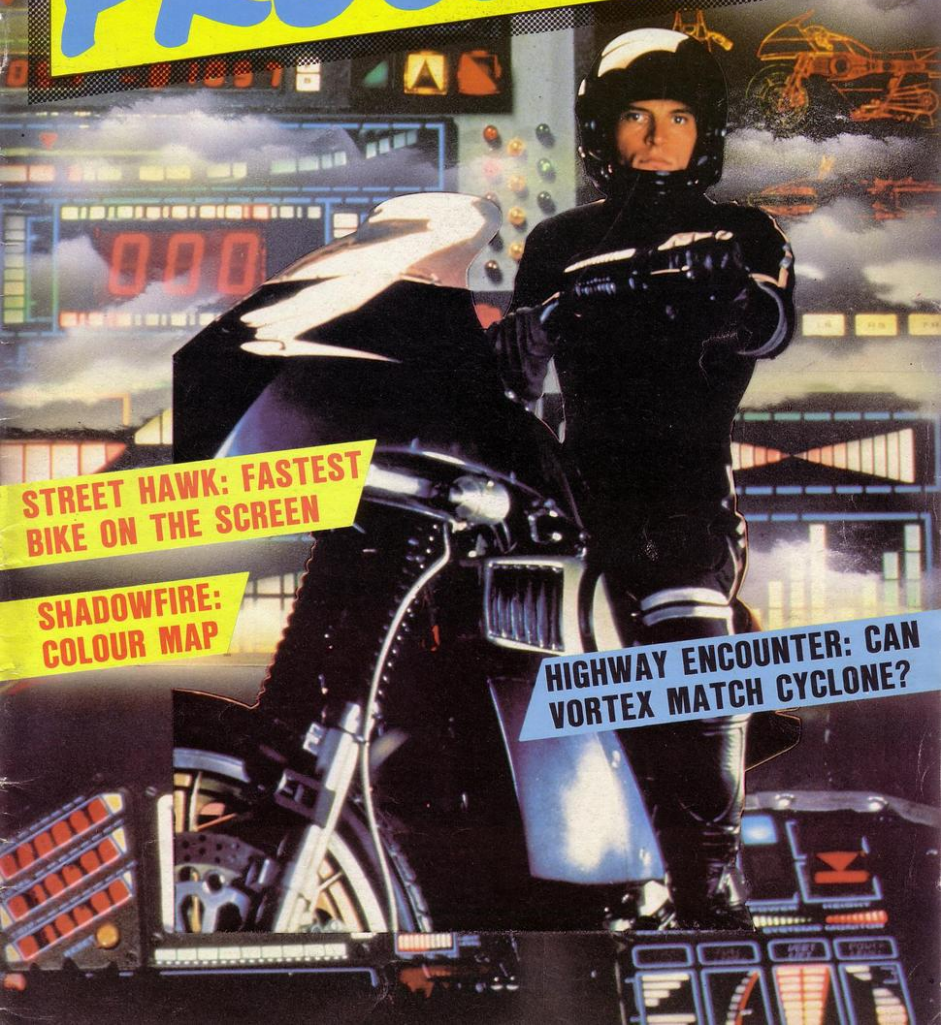


SINCLAIR PROGRAMS

**STREET HAWK: FASTEST
BIKE ON THE SCREEN**

**SHADOWFIRE:
COLOUR MAP**

**HIGHWAY ENCOUNTER: CAN
VORTEX MATCH CYCLONE?**



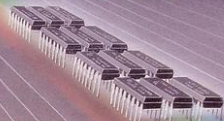
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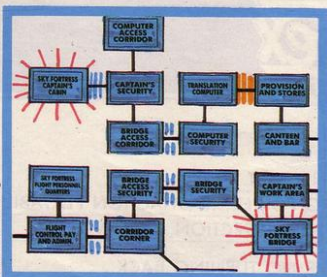
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THERE has been bloodshed, violence and frustration in the office this month, as the *Sinclair Programs* team fought their way through **Shadowfire**. Maps alone are not enough, you need to know exactly who to move where at any point.

The final assault on the Interrogation Chamber had us stumped until we rooted around in the armoury and handed the most enormous piece of equipment we could find to Maul. Even then things went wrong. We moved in, all guns blazing, lost a few personnel and found events were out of control. Our translator was dead and so Kryxix refused to be rescued.

Without a map, though, things seem hopeless, so we have produced a full colour map of *Shadowfire* for you. It cannot provide all the answers but if you remember that the entire team is important, and that they need a lot of rest to reach full strength you should not go too far wrong.

In future we will be publishing maps more frequently in *Sinclair Programs*. Let us know which games you would like to see mapped, and we will do our best to oblige.

If you are a keen mapmaker and own a map, or even a large part of a map of a popular game, why not send it in to us? As long as words and directions are clear, we will be able to use your information to help other games players.

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Sinclair Programs,
EMAP,
Priory Court,
30-32 Farringdon Lane,
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 "(g:4 * i:4:g:3)" would be entered as a graphic four, followed by an inverse four repeated four times, followed by a graphics three.

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

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

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- Popular Computing Weekly 7/3/85

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5	ORIC-1	21	PIZZA	37	NUM
6	CRICKET	22	PIZZA	38	NETHER
7	STARTRIP	23	PIZZA	39	NETHER
8	BOATLE	24	PIZZA	40	NETHER
9	INDOZ OUT	25	PIZZA	41	NETHER
10	ROCKY HILL	26	PIZZA	42	NETHER
11	ALAN ATTACK	27	PIZZA	43	NETHER
12	LONGS LINDER	28	PIZZA	44	NETHER
13	MAZE 1638	29	PIZZA	45	NETHER
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Dear Diary

In those quiet hours between the end of Sunday lunch and my mother's first question about whether I've done my homework yet, I often contemplate dad's bald patch.

On Sunday afternoons he's usually flaked out on the sofa, his thinning scalp peering over the sofa arm like some hideous transforming face in a horror movie.

In fact, I often think that dad's hair resembles one of those West German forests threatened by acid rain — imagine a clump of trees with poisoned lakes all round and random death within it and you get the picture.

Not surprising, then, that my project for this month's Sinclair Programs is a method of calculating which of his surviving hairs would die next.

I realised, of course, that only dad's expiring follicles could really answer that question, but decided I could number the surviving hairs from one to 100 (there aren't many) and have a program decide at random which one was next for the floor of that big barber's shop in the sky.

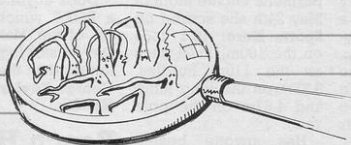
But although it's easy to use RND to pick these numbers — using `PRINT INT(RND*100) + 1` — it's really hard to make sure you don't pick the same number twice.

Luckily, my temperamental sister Eustacia was as intrigued by the project as I was.

She recommended using an array of all the numbers to 100, and — after each one is selected — sticking it in the top end of the array where it wouldn't be picked again.

In the program we wrote lines 5 to 40 set up an array whose length you choose for yourself.

```
5 INPUT n
10 DIM a(n)
20 FOR i = 1 TO n
30 LET a(i) = 1
40 NEXT i
```



Lines 50 to 90 pick numbers at random from the 100 we've set up. The first number picked is then swapped with the last number in the array, the second number with the next to the last, and so on.

```
50 FOR i = 1 TO n - 1
60 LET r = 1 + INT ( RND * (n + 1 - i) )
65 LET s = a(n + 1 - i)
67 IF r = s THEN GO TO 90
70 LET a(n + 1 - i) = a(r)
80 LET a(r) = s
90 NEXT i
```

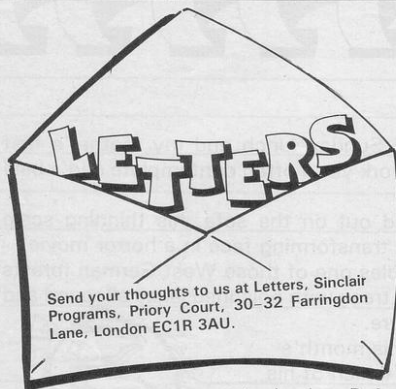
You end up with 100 numbers in random order in the array, which you display with lines 100 to 120.

```
100 FOR i = 1 TO n
110 PRINT a(i)
120 NEXT i
```

We'd just finished when dad woke up. He wanted to know how me and Eustacia had suddenly become friends. We said it was all thanks to him.

Sid.





I THINK the software industry has virtually stopped because people are bored with games, of whatever sort. True, people will play longer on one sort of game than on another. After a day or two, though, they are put away and forgotten.

Why not have a national system of games libraries like the normal book libraries? After all, very few people actually buy books, and it is very difficult to choose a game, because everyone likes different sorts. Then there would be no need for piracy because you would probably be bored with a game after three weeks, anyway.

Of course, this would only work with games, as programs which you need constantly, such as utilities, would have to be purchased like reference books.

Piracy will still go on, unfortunately, but then the record industry coped with it for the last ten years and they are

not wingeing. Perhaps this is because they are not as optimistic as the software houses and other people with ginger beards, bald heads and glasses who I could mention, who invest their profits in a plastic bath on wheels.

Anon.

Sports Hero high scores

I CLAIM TO have a Supernum. On the night of May 24th she scored on **Sports Hero**: 10.1 secs on the 100m, 11.21 secs on the 110m hurdles, 9.37m on the long jump and 4.67m on the pole vault.

Has anyone beaten these scores?
James Wright,
Belton, 5th Humbs.

Smaller pictures

I THINK *Sinclair Programs* is great but it would be even better if you squeezed even more programs in by

making the pictures which appear with the programs smaller. In the May issue, for example, you could have squeezed the ZX-81 program 333 into one page.
Peter Hughes,
Swansea.

Booty: where is gold key?

IN **BOOTY** there are several different ways of obtaining key number five, depending on the different starting points of the

Help!

Could someone please provide me with infinite lives for **Mutant Monty**?
R Hawley

• To fit more into this issue we have printed pictures smaller than usual on the final pages.

International football win

I THINK I have achieved a record score on **Match Day**. I beat the international level 8-2 on the

pirates. The method published in June's edition was one of them.

My high score is 127, despite the fact that there are supposed to be only 125 pieces of booty. When your score reaches 125 and treasure left shows as zero, a message appears at the bottom of the screen. "You

Help!

Does anyone have any tips for **Knight Lore**, or an infinite lives **POKE**?
Kevin Abbott

five minute each half game.

Does anyone know of a **POKE** which will get rid of the Match of the Day music? It goes on for longer than the game.

George Taylor,
Halifax.

have 45 seconds in which to find the golden key". The 45 then ticks down to zero. If you are unsuccessful, the game does not end as would be expected. You can carry on and collect the extra booty, of which

Beach Head white flag

I HAVE completed **Beach Head** with a score of 178,000 points. A white flag came from the tank as the enemy surrendered.



there are at least three more pieces.

I have not yet found the golden key, but heavily suspect that it is key number six in the hold full of swords, as this is the only key that cannot be removed successfully.

Alan Windsor,
Wilford, Notts.

Help!

What are you supposed to do on level three of **Jack and the Beanstalk**?
James Schneider



I should like to congratulate **US Gold** on an excellent game.

Calum Scott,
Ayr, Scotland.

Help!

How do you persuade the cabbie to take you anywhere in **Sherlock?**
Anthony Rushton



Excellent Airwolf

IN REPLY to your review of **Airwolf** from Elite published in the March edition, I am writing to say how wrong the reviewer was. I think that **Airwolf** is an excellent game. The reviewer said that it was classified as impossible (so does almost everyone else).

I too used to think that it was not possible until, one day, I broke through the first and second walls and dodged the radar in the game.

After some time, and lots of practice, I tried the game using the keyboard instead of the joystick. It is supposed to be impossible without a joystick. If this is so, then why can I do nearly half the first stage using the keyboard? I find that my performance is much better and easier using the keyboard.

Stephen Upton,
Yeovil, Somerset.

● *Anyone else find the game impossible, or are we the only ones?*

AFTER reading Shaun Lowe's letter in your April edition of **Sinclair Programs** I set out to beat his scores. After a few tries I could only manage around 280,000 on both days but, just as I was about to stop, I achieved the high scores of 349,523 on day one and 361,910 on day two.

Daniel Marlow,
Fareham, Hants.

fireballs at you. In order to finish you must dash to the end and get the bell.

Godwin, 4 Hurkur Crescent, Eyemouth, Berkshire. They are both well worth looking into. I am sure an SAE would be appreciated by both parties if readers are thinking of writing for details.

Chris Colley,
Cambridge.

Help!

Finders Keepers. How do you trade with the traders? How do you pass the cat at the exit?
David Nichol

Decathlon best hurdles

I HAVE scored 472,781 on day two of **Decathlon**. My best scores were the 110m hurdles, which I completed in 9.21 seconds; the discus, which I threw 83m and the 100m which I ran in 8.31 secs.
Paul Stephens,
Offenham, Worcs.

My score was 111,925 points, and I nearly finished the game a second time.
Craig Buckley,
Warwick.

CAN ANYONE beat my score on **Bruce Lee?** I have managed a score of 670,550 and killed the wizard twelve times

Mark Pitt,
Yateley, Surrey.

Newsletters for the ZX-81

I SHOULD like to pass on news of two newsletters aimed at ZX-81 owners. One is run by Software Farm at 155 Whiteladies Road, Clifton, Bristol BS8 2RF. The other is ZX Broadsheet from Nick

Decathlon high scores

AFTER buying **Sinclair Programs** for the first time, I was interested by the high scores on **Decathlon**. I decided to try to beat these scores, and managed to complete the 110m hurdles in 9.32secs and throw the discus 82.13m.
Richard Milne,
Aberdeen.

IN THE January issue of **Sinclair Programs** Andrew Milner claimed that he had achieved 164,263 in **Daley Thompson's Decathlon**.

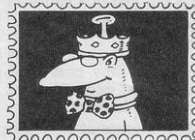
My score at this game is 291,528 on day one and 970,497 on day two.
Simon Grainger,
Bristol.

Help!

Planet of Death. How do you pass the force field in the wind tunnel, work the computer and find your spaceship? **Christian Horsefield**

Bruce Lee beat these

I HAVE just finished that excellent game, **Bruce Lee**. It took me half an hour. On the final screen the wizard fires small



Help!

How do you escape level eight of **Monty Mole?** **A Huskisson**

NEWS

SAVED

RUMOURS abound that Sinclair has hit hard times with creditors now calling in outstanding monies.

Julian Goldsmith, on behalf of Sinclair Research confirms that the company owes "Around £15 million." Both Timex and Thorn EMI, major producers of the QL and Spectrum machines were expecting to begin receiving outstanding monies in May this year.

They have now agreed to a two month extension of the loans "Because that wish the company to succeed and recognize that the problems have arisen through the seasonal nature of the market."

An encouraging development has been added by Robert Maxwell, publisher of *The Mirror*.

He is reported to have sunk £12 million into the ailing Sinclair Research at the end of June.

Through his newly acquired 75% stake he will become Chairman, with Sir Clive Sinclair returning to the research and development side as president.

Rumours that a 128K machine is under development have been firmly denied but the possibility of a portable, 64K, flat-screened machine were not.

Goldsmith confirmed that Sinclair are looking into the idea of producing such a machine.

Will it have a 64K memory and be based on the Spectrum?

"When you look at it," says Goldsmith "It's certainly a sensible idea, especially when you look at the success of the Spectrum family."

However "no specifications at present, but our R & D people are looking into it although nothing is likely until next year."

SPIRITS IN THE MATERIAL WORLD

WHAT DO you get if you cross *Every-one's A Wally* with *Tir Nir Nog*?

The answer, according to Tim Langdell from The Edge, is their new game *That's The Spirit*.

He describes the

game as "Zany fun. The setting is New York city where spirits are invading the buildings.

"Your mission is to rid the city of the spirits and solve a puzzle that has been set for you.

"The locations include



Fantasy Four

THE Fantastic Four are joining forces again to appear in a new computer game from Adventure International.

The game will be called *Quest Probe Three*, following *Quest*

Probe One and *Two* which starred the Incredible Hulk and Spiderman.

All four comic strip stars: Mr Fantastic, the Invisible Girl, The Thing and Human Torch will feature in the game.

Adventure International is also releasing a second new game, *Robin of Sherwood*.

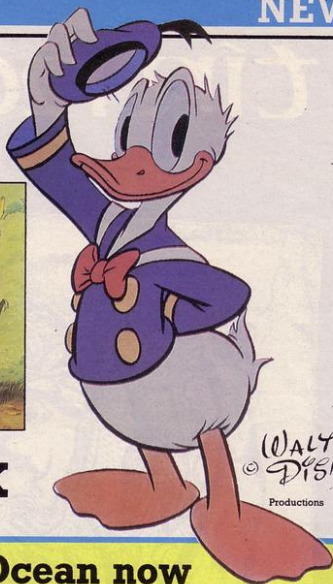
It is set in Sherwood Forest and is planned to be the first in a series of games based on Robin Hood.

Both games are now on sale, they cost £9.95 and are described as graphic adventures.

sky scrapers and alleyways, which you may enter and explore, which are populated with breakdancers and fierce dogs."

The game retails for £7.95 and goes on sale in early August.

The Edge have also released *Fairlight* which is set in a fantasy land of dragons and dungeons. Price £9.95.



WALT
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Productions

Jungle Book

WALT DISNEY Productions have signed an exclusive licence with US Gold to produce a series of computer games based on characters from the **Jungle Book** and two new Walt Disney films.

Production of the games has not yet begun and none are due out until November.

The follow up film to *Wizard of Oz*, *Return to Oz* will be released here

later this month, but the game based on it is due out in November.

The second new film, *The Black Cauldron*, will be released for Christmas, but no date has been set for the game.

In addition, the licence allows that any Walt Disney characters may be produced by US Gold with games involving Mickey Mouse, Donald Duck and Pluto very real possibilities.

Fights at Gamesday

DO YOUR parents complain about the amount of time you spend indoors on your computer?

Next month you can kill two birds with one stone by visiting the Gamesday show in London.

Games Workshop has organised the show at which you will be able to watch demonstrations as well as play games yourself.

There will be competitions with spot prizes, lectures on science writing, fantasy art and many

related events.

A number of software publishers have been approached to appear, so a selection of trade stands will be present.

Live mock battles have been planned with players' dressed in period costumes.

Gamesday is to be held on the weekend of 28th and 29th September at The Royal Horticulture New Hall, Greycoat Street, London SW1. Entrance fee will be £1.50.

Victoria is the nearest British Rail station to the event.

Ocean now spans the globe

ONE OF Japan's top coin-operated arcade games labels has been brought to Europe. The Ocean Group have begun releasing the Japanese Konami games on their recently acquired Imagine label.

Yie Ar Kung-Fu is due for release this month. It features Oolong who must become a Grand Master of his chosen martial art in honour of

his father. The settings vary from temples to mountains.

Hypersport and **Konami's Tennis** have already been released while **Hyper Rally**, **Konami's Golf**, **Mike and Comic Bakery** will be arriving in the shops for the months leading up to Christmas.

All the games are arcade and they will retail at £7.95 each.

Quest archive

ARE YOU a serious adventurer lost on your quest?

Hints Archive for Lost Adventurers, HALA for short, has been set up to offer help with clues and maps.

It is a newly formed group aiming to collect useful information and give advice on any Spectrum adventure game on

the market.

Griffiths-Glover, self appointed Keeper of the Archive, asks that you send a SAE with any requests, and send as many clues as possible in order to build up the archive.

The address is: HALA, 38 Bellfield Drive, Well Lane, Willerby, East Yorks HU10 6HQ.

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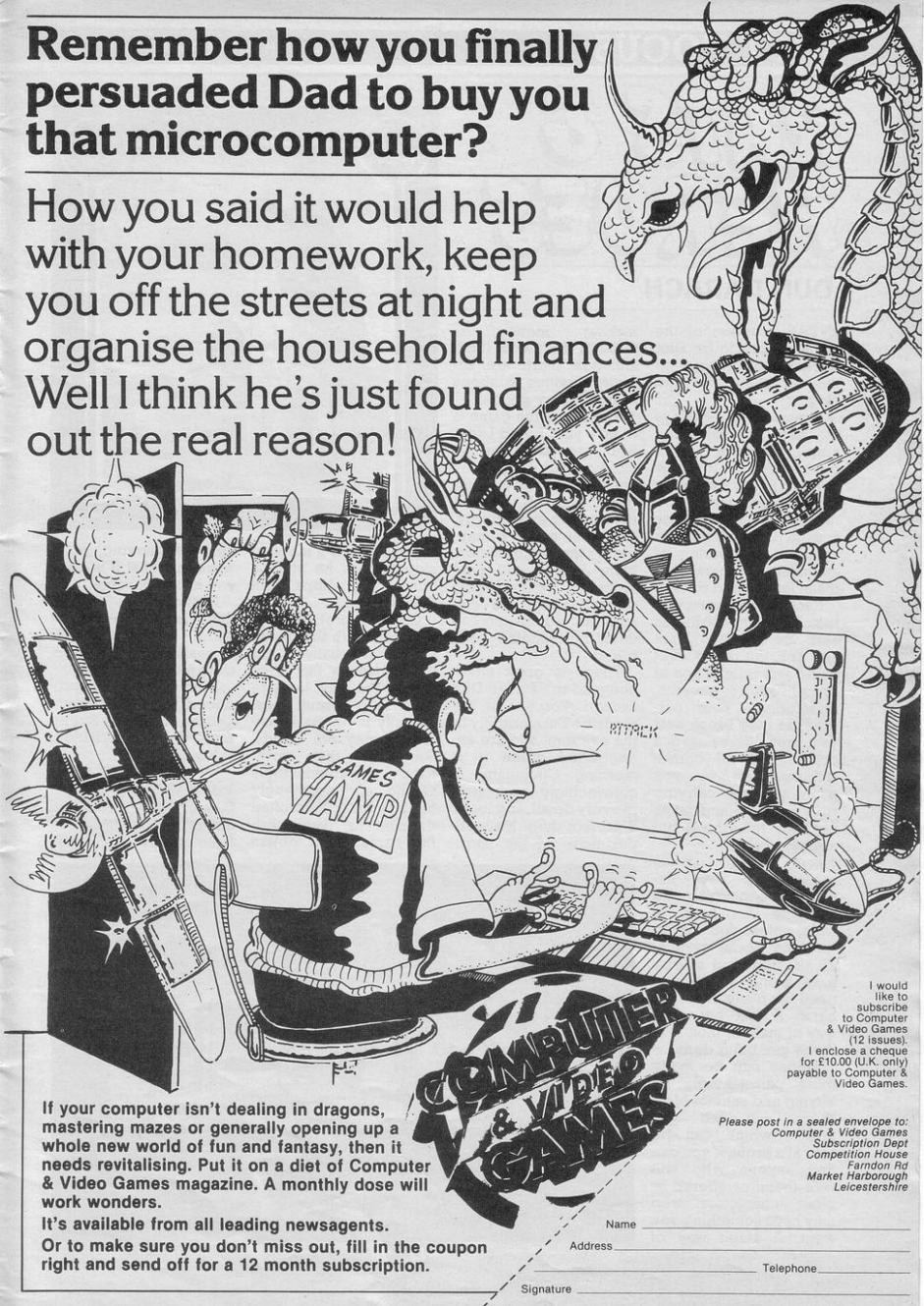
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How you said it would help with your homework, keep you off the streets at night and organise the household finances... Well I think he's just found out the real reason!



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RATS & HEROES

DUN DARACH

STAR program of the month has to be **Dun Darach**, the sequel to the excellent **Tir na Nog**.

Dun Darach employs the excellent animation employed in **Tir na Nog**, but takes it to new heights. Every road has a name, every door has a number, every shop has a sign. Cuchulainn, the hero, meets a variety of animated characters; male, female and rodent.

Each of the characters has its own attributes and personality. Kara and Keli, the pickpocket twins, will relieve you of any of your possessions, murmuring "Your pardon" as they brush past you. Bren offers help at a price. Ryde comes stomping up to you when you are carrying stolen goods, and takes not only the goods but also a hefty fine.

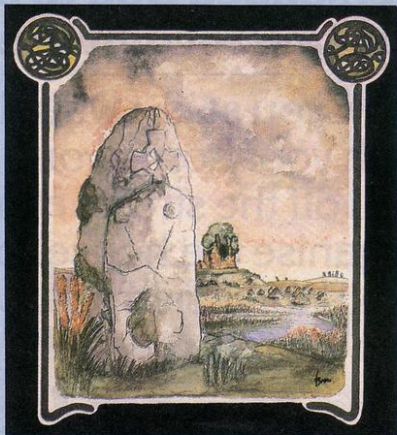
Dun Darach carries realism to new extremes. To move around the city you have to walk, unless you can afford the portal system. To prevent your money from being stolen you need to place it in the bank. A fast but risky way of making money is in the gambling dens.

Money can be made more painstakingly by buying and selling. Most shops will sell you goods, which can be sold at a profit, if you can find anyone who will take them; or offered to other characters who may have something you want. A faster way of

making money is through the use of theft, although there are security devices in shops selling luxury goods.

The aim of the game is to save your friend Loeg, who has been imprisoned in Dun Darach by the sorcerer Skar. This quest, though, should not be seen as a priority. First you need a map, money and information. Many weeks will pass before you know enough about the city and its inhabitants to think of rescuing your friend.

There is great attention paid to detail in Dun Darach. Torches at the roadside burn brightly in the evening, and are extinguished when it is morning. Cuchulainn is convincingly animated in every detail, and looks a perfect thug. No wonder none of the shop-



keepers make a move to stop him as he stomps out of the shops with their goods!

Only two problems are apparent with the game. Firstly, so realistic are the distances that trips across the city tend to become boring, especially if you have neither money nor goods. Secondly, the script used is convincingly Gaelic, and annoyingly hard to read. It is often difficult to distinguish the name of an object

you are carrying, or to work out what it is once you know its name.

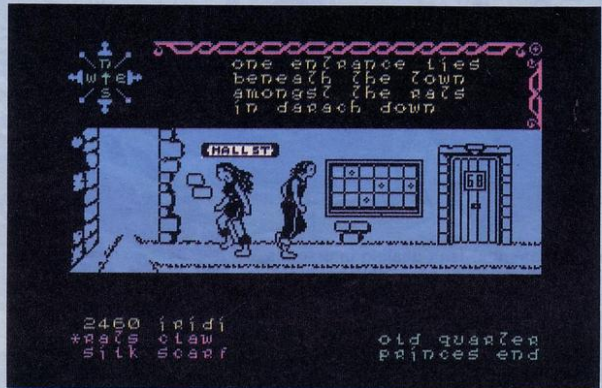
Reservations aside, this is an excellent game, taking standards of realism on the Spectrum one step further.

Dun Darach is produced by Gargoyle Games, 71 Kings Street, Dudley, West Midlands.

Price: £9.95

Game type: Animated adventure

Rating: 96%



HERBERT'S DUMMY RUN

WITH A name like **Herbert's Dummy Run** you know that this game has to be another Wally release.

Wally and Wilma have lost their son Herbert in the department store. They are waiting in the lost and found for him, with a supply of jelly babies. The better his progress, the more jelly babies they hold.

Like **Pyjamarama** and **Everyone's a Wally**, **Herbert's Dummy Run** combines arcade and adventure with a series of large, clear and distinctive graphics. Herbert can carry two objects at a time, and will automatically pick up an object as he passes over it.

As usual there are a whole series of interrelated problems to be

solved. To light up events in the dark room you need the torch. When you find it, though, the torch is broken, so it must be taken to the lighting department for repairs. Once you have found out what is going on, you need a weapon. The popgun maybe? Well, find a cork, load it up and go and see.

Bound up with the animated adventure are a series of arcade games, most of which need special equipment to play. The game of **Breakout**, for example, requires the tennis racket. Of course, having the correct equipment is not all you need. Skill is all important. And, surely, not all games of Breakout involve the player having to dodge sprinting

bricks?

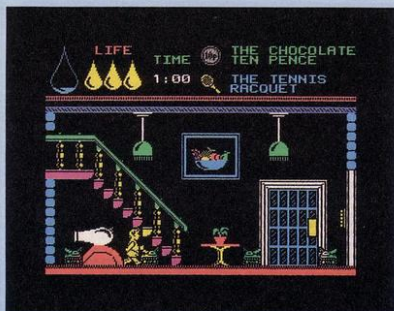
Matters are made even more complicated by the department store being constructed on four levels. You can make your way from floor to floor by way of the stairs, or by using the lift. Being a Wally department store, though, there is only one lift. Walk through the lift door on the wrong floor and Her-

bert plummets down to the bottom of the lift shaft. Even using his nappy as a parachute is no use to him here.

A representative example of a Wally tradition, **Herbert's Dummy Run** is produced for the 48K Spectrum by Mikrogen, 44 The Broadway, Bracknell, Berks.

Price: £9.95

Rating: 81%



NODES OF YESOD

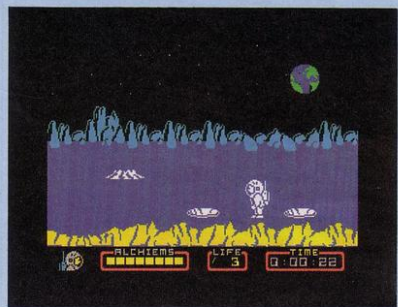
ABOUNCING hero explores underground passages, leaping from ledge to ledge, often falling from a great height, hindered in his progress by a variety of strange creatures. Yes, you are right, **Nodes of Yesod** does seem remarkably similar to **Underworld**.

Smoothly scrolling graphics depict your search, beneath the surface of the moon, for a Monolith buried somewhere in its core. The weak gravity leads to a strange form of movement, so each large jump neatly encompasses a somersault, or two, or three.

The aims is to reach the monolith, having first collected the eight alchims which give access to that chamber.

This involves negotiating the majority of the maze, a task which is made slightly easier by the fact that there are several entrances, and it is possible to enter and leave the maze at ground level.

Matters are made more difficult by the other animated creatures. As in **Underworld**, most of these appear at random, materialising while you are in a room, getting in your way but generally doing very little more. Creatures which are a little more fixed and solid are the flying fish, quickly flowering plants, crawling insects and hopping birds. These are not lethal, but whenever you hit them, you bounce away again, often in an unexpected direction.



Also to be avoided are the red spacemen, who will steal your alchims. Whatever you do, too, do not fall from a great height, as this means almost certain death.

A novel feature of **Nodes of Yesod** are the moles which burrow on the moon's surface. These friendly little creatures can eat through the moon's surface so, if you

can persuade one to travel with you, they will make life considerably easier.

Nodes of Yesod is produced for the 48K Spectrum by Odin, The Podium, Steers House, Canning Place, Liverpool.

Price: £9.95

Game type: Arcade

Rating: 78%

SAIMAZOOM

SAIMAZOOM is the first part of the Silversoft Indiana Smith trilogy.

Smith aims to collect several items of treasure from the jungles of Saimazoom. The jungles are rumoured to occupy around one hundred square miles, with one mile fitting on the screen at the time. According to this scale Smith is several hundred yards high, can do the one second mile and confronts the largest snakes ever seen.

Graphics are too large and blocky, with everything from rivers to cacti looking somewhat square. Lethal enemies

appear while you are on a screen, and disappear once again if you leave an area and then immediately reenter it. This makes them ridiculously easy to avoid.

The major problem presented by the game is its maze-like format. All features of the landscape are solid and must be circumnavigated. Luckily you can carry up to four useful objects at a time. You could take four canoes, to cross all the rivers; or a gun to shoot anything on sight, or perhaps a useful looking key or sack.

Unfortunately it is all too easy, as you sprint



around the jungle, to use up your last canoe while crossing a river and then to find yourself surrounded by water. Then the only option is to settle down and wait until you have died of thirst

several times.

Produced for the 48K Spectrum by Silversoft, 271-273 King Street, London.

Price: £7.95

Rating: 36%

TAPPER

FOR FAST and totally furious arcade action on the Spectrum you want **Tapper**.

The game centres on a bar man who must keep all his customers happy. This means serving them as they walk up the bar, collecting all empty glasses, making sure no drinks are spilt, and collecting tips promptly.

The aim on each screen is to clear the bar, and the slower you are in your bar work the more characters will

come crowding in.

There are three levels. Hard starts you off with a huge bonus, but fills your bar to bursting point even on the earlier screens. The other two levels differ in the amount of lives you are allocated, with easy leaving you just enough to get by.

Different levels differ not only in the amount of people in the bar and how much they drink, but also in the bar layout. The length of the bars in



later rooms vary, so that some characters will need to be served very quickly. The arrangement also differs and, although your movement is not restricted, it is difficult to keep an eye on what is happening on both sides of the screen.

Where the game is lacking is in the Spec-

trum's graphics capabilities. Two characters who appear simultaneously will be virtually invisible, while three who arrive in quick succession will be indistinguishable from four or two. This leads to mistakes which are down to the graphics presentation, not the player's ability.

For players with fast fingers on the keyboard Tapper is produced for the 48K Spectrum by US Gold, Unit 10, Parkway Ind. Cent, Henagey Street, Birmingham.

Price: £7.95

Rating: 72%

DON'T BUY THIS

HOW DO you review a game which explicitly tells you: **Don't Buy This?** Not only that, it tells you that these are meant to be five of the worst games ever.

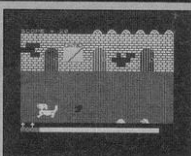
Fruit machine can safely claim to be one of the slowest versions of a fruit machine ever produced. Race Ace, offered 250 speeds to the

budding racing driver, each of which managed to be either too fast or too slow. Still, what do you expect from eight screens of Basic?

Weasel Willy may be good, but we cannot comment, because it would not load. The loading screen was fairly rough, though, if that is any help. The gems of

the piece are Fido One and Two in which, against a variety of backgrounds, a dog has to sit and smash moles to death with its tail.

Surely games for the Spectrum have not been of a high standard for long enough for the industry to start being smart-alec on the subject? These games were fairly amusing for five minutes on a review copy. Whatever you do, do not buy them.



Don't Buy This is produced for the 48K Spectrum by Firebird Software, Wellington House, Upper St Martin's Lane, London WC2.

Price: Too much

Rating: 9%

We can't show you all the views
of the Lords of Midnight,
there are **32,000!**



We've invented a new programming technique called Landscaping, creating a completely new kind of game, the EPIC. You'll get the chance to shape the characters into your own fantasy novel by playing out the different roles in the ever changing world of Midnight.



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ROCKY HORROR

DON'T DREAM IT, play it! What is it? The Rocky Horror Show.

The Horror show gets off to a good start as you enter the creepy house, illuminated only sporadically by flashes of lightning. Your first choice is one of sex. Do you want to play the part of Brad or Janet?

Your aim in the game is to search the house for the parts of the DeMesa machine which will save your partner, who has been turned to stone.

On first sight, the views of the house are reminiscent of the landscape in **Dun Darach**. However, the number of

locations is far smaller and, as you must pass each one several times each time you play the game, they quickly become tedious.

In the end, tedium is the hallmark of this game that started so well. Yes, the other inhabitants are well animated and say amusing things. Avoiding them, though, becomes imperative if you are to miss hearing the manic biker telling you yet again that he never loved his teddy. Yes, one character removes all your clothes, but the resulting graphic has all the sex appeal of an Action Man.

Parts of the machine have to be collected one



at a time, which makes for a lot of boring coming and going. Even worse, when there are several characters on screen at once, the strain of so much animation begins to tell. Your pace slows to a shuffle, giving the impression of wad-

ing through lumpy custard.

Rocky Horror Show is produced for the Spectrum by CRL, CRL House, 9 Kings Yard, Carpenters Road, London E15.

Price: £8.95
Rating: 56%

JET SET WILLY 2

NEW RELEASE from Software Projects, **Jet Set Willy Two** has the easy familiarity of an old friend.

It is a much extended version of the original **Jet Set Willy**. Willy still has to collect the rubbish



from his mansion, but now it is around twice its original size, and things are not entirely as you left them.

The mood of games players is one of nostalgia. Do you remember how we spent all night trying to work out how to get past the guards at the front door? Does anyone remember how to get over the moon in Nomen Luni? Surely the wine cellar was not this difficult before?

The new rooms near-

est to the bathroom are uninspiring and quickly ignored. Moving further things become far more difficult, and the problems are just as exasperating as before. Beware, for routes are not always as you remember them and you can end up in some of the worst rooms entirely by accident.

Despite its many challenges **Jet Set Willy** still looks good and it has lasted well. Surely, though, Software Projects could have done more than imitate their own success. New rooms are fun, but why

not an entirely new house? Why not a whole new scenario?

The success of **Jet Set Willy** doubtless guarantees success to its extension. However, a year is a very long time in Spectrum computing, and there are better, more exciting products in the shops at the moment.

Produced for the 48K Spectrum by Software Projects, Bear Brand Complex, Allerton Road, Woolton, Liverpool.

Price: £6.95
Rating: 79%

TALISMAN

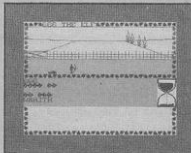
WITH ALL the great names out from Games Workshop at the moment, you might expect **Talisman** to be something special.

Up to four players select a character to control and set off through a varied landscape in search of the Crown of Command. Movement

through the locations is easy, although the animation is far from convincing, especially at high speeds.

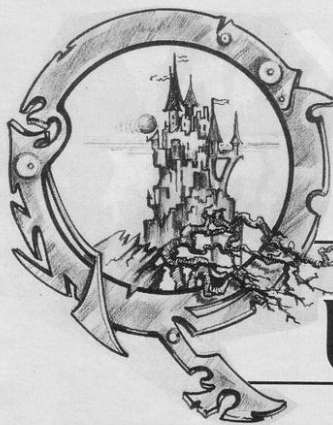
The game shows, rather too strongly, its roots in board game. You can stand in a location for as long as you like with nothing happening, but as soon as you press the

EXPLORE HERE button, characters materialise out of thin air, and things happen which could not have been predicted by studying the view. Directions are also confusing. Running across the screen from right to left you will suddenly be asked if you want to move north or west, and you will then be spun off on a completely different tack.



Produced for the 48K Spectrum by Games Workshop, 27/29 Sunbeam Road, London.

Price: £7.95
Rating: 52%



mapped by mere humans, unless they were blessed with almost magical powers themselves, since directions changed from one toom to the next.

Exempli gratia, from the Armour Room to the Aviary was west, but to return to the Armour Room was north; from the Bathing Room to the Dressing Room was east but one could not return directly to the Bathing Room, since west led to the Grand Bedroom —

discover within the castle walls, nor at the ease with which you gain access thereto, for great will be your trials ere you gain and return the treasures to their rightful place.

At the Castle gates hold back, attend the arrival of the delivery cart. Conceal yourself thereon to gain admittance. This is the only means of access, death by drowning awaits he that dares attempt to cross the moat by any

Cathy Foot encounters dwarfs and wizards in her travels through Mirrorsoft's Ashkeron.

IN THE far and distant past, in the Principality of Ashkeron, there was need for a HERO, for the treasures of the Principality had been taken by an evil wizard. These treasures were more important to the Principality than would be normal, for without them any marriage in the Princely house would be cursed and evil days would fall on the whole population.

It was known where the treasures were to be found, the Court Magician discovered their whereabouts, but they could not be returned by magical means. It was for this reason that a HERO was called for.

More was known — the HERO had to come from among the common people and fulfil his task because HE so wished. The hiding place of the treasures was also known — they were to be found in the evil Wizard's castle, deep in an enchanted wood. Only one route led there, and that existed purely because the Wizard had to use most of his powers to maintain the magical properties of his castle and the surrounding wood.

These magical powers made it impossible for the castle to be

and while east from the Dressing Room led to the North east Tower and staircase, west from there returned, not to the Dressing Room but to the Grand bedroom. Very useful for the Wizard, but an annoyance for the HERO.

The HERO was chosen, but had himself to choose to serve. His name was Stephen, a powerful and resourceful blacksmith, and his task was to find and return the Five Treasures of ASHKERON.

At the crack of dawn on the day of the Spring Equinox, most of the population of Ashkeron made their way through the enchanted wood — it must have been enchanted, since one place therein was indistinguishable from another — to the gates of the Wizard's castle. The Wizard was aware of the invasion of his privacy and, at the end of a magically induced storm, Stephen alone was left to enter the castle and brave the Wizard's wrath in attempting to recover and return the Five Treasures to the Prince, for only then could the Princess Zeraphina be united in wedded bliss with her true love.

Oh, HERO, I address these words from the unimaginable future to you alone, for from you alone comes success and the continued prosperity of the realm.

Many are the traps, mazes and puzzles which lie before you, Stephen the Blacksmith, and only your resourcefulness can win through to your goal. I lend you such aid and comfort as I may, be not unduly amazed at what you

other means. Beware, too, the moat has an hypnotic power over mere humans, remain aware always of where it lies, lest you be called to premature death to the detriment of the principality.

Once within, descend with speed, else you will find yourself again without the walls, facing an irate driver, and with entrance still to gain. If this should hap, all is not yet lost for many are the carts that ply that route each day. They are as accursed as any London bus, but like that mythical beast, there is always "another one behind" on which passage may be gained. Think always as an adventurer: if the courtyard be flagged, why should any be loose? The help concealed thereunder is not great, nor yet is it of any immediate use, yet 'twill aid you reach your goal.

Beware the steed, 'tis fierce, and long has it wished to run the hills, the stableboy's advice attend, else sharp will be your fall. From stable unto Armour room is one pace north, from thence stride west until the South West Tower is attained, mount there, and in the Scorpion bedroom lies a cloak, your safety lies in it else you may find yourself in close converse with the headsmen of this pile — a fate I would prefer to miss, if given choice.

The maid a candle has, but 'ware the cook, a witch I vow, much given to humming, a vice which disconcerts the butler, but since her time in the pantry is spent, where her provisions she guards from light fingered or

QUESTLINE

starving staff, the problems she provides are few. The candle may be lit from the kitchen fire but if the cellars you will scour a tinderbox will there be found. Beware to dare the attics without light, for in the dark no movement can you make, and blessed daylight swiftly fades to night.

Visible or invisible, the dwarf and Wizard yet can you find and treat you with despise; servant or lord, their power is great against you, you have been warned!

Since speed is of the essence, demand not the score too many times, each time will count against you when you do.

Although the Wizard has a reputation which seeks to name him evil, 'tis not fully so, for if he were as black as he is painted your task would be the harder. Let us say he serves dark forces, but is bored and seeks excitement in his life which you, perforce, supply. You have your goal, to win, his is the task to hold you back, and thus cause you to forfeit that goal.

His magics he will use in petty

ways to discommode you, not to end your days. The spell most favoured causes every act to be reversed in its effect upon the universe about you, that left is right and put is take, thus, for a variable time limit, your interaction with the universe is reversed.

The dwarf, 'tis true, is not so kindly disposed, but even he will offer you fair fight. That he is skilled at weaponry while yours are skills to make, not wield, the mighty sword, and e'en the woodsman's axe you carry is more a tool than ever weapon was, yet is he fair and takes no mean advantage of your lacks.

Within the enchanted wood and magic pile a genial genie tries to offer help, but this, I fear, is cryptic and in code, and costs the HERO from his tiny score, two whole points for each clue that's offered and among the offerings this one finds its place, when seeking means of egress from a room large, vaulted and, I fear, filled with ethereal folk who, though showing little interest in your presence, prefer it to your

absence, these are the words that offer your release — "get out quietly behind". You pay for that!

The help I offer for the selfsame room is merely that the creatures can't stand noise, but still, beware, if they already have you in the air, for noise by then will merely cause your death.

This genie sometimes feels no urge to help at all, it can be quite a blow to feel unwell and ask for help only to hear that you are doing fine. You buckle at the knees, turn blue, and die, that's fine? Again I say beware! Oh, HERO bold, beware, if ere in Scarthorpe you have roamed, an **Urban Upstart**, then you know just why. The Wizard buys his cheese from that foul town. If you no Upstart have been, 'ware eating food from such foul sources.

A charted route I feel a must, so use my system with my kind regards, inscribe for each location on a scroll, description give and exits mark, then move, describe, move on. No map with easy image, but a route you have to lead you further in your quest. Good luck, you'll need it if the Wizard's grip you break and carry home the treasures to your Prince. Unless by random chance you play, this guide will always work, and chance misplace things alone.

Let the Game commence, and you, my dear HERO, make your moves on the Board of Life and Death — **YOU HAVE BEEN WARNED!**

The latest thing in adventure games seems to be "unique" new graphics systems, each one promising something closer to an inter-reactive video film seen from the HERO's viewpoint. Each time, in my opinion, they fail, while the problems I see as inherent in adventure games remain.

Surely the first computerised adventure games were written to run on mainframes before home computers were anything more than a twinkle in Uncle Clive's eye? And yet we still battle on with the same problems in syntax and input.

Take this game, it offers you "the **UNIQUE WALK-THRU GRAPHIC SYSTEM**" which, no argument, IS good, but the program does not recognise "examine" — surely one of the more beloved key words of adventurers everywhere and "look", however used, is taken to ask for a re-description of the current location.



S Unbeatable Street Hawk

How do you
make a successful
programme into a very
successful program? Colette
McDermott went to Ocean to find out.

JESSIE MACH rides super bike:
Street Hawk.

As a vigilante; by night he rides around the streets of Los Angeles seeking out and destroying evil wherever it lurks; by day, a desk bound cop at police headquarters fending off the press who follow the Street Hawk's heroic adventures.

His bike is a powerful machine equipped with a console that would look equally at home on Concorde; infra-red tracking systems, altimeter and digital displays flashing brightly.

Street Hawk can travel at speeds exceeding 300 miles an hour, leap across buildings, and is armed with a laser gun. Not a member of the lesser-hair-dryer mob which stalks our streets.

This is the basic plot of the American television programme, Street Hawk, which has just finished its first showing on British television. If you are suffering from withdrawal symptoms, then the new Ocean game based on the series will be a valuable aid to your recovery.

Although still in its early development stage I was allowed a sneak preview of the game, which is due out shortly.

The game sets Street Hawk the task of protecting a VIP, who has decided to leg it to a secret destination, from enemy vehicles rooming around his, or her, path.

The programmers, Nigel Alderton and Mike Webb, are still un-

decided about the gender of their VIP 'We want to make it a female, perhaps a damsel in distress' says Nigel, with a questioning tone in his voice.

They plan to reconstruct Street Hawk's fabulous console with a display panel set at the top of the screen. This will show many of the features already familiar to the bike as we know it.

The computer game will have an advanced warning scanner system for areas to the left and right off-screen, fuel, speed and height meters, scanner showing present position of the VIP and a score meter.



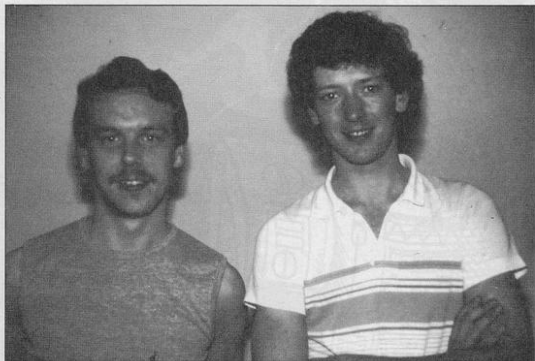
It is intended to make the whole display appear digital, just like the console in the television version.

Street Hawk is the only goodie in the game. The VIP does not really count because he, or she, is unable to defend him or herself.

The bad guys are played by jets, helicopters, cars, small bikes and missiles.

Some, like the cars, will attempt to kidnap Mach's ward; these cannot be destroyed by him. Others, like the missile, will have heat seeking war heads.

The helicopters are set on landing pads half way up the screen, and Street Hawk can also use



Mike Webb & Nigel Alderton

these as vantage points in his battle.

Attacks from the enemy can be made against both Street Hawk and the VIP.

Nigel and Mike had not quite decided the possible capabilities of the jet; they asked what I thought it might do!

If they were expecting some brilliant, earth-shattering 'New word' then I hardly think my stumpled, muscular-spasm-induced contribution of "Mmm!" will cause them to worry about their job security.

The graphics are remarkably small and Nigel explained: "We have developed the fastest sprite graphics ever written. This means that less memory is available for the usual graphics, but the game is faster."

Although the graphics are smaller this does not detract from the quality of the game, but the game establishes a new programming concept.

The enemy vehicles are capable of crossing the screen in a third of a second, which will happen at regular intervals.

The advance warning scanners on the display are therefore of paramount importance in playing the game as the scanners will detect enemy vehicles long before you see them, if you even can!

Street Hawk is capable of travel in any direction, including upwards. He can destroy the enemy with a laser gun, which has a

rapid fire facility.

The game progresses in levels of difficulty and is designed to have fast non stop action. As the levels progress the game will become more aggressive.

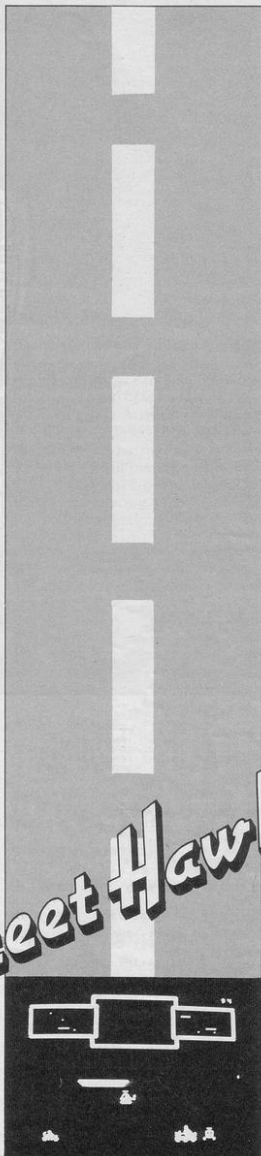
It is planned that the game will be unbeatable. That is, the levels continue in a never ending stream of difficulty.

All levels will include at least eight of each enemy vehicle and the VIP will have between six and eight lives.

Street Hawk begins a series of games, on the Ocean label, based on popular American programmes and based on themes such as **Knight Rider**, which is planned to be the next in the series.

Work has not yet begun, but I will keep you posted.

Street Hawk



Lingo is a joke as much as it is a program. At the press of a key, the ZX-81 will produce a grammatically correct but ludicrous sentence. For example: "The rabid pterodactyl slurps incessantly outside the rotting pit." Vocabulary of your own can be added to the listing, making it easy to construct computerised greetings or insults.

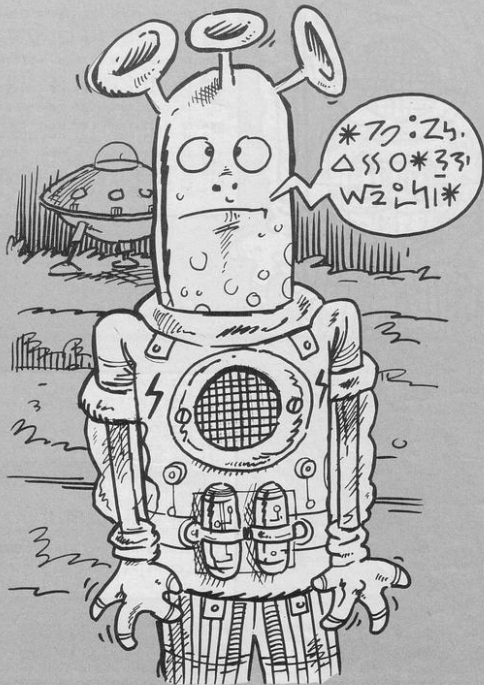
Lingo was written for the 16K ZX-81 by Brian Nicol of Glenrothes, Fife.

```

1 REM LINGO BY B.NICOL
2 GOSUB 1000
3 LET I=INT (RAND*20)+1
4 IF I=1 THEN LET A$="GREASY"
5 IF I=2 THEN LET A$="MORONIC"
6 IF I=3 THEN LET A$="HAIRY"
7 IF I=4 THEN LET A$="DIRTY"
8 IF I=5 THEN LET A$="PORNRA"
9 IF I=6 THEN LET A$="AGGRESS"
10 IF I=7 THEN LET A$="SPOTTY"
11 IF I=8 THEN LET A$="PARANOI"
12 IF I=9 THEN LET A$="SWEATY"
13 IF I=10 THEN LET A$="FURDOU"
14 IF I=11 THEN LET A$="CONSTI"
15 IF I=12 THEN LET A$="DISGUS"
16 IF I=13 THEN LET A$="SENILE"
17 IF I=14 THEN LET A$="FLEA-R"
18 IF I=15 THEN LET A$="DRUNKE"
19 IF I=16 THEN LET A$="SHAGGY"
20 IF I=17 THEN LET A$="BLOATE"
21 IF I=18 THEN LET A$="RABID"
22 IF I=19 THEN LET A$="SADIST"
23 LET U=INT (RAND*20)+1
24 IF U=1 THEN LET S$="GORILLA"
25 IF U=2 THEN LET S$="BUS CON"
26 IF U=3 THEN LET S$="WARTHOG"
27 IF U=4 THEN LET S$="GRAVE D"
28 IF U=5 THEN LET S$="HIRPY"
29 IF U=6 THEN LET S$="HONSTER"
30 IF U=7 THEN LET S$="CHELSEA"
31 IF U=8 THEN LET S$="SLOU-HO"
32 IF U=9 THEN LET S$="STRAKE"
33 IF U=10 THEN LET S$="PTEROD"
34 IF U=11 THEN LET S$="BEAUTY"
35 IF U=12 THEN LET S$="CYCLOP"
36 IF U=13 THEN LET S$="MINIST"
37 IF U=14 THEN LET S$="BRAIN-"
38 IF U=15 THEN LET S$="VIOLIN"
39 IF U=16 THEN LET S$="SEVER"
40 IF U=17 THEN LET S$="HEREUD"
41 IF U=18 THEN LET S$="HORSE"
42 IF U=19 THEN LET S$="BULLY"
43 IF U=20 THEN LET S$="WODRN"
44 LET E=INT (RAND*10)+1
45 IF E=1 THEN LET D$="BUAPS"
46 IF E=2 THEN LET D$="EATS"
47 IF E=3 THEN LET D$="PERCHES"
48 IF E=4 THEN LET D$="RAPS"
49 IF E=5 THEN LET D$="SLAVERS"
50 IF E=6 THEN LET D$="BREAKS"
51 IF E=7 THEN LET D$="CRAULS"
52 IF E=8 THEN LET D$="YELLS"
53 IF E=9 THEN LET D$="VOHTS"
54 IF E=10 THEN LET D$="UHISPE"

```

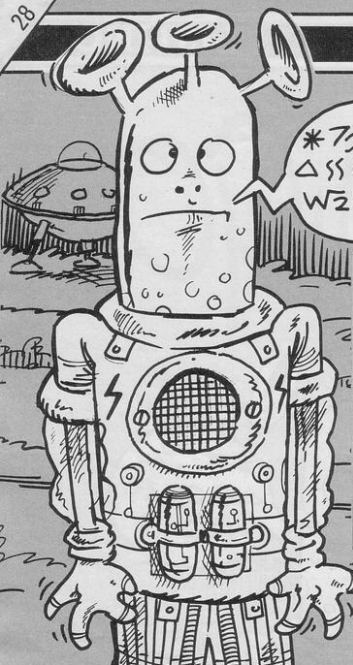
LINGO



```

205 IF R=11 THEN LET O$="CRIES"
206 IF R=12 THEN LET O$="DIES"
207 IF R=13 THEN LET O$="SLURPS"
208 IF R=14 THEN LET O$="SNORTS"
209 IF R=15 THEN LET O$="BOUNCE"
210 IF R=16 THEN LET O$="ATTACK"
211 IF R=17 THEN LET O$="NOSE-P"
212 IF R=18 THEN LET O$="SPRAY-"
213 LET R=INT (RAND*10)+1
214 IF R=1 THEN LET F$="INCESSA"
215 IF R=2 THEN LET F$="NOISILY"
216 IF R=3 THEN LET F$="HUNGRI"
217 IF R=4 THEN LET F$="VIOLENT"
218 IF R=5 THEN LET F$="SKILLFU"
219 IF R=6 THEN LET F$="MERCILE"
220 IF R=7 THEN LET F$="BEAUTIF"
221 IF R=8 THEN LET F$="QUICKLY"
222 IF R=9 THEN LET F$="SILENTL"
223 IF R=10 THEN LET F$="MANICA"
224 LET T=INT (RAND*8)+1
225 IF T=1 THEN LET O$="IN"
226 IF T=2 THEN LET O$="INSIDE"
227 IF T=3 THEN LET O$="AROU"
228 IF T=4 THEN LET O$="THROU"
229 IF T=5 THEN LET O$="OUTSIDE"
230 IF T=6 THEN LET O$="BELOU"
231 IF T=7 THEN LET O$="OPPOSIT"

```

```

440 IF T=8 THEN LET G$="NEAR"
445 IF T=9 THEN LET G$="ON"
500 LET Y=INT (RND*15)+1
505 IF Y=1 THEN LET H$="SLIMY"
510 IF Y=2 THEN LET H$="MOULDY"
515 IF Y=3 THEN LET H$="SMELLY"
520 IF Y=4 THEN LET H$="PURPLE"
525 IF Y=5 THEN LET H$="RICKETT"
530 IF Y=6 THEN LET H$="ANCIENT"
535 IF Y=7 THEN LET H$="QUIET"
540 IF Y=8 THEN LET H$="SPOTTLES"
545 IF Y=9 THEN LET H$="ROTTING"
550 IF Y=10 THEN LET H$="DIRTY"
555 IF Y=11 THEN LET H$="MULTI-COLOURED"
560 IF Y=12 THEN LET H$="MASSIV"
565 IF Y=13 THEN LET H$="TINY"
570 IF Y=14 THEN LET H$="SODDEN"
575 IF Y=15 THEN LET H$="WEIRD"
580 LET U=INT (RND*20)+1
585 IF U=1 THEN LET J$="BRIDGE"
590 IF U=2 THEN LET J$="TOILET"
595 IF U=3 THEN LET J$="CHIP SH

```

```

620 IF U=4 THEN LET J$="MANSION"
625 IF U=5 THEN LET J$="SUBWAY"
630 IF U=6 THEN LET J$="SCHOOL"
635 IF U=7 THEN LET J$="MINEPIE"
640 IF U=8 THEN LET J$="NUDIST COLONY"
645 IF U=9 THEN LET J$="CLOTHES PRESENT"
650 IF U=10 THEN LET J$="SHED"
655 IF U=11 THEN LET J$="KENNEL"
660 IF U=12 THEN LET J$="JUNGLE"
665 IF U=13 THEN LET J$="CHINESE LAUNDRY"
670 IF U=14 THEN LET J$="TREETOP USE"
675 IF U=15 THEN LET J$="JOB-O-NTRAP"
680 IF U=16 THEN LET J$="PUDDLE"
685 IF U=17 THEN LET J$="TARDIST"
690 IF U=18 THEN LET J$="MORGUE"
695 IF U=19 THEN LET J$="PLASTIC SURGERY CLINIC"
700 IF U=20 THEN LET J$="CESS-PIT"
730 PRINT AT 9,1:""
800 PRINT AT 9,2:"THE 'AS' IS:"
810 PRINT AT 10,2:"'FS' AT 11,2"
820 PRINT AT 10,2:"'S' AT 12,2"
830 PAUSE 4E4
870 PRINT AT 9,0:""
900 GOTO 10
950 STOP
1000 FOR F=0 TO 7
1010 PRINT AT F,0:""
1020 NEXT F
1030 PRINT AT 2,4:""
1040 PRINT AT 3,4:""
1050 PRINT AT 4,4:""
1055 PRINT AT 5,6:"A BRAN NICOL PROGRAM"
1060 FOR F=15 TO 21
1065 PRINT AT F,0:""
1070 NEXT F
1075 PRINT AT 16,7:"GO ON...PRESS A KEY"
1080 IF INKEY$="" THEN GOTO 1080
1090 RETURN
2000 SAVE "LING"
2002 RUN

```

Hoppy

```

1000 LET S=0
1010 FOR N=1 TO 50
1015 FOR M=1 TO 50
1020 LET H$=""
1025 LET Z=0
1030 FOR A$=(43,60)
1035 FOR N=1 TO 40
1040 LET A$(N)=
1045 IF A$(A) (B) (< " ") THEN GOTO 1045
1050 IF A$(A) (B) (> " ") THEN GOTO 1050
1055 IF A$(A) (B) (= " ") THEN GOTO 1055
1060 LET B=INT (RND*30)+5
1065 LET B=INT (RND*51)+1
1070 IF B>18 AND A<=22 THEN GOT 1010
1075 LET A$(A) (B TO B+5)=" "
1080 LET A$(A+1) (B+2 TO B+4)=" "
1085 LET A$(A) (B TO B+5)=" "
1090 LET A$(A+1) (B+2 TO B+4)=" "
1095 LET A$(A) (B TO B+5)=" "
1100 LET A$(A+1) (B+2 TO B+4)=" "
1105 LET A$(A) (B TO B+5)=" "
1110 LET A$(A+1) (B+2 TO B+4)=" "
1115 LET A$(A) (B TO B+5)=" "
1120 LET A$(A+1) (B+2 TO B+4)=" "
1125 LET A$(A) (B TO B+5)=" "
1130 NEXT N

```

```

1035 PRINT AT 5,6:"A BRAN NICOL PROGRAM"
1040 FOR F=15 TO 21
1045 PRINT AT F,0:""
1050 NEXT F
1055 PRINT AT 16,7:"GO ON...PRESS A KEY"
1060 IF INKEY$="" THEN GOTO 1080
1090 RETURN
2000 SAVE "LING"
2002 RUN

```



As time ticks away at the bottom of the screen, Hoppy the frog must collect the ten keys by the pond in order to win the game. Being a frog, Hoppy does not walk along the ground, he bounces. The size of his hops can be estimated by studying the hopometer at the bottom of the screen.

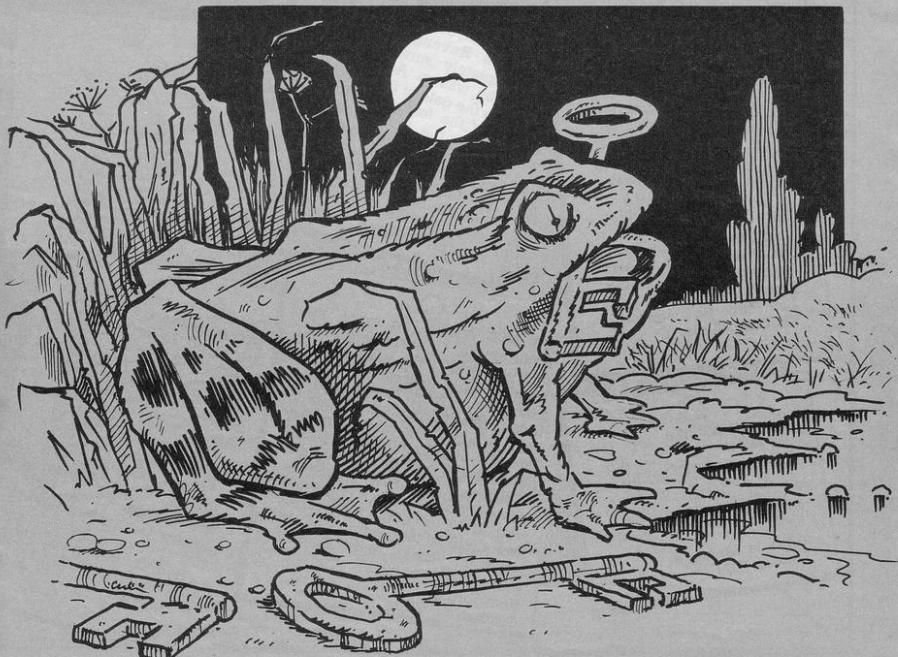
An excellent feature of this game is that the playing area extends over four screens, so bouncing off the top of the screen, or the side of the screen, takes you to another section of the play area.

Hoppy was written for the 16K ZX-81 by Peter Sansom of Huntingdon, Cambridgeshire.

```

#####
185 LET "S="
200 PRINT AT 0,0;
205 FOR N=1 TO 20
  210 PRINT AT N,0;"|";AT N,31;"|
215 NEXT N
220 PRINT AT 21,0;
#####
225 PRINT AT 22,0;"TIME:";T$(T
  0 T-1);";AT 23,0;"HOPS:";
#####
230 FOR N=X TO X-10
  235 PRINT AT N-X+1,1;R$(N) \Y TO
  Y+20
240 NEXT N
245 LET H=H+1
250 IF H=0 THEN GOTO 395
255 IF A=1 THEN GOTO 450
300 PRINT AT 1,1;"X"
320 PRINT AT 23,0;"HOPS:";
#####
325 LET T=-02
330 PRINT AT 22,T+4;" "
335 IF T=<=1 THEN GOTO 1000
340 LET H=H-1
345 FOR N=A TO 1000
350 PRINT AT N+1,1;
360 LET O=PEEK (PEEK 16398+256+
  PEEK 16399)
365 IF O=CODE " " THEN GOTO 750
365 IF O=CODE " " THEN GOTO 850
365 IF O=CODE " " THEN GOTO 30
3
470 PRINT AT A,B;"#
471 LET T=-02
472 PRINT AT 22,T+4;" "
473 IF T=<=1 THEN GOTO 1000
480 PRINT AT A,B;"X"
495 NEXT N
500 LET Y=Y+30
605 LET B=0
605 GOTO 225
605 LET Y=-30
655 LET B=0
665 GOTO 225
670 LET X=X+20
705 LET A=20
710 GOTO 225
750 LET X=X+20
755 LET A=1
800 LET Z=2+1
805 LET A=(X-1) \ (M+Y-1) * "
810 GOTO 422
851 LET Z=2+1
855 LET S=S+100
855 LET A=(N+X) \ (B+Y-1) * "
900 PRINT AT A,B;"#
901 LET B=INT (RND*25)+2
905 A=INT (RND*15)+3
915 LET T=-2
920 IF T=0 THEN LET T=0
930 PRINT AT 22,5;"
";AT 22,5,T$ \ TO
T
945 GOTO 450
1000 FOR A=1 TO 20
1002 PRINT AT 22,0;"*****";
#####
1010 PRINT AT A,A;"GAME OVER";AT
A,A;"GAME OVER"
1012 PRINT AT 22,0;"*****YOU RA
N OUT OF TIME*****"
1020 NEXT A
1030 PRINT AT 23,0;"";AT 23,17,5;
#####
1100 PRINT AT 0,4;"ANY KEY FOR A
  NOTHER GAME"
1105 PRINT AT 0,4;"";
#####
1110 IF INKEY$="" THEN GOTO 1100
1120 CLS
1130 RUN
1500 FOR A=1 TO 20
1503 PRINT AT A,1;"*****";
#####
1505 PRINT AT A,1;"-----CONGR
  ATULATIONS-----"
1510 NEXT A
1515 PRINT AT 23,0;"";
#####
1520 PAUSE 424
1522 LET S=S+(INT T*100)
1525 CLS
1530 GOTO 15
2000 CLS
2005 PRINT AT 0,0;"";
#####
2010 PRINT AT 2,0;"YOU MUST COLL
  ECT THE 10 KEYS (0) BEFORE YOU T
  IME RUNS OUT."
2020 PRINT AT 5,0;"JUMP LEFT AND
  RIGHT WITH KEYS 5 AND 8. AND UP
  WARDS WITH 7."
2030 PRINT AT 8,0;"MEASURE THE P
  OSER OF YOUR JUMPS ON THE HOPPE
  TER AT THE BOTTOM OF THE SCREEN
  BY HOLDING THE RESPECTIVE KE
  Y DOWN."
2040 PRINT AT 13,0;"IN AN EMERGE
  NCE YOU CAN PRESS 0 AND YOU WILL
  APPEAR IN A RANDOM POSITION ON
  THE SCREEN (DON'T USE THIS TO
  O OFTEN FOR IT USES A LOT OF TI
  ME)."
2045 PRINT AT 18,0;"THE PLAYING
  AREA IS 4 TIMES THE SIZE OF THE
  SCREEN SO YOU CAN JUMP OF THE
  EDGES OF THE SCREEN SOMETIMES."
2055 PAUSE 424
2060 RUN
9900 CLEAR
9905 SH "HOPP"
9910 GOTO 2000

```



You've got it



Licked



A USEFUL memory-saving statement which I use in my ZX-81 program is PAUSE 4E4. This enables you to PAUSE the program in which it appears for as long as you like, until you press any key on the keyboard. It will then continue the program.

**William Turner,
Staunton, Glos.**

TO REACH the ring from the goblin's dungeon in **The Hobbit** you must move SE, N, SE, U, W, SE, S, N and SW. From the ring move NE, NW and E to reach the goblin's back door. Wear the ring, and keep checking that you are wearing it.

**Lee Gunner,
West Harrow**

IN **Inca Curse**, extinguish the fire in the fire room by typing SMOOTH-ER FIRE, GET LAMP, USE MATCH, DROP BLANKET, USE CHISEL, DROP CHISEL, UP.

To remove the panels in the panelled room use the key on one of them. Type USE KEY, GO OPEN. The other needs a gold bar of no value. Type PRIZE PANEL, CLIMB HOLE.

Once in the sand dungeon type DOWN with the special items.
**Timothy Moore,
Dawlish, Devon**

GIFT from the Gods. Find Clytaemnestra as soon as possible. Follow her until she enters one of the special rooms. Follow her in and you will find that she has died.

Fly rather than walk, to prevent the small snake from stealing energy.

Stop after reaching any hole in the ceiling and move slightly back and forth. This allows you to avoid falling water.

**Lawrence Bowman,
Shefford, Beds.**

CANNOT reach the location to the north of Icemark in **Doom-
dark's Revenge?** The area is completely surrounded by the frozen wastes. Access is gained from the gate at the northernmost tip of the forest of Farorn. Turn west at the first junction in the tunnel and follow it through. You will then face an Ice Lord, so a reasonably powerful army and allies will be necessary.

**Gary Snedden,
Forfar, Scotland**



START AT the top in **Ghostbusters**. Giving your name as CODEBUSTERS and your number as 46305631. This will allow you to begin with \$999,990.

**Abdulla Mahooth,
London SW1**

JET SET WILLY. To reach the bottle on the Conservatory Roof, find your way to the Banyan Tree from the side nearest the Nightmare Room. Jump to the second ledge sticking out of the ground. Turn around and jump forward into the blue see-through place above the first ledge sticking out of the ground. Now climb the tree. When you can go no further jump to the top of the trunk, jump from there to the platform on the left of the screen, and then walk across to the bottles.

**Paul Jordan,
Southwick, Wilts**

KILLING monsters in **Gift from the Gods**. All are killed by sweeping your sword down.

Pile of skulls: run into the room and start sweeping when by the monster. Continue sweeping until it is stunned, then lunge.

Blue skulls with snakes: hit one of the top two snakes. These are easiest to hit when they first appear.

Hydras: you need to hit a head.
A McLeish

GAIN INFINITE lives on **Kokotini Wilf** by typing **MERGE** " " and then starting the tape. Stop the tape when the error message appears on screen. Enter 10 **POKE** 23693,0: **CLEAR** 24100: **LOAD** " " **CODE: RAN-** **DOMIZE** **USR** 65100: **LOAD** " " **CODE: RAN-** **DOMIZE** **USR** 41712.
Steven Wallace,
Fife, Scotland

I WONDER if your readers are aware of the fact that, if they are having trouble using colour TVs as monitors, they can have their TV modified to make it compatible with the computer. I had my TV modified by a local TV shop for £15. I have now found a new life. Games are far more enjoyable, and programming easier when the colours are so clear.

R M Foss,
Manchester.



STUCK in the **Temple of Vran?** Remember that **Warts** do not like cats, especially if they are awake. Elephants love peanuts. The bow and arrow is not a weapon.
John Rundle,
Aldershot, Hants

Pen-friends

Anthony Rushton, Well Cottage, Whitchurch Road, Banbury, nr Tarporley, CW6 9SX is the 12 year old owner of a 48K Spectrum. He enjoys programming and playing games. His favourite games are **Bug Eyes, Baseball** and **Dukes of Hazzard.**



J Borg, Michael Ville, Night Shade Street, Santa Lucia, Malta is thirteen years old and owns a 48K Spectrum. He would like a penfriend with whom he can swap games, programs and ideas.

Andrew Carpenter, 12 Curtyn Close, Abingdon, Oxon, OX14 1SE would like a penfriend with a 48K Spectrum who will be willing to exchange programs and ideas. He owns over a hundred programs and his favourites are **Finders Keepers, Hobbit** and **Sabre Wulf.**

Adrian Spesser, 5 Sycamore Road, Delves, Walsall, West Midlands would like a UK penfriend who also owns a ZX-81. He feels that the ZX-81 is still a useful computer, although there are few games produced for it, and would like to pick up and pass on as many tips as possible.

Alice Chapman, 35 Hidcote Boyce, nr Chipping Campden, Glous, GL55 6LX is mad on the 48K Spectrum and would like a penfriend from anywhere in the world. She would like to swap programs, and she would also like tips on the adventure **Mountains of Ket.**

DIGITAL CLOCK

DIGITAL CLOCK written by D Galbraith gives a continuous screen display of the time from when it is set to start by the user's input. It gives hours, minutes, and seconds just as a digital watch does, except, unlike most digital watches, this is a 24 hour clock. For example, 3 pm will appear as 15:00:00. It is a useful program to help the beginner to understand how to use the Spectrum's timing ability. Many arcade games test a player's skill against the clock, so this will show you how to build a clock into your own program.

Variables

A variable is a name given to a location in memory used to store a number. The value of a variable usually changes while the program is running. Here are the main variables used in Digital Clock.

hr is the hour of day.

min is the minute of the hour.

sec is the second of the minute.

These 3 variables are initially set by the user, but thereafter by the computer's clock.

n is the number of frames which would have been shown on the TV screen had the computer been switched on for the time shown. Because mains frequency in this country is 50 Hz, the Spectrum is able to display 50 frames per second, and certain locations in memory store the frame count from switch on. It is by modifying the contents of these locations that we can simulate a real clock, so n in this case is made a frame count to suit our clock time.

m is a frame count like n. Two counts are needed as you will see.

a, b and c are really n broken down into three bytes.

How it works

Lines

20 Prints title. A variable is set up for a GOTO in line 200.

40-90 Read hours, minutes and seconds for start time and convert to number of frames by accumulating in n.

110-130 Convert n into three byte format. You will probably be familiar with two byte format where the high order byte is how many times a number can be divided by 256, and the low order byte is the remainder. For three bytes, the highest order (a) is how many times n will divide by 65536 (256 x 256). The next order (b) is how many times the remainder divides by 256 with the lowest order (c) being the remainder of this.

140 POKes frame count into system variable FRAMES. As you will see from Chapter 25 of your Spectrum manual these are the three bytes at locations 23672, 23673, 23674. Least significant first, so these bytes are filled with c, b, a in that order.

150-300 This is the "runclock" loop which will continuously update the time for as long as your Spectrum runs. The frame count starts to be incremented

by the computer automatically from the time it is set up by line 140, adding 1 to c every 1/50 sec, setting c to zero, whenever it reaches 255, simultaneously adding 1 to b, etc.

160-180 Monitor the present frame count twice and hold as n and m (in seconds when divided by 50). Two counts are necessary because of the hidden danger of transition between the three bytes as they are being PEEKed. Pages 130-131 of the manual explain this more fully. The correct count is the larger of the two, which is found in line 180.

190-200 Determine hour and reset frame count to zero if hour greater than or equal to 24.

210-220 Calculate minutes and seconds.

230-290 Convert hr, min, sec into string variables (holding characters rather than numbers). This allows a 0 to be prefixed to a number less than 10, so that hours, minutes, seconds will always be printed as 2 digits each in line 290. Loops back to 150.

```

5 CLS
10 REM DIGITAL CLOCK BY D.GALB
RAITH
20 LET runclock=150: PRINT AT
7,5;"24 Hour Digital Clock"
40 INPUT "Enter hours",hr
50 LET n=hr*3600*50
60 INPUT "Enter minutes",min
70 LET n=n+min*60*50
80 INPUT "Enter seconds",sec
90 LET n=n+sec*50
110 LET a=INT (n/65536)
120 LET b=INT ((n-a*65536)/256)
130 LET c=n-65536*a-256*b
140 POKE 23674,a: POKE 23673,b:
POKE 23672,c
150 REM runclock
160 LET n=INT ((65536* PEEK 23
674+256* PEEK 23673+ PEEK 23672)
/50)
170 LET m=INT ((65536* PEEK 23
674+256* PEEK 23673+ PEEK 23672)
/50)
180 LET n=(n>m)+m*(n <= m)
190 LET hr=INT (n/3600)
200 IF hr >= 24 THEN POKE 2367
4,0: POKE 23673,0: POKE 23672,0:
GO TO runclock: REM Midnight=se
t time to zero.erroneous entry o
f time greater than 24 hours will
1 cause clock to start at time z
ero
210 LET min=INT ((n-hr*3600)/6
0)
220 LET sec=n-60*min-3600*hr
230 LET h$:STR$ hr
240 IF hr<10 THEN LET h$="0"+h
$
250 LET m$:STR$ min
260 IF min<10 THEN LET m$="0"+
m$
270 LET s$:STR$ sec
280 IF sec<10 THEN LET s$="0"+
s$
290 PRINT AT 12,11;h$;":";m$;"
:";s$
300 GO TO runclock
9999 SAVE "dig clock" LINE 1

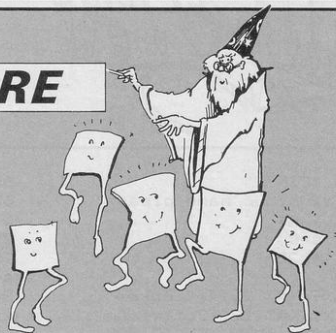
```

BEGINNER

MAGIC SQUARE

A **magic square** is one in which the sum of the numbers running horizontally, vertically and diagonally is always the same. **Magic Square** will create one of these squares to the size of your choice, beginning with the number of your choice.

Written for the Spectrum or Spectrum Plus by J Rundle of Aldershot, Hampshire.



```

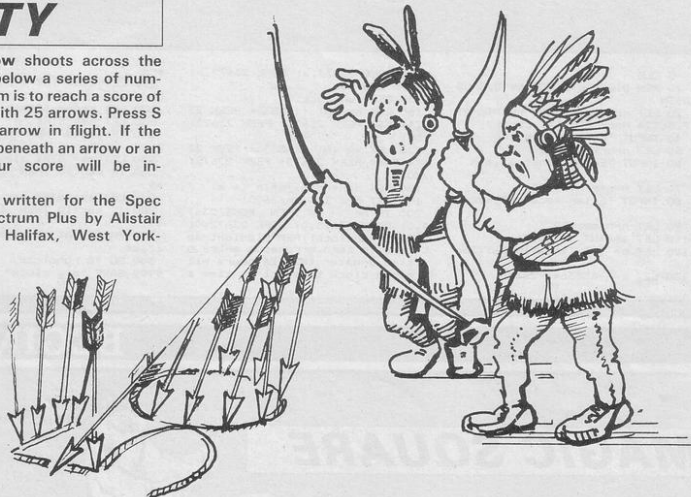
10 DIM m(25,25)
20 PRINT "ENTER SIZE OF SQUARE
"
30 INPUT N
40 PRINT "ENTER STARTING NUMBE
R"
50 INPUT Y
60 LET S=Y
70 PRINT N;" BY ":"N; " MAGIC SQ
UARE STARTING"
80 PRINT " WITH THE NUMBER ":"S
"
90 PRINT
100 LET K=1
110 LET H=1
120 LET J=(N+1)/2
130 LET M(H,J)=S
140 LET S=S+1
150 IF S>N^2+Y-1 THEN GO TO 29
0
160 IF K<N THEN GO TO 200
170 LET K=1
180 LET H=H+1
190 GO TO 130
200 LET H=H+1
210 LET J=J+1
220 LET K=K+1
230 IF H <> 0 THEN GO TO 260
240 LET H=N
250 GO TO 130
260 IF J <= N THEN GO TO 130
270 LET J=1
280 GO TO 130
290 FOR I=1 TO N
300 FOR J=1 TO N
310 PRINT M(I,J); " ";
320 NEXT J
330 PRINT
340 PRINT
350 NEXT I
360 PRINT
370 PRINT "THE CONSTANT IS ":"(N
↑3+N)/2+N*(Y-1)

```


FIFTY

Your arrow shoots across the screen, below a series of numbers. Your aim is to reach a score of exactly 50 with 25 arrows. Press S to stop the arrow in flight. If the arrow stops beneath an arrow or an asterisk, your score will be increased.

Fifty was written for the Spectrum or Spectrum Plus by Alistair Sutcliffe of Halifax, West Yorkshire.



```

5 REM "FIFTY"
10 PRINT "Your name please"
15 INPUT A$
20 LET s=0
22 LET t=25
24 CLS
25 PRINT AT 2,14;"Score=";s
26 PRINT AT 12,12;"Tries=";t
27 IF s=50 THEN GO TO 200
28 IF t<1 THEN GO TO 100
29 IF s>50 THEN PRINT "BUST!!"
": STOP
30 LET a=0
35 BORDER 1: PAPER 5: INK 0
50 PRINT AT 5,12;"*1*/*2*/*5*"
55 PRINT AT 7,a; PAPER 5;" ↑"
60 LET a=a+1
62 IF a>27 THEN GO TO 30
65 IF INKEY$="s" THEN GO TO 75
70
75 GO TO 55
75 IF a>11 AND a<15 THEN LET
s=s+1
80 IF a>15 AND a<19 THEN LET
s=s+2
85 IF a>19 AND a<23 THEN LET
s=s+5
86 LET t=t-1
89 PRINT AT 10,12;"READY": FD
R x=0 TO 400: NEXT x
90 GO TO 24
100 PRINT AT 15,10;"Game Over"
110 STOP
200 PRINT "Game and match to ";
A$
    
```

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 encloseProgram(s) for thecomputer.

I guarantee that each program submitted is my original work.

Signed.....

Name.....

Address.....

.....



ROMNUM

This short utility program allows you to convert Roman numerals to their decimal equivalents. Enter a Roman numeral such as VIII or MD and the equivalent will quickly be calculated.

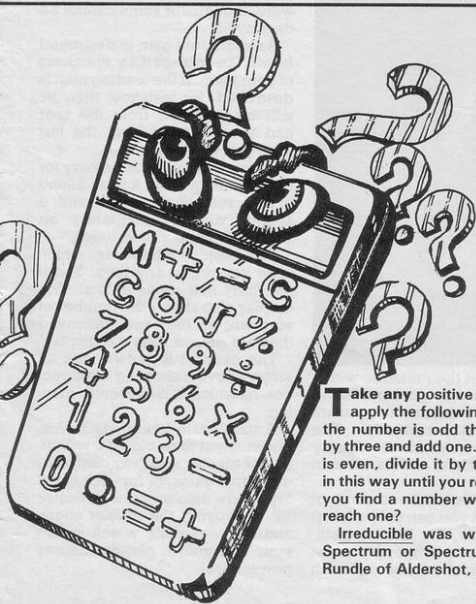
Romnum was written for the 16K ZX-81 by Keith of Taunton, Somerset.

```

5 REM "ROMNUM"
10 PRINT "TYPE A ROMAN NUMERAL"
11
20 INPUT R$
30 PRINT AT 0,22;R$
40 LET S=0
50 LET M=1000
60 LET D=500
70 LET C=100
80 LET L=50
90 LET X=10
100 LET V=5
110 LET I=1
120 FOR N=1 TO LEN R$-1
130 LET S=S+VAL R$(N)
140 IF VAL R$(N+1)>VAL R$(N) TH
EN LET S=S-2*VAL R$(N)
150 NEXT N
160 LET S=S+VAL R$(LEN R$)
170 PRINT AT 4,0;"DECIMAL EQUIV
ALENT ";S

```

BEGINNER



IRREDUCIBLE

Take any positive integer. Now, apply the following rules to it. If the number is odd then multiply it by three and add one. If the number is even, divide it by two. Continue in this way until you reach one. Can you find a number which does not reach one?

Irreducible was written for the Spectrum or Spectrum Plus by J Rundle of Aldershot, Hampshire.

```

10 CLS
20 PRINT "ENTER A NUMBER "
30 INPUT N
40 LET X=1
50 LET A=N
60 LET B=INT (A/2)
70 IF A=B THEN LET A=A/2
80 IF A=B THEN GO TO 100
90 IF A <> B+B THEN LET A=A*3
+1
100 IF A=N THEN GO TO 190
110 IF A <= 1 THEN GO TO 140

120 LET X=X+1
130 GO TO 60
140 PRINT
150 PRINT N; " TO 1 IN ";X;" STE
PS "; PRINT "ANOTHER GO Y/N"
160 INPUT Q$
170 IF Q$(1)="Y" THEN GO TO 10

180 IF Q$(1) <> "Y" THEN STOP

190 CLS
200 PRINT "YOU HAVE DONE IT!!!"

210 PRINT A; " = ";N; " IN ";X; "
STEPS"
220 STOP

```

HIGHWAY ENCOUNTER

How do you follow the phenomenally successful Tornado Low Level and Cyclone? Colette McDermott went to Vortex to find out what is next.

CAN YOU help the Vortmen save Planet Earth? Mutant aliens have been dumped on Earth and they are planning to take over.

The aliens are crossing the highway dropping dangerous objects, in an attempt to stop the approaching Vortmen.

the alien base.

Vortex would not reveal what happens when the Vortmen reach their final destination "We want to keep an element of surprise in the game" said Luke Andrews managing director of Vortex.

However, I can reveal that the

you require.

The following men will advance forward at a steady but slow pace, never deviating from their set path.

The leader must ensure that their path is kept clear. He can do this by collecting objects from any zone or by firing his powerful photon blaster at an object. Beware, though, for some cannot be destroyed.

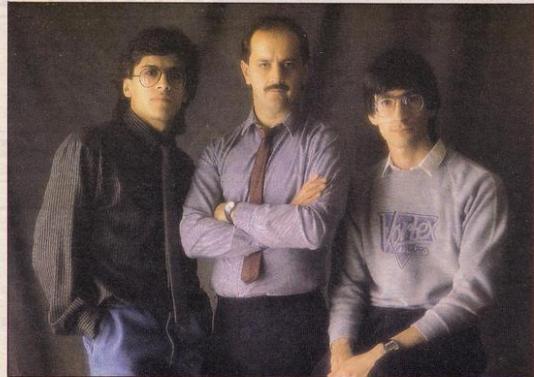
As each front man is destroyed he will be replaced by members of your team. If the leading man is destroyed, for instance, then he will be replaced from the rear and you continue from the last zone you entered.

At times it may be necessary for the front man to go a zone ahead of the rest of the team and a special display, constantly on view, will keep you in touch.

The display shows in which zone you are at any time. There are thirty one zones in total. The display also shows the number of vortmen; as they are destroyed they are erased from the display.

The canister is shown with an arrow above it showing the direction in which it is currently moving.

A time scale is included. Vortex have yet to decide if it will be set for time in which to complete the whole game, or for each zone. There are also a score indicator for destroying the mutant aliens and a power scale which shows your Vortmen's photon blaster power level.



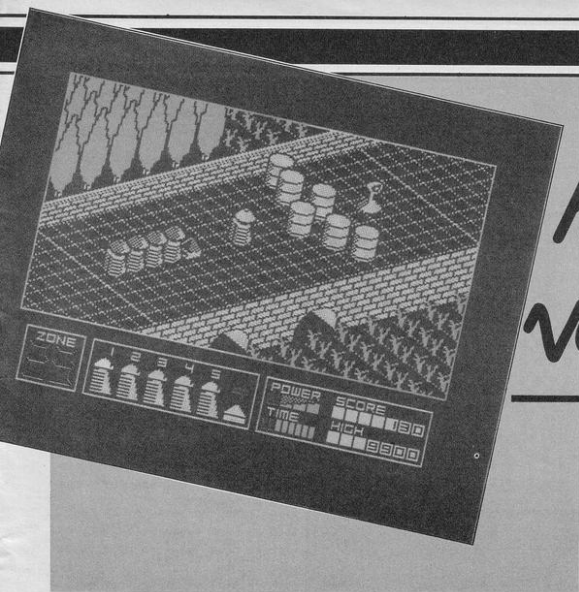
Vortex Software have, at last, unveiled their first game for this year. It is called **Highway Encounter** and it has been well worth waiting for.

The game is set in the 21st Century, a time when Vortmen protect the highways.

From their base in Zone 30 five Vortmen, one in the lead position and four behind him, must take a canister to zone zero and destroy

Vortmen start their mission with a leading man who goes in front to seek out and destroy the mutant aliens' carefully laid traps. The remaining men travel closely together pushing the canister in front of them.

Although you take control of the Vortmen you can only control one at a time, the leading man. This you can do by moving him at any speed and in any direction



help the Vortmen

There are five mutant aliens crossing the highway; some have two heads and some will gobble up the vortmen. They are heading towards zone thirty from zone zero so the vortmen will meet them coming along the highway.

Each zone has different obstacles that must be cleared from the path of the four vortmen pushing the canister.

This can be done only by the leading vortman who can destroy them with his photon blaster, blocking their path, using objects from other zones or whatever takes your imagination.

Vortex say that you should "Try everything, there are no holds barred."

For instance, in one zone I came across, a spiky metal ball was bouncing from side to side on the highway. Returning to an earlier zone I found a large stone boulder which I pushed into the middle of the metal ball's path, thereby allowing my team of vortmen a safe passage.

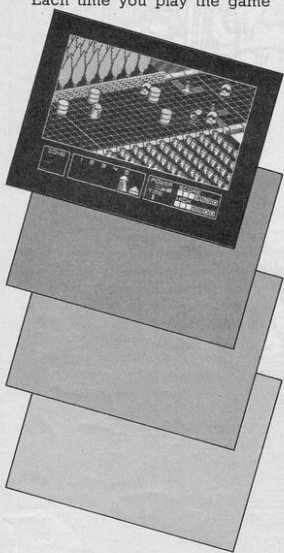
Other zones have floors of fire, or a maze of stationary stone slabs on the road leaving you to decide what to do before your men arrive.

It is possible to delay your team at times when you are pondering your next move. Push objects in their path and they will wait, but

they will then be sitting targets for the mutant aliens.

Highway Encounter has a seemingly endless variety of obstacles, many of which cannot be destroyed.

Each time you play the game



the zones will change and objects once found there will have moved into another zone. These changes are also affected by the speed at which you play the game.

All the zones are reached only by the highway, with each one in much the same setting; a large highway with a path looking like a grid scale. It is set slightly above the ground, which consists of country scenery such as ploughed fields and forests.

The games went on sale on July 14th, with a retail price of £7.95.

Vortex are a small software company with two full time staff: Luke Andrews, managing director and former teacher; Costa Panayi, chairman, chief programmer and former engineer plus Crete Panayi, director on a part-time basis due to his involvement with a Manchester based advertising agency.

Both Luke and Costa are very confident that their new game will be an even bigger hit than **Cyclone** due to their professional approach to the game.

They said that their attitude to their first games **Android 1** and **Two** had been "Amateur". With **Tornado Low Level** this became more serious and with **Cyclone** very serious.

"Now, with the new game, we have taken a new direction with the computer. Crete will take on more work with the advertising side and we will be employing more full time programmers."

However, they will not release many games on to the market each year, although they plan to release another game called **Revolution** before Christmas.

PELMANISM

This is a computerised version of the card game, Pelmanism. Each player takes it in turn to place face up two of the cards on the screen. If the two cards have the same value they may be taken, otherwise they are returned to their original place, face down. The winner is the player with the most cards when all have been removed from the board.

Pelmanism was written for the 16K ZX-81 by M Watts of Kingswood, Bristol.

```

1 REM PAIRS BY M.P.WATTS
2 FAST
3 DIM C$(12,40)
4 LET C$=""
5 LET C$(1)= "0123456789012345
6 89001234567890123456789"
7 FOR F$=1 TO 49
8 LET X=INT (RAND*40)+1
9 IF E$(1,X)="" THEN GOTO 70
10 LET E$(1,X)=E$(1,X)
11 NEXT F$
12 DIM S$(12,40)
13 LET S$=""
14 FOR F$=0 TO 1 TO 10
15 LET S$(F)=E$(F,1) TO 20)
16 LET S$(F)=E$(F,21) TO 30)
17 LET S$(F)=E$(F,31) TO 40)
18 NEXT F$
19 DIM A$(12,40)
20 LET A$=""
21 FOR F$=0 TO 1 TO 3 & 5 & 7
22 LET A$(F)=E$(F,1) TO 10)
23 LET A$(F)=E$(F,11) TO 20)
24 LET A$(F)=E$(F,21) TO 30)
25 LET A$(F)=E$(F,31) TO 40)
26 NEXT F$
27 PRINT AT 10,0;"A"
28 PRINT AT 12,0;"B"
29 PRINT AT 14,0;"C"
30 PRINT AT 16,0;"D"
31 RETURN
32 LET PLAYER=1
33 GOSUB 1000
34 IF SC1+SC2=20 THEN GOTO 1
35 LET PLAYER=2
36 GOSUB 1000
37 IF SC1+SC2=20 THEN GOTO 1
38 GOTO 300
39 IF PLAYER=1 THEN LET SC=SC+1
40 IF PLAYER=2 THEN LET SC=SC+1
41 PRINT AT 0,0;"PLAYER"
42 PRINT AT 0,15;"SCORE"
43 RETURN
5, SC
6, 1015 IF SC1+SC2=20 THEN GOTO 400
7 0
8 LET CARD=1
9 1025 PRINT AT 2,0;"FIRST CARD"
10 LET C$=""
11 1030 INPUT F$
12 1035 GOSUB 1300
13 1040 IF F$="" THEN GOTO 1025
14 1050 GOSUB 1200
15 1055 IF C$="" THEN GOTO 1025
16 1060 IF CARD=1 THEN GOTO 1025
17 1065 PRINT AT 2,0;"SECOND CARD"
18 1070 INPUT F$
19 1075 GOSUB 1300
20 1080 IF F$="" THEN GOTO 1075
21 1085 LET F$=F$ THEN GOTO 1075
22 1090 PRINT AT 2,0;"
23 1095 GOSUB 1300
24 1100 IF CARD=1 THEN GOTO 1065
25 1105 GOSUB 1200
26 1110 IF C$="" THEN GOTO 1055
27 1115 FOR I=0 TO 9
28 1120 NEXT I
29 1125 IF Z$="" THEN GOSUB 3000
30 1130 IF Z$="" THEN PRINT AT SL,5
31 1135 IF Z$="" THEN LET ZL=Z$
32 1140 IF Z$="" THEN GOTO 1000
33 1145 IF Z$="" THEN PRINT AT SL,
34 1150 IF Z$="" THEN LET ZL=Z$
35 1200 LET B$=VAL F$(2)
36 1210 IF B$=0 THEN LET B$=10
37 1220 IF F$(1)=A$ THEN GOSUB 150
38 1230 IF F$(1)=B$ THEN GOSUB 160
39 1240 IF F$(1)=C$ THEN GOSUB 170
40 1250 IF F$(1)=D$ THEN GOSUB 180
41 1260 RETURN
42 1300 IF LEN F$ < 2 THEN LET F$=""
43 1310 IF CODE F$(1) (38 OR CODE F$
44 1315) THEN LET F$=""
45 1320 IF CODE F$(2) (38 OR CODE F$
46 1325) THEN LET F$=""
47 1330 RETURN
48 1340 LET L$=A0
49 1345 IF F$="" THEN LET C=1
50 1350 IF C=1 THEN RETURN
51 1355 IF CARD=1 LET B$=B$(B)
52 1360 IF CARD=2 THEN LET B$=B$(B)
53 1365 IF CARD=2 THEN LET Z$=B$(B)
54 1370 GOSUB 2000
55 1375 RETURN
56 1380 LET L$=A2
57 1385 IF B$(B)="" THEN LET C=1
58 1390 IF C=1 THEN RETURN
59 1395 PRINT AT L,B$;D$(B)
60 1400 IF CARD=1 THEN LET Z$=B$(B)
61 1405 IF CARD=2 THEN LET Z$=B$(B)
62 1410 GOSUB 2000
63 1415 RETURN
64 1420 LET L$=A4
65 1425 IF F$="" THEN LET C=1
66 1430 IF C=1 THEN RETURN
67 1435 PRINT AT L,B$;D$(B)
68 1440 IF CARD=1 THEN LET Z$=B$(B)
69 1445 IF CARD=2 THEN LET Z$=B$(B)
70 1450 GOSUB 2000
71 1455 RETURN
72 1460 LET L$=A6
73 1465 IF F$="" THEN LET C=1
74 1470 IF C=1 THEN RETURN
75 1475 PRINT AT L,B$;D$(B)
76 1480 IF CARD=1 THEN LET Z$=B$(B)
77 1485 IF CARD=2 THEN LET Z$=B$(B)
78 1490 GOSUB 2000
79 1495 RETURN
80 1500 IF CARD=1 THEN LET Z$=L
81 1505 IF CARD=1 THEN LET Z$=B$+2
82 1510 IF CARD=2 THEN LET Z$=B$+2
83 1515 IF CARD=2 THEN LET Z$=B$+2
84 1520 RETURN
85 1525 IF SL=10 THEN LET B$(SC/2)
86 1530 IF SL=12 THEN LET B$(SC/2)
87 1535 IF SL=14 THEN LET C$(SC/2)
88 1540 IF SL=16 THEN LET D$(SC/2)
89 1545 IF ZL=10 THEN LET B$(ZC/2)
90 1550 IF ZL=12 THEN LET B$(ZC/2)
91 1555 IF ZL=14 THEN LET C$(ZC/2)
92 1560 IF ZL=16 THEN LET D$(ZC/2)
93 1565 IF PLAYER=1 THEN LET SC1=SC
94 1570 IF PLAYER=2 THEN LET SC2=SC
95 1575 RETURN
96 1600 CIS
97 1610 PRINT AT 0,10;"GAME OVER"
98 1620 PRINT AT 0,12;"SCORES"
99 1630 PRINT AT 0,9;"PLAYER 1 - "
100 1640 PRINT
101 1650 PRINT TAB 9;"PLAYER 2 - "
102 1660 PRINT
103 1670 PRINT AT 17,4; "PRESS A KEY
104 1680 IF INKEY="" OR S T
105 1690 IF INKEY="" THEN STOP
106 1700 IF INKEY="" THEN GOTO 4000
107 1710 RETURN
108 1720 SAVE "PELMISM"
109 1730 RUN

```



```

1090 IF SC1+SC2=20 THEN GOTO 400
1100 CIS
1110 PRINT AT 0,10;"GAME OVER"
1120 PRINT AT 0,12;"SCORES"
1130 PRINT AT 0,9;"PLAYER 1 - "
1140 PRINT
1150 PRINT TAB 9;"PLAYER 2 - "
1160 PRINT
1170 PRINT AT 17,4; "PRESS A KEY
1180 IF INKEY="" OR S T
1190 IF INKEY="" THEN STOP
1200 IF INKEY="" THEN GOTO 4000
1210 RETURN
1220 SAVE "PELMISM"
1230 RUN

```

Machine code refreshes parts Basic cannot reach

Last month we showed how machine code can add speed to a Basic game. Tony Rickwood gives more details.

LAST MONTH, I showed how a piece of machine code programming could dramatically improve the speed at which four ghosts could chase Pacman. Much of the programming is still in Basic. The purpose of the m/c is to replace a Basic subroutine by which the computer gives chase.

Why does the m/c make the ghosts move so much faster?

A group of Basic lines such as those for ghost control (lines 4000-4140, see Program 2 in last Program Tutor) which are executed every time a scan is done for keyboard control mean a lot of processing time is being wasted in interpretation. No wonder the four ghosts look so tired! The machine code gives time a shot in the arm by allowing them to escape the bonds of Sinclair's interpreter!

To supercharge your own maze games, you need to understand how my routine works to be able to adapt it. I will assume you have Programs one and two from Part One on cassette, with the m/c also dumped (from Program One) and called "GCODE".

What GCODE does

The bytes of m/c are assem-



bled from the listing in Figure 1 using a commercial assembler program. If you really want to start writing your own code or adapting other people's, a good assembler is essential. So forget

the games for a while and save your money for a useful piece of software instead!

Like the Basic subroutine it replaces, the assembler listed in Figure 1 works on the VARS (variables) area of memory to access and update the ghost coordinates. Of course, the Basic conceals how this is done. To understand how the assembler does it, let us first see how VARS is structured. With Program Two loaded, add the following lines:
9000 LET Z = PEEK 23627 + 256
X PEEK 23628
9010 FOR I = Z TO Z + 200:



PRINT I, PEEK I: NEXT I
Now RUN and, when the maze appears, press BREAK and type GOTO 9000. You will see a screen display of the first 200 bytes of VARS. The first number will be 97. Look at Appendix A of the manual and you will see that this is the character code for "a". This is the first variable to be stored on RUNNING. The "0,0,3,0,0" numbers which follow



represent the initial value of "a". Keep scrolling and you will see that VARS has been expanded to suit the sequence in which variables are met by the program. Those of interest are for ghost and pacman coordinates, contained in lines 100-120 of the Basic.

How GCODE works

Like good Basic programs, good assembler is put together from building blocks called modules. The modules in Figure 1 are numbered according to sequence of development, as it is usual to develop subroutines before the main program.

Module 1: DATA (lines 40-60).

These three lines set up the first 27 bytes of m/c with the character codes for the variable names. You will see that some of these appear twice. We know that the first part of the MAIN module will deal with storing current ghost coordinates as old, so we will be accessing current, old, current, old, etc., for all eight coordinates. This order is defined in the first two lines of DATA. The second part will update the current ghost coordinates once pacman coordinates have been read, so only current variables appear in the third line.

The DEFB mnemonic means "DEFine Byte". It is NOT a Z80 mnemonic because it is not assembled into operation codes like the mnemonics seen so far. Instead, it is called an "assembler directive", used by most assembler programs. The directive in this case is that the assembler should decode the variable names into character codes and fill out as many bytes with these as required (except for the zero which will be used to mark the end of data).

In essence, DATA tells the CPU in advance what character codes will be scanned in VARS. Ghost and pacman coordinates are accessed frequently and frequently used data is usually specified in this way.

Module 2: SCAN (lines 840-920). This m/c subroutine is the real work horse of the routine as a whole, and works by scanning VARS for a particular coordinate. Input data is the character code to be scanned or, rather, a pointer to tell the CPU where it can be found in the DATA. We will use IX register pair for this memory pointer.

The output is also a memory pointer showing where the value of the variable is stored in VARS. Choice of registers other than IX is dictated by the key instruction

Figure 1

```

10 ;GHOSTCHASE ASSEMBLER
20 ;by Tony Rickwood
30 ;
616B626C 40 DATA DEFB "a","k","b","l","c","m","d","n"
656F6670 50 DEFB "e","o","f","p","g","q","h","r"
78796162 60 DEFB "x","y","a","b","c","d","e","f","g","h",0 } MODULE 1
70 ;
80 ;MAIN PROGRAM
90 ;
DD21918E 100 LD IX,DATA
0608 110 LD B,B
120 ;
CD2ABF 130 OLD CALL SCAN
7E 140 LD A,(HL)
57 150 LD D,A
DD23 160 INC IX
CD2ABF 170 CALL SCAN
72 180 LD (HL),D
DD23 190 INC IX
10F1 200 DJNZ OLD
210 ;
CD2ABF 220 NEW CALL SCAN
46 230 LD B,(HL)
DD23 240 INC IX
CD2ABF 250 CALL SCAN
4E 260 LD C,(HL)
DD23 270 INC IX
DD7E00 280 NEXT LD A,(IX)
FE00 290 CP 0
CB 295 RET Z
CD2ABF 296 CALL SCAN
5E 300 LD E,(HL)
DD23 310 INC IX
CD2ABF 320 CALL SCAN
56 330 LD D,(HL)
DD2B 340 XTEST DEC IX
78 360 LD A,B
93 380 SUB E
281C 390 JR Z,YTEST
380B 400 JR C,DECX
1C 410 INCX INC E
CD3ABF 420 CALL ATTR
FE06 430 CP 6
200E 440 JR NZ,ENDX
1D 450 DEC E
180F 460 JR YTEST
1D 470 DECX DEC E
CD3ABF 480 CALL ATTR
FE06 490 CP 6
2003 500 JR NZ,ENDX
1C 510 INC E
1804 520 JR YTEST
CD2ABF 530 ENDX CALL SCAN
73 540 LD (HL),E
DD23 550 YTEST INC IX
79 570 LD A,C
92 590 SUB D
281C 600 JR Z,END
380B 610 JR C,DECY
14 620 INCY INC D
CD3ABF 630 CALL ATTR
FE06 640 CP 6
200E 650 JR NZ,ENDY
15 660 DEC D
180F 670 JR END
15 680 DECX DEC D
CD3ABF 690 CALL ATTR
FE06 700 CP 6
2003 710 JR NZ,ENDY
14 720 INC D
1804 730 JR END
CD2ABF 740 ENDY CALL SCAN
72 750 LD (HL),D
DD23 760 END INC IX
CD3ABF 770 CALL ATTR
3606 780 LD (HL),6
18A3 800 JR NEXT

```

MODULE 2

continued

```

      820 ;SUBROUTINES
      830 ;
C5    840 SCAN   PUSH BC
2A4B5C 850      LD HL, (23627)
01CB00 860      LD BC, 200
DD7E00 870      LD A, (IX)
EDB1   880      CPIR
23     890      INC HL
23     900      INC HL
C1     910      POP BC
C9     920      RET
D5     930 ATTR  PUSH DE
C5     940      PUSH BC
210058 950      LD HL, 22528
4B     960      LD C,E
5A     970      LD E,D
1600   980      LD D,O
0605   990      LD B,5
CB23   1000 MULT SLA E
CB12   1010      RL D
10FA   1020      DJNZ MULT
7B     1030      LD A,E
89     1040      ADD A,C
3001   1050      JR NC, HLBSET
14     1060      INC D
5F     1070 HLBSET LD E,A
19     1080      ADD HL, DE
7E     1090      LD A, (HL)
C1     1100      POP BC
D1     1110      POP DE
C9     1120      RET

```

MODULE 3

MODULE 4

at line 880.

CPIR is a block handling instruction read as "ComPare, InCrease and Repeat". It searches a number of bytes of memory (specified in BC) for the first occurrence of a byte (specified in register A). HL is used as the base address (where we want the search to start). It will finish holding the address of the byte immediately following the byte (if found).

Here, the base HL is set to the address pointed to by the system variable VARS (line 850). The first 200 bytes (which we know will hold all our coordinate data) are to be searched (line 860). The byte to be searched out is pointed to by IX (line 870).

After the CPIR, HL will point to the byte after the character code of variable. The coordinate value itself is two bytes on from this so HL must be INCremented twice (lines 890-900).

Module 3: ATTRIBUTE (lines 930-1120). The output for this subroutine will be the value of the attributes at a new ghost position (which will be tested for collision with a maze wall in the MAIN routine). This result will be stored in register A. Input is the position to be tested and is held in DE (D=y, E=x).

HL is, once again, a memory pointer; this time for the attribute file (line 950). Lines 960-1020 convert the y coordinate to the number of bytes into the attribute file needed to get to the start of the row containing the test position. This means multiplying y by 32 (32 bytes for each row).

For machine code, this has to



be thought of as multiplying by two five times, which is done by shifting the bit pattern of the value of y five times to the left. As y x 32 requires two bytes, lines 960-980 get x out of the way for the moment (LD C,E) so that y can go into register E with D=0. Lines 990-1020 are a DJNZ loop to do the multiplication. The rest of the subroutine brings back x and adds the result to the start of the attribute file.

Module 4: MAIN (lines 80-800). First, our DATA memory pointer IX is set to the address of the first byte of data. Lines 110-200 (OLD) store all the current ghost coordinates as old, so that old ghosts can be erased on return to Basic.

The next section, called NEW, continues with the main task of

moving the ghosts nearer to pacman. Pacman coordinates, x and y are placed in registers B,C (lines 220-260). IX is now incremented ready for "a" (next variable in the DATA list). The new coordinates are updated in the sequence seen in the third line of DATA, with the NEW loop being terminated by testing for end of data (lines 280-295).

The y,x coordinates of each ghost in turn are set up in registers DE (lines 296-330). Lines 340-540 (XTEST) manipulate the x coordinate in E. First, we need to know x(ghost)-x(pacman). The 3 possibilities are controlled as follows:

a) x(pacman) = x(ghost): move to YTEST

b) x(pacman) < x(ghost): move to DECX (decrement x(ghost))

c) x(pacman) > x(ghost): move to INCX (increment x(ghost))

INCX (lines 410-460): The ATTRIBUTE subroutine is called using the current y(ghost) with the increased x(ghost). CP 6 (line 430) compares the attributes at the new position (held in register from ATTR) with the code for yellow ink on black paper (which indicates a wall).

A non zero result means that the new x(ghost) is valid, so control moves to ENDX (line 440). A zero result means collision with a wall, so line 450 DECrements x(ghost) back to where it was.

Control then moves to YTEST. DECX (lines 470-520) does the same as INX in the opposite sense. Lines 530-540 (ENDX) terminate the XTEST section with a CALL SCAN to get the new x(ghost) entered into VARS (line 540).

The last section, YTEST (lines 550-750) update y(ghost) in the same way as XTEST works on x(ghost).

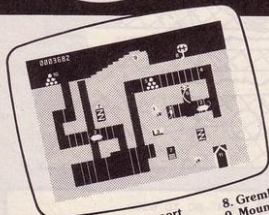
Finally, END (lines 760-800), increments IX ready for the next ghost variables to be read. More important, it changes the attributes at the new ghost position just calculated to make the ghost look like a wall, at least until it is printed as a ghost on return to Basic. This prevents other ghosts from occupying the same position.



LOOK!

NOW THERE ARE HI-RES PROGRAMS FOR THE 16K ZX-81

3



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

FORTY NINER

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

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

Riches await you – but so do the hazards!

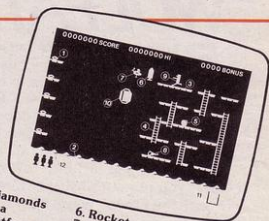
ROCKET MAN

Get rich quick by collecting Diamonds that are simply lying there waiting for you! Oh... I forgot to mention that there are one or two problems!

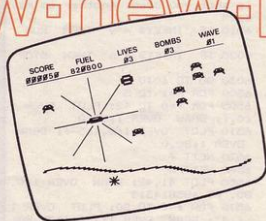
There is an expanse of shark infested water between you and the Diamonds and a strange breed of Bubble that seems hell bent on getting you in it! Somehow you must cross it....

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

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



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



Z-XTRICATOR

A long time ago, in a galaxy far, far, away a terrible war took place between two hostile races. Any prisoners taken could not expect to live very long in the hands of their captors. Their only hope lay with a group of valiant warriors – the XTRICATORS – whose task it was to rescue fellow beings from the alien planet's surface. You are about to take on the role of such a warrior....

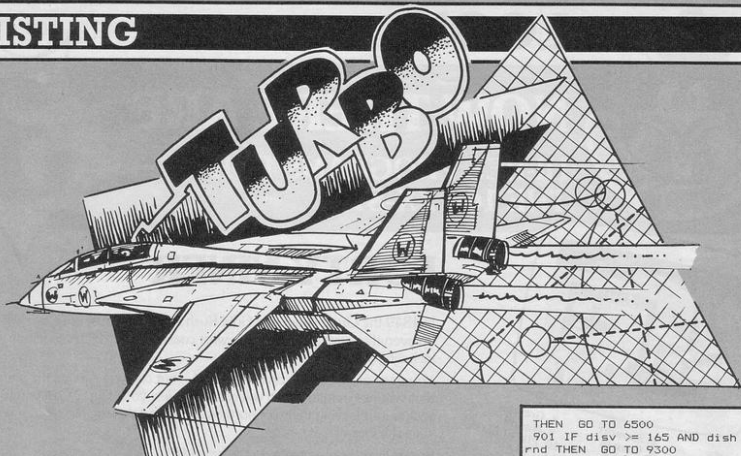
Please send me:

	QTY	TOTAL AMOUNT
FORTY NINER £5.95		
ROCKET MAN £5.95		
Z-XTRICATOR £5.95		
TOTAL		

Available from all good computer shops or send cheque/P.O. for £5.95 (inc. P&P) to:

Software Farm,
FREEPOST (No stamp required) (BS3658),
BS8 2YY.

Software Farm, 155 Whiteladies Road, Clifton, Bristol BS8 2RF.
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WOLFAIR

Fly your plane, the Wolfair jet up the screen to the escape warp. Use the cursor keys to move in the normal directions, Q to increase rotor power, A to decrease rotor power, V for turbo and B for speed brake. Travelling at turbo over the whole distance will mean that you run out of fuel before you reach the escape warp. However, if you never enter turbo you will be hit by the enemy missiles which show up on your radar every so often.

Wolfair was written for the Spectrum or Spectrum Plus by Neal Hughes of Telford, Shropshire.

```
1 BORDER 0: LET fuel=100: LET
x1=0: LET mh=0: LET mv=0: LET u
=25: LET z=0: CLS : LET s="get
red(tee) t(oo) pl(aa) (aer)wulf":
PAUSE 1: FOR f=0 TO 500: NEXT f
```

```
2 DATA 0,-1,-3,2,0,-1,-5,-5
```

```
3 FOR f=1 TO 3: READ a: BEEP
.4,a: NEXT a: FOR f=0 TO 50: NEX
T f: FOR f=1 TO 3: READ a: BEEP
.4,a: NEXT a: FOR f=0 TO 1: REA
d a: BEEP .15,a: NEXT f: BEEP .9,
-3
```

```
4 PRINT AT 0,0;"MULTI-VIEW":
AT 0,0: OVER 1: "-----": LE
T disv=0: LET dish=40: LET a=0:
LET b=0: LET c=0: GO SUB 5: GO T
O 7
```

```
5 PLOT OVER 1:92,145:b: DRAW
OVER 1:17,c
```

```
6 RETURN
9 LET rnd=INT ( RND *78)+2:
PLOT rnd,165
```

```
10 PLOT 80,0: DRAW 0,175: PLOT
194,10: DRAW 20,40: PLOT 207,10
: DRAW 8,40: PLOT 223,10: DRAW -
8,40: PLOT 237,10: DRAW -21,40
```

```
20 PLOT 210,50: DRAW 11,0, PI
/4: PLOT 194,20: DRAW 43,0, PI /
4: PLOT 202,35: DRAW 26,0, PI /4
```

```
: PLOT 194+43,35: DRAW 0,-25: DR
AW OVER 1:-43,0: DRAW 0,40: DRA
W 43,0: DRAW 0,-20
25 CIRCLE 100,145,10
26 LET hei=1: GO SUB 5555
30 PLOT 119,157: DRAW 0,11: DR
AW 122,0: DRAW 0,-31: DRAW -122,
0: DRAW 0,20: DRAW a,0: PRINT A
T 1,15;"MIN.": AT 1,26;"MAX."
48 GO SUB 49: GO TO 50
49 PLOT 119,157: DRAW OVER 1:
a,0: PRINT AT 3,15;a*5: " mph
": RETURN
50 PLOT OVER 1:dish,disv: LET
disv=disv+(a/150)
52 PRINT AT 10,12;"FUEL=": IN
T (fuel);"00 "
54 IF INKEY#="5" AND b<5 THE
N GO SUB 5: LET b=b+1: LET c=c-
2: GO SUB 5: PLOT OVER 1:mv,mv:
IF x1=1 THEN LET mh=mh+2: PLOT
mh,mv
55 IF INKEY#="6" AND hei<100
0 THEN LET hei=hei+1: GO SUB 55
55
58 IF INKEY#="7" THEN LET h
ei=hei-1: GO SUB 5555
60 IF INKEY#="8" AND b>5 TH
EN GO SUB 5: LET b=b-1: LET c=c
+2: GO SUB 5: PLOT OVER 1:mv,mv
1: IF x1=1 THEN LET mh=mh-2: PLO
T mh,mv
61 LET dish=dish-b: IF dish <=
0 THEN LET dish=79
62 IF dish >= 80 THEN LET dis
h=1
65 PLOT dish,disv
64 IF a>70 THEN LET fuel=fuel
-.6
65 IF a <= 69 THEN LET fuel=f
uel-1
66 IF fuel <= 0 THEN GO TO 75
00
67 IF x1=0 THEN GO TO 69
68 IF z=80 THEN GO TO 5000
69 LET z=INT ( RND *100): IF
z=80 THEN GO TO 5000
70 IF INKEY#="q" AND a<60 TH
EN GO SUB 49: LET a=a+1: GO SUB
49
75 IF INKEY#="b" AND a>10 TH
EN GO SUB 49: LET a=a-10: GO SU
B 49
80 IF INKEY#="a" AND a>0 THE
N GO SUB 49: LET a=a-1: GO SUB
49
89 GO SUB 90: GO TO 92
90 IF INKEY#="v" THEN GO SU
B 49: LET a=112: GO TO 49
91 RETURN
90 IF disv >= 165 AND dish=rnd
```

```
THEN GO TO 6500
901 IF disv >= 165 AND dish <>
rnd THEN GO TO 9300
1000 GO TO 50
5000 IF x1=1 THEN GO TO 5004
5001 LET x=INT ( RND *30)+201
```

```
5002 LET x1=1
5003 LET mh=: LET mv=10
5004 PLOT OVER 1:mv,mv: IF mh<2
15 THEN LET mh=mh+1
5005 IF mh>215 THEN LET mh=mh-1
```

```
5010 LET mv=mv+1
5020 IF a>108 THEN LET mv=mv-(a
-108)
5030 IF mv=50 THEN GO TO 6001
```

```
5040 BEEP .001,60: PLOT OVER 1:
mh,mv
5050 IF mv <= 10 THEN LET x1=0:
PLOT OVER 1:mv,mv
5554 GO TO 70
5555 PRINT AT 8,12;"HEIGHT=":he
i:"00 feet "
```

```
5560 IF hei<1 THEN PRINT "You h
it the ground.Another go?": GO T
O 6010
```

```
6000 RETURN
6001 CLS : PRINT "An enemy missi
le shot you down. Another go may
be?"
```

```
6020 IF INKEY#="y" THEN RUN
```

```
6020 IF INKEY#="n" THEN STOP
```

```
6030 GO TO 6010
6500 FOR h=1 TO 5
6505 FOR f=0 TO 42: PLOT OVER 1
:0,f: DRAW OVER 1:80,0
6510 PLOT OVER 1:0,165-f: DRAW
OVER 1:80,0
```

```
6520 NEXT F
6540 NEXT h
6550 PLOT 41,42: DRAW OVER 1:0,
80, PI *85814313
```

```
6570 FOR f=0 TO 80: PLOT OVER 1
f,43: DRAW OVER 1:(80-f)*2,80:
NEXT f
```

```
6900 PRINT "Well done!!!!": GO S
UB 9000: PRINT "Another go?": GO
TO 6010
```

```
7500 PRINT "out of fuel!Another
go?": GO TO 6010
9000 BEEP .1,2: BEEP .1,4: BEEP
1,5: BEEP .1,5: BEEP .1,7: BEEP
1,9: BEEP .1,7: BEEP 1,5: BEEP
1,4: BEEP .1,4: BEEP 2,2
```

```
9200 RETURN
9300 PRINT AT 10,0:"you didn't
make it to the time warp escape
hole so you are trapped for
ever."
```

```
9310 PRINT "Another go?": GO TO
6010
```

```

1 PDK 23658,8
5 BORDER 0: PAPER 0: INK 7: C
LS
10 LET S=0: LET D=0: GO SUB 80
00
20 LET X=30
30 LET A= INT ( RND *21): IF A
>17 OR A<10 THEN GO TO 30
40 LET I= INT ( RND *7)+2
55 GO SUB 80
60 PRINT AT A,X: INK I: BRIGH
T RND *1: "HI ": BEEP .002, RND
*55
70 IF INKEY#="" THEN GO TO
120
75 GO TO 55
80 IF ATTR (A,X-1)=22 THEN P
RINT AT A,X-1: " ": BEEP .1,-1
8: GO TO 20
90 LET X=X-1
100 IF X=9 THEN PRINT AT A,X-
1: " ": GO TO 200
110 RETURN
120 FOR M=3 TO 20
125 IF SCREEN# (M+1,13) <> " "
THEN GO TO 160
130 PRINT INK 6: AT M,13: "J":
BEEP .002,M: PRINT AT M,13: " "
135 PRINT AT A,X: INK I: BRIGH
T RND *1: "HI ": BEEP .002, RND
*55
140 GO SUB 80
150 NEXT M
155 PRINT AT A,X: " "
156 GO TO 60
160 PRINT AT M+1,13-1: INK 3:
BRIGHT 1: "LLL": BEEP .1,-25: PR
INT AT M+1,13-1: INK 3: BRIGHT
1: " "
170 LET S=S+10: LET D=D+1: GO S
UB 9060: GO TO 20
200 FOR A=0 TO 30: BEEP .002,50
: BEEP .002,30: BEEP .002,150
205 PRINT AT 5,11: INK RND *7
: "GAME OVER"
210 PRINT AT 7,0: INK 6: BRIGH
T 1: "THE ALIEN FLEET HAS DESTROYE
D THE DAM AND THE CITY HAS FL
OOD"
220 NEXT A: CLS
230 FOR A=20 TO 40: PRINT AT 9
,5: INK RND *7: "ANOTHER GAME ?L
V/N3"
240 IF INKEY#="" THEN CLS :

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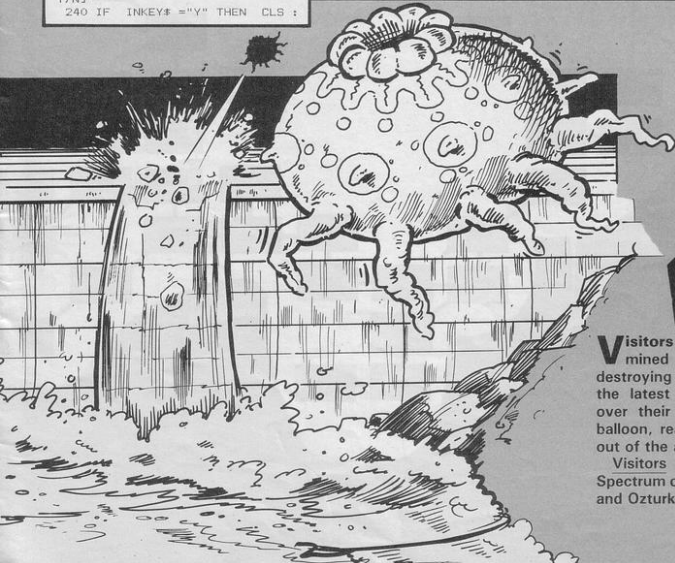
LET D=0: LET S=0: GO SUB 8200:
GO TO 20
245 IF INKEY#="" THEN CLS :
STOP
250 BEEP .002,A-3: BEEP .002,A-
10: BEEP .002,65
260 GO TO 230
300 FOR A=20 TO 50: BEEP .002,A
-3: BEEP .002,A-6: BEEP .002,A-1
0: BEEP .002,A+10: NEXT A
310 PRINT AT 10,0: INK 3: "WEL
L DONE YOU SAVED THE CITY YD
U GAIN 1000 BOUNS POINTS "
315 PRINT AT 12,3: INK 6: "NOW
FOR YOUR NEXT MISSION. THIS
TIME YOU MUST SHOOT 25
MORE SAUCERS"
320 PRINT AT 16,8: FLASH 1: IN
K 5: "PRESS ANY KEY"
325 LET S=S+1000: LET D=-10
330 PAUSE 0: GO SUB 9000: GO TO
20
340 STOP
8000 FOR C=144 TO 157: FOR A=0 T
O 7: READ N: PDK USR CHR# C+A
N: BEEP .002,A+20: NEXT A: NEXT
C
8010 DATA 7,25,49,97,99,99,103,1
03
8020 DATA 224,152,140,134,198,19
8,230,230
8030 DATA 103,99,99,49,49,25,7,4
8040 DATA 230,198,198,140,140,15
2,224,32
8050 DATA 4,14,5,6,5,3,0,0
8060 DATA 32,176,96,160,96,192,0
,0
8070 DATA 16,16,255,1,1,1,255,16
8080 DATA 19,14,127,85,127,117,3
,1,35
8090 DATA 228,184,255,85,255,87,
252,226
8100 DATA 165,90,60,36,126,102,6
,0,24
8110 DATA 0,0,56,84,106,189,239,
181
8120 DATA 136,74,36,219,24,36,82
,145
8130 DATA 255,255,199,199,255,25
4,254,254
8140 DATA 255,255,227,227,255,12

```

```

7,127,127
8210 PRINT AT 5,2: INK 4: BRIGH
T 1: "VISITORS ARE FROM SPACE AND
THEY ARE HERE TO FLOOD CITIE
S
BY DESTROYING DAMS "
8220 PRINT AT 9,2: INK 3: BRIGH
T 1: "YOUR MISSION IS TO STOP THE
M
BY DROPPING BOMBS ON TO THE
SAUCERS FROM YOUR HUGE BALLOO
N"
8230 PRINT AT 15,5: INK 6: "AB":
AT 16,5: "CD - YOUR BALDON": INK
3: AT 17,5: "EE"
8240 PRINT AT 18,3: "YOU MUST SH
DOT 15 SAUCERS"
8250 PRINT AT 19,3: INK 3: "USE
'0' TO DROP YOUR BOMBS"
8260 PRINT AT 21,9: FLASH 1: IN
K 6: "PRESS KEY ANY"
8270 IF INKEY# <> "" THEN GO
TO 9000
8273 PRINT AT 3,8: INK RND *7:
"HI": AT 3,11: INK 6: "VISITORS":
AT 3,20: INK RND *7: "HI"
8274 PRINT AT 0,8: INK 6: "AKERS
PRESENTS"
8275 BEEP .002,10: BEEP .002,60
8280 GO TO 8270
9000 CLS : PRINT AT 10,10: INK
6: FLASH 1: PAPER 2: "GET READY":
PAUSE 5: PAUSE 50: CLS
9020 FOR A=8 TO 21: PRINT AT A,
8: INK 6: PAPER 2: "GGG": NEXT A
9030 PRINT AT 9,0: INK 5: "KKKKK
KKK": FOR A=10 TO 21: PRINT AT
A,0: INK 5: "B*ISP": NEXT A
9040 PRINT AT 0,12: INK 6: BRIGH
HT 1: "AB": AT 1,12: "CD": AT 2,12
: INK 3: BRIGHT 1: "E"
9050 PRINT AT 21,0: INK 4: "(20*
ISP)CITY(9*isp)"
9060 PRINT AT 21,0: BRIGHT 1: P
APER 6: INK 1: "SCORE=": PAPER
1: INK 6: S
9070 PRINT AT 20,12: PAPER 7: I
NK 2: BRIGHT 1: AT 20,16: "MN": A
T 20,19: "MN": AT 20,23: "MN": AT
20,26: "MN": AT 20,29: "MN"
9080 IF D=15 THEN CLS : GO TO 3
00
9090 RETURN

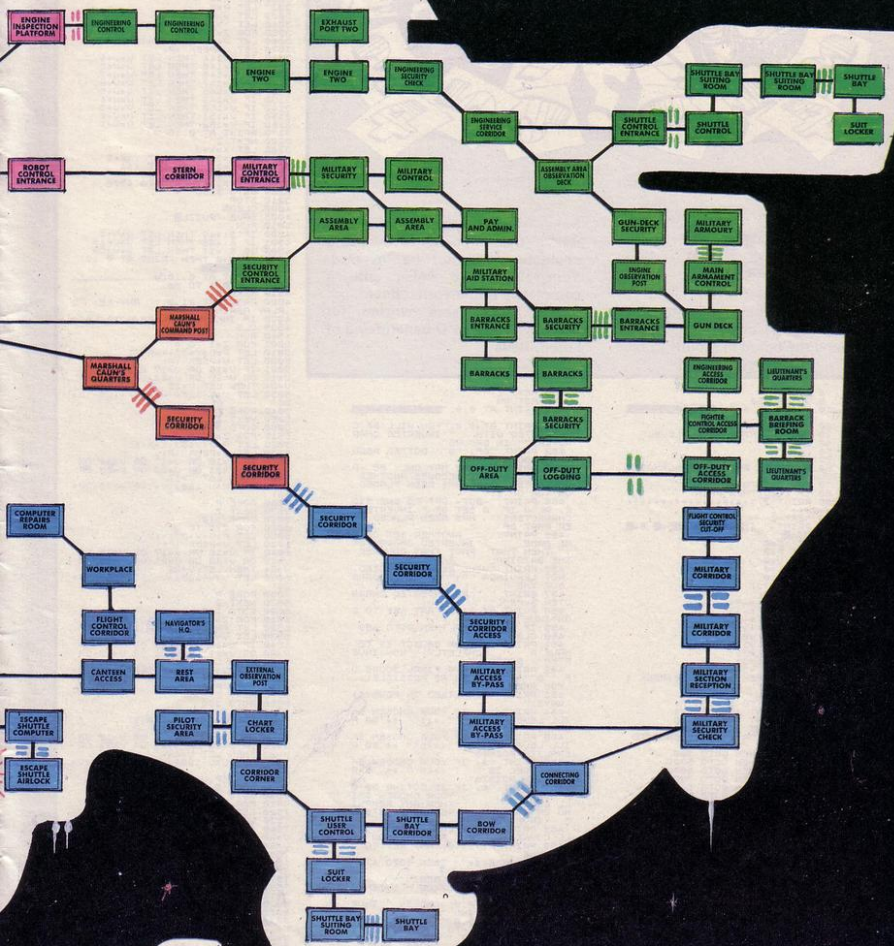
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visitors

Visitors from space are determined to flood cities by destroying dams. Equipped with the latest technology, you hang over their heads in an immense balloon, ready to blast their shots out of the air.

Visitors was written for the Spectrum or Spectrum Plus by Eray and Ozturk Aker of London SE13.



Shadowfire



```

539 PRINT AT 14,14:"6"
540 PRINT AT 16,14:"7"
541 PRINT AT 18,14:"8"
542 PRINT AT 19,14:"9"
543 PRINT AT 20,9:"THE"
544 PRINT AT 20,9:"WHEN FINISH"
D TYPE 000
545 PRINT AT 21,5:"CONTINUE"
546 IF CODE INKEY$(0)118 THEN GO
TO 550
550E CLS
550E CLRN
1000 SAVE "PLAIN"
5510 PRINT AT 21,0:"THE ABOVE -
5520 AGAINST YOU"
5530 PRINT AT 0,0:""
5540 FOR B=1 TO 50
5541 NEXT B
5550 LET X=4
5560 LET P=0
5570 LET V=2
5580 LET P=0+V*33+X*(Z)
5590 IF V=145 THEN LET U=U+9
5600 IF V=146 THEN LET U=U+7
5610 IF V=147 THEN LET U=U+5
5620 IF V=148 THEN LET U=U+4
5630 IF V=149 THEN LET U=U+3
5640 IF V=150 THEN LET U=U+2
5650 IF V=151 THEN LET U=U+1
5660 NEXT Z
5670 FOR X=1 TO 3
5680 IF X=31 THEN LET V=Y+3
5690 IF X=31 THEN LET X=4
5700 IF X=31 THEN LET U=U+30
5710 IF Y=23 THEN GOTO 4500
5720 STOP
5730 CLEAR "PUZZLE"
4010 RUN
4570 IF X=49 THEN LET U=U+5
4580 IF X=26 THEN LET U=U+15
4590 IF X=14 THEN LET U=U+7
4600 IF X=50 THEN PRINT AT 0,13:"
5740 PRINT AT 0,10:"
4597 FOR B=1 TO 50
4598 NEXT B
4600 PRINT AT 21,0:" ANY KEY TO
PLAY AGAIN"
4610 IF INKEY$(0) THEN GOTO 4520
4620E CLS
4630E CLRN
5001 FOR X=1 TO 9
5010 LET P=0+V*33+X*(Z)
5020 LET V=PEEK (P)
5030 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
5040 POKE P,U
5050 NEXT Z,U
5060 GOTO 310
5070 FOR X=1 TO 9
5080 LET P=0+V*33+X*(Z)
5090 LET V=PEEK (P)
5100 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
5110 POKE P,U
5120 NEXT Z,U
5130 GOTO 310
5140 FOR X=1 TO 9
5150 LET P=0+V*33+X*(Z)
5160 LET V=PEEK (P)
5170 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
5180 POKE P,U
5190 NEXT Z,U
5200 GOTO 310
5210 FOR X=1 TO 9
5220 LET P=0+V*33+X*(Z)
5230 LET V=PEEK (P)
5240 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
5250 POKE P,U
5260 NEXT Z,U
5270 GOTO 310
5280 FOR X=1 TO 9
5290 LET P=0+V*33+X*(Z)
5300 LET V=PEEK (P)
5310 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
5320 POKE P,U
5330 NEXT Z,U
5340 GOTO 310
5350 FOR X=1 TO 9
5360 LET P=0+V*33+X*(Z)
5370 LET V=PEEK (P)
5380 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
5390 POKE P,U
5400 NEXT Z,U
5410 GOTO 310
5420 FOR X=1 TO 9
5430 LET P=0+V*33+X*(Z)
5440 LET V=PEEK (P)
5450 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
5460 POKE P,U
5470 NEXT Z,U
5480 GOTO 310
5490 FOR X=1 TO 9
5500 LET P=0+V*33+X*(Z)
5510 LET V=PEEK (P)
5520 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
5530 POKE P,U
5540 NEXT Z,U
5550 GOTO 310
5560 FOR X=1 TO 9
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5590 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
5600 POKE P,U
5610 NEXT Z,U
5620 GOTO 310
5630 FOR X=1 TO 9
5640 LET P=0+V*33+X*(Z)
5650 LET V=PEEK (P)
5660 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
5670 POKE P,U
5680 NEXT Z,U
5690 GOTO 310
5700 FOR X=1 TO 9
5710 LET P=0+V*33+X*(Z)
5720 LET V=PEEK (P)
5730 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
5740 POKE P,U
5750 NEXT Z,U
5760 GOTO 310
5770 FOR X=1 TO 9
5780 LET P=0+V*33+X*(Z)
5790 LET V=PEEK (P)
5800 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
5810 POKE P,U
5820 NEXT Z,U
5830 FOR X=1 TO 9
5840 LET P=0+V*33+X*(Z)
5850 LET V=PEEK (P)
5860 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
5870 POKE P,U
5880 NEXT Z,U
5890 GOTO 310
5900 FOR X=1 TO 9
5910 LET P=0+V*33+X*(Z)
5920 LET V=PEEK (P)
5930 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
5940 POKE P,U
5950 NEXT Z,U
5960 GOTO 310
5970 FOR X=1 TO 9
5980 LET P=0+V*33+X*(Z)
5990 LET V=PEEK (P)
6000 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
6010 POKE P,U
6020 NEXT Z,U
6030 GOTO 310
6040 FOR X=1 TO 9
6050 LET P=0+V*33+X*(Z)
6060 LET V=PEEK (P)
6070 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
6080 POKE P,U
6090 NEXT Z,U
6100 GOTO 310
6110 FOR X=1 TO 9
6120 LET P=0+V*33+X*(Z)
6130 LET V=PEEK (P)
6140 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
6150 POKE P,U
6160 NEXT Z,U
6170 GOTO 310
6180 FOR X=1 TO 9
6190 LET P=0+V*33+X*(Z)
6200 LET V=PEEK (P)
6210 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
6220 POKE P,U
6230 NEXT Z,U
6240 GOTO 310
6250 FOR X=1 TO 9
6260 LET P=0+V*33+X*(Z)
6270 LET V=PEEK (P)
6280 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
6290 POKE P,U
6300 NEXT Z,U
6310 GOTO 310
6320 FOR X=1 TO 9
6330 LET P=0+V*33+X*(Z)
6340 LET V=PEEK (P)
6350 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
6360 POKE P,U
6370 NEXT Z,U
6380 GOTO 310
6390 FOR X=1 TO 9
6400 LET P=0+V*33+X*(Z)
6410 LET V=PEEK (P)
6420 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
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U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
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6510 NEXT Z,U
6520 GOTO 310
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U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
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U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
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6650 NEXT Z,U
6660 GOTO 310
6670 FOR X=1 TO 9
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6690 LET V=PEEK (P)
6700 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
6710 POKE P,U
6720 NEXT Z,U
6730 GOTO 310
6740 FOR X=1 TO 9
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6760 LET V=PEEK (P)
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9170 GOTO 310
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U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
9990 POKE P,U
10000 NEXT Z,U
10010 GOTO 310

```

PICK PUZZLE

You will be confronted with inverted characters spread around the board in groups of nine.

Some of the groups overlap and, where this happens, overlapping characters will not be inverted. Your aim is to finish with a completely non-inverted board. Pick Puzzle was written for the 16K ZX-81 by D Bauernfeind of Luton, Beds.

```

4 CLEAR
5 GOSUB 455
10 INPUT S
20 PRINT "ENTER SKILL LEVEL"
30 CLS
40 PRINT "ABCDEFGHIJKLMNPO"
50 PRINT "STUVWXYZ"
70 FOR Z=1 TO 20
80 IF Z=10 THEN PRINT " "
90 PRINT Z;"*****Z"
100 NEXT Z
110 PRINT "1-2-3-4-5-6-7-8-9-0"
120 LET P=0
130 LET V=2
140 LET U=0
150 DIM A(3)
160 DIM A(19)
170 LET A(1)=1
180 LET A(2)=33
190 LET A(3)=32
200 LET A(4)=1
210 LET A(5)=0
220 LET A(6)=1
230 LET A(7)=32
240 LET A(8)=1
250 LET A(9)=33
260 LET A(10)=32
270 FOR U=1 TO 5
280 LET X=INT (RND*24)+4
290 LET Y=INT (RND*10)+2
300 IF L=0 OR L=10 THEN GOTO
295
310 IF L=1 THEN GOTO 309
320 IF L=2 THEN GOTO 5000
330 IF L=3 THEN GOTO 6000
340 IF L=4 THEN GOTO 7000
350 IF L=5 THEN GOTO 8000
360 IF L=6 THEN GOTO 9000
370 IF L=7 THEN GOTO 8000
380 IF L=8 THEN GOTO 6000
390 IF L=9 THEN GOTO 5000
400 GOSUB 400
410 NEXT U
420 FOR Z=1 TO 9
430 LET P=0+V*33+X*(Z)
440 LET V=PEEK (P)
450 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
460 POKE P,U
470 NEXT Z,U
480 GOTO 310
490 FOR X=1 TO 9
500 LET P=0+V*33+X*(Z)
510 LET V=PEEK (P)
520 IF U=16 OR U=17 OR U=18 OR
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550 GOTO 310
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590 IF U=16 OR U=17 OR U=18 OR
U=19 OR U=20 OR U=21 OR U=23 OR
U=24 THEN LET U=U+128*(U=151)+128*(U=
23)
600 POKE P,U
610 NEXT Z,U
620 GOTO 310
630 FOR X=1 TO 9
640 LET P=0+V*33+X*(Z)
650 LET V=PE
```


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 E _____
 F _____ SP8/85
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A Fast furious racing in this Arcade game for the Spectrum 'Ponoon' on side B free!



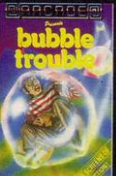
B Funny goings-on deep in a mine. Can you escape the evil in its depths? "Original and fun dexterity needed. . . strategy is also involved!" — Games Computing



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.

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SPECTRUM



COMMODORE 64

DURELL sales dept.,
Castle Lodge, Castle Green, Taunton, Somerset, TA1 4AB



Light Fingered Larry

Larry is a robber who has just broken into the strongroom of the City Bank. The door has slammed shut behind him, and the burglar alarm is ringing. The only way to escape is to reach the door with the same amount of money in his swag bag as that in the City Bank bag. Each of the bags in the strongroom contains a positive or negative amount of money, so jumping from one to another allows him to alter the contents of his swag bag.

Light Fingered Larry was written for the Spectrum by A Gordon of Crumlington, Northumberland.

```

1 BORDER 0: BRIGHT 1
2 LET bh=0
5 GO SUB 9000: GO TO 8000
40 INK 4: FOR n=0 TO 22: PRINT
  AT 0,n;"H": AT 20,n;"H": NEXT
n
50 FOR n=1 TO 19: PRINT AT n,
  0;"H": AT n,22;"H": NEXT n
60 FOR n=23 TO 31: PRINT AT 1
  6,n;"H": AT 20,n;"H": NEXT n
70 PRINT INK 3: AT 0,26;"FB"
  AT 1,26;"D(I)SP(E)E D(I)SP(E)E"
  *I)SP(C)": AT 3,23;"YOU'R SWAG"
80 INK 5: PRINT AT 4,26;"EB"
  AT 5,26;"D(I)SP(E)E": AT 6,25;"B(I)
  *I)SP(C)": AT 7,23;"CITY BANK": AT
  8,25;"TOTAL"
90 PRINT INK 6: AT 10,23;"THI
  S HAUL": AT 13,23;"BEST HAUL"
100 LET sc=0
110 LET ct= INT ( RND *50)+5
115 PRINT PAPER 5: INK 0: AT 6
  ,26;"# " : AT 8,27;ct

```

```

120 PRINT PAPER 3: INK 7: AT 2
  ,26;"# "
121 PRINT INK 6: AT 11,26;"#
  " : AT 11,27;sc: AT 14,26;"#":bh
  125 FOR n=1 TO 17 STEP 4
130 INK 3: PRINT AT n,2;"FB F
  G FB FG FB FG "
135 PRINT AT n+1,2;"D(I)SP(E) D(
  I)SP(E) D(I)SP(E) D(I)SP(E)"
140 PRINT AT n+2,1;"B(3*I)A(
  3*I)SP(A)(3*I)SP(A)(3*I)SP(C)"
  : NEXT n
150 PRINT FLASH 1: INK 2: PAPER
  R 6: AT 18,23;"EXIT": AT 17,22;"
  H": AT 18,22;"H": AT 19,22;"H"
195 PAPER 3: INK 9
200 REM **SET*SWAG*VALUES**
205 DIM a(5,5)
210 FOR x=1 TO 5: FOR y=1 TO 5
220 LET a(x,y)= INT ( RND *30)-
  15
225 PRINT AT x*-1,y*-2;a(x,y)
230 IF a(x,y)>0 THEN PRINT AT
  x*-4,y*-2;"*":a(x,y)
235 NEXT y: NEXT x
499 REM **MAIN*GAME**
500 LET yt=0: LET v=2: LET w=3:
  LET ti=1000
520 PRINT AT v,w;"I"
525 LET ti=ti-1
530 IF ti<40 THEN BEEP .25,10:
  BEEP .20,8: PRINT FLASH 1: PAPER
  0: AT 21,1;"THE POLICE ARE CO
  MING"
535 IF ti <= 0 THEN GO TO 7000
550 IF INKEY$="S" THEN LET w
  =w+4: PRINT AT v,w+4;" ": GO SU
  B 5000

```

```

555 IF INKEY$="B" THEN LET w
  =w+4: PRINT AT v,w+4;" ": GO SU
  B 5000
560 IF INKEY$="6" THEN LET v
  =v+4: PRINT AT v-4,w+1;" ": GO SU
  B 5002
565 IF INKEY$="7" THEN LET v
  =v-4: PRINT AT v+4,w+1;" ": GO SU
  B 5002
600 GO TO 510
4999 REM **MOVES**
5000 IF w<3 THEN LET w=3
5001 IF w>19 THEN LET w=19
5002 IF v<2 THEN LET v=2
5003 IF v>18 THEN LET v=18
5025 LET yt=yt+a(v/4,w/4)
5030 IF yt<0 THEN LET yt=0
5035 IF yt>99 THEN LET yt=99
5040 PRINT AT 2,27;" " : AT 2,2
  7;yt
5045 FOR b=1 TO 4: BEEP .015,0:
  NEXT b
5050 IF yt=ct AND v=18 AND w=19
  THEN 'GO TO 6000
5100 RETURN
6000 PAPER 0
6005 PRINT AT 17,22;" " : AT 19,
  22;" "
6010 FOR n=21 TO 30: PRINT AT 1
  8,n;" I": BEEP .015,n: NEXT n
6020 RESTORE 6030
6025 FOR b=0 TO 7: READ r,s: BEE
  P r,s: NEXT b
6030 DATA .35,20,.30,20,.09,23,.
  2,21,.2,20,.2,18,.2,16,.2,28
6040 FOR n=1 TO 19: PRINT AT n,
  1;" " : NEXT
  n
6045 PRINT AT 21,0;" "
  " : AT 18,31;" "
6060 PRINT AT 7,6;"YOU MADE IT"
  : AT 9,2;"GET SET FOR ANOTHER":
  AT 11,8;"ROBBERY"
6062 LET sc=sc+yt
6065 IF sc>bh THEN LET bh=sc
6070 FOR n=0 TO 250: NEXT n
6100 GO TO 110
7000 REM **OUT*OF*TIME**
7010 RESTORE 7020: FOR b=0 TO 10
  : READ r,s: BEEP r,s: NEXT b
7020 DATA .45,0,.3,0,.15,0,.45,0
  ,.3,3,.15,2,.3,2,.15,0,.3,0,.15,
  -.1,45,0
7030 PAPER 0: CLS : PRINT AT 8,
  10;"YOU'RE NICKED": AT 10,1;"PRE
  SS ANY KEY FOR ANOTHER GAME"
7040 PAUSE 0
8000 PAPER 5: INK 0: CLS
8020 PRINT TAB 4;"I LIGHT FINGE
  RED LARRY I"
8030 PRINT " Larry has just rob
  bed the City Bank, but the stro
  ngroom door has closed behind
  him.A special combination holds
  the door tight shut. The on
  ly way to escape is to dash
  around the room adding and sub
  tracting away the amounts of mo
  ney that are marked on the swag
  -bags."
8040 PRINT " The aim is to fini
  sh at the <EXIT> with the sa
  me amount of money in your swag
  -bag as the City Bank. See how
  many times you can rob the ba
  nk before YOU'RE NICKED."
8050 PRINT " TAB 5;"PRESS ANY
  KEY TO PLAY"
8490 PAUSE 0
8500 PAPER 0: CLS
8510 GO TO 40
9000 RESTORE 9010: FOR n=USR "a
  " TO USR "1": READ a: POKE n,"
  a": NEXT n
9010 DATA 129,195,231,231,231,23
  1,195,129,1,3,7,7,7,3,1,128,19
  2,224,224,224,224,192,128
9020 DATA 15,31,63,127,127,255,2
  55,255,240,248,252,252,254,255,2
  55,225,229,30,15,7,3,1,3,15,39,11
  1,110,110,124,248,248,15
9025 DATA 251,251,251,0,223,223,
  223,0,126,255,153,153,231,189,66
  .126
9999 RETURN

```


Bucket Stall

At the Spectrum fairground you come upon the Bucket Stall. This stall tests your judgement, for you must throw balls into buckets which are placed at different distances from you. Input the strength which you feel is necessary to throw each of the balls into the buckets.

Bucket Stall was written for the Spectrum or Spectrum Plus by C Baker of Chesterfield, Derbyshire.

Underlined letters are those to be entered in graphics mode.

```
10 BORDER 6: PAPER 6: INK 1: C
LS : GO SUB 290: PRINT AT 0,10:
"BUCKET STALL": You must judge
the strength. (200min-450max
) to throw the "ball into the
bucket." You have 10 balls.
```

```
20 FOR r=1 TO 4: BEEP .3,24: B
EEP .3,12: NEXT r: FOR r=1 TO 2:
FOR n=0 TO 36 STEP .5: BEEP .00
5 : n: NEXT n: PRINT AT 18,2:"PR
ESS ANY KEY: PAUSE 0: CLS : LET
shots=0: LET hi=0: LET sc=0: LE
T b=""
```

```
30 PRINT PAPER 4: INK 1: AT 0
,0:"CCCCCCCCCCCCCCCCCCCCCCCC
CCCC": AT 21,0:"CCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCC"
```

```
40 FOR N=0 TO 9: PRINT PAPER
4: INK 1: AT N,0:"C": NEXT N: FO
R N=1 TO 21: PRINT PAPER 4: IN
K 1: AT N,0:"C": NEXT N: FOR N=0
TO 21: PRINT PAPER 4: INK 1: A
T N,31:"C": NEXT N
50 FOR N=17 TO 20: PRINT PAPER
R 2: INK 1: AT N,1:"!!!!!!!!!!!!
!!!!!!!!!!!!": NEXT N
60 PRINT INK 0: AT 5,2:"A": A
T 5,10:"AAA": AT 5,15:"AAA"
```

```
70 PRINT BRIGHT 1: AT 21,6:"2
00": AT 21,14:"300": AT 21,25:"4
```

```
00": AT 18,10:"BUCKET STALL"
80 LET f=INT ( RND #18)+10: F
OR N=6 TO 9: PRINT PAPER 2: INK
1: AT N,1:"!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!": NEXT N: PRINT AT 7
,8:"10 BALLS FOR 10P"
90 FOR N=10 TO 16: PRINT INK
0: AT N,2:" ": NEXT N
100 PRINT AT 14,1: INK 0:"A":
AT 15,1:"B": PRINT PAPER 2: INK
0: AT 15,2:"E"
110 IF shots=9 THEN GO TO 230
```

```
120 LET shots=shots+1: PRINT A
T 1,1: PAPER 7: INK 1:"BALLS:"s
hots: AT 3,9:"YOUR SCORE=":sc: A
T 1,9:"HI-SCORE=":hi: by "b$
```

```
130 INK 0: PRINT AT 15,1:"CD":
LET pa=0: INPUT "STRENGTH ?(200
TO 425)":rng
140 IF rng>425 THEN PRINT FLA
SH 1: INK 0: AT 15,5:"STRENGTH T
OO HIGH!!!!: PAUSE 100: PRINT P
APER 6: " : GO TO 130
```

```
150 IF RNG<200 THEN PRINT FLA
SH 1: INK 0: AT 15,5:"STRENGTH T
OO WEAK": PAUSE 150: FLASH 0: PR
INT AT 15,5:
" : GO TO 130
```

```
160 PRINT AT 9,3:"STRENGTH=":r
ng
170 LET a=rng* COS ( PI *pi/180) :
LET b=rng* SIN ( PI *pi/180) :
OR b=x TO b/16 STEP .5: LET c=0
1*(b*x-16*x*x)
180 IF a*x>6200 THEN GO TO 220
```

```
190 PLOT PAPER 6: INK 0:.04*#*
x+12,4*c+50: BEEP .005,c+25: NEX
T x
```

```
200 IF ABS (a*b/3200-f)<1 THEN
GO TO 220
210 PRINT AT 9,16: INK 0: FLAS
H 1:"MISSED": BEEP .5,-20: PAUSE
150: CLS : GO TO 30
220 PRINT AT 10,10: INK 0: FLA
SH 1:"YOU GOT IT": FOR N=-10 TO
20: BORDER 1: BORDER 2: BORDER 3:
BORDER 4: BORDER 5: BORDER 6:
BEEP .03,n: NEXT n: NEXT n: LET
sc=sc+1: PAUSE 50: CLS : GO TO
30
```

```
230 IF sc>0 AND hi<sc THEN LET
hi=sc: CLS : GO TO 260
240 PRINT FLASH 1: AT 5,2:"END
OF GAME": FLASH 0: " ANOTHER G
(Y/N) ?": INPUT a$
250 IF a$="Y" OR a$="y" THEN LET
hi=sc: LET shots=0: CLS : GO T
O 30
```

```
255 IF a$="n" OR a$="N" THEN S
TOP
```

```
270 PRINT AT 5,2:" BEST SCORE
50 FAR": AT 7,1:" ENTER INITIALS
max.8 letters": INPUT b$
280 LET shots=0: LET sc=0: CLS :
```

```
GO TO 30
290 FOR i=1 TO 5: FOR n=0 TO 7:
READ a: POKE USR CHR$(i+143)
+n,a: NEXT n: NEXT i: RESTORE 30
0
```

```
300 DATA 56,56,60,56,56,112,112
,127
310 DATA 248,248,248,248,248,11
2,112,112
```

```
320 DATA 192,192,96,96,48,48,25
5,255
```

```
330 DATA 3,3,6,6,12,12,255,255
340 DATA 3,6,48,48,96,192,255,2
55
350 RETURN
```

STAY ALIVE!

Out on the launch pad in your space ship, the area suddenly begins to fill up with aliens. Instead of taking off your new objective is merely to stay alive. Shoot down the aliens for as long as you can.

Stay Alive was written for the Spectrum or Spectrum Plus by Jonathan Boutell of Bedford, Bedfordshire.

Underlined letters are those to be entered in graphics mode.

```
1 RESTORE
10 REM defender graphics
20 FOR n=0 TO 7: READ a: POKE
USR "a"+n,a: NEXT n
30 DATA 192,240,60,63,63,60,24
0,192
40 FOR n=0 TO 7: READ a: POKE
USR "b"+n,a: NEXT n
50 DATA 3,15,60,252,252,60,15,
3
60 FOR n=0 TO 7: READ a: POKE
USR "c"+n,a: NEXT n
70 DATA 255,153,187,255,255,24
,36,195
80 LET a$="A": LET b$="B"
```

```
90 LET x=20: LET y=0
95 INK 0: CLS
100 PRINT AT 0,0:" Def
ender "
110 PRINT AT 1,0:"The object
of the game is to stay alive
as long as possible by shooting
the invading aliens.Points are
scored for the time it takes fo
r the aliens to kill you.You die
if you crash into an alien
```

```
To move your
spaceship you use "q" for up
"~" for dow
"n" for lef
"p" for rig
ht "o" to fire
```

```
115 PRINT AT 19,0:"Input level
1-5 (1 is easiest)": INPUT c
116 IF c>5 THEN GO TO 115: IF
c<0 THEN GO TO 115
120 PAUSE 0
130 CLS
```

```
140 BORDER 7: PAPER 7: INK 1: C
LS
145 FOR d=0 TO c*50
146 PRINT AT RND *21, RND *31
:"CD" INK 0
150 NEXT 0
165 LET c=#$
170 PRINT AT x,y,c$
181 BEEP .05,10
182 PRINT AT RND *21, RND *31
```

```
: INK 1:"D"
185 PRINT AT x,y:" "
190 IF INKEY$="q" AND x>0 THEN
N LET x=x-1
```

```
200 IF INKEY$="a" AND x<21 TH
EN LET x=x+1
```

```
210 IF INKEY$="o" AND y>0 THEN
N LET y=y-1: LET c=#$
```

```
220 IF INKEY$="p" AND y<31 TH
EN LET y=y+1: LET c=#$
```

```
230 IF INKEY$="m" THEN GO TO
1100
```

```
300 IF SCREEN$(x,y) <> " " TH
EN GO TO 1000
```

```
310 GO TO 170
```

```
1000 LET t=INT ((256# PEEK 2367
+3# PEEK 23672)/50): PRINT AT 0
,0:"YOU ARE DEAD! YOUR SCORE WAS
":t: FOR n=1 TO 300: NEXT n: RU
N
```

```
1100 IF c=#$ THEN GO TO 9000
```

```
1200 IF c=#$ THEN GO TO 8000
```

```
8000 FOR a=y-1 TO 0 STEP -1: PRI
NT AT x,a: INK 2:"-": NEXT a
8010 FOR a=y-1 TO 0 STEP -1: PRI
NT AT x,a: INK 2:" ": NEXT a: B
O TO 235
```

```
9000 FOR a=y+1 TO 31: PRINT AT
x,a: INK 2:"-": NEXT a
```

```
9010 FOR a=y+1 TO 31: PRINT AT
x,a: INK 2:" ": NEXT a: GO TO 23
5
```




1 Knight Lore	Ultimate
2 Daley's Decathlon	Ocean
3 Jet Set Willy	Software Projects
4 Lords of Midnight	Beyond
5 Matchday	Ocean
6 Sabre Wulf	Ultimate
7 The Hobbit	Melbourne House
8 Manic Miner	Software Projects
9 Booty	Firebird
10 Underwurlde	Ultimate

↑ HEIGHTS ↓ DEPTHS

1 Make a Chip	Sinclair
2 Transylvanian Tower	Richard Shepherd
3 Airwolf	Elite
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5 3D Tunnel	New Generation

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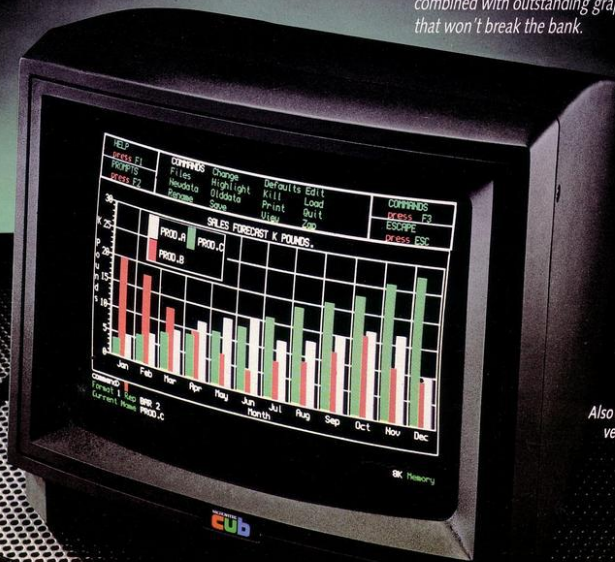
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