D9	04	78	FE
7228	3E	3E	32	E8	58	32	F8	58	59 7498	06	20	BE	E1	C1	7D	FE	A7
7230	CD	74	70	11	AA	76	01	FE	74A0	21	BF	76	28	01	23	35	28
46 7238	FE	CD	25	70	CD	BD	73	11	74AB	03	C3	7C	71	21	58	27	D9
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2E 6F38	C1	C9	62	6B	CD	82	70	23
6F40	7E	23	3D	20	1B	50	15	15
6F48	79	C6	0F	5F	CD	1F	6F	20
6F50	0A	7A	D6	0B	57	CD	1F	6F
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6F60	3D	20	1A	50	15	59	1C	1C
6F68	1C	CD	1F	6F	20	0A	78	C6
6F70	0B	5F	CD	1F	6F	20	01	04
30 6F78	11	AF	78	18	37	3D	20	1A
6F80	50	15	15	59	1C	1C	CD	1F
6F88	6F	20	0A	7A	D6	0B	57	CD
6F90	1F	6F	20	01	0D	11	FF	79
31 6F98	18	1A	78	D6	0E	57	59	1C
6FA0	1C	1C	CD	1F	6F	20	0A	78
6FA8	C6	0B	5F	CD	1F	6F	20	01
6FB0	05	11	1F	79	CD	C3	6F	2B
32 6FB8	2B	2B	71	2B	70	E5	CD	C5
6FC0	70	E1	C9	7E	FE	FD	20	04
6FC8	D5	DD	E1	C9	11	25	00	DD

PRO-PRINTOUT

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 74C0 38 01 15 19 78 D6 07 ED
 74CB 44 87 87 87 C6 06 77 E1
 74D0 C9 4F 3E FC 05 28 07 CB

5B 74DB 21 37 CB 17 18 F6 A6 B1
 74E0 77 C9 CD 68 0D 11 A7 76
 74EB 21 CB 76 01 14 00 ED 80
 74F0 3A BF 76 21 40 58 11 17

5C 74FB 1F CD 6F 76 3A C0 76 21
 7500 58 58 11 0F 2F CD 6F 76
 7508 DD 21 15 77 01 7C 5B CD
 7510 C5 70 CD E6 6C CD 74 70

5D 751B DD 2A B3 76 01 FE EF 11
 7520 AF 76 CD 25 70 01 C0 76
 7528 CD 20 76 DD 22 B3 76 DD
 7530 2A B1 76 01 FE FE 11 AA

5E 753B 76 CD 25 70 01 BF 76 CD
 7540 20 76 DD 22 B1 76 DD 2A
 7548 B5 76 21 B7 76 CD 82 70
 7550 7E 80 47 FE 09 30 0B 06

5F 755B 09 7E ED 44 77 CD 16 76
 7560 18 08 FE 9F 38 04 06 9F
 7568 18 EF 23 7E 81 4F FE D0
 7570 38 42 20 23 3A AC 76 90



60 757B 3C FE 0A 30 44 CD 16 76
 7580 7E ED 44 77 2B 7E CB 7F
 7588 16 00 28 02 16 FC CD 37
 7590 6D E6 03 B2 77 18 2B FE

61 759B F4 20 26 01 C0 76 21 58
 75A0 58 11 0F 2F 18 48 A7 20
 75AB 18 01 BF 76 21 40 58 11
 75B0 17 1F 18 3A FE 2A 30 09

62 75BB FE 28 20 EA 3A A7 76 18
 75C0 B6 2B 2B 71 2B 70 11 25
 75C8 00 DD 19 DD 7E FB FE FF
 75D0 20 04 DD 21 15 77 CD C5

63 75DB 70 DD 22 B5 76 41 CD FA
 75E0 6F 01 13 17 CD D9 0D CD
 75EB 8C 70 CB 31 18 75 C5 0A
 75F0 06 40 F5 D5 E5 C5 76 CD

64 75FB 6F 76 CD 37 6D 47 CD FA
 7600 6F 78 ED 44 47 CD FA 6F
 7608 C1 E1 D1 F1 14 1C 10 E2
 7610 E1 35 C2 E2 74 C9 E5 C5

65 761B 06 64 CD FA 6F C1 E1 C9
 7620 62 68 0A 87 87 87 F5 C6
 7628 81 32 41 76 F1 D6 2D ED
 7630 44 32 50 76 CD 82 70 23

66 763B 7E 3D 3D 20 0B 04 04 78
 7640 FE 89 20 12 05 05 18 0D
 7648 3D 3D 20 18 05 05 78 FE
 7650 25 20 03 04 04 70 11 25

67 765B 00 DD 19 DD 7E FB FE FF
 7660 20 05 11 6C FF DD 19 2B
 7668 2B 2B 70 CD C5 70 C9 47
 7670 7A 32 91 76 7B 32 95 76

68 767B 3E 04 90 4F 87 87 87 87
 7680 87 81 5F 16 00 E5 19 78
 7688 87 F5 57 78 FE 03 38 04
 7690 3E 5E 18 02 3E 56 CB 40

69 769B 20 02 C6 40 5F F1 C6 0C
 76A0 CD DD 6F E1 10 D2 C9 39
 76AB 18 00 01 F7 6B D8 00 01
 76B0 97 CF 77 3F 78 15 77 45

6A 76BB 04 03 FC 03 1F 00 AD 00
 76C0 02 00 00 02 01 FF 00 39
 76CB 01 03 FF 5F 18 00 00 00
 76D0 5F D8 00 00 00 AA 77 3F

6B 76DB 78 15 77 5B 7C 00 04 11
 76E0 00 10 07 50 4C 41 59 45

76EB 52 20 20 31 11 04 20 20
 76F0 20 20 20 20 20 20 11 00

6C 76FB 50 4C 41 59 45 52 20 20
 7700 32 FF 0D 07 00 02 01 A1
 7708 EB 00 04 03 AF 78 1F 79
 7710 B2 01 03 02 02 02 00 02

6D 771B 00 DC 00 3E 00 36 00 3E
 7720 00 1D 00 20 00 20 00 00
 7728 00 00 00 00 00 00 00 00
 7730 00 00 00 00 00 82 01 03

6E 773B 02 02 00 00 61 00 1D 00
 7740 3E 00 36 00 3E 00 5C 00
 7748 43 00 00 00 00 00 00 00
 7750 00 00 00 00 00 00 00 00

6F 775B 00 00 82 01 03 02 02 10
 7760 00 08 00 1C 00 3E 80 77
 7768 00 BE 00 1C 00 08 00 04
 7770 00 00 00 00 00 00 00 00

70 777B 00 00 00 00 00 00 00 FF
 7780 B2 01 03 02 02 00 00 00
 7788 18 00 3C 00 36 00 62 00
 7790 00 00 63 00 F2 00 F2 00

71 779B 62 00 02 00 62 00 63 00
 77A0 C8 00 BC 00 F0 82 01 03
 77AB 02 02 00 38 00 7C 00 66
 77B0 00 64 00 63 00 02 00 62

72 77BB 00 F2 00 F2 00 62 00 03
 77C0 00 60 00 64 00 66 00 7C
 77CB 00 38 82 01 03 02 02 00
 77D0 F0 00 BC 00 C8 00 66 00

73 77DB 64 00 04 00 64 00 F4 00
 77E0 F4 00 66 00 00 00 62 00
 77EB 36 00 3C 00 18 00 00 82
 77F0 01 03 02 02 00 38 00 7C

74 77FB 00 66 00 64 00 63 00 02
 7800 00 62 00 F2 00 F2 00 62
 7808 00 03 00 60 00 64 00 66
 7810 00 7C 00 38 FF 82 01 03

75 781B 02 02 00 00 18 00 3C 00
 7820 6C 00 46 00 00 00 C6 00
 7828 4F 00 4F 00 46 00 40 00
 7830 46 00 C6 00 13 00 3D 00

76 783B 0F 00 82 01 03 02 02 1C
 7840 00 3E 00 66 00 26 00 C6
 7848 00 40 00 46 00 4F 00 4F
 7850 00 46 00 C0 00 06 00 26

77 785B 00 66 00 3E 00 1C 00 82
 7860 01 03 02 02 0F 00 3D 00
 7868 13 00 66 00 26 00 20 00
 7870 26 00 2F 00 2F 00 66 00

78 787B 00 00 46 00 6C 00 3C 00
 7880 18 00 00 00 82 01 03 02
 7888 02 1C 00 3E 00 66 00 26
 7890 00 C6 00 40 00 46 00 4F

79 789B 00 4F 00 46 00 C0 00 06
 78A0 00 26 00 66 00 3E 00 1C
 78AB 00 FF 82 01 03 02 02 00
 78B0 00 00 00 39 9C 29 94 3D

7A 78BB BC 29 94 29 94 39 9C 2B
 78CB D4 2B D4 39 9C 28 14 2F
 78CB F4 38 1C 00 00 00 00 82
 78D0 01 03 02 02 00 00 00 00

7B 78DB 39 9C 29 94 2D B4 39 9C
 78E0 29 94 29 94 3A 5C 2A 54
 78E8 29 94 38 1C 2F F4 38 1C
 78F0 00 00 00 00 82 01 03 02

7C 78FB 02 00 00 00 39 9C 39
 7900 9C 2D B4 29 94 39 9C 29
 7908 94 2A 54 3A 5C 29 94 28
 7910 14 3F FC 38 1C 00 00 00

7D 791B 00 FF 82 01 03 02 02 00
 7920 00 00 00 38 1C 2F F4 28
 7928 14 39 9C 2B D4 2B D4 39
 7930 9C 29 94 29 94 3D BC 29

7940 01 03 02 02 00 00 00 00
 7948 38 1C 2F F4 38 1C 29 94
 7950 2A 54 3A 5C 29 94 29 94

7F 795B 39 9C 2D B4 29 94 39 9C
 7960 00 00 00 00 82 01 03 02
 7968 02 00 00 00 00 38 1C 3F

7970 FC 28 14 29 94 3A 5C 2A

80 797B 54 29 94 39 9C 29 94 2D
 7980 B4 39 9C 39 9C 00 00 00
 7988 00 FF 82 01 03 02 02 00
 7990 00 00 00 3F FC 29 24 3F

81 799B FC 10 10 13 00 17 FC 17
 79A0 FC 13 00 10 10 3F FC 29
 79AB 24 3F FC 00 00 00 00 82
 79B0 01 03 02 02 00 00 00 00

82 79BB 3F FC 32 4C 3F FC 10 10
 79CB 13 00 14 FC 14 FC 13 00
 79CB 10 10 3F FC 32 4C 3F FC
 79D0 00 00 00 00 82 01 03 02

83 79DB 02 00 00 00 00 3F FC 24
 79E0 94 3F FC 10 10 13 00 14
 79EB FC 14 FC 13 00 10 10 3F
 79FB FC 24 94 3F FC 00 00 00

84 79FB 00 FF 82 01 03 02 02 00
 7A00 00 00 00 3F FC 24 94 3F
 7A08 FC 08 08 00 C8 3F EB 3F
 7A10 EB 00 C8 08 08 3F FC 24

85 7A1B 94 3F FC 00 00 00 00 82
 7A20 01 03 02 02 00 00 00 00
 7A28 3F FC 32 4C 3F FC 08 08
 7A30 00 C8 3F 28 3F 28 00 C8

86 7A3B 08 08 3F FC 32 4C 3F FC
 7A40 00 00 00 00 82 01 03 02
 7A48 02 00 00 00 00 3F FC 29
 7A50 24 3F FC 08 08 00 C8 3F

87 7A5B 28 3F 28 00 C8 08 08 3F
 7A60 FC 29 24 3F FC 00 00 00
 7A68 00 FF 82 01 03 02 02 00
 7A70 00 00 00 00 00 00 00 00

88 7A7B 00 00 00 00 30 00 1C 00
 7A80 1C 00 30 00 00 00 00 00
 7A88 00 00 00 00 00 00 00 82
 7A90 01 03 02 02 00 00 00 00

89 7A9B 01 00 01 00 03 C0 02 40
 7AAB 00 00 00 00 00 00 00 00
 7AAB 00 00 00 00 00 00 00 00
 7AB0 00 00 00 00 82 01 03 02

8A 7AB8 02 00 00 00 00 00 00
 7AC0 00 00 00 00 00 0C 00 38



7ACB 00 38 00 0C 00 00 00 00
 7AD0 00 00 00 00 00 00 00 00

8B 7ADB 00 82 01 03 02 02 00 00
 7AE0 00 00 00 00 00 00 00 00
 7AEB 00 00 00 00 00 00 00 00
 7AF0 00 00 02 40 03 C0 01 80

8C 7AFB 01 80 00 00 00 00 82 01
 7B00 03 02 02 FF FF FF FF C0
 7B08 03 D1 0B CD B3 C9 93 C1
 7B10 83 DE 73 CE 7B C1 83 C9

8D 7B1B 93 CD B3 D1 0B C0 03 FF
 7B20 FF FF FF 00 00 00 00 00
 7B28 00 00 00 00 00 00 00 00
 7B30 00 00 00 00 00 00 00 00

7E 793B 94 39 9C 00 00 00 00 82

You've got it



Licked

IN Underwulde 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, Worcs

WANT to win by battle in **The Lords of Midnight?** Move Luxor to Shimeril, to Brith, to Gard and then to Xajorith. Morkin, Corleth and Rorthron 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

EARN £50 in **Everyone's a Wally** by choosing to be Wilma and then taking the bunsen burner to the laboratory. This can be done by taking book one from the school, making sure that it is the lower of your two items and then exchanging 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

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 whiskey under the couch or you will turn into a newt and drown.
Trevor Guyton,
 Halesworth, Suffolk

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



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, examining the display in the Estate agents or opening the desk in the furniture department.
M Bridges,
 Sittingbourne, Kent

SAVE memory on your **SZX-81** by entering **SIN** PI instead of zero, **-COS** PI instead of one and **INT PI** instead of three. Using **CODEs** also saves memory. **1 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.

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

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.

John Tryggvi Jonsson, Skolavorfustig 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.

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.

Marcus Grundy, 51 Guillemot Close, South Beach, Blyth, Northumberland is looking for a ZX-8 owner in the north east of England with whom he can swap listings 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 Kirby, 34 Coombe Road, Southminster, 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.

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 Collett, 34 Oldany Way, Glendale Estate, Nuneaton, Warks. 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.

Duflos Pascal, 58 AV 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.

DE

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.

NEW

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-

150 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.

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

170-190 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- Print "Cheat" message".
1020 Note how OUT is used to obtain a flashing BORDER.

Dexam was written for the Spectrum or Spectrum Plus by Claudiu 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).

AM

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 v$="AEIOU": LET c$="QWR
TYPSTDFGHJKLZXCVBNM"
30 INPUT "HOW MANY CONSONANTS?
";co: IF co>30 THEN GO TO 30

40 INPUT "HOW MANY VOWELS? ";v
o: IF vo>30 THEN GO TO 40
45 PRINT AT 2,1;"CONSONANTS":
PRINT AT 3,2;
50 FOR n=1 TO co: LET q$(n)=c$(
INT ( RND *21)+1): PRINT q$(n)
;: BEEP .05,5: NEXT n
55 PRINT AT 5,1;"VOWELS": PRI
NT AT 6,2;
60 FOR n=1 TO vo: LET w$(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
o
100 IF N$(n)=q$(m) THEN LET q$(
m)="": GO TO 140
110 NEXT m: FOR m=1 TO vo
120 IF N$(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 (le/(co+vo)*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
900 PRINT AT 0,13;"DEXAM"
910 PRINT AT 3,1;"IN THIS GAME
, YOU'RE SUPPOSED TO DEMONSTRAT
E YOUR ENGLISH KNOWLEDGE BY
COMPOSING WORDS OUT OF RANDOM
LETTERS."
920 PRINT " THIS IS A GAME FOR
TWO AS THE COMPUTER CAN'T SEE
IF YOUR WORD HAS REALLY ANY MEAN
ING.YOUR CONCURENT WILL TAKE
CARE OF THAT"
930 PRINT " THE POINTS YOU'LL
GET ARE ACCORDING TO THE LE
NGTH OF THE WORD AND THE NO. OF
LETTERS YOU ASKED FOR."
940 PRINT AT 20,10;"GOOD LUCK!
"
950 PAUSE 0: CLS : GO TO 20
1010 BEEP .5,-10: PRINT AT 10,2
; FLASH 1;"BAD BOY!!!" YOU
CAN'T CHEAT A COMPUTER!"
1020 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

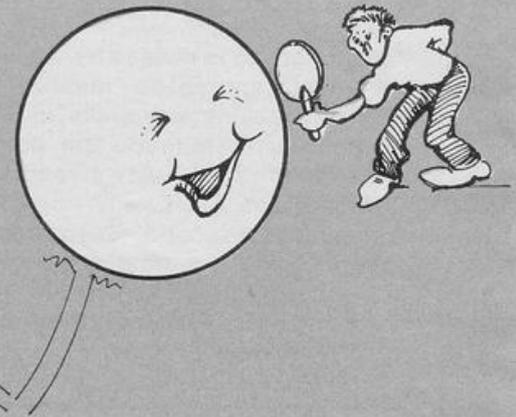
```

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

```

```

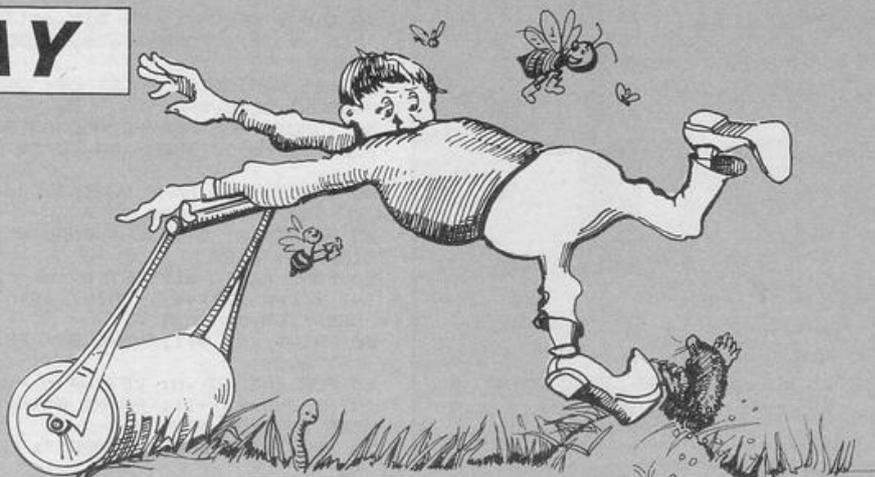
140 PRINT AT VAL "11",A;" "
150 LET V=V+UU
160 LET H=H+HH
170 PRINT AT V,H;"0"
180 IF H=A+CODE " " AND V=CODE
" " THEN LET UU=-UU
190 IF H=A+CODE " " AND V=CODE
" " THEN LET S=S+ABS UU
200 IF H(>)A+CODE " " AND V=CODE
" " THEN PRINT "SCORE=";S;X
210 IF H=CODE " " OR H=CODE " "
THEN LET HH=-HH
220 IF V=SGN PI THEN LET UU=-UU
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" "RIGHT 8": PRINT AT 10,7;"A
NY, KEY TO START": PAUSE 0
2 BORDER 4
3 CLS
4 RANDOMIZE 0
10 POKE 23658,8
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;"(isp)"
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
    
```

```

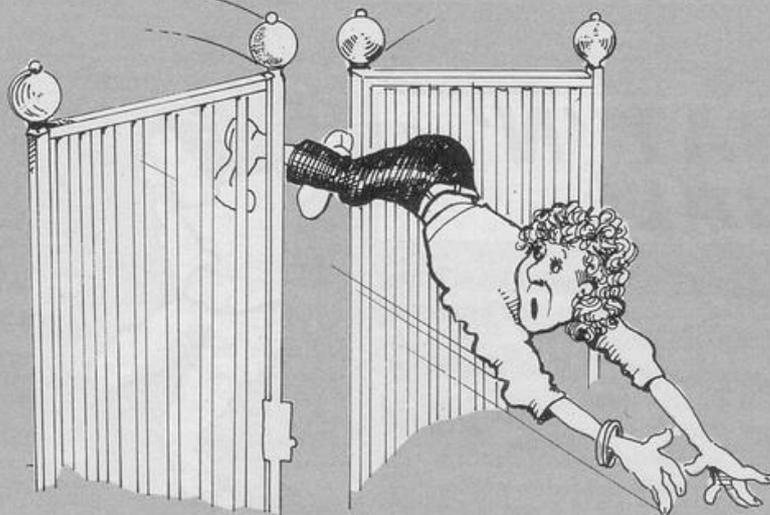
225 NEXT N
230 LET A=INT ( RND *2)
231 IF A<1 THEN GO SUB 250
240 GO TO 100
250 LET A=INT ( RND *30)+1
260 LET A(A)=1
270 RETURN
300 CLS
301 PRINT "MISSION COMPLETED"
310 BEEP 1,20
320 LET D=D+1
330 LET S=0
335 CLS
340 GO TO 40
350 CLS
351 PRINT "OVERRUN BY BUGS"
360 STOP
    
```

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.



```

1 GOSUB 9000
5 LET S=200
6 LET E=10
10 LET A=15
20 LET B=INT (RND*20)+2
30 PRINT AT 0,10;"**RISK**";AT
1,10;" "
35 LET C=13
37 PRINT AT 16,0;" "
38 PRINT AT 17,0;"SCORE ";S;"
DIFFICULTY ";E
40 PRINT AT 5,0;" "
50 PRINT AT 13,0;" "
60 PRINT AT 9,0;" "
70 LET AA=INT (RND*20)
80 PRINT AT C,AA;" "
90 PRINT AT A,B;" "
91 FOR N=1 TO E
92 NEXT N
95 LET S=S-1
100 IF INKEY$="" THEN GOTO 40
    
```

```

110 PRINT AT A,B;" "
120 LET A=A-2
130 PRINT AT A,B;
132 IF PEEK (PEEK 16398+256*PEE
K 16399)=CODE " " THEN GOTO 160
138 PRINT " "
140 PRINT AT A,B;" ";AT A,B;" "
147 LET C=C-4
148 LET A=A-2
150 IF C<5 THEN GOTO 165
155 GOTO 40
160 GOTO 200
165 CLS
166 PRINT AT A+2,B;" ";AT A,B;"
"
168 PRINT AT 16,0;"**SEE 9000"
" LETS SEE HOW GOOD";AT 18,0;"YO
U THIS TIME."
170 PAUSE 200
180 LET S=S+5
185 LET E=E-1
186 IF E<1 THEN LET E=1
187 CLS
190 GOTO 10
200 PRINT AT A+1,B;" "
    
```

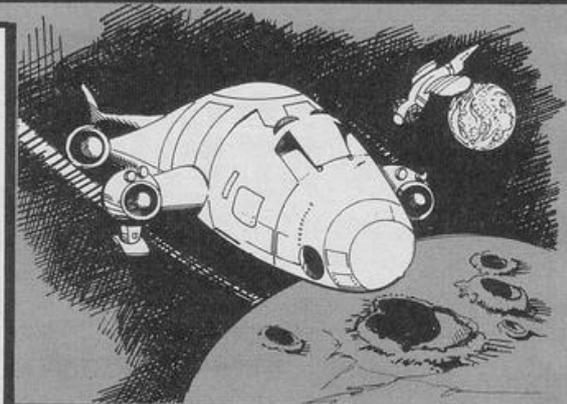
```

205 PAUSE 200
207 CLS
210 PRINT AT 10,0;"HARD LINES,Y
OU UERN'T GOOD ENOUGH"
220 PRINT AT 12,0;"SCORE ";S
230 PRINT AT 14,0;"PRESS ANY KE
Y TO PLAY AGAIN."
240 PAUSE 4E4
245 CLS
250 GOTO 5
9000 PRINT AT 0,10;"**SEE**"
9010 PRINT AT 1,10;" "
9020 PRINT AT 3,0;"PRESS ANY KEY
TO JUMP THROUGH ";AT 5,0;"THE G
APS IN THE WALLS TO GET ";AT 7,0
"TO THE NEXT SHEET."
9030 PRINT AT 9,0;"( WHICH WILL
BE FASTER )"
9040 PRINT AT 14,5;"PRESS ANY KE
Y TO PLAY "
9050 IF INKEY$="" THEN GOTO 9050
9060 CLS
9070 RETURN
9998 SAVE "RS"
9999 GOTO 1
    
```

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: BRI
GHT 1:"S U R V I V A L": PRINT
AT 7,0:" IN THIS GAME YOUR SPAC
ECRAFT(" ; INK 5;"A"; INK 7:") IS
BEING PURSUED BY AN ALIEN SPA
CECRAFT(B) AND WHEN IT RE
ACHES YOU, YOU ARE DEAD. HD
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 8
) TO MOVE YOUR SPACESHIP."
18 PRINT #1:"PRESS ANY KEY": P
AUSE 0: CLS
    
```

```

20 LET s=0: LET x=21: LET y=31
30 LET a=0: LET d=0: LET y=0
40 LET ox=x: LET oy=y: LET oa=
a: LET od=d
50 FOR n=1 TO 35: PRINT AT R
ND *21, RND *31: BRIGHT 1: INK 6
;"*": 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=USR "a" TO USR "c"+
7: READ z: POKE n,z: NEXT n: RET
URN : DATA 24,24,60,255,255,60,2
4,24
80 DATA 0,0,60,255,255,60,
0
90 DATA 192,96,60,255,255,60,9
6,192
100 PRINT AT od,oa;" "; AT d,a
;"B"
110 PRINT AT ox,oy;" "; AT x,y
; INK 5;"A"
115 LET ox=x: LET oy=y: 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$ ="5" AND y>0)
140 LET d=d+(x>d)-(x<d)
150 LET a=a+(a<y)-(a>y)
190 IF SCREEN$ (d,a)="*" THEN
BEEP .1,50: BEEP .1,30:: 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
    
```

```

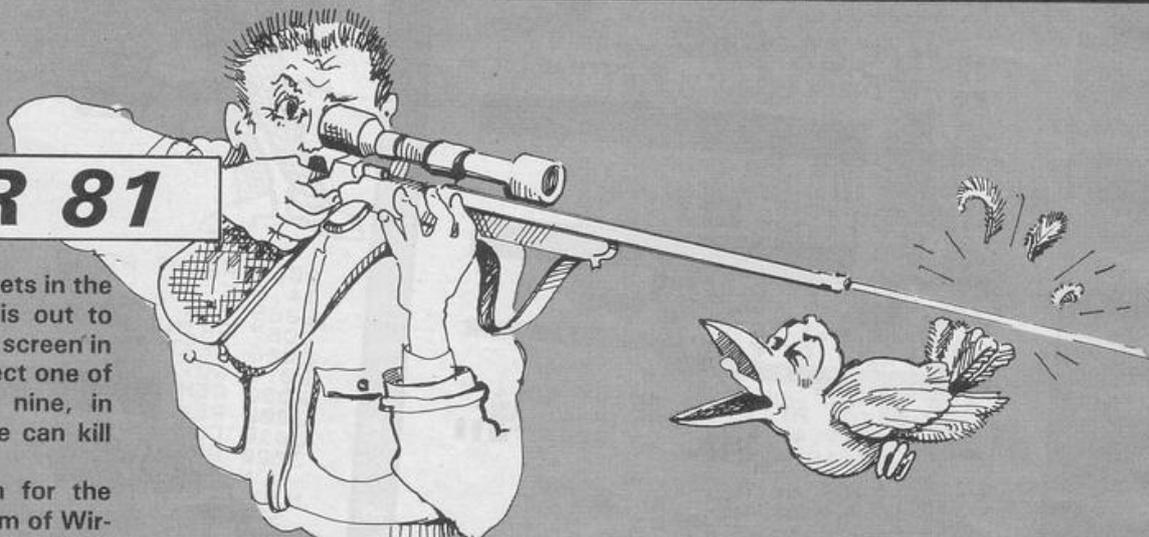
EAD! YOU SCORED ";s'"PRESS ""P""
TO PLAY AGAIN"
260 IF INKEY$ ="P" OR INKEY$
="p" THEN FOR a=60 TO 0 STEP -2
: BEEP .01,a: BEEP .01,a-5: NEXT
a: RUN
270 LET t=USR 32300: GO TO 260
300 FOR n=0 TO 31: PRINT AT x,
n;"C": PAUSE 5
302 IF n=y THEN BEEP .1,40
304 PRINT AT x,n;" ": NEXT n
305 PRINT #1: AT 0,0: BRIGHT 1;
"WELCOME HOME! YOU WON! SCORE=";
s'"PRESS ""P"" TO PLAY AGAIN"
307 FOR n=0 TO 10: READ a: BEEP
.2,a*10: NEXT n: DATA 0,1,2,1,0
,2,0,2,1,4,3
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 "
Y PRESSING HIT THE LITTLE MAN B
URE NOT KEYS 1 TO 9. IF YO
SHOOT YOU" QUICK ENOUGH, HE MAY
SHOOT YOU"
20 PAUSE 500
30 LET L=3
40 LET S=0
50 LET A$=""
60 LET B$=""
70 LET C$=""
80 CLS
90 PRINT AT 0,5:"";L,"
    
```

```

100 LET A=INT (RND*10+.5)
110 IF A>9 OR A<1 THEN GOTO 100
120 PRINT AT 3,A*3-2;A$
130 FOR I=1 TO 15
135 LET Z$=INKEY$
140 IF CODE Z$<CODE "0" OR CODE
Z$>CODE "9" THEN GOTO 160
150 IF A=VAL Z$ THEN GOTO 230
155 IF A<>VAL Z$ THEN GOTO 170
160 NEXT I
170 IF RND<=.5 THEN GOTO 250
180 PRINT AT 3,A*3-2;C$;AT 8,A+
3-2;"
190 LET L=L-1
200 PAUSE 20
210 IF L<1 THEN GOTO 270
220 GOTO 250
230 PRINT AT 3,A*3-2;B$
    
```

```

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

CHAMPIONSHIP GOLF

Your aim in Championship Golf is to hole in one. Input the height of the hole on the screen (the height will be between 9 and 21) and the length of the hole (the length will be between 10 and 31). How quickly can you select the correct coordinates?

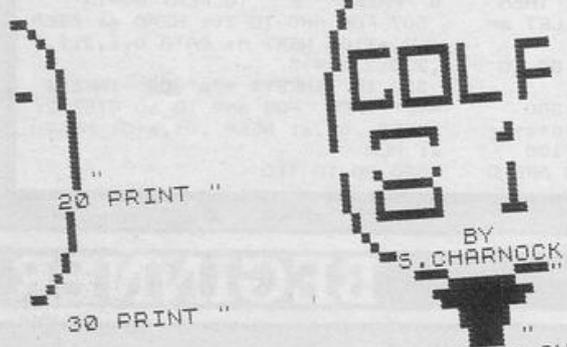
Written for the 16K ZX-81 by Stephen Charnock of Ormskirk, Lancashire.

GOLF

```

1 CLS
5 REM TITLE
6 REM XXXXXXXXXXXXXXXXXXXXXXXXXX
10 PRINT "

```



```

40 PRINT AT 21,0;"
Y KEY TO PLAY"
50 IF INKEY#="" THEN GOTO 50
60 CLS
61 REM VARIABLES
65 REM
70 LET S=0
80 LET H=1
91 LET R=INT (RND*10)+21
92 LET R1=INT (RND*12)+9
95 REM SCREEN
99 REM
100 PRINT AT 0,0;"HOLE:";H;" ST
ROKES:";S
110 FOR F=1 TO 8
120 PRINT AT F,0;"
130 NEXT F
140 PRINT AT 15,5;"█";AT 16,4;"█";
AT 17,4;"█";AT 18,4;"█";
AT 19,4;"█";AT 20,4;"█";
AT 21,4;"█";
150 PRINT AT R1,R;"0"
151 PRINT AT R1-5,R;"█"
152 FOR F=R1-5 TO R1
153 PRINT AT F,R+1;"█"
154 NEXT F
160 REM GOLF INPUT
170 REM
180 PRINT AT 0,18;" HEIGHT 21-9
181 INPUT HI
182 IF HI>21 OR HI<9 THEN GOTO
180
190 PRINT AT 0,18;"LENGTH 10-31
191 INPUT LE
192 IF LE>31 OR LE<10 THEN GOTO
190
195 GOTO 1000
200 REM
2000 REM GOLF FEE
1000 PRINT AT 15,5;"█";AT 16,4;"█";
AT 17,4;"█";AT 18,2;"█";
AT 19,4;"█";AT 20,4;"█";
AT 21,4;"█";

```

```

1020 PRINT AT 15,5;"█";AT 16,4;"█";
AT 17,4;"█";AT 18,2;"█";
AT 19,4;"█";AT 20,4;"█";
AT 21,4;"█";
1030 REM BALL
1040 REM
1041 LET Y=10
1050 FOR X=20 TO 1 STEP -1
1051 LET Y=Y+1
1052 IF Y=LE THEN LET Y=Y-1
1053 IF X=1 THEN GOTO 1110
1055 PRINT AT X,Y;"█";AT X,Y;"█"
1060 IF X<9 THEN PRINT AT X,Y;"█"
NEXT X
1100 NEXT X
1110 FOR X=X TO HI-1
1120 PRINT AT X,Y;"█";AT X,Y;"█"
1121 IF X<9 THEN PRINT AT X,Y;"█"
NEXT X
1300 NEXT X
1305 LET S=S+1
1310 IF X=R1 AND Y=R THEN GOTO 2
000
1320 PRINT AT X,Y;"X"
1330 PRINT AT 1,0;"*****BAD L
ID: OLD CHAP*****"
1340 PAUSE 4E4
1360 GOTO 100
1370 REM POTTED
2000 REM
2010 PRINT AT R1,R;"█";AT 14
2020 PRINT AT 13,7;"█";
6;" YES";AT 15,6;"█";
2030 PRINT AT 1,0;"*****WELL
COME OLD CHAP*****"
2040 LET H=H+1
2050 IF H=10 THEN GOTO 3000
2060 PAUSE 4E4

```



```

2065 PRINT AT 13,7;"█";AT
14,6;"█";AT 15,6;"█"
2066 FOR F=R1-5 TO R1
2067 PRINT AT F,R;"█"
2068 NEXT F
2070 GOTO 90
2080 REM GAME WON
3000 REM
3010 CLS
3020 PRINT AT 0,0;"GOOD SHOW.YOU
WON THE ZX81 GOLF TROPHY.FINIS
HIG ALL 9 HOLES IN ";S;"
STROKES"
3025 REM XXXXXXXXXXXXXXXXXXXXXXXXXX
3030 PRINT AT 5,0;

```

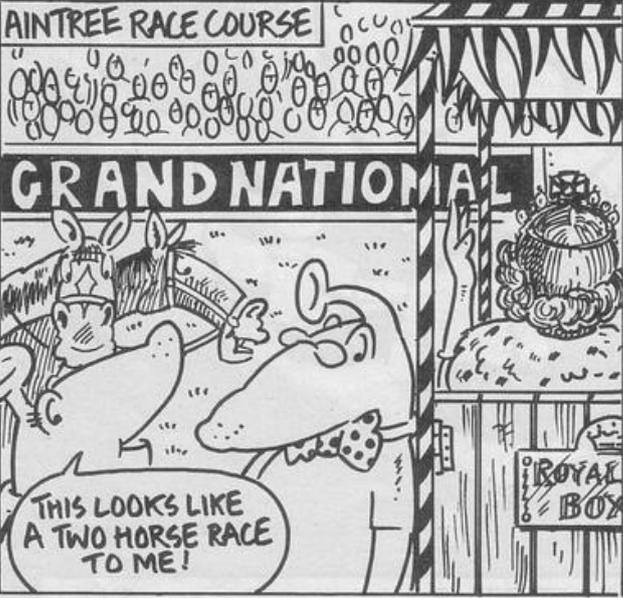


```

3035 PRINT AT 8,9;"█";AT 8,20;"█";
AT 9,9;"█";AT 9,19;"█";
3040 GOTO 40
3050 REM
3096 REM ALTO RUN
3097 REM "GOLF"
3098 SAVE "GOLF"
3099 RUN

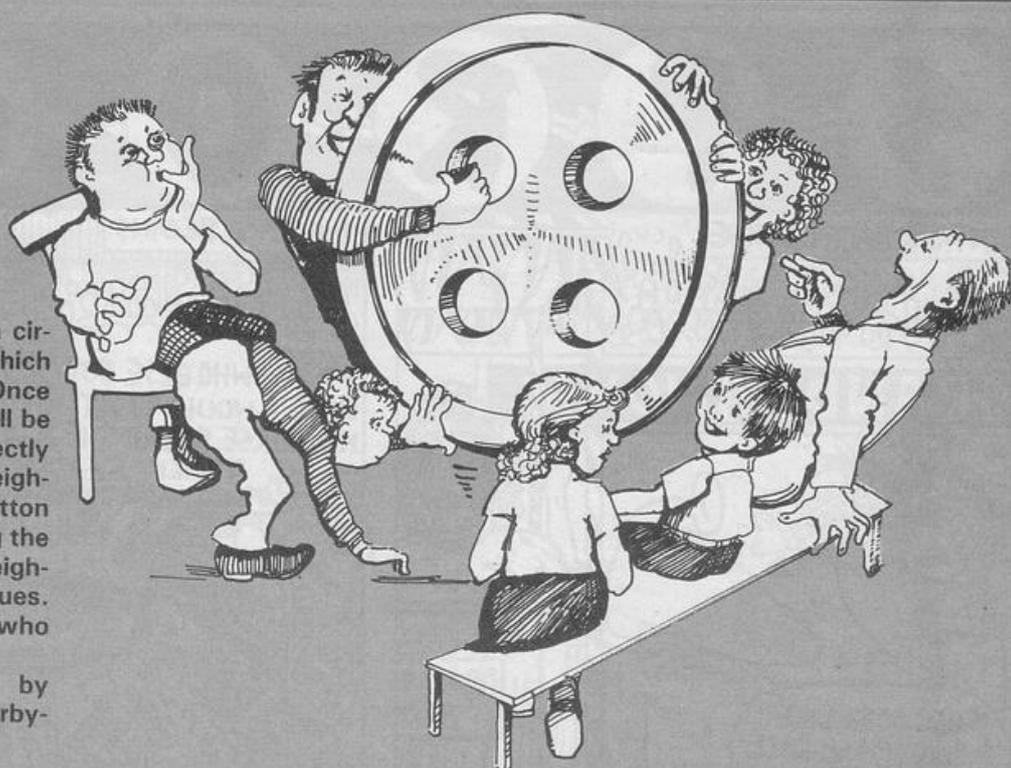
```

S P R O G S



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"
2 CLS
5 REM *****
10 PRINT "
THE BUTTO
"
20 PRINT " A"
30 PRINT " H B"
40 PRINT " G C"
50 PRINT " F D"
60 PRINT " E"
110 LET A$="468ACA86"
120 LET B$="69B96313"
130 LET POS=1
140 LET GOS=0
150 LET R$=""
160 PRINT AT 4,13;"
";AT 12,13;"
170 FOR F=5 TO 11
180 PRINT AT F,13;"
"
190 NEXT F
200 PRINT AT 15,0;"N"MOVE
LEFT" "M"MOVE RIGHT"
" "ENTER CHOICE"
210 LET RES=0
220 LET PIP=INT (RND*8)+1
245 REM *****
250 IF GOS>0 AND LEN R$<=17 THE
N PRINT AT 5,14;R$
260 IF GOS>0 AND LEN R$>17 THEN
PRINT AT 5,14;R$( TO 17);AT 6,1
4;R$(18 TO )
270 PRINT AT 11,14;"YOUR GUESS?
";CHR$( POS+37)
280 LET U$=INKEY$
290 PRINT AT CODE A$(POS)-28,CO
DE B$(POS)-28;CHR$( POS+165);AT
11,14;"YOUR GUESS? ";CHR$( POS+3
7);AT CODE A$(POS)-28,CODE B$(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$<>." THEN GOTO 280
360 PRINT AT 11,14;"
";AT 5,14;"
";AT 6,14;"
370 LET GOS=GOS+1
380 LET RES=0
390 LET CCK=0
400 IF POS=PIP THEN LET CCK=1
410 IF POS=PIP+1 OR POS=PIP-1 O
R (POS=8 AND PIP=1) OR (POS=1 AN
D PIP=8) THEN LET CCK=2
420 IF CCK=0 THEN PRINT AT 8,15
;"I DON'T HAVE IT."
430 IF CCK=1 THEN PRINT AT 8,17
;"CORRECT"
440 IF CCK=2 THEN PRINT AT 8,14
;"MY NEIGHBOUR HAS";AT 9,21;"IT."
450 IF CCK=1 THEN GOTO 600
460 LET RES=1
470 IF CCK=0 THEN LET RES=INT (
RND*2)
480 IF RES=0 THEN LET R$=" WHOE
VER HAS IT KEEPS IT."
490 IF RES=1 THEN LET R$=" WHOE
VER HAS IT PASSES IT."
500 LET X=INT (RND*2)
510 IF RES=1 AND X=0 THEN LET P
IP=PIP+1
520 IF RES=1 AND X=1 THEN LET P
IP=PIP-1
530 IF PIP=9 THEN LET PIP=1
540 IF PIP=0 THEN LET PIP=8
550 FOR X=1 TO 30
560 NEXT X
570 PRINT AT 8,14;"
";AT 9,14;"
"
580 GOTO 250
595 REM *****
600 FOR X=5 TO 11
610 PRINT AT X,14;"
"
620 NEXT X
630 PRINT AT 5,14;"GOES";GOS
640 IF GOS<5 THEN LET R$=" 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$="Y" THEN RUN 2
720 IF INKEY$="L" THEN LOAD ""
730 IF INKEY$="S" THEN RUN
740 GOTO 700

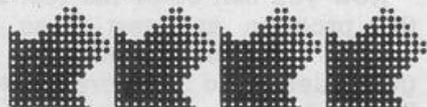
```

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 u will demonstrate that all 21 UDGs have been used. Graphic letters 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.

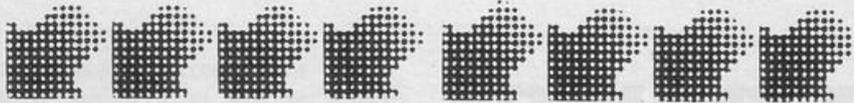


As the way the program works depends on different objects having different colours, these are best put into the PRINT statements using colour control characters. The colours you MUST

```

10 REM Machine Code Setup for
   Ghostchase @ Tony Rickwood
20 CLEAR 63999: 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

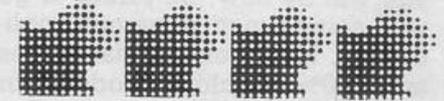
```

10 REM GHOSTCHASE @ Tony Rickw
ood
20 GO SUB 100
25 LET s=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
1000 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 x=15: LET 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,xx;" "
1020 PRINT INK 1; OVER 1; AT b,
a;"T"; INK 2; AT d,c;"T"; INK 3;
AT f,e;"T"; INK 4; AT h,g;"T":
BEEP .005,45
1025 IF ATTR (y,x) <= 4 THEN G
O TO 3000
1030 LET x=x-(INKEY$="5")+(IN
KEY$="8"): LET y=y+(INKEY$="6
")-(INKEY$="7")
1035 LET di=di*(xx=x)*(yy=y)+(x>
xx)+2*(x<xx)+3*(y<yy)+4*(y>yy)
1036 IF x=1 THEN LET x=28
1037 IF x=29 THEN LET x=2
1040 IF ATTR (y,x)=6 THEN LET
x=xx: LET y=yy: GO TO 1070
1055 IF ATTR (y,x)=5 THEN LET
s=s+10: FOR i=1 TO 10: BEEP .005
,20: BEEP .005,30: NEXT i: GO TO
1070
1060 IF POINT (3+x*8,171-8*y)=1
THEN LET s=s+1: BEEP .005,30
1070 PRINT AT 21,8;s: PRINT AT
y,x;"OPQR"(di)
1080 IF ATTR (y,x) <= 4 THEN B
O TO 3000
1082 IF g$="m" THEN RANDOMIZE
USR 64027
1090 IF g$="b" THEN GO SUB 4000
1100 PRINT OVER 1; AT l,k;"T";
AT n,m;"T"; AT p,o;"T"; AT r,q;"
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=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 1; AT b,
a;"T"; AT d,c;"T"; AT f,e;"T";
AT h,g;"T"
3036 GO SUB 100
3037 GO SUB 1000
3040 CLS : PRINT AT 10,0;"YOU S
CORED ";s; AT 11,0;"ANOTHER GAME
?(y/n)"
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=a+(x>a)-(x<a): IF AT
TR (b,a)=6 THEN LET a=k
4030 LET b=b+(y>b)-(y<b): IF AT
TR (b,a)=6 THEN LET b=l
4040 IF a <> k OR b <> l THEN P
RINT OVER 1; INK 6; AT b,a;" "
4050 LET c=c+(x>c)-(x<c): IF AT
TR (d,c)=6 THEN LET c=m
4060 LET d=d+(y>d)-(y<d): IF AT
TR (d,c)=6 THEN LET d=n
4070 IF c <> m OR d <> n THEN P
RINT OVER 1; INK 6; AT d,c;" "
4080 LET e=e+(x>e)-(x<e): IF AT
TR (f,e)=6 THEN LET e=o
4090 LET f=f+(y>f)-(y<f): IF AT
TR (f,e)=6 THEN LET f=p
4100 IF e <> o OR f <> p THEN P
RINT OVER 1; INK 6; AT f,e;" "
4110 LET g=g+(x>g)-(x<g): IF AT
TR (h,g)=6 THEN LET g=q
4120 LET h=h+(y>h)-(y<h): IF AT
TR (h,g)=6 THEN LET h=r
4140 RETURN
5000 REM Print Maze
5005 PAPER 0: BORDER 0: INK 7: C
LS
5010 PRINT " CAAAAAAAAAAAAAAAA
BBBBSSSSSSSSSSSSSSSS
SSSSSSSSSB" BSCADSCANAAISGSJAA
NADSCADSB" BSB BSB BSSSSSSSSSS
B BSB BSB" BSEAFSEAFSJAANAAS
EAFSEAFSB" BSSSSSSSSSSSSSSSS
SSSSSSSSSB" BSJAISJANAASISGSJAA
NAISJAISB" BSSSSSSSSSSSSSSSS
BSSSSSSSUB" EAAAAADSBSCAISJADS
BSCAAAAAF" AAAAAAFSGSBSSSSSSSB
GSEAAAAAA" SSSSSSSSSSBSSSSSSB
SSSSSSSSS "
5020 PRINT ; " AAAAAADSHSBSSSSSB
SHSCAAAAAA" CAAAAAFSGSEANAFAF
SGSEAAAAAD" BUSSSSSSSSSSSSSS
SSSSSSSSSB" BSJADSJAAAAISGSJA
AAISCAISB" BSSSBSSSSSSSSSSSS
SSSSSSSSSB" KAISEAISHSJAANAAS
SHSJAFSJAL" BSSSSSSSSSSSSSS
SBSSSSSSSB" BSJAAAAAMAASGSJA
AMAAAAAISB" BSSSSSSSSSSSSSS
SSSSSSSSSB" EAAAAAAAAAAAAAAAA
AAAAAAAF"
5030 PRINT AT 21,2;"SCORE"; AT
21,22;"LIVES ";v
5040 RETURN
6000 REM UDG Setup
6010 FOR i=USR "a" TO USR "u"+
7: READ j: POKE i,j: NEXT i
6020 DATA 0,255,j,j,j,j,j,0
6030 DATA 126,j,j,j,j,j,j,j
6040 DATA 0,31,63,127,j,j,j,126
6050 DATA 0,248,252,254,j,j,j,12
6
6060 DATA 126,127,j,j,j,63,31,0
6070 DATA 126,254,j,j,j,252,248,
0
6080 DATA 126,j,j,j,j,60,24,0
6090 DATA 0,24,60,126,j,j,j,j
6100 DATA 0,248,252,254,j,252,24
8,0
6110 DATA 0,31,63,127,j,63,31,0
6120 DATA 126,127,j,j,j,j,126
6130 DATA 126,254,j,j,j,j,126
6140 DATA 126,255,j,j,j,j,0
6150 DATA 0,255,j,j,j,j,126
6160 DATA 62,127,248,240,j,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

```

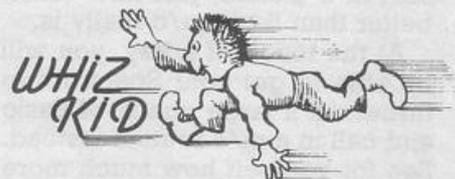
use are: WALLS=yellow, DOTS =white, POWER PILLS=cyan.

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.

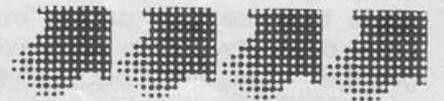


IMPORTANT NOTE: The game depends on having these colours right. It also depends on the two exits from the maze being sealed to the ghosts (but not to Pacman), to allow Pacman to shake them off. This is done by putting an invisible wall at the two exits by printing the blank character positions to the 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!

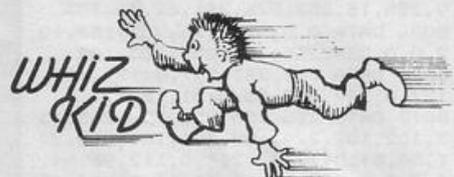
If you want to keep **Ghostchase** in your library of games, it would be a good idea to put the m/c itself (not Program one, which only sets it up) onto tape immediately after your dump of Program two. First, get a new dump of Program two onto tape with the



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

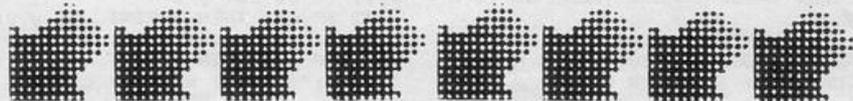
are portable in the sense that they do not depend on, or affect anything else, and are also relocatable to use any available memory space. The routine used here obviously does affect, and is affected by, the environment in which it operates. So, if you want to supercharge a chase routine of your own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

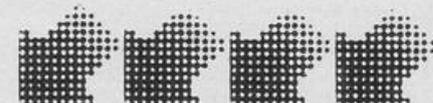
with a wall.

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: B
RIGHT 1: GO SUB 8e3: LET hi=1e4
```

```
5 LET hi=1e4
6 LET fu=0: LET a=0: LET d=1:
LET m=1e4: LET v$="ANY KEY"
10 IF d=16 AND m<1e4 THEN PRI
NT AT 0,0;"NO PROFIT WAS MADE.Y
OU ARE FIRED"'"ANY KEY TO REPLA
Y": PAUSE 0: GO 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 EE EE": NEXT
n
```

```
30 PRINT AT 21-n,0; INK 2;"FE
EI"; AT 21-n,7;"FEEI"; AT 21-n,1
4;"FEEI"; AT 21-n,21;"FEEI"; AT
21-n,28;"FEEI": LET w$="
"
```

```
40 PRINT AT 21-n-1,0; INK 2;"
EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE
"
```

```
50 PRINT AT 21,0; INK 5; OVER
1;"(isp:2*sp:5*isp:2*sp:5*isp:2
*sp:5*isp:2*sp:5*isp:2*sp:isp)":
LET w$=w$+" "
```

```
70 PRINT AT 21-n-2,0;"JJJJJJJ
JJJJJJJJJJJJJJJJJJJJJJJJJJJJJJ
"
```

```
80 LET sue=0: LET x=2: LET y=2
: LET t=15: IF d>1 THEN GO TO 8
9
```

```
84 PRINT AT 0,0;"1 AB MAX CAP
ACITY 5 BLOCKS #3000"'"2 K MAX
CAPACITY 3 BLOCKS #1000"'" L"
```

```
85 INPUT "1 OR 2? ";s
86 IF s>2 OR s<1 THEN GO TO 8
5
```

```
87 IF s=1 THEN LET m=m-3e3: L
ET i=1: LET w$=w$+" "
```

```
88 IF s=2 THEN LET m=m-1e3: L
ET i=.5: LET w$=w$+" "
```

```
89 FOR w=0 TO 3: PRINT AT w,0
;w$: NEXT w: PRINT AT 0,0;"#";m
; AT 0,10;"DAYS:";d; AT 0,20;"BL
OCKS:";a: INPUT "HOW MANY BLOCKS
:";aw
```

```
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 m=m-aw*100
115 IF m<0 THEN PRINT AT 3,0;
"YOU HAVEN'T ENOUGH MONEY": LET
m=m+aw*100: LET a=a-aw: PAUSE 10
0: GO TO 89
120 LET j= INT ( RND *25)+4: LE
T j1= INT ( RND *25)+4
125 PRINT AT 21-n-1,j; BRIGHT
0;" "; AT 21-n-1,j1;" "
127 PRINT AT 0,0;"#";m;" "; A
T 0,10;"DAYS:";d; AT 0,20;"BLOCK
S:";a
128 PRINT AT 20,jk; INK 6;"MN"
; AT 20,jk+7;"MN"
130 PRINT AT 0,0;"#";m;" "; A
T 0,10;"DAYS:";d; 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+1,y;" L"
143 IF s=2 THEN LET t=t+.4
144 PRINT AT 1,0;"TIME: 3:"; I
NT t
145 LET y=y+i
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=x
+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+i
173 IF s=2 THEN PRINT AT x,y;
INK 4;" K"; AT x+1,y;" L": LET
y=y+i
174 PRINT AT 3,29;" "
177 IF f=19-n 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$="C": LET ink= I
NT ( RND *6)+2: GO TO 310
306 IF p=2 THEN LET a$="D": LE
```

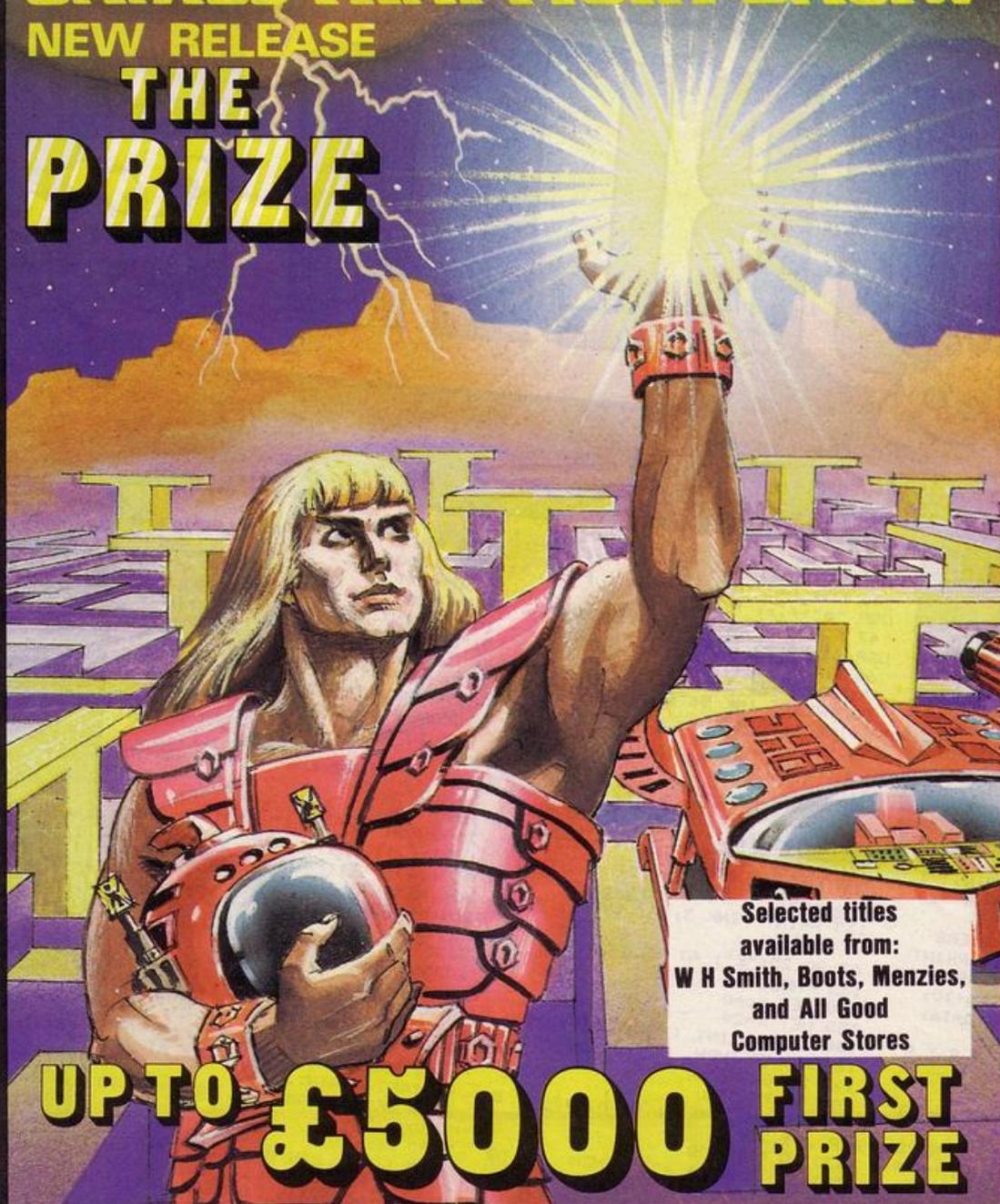
```
T ink= INT ( RND *6)+2: GO TO 31
0
308 IF p=3 AND ATTR (21-n-1,j)
=66 AND ATTR (21-n-1,j1)=66 THE
N LET a$="GH": LET ink=2: GO TO
310
309 GO TO 305
310 FOR t=1 TO 30: PRINT AT 21
-n-2,t; INK ink;a$: AT 21-n-2,t-
1; INK 7;"J": BEEP .05,10: IF S
CREEN$ (21-n-1,t)=" " THEN GO S
UB 6010
330 NEXT t: LET d=d+1: LET m=m+
1000: PRINT v$: PAUSE 0: PAUSE 0
: GO TO 10
400 IF ATTR (u,t)=70 THEN LET
m=m-5e2: PRINT AT 19,t;" "; AT
20,t;"D"; AT 20,t; FLASH 1; OVE
R 1;"E": LET sue=1: GO SUB 5e2
402 IF SCREEN$ (u,t) <> " " TH
EN PRINT AT 21-n-1,t; INK ink;
a$: AT 21-n-2,t; INK 7;"J": LET
fal=1: GO TO 5e2
405 PRINT AT u-1,t;" ": RETURN
500 PRINT AT 1,0;"#1500 WORTH
OF DAMAGE.": LET d=d+1: LET m=m-
1500
501 IF u=20 OR u=21 THEN PRINT
AT 20,t; INK 5; PAPER 7;"A"; A
T 20,t; OVER 1;"B"
503 IF sue=1 THEN PRINT AT 3,
0;"YACHTSMAN SUES YOU #500"
504 IF m <= 0 THEN GO TO 1e3
510 PRINT #1; AT 1,12; FLASH 1;
"ANY KEY": PAUSE 0: PAUSE 0: CLS
: GO TO 10
1000 CLS : PRINT AT 0,0;"YOU RA
N OUT OF MONEY"'"PRESS ANY KEY
TO REPLAY": PAUSE 0: PAUSE 0: CL
S : GO TO 6
6010 FOR u=21-n-1 TO 20: GO SUB
400: PRINT AT u,t; INK ink;a$:
AT 21-n-2,t; INK 7;"J": BEEP .00
5,21-u: NEXT u: GO TO 5e2
7000 PRINT "WELL DONE!! YOU MADE
A PROFIT OF";m-1e4;: IF m<hi TH
EN PRINT " ANY KEY TO REPLAY":
GO TO 7015
7010 PRINT " YOU ARE THE BEST WD
RKER TODAY": LET hi=m: PRINT "'A
NY KEY TO REPLAY"
7015 PAUSE 0: CLS : GO TO 6
8000 RESTORE 8002: FOR n=0 TO 14
*8-1: READ a: POKE USR "A"+n,a:
NEXT n: RETURN
8002 DATA 129,192,255,131,0,0,0,
0,255,16,252,226,241.62,36,255
8006 DATA 0,0,0,56,36,255,153,10
2,0,0,254,255,241,255,153,102
8008 DATA 247,247,247,0,127,127,
127,0,247,119,55,0,31,15,7,0
8010 DATA 255,255,255,255,255,15
3,102,102,224,108,106,106,255,20
1,54,54,247,246,244,0,112,96,64,
0,0,0,0,255,16,16,16,16,60,94,19
1,191,94,94,60,36,36,60,60,60,0,
0,0,0,0,0,12,12,8,127,63,31,128,
192,224,240,128,254,252,248
```

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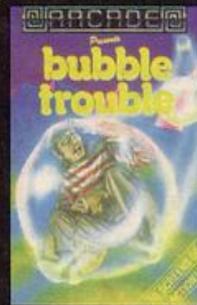
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 Funny goings-on deep in a mine. Can you escape the evil in its depths? "Original and fun . . . dexterity needed . . . strategy is also involved" — Games Computing.



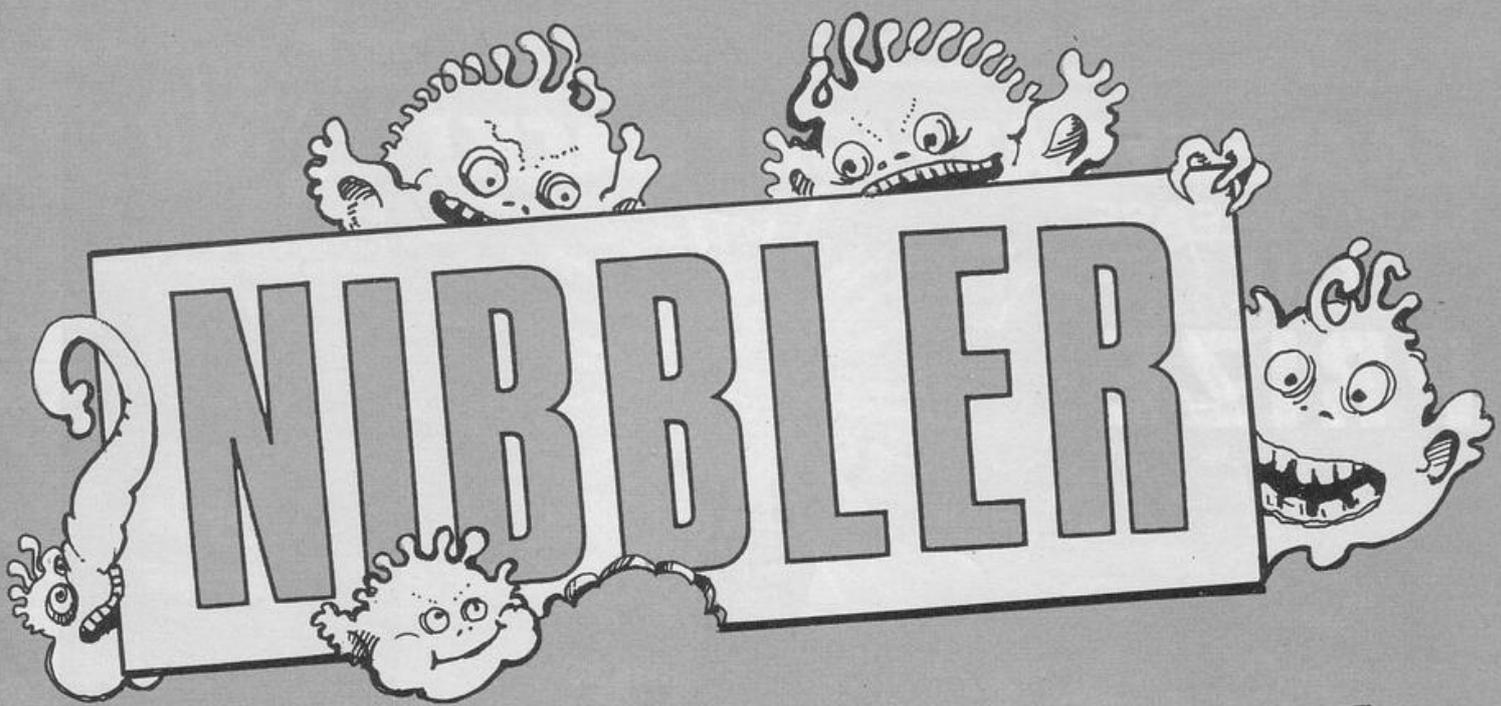
C
 Defuse a bomb hidden on the complex planet, Lattica, before it blows!! "... action packed game ... addictive" — Sinclair user.



D
 The mobs out to get ya' in this no-holds-barred 25 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.



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
NK 7: AT 1,8;"1984 J.ADAIR @ ":
PAUSE 50
2 CLS : LET m$=" NIBBLERS
": FOR q=19 TO 1 STEP -2: PRINT
AT q,8: INK 0: PAPER 7: BRIGHT
1: FLASH 1:m$: BEEP .021,q+10:
BEEP .018,q+13: BEEP .008,q+16:
NEXT q: PAUSE 60: CLEAR
3 PRINT INK 6:" I N S T R
U C T I O N S": PRINT "
-----"
4 PRINT INK 3: AT 2,4;"AAAAA
AAAAAAAAAAAAAAAAAAAA"
5 PRINT INK 7: AT 3,11;"NIBB
LERS": AT 5,4;"YOUR CITY IS UNDE
R CONSTANT": AT 6,4;"ATTACK FROM
ALIENS.": AT 7,4;"THEY TAKE GRE
B,THE": 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
SSILE 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
1'DR'0'TO FIRE!": AT 20,8;"'0'TO
START"
8 PRINT INK 6: AT 17,4;"SHOO
T'6'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,f: 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

```

```

USR "d"+f,z: NEXT f
33 FOR f=0 TO 7: READ z: POKE
USR "e"+f,z: NEXT f
47 FOR f=0 TO 7: READ z: POKE
USR "f"+f,z: NEXT f
60 CLS
70 FOR f=20 TO 5 STEP -1
80 PRINT INK 5: AT f,0;"CCCCC
C": INK 6;"BBB"
90 NEXT f
100 PRINT INK 6: AT 4,6;"BBB"
110 PRINT AT 21,0;"(32*g3)"
120 PRINT AT 20,10;"(ig1:isp:s
p:4*isp:g5:isp:igl:2*g5:isp:igl:
ig2:sp:isp:sp:3*isp)"
130 PRINT AT 19,10;"! (isp:
g5:sp:q5) /\ + (ig5:ig2)"
135 PRINT INK 3: AT 19,11;"E":
AT 20,25;"E": AT 19,13;"EE E"
145 PAUSE 60
150 LET sc=0
155 LET x=29
160 LET h= INT ( RND *21): IF h
>16 OR h<7 THEN GO TO 160
170 GO SUB 500
200 GO TO 170
500 PRINT INK 2: AT h,x;"A": B
EEP .01,20:
520 GO SUB 700
540 IF INKEY$ ="0" THEN GO TO
600
545 IF INKEY$ ="1" THEN GO TO
600
550 RETURN
600 FOR f=18 TO 5 STEP -1
605 IF SCREEN$ (f,11) <> " " T
HEN GO TO 2000
610 PRINT INK 7: AT f,11;"F":
PAUSE 1: PRINT AT f,11;" ":
615 BEEP .005,f
620 PRINT INK 4: AT h,x;"A"
625 GO SUB 700
630 NEXT f
660 GO TO 540
700 IF SCREEN$ (h,x-1) <> " "
THEN PRINT AT h,x-1;" ": BEEP
.1,5: GO TO 155
710 LET x=x-2
715 IF x=7 THEN GO TO 1000
720 RETURN
1000 PRINT AT h,x-1;" ": BEEP
.1,10: PRINT INK 5: AT h,x-1;"
CCC"
1010 FOR f=h TO 20

```

```

1020 PRINT INK 1: AT f,8;"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
AT f,11;" ": PAUSE 1: BEEP .02,w
*2: NEXT w
2010 FLASH 0: PRINT AT f,11;" "
2020 LET sc=sc+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...."
2030 IF INKEY$ =" " THEN GO TO
2030
2040 RUN
9005 DATA BIN 00111100, BIN 011
01110, BIN 11111111, BIN 0000111
1, BIN 00001111, BIN 11111111, B
IN 01111110, BIN 00111100
9010 DATA BIN 11111111, BIN 100
000001, BIN 10000001, BIN 100000
01, BIN 10000001, BIN 10000001,
BIN 10000001, BIN 11111111
9020 DATA BIN 10101010, BIN 010
10101, BIN 0, BIN 10101010, BIN
01010101, BIN 0, BIN 10101010, B
IN 01010101
9030 DATA BIN 10011001, BIN 010
11010, BIN 01011010, BIN 1111111
1, BIN 11111111, BIN 01010101, B
IN 01010101, BIN 10011001:
9040 DATA BIN 00011000, BIN 000
11000, BIN 00011000, BIN 0011110
0, BIN 00111100, BIN 01111110, B
IN 01111110, BIN 11111111
9050 DATA BIN 00011000, BIN 001
11100, BIN 00111100, BIN 0011110
0, BIN 00110000, BIN 00111100, B
IN 01111110, BIN 01111110

```

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

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Max Headro

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

A DAMP 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 shoppers 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 conversation.

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 satellite 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 enquires, the disarming smile reappears 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 television.

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 developed computer being.

Big-Time TV, which is run by Black Reg and Dominic, stumbled upon him when he accidentally 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.

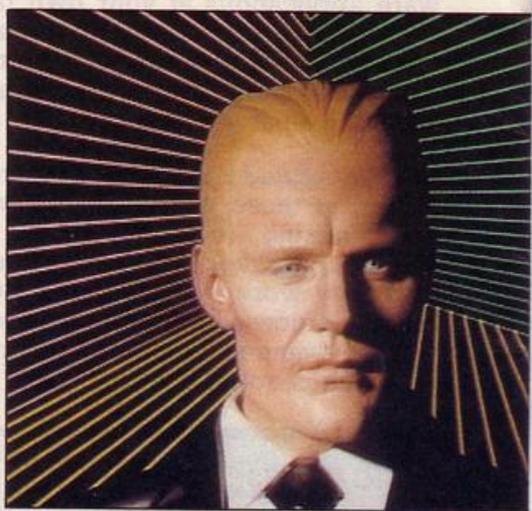
Despite being computer orientated Max is not, as yet, completely bug-free. His speech is frequently interrupted as he loses control of his vocal cords. His conversation is garbled and his movements jerky. As he turns his head he does not always manage to coordinate his body movements.

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 information.

His skin has a deep tan, with a shiny plastic quality, his hair is blonde although solid in appearance 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 interview 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 appears, 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 newsreader.

"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 'Aliss.'

"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 Ballesteros 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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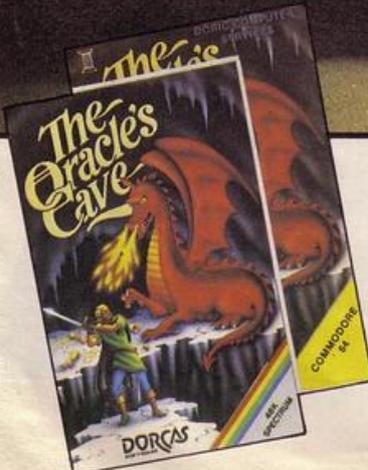
As the land dies in the grip of the black desolation a hero must be found to locate and destroy the 12 hour glasses thus releasing the months and returning Dorcasia to the natural forces of the seasons.

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.

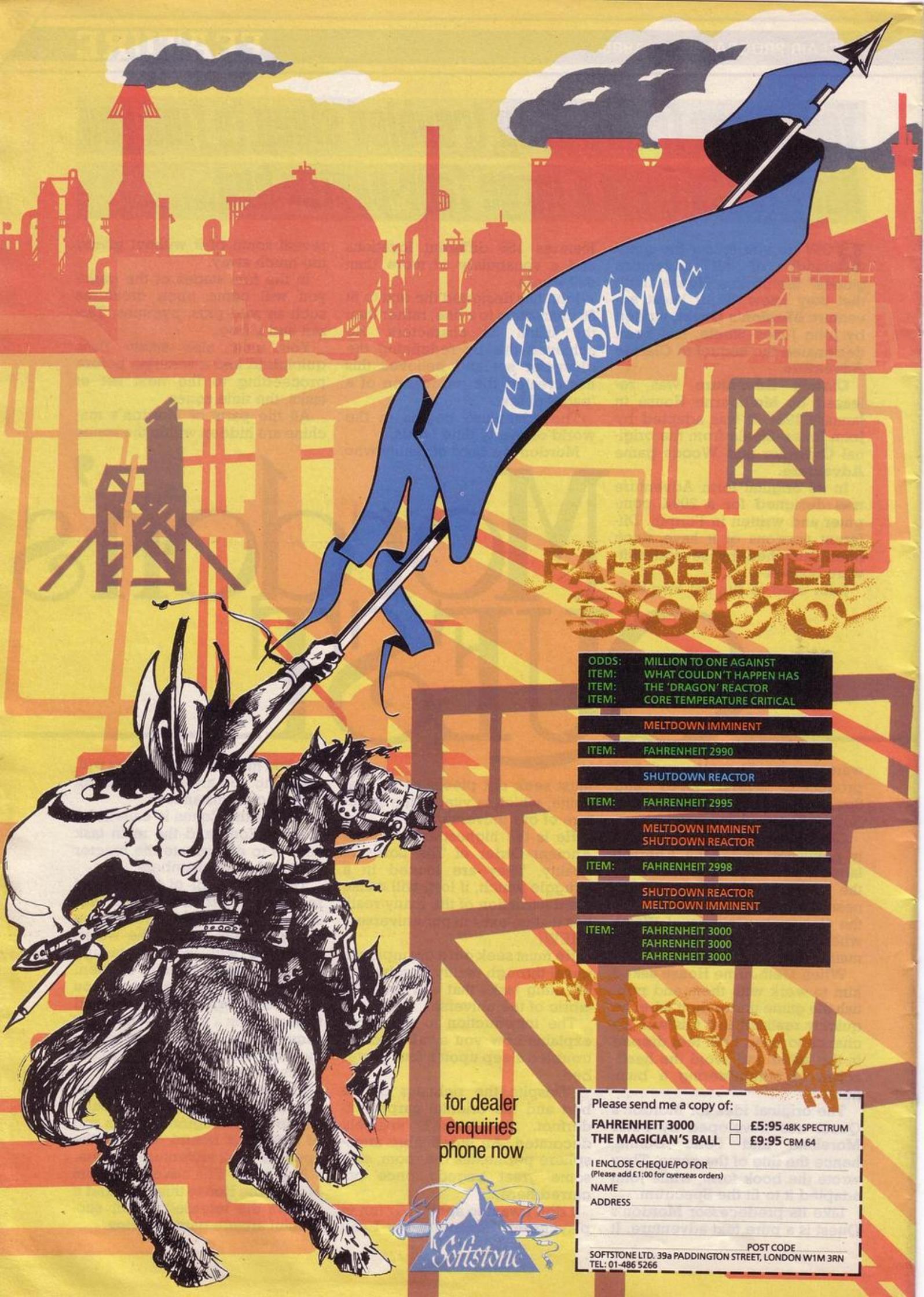
One of the Zones is called the Metallic Zone and the main task here is to de-activate the reactor held within its chambers.

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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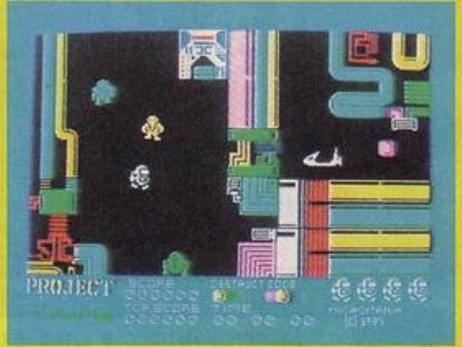
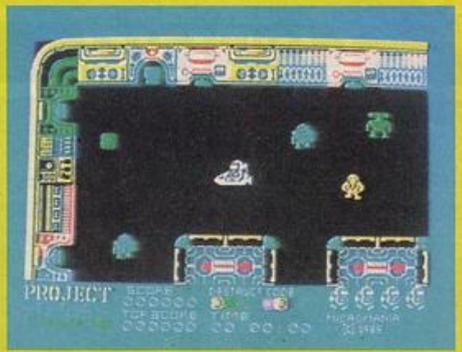
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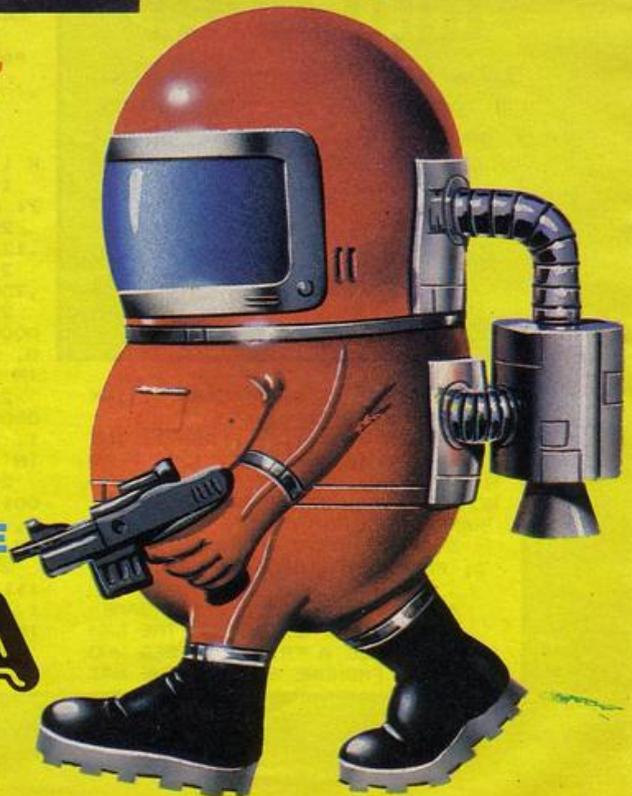
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MICKY'S MINE FIELD



Move around the field collecting the power pills. Avoid the ghosts and arrows which will kill you on contact. Use the cursor keys to move.

Micky's Mine Field was written for the Spectrum or Spectrum Plus by a reader from Tuffley, Gloucestershire.

```

10 REM **MICKY'S MINE FIELD**
20 LET HI=0
30 LET SCR=0: LET D1=10: LET A
1=1
35 LET T=3000
40 GO SUB 9000
45 GO SUB 9000
90 BORDER 0: PAPER 0: INK 0: B
RIGHT 1: CLS
100 LET A=15: LET D=10
110 PRINT AT D,A: INK 4: "M"
114 LET T=T-1: IF T <= 0 THEN
GO TO 300
115 PRINT AT 0,2: INK 5: "SCORE
- ": SCR: AT 0,15: "T" MINUS :":
T: "
116 PRINT AT D1,A1: INK 0: " ";
INK 7: "C": INK 0: " "; INK 7: "
C": INK 0: " "; INK 7: "C": LET
A1=A1+1
117 IF A1 >= 23 THEN PRINT AT
D1,A1: INK 0: " ": LET A
1=1: LET D1=D1+1
118 IF D1 >= 21 THEN LET D1=2
    
```

```

120 PRINT AT INT (2+19* RND )
, RND *31: INK 6: "G"
130 PRINT AT INT (2+19* RND )
, RND *31: INK 2: "A"
140 IF INKEY$ ="5" THEN LET A
=A-1: PRINT AT D,A+1: INK 0: " "
150 IF INKEY$ ="6" THEN LET D
=D+1: PRINT AT D-1,A: INK 0: " "
160 IF INKEY$ ="7" THEN LET D
=D-1: PRINT AT D+1,A: INK 0: " "
170 IF INKEY$ ="8" THEN LET A
=A+1: PRINT AT D,A-1: INK 0: " "
180 IF ATTR (D,A)=66 OR ATTR
(D,A)=71 THEN GO TO 300
190 IF ATTR (D,A)=70 THEN BEE
P .01,20: LET SCR=SCR+10
200 IF A<0 THEN LET A=0
210 IF A>31 THEN LET A=31
220 IF D<2 THEN LET D=2
230 IF D>21 THEN LET D=21
240 GO TO 110
300 REM ***DEATH ROUTINE***
305 FOR X=1 TO 5
310 PRINT AT D,A: INK RND *6:
"H": BEEP .003, RND *25
320 PRINT AT D,A: INK RND *6:
"I": BEEP .003, RND *25
330 PRINT AT D,A: INK RND *6:
"J": BEEP .003, RND *25
340 PRINT AT D,A: INK RND *6:
"K": BEEP .003, RND *25
350 NEXT X
360 PRINT AT D,A: INK 0: " ": P
AUSE 200
370 FOR F=0 TO 21: PRINT AT F,
    
```

```

0: "
"
380 BEEP .003,0
390 BORDER RND *6
400 NEXT F: BORDER 0
410 FOR L=1 TO 10
420 PRINT AT 7,L: INK 5: " GAME
": AT 7,26-L: "OVER ": BEEP .003,
10: NEXT L
430 PRINT AT 12,9: INK 6: "SCOR
E": SCR
440 IF SCR>HI THEN LET HI=SCR
450 PRINT AT 14,6: INK 4: "HI-S
CORE": HI
460 PRINT AT 20,0: FLASH 1: "
PRESS ANY KEY TO CONTINUE "
470 PRINT AT 21,0: INK 7: FLAS
H 1: " PRESS ANY KEY TO PLAY AG
AIN "
490 PAUSE 0: PAUSE 0: CLS : GO
TO 30
9000 REM ***UDGS***
9005 RESTORE 9100
9010 FOR F=0 TO 7: READ D: POKE
USR "M"+F,D: NEXT F
9015 FOR F=0 TO 7: READ D: POKE
USR "A"+F,D: NEXT F
9016 FOR F=0 TO 7: READ D: POKE
USR "G"+F,D: NEXT F
9017 FOR F=0 TO 7: READ D: POKE
USR "C"+F,D: NEXT F
9030 FOR F=0 TO 7: READ D: POKE
USR "H"+F,D: NEXT F
9040 FOR F=0 TO 7: READ D: POKE
USR "I"+F,D: NEXT F
9050 FOR F=0 TO 7: READ D: POKE
USR "J"+F,D: NEXT F
9060 FOR F=0 TO 7: READ D: POKE
USR "K"+F,D: NEXT F
9070 RETURN
9100 REM ***DATA***
9110 DATA 126,219,129,219,255,19
5,102,60
9120 DATA 126,255,153,153,255,19
5,255,170
9130 DATA 0,0,24,60,60,24,0,0
9140 DATA 8,12,254,255,255,254,1
2,8
9200 DATA 35,118,140,67,34,89,95
,34,0,24,40,28,34,20,8,0,136,108
,18,33,102,148,106,6,225,94,33,1
8,41,86,164,65
    
```

Cruncher muncher

You have 150 seconds in which to cross the maze before you. Each new gate will only appear when you have moved through the last. Move up and down with keys 6 and 7 and through gates with 8.

Cruncher Muncher was written for the Spectrum or Spectrum Plus by Wayne Starr and James Morgan of Stanmore, Middlesex.

```

1 PRINT AT 0,6: FLASH 1: INK
3: PAPER 6: "(18*G6)"
2 PRINT AT 1,6: FLASH 1: INK
3: PAPER 6: "(G6)": AT 1,7: FLAS
H 0: INK 0: PAPER 7: "CRUNCHER MU
NCHER": AT 1,23: FLASH 1: INK 3:
PAPER 6: "(G6)"
3 PRINT AT 2,6: FLASH 1: INK
3: PAPER 6: "(18*G6)": PAPER 7
4 LET A$=" THE GAME
THE IDEA OF THE GAM
E IS TO RACE A FRIEND TO SEE WHO
CAN GET FROM ONE SIDE OF THE MAZ
    
```

```

E TO THE OTHER SIDE THE FASTEST.
(GOOD LUCK)...
THE KEYS ARE... UP (
7)DOWN(6)RIGHT(8)"
5 PRINT AT 6,0: FOR n=1 TO
LEN A$: INK RND *6
6 PRINT A$(N): BEEP .01, RND
*69: NEXT n
7 PRINT AT 19,8: "HIT ANY KEY
"
8 PAUSE 9000
9 BORDER 5: PAPER 5: CLS : IN
K 1
10 FOR n= USR "a" TO USR "f"+
7: READ a: POKE n,a: NEXT n
20 DATA 60,126,239,252,248,255
,126,60
21 DATA 60,126,219,255,255,195
,255,219
22 DATA BIN 00000000, BIN 000
00000, BIN 00011000, BIN 0011110
0, BIN 00111100, BIN 00011000, B
IN 00000000, BIN 00000000
23 DATA BIN 10000001, BIN 100
00001, BIN 11111111, BIN 1000000
1, BIN 11111111, BIN 10000001, B
IN 11111111, BIN 10000001
24 DATA BIN 00100100, BIN 011
00110, BIN 11110111, BIN 1111111
1, BIN 11011111, BIN 11111111, B
IN 01111110, BIN 00111100
25 DATA BIN 00111100, BIN 011
1110, BIN 11111111, BIN 1111101
1, BIN 11111111, BIN 11011111, B
IN 01100110, BIN 00100100
30 LET c=0: LET r=0
40 FOR r=1 TO 19
    
```

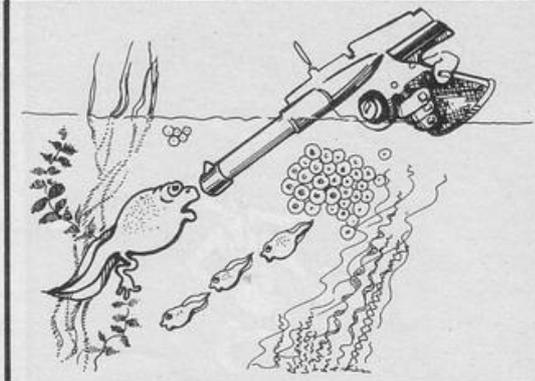
```

50 PRINT " BCBCBCBCBCBCBCBCBCB
CBCBCBCBCB"
51 NEXT R
62 LET N=0
70 LET r=0: LET c=0
80 LET h= INT ( RND *19)
90 PRINT AT h,c+1: "D": INK 2
95 PRINT AT r,c: "A"
96 IF INKEY$ ="6" THEN PRINT
AT r,c: "F"
97 IF INKEY$ ="7" THEN PRINT
AT r,c: "E"
99 PRINT AT 21,0: "TIME TACKEN
T+ ": N
100 FOR d=0 TO 10
110 NEXT d
120 PRINT AT r,c: " "
130 IF INKEY$ ="8" AND r=h THE
N LET c=c+2: BEEP .1,2: GO SUB
80
140 IF INKEY$ ="7" THEN BEEP
.1,0: LET r=r-1
150 IF INKEY$ ="6" THEN BEEP
.1,0: LET r=r+1
160 IF r<0 THEN LET r=0
170 IF r>19 THEN LET r=19
173 IF c>28 THEN FOR n=0 TO 10
: BORDER RND *7: PAPER RND *7:
CLS : PRINT AT 10,10: "GREAT GO
ING": BEEP .01, RND *69: NEXT n:
PAPER 7: RUN
185 LET N=N+1: IF n=150 THEN B
ORDER 0: PAPER 0: CLS : INK 7: P
RINT AT 10,10: "BAD LUCK": STOP
190 GO TO 95
    
```

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=n+1
140 LET b=k+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=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 SUB 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;" "
1 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 SHOOT
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 THEN LET x=x+1
5020 PRINT AT x-1,y;" "
5030 IF INKEY$ ="7" AND x>0 THEN LET x=x-1
5040 PRINT AT x+1,y;" "
5100 RETURN
6000 REM ENERGY REPORT
6100 IF en>100 THEN PRINT AT 21,0;"ENERGY REPORT=0.K."
6200 IF en <= 100 THEN PRINT AT 21,0;"ENERGY REPORT=NOT GOOD"

6300 IF en<-10 THEN PRINT AT 21,0;"ENERGY REPORT=DANGEROUS"
6400 PRINT AT 0,0; FLASH 1; BRIGHT 1;"ENERGY=";en: BEEP .01,5

6500 PAUSE 1: PAUSE 1: PAUSE 0

6600 PRINT AT 21,0;" ": PRINT AT 0,0;" "
6700 RETURN
7000 PRINT AT 10,13; FLASH 1; BRIGHT 1;"GAME OVER": FOR n=0 TO 50: BEEP .01,n: NEXT n
7030 PRINT AT 14,10;"ENERGY=";en
7050 LET en=en/5
7060 PRINT FLASH 1; BRIGHT 1; AT 12,14; INT en;"%"
7100 PAUSE 1: PAUSE 0: GO TO 20

8000 BORDER 5: PAPER 5: CLS : INK 0
8050 PRINT AT 0,10;"FROGGER JR" : PRINT OVER 1; AT 0,10;"-----"
    
```

```

8070 PRINT
8100 PRINT "YOU ARE A SMALL TADPOLE 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 ENERGY YOU HAVE LEFT""AND YOUR ENERGY STATUS.""IF YOU MISS ANY ALGAE YOU'LL""HAVE BACTERIA SHOT AT YOU.""IF THIS HAPPENS GET TO YOUR""BASE AT THE BOTTOM OF THE""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 KEY 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;"(i*)": NEXT g
8500 RETURN
9000 FOR n=0 TO 7: READ a: POKEUSR "a"+n,a
9100 DATA 0,62,79,255,255,255,126,0
9200 NEXT n
9300 FOR n=0 TO 7: READ a: POKEUSR "b"+n,a
9400 DATA 0,0,240,252,254,255,15,7
9500 NEXT n
9600 FOR n=0 TO 7: READ a: POKEUSR "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; INK 3;"PRESS ANY KEY TO RUN AGAIN"
450 PAUSE 0
460 GO TO 10
    
```

CAN CAN





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
LS
15 GO SUB 4000
18 LET SC=0
19 LET N1=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
    
```

```

80 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;"ATHELETE (1)"
130 IF SC=1 THEN PRINT AT 4,1
; INK 0;"ATHELETE (2)"
140 IF SC=2 THEN PRINT AT 4,1
; INK 0;"ATHELETE (3)"
150 IF SC=3 THEN GO TO 4200
160 PRINT AT 20,0; INK 1; PAPE
R 6;"(4*isp;q5:5*isp;q5:5*isp;q5
:5*isp;q5:5*isp;q5:3*isp)"
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
206 PLOT X-5,Y-9: DRAW -4,-4: D
RAW 4,-4: DRAW 0,3: DRAW -2,2: P
LOT X-1,Y-10: 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 GO TO 200
2000 FOR 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 -0,-4: DRAW -5,-6
2040 IF T >= 100 AND SC=0 THEN
PRINT AT 1,27;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: B
EEP .5,15: BEEP .6,15: BEEP .5,1
5: 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: BE
EP .4,15: BEEP .4,15: BEEP .2,
10: BEEP .2,15: BEEP .4,15: BEEP
BEEP .2,15: BEEP .4,15: BEEP .2,
.5,15: BEEP .6,15: BEEP .5,15:
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;"SEBAS
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;"1:LEFT LEG
"; AT 12,7;"2: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 TO 4200
    
```

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
5 POKE 16418,0
9 LET S=0
10 LET N=INT (RND*50)+20
20 FAST
30 FOR L=1 TO N
40 PRINT AT (RND*20), (RND*30);
"#
50 NEXT L
60 SLOW
70 PRINT AT 21,0;"
80 LET C=INT (RND*29)
90 PRINT AT 20,C;"
100 LET A=0
    
```

```

110 LET B=INT (RND*32)
120 PRINT AT A,B;"
130 FOR N=1 TO 10
140 NEXT N
150 PRINT AT A,B;
160 LET P=PEEK (PEEK 16398+256+
PEEK 16399)
170 IF P=CODE "A" THEN GOTO 300
180 IF P=CODE "B" THEN GOTO 300
190 IF P=CODE " " OR P=CODE "
" THEN GOTO 400
200 PRINT AT A,B;"
210 PRINT AT A,B;"
220 LET A=A+1
230 LET P=PEEK 16422
240 IF P=223 THEN LET B=B-1
250 IF P=247 THEN LET B=B+1
260 IF P=207 THEN GOSUB 1010
270 IF P=231 THEN GOSUB 1100
280 IF P=239 THEN LET A=A-2
285 LET S=S+P
290 GOTO 150
300 POKE 16424,0
301 FOR N=A TO 20
302 PRINT AT N,B;"
303 NEXT N
304 POKE 16424,32
305 POKE 16424,2
309 FOR N=1 TO 50
310 PRINT AT 10,10;"GAME OVER"
320 NEXT N
330 PRINT AT 21,0;"SCORE";S
340 PRINT AT 14,2;"PRESS ANY KE
Y TO PLAY AGAIN"
350 IF INKEY#="" THEN GOTO 350
360 CLS
370 GOTO 9
400 FOR N=1 TO 63
410 PRINT AT A-1,B;CHR# N
420 NEXT N
430 PRINT AT A-1,B;"
440 FOR N=18 TO 0 STEP -1
450 PRINT AT N,B;
455 LET P=PEEK (PEEK 16398+256+
PEEK 16399)
460 IF P=CODE "A" THEN GOTO 300
470 PRINT "
480 PRINT AT N+1,B-1;"
490 LET B=B+.4*(INKEY#="B")-.4*
(INKEY#="S")
495 LET A=A-1
500 NEXT N
505 LET S=S+INT (RND*255)+10
507 CLS
510 GOTO 10
1000 LET B=B-1
1010 LET A=A-2
1020 RETURN
1110 LET B=B+1
1112 LET A=A-2
1130 RETURN
9000 PRINT AT 0,10;"ARGON LANDER
"
9001 PRINT AT 1,10;"
"
9010 PRINT AT 4,0;"FLYING A PLAN
ET HOPPER,AS-32"
9020 PRINT AT 6,0;"TYPE YOU HAVE
TO LAND ON PLANET";AT 8,0;"ARG
ON";AT 10,0;"BUT THIS PLANET IS
SURROUNDED BY";AT 12,0;"ASTEROID
S."
9030 PRINT AT 14,0;"IF YOU HIT O
NE YOU WILL DIE...."
9040 PRINT AT 16,0;"IF YOU MANAG
E TO LAND THEN YOU";AT 18,0;"MU
ST TAKE OFF AGAIN..."
9050 PRINT AT 20,2;"PRESS ANY KE
Y TO CONTINUE"
9060 IF INKEY#="" THEN GOTO 9060
9070 CLS
9080 PRINT AT 2,0;"BY THE WAY,TH
E KEYS USED ARE A";AT 4,0;"FOL
LOWS."
9090 PRINT AT 6,5;"=LEFT "
9100 PRINT AT 8,5;"=RIGHT"
9110 PRINT AT 10,5;"=THRUST"
9120 PRINT AT 12,5;" AND =THRU
ST AND LEFT"
9130 PRINT AT 14,5;" AND =THRU
ST AND RIGHT"
9140 FOR N=1 TO 200
9250 NEXT N
9260 CLS
9270 RETURN
9998 SAVE "PLANE"
9999 GOTO 1
    
```

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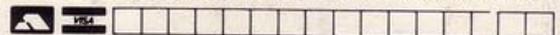
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