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January 1985

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85p

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ant to develop programming ues, look into holograms, or bout computer graphics and on, we will be covering these nd many more in the months to come.

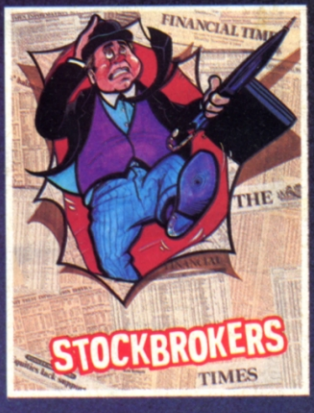
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JANUARY 1985

GAMES COMPUTING



PROGRAMS

Dodge..... **Atmos 20**
The computer's after you in this game of skill and reactions for the Atmos.

Castle Crawler..... **Atmos 28**
Quasimodo is out again in this (now) traditional video game.

Star Panic..... **BBC/Electron 34**
BBC and Electron users are in for a treat this month with this excellent machine code arcade game from a Portugese reader.

Puss in Boots..... **Amstrad 52**
At Christmas time you have pantomimes. Games Computing is no exception, and in this adventure game you play Dick Whitington's intrepid cat.

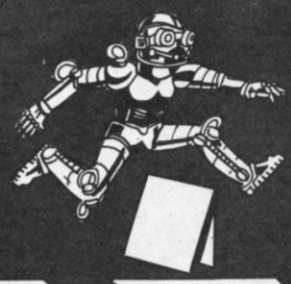
Boot Error..... **Atari 64**
This game deals with a subject dear to all Atari owners' hearts — loading in tapes. The object of the game is to load a game into memory!

Mars Miner..... **BBC 72**
Fly down tunnels and try to get the diamonds out from the martian mines.

Kamekaze Kopters..... **81**
Oh no! the kamekaze kopters are coming — can you get them?

Windmill Tales..... **C64 88**
Excellent music and machine code action make this just about the best Commodore game we've ever printed. Can you help Marmaduke mouse get the flour away from the rats?

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Ancipital Arrives

Llamasoft, the Tadley based software company that is Jeff Minter, has released Ancipital. A program that promises to be a huge leap forward in game design.

In Ancipital, the player is half man half goat, and looks a bit like Mr Minter himself (rather hairy and bearded). The idea is to find your way through a building held by the evil Zzyaxians, The big problem is that they have filled all the rooms with hallucinogenic gas. This makes the defences look rather odd — you start off by trying to shoot down rotten apples using bananas!

There are 100 rooms to visit and various ways of going through a room. Each room is thoroughly 'Mintered' having its own brand of wierdness. All the old favourites are there — camels, llamas, sheep, goats, and a new addition to the Llamasoft zoo — Rory the rampant Guinea Pig!



Rory turns up at the most inconvenient times and is virtually unstoppable once you've got him annoyed. Ancipital is billed as a "progressive arcade game" and "an adventure for blast 'em up addicts who hate adventures". Ancipital is for the Commodore 64 and costs £7.50.

Another two games launched by Llamasoft are Attack of the Mutant Camels and Hover Bovver for the Atari. These programs were smash hits for the Commodore 64 and Atari users will welcome these new games onto their system.

Attack of the Mutant Camels has been improved to make use of the full 256 colour set of the Atari with three dimensional graphics in the background and winking eyes on the pyramids (camels are found in Egypt).

In Hover Bovver you borrow your neighbour's hover mower and you must try to mow your lawn before your neighbour can grab it back off you. There are various levels and different types of garden. A dog also complicates matters.

Hover Bovver features great graphics and a tuneful rendition of 'An English Country Garden' which plays all the way through.

Attack of the Mutant Camels and Hover Bovver for the Atari sell at £7.50.

Sheep in Space is another newish Minter game worth looking at. It turns you into a flying sheep firing 'Bonios of Doom' so-called because that is what they look like! It is for the Commodore 64 and costs £7.50.

Llamasoft can be found at 49 Mount Pleasant, Tadley, Hants.

A New Generation Of Games Programs

The cartoon style humour and sequences previously confined to films and the television, make Cliffhanger a new fast moving, funny game.

The object of the game is for the hero Cliff to stop the evil bandit shooting up the canyon. As there are fifty screens and three levels of difficulty, even the experienced games player will find this a challenging task.

Unpredictability and comic timing, which forms the basis of cartoon humour, is built into Cliffhanger. So players can never be too sure what will happen next. This gives the game its truly original appeal.

Sequences are made even more spectacular by musical tunes written by professional musician Brian Doe, who was a star with top 1960's pop group, 'Dave D, Dozey, Beaky, Mick and Titch'.

Cliffhanger will sell at £7.95 and is for the Commodore 64.

Easy Music On The 64

Called 'Music Maker', the package comprises software, a book containing 28 popular songs, tutorial material, and a 24 key piano style keyboard which fits over the computer Keyboard.

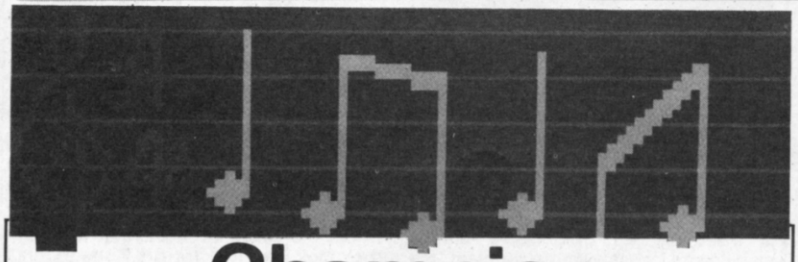
The software has 8 built-in voices which simulate instruments such as the guitar, piano and syntheziser but all the parameters of each sound can be altered to create almost any sound within the capability of the Commodore 64.

A number of different modes can be selected from the menu including one which creates a range of base rhythms from waltzes to disco around which a tune can then be created. There is also a mode which allows tunes such as those provided in the book to be entered into the memory and then performed to a rhythm 'tapped out' on any key.

For the more experienced musician, three note polyphonic music may be played on the overlay keyboard, which overcomes one of the biggest hurdles in using a micro for music — the computer keyboard. In addition throughout the program the piano keys are duplicated on the screen and light up when the corresponding note is played.

Music Maker for the Commodore 64 costs £30.





Champion Recommendation For CDS

CDS, producers of the much acclaimed CDS Pool program have written a sequel. Their Snooker program is endorsed by professional world champion Steve Davis. CDS say that it was their first program that the champion had tried and was an extremely close resemblance to the real thing.

Spinning, side, top, and bottom can be applied to the cue ball for full control. All the rules of snooker are used and this referee is never wrong!

Ball action is accurate, with true acceleration and deceleration of the ball. Snooker is available for the Commodore 64 and Spectrum 48K.

We must apologise for a mistake in our top 100 in the November issue. We creditied 'Colossus Chess 2.0' to Audiogenic. This in fact was made by CDS — Sorry! Colossus Chess 2.0 is one of the most powerful chess programs on the market — that's why it was the only chess program in the chart. It is available for the Commodore 64.

American Invasion

The latest game from American importers US Gold is Fort Apocalypse. You play the part of a helicopter pilot out to rescue your buddies in the fort.

The game itself has some excellent graphics. When the helicopter is flying forward it tips realistically and the same goes for swinging laterally through 90°.

To start the game you must land on a refuelling bay to top up — then the fun begins. You must fly over the most heavily defended territory that I have ever seen (on a computer game of course!). There is a fully scrolling landscape with moving anti-aircraft guns, wandering mines, and enemy helicopters.

Your next task is to bomb your way into the fort. When you have got inside you have all the problems of the surface with some additional ones too. You have to rescue little men who are running around and blast your way through walls, travel down tunnels and through opening hatches. Also to be avoided are laser defences and other nasties.

At various points you must land to get more fuel. Fort Apocalypse runs on the Commodore 64 and costs £7.95.

The Activision Eight.



Pitfall Harry has to recover the priceless Raj Diamond from the lost caverns. But there is a small matter of poisonous frogs. Albino Scorpions. Vampire Bats. Electric Eels. Need we go on?

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Quari

27 levels of increasingly difficult real arcade action. Based on the game Bongo, you must avoid the chasing dinosaur, pterodactyls, falling rocks, native spears and bouncing Bongos. Negotiate rope bridges and erupting volcanoes, picking up the treasures of a lost civilisation as you go – and finally cage the dinosaur – if you can!

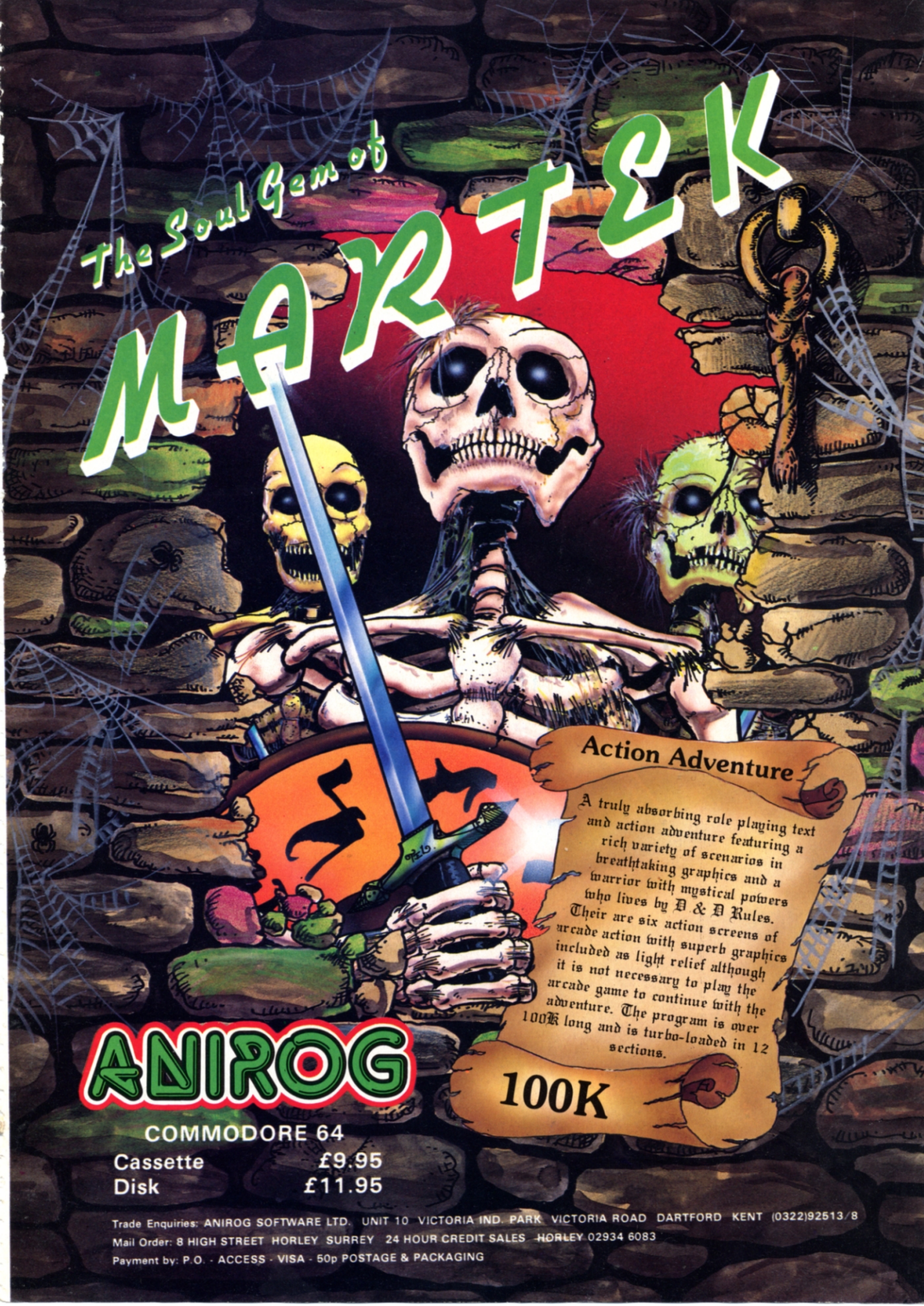
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BMX STUNTS Based on the original arcade game this action packed game challenges your skill over six tests, straight race, wheelie, ramp jump, slalom, bunny hops and the ultimate test over a V.W. beetle in the Beetle ride.

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nes show no mercy.

Acornsoft have now unleashed eight more merciless games onto unsuspecting BBC micro owners.

Ranging from 'Gateway to Karos,' where putting a foot wrong could mean instant death. To the relentless antics of Drogna which could have you dying with laughter.

Gateway to Karos.

An adventure game in which you'll need all your patience and ingenuity just to stay alive. Your objective is to find the Talisman of Khoronz but, whichever path you choose, you'll be beset by treachery. Serpents lie in wait and magical phenomenona are in abundance. Should you find the Talisman, you've still to find your way back.

Labyrinth

A superb real-time game with fast 3D graphics. As you guide Mork through the Labyrinth, he'll have to eat fruit to keep going. Crush the Tiger-Moths, shoot the Flitterbugs, dodge the Threshers and find the Magic Crystals which lead to new and more challenging levels of the Labyrinth.

Tetrapod.

You're in an arena littered with dormant lizards, killer bees and other hostile creatures with whom you'll have to do battle to survive. But beware of your own laser bullets, as they bounce off the arena walls.

Drogna.

A game for two people – preferably with devious minds. There are two vaults containing diamonds and your job is to collect and transfer them to your home base. While your opponent is out collecting you could sneak in and steal his loot . . . but keep an eye out for him doing the same to you.

Crazy Tracer.

An arcade style game where you're in charge of a paint roller. Guide your roller around a maze of rectangles while evading monsters who are committed to destroying it. Gain extra rollers and bonus points by painting different objects. But you'll have to avoid running out of paint.

Volcano.

Mount Crona has erupted after 150 years of silence. And your mission as an Emergency Rescue Helicopter Pilot is to save sightseers stranded on the slopes. Time is of the essence as the lava approaches the sightseers. But you'll have to take time to evade – or shoot – the boulders being hurled from the volcano.

Carousel.

A re-creation of the fairground shooting gallery – with a difference. Shoot down all the ducks, owls and rabbits before you run out of ammunition. Watch out for the low-flying ducks. If you fail to shoot these, they'll steal your bullets and reduce your chances of success.

Meteor Mission.

On an alien planet are six stranded astronauts. Launch your capsule from the Mothership and by avoiding – or shooting – meteors and alien craft, pick up the astronauts one at a time and return them to the Mothership.

All games – with the exception of Gateway to Karos which is currently only available on cassette – can be bought direct in either cassette or disc form. You will find all these programs at your local Acorn stockist. To find out where they are, or to order by credit card, simply ring 0933 79300 during office hours.

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The Twelve Days Of Christmas

Happy Christmas! At least it was until this arrived. Lou and Les are here to spoil it for you — for all of you except one lucky winner. At stake this month is . . . **A TOMY ROBOT!!!!!**

Unfortunately you have to cut your favourite magazine and send in your answer pages to stand a chance.

There are twelve puzzles here — ranging from the ridiculously easy to the downright fiendish. It's quite possible that no one will finish all twelve — it's almost certain in fact. What we want you to do is send in as much as you can manage. We'll pick a winner somehow. The main thing is that you don't get a chance to be bored this Christmas.

So, to win, all you have to do is fill out as much as you can of the monster Christmas puzzles — tear out the pages carefully, and send them to

Games Computing Christmas Prize Puzzle Page
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The person whose answers come closest to ours wins a . . . .

Competition Rules

1. This competition is open to all UK readers of *Games Computing,* except employees of Argus Specialist Publications Ltd, their printers and distributors, citizens of Falkovia or anyone connected with them.
2. As long as the correct coupon is used for each entry there is no limit to the number of entries per person, photocopies will not be accepted.
3. All entries must be postmarked before 31st January.
4. The prizes will be awarded to the first entry judged to be correct by the editor.
5. No correspondence will be entered into with regard to the competition results and it is a condition of entry that the editor's decision is final.
6. The winners will be notified by post and the results will be published in a future issue of *Game Computing.*

A Partridge In A Pear Tree

You all know about our fiendish grids by now. This one has a new twist — it's five grids in one. There are 5 different themes — reading left to right, right to left, top to bottom, bottom to top, and diagonally (in any direction). All you need to do is list as many of the hidden words as you can find under each of the five themes. To give you a start, the themes are:

1: Things you might eat at Christmas
2: Things you might drink at Christmas
3: Things you might see on TV at Christmas
4: Christmas decorations
5: Your favourite computer games

Each theme is found in one direction only — any strays you might find going the wrong way will not count.

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

Enter your answers on a separate sheet as well as ringing them. Write the number of answers you've found at the top.

Two Turtle Doves

a: "Les and Lou, the comic two" could well become one of these;

____TCHPHR

b: The last place you go — to catch a train!

UND_____UND

(fill in the gaps)

c: Can you make any sense of the following?

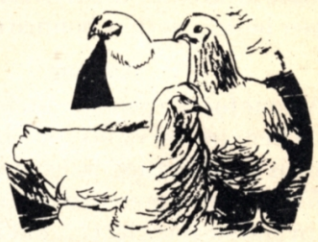
HABIRDND

. . . . . .

TISTITCHME

. . . . . .





Three French Hens

While Lou and Les were performing their acclaimed One-Man-Christmas-Show at the Rembrandt Theatre Coulsdon, the usual throng of fame-seekers and autograph hunters had begun to gather. Can you determine how many sensation seekers there were in the queue?

For those of you without computers or calculators, and not used to dealing in astroundingly high numbers, we feel it only fair to give you the following information:

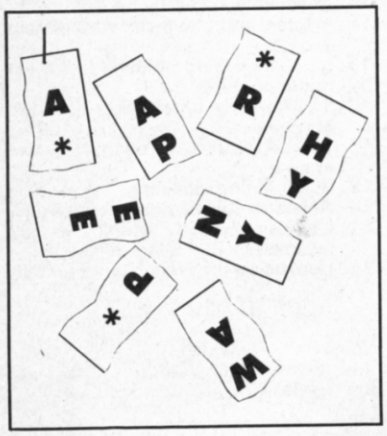
There was an autograph hunter before two autograph hunters, an autograph hunter behind two autograph hunters, and an autograph hunter between two autograph hunters.

What is the least number of autograph hunters that could form such a queue?

PUZZLES

Four Colly Birds

Lou and Les were going to send you all a greeting, but unfortunately Blackie, their brown dog has got hold of it, and chewed it up. This is what we rescued — it's there — can you piece it back together?

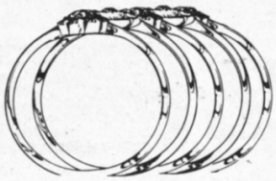


The message should read . . . . . .

. . . . . .

. . . . . .

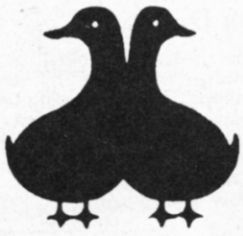
. . . . . .



Five Gold Rings

Old Santa was really fed up — his itinerary had got coded, and he could make no sense of it. Starting form 0482, he had to make his first stop at 0228. He was then to proceed to 0272 and thence to 0772. From 0772 to 0273 and then home. Can you tell him where he should visit, and give the approximate journey distance — as the Reindeer flies round the contraflow systems on the motorways.

. . . . . .



Six Geese A Laying

Can you put back the vowels into these old proverbs?

RLLNGSTNGTHRSNMSS . . . . . .

PPLWHLVNGLSSHSSSHLDNTTHRWSTNS . . . . . .

BRDNTHHNDSWRTHTWNTHBSH . . . . . .

TMNYCKSSPLTHBRTH . . . . . .

DNTPTLLYRGGSNNBSKT . . . . . .

TFSGHTTFMND . . . . . .

Seven Swans A Swimming

Supply a word inside the brackets so that you finish off the word on the left, and make a start for the word on the right. Preferably words in normal use.

TOW(_____)WAY

CAR(_____)ATE

FORE(_____)END

PITS(_____)LESS

ERR(_____)EATER

Eights Maids A Milking

It was a "busy" Christmas Eve for Lou and Les. One of those evenings where, for some inexplicable reason as you stagger down the street looking for the town where you live, the letters before your eyes seem to become a little confused. We had a list of things to do or remember, but we just couldn't decipher them. This is how they looked to us — are they any clearer to you?

DONS ACE RIOT
O LET ME SIT
PRESSMAN TEX
P.S. SEEN CHEQUE?
HE'S COOL CAT
AXING BODY
SPARE AT GYM
CAD SIGNS REGRET

. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .
. . . . . .

Nine Drummers Drumming

Here's another sequence that needs completing, please . . . .

– 1 1 2 8 4 1 1 8 –

PUZZLES

Ten Pipers Piping

Can you make the pyramid of mince pies turn in the opposite direction, ready to enter the bottomless pit, otherwise known as Lou's stomach?

You may move three pies — which numbers — and where do you put them — show us with arrows please



Eleven Ladies Dancing

You may have noticed the titles of these puzzles all go towards that song we all love to sing, "The Twelve Days of Christmas". For this puzzle we want two answers — both pretty bizarre — firstly, if you were to sing the final verse only — just how many legs would you be able to count if the assembled gifts were before you. Remember that both my true love and me have a fine pair of legs each, too.

For the second, if you sang the whole song, from end to end, with the gifts walking past you each time they're called up, how many legs would you count then. As before, don't forget my true love and me. Only gifts specifically mentioned count!

a: .....

b: .....

Twelve Lords A-Leaping

Well they would be — Mainly with frustration. As crosswords go, this one is remarkably easy; we've already written in the correct answers, in their correct positions. But, instead of one letter in each square, there are four. So our crossword that started off as 15 letters by 15 is now 30 by 30. In any one of the four alternatives in each square is the letter that goes towards the answer required. Every time there should be black square, we have put in a letter of the alphabet — the same one each time. In the other three spaces for each square, reading left to right, starting in the top left corner, with no gaps are three other themes. The first is the opening few sentences of a well known novel. The second bears a direct relation to the title of that novel. The third — well, if you've done the others, this should be really simple. So, all you need to do is unravel it all and fill out the blank crossword, then add the title of the novel and a few of the first lines from the others, just to show us you know what they are. The crossword is symmetrical by the way — top left = bottom right.

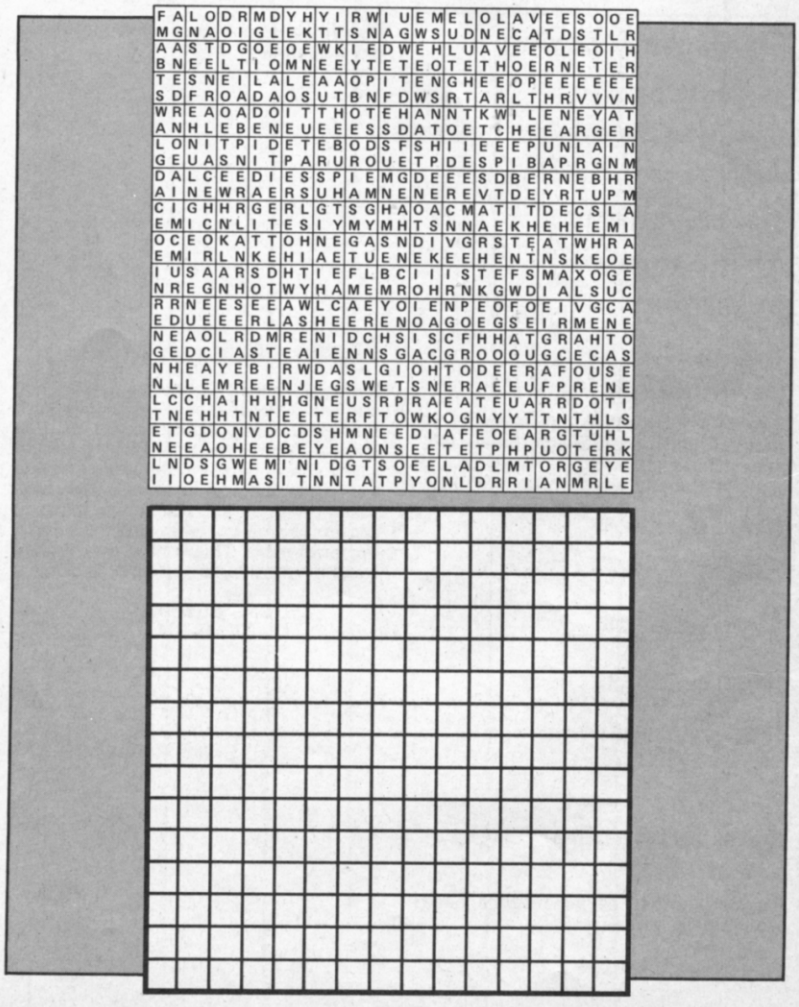
Clues Across

1: Feigning retreat? It's just a game to the pilot (2 words)
2: Dr. Ran riot — real unscientific approach! (3 words)
3: One last diet spoiled by laxity and freedom from restraint.
4: Handy tree!
5: It ices over every year about this time. (2 words)
6: A game of golf? (2 words)
7: A pair of listeners.
8: Tea dance? (3 words)
9: Christmas dance? (3 words)
10: Game — a real cliff-hanger! (2 words)

Clues Down

1: Final mishap. (2 words)
2: Returned to Amin — the fool!
3: Meeting on easy nodding terms.
4: Encounters — close encounters starring me and aliens.
5: Bird from Clarksville.
6: Piling up rubbish on a hill.
7: Allow — or prevent?
8: Vile camper sat for the game. (2 words)
9: Tasteless milk from tumbledown shack.
10: Stage setting for a rare narcotic.
11 Only the square seek a job!
12: Such steaks are harder to come by.
13: Sauce for the Chinese Juggler?
14: Malcolm will shortly be sick.
15: Winter sport where you almost slide . . .
16: . . . Legendaary bird — almost made of stone . . .
17: . . . Almost a breathtaker — had to grip hard . . .
18: . . . . Arthur almost holds the answer . . .
19: Made during sunshine.
20: Almost a ship — or what it carries.
21: I say (in French, almost) — they returned in Star Wars follow up.
22: I looked up the French word for cat.

Novel = ...
2nd theme .....
3rd theme .....

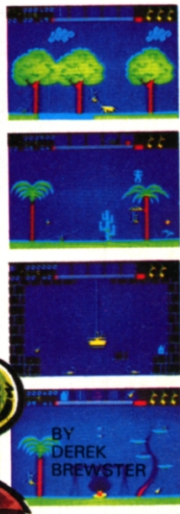


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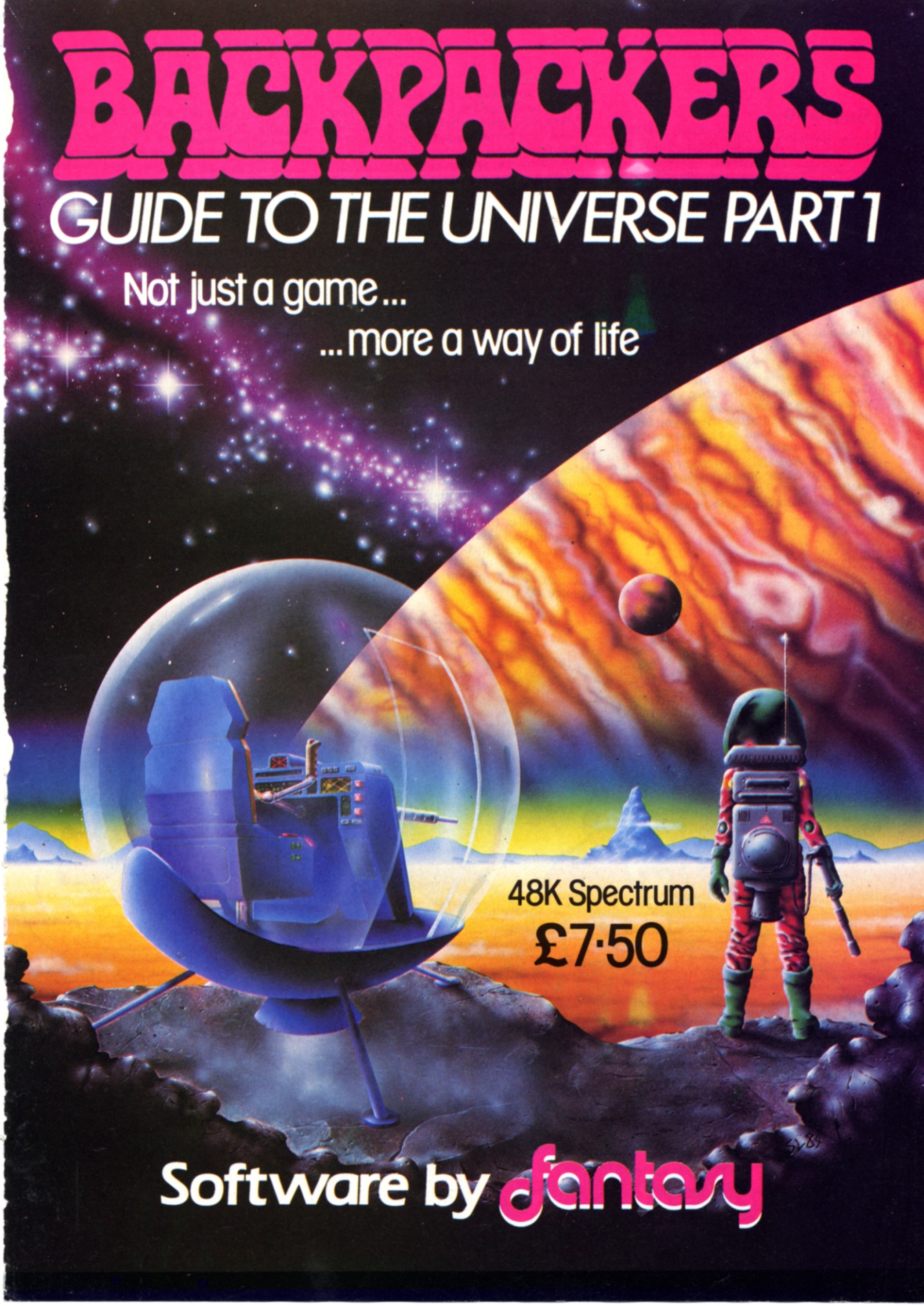
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Scenario. . .

After deciding to go climbing, the terrain that you chose didn't turn out to be a mountain, but instead, a volcano.

When finally reaching the top, you celebrated your achievement with a bottle (or four) of home-made brew. Being home-made, you only managed half a bottle before you felt yourself moving. The direction of your travel was unknown to you at your stage of drinking, but darkness was becoming dominant. The next communication between your senses and your brain came some time later when you awoke. Laying on your back, above you, you saw a distant opening, revealing the sky. Everywhere else was a mass of rock. During the next few minutes, you found yourself in a narrow passage. You stood up and explored further. Soon you were under a fluffy, cloud-like substance that emitted lumps of ice and lightening further on. It was then that you noticed a smaller passage ahead leading to the open air again. This was guarded by a snake and also three enormous robotic spears.

As if you have not yet guessed, your task is to Dodge the ice-balls, lightening strikes and spears before offering the snake your home-made booze. How can he survive that?

If hit by ice, spears or lightening you will die and like any other normal human being you only have one life.

In order to survive make sure you avoid the snakes own anti-alcohol missiles by jumping over them for contact with them will result in your death and the disintigration of your home brew! Also, this snake smells! You have only 50 seconds to destroy it before being overcome with the smell: GOOD LUCK!

Game Two. . .

The idea of the HIRES game two is to wander around the screen leaving behind you a poisonous trail. (You are the lower ''trail-maker'' to start with!) For best results, you must try and keep the bulk of the screen free from trail, although the computer controlled ''trail-maker'' (upper one to start with) will move randomly and may get into your way. Contact with your trail, the computers trail or the edge of the screen will mean instant death.

Watchout! If the computer ''trail-maker'' runs off of the edge of the screen, it will appear again at the opposite edge!

In order to make competition possible, the computer will print out a time counter, as to make the winner the person who can survive the longest. Eventually the screen becomes obscured by trails and death is imminent.

NB. Dodge (Game two) contains a player control routine as published in the May 1984 edition of ''Games Computing'' as ''Hiresalt City''.

A useful tip is that being as your trail is more widespread with regular gaps ie. ''. . . . .'' instead of ''_____'', you may be able to ''jump over'' the opponents trail! SOMETIMES, so this game can be of a game of luck!

Keys To Use

GAME ONE

In order to move forwards along the passage, press left arrow and to jump press the spacebar.
NB. Backward movement is not possible.

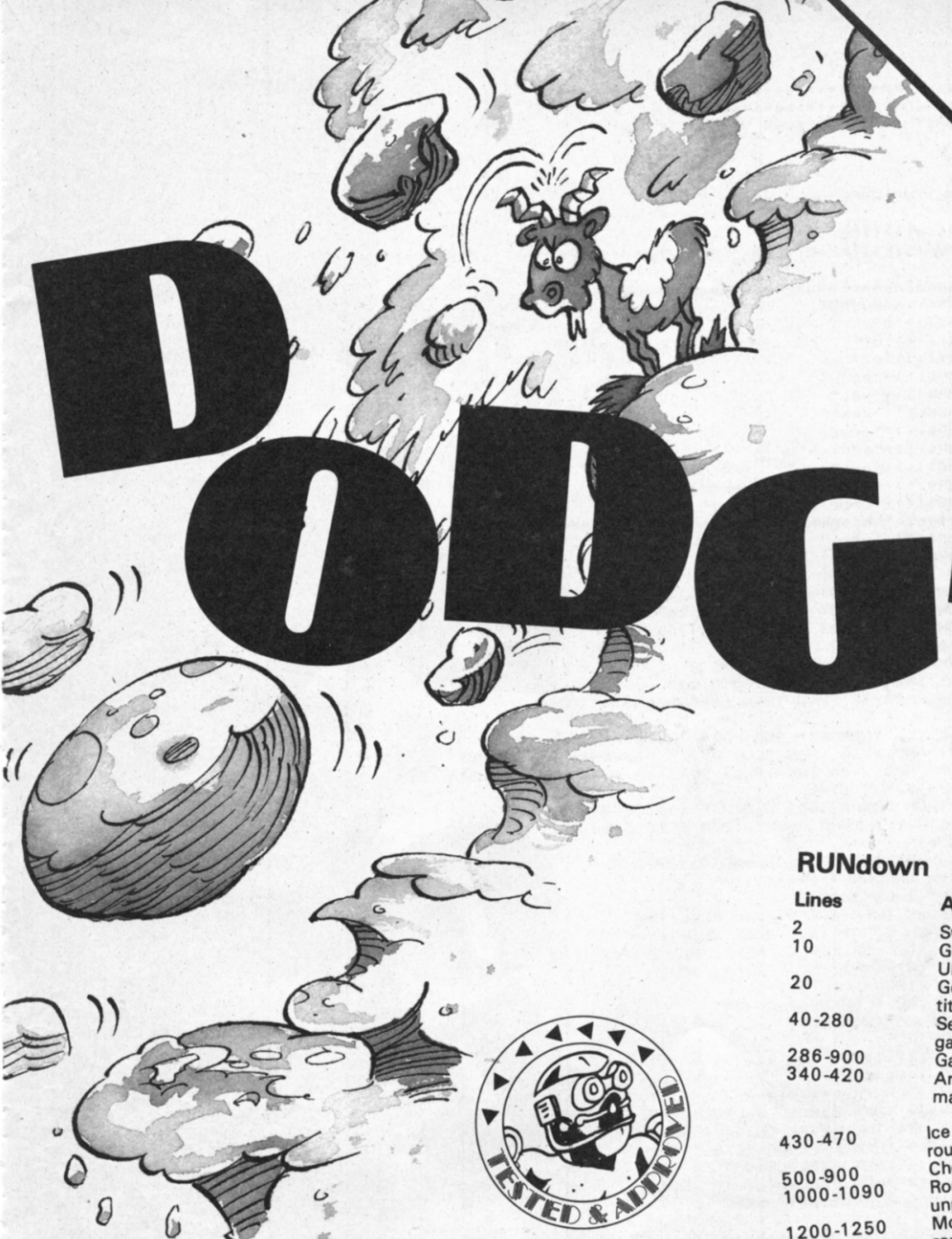
GAME TWO

In order to turn left and right, use the left and right arrow keys respectively.



RUNS ON ATMOS

DODGE



Notes

1 Before running the program make sure the keyclick is on. There is a command at line 2 to switch it off so not to make it interfere with the sound chip during the program.

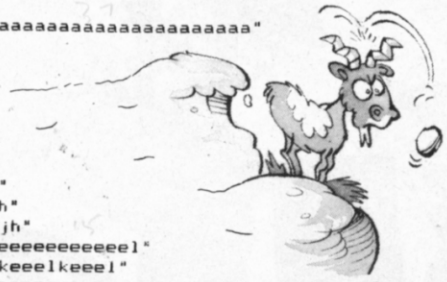
2 At line 56, SK=.5, changing this to SK=0 will make the game harder and SK=.95 will make it easier!

3 This program was typed in originally (and made up) for the Oric Atmos. Although it hasn't been run on an Oric-1 before, there should be very few problems!

RUNdown

Lines	Action
2	Switch off keyclick.
10	Gosub to redefine UDGs at 10000.
20	Gosub to print out title page at 11000.
40-280	Set up screen for game one.
286-900	Game one main loop.
340-420	Arrow movement main routine.
430-470	Ice blocks main routine.
500-900	Checks.
1000-1090	Routine to print and unprint lightning.
1200-1250	Move arrow up routine.
1300-1320	Move arrow down routine.
1400-1450	Re-plot's snake's missile when if goes off the right hand side of screen.
1500-1570	Re-drop's ice when it reaches the ground.
1700-1750	Jump routine.
1799-1820	More checks.
3900-3960	Destroy snake and complete game one.
4500-4580	Game two title page.
5000-7750	Game two.
8000-8100	Print time routine.
9000-9070	End of second game.
10000-10999	Redefine UDGs.
11000-11950	Title page.
12000-12120	End of game one.

```
2 PRINT CHR$(6)
4 REM ********************************
5 REM ************ DODGE ************
6 REM *** BY A.SMITH AND I.BEAVER ***
10 GOSUB 10000
15 INK 7:PAPER 0
20 GOSUB 11000
40 REM ******* SET UP GAME ONE ******
50 CLS
52 PLOT 3,25,CHR$(4)+"TIME : "
55 FIRE$="NEW":FY=15:LITIME=0:ICE$="NEW":TM=50:JUMP$="OFF":X=35:Y=15
56 SK=.5
60 GROUND$="aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa"
70 PLOT 0,16,CHR$(1)+GROUND$
80 PLOT 0,7,CHR$(1)+"b"
90 PLOT 0,8,CHR$(1)+"cd"
100 PLOT 0,9,CHR$(1)+"ef"
110 PLOT 0,10,CHR$(1)+"eg"
120 PLOT 0,11,CHR$(1)+"eeh"
130 PLOT 0,12,CHR$(1)+"eeeh"
140 PLOT 0,13,CHR$(1)+"eeeeh"
150 PLOT 0,14,CHR$(1)+"eeeijh"
160 PLOT 0,15,CHR$(1)+"eeeh jh"
170 PLOT 19,1,CHR$(4)+"keeeeeeeeeeeeeel"
180 PLOT 20,2,CHR$(4)+"keeelkeeelkeeel"
190 PLOT 0,0,CHR$(6)+"mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm"
210 PLOT 8,14,CHR$(2)+"o"
220 PLOT 8,15,CHR$(2)+"p"
230 PLOT X,Y,"q"
240 PLOT 14,17,CHR$(21):PLOT 19,17,CHR$(16)
250 PLOT 14,18,CHR$(21):PLOT 19,18,CHR$(16)
270 PLOT 14,19,CHR$(21):PLOT 19,19,CHR$(16)
280 PLOT 15,18,"^^^"
286 REM ***** GAME ONE MAIN LOOP ****
290 IF JUMP$="ON" THEN GOSUB 1730:GOTO 318
291 TM=TM-1:GOSUB 8000:IF TM=0 THEN EXPLODE:GOTO 12000
292 K$=KEY$
295 IF SCRN(X,Y)<>113 THEN EXPLODE:GOTO 12000
300 IF K$=CHR$(8) AND X>10 THEN PLOT X,Y," ":X=X-1:GOSUB 1800
310 IF K$=CHR$(10) AND X<36 THEN PLOT X,Y," ":X=X+1:GOSUB 1800
315 IF K$=" " THEN GOSUB 1700
318 IF LITIME=2 THEN GOSUB 1055 ELSE IF LITIME=0 THEN GOTO 320 ELSE 325
320 A=RND(1):IF A>SK+.1 THEN GOSUB 1000 ELSE 330
325 LITIME=LITIME+1
330 IF SCRN(X,Y)<>113 THEN EXPLODE:GOTO 12000
340 REM ********** ARROWS ***********
345 IF ARROW$="UP" THEN 360
350 B=RND(1):IF B>SK THEN GOSUB 1200 ELSE 400
360 IF UPTIME=4 THEN GOSUB 1300 ELSE UPTIME=UPTIME+1
400 IF FIRE$="OFF SC." OR FIRE$="NEW" THEN GOSUB 1400
410 PLOT FX,FY," ":FX=FX+1:PLOT FX,FY,"r"
420 IF FX=36 THEN FIRE$="OFF SC."
430 REM ********* ICE BLOCKS ********
440 IF ICE$="FALLING" THEN 460
450 GOSUB 1500
460 PLOT IX,IY," ":IY=IY+1:PLOT IX,IY,"s"
470 IF IY=15 THEN ICE$="REDROP"
500 REM ********** CHECKS **********
510 IF SCRN(X,Y)=124 THEN EXPLODE:GOTO 12000
520 IF SCRN(X,Y+1)=94 THEN EXPLODE:GOTO 12000
530 IF SCRN(X,Y)=114 THEN EXPLODE:GOTO 12000
540 IF SCRN(X,Y)=115 THEN EXPLODE:GOTO 12000
550 IF X=IX AND Y=IY THEN EXPLODE:GOTO 12000
560 IF X=11 THEN GOSUB 3900:GOTO 5000
900 GOTO 290
1000 REM ********* LIGHTNING ********
1010 FOR I=3 TO 15
1020 PLOT 21,I,"!"
1030 NEXT I
1040 PLAY 0,7,1,4000
1050 RETURN
1055 LITIME=0
1060 FOR I=3 TO 15
1065 PLOT 21,I," "
1070 NEXT I
1080 PLAY 1,0,0,0
1090 RETURN
1200 REM ********* ARROW UP *********
1210 LET B=INT(RND(1)*4)
1220 IF B=1 THEN PLOT 15,18," ":PLOT 15,16,"^":ARROW$="UP":ARROW=1
1230 IF B=2 THEN PLOT 16,18," ":PLOT 16,16,"^":ARROW$="UP":ARROW=2
1240 IF B=3 THEN PLOT 17,18," ":PLOT 17,16,"^":ARROW$="UP":ARROW=3
1250 RETURN
1300 REM ********* ARROW DOWN *******
1304 UPTIME=0
1305 IFARROW=1THENPLOT15,16,"a":PLOT15,18,"^":ARROW$="DOWN":ARROW=0:RETURN
1310 IFARROW=2THENPLOT16,16,"a":PLOT16,18,"^":ARROW$="DOWN":ARROW=0:RETURN
1320 IFARROW=3THENPLOT17,16,"a":PLOT17,18,"^":ARROW$="DOWN":ARROW=0:RETURN
```



DODGE

Variables Used

FIRE$	Determines whether or not, the snake's missile is either on its way across the screen or if it has reached the end of the screen, (ie. a new missile is to be fired).
FX,FY	X,Y coordinates of the position of the snake's missile.
LITIME	A counter to determine how long a flash of lightening lasts for.
ICE$	As in FIRE$, determines whether ice is falling or if it has reached the bottom of the screen (ie. Drop more ice!).
TM (TM$)	Time counter.
JUMP$	Determines whether player is jumping or not.
X,Y	X,Y coordinates of players position.
SK	Skill counter (see "NOTES").
GROUND$	String that holds the characters to make up the ground.
K$	Used with KEY$, stores the value of the key pressed. When no key is pressed K$ = ""
A	A random number between 0-1 to determine along with the usage of SK whether or not to go to the lightning routine.
B	Another random number like A but this time for use to determine whether or not to goto the arrow/spear routine.
UPTIME	A counter like LITIME to determine how long a certain spear is in the up position.
1X,1Y	X,Y corrdines of an ice ball.
I,Z	Counters used for FOR-NEXT loops.
ARROW$	Determines position of arrow.
ARROW	Determines which arrow is up.
D	A random number between 1-6 to determine the position across the width of the cloud where the ice is to be emmitted from.
DS	Random number to help in the "Destroy Snake" routine.

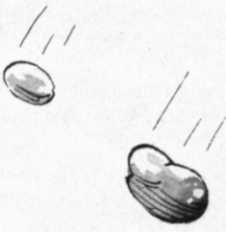
DODGE

RUNS ON ATMOS



```
1400 REM ******** PLOT FIRE *********
1410 IF FIRE$="NEW" THEN 1430
1420 PLOT FX,FY," "
1430 FIRE$="MOVING"
1440 FX=10
1450 RETURN
1500 REM ******** REDROP ICE ********
1510 IF ICE$="NEW" THEN 1530
1520 PLOT IX,IY," "
1530 ICE$="FALLING"
1540 D=INT(RND(1)*6)
1550 IX=23+D
1560 IY=3
1570 RETURN
1700 REM ******* JUMP ROUTINE *******
1705 PLAY 7,0,0,0
1710 PLOT X,Y," ":PLOT X-1,Y-1,"q"
1720 FOR I=40 TO 10STEP -1:SOUND 1,I,15:NEXT I
1723 IM=IM-1:GOSUB 8000:IF IM=0 THEN EXPLODE:GOTO 12000
1724 X=X-1:Y=Y-1:JUMP$="ON"
1725 RETURN
1730 PLOT X,Y," ":PLOT X-1,Y+1,"q"
1740 FOR I=10TO 40:SOUND 1,I,15:NEXT I:PING
1745 X=X-1:Y=Y+1:JUMP$="OFF"
1746 IM=IM-1:GOSUB 8000:IF IM=0 THEN EXPLODE:GOTO 12000
1750 RETURN
1799 REM ******* MORE CHECKS ********
1800 IF SCRN(X,Y)=94 OR SCRN(X,Y)=124 THEN EXPLODE:GOTO 12000
1805 IF SCRN(X,Y)=114 THEN EXPLODE:GOTO 12000
1810 PLOT X,Y,"q"
1820 RETURN
3900 REM ****** COMPLETE GAME 1 *****
3910 FOR I=1 TO 50
3920 LET DS=INT(RND(1)*16)+46968
3930 POKE DS,INT(RND(1)*63)
3940 PLAY INT(RND(1)*7),INT(RND(1)*7),INT(RND(1)*6)+1,800
3950 NEXT I
3960 PLAY 0,0,0,0
4500 REM *** GAME TWO TITLE PAGE ****
4510 CLS
4520 PLOT 12,13,CHR$(10)+CHR$(1)+"WELL DONE!!"
4530 PLOT 12,14,CHR$(10)+CHR$(1)+"WELL DONE!!"
4540 WAIT 200
4545 CLS
4550 PLOT 16,11,CHR$(14)+CHR$(2)+"NOW":PLOT 16,12,CHR$(14)+CHR$(2)+"NOW"
4560 PLOT 14,15,CHR$(10)+CHR$(4)+"GAME TWO"
4570 PLOT 14,16,CHR$(10)+CHR$(1)+"GAME TWO"
4580 WAIT 300
5000 REM ********* GAME TWO *********
5005 INK1
5020 HIRES
5030 PRINT:PRINT"  TIME :-"
5035 TM=0:GOSUB 8000
5040 FOR I=0 TO 30
5050 CURSET 1,0,1:DRAW 0,199,1
5060 CURSET 0,I,1:DRAW 239,0,1
5070 CURSET 239-I,0,1:DRAW 0,199,1
5080 CURSET 239,199-I,1:DRAW -239,0,1
5090 NEXT I
5100 CURSET 32,32,1
5110 DRAW 175,0,1:DRAW 0,135,1:DRAW -175,0,1:DRAW 0,-135,1
5120 X=120:Y=149
5125 V=120:W=100
5130 MOVE=1:OPP=3:N=2
5190 TM=TM+1:GOSUB 8000
5200 ON MOVE GOSUB 7000,7050,7100,7150:IF POINT(X,Y)=-1 THEN GOTO 9000
5210 K$=KEY$:IF K$<>"" THEN ON MOVE GOSUB 7200,7250,7300,7350
5220 CURSET X,Y,1
5225 ON OPP GOSUB 7600,7650,7700,7750
5230 IF RND(1)>.95 THEN 5250
5240 GOTO 5260
5250 ON OPP GOSUB 7400,7450,7500,7550
5260 IF V>206 THEN V=33
5270 IF W>166 THEN W=33
5280 IF V<33 THEN V=206
5290 IF W<33 THEN W=166
5292 IF RND(1)>.8 THEN N=INT(RND(1)*11)+1
5295 PLAY 7,0,6,200:MUSIC 1,4,N,0
5300 CURSET V,W,1
5310 GOTO 5190
7000 Y=Y-2:RETURN
7050 X=X+2:RETURN
7100 Y=Y+2:RETURN
7150 X=X-2:RETURN
7200 IF K$=CHR$(9) THEN MOVE=2 ELSE MOVE=4:RETURN
7250 IF K$=CHR$(9) THEN MOVE=3 ELSE MOVE=1:RETURN
```





V,W	Position of computer trailmaker on the HIRES screen, X,Y is also used again for Game two.
MOVE	Direction of your movement.
OPP	Direction of your Opponents movement (ie. the computer's movement).
N	Note played in game two's sound effects.
CH	Variable carrying data as to redefine the UDGs.
Z	X, coordinates of cursor when making the title page in HIRES.
TITLE	Reads data in order to develop the letter required in HIRES draw commands.
N$ & M$	Strings making up the ''box'' for hte title page.
TITLE$	Holds names to be printed inside title page ''box''.
OC	Reads in octave for music.
NO	Reads in note for music.
PA	Reads in pause for music.

```
7300 IF K$=CHR$(9) THEN MOVE=4 ELSE MOVE=2:RETURN
7350 IF K$=CHR$(9) THEN MOVE=1 ELSE MOVE=3:RETURN
7400 IF OPP=1 THEN OPP=2:RETURN
7450 IF OPP=2 THEN OPP=3:RETURN
7500 IF OPP=3 THEN OPP=4:RETURN
7550 IF OPP=4 THEN OPP=1:RETURN
7600 V=V-1:RETURN
7650 W=W+1:RETURN
7700 V=V+1:RETURN
7750 W=W-1:RETURN
8000 REM ********** TIME **********
8005 TM$=STR$(TM)+" "
8010 FOR T=1 TO LEN(TM$)
8020 POKE 49050+T,ASC(MID$(TM$,T,1))
8030 NEXT T
8100 RETURN
9000 REM ***** END OF SECOND GAME ***
9010 EXPLODE
9020 FOR I=1 TO 7:PAPERI:NEXT I
9030 TEXT:PAPER 0:INK7
9040 PLOT 14,5,CHR$(10)+"BAD LUCK!":PLOT 14,6,CHR$(10)+"BAD LUCK!"
9050 PLOT 11,9,CHR$(10)+CHR$(4)+"YOU CRASHED!!!"
9060 PLOT 11,10,CHR$(10)+CHR$(1)+"YOU CRASHED!!!"
9070 WAIT 300:RUN 4
9999 END
10000 REM *** REDEFINE CHARACTERS ***
10010 FOR I=46856 TO 46848+159
10020 READ CH
10030 POKE I,CH
10040 NEXT I
10055 DATA 63,63,0,0,0,0,0,0
10060 DATA 32,48,56,56,60,60,60,60
10070 DATA 62,62,63,63,63,63,63,63
10080 DATA 0,0,0,0,0,0,32,32
10090 DATA 63,63,63,63,63,63,63,63
10100 DATA 32,48,48,48,48,56,56,56
10110 DATA 56,60,60,62,62,62,62,63
10120 DATA 32,32,48,56,60,62,62,63
10130 DATA 63,63,62,60,56,48,32,32
10140 DATA 63,63,31,15,7,7,3,3
10150 DATA 63,63,31,15,7,3,1,0
10160 DATA 63,63,62,60,56,48,32,0
10170 DATA 0,0,0,0,0,0,63,63
10180 DATA 21,42,21,42,21,42,21,42
10190 DATA 14,17,33,34,36,40,40,36
10200 DATA 36,23,23,16,8,4,2,62
10210 DATA 24,24,8,60,10,20,35,32
10220 DATA 0,0,63,0,0,0,0,0
10230 DATA 0,0,0,12,30,12,0,0
10999 RETURN
11000 REM ******** TITLE PAGE *******
11010 HIRES
11015 Z=20
11020 FOR I=10 TO 63
11030 READ TITLE
11040 CURSET Z,1,0
11050 DRAW TITLE,0,1
11060 NEXT I
11065 Z=Z+38
11067 IF Z=210 THEN 11300 ELSE 11020
11070 DATA 25,26,27,28,29,30,31,32,33,34,35,36,36,36,36,36,36,36,36,36,36,36
11080 DATA 36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36
11090 DATA 36,35,34,33,32,31,30,29,28,27,26,25
11100 REM
11110 DATA 36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36
11120 DATA 36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36
11130 DATA 36,36,36,36,36,36,36,36,36,36,36,36
11140 REM
11150 DATA 25,26,27,28,29,30,31,32,33,34,35,36,36,36,36,36,36,36,36,36,36,36
11160 DATA 36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36,36
11170 DATA 36,35,34,33,32,31,30,29,28,27,26,25
11180 REM
11190 DATA 30,30,30,30,30,30,30,30,30,30,30,30,30,30,30,30,30,30,30,30,30,30
11200 DATA 35,35,35,35,35,35,35,35,35,35,30,30,30,30,30,30,30,30,30,30,30,30
11210 DATA 30,30,30,30,30,30,30,30,30,30,30,30
11220 REM
11230 DATA 35,35,35,35,35,35,35,35,35,35,15,15,15,15,15,15,15,15,15,15,25
11240 DATA 25,25,25,25,25,25,25,25,25,25,25,25,15,15,15,15,15,15,15,15,15
11250 DATA 15,35,35,35,35,35,35,35,35,35,35,35
11300 Z=30
11305 FOR I=22 TO 49
11310 CURSET Z,I,0
11320 DRAW 15,0,0
11330 NEXT I
11340 Z=68
11350 FOR I=22 TO 49
11360 CURSET Z,I,0
```

Conversion Clues

CHAR N,0,2 — PRINTs a character of ASCII code N onto the Hires screen.
CHR$ (1,2,3,4,5,6,7) — Foreground red, green, yellow, blue, magenta, cyan and white.
CHR$ (16,17,18,19,20,21,22,23) — Background.
CURMOV X,Y,1 — Moves the cursor in HIRES mode X position's accrodd and Y position's down.
CURSET X,Y,1 — set cursor in HIRES mode.
DRAW X,Y,1 — Draws a line in HIRES
EXPLODE, PING — Predefined sounds.

HIRES — sets Oric in high resolution mode.
INK X, PAPER X — Controls foreground and background colours.
KEY$ — Used to scan keyboard during processing (use INKEY$ for Acorn computers).
MUSIC, PLAY — used to produce music and sound effects for second game

SOUND — Used to enable jump routine.
NB: On Acorn, SOUND=SOUND, ENVELOPE=PLAY+MUSIC, On Spectrum BEEP is the nearest to MUSIC.
PLOT x,y, "A" — Plots A at x position across and y positions down the lores screen.
POINT (x,y) — examines point x,y on Hires screen and returns 0 for Background and 1 for foreground.

RND(1)x6 — gives random number between 1-6. On Acorn use RND(6), on Sinclair use RND* 6.
SCRN (x,y) — Returns ASCII code character at position x,y on LORES screen.
TEXT — Turns Oric onto LORES mode from HIRES mode.
WAIT x — Pauses for n tenths of a second. Use PAUSE on Sinclair and a normal FOR Z=1 TO (x* 10):NEXT Z on Acorn.

DODGE

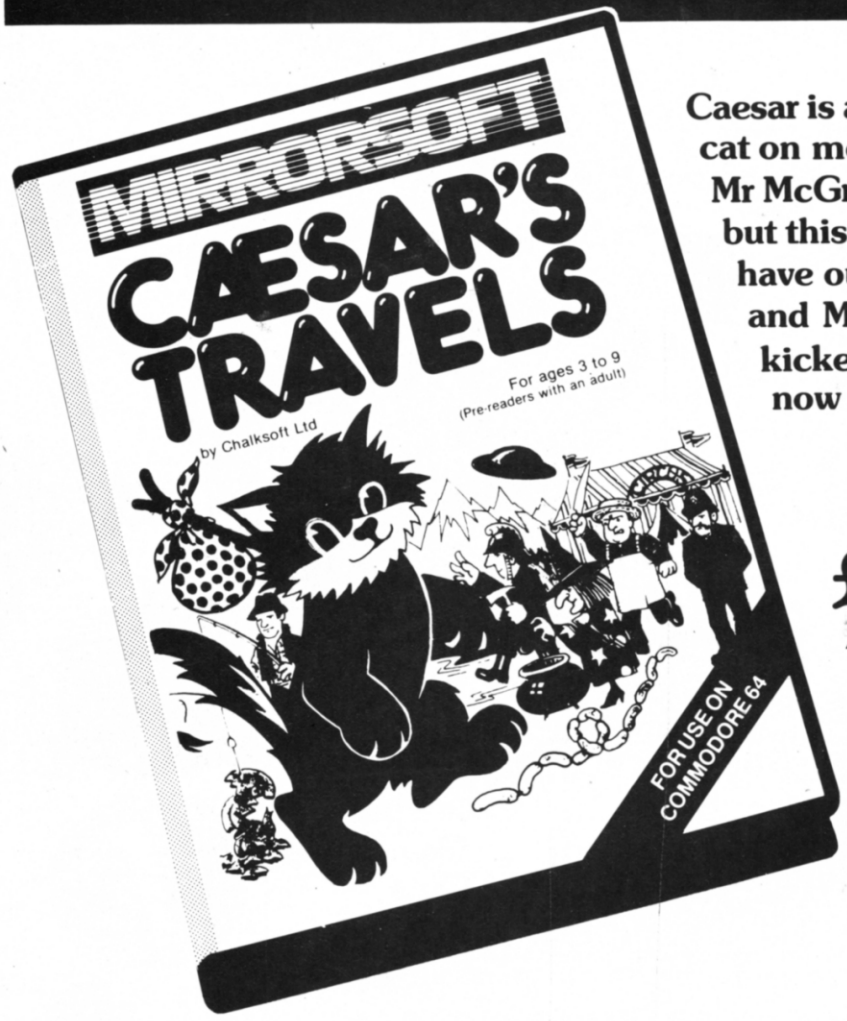
RUNS ON ATMOS



DODGE

```
11370 DRAW 15,0,0
11380 NEXT I
11390 Z=106
11400 FOR I=22 TO 49
11410 CURSET Z,I,0
11420 DRAW 15,0,0
11430 NEXT I
11440 Z=144
11450 FOR I=20 TO 30
11460 CURSET Z,I,0
11470 DRAW 25,0,0
11480 NEXT I
11490 FOR I=31 TO 40
11500 CURSET Z,I,0
11510 DRAW 5,0,0
11520 NEXT I
11530 FOR I=41 TO 52
11540 CURSET Z,I,0
11550 DRAW 13,0,0
11560 NEXT I
11570 REM ********** NAMES **********
11580 N$="nnnnnnnnnnnnnnnnnnnnnnnnn"
11590 CURSET 20,80,0
11600 FOR I=1 TO LEN(N$)
11610 CHAR(ASC(MID$(N$,I,1))),0,1
11620 CURMOV 8,0,0
11630 NEXT I
11640 M$="n                    n"
11650 FOR Z=90 TO 180 STEP 10
11660 CURSET 20,Z,0
11670 FOR I=1 TO LEN(M$)
11680 CHAR(ASC(MID$(M$,I,1))),0,1
11690 CURMOV 8,0,0
11700 NEXT I
11710 NEXT Z
11720 CURSET 20,190,0
11730 FOR I=1 TO LEN(N$)
11740 CHAR(ASC(MID$(N$,I,1))),0,1
11750 CURMOV 8,0,0
11760 NEXT I
11770 REM
11780 TITLE$="By":Z=105:Y=90
11790 CURSET Z,Y,0
11800 FOR I=1 TO LEN(TITLE$)
11810 CHAR(ASC(MID$(TITLE$,I,1))),0,1
11820 CURMOV 8,0,0
11830 NEXT I
11840 IF TITLE$="IAN BEAVER" THEN 11880
11850 IF TITLE$="By" THEN TITLE$="ADRIAN SMITH":Z=65:Y=140:GOTO11790
11860 IF TITLE$="ADRIAN SMITH" THEN TITLE$="AND":Z=100:Y=160:GOTO11790
11870 IF TITLE$="AND" THEN TITLE$="IAN BEAVER":Z=75:Y=180:GOTO 11790
11880 REM
11890 REM
11900 FOR I=1 TO 7
11910 FOR Z=1 TO 7
11915 PAPERI:INKZ
11916 WAIT 10
11920 NEXT Z,I
11930 PAPER0:INK7
11931 TEXT:PAPER 0:INK7:PRINT TAB(16);"'DODGE'":PRINT TAB(16);"rrrrrrr"
11932 PRINT:PRINT:PRINT:PRINT:PRINT"FOR INSTRUCTIONS PLEASE SEE MAGAZINE!"
11933 PAPER4
11934 PLAY 7,0,0,0:MUSIC 1,3,8,15:WAIT 120:PLAY 0,0,0,0:PLAY 7,0,0,0
11935 MUSIC 1,3,8,15:WAIT 40:MUSIC 1,3,9,15:WAIT 40:PLAY 0,0,0,0:PLAY 7,0,0,0
11936 MUSIC 1,3,9,15:WAIT80
11937 FOR I=1 TO 17
11938 READ OC,NO,PA
11939 MUSIC 1,OC,NO,15:WAIT PA
11940 NEXT I
11941 DATA 3,8,40,3,9,40,3,8,40,3,6,40,3,4,40,3,3,160
11942 DATA 3,11,80,3,9,80,3,8,20,3,9,20,3,8,20,3,9,20,3,11,40
11943 DATA 3,9,40,3,8,80,3,6,80,3,4,80
11944 PING:WAIT 10:PLAY 0,0,0,0
11950 PAPER0:RETURN
12000 REM ***** END OF GAME ONE *****
12010 FOR I=1 TO 5
12020 FOR Z=1 TO 7
12030 PAPER Z:WAIT 5
12040 NEXT Z,I
12050 CLS:PAPER0:INK7
12060 IF TM=0 THEN PLOT 0,5,CHR$(10)+"OH DEAR! YOU HAVE RUN OUT OF TIME!!!!"
12070 IF TM=0 THEN PLOT 0,6,CHR$(10)+"OH DEAR! YOU HAVE RUN OUT OF TIME!!!!"
12080 IF TM=0 THEN WAIT 400:RUN 4
12090 PLOT 0,5,CHR$(10)+"PERHAPS THE WORD 'DODGE' WILL HELP YOU"
12100 PLOT 0,6,CHR$(10)+"PERHAPS THE WORD 'DODGE' WILL HELP YOU"
12110 PLOT 14,9,CHR$(10)+"!!!!!!!!!!!":PLOT 14,10,CHR$(10)+"!!!!!!!!!!!"
12120 WAIT 400:RUN 4
```

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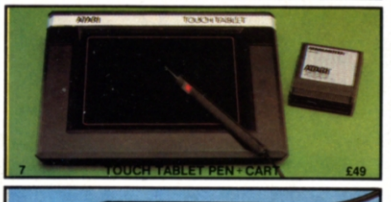
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This game is a variation of the arcade game "Hunch-back". It is written for a 16K Oric, but should run on a 48K or Atmos. There are seven different screens.

The object in the first six screens is to get to the other side of the castle wall to ring the bell, being careful to jump over the objects that are coming toward you. These objects can be arrows, rocks or Barrels.

The seventh wall is a little bit different, as there is a castle tower on the other side of the screen. You must jump over the arrows to get to a key, and then you must run into the door. You have now saved Ezzmarelda, who was locked up in the tower. You now go back to the first screen again.

Five lives are given at the start, but these can go very quickly! My highest score at this game was 4372, which I thought was good since I got on to the fifty first screen!

Scores are obtained at the end of each screen, according to the amount of jumps it takes to get across, so it is not very wise to keep jumping across.

RUNS ON ORIC

Castle Crawler



Variables Used

HI	High score.
LL	Lives.
K	Determines how far the arrows etc will move across the screen.
NU	Level number.
SC	Your score.
LV	Sees what will be on the sheet you are on.
V	Sees if you have the key or not (screen 6).
BO	Bonus.
Z,X,Y	Position of your head and body.
T,Q	The "SCRN" of your body and head.

RUNdown

Lines	Action
5-6	Clears screen, sets high-score to 0, gets rid of flashing cursor.
7	Gosubs user defned graphics.
37-38	Set variables to 0.
170-310	Instructions
320-360	Sets up screen.
370-475	Sets you and the arrows etc on screen and moves both.
480-500	Checks to see if you got hit or if you cleared a sheet.
8000-8009	Jump routine.
8500-8700	You cleared a sheet. Displays your score on the screen.
9000-9002	Lose a life.
9500-9540	End of game.
9600-9670	Draws castle and tower.
9750-9764	You saved Ezzmarelda.
10000-10050	User defined graphics.

TESTED & APPROVED

Conversion Clues

PLOT can be replaced by PRINT AT
PAPER and INK are the foreground and background colours.
ZAP, PING, EXPLODE and PLAY can be ommitted or replaced by your own computer sounds.
KEY$ can be replaced by INKEY$.
The barrels arrows and rocks are moved using LEFT$ and RIGHT$, which may not be in other computers.

▶ ▶ ▶



RUNS ON ORIC/ATMOS

castle crawler

```
1 REM----------------------------
2 REM CASTLE CRAWLER BY M.O'DWYER
3 REM       FOR THE ORIC-1
4 REM----------------------------
5 CLS:HI=0
6 PRINTCHR$(17)
7 GOSUB10000:REM--USER DEFINED GRAPHICS--
8 CLS
9 REM----------INSTRUCTIONS----------
10 PAPER0:INK7
20 PRINTCHR$(4)
30 PRINT:PRINT:PRINTCHR$(27)"J        CASTLE CRAWLER"
35 PRINT CHR$(4)
36 PLOT0,3,1:PLOT0,4,5
37 LL=5:K=37:NU=1
38 SC=0
170 PRINT:PRINT:PRINT"    You are the hunch-back in sear
ch of"
180 PRINT"your only love,Ezzmarelda.You find out"
190 PRINT"that she is locked up in the tower of "
200 PRINT"a castle.To reach her,you must jump    "
210 PRINT"over the various objects that are bei-"
220 PRINT"ng fired at you. To rescue your love, "
230 PRINT"you must get the key that comes across"
240 PRINT"the screen when the tower is in sight "
245 PRINT"and open the tower door with it."
250 PRINT:PRINTCHR$(27)"L  Press any key to continue...
....."
260 GETZ$
268 CLS:PAPER0:INK7
280 PRINT:PRINT:PRINT"          TO JUMP=[space]"
290 PRINT:PRINT:PRINT"   BACKWARDS-LEFT CURSOR"
300 PRINT"              FORWARDS-RIGHT CURSOR"
310 PLOT12,20,"GET READY"
319 V=0:LV=1:K=37
320 WAIT300:CLS:PAPER6:INK0
325 PRINTCHR$(27)"TSCORE          LIVES       LEVEL
"
330 FORN=1TO38:FORX=12TO26:PLOTN,X,CHR$(126):NEXT:NEXT
335 BO=100
337 IFLV<>7THENPLOT36,10,"&!"
350 X=2:Y=10:Z=11
360 PLOT7,0,STR$(SC):PLOT20,0,STR$(LL):PLOT33,0,STR$(NU
)
370 IFLV=1THENA$="              $                    $
"
371 IFLV=2THENA$="          $          $          $
"
372 IFLV=3THENA$="          %          %          %
"
373 IFLV=4THENA$="        $        %        $        %
"
374 IFLV=5THENA$="      @        @        @        @
"
375 IFLV=6THENA$="      @      %      $        @     $
"
376 IFLV=7THENA$="          $          $"
400 PLOTX,Y,"!"
410 PLOTX,Z,"#"
420 PLOT1,11,A$
430 X$=KEY$
435 PLOTX,Y," "
440 IFX$=" "THENPING:GOTO8000
460 IFX$=CHR$(8)THENX=X-1:IFX=2ORX=1THENX=3
470 IFX$=CHR$(9)THENX=X+1:IFX=37ORX=38THENX=36
475 L$=LEFT$(A$,1):R$=RIGHT$(A$,K):A$=R$+L$
480 Q=SCRN(X,Z):T=SCRN(X,Y)
490 IFT=38THEN8500
491 IFQ=38THEN8500
492 IFQ=37THEN9000
493 IFT=42THENZAP:V=1
494 IFT=92 ANDV=1THEN9750
495 IFQ=64 THEN9000
496 IFT=92ANDV=0THEN9750
500 IFQ=36 THEN9000
510 PLOTX,Y,"!"
520 PLOTX,Z,"#"
540 GOTO400
7999 REM-------------JUMP-------------
8000 BO=BO-2:Y=Y-1:Z=Z-1:PLOTX,Y,"!":PLOTX,Z,"#"
8001 PLOTX,Y," ":PLOTX,Z," "
8004 X=X+1:IFX=36THENX=35:PLOTX,Y,"!":PLOTX,Z,"#"
8005 PLOTX,Z," ":PLOTX,Y," "
8006 Y=Y+1:Z=Z+1:X=X+1:IFX=36THENX=35:IFX=37THENX=35:IF
X=32ANDLV=7T
HENX=31
8007 IFLV=7ANDX=31ORLV=7ANDX=32THENX=30:IFLV=7ANDX=16OR
LV=7ANDX=15T
HENX=14
8009 GOTO400
8499 REM----------CLEAR WALL----------
8500 FORN=1TO10:PING:WAIT10:NEXT
8505 SC=SC+BO
8510 CLS:PAPER0:INK1:PRINTCHR$(4)
8520 PRINTCHR$(27)"N   Well done. Your score so far is.
.."
8530 PRINT:PRINT:PRINT:PRINTCHR$(27)"J
 ";SC:PRINTC
HR$(4)
8570 LV=LV+1:NU=NU+1
8699 IFLV<>7THEN320
8700 WAIT300:GOTO9600
8999 REM---------LOSE A LIFE----------
9000 EXPLODE:WAIT100:LL=LL-1:IFLL=0THEN9500
9001 WAIT100:IFLV<>7THEN337
9002 GOTO9655
9499 REM-------END OF GAME-----------
9500 PRINT:PRINT:PRINT:PRINT:PRINT"              GAME  OVE
R"
9513 WAIT300:CLS
9520 PRINT:PRINT:PRINT"YOUR SCORE WAS ";SC:IFSC<HITHEN9
530
9521 PRINT:PRINT"WHICH IS TO-DAY'S HIGH-SCORE";HI=SC
9522 PRINT:PRINT"DO YOU WANT TO PLAY AGAIN? (Y/N)
9523 GETA$:IFA$="Y"THEN8
9524 IFA$="N"THENCLEAR:CLS:END
9525 GOTO9523
9530 PRINT:PRINT"TODAY'S HIGH-SCORE IS ";HI:GOTO9522
9540 GOTO9525
9600 CLS:PAPER6:INK0
9610 FORN=32TO38:FORR=6TO12:PLOTN,R,CHR$(126):NEXTR,N
9620 FORN=30TO38:PLOTN,4,CHR$(126):PLOTN,5,CHR$(126):NE
XT
9630 FORN=1TO38:FORX=12TO26:PLOTN,X,CHR$(126):NEXTX,N
9640 FORN=8TO11:PLOT32,N,"\":NEXT
9650 K=30:PRINTCHR$(27)"TSCORE          LIVES       LEVE
L    "
9655 PLOT16,10,"*"
9660 PLOT34,3,")"
9670 GOTO 335
9749 REM------YOU-SAVED-EZZMARELDA---
9750 FORN=1TO7:PAPERN:WAIT50:PLAY0,1,3,500:NEXT:PLAY0,0
,0,0:SC=SC+B
0
9755 PAPER0:PLOT34,3," ":PLOT20,11,"#":PLOT20,10,"!"
9760 PLOT22,10,")":PLOT22,11,"(":PAPER6:INK0:WAIT150
9761 CLS:PAPER0:INK7:PRINTCHR$(4):PRINTCHR$(27)"N
      CONGR
ATULATIONS"
9762 PRINT:PRINT:PRINTCHR$(4):PRINT"YOU SAVED EZZMARELD
A.YOUR SCORE
 SO FAR"
9763 PRINT:PRINT"IS ";SC;".STAND BY FOR YOUR NEXT TASK"
:FORN=1TO50
9764 PLAY1,12,8,N:NEXT:NU=NU+1:GOTO319
9999 REM---------U.D.G'S-------------
10000 FORN=46344TO46351:READX:POKEN,X:NEXT
10001 DATA62,63,30,31,30,12,30,54
10002 FORN=46360TO46367:READX:POKEN,X:NEXT
10003 DATA55,48,63,30,30,12,12,14
10004 FORN=46368TO46375:READX:POKEN,X:NEXT
10005 DATA17,63,17,0,0,0,0,0
10006 FORN=46376TO46383:READX:POKEN,X:NEXT
10007 DATA0,30,31,63,63,63,24,0
10008 FORN=46384TO46391:READX:POKEN,X:NEXT
10009 DATA4,31,31,31,63,63,63,12
10010 FORN=46592TO46599:READX:POKEN,X:NEXT
10011 DATA12,18,33,45,45,33,18,12
10012 FORN=46416TO46423:READX:POKEN,X:NEXT
10013 DATA63,33,63,4,4,4,12,12
10014 FORN=47080TO47087:READX:POKEN,X:NEXT
10015 DATA12,18,33,33,18,12,63,45
10016 FORN=47064TO47071:READX:POKEN,X:NEXT
10017 DATA45,45,12,18,33,63,18,18
10018 FORN=46816TO46823:READX:POKEN,X:NEXT
10019 DATA63,63,63,63,63,63,63,63
10050 RETURN
```

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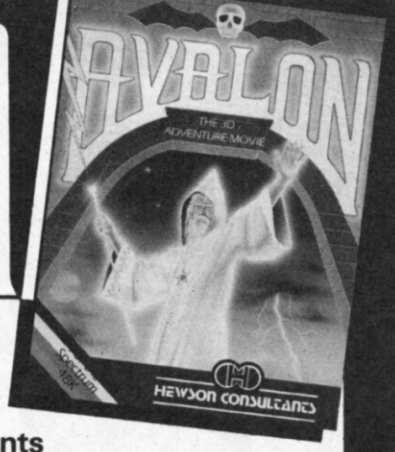
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AVALON

David Bishop and Beth Wooding this month take a close look at 'Avalon — The Adventure Movie'.



Hewson Consultants, of "Fantasia Diamond" and "Heathrow ATC" fame, are fast gaining the reputation they deserve as one of the country's most innovative software publishers. "Avalon — The Adventure Movie" (as the company describes it) should continue to enhance the reputation of Hewson and, more importantly, that of Steve Turner, creator of "Avalon".

Turner, author of the "Seiddab" trilogy, would be described as a 'singer-songwriter' if he was in the music business, having written the plot for, and programmed, "Avalon" in its entirety. The analogy with the pop world is not loosely made; as software production becomes a more professional affair with specialists in each field (animation, storyline, music, etc) how long will it be before the likes of Steve Turner disappear behind a puff of economics? Just a thought, now back to the game.

The Scenario

"Avalon" is set in the year 408 AD. The Roman Empire is crumbling before the onslaught of barbarian nations. Maroc the Mage is a Lore Seeker, learned in the subtle arts of herbs and healing. One night Maroc meets an old woman who foretells of a new age of chaos. She points a bony finger at Maroc and charges him with the task of journeying to the "Isle of Glass" and defeating the Lord of Chaos. She leads Maroc to the place and, handing him an old oak staff, points to a hill rising in the distance, saying "There is Avalon".

You play Maroc in his quest for the Lord of Chaos inside the hill of Avalon. Maroc is controlled by keyboard or joystick (Kempston, Sinclair, AGF and Protek) but joystick is recommended. The opening scene is of a room with a door on the right-hand wall and a white figure (Maroc) sitting cross-legged on the floor. The scene is framed by a beautiful border of dragons, snakes and skulls.

Getting Started

There is a large scroll at the bottom of the screen on which the word "move" is written — this is a spell of which there are quite a few in Avalon.

Having worked out how to select and use a spell, it's time for some serious exploring. Using your joystick (or keyboard) move Maroc towards the door on the right-hand wall. You will notice that the game follows Maroc across the room in a semi-smooth multi-directional scroll. The graphics, given the Spectrum's archaic architecture, are nothing short of excellent, but one can't help but wonder whether they are somewhat wasted within the context of an adventure/arcade, especially with such a spongy interaction between player and graphics.

Movement

Getting through doors takes a little getting used to because you have to approach a door, "bounce" off the handle and then backtrack to allow the door to open before passing through. Sometimes, however, you're stuck behind the door when it opens and trying to go out only results in the door closing again. Arcade players should soon master this, but adventure buffs may end up tying their fingers in knots.

Probably the best way of tackling "Avalon" is to invest half an hour or so in getting used to moving and selecting and deselecting spells from the spell scroll. Having done that, a prerequisite to completing the game is to map out the various rooms and tunnels. Without a map you could be wandering about for ages!

Mapping

Making a map of Avalon poses some unique problems in itself, because leaving a room from the right doesn't necessarily mean that the next screen will show you entering from the left. A topological plan is therefore difficult. It's probably better to adopt a schematic approach. Let's call the left wall "A", the rear wall "B" and the right-hand "C". Whenever there are two or more doors on a wall, call them "B1", "B2", etc (where "B1" is to the left of "B2" as we look at it). Draw a series of circles, each representing a room and for each connecting door between two rooms join the two circles with a line, noting down the relevant doors in each room, eg

Inside each circle you can list spells or caskets that you may find there.

Lots Of Puzzles To Solve

Once you've mastered the controls. "Avalon" should provide hours of fun and possible frustration. There are well over 200 rooms lined by some 100 tunnels as well as doors, some locked to start with. Many of the rooms contain objects which at first glance seem useless but, using the right spell or spells, can be put to your advantage (see Hints). Things to look out for are chests, bottles, keys and, of course, spells. There seems to be a logical order in which problems should be tackled and, hopefully, solved, so try to thoroughly explore one section of "Avalon" before venturing too far into the depths, otherwise you will be ill-equipped to cope with the horrors that await you.

Hints

1. Get used to selecting and activating spells — it's a skill that will be put to the test as you progress.
2. Goblins, wraiths, etc can't follow you through tunnels.
3. Some doors are locked and the keys must be found — a servant and a chest may suffice.
4. A little bribery may utilise the pentangle in a high energy way.
5. To get the Wayrooms, you need a short key and then a long one.

Plus Points

1. Good graphics, nice scrolling (for the Spectrum) and pretty sprites.
2. Large playing area and lots of problems to solve, which should ensure lasting interest.
3. Good documentation, map and instructions with the programme.
4. Anti-piracy device before game is p l a y e d .
5. Save/load feature of present position.
6. Pause function — essential for mapping.
7. Arcaders will like the use of joystick rather than lengthy text input.

Minus Points

1. De-activating the pause function often didn't work.
2. Control not very easy.
3. Music can't be switched off.
4. When Maroc has many different spells, it was difficult to select the one required. Having played well enough to collect lots of spells, you shouldn't be penalised in this way.
5. Pure adventure players will be put off by the "arcade" approach that is required if you are to be successful in "Avalon".
6. The anti-piracy device consisting of lists of numbers is commedable, but having to input *three* sets of four numbers is quite unnecessary as it's impossible to guess one set, let alone two.

Summary

On balance, "Avalon" should do well, and deservedly so. It carries on, and enhances, the tradition of arcade/adventures pioneered by "Atic Atac" last year. If you liked "Atic Atac", you'll love "Avalon" — watch out for more from Steve Turner!

David Bishop

SO THIS IS WHY WILLIE HAS HIS HEAD DOWN THE PAN!

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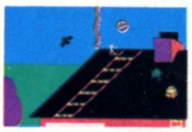















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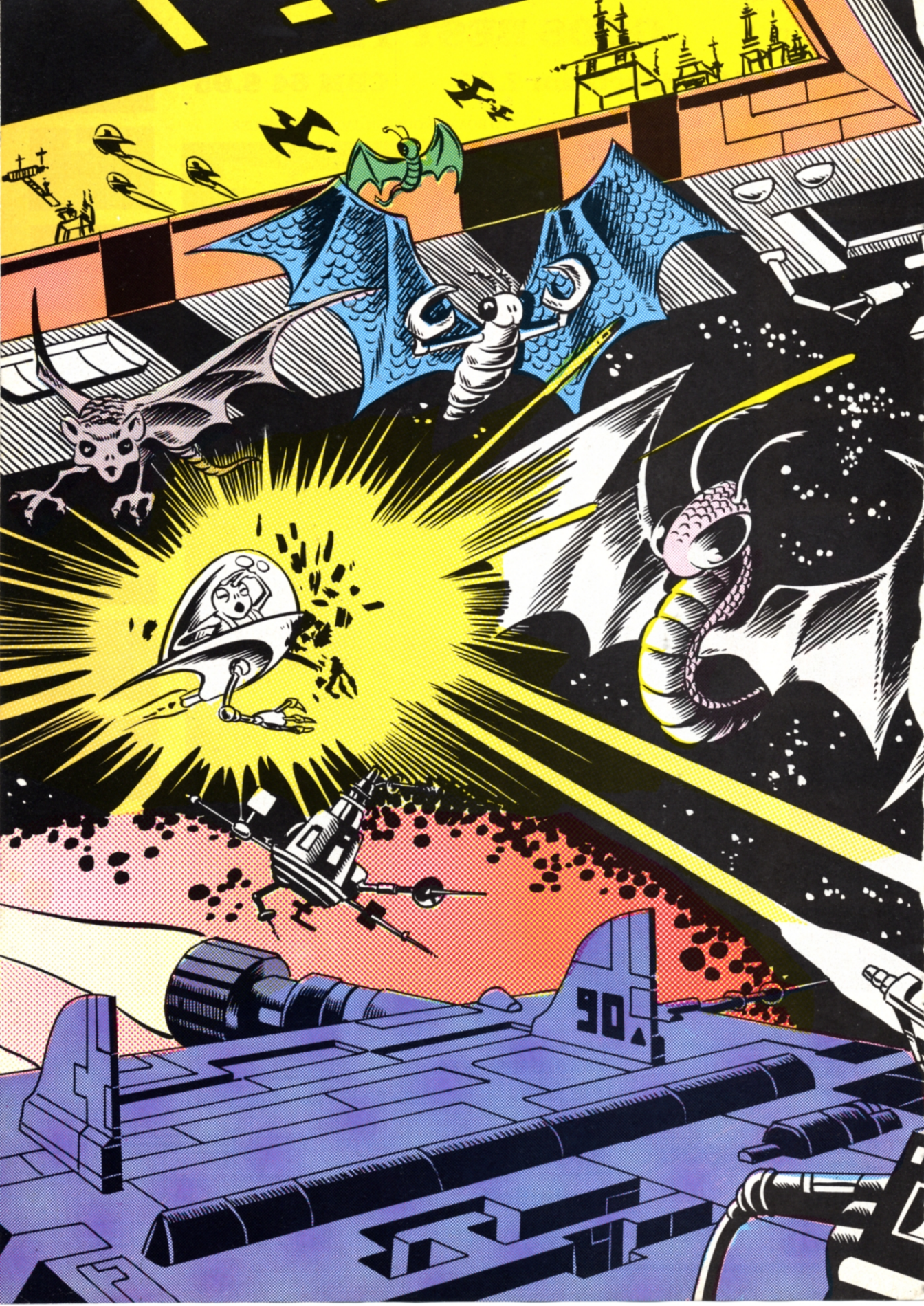
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RUNS ON
BBC ELECTRON
Star
Panic
Star Panic is a fast-action machine code game for the BBC Micro Model B or Electron.
This program makes use of the BBC's graphics, sound and procedures to make a fast-action arcade game. After each of the two programs have been chained, the computer will display title page with control keys.
The aim of the game is your base's defence. You have five lives to get your hi-score, and an extra life at 4000 points.

Star Panic

There are four kinds of aliens attacking the base and trying to destroy your laser. Under the base you can read your score, the hi-score (from the hi-score table) and how many lives are left.

At the top-left of the screen, you have a planetoid with a killer satellite, which appears when you least expect it, dropping several fast bombs until you hit him.

At the top of the screen, there's a mother-ship who sends you three kinds of ships. The first kind of twelve aliens will remain on the screen, firing until you kill them all.

the second kind of aliens, if you fail to kill all of them, will come back until you finish them off.

''Kamikazes'' are the third kind of ships coming from mother-ship, and they replace the second kind of aliens, moving fast, shooting high speed bullets and giving you extra points if you hit them all. As you play, the speed of the game will increase, making it obviously more difficult.

It's recommended to save the program 1 before running it. When you're sure that program 1 is all right, you can then save program 2 under the name ''panic'', just after program 1 (''PANIC'').

RUNdown

Lines	Action
40-90	Reserve space in memory for machine code variables and necessary bytes to draw ships, explosions, etc.
90-360	Put the necessary bytes in the reserved space.
370	Machine-code start, at 19600.
390-550	Define the initial value of the same variables, draw base, mother-ship, etc. in the initial positions.
560-600	Draw planet.
610-670	redefine variable values, each time all twelve aliens are shot.
680-830	Controls the appearing of the first kind of aliens.
840-1290	Controls the movement and draw the first kind of aliens.
1300-1460	Produce a random number between 0 and 255 and put it in address &73+3.
1470-1530	Define the co-ordinates necessary to move the base right.
1540-1600	The same but to move it left.
1610-1770	Move base and check if it hit something.
170-1870	Check for alien missiles ready to go.
1880-2110	Move and draw alien missiles and check if they hit something.
2120-2390	Move and draw mother-ship and select its movement left-right.
2400-2670	Move and draw base missiles, check if they hit something and if so jump to subroutine WF3.
2680-2840	Check what kind of alien was hit, and put the right score in the SCR address.
2850-2890	Draw all alien explosions.
2900-2940	Delete this explosions.
2950-3090	Check if all twelve aliens are dead.
3100-3220	Like lines 630 to 760 but for the second kind of aliens.
3230-3630	Like lines 790 to 1240 but for the second kind of aliens.
3640-3680	Draw explosions when base is hit.
3690-4020	Delete explosions and draw it in initial positions. Also delete all kinds of missiles still in movement when base exlodes.
4030-4070	Check if any alien collides with base.
4080-4390	Check if sattelite is ready to appear, if so, give it the appropriate movement.
4400-4560	Settle next position of satellite.
4570-4660	Check if satellite is ready to shoot.
4670-4990	Move and draw satellite missiles and check if they hit something.
5030-5080	Procedure to display title page.

RUNdown

Lines	Action
Program 2	
10-30	Address of some machine code routines called by BASIC.
50-180	Define envelopes for special sounds. Define some variables and call procedures to draw the scenery.
190-320	Main loop.
330-460	After shooting twelve aliens, this part of the program decides what kind of aliens should appear next.
470-520	If you run out of lives, call procedure of Hi-Score. ''Y'' if you want to play again.
530-630	Procedure called when you hit something.
640-730	Procedure called if you're dead.
740-770	Display Hi-Score.
780-810	Display Score.
820-850	Display of lives.
860-910	If you still have lives and if you're dead, the program stops with a ''PRESS A'' message to continue.
920-1030	Display Hi-Scores.
1040-1140	Decide if you're in the Hi-Score table and put your score in the right position.
1150-1220	Display title and control keys.
1230-1350	Draws your attack platform.
1360-1460	extra points after you kill the twelve high-speed ''Kamikazes''.

Configuration

If you want to play better ''Star Panic'' you must change these three lines:
PROGRAM 1: LINE 4200 should be: CMP#50
PROGRAM 2: LINE 120 should be: J=14
PROGRAM 2: LINE 370 should be: RND(4)=2

NOTE: In this game the screen is accessed directly, it will not work with the TUBE. However, this restriction will probably not affect the vast majority of users.

```
   10  MODE7
   20  ON ERROR MODE7:PRINTERL:REPORT:END
   30  PROCSTART
   40 NAV=18600
   50 DOL=NAV+16:DOH=DOL+12:IL=DOH+12:IH=IL+12:SL=IH+12
:LS=SL+12:ROF=LS+12:FINE=ROF+1:SAC=FINE+1:SO=SAC+12:S1=
SO+1:CONT=S1+1:NAVT=CONT+1
   60  TS=NAVT+64:GAL=TS+12:GAH=GAL+12:AS=GAH+12:MSHIP=
AS+8:TL=MSHIP+176:TH=TL+1:SHOT=TH+1:CONT1=SHOT+1:CONT2=
CONT1+1:PRAS=CONT2+1:LIDEAD=PRAS+1:SCR=LIDEAD+1:THEXP=S
CR+1
   70  N1=THEXP+16:TREXP=N1+16:MORT=TREXP+64:VIT=MORT+1
:VITO=VIT+1:PR=VITO+1:RACL=PR+1:RACH=RACL+1:KC=RACH+1:J
AL=KC+3:JAH=JAL+3:N3=JAH+3:BOMB=N3+16:CONT3=BOMB+5
   80  HIP=CONT3+1:PORT=HIP+32:MOON=PORT+1
   90  NT1=MOON+96:NT2=NT1+16
  100  FOR A=MOON TO MOON+95:READ B:?A=B:NEXT
  110  DATA0,0,0,1,1,3,3,3,1,7,30,60,105,195,195,195,15
,75,135,15,15,15,15,15,8,14,15,15,15,15,15,63,0,51,68,8
,59,110,204,12,0,136,136,136,0,0,0,0
  120  DATA 3,3,3,35,103,136,136,255,195,195,105,45,63,
111,207,1,15,31,63,207,143,240,15,15,111,207,15,15,195,
15,14,8,12,12,12,25,58,50,17,0,0,0,204,226,241,241,226,
204
  130  FOR A=HIP TO HIP+31:READ B:?A=B:NEXT
  140  DATA 0,0,0,0,240,0,0,0,0,0,0,0,240,0,0,0,0,0,0,0,0
,240,0,0,0,0,0,0,0,0,240,0,0,0
  150  FOR A=N3 TO N3+15:READ B:?A=B:NEXT
  160  DATA 204,68,50,15,15,50,69,204,51,42,196,15,15,1
96,34,51
  170  FOR A=BOMB TO BOMB+4:READ B:?A=B:NEXT
  180  DATA 0,6,105,105,6
  190  FOR A=TREXP TO TREXP+63:READ B:?A=B:NEXT
  200  DATA 0,0,8,93,23,7,3,15,0,4,8,8,8,12,12,12,0,0,0
,0,1,3,14,14,0,0,8,9,9,3,7,15,7,3,1,3,7,11,1,1,47,79,15
,95,239,143,14,8,14,12,10,43,79,143,111,0,7,6,14,175,14
,111,8,4
  210  FOR A=THEXP TO THEXP+15:READ B:?A=B:NEXT
  220  DATA33,65,130,62,18,99,134,64,64,172,20,228,135,
152,108,72
  230  FOR A=NT1 TO NT1+15:READ B:?A=B:NEXT
  240  DATA 136,136,137,171,255,137,136,136,17,17,25,93
,255,25,17,17
  250  FOR A=NT2 TO NT2+15:READ B:?A=B:NEXT
  260  DATA 136,136,76,46,223,171,153,17,17,17,35,71,19
1,93,153,136
  270 FOR A=NAV TO NAV+15:READ B:?A=B:NEXT
  280 DATA 68,204,140,74,37,158,155,137,34,51,19,37,74,
151,157,25
  290  FOR A=NAVT TO NAVT+63:READ B:?A=B:NEXT
  300  DATA 0,0,0,0,0,0,0,0,17,17,17,17,17,51,35,103,13
6,136,136,136,136,204,76,110,0,0,0,0,0,0,0,0,34,34,17
,241,17,34,34,71,119,51,51,239,35,119,238,46,238,204,20
4,127,76,238,119,0,68,68,136,248,136,68,68
  310  FOR A=AS TO AS+7:READ B:?A=B:NEXT
  320  DATA 0,9,6,6,6,105,105,6
  330  FOR A=MSHIP TO MSHIP+175:READ B:?A=B:NEXT
  340  DATA 0,136,204,238,119,51,17,0,0,0,0,0,17,255,15
,255,0,0,0,17,255,255,15,15,51,116,248,248,252,127,63,6
3,204,230,241,241,240,255,143,255,0,0,0,255,240,255,15,
255,51,118,248,248,240,255,31,255,204,226,241,241,243,2
39,207,207
  350  DATA 0,0,0,136,255,255,15,15,0,0,0,0,136,255,15,
255,0,17,51,119,238,204,136,0,0,0,0,0,0,0,0,0,17,0,0,0,
0,0,0,0,143,255,51,17,0,0,0,0,255,204,136,0,0,0,0,0,0,2
55,0,0,0,0,0,0,0,0,255,0,0,0,0,0,0,0,255,0,0,0,0,0,0

  360  DATA 255,51,17,0,0,0,0,0,31,255,204,136,0,0,0,0,
136,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
  370 FOR I%=0 TO 2 STEP 2:P%=19600
  380 [OPT I%
  390 .START
  400  LDA#&10:STA&7A:LDA#&79:STA&7B
  410  LDA#&10:STA&77:LDA#&5D:STA&78
  420 CLC:LDA&7A:ADC#64:STA&7C:LDA&7B:ADC#1:STA&7D:JSR
MNT
  430  LDA#&D0:STA&8C:LDA#&5A:STA&8D
  440 CLC:LDA&8C:ADC#64:STA&8E:LDA&8D:ADC#1:STA&8F
  450  JSR CX
  460  LDA#8:STA TL:LDA#0:STA TH:STA SCR:STA LIDEAD:STA
 SHOT
  470  LDA#10:STA CONT1:STA CONT2:STA CONT3
  480  LDA#12:STA VIT:LDA#4:STA VITO
  490 LDX#0
  500 .TIM
  510 LDA#0:STA TS,X
  520 INX:CPX#12:BNE TIM
  530  LDA#0:STA MORT:STA PR:STA KC:STA KC+1:STA KC+2:L
DA#17:STA CONT
  540  LDA#2:STA PORT
  550  RTS
  560  .DMOON
  570  LDY#47
  580  .DMN
  590  LDA MOON,Y:STA &5950,Y:LDAMOON+48,Y:STA &5A90,Y:
DEY:BPL DMN
  600  RTS
  610 .RESET
  620  LDX#0
  630  .RS0
  640 LDA#64:STA IL,X:LDA#1:STA IH,X:
LDA#0: STA SL,X:STA LS,X:STA SAC,X
  650  INX:CPX#12:BNE RS0
  660  LDA#0:STA ROF:STA PRAS
  670  RTS
  680 .GOOD
  690 LDA ROF:BNE MT12
  700 JSR ALE:CMP#8:BCC G1
  710 RTS
  720 .G1
  730 LDY#0
  740 .G2
  750 LDA SL,Y:BNE G3
  760  CLC:LDA&8C:ADC#&A0:STA DOL,Y:LDA&8D:ADC#&2:STA D
OH,Y
  770 LDA#1:STA SL,Y:STA LS,Y
  780 RTS
  790 .G3
  800 INY:TYA:CMP#12:BNE G2
  810 LDA#1:STA ROF
  820  .MT12
  830 RTS
  840 .MOV12
  850  LDA CONT1:BEQ MA
  860  DEC CONT1:RTS
  870  .MA
  880  LDA VIT:STA CONT1
  890 LDX#0
  900 .M0
  910 LDA DOL,X:STA&82:LDA DOH,X:STA &83
  920  LDA LS,X:BEQ MOT
  930 LDY#15
  940 .M1
  950 LDA#0:STA(&82),Y:DEY:BPL M1
  960 JSR TEST
  970 .M2
  980 CLC:LDA&82:ADC IL,X:STA&82
  990 LDA &83:ADC IH,X:STA&83
 1000  .M01
 1010 LDY#15
 1020 .M3
 1030 LDA NAV,Y:STA(&82),Y:DEY:BPL M3
 1040  JSR ALE:CMP#20:BCS TTI
 1050  JSR DOG
 1060  .TTI
 1070 LDA&82:STA DOL,X:LDA&83:STADOH,X
 1080  .MOT
 1090 INX:CPX#12:BNE M0
 1100 RTS
 1110 .TEST
 1120 LDA DOH,X:CMP#&5F:BCC T2
 1130 CMP#&78:BCS T0
 1140  JSR ALE:CMP#50:BCC TT
 1150  RTS
 1160 .TT
 1170 JSR ALE:CMP#150:BCS T2:CMP#100:BCC T1
 1180 .T0
 1190 LDA#192:STA IL,X
 1200 LDA#254:STA IH,X
 1210 RTS
 1220 .T1
 1230 LDA#56:STA IL,X
 1240 LDA#1:STA IH,X
 1250 RTS
 1260 .T2
 1270 LDA#72:STA IL,X
 1280 LDA#1:STA IH,X
 1290 RTS
 1300 .ALE
 1310 TXA:STA FINE
 1320 LDY#8
 1330 .BE
 1340 CLC:LDA&73+3:BPL ZE
 1350 LDX#2
 1360 .LP
 1370 LDA&73,X:EOR &70,X:STA &73,X
 1380 DEX
 1390 BPL LP
 1400 SEC
 1410 .ZE
 1420 ROL &73:ROL &73+1:ROL &73+2:ROL &73+3
 1430 DEY:BNE BE
 1440 LDA FINE:TAX
 1450 LDA&73+3
 1460 RTS
 1470 .MR
```

RUNS ON BBC ELECTRON



```
1480 LDA CONT:CMP#34:BEQ MRO
1490 INC CONT
1500 LDA#8:STA S0:LDA#0:STA S1
1510 JSR MN
1520 .MRO
1530 RTS
1540 .ML
1550 LDA CONT:BEQ MLO
1560 DEC CONT
1570 LDA#248:STA S0:LDA#255:STA S1
1580 JSR MN
1590 .MLO
1600 RTS
1610 .MN
1620 LDY#31
1630 .MNO
1640 LDA#0:STA(&7A),Y:LDA HIP,Y:STA(&7C),Y:DEY:BPL MNO

1650 CLC:LDA&7A:ADC S0:STA&7A:LDA&7B:ADC S1:STA&7B
1660  CLC:LDA&7A:ADC#64:STA&7C:LDA&7B:ADC#1:STA&7D
1670  LDY#0:LDA(&7A),Y:BNE RDEAD
1680  LDA(&7C),Y:BNE RDEAD
1690  LDY#32:LDA(&7A),Y:BNE RDEAD
1700  .MNT
1710 LDY#31
1720 .MN1
1730 LDA NAVT,Y:STA(&7A),Y:LDA NAVT+32,Y:STA(&7C),Y:DE
Y:BPL MN1
1740 RTS
1750  .RDEAD
1760  LDA#1:STA MORT
1770  RTS
1780 .DOG
1790 LDY#0
1800 .FO
1810 LDA TS,Y:BNE F2
1820 CLC:LDA&82:ADC#64:STA GAL,Y:LDA&83:ADC#1:STA GAH,
Y
1830 LDA#1:STA TS,Y
1840 RTS
1850 .F2
1860 INY:CPY#12:BNE FO
1870 RTS
1880 .BULLET
1890  LDA PORT:BEQ U40
1895  DEC PORT
1900  RTS
1910  .U40
1920  LDA#2:STA PORT
1930 LDX#0
1940 .BLO
1950 LDA GAL,X:STA&82:LDA GAH,X:STA&83
1960 LDA TS,X:BEQ BL6
1970  LDY#4:LDA(&82),Y:CMP#240:BEQ BL06:CMP#16:BEQ BL0
6
1980 LDY#7
1990 .BL1
2000 LDA#0:STA(&82),Y:DEY:BPL BL1
2010 CLC:LDA&82:ADC#64:STA&82:LDA&83:ADC #1:STA&83
2020  LDA&83:CMP#&77:BCC GUY
2030 LDY#4:LDA(&82),Y:CMP#17:BEQ GDEAD:CMP#136:BEQ GDE
AD:CMP#1:BEQ GUY:CMP#0:BNE BL06
2040  .GUY
2050 LDY#7
2060 .BL2
2070 LDA AS,Y:STA(&82),Y:DEY:BPL BL2
2080 LDA&82:STA GAL,X:LDA&83:STA GAH,X
2090 .BL6
2100 INX:CPX#12:BNE BLO
2110 RTS
2120  .BL06
2130  LDA#0:STA TS,X
2140 INX:CPX#12:BNE BLO
2150 RTS
2160  .GDEAD
2170  LDA#1:STA MORT:RTS
2180 .MTSHIP
2190  JSR TDEAD
2200  LDA CONT2:BEQ MB
2210  DEC CONT2:RTS
2220  .MB
2230  LDA#10:STA CONT2
2240 LDY#87
2250 .MTO
2260 LDA#0:STA(&8C),Y:STA(&8E),Y:DEY:BPL MTO
2270  JSR ALE:CMP#10:BCS MJ
2280  LDA TL:CMP#8:BEQ MT3
2290  JMP MT2
2300 .MJ
2310 LDA&8C:CMP#&CO:BEQ MT2:CMP#&40:BEQ MT3
2320 .MT1
2330  CLC:LDA&8C:ADC TL:STA&8C:LDA&8D:ADC TH:STA&8D

2340 CLC:LDA&8C:ADC#64:STA&8E:LDA&8D:ADC#1:STA&8F
2350  .CX
2360 LDY#87
2370 .MT4
2380 LDA MSHIP,Y:STA(&8C),Y:LDA MSHIP+88,Y:STA(&8E),Y:
DEY:BPL MT4
2390 RTS
2400 .MT2
2410 LDA#8:STATL:LDA#0:STA TH
2420 JMP MT1
2430 .MT3
2440 LDA#248:STATL:LDA#255:STA TH
2450 JMP MT1
2460 .FIRE
2470 LDA SHOT:BNE W1
2480  SEC:LDA&7A:SBC#56:STA&86:LDA&7B:SBC#1:STA&87
2490 LDA#1:STA SHOT
2500 JMP WC
2510 .W1 RTS
2520 .FIRE1
2530 LDA SHOT:BEQ W1
2540 LDY#7
2550 .W3
2560 LDA#0:STA(&86),Y:DEY:BPL W3
2570 SEC:LDA&86:SBC#64:STA&86:LDA&87:SBC#1:STA&87
2580 .WC
2590 LDY#0:LDA(&86),Y:BNE WF3
2600 LDA&87:CMP#&60:BCC V2
2610 LDY#7
2620 .V1
2630 LDA#1:STA(&86),Y:DEY:BPL V1
2640 RTS
2650 .V2
2660 LDA#0:STA SHOT
2670 RTS
2680 .WF3
2690 LDA#1:STA LIDEAD:LDA#0:STA SHOT
2700 LDY#0:LDA(&86),Y:CMP#68:BEQ W6:CMP#34:BEQ W5:CMP#
136:BEQ W8:CMP#17:BEQ W7:CMP#204:BEQ W9
2710 JSR NEBACK
2720 .W9
2730 LDA#5:STA SCR:LDA#0:STA PR:RTS
2740 .W5
2750 JSR NEBACK
2760 .W6
2770 LDA#2:STA SCR:RTS
2780 .W7
2790 JSR NEBACK
2800 .W8
2810 LDA#1:STA SCR:RTS
2820 .NEBACK
2830 SEC:LDA&86:SBC#8:STA&86:LDA&87:SBC#0:STA&87
2840 RTS
2850 .DREXP
2860 LDY#15
2870 .IO
2880 LDA THEXP,Y:STA(&86),Y:DEY:BPL IO
2890 RTS
2900 .EFAEXP
2910 LDY#15
2920 .I1
2930 LDA#0:STA(&86),Y:DEY:BPL I1
2940 RTS
2950 .COALIEN
2960  LDA SCR:CMP#5:BEQ I6
2970 LDX#0
2980 .I2
2990 LDA LS,X:BEQ I4
3000 LDA DOL,X:STA &82:LDA DOH,X:STA&83
3010 LDY#0:LDA(&82),Y:CMP#33:BEQ I5
3020 .I4
3030 INX:CPX#12:BNE I2
3040 RTS
3050 .I5
3060  LDA#0:STA LS,X
3070  INC PRAS
3080 .I6
3090  RTS
3100 .CAOS
3110 JSR ALE:CMP VITO:BCC CAO
3120 RTS
3130 .CAO
3140 LDY#0
3150 .CA1
3160 LDA SL,Y:BNE CA2
3170 CLC:LDA&8C:ADC#&AO:STA DOL,Y:LDA&8D:ADC#&2:STA DO
H,Y
3180 LDA#1:STA SL,Y:STA LS,Y
3190 RTS
3200 .CA2
3210 INY:CPY#12:BNE CA1
3220 RTS
3230 .MS12
3240  LDA CONT1:BEQ RES
3250  DEC CONT1:RTS
3260  .RES
3270  LDA VIT:STA CONT1
```

```
3280 LDX#0
3290 .SM0
3300 LDA DOL,X:STA&82:LDA DOH,X:STA&83
3310 LDA LS,X:BEQ SM7
3320 LDY#15
3330 .SM1
3340 LDA#0:STA(&82),Y:DEY:BPL SM1
3350 LDA&83:CMP&6C:BCC SM2
3360 JSR TET
3370 .SM2
3380 CLC:LDA&82:ADC IL,X:STA&82:LDA&83:ADC IH,X:STA&83
3390 LDA&83:CMP#&78:BCS R1
3400 LDY#15
3410 .SM5
3420 LDA N1,Y:STA(&82),Y:DEY:BPL SM5
3430  JSR ALE:CMP#30:BCS SM6
3440  JSR DOG
3450 .SM6
3460 LDA&82:STA DOL,X:LDA&83:STA DOH,X
3470 .SM7
3480 INX:CPX#12:BNE SM0
3490 RTS
3500 .R1
3510 LDA#0:STA SL,X:STA LS,X:STA SAC,X
3520  LDA#64:STAIL,X
3530 JMP SM7
3540 .TET
3550 LDA SAC,X:BNE R0
3560 JSR ALE:CMP#100:BCS R0:CMP#50:BCC R7
3570 LDA#1:STA SAC,X
3580  LDA#56:STA IL,X:LDA#1:STA IH,X
3590  JMP R0
3600  .R7
3610  LDA#72:STA IL,X:LDA#1:STA IH,X
3620  .R0
3630  RTS
3640 .SDEAD
3650 LDY#31
3660 .SD0
3670 LDA TREXP,Y:STA(&7A),Y:LDA TREXP+32,Y:STA(&7C),Y:
DEY:BPL SD0
3680 RTS
3690  .FDEAD
3700  LDY#31
3710 .SD1
3720 LDA#0:STA(&7A),Y:LDA HIP,Y:STA(&7C),Y:DEY:BPL SD1

3730 LDX#0
3740 .PTB
3750 LDA TS,X:BEQ PTA
3760 LDA GAL,X:STA&82:LDA GAH,X:STA&83
3770 LDY#7
3780 .PTE
3790 LDA#0:STA(&82),Y:DEY:BPL PTE
3800 .PTA
3810 LDA#0:STA TS,X
3820 INX:CPX#12:BNE PTB
3830 LDX#0
3840 .PTE1
3850 LDA KC,X:BEQ PTE3
3860 LDA JAL,X:STA&82:LDA JAH,X:STA&83
3870 LDY#4
3880 .PTE2
3890 LDA#0:STA(&82),Y:DEY:BPL PTE2
3900 .PTE3
3910 LDA#0:STA KC,X
3920 INX:CPX#3:BNE PTE1
3930  LDA SHOT:BEQ PYW
3940 LDY#7
3950 .PY
3960 LDA#0:STA(&86),Y:DEY:BPL PY
3970 LDA#0:STA SHOT
3980 .PYW
3990  LDA#17:STA CONT
4000 LDA#&10:STA&7A:LDA#&79:STA&7B
4010 CLC:LDA&7A:ADC#64:STA&7C:LDA&7B:ADC#1:STA&7D:JSR
MNT
4020  RTS
4030 .TDEAD
4040 LDY#31
4050 .DT0
4060 LDA(&7A),Y:CMP NAVT,Y:BNE DT1:DEY:BNE DT0
4070 RTS
4080 .DT1
4090 LDA#1:STA MORT:RTS
4100 .KING
4110 LDA PR:BNE DY2
4120 JSR ALE:CMP#1:BEQ DY1
4130 CLC:LDA&77:ADC#16:STA&77:LDA&78:ADC#0:STA&78
4140 LDA&77:CMP#&40:BCS DYT
4150 RTS
4160 .DYT
4170 LDA#&20:STA&77:LDA#&5D:STA&78
4180 RTS
4190 .DY1
4200  JSR ALE:CMP#50:BCS DYT
4210 LDA#1:STA PR:STA RACH:LDA#56:STA RACL
4220 RTS
4230 .DY2
4240  LDA CONT3:BEQ TN3
4250  DEC CONT3:RTS
4260 .TN3
4270  LDA#10:STA CONT3
4280 LDY#15
4290 .DY3
4300 LDA#0:STA(&77),Y:DEY:BPL DY3
4310 CLC:LDA&77:ADCRACL:STA&77:LDA&78:ADC RACH:STA&78
4320 LDY#15
4330 .DY4
4340 LDA N3,Y:STA(&77),Y:DEY:BPL DY4
4350 JSR VOID
4360 JSR ALE:CMP#100:BCS DY5
4370 JSR FOLIE
4380 .DY5
4390 RTS
4400 .VOID
4410 LDA RACH:CMP#1:BNE DI0
4420 LDA&78:CMP#&60:BEQ DI1
4430 CMP#&64:BEQ DI2
4440 RTS
4450 .DI1
4460 LDA#72:STA RACL:RTS
4470 .DI2
4480 LDA#200:STA RACL:LDA#254:STA RACH:RTS
4490 .DI0
4500 LDA&78:CMP#&61:BEQ DI3
4510 CMP#&5D:BEQ DI4
4520 RTS
4530 .DI3
4540 LDA#184:STA RACL:RTS
4550 .DI4
4560 LDA#56:STA RACL:LDA#1:STA RACH:RTS
4570 .FOLIE
4580 LDY#0
4590 .FOL0
4600 LDA KC,Y:BNE FOL2
4610 CLC:LDA&77:ADC#64:STA JAL,Y:LDA&78:ADC#1:STA JAH,
Y
4620 LDA#1:STAKC,Y
4630 RTS
4640 .FOL2
4650 INY:CPY#3:BNE FOL0
4660 RTS
4670 .FAF
4680 LDX#0
4690 .FF0
4700 LDA KC,X:BEQ FF6
4710 LDA JAL,X:STA&82:LDA JAH,X:STA&83
4720 LDY#4
4730 .FF1
4740 LDA#0:STA(&82),Y:DEY:BPL FF1
4750 CLC:LDA&82:ADC#72:STA&82:LDA&83:ADC#1:STA&83
4760  LDY#4:LDA(&82),Y:CMP#240:BEQ FF7:CMP#17:BEQ WDEA
D:CMP#136:BEQ WDEAD:CMP#239:BEQ WDEAD:CMP#241:BEQ WDEAD

4770 LDY#4
4780 .FF2
4790 LDA BOMB,Y:STA(&82),Y:DEY:BPL FF2
4800 LDA&82:STA JAL,X:LDA&83:STA JAH,X
4810 .FF6
4820 INX:CPX#3:BNE FF0
4830 RTS
4840 .FF7
4850 LDA#0:STA KC,X
4860 INX:CPX#3:BNE FF0
4870 RTS
4880 .WDEAD
4890  LDA#1:STA MORT:RTS
4900 .FD1
4910 LDY#15
4920 .JK0
4930 LDA NT1,Y:STA N1,Y:DEY:BPL JK0
4940 RTS
4950 .FD2
4960 LDY#15
4970 .JK1
4980 LDA NT2,Y:STA N1,Y:DEY:BPL JK1
4990 RTS
```

```
5000 )NEXT
5010  ?&70=&53:?&71=&B5:?&72=&76:!&73=RND
5020 CHAIN"panic"
5030 DEFPROCSTART
5040 PRINTTAB(12,8);CHR$(141);CHR$(132);"ESMIFRASOFT"
5050 PRINTTAB(12,9);CHR$(141);CHR$(132);"ESMIFRASOFT"

5060  PRINTTAB(14,11);CHR$(132);"PRESENTS"
5070 PRINTTAB(12,13);CHR$(133);CHR$(136);"SPACE PANIC"
5080 ENDPROC
```

program 2

```
  10  SHOT=&4A2F:LIDEAD=&4A33:MORT=&4A95:PRAS=&4A32:VI
T=&4A96:VITO=&4A97:SCR=&4A34
  20  RESET=&4D2A:START=&4C90:GOOD=&4D4F:MOV12=&4D87:M
TSHIP=&4F74:BULLET=&4EEE:MR=&4E4E:ML=&4E66:FIRE=&4FF1:F
IRE1=&500C:CAOS=&50D7:MS12=&5105:DREXP=&5093:COALIEN=&5
0A8:EFAEXP=&509E:SDEAD=&51B0:FDEAD=&51C0:DMOON=&4D18:FA
F=&5337:KING=&525A
  30  FD1=&53A1:FD2=&53AD
  40  MODE7
  50  DIM NI%(10),NI$(10)
  60  ENVELOPE1,129,-8,0,0,15,0,0,127,0,0,-127,126,0
  70  ENVELOPE2,129,0,0,0,100,0,0,127,-2,0,-1,126,120
  80  PROCBEGIN
  90  HI%=0
 100 MODE5
 110  VDU23;8202;0;0;0;
 120  SC%=0:T=0:LI%=5:J=15
 130 PROCREADY:PROCSCORE:PROCLI
 140  PROCPLANET:CALL DMOON
 150  VDU19,3,4,0,0,0,19,2,2,0,0,0
 160  CALL RESET
 170 CALL START
 180  L=1:CI=GOOD:MI=MOV12
 190 REPEAT
 200 IF INKEY(-67) CALL MR
 210 IF INKEY(-98) CALL ML
 220  CALL CI
 230 CALL MI
 240  CALL BULLET
 250  CALL KING
 260  CALL FAF
 270  CALL MTSHIP
 280  IF INKEY(-99) AND ?SHOT=0 SOUND&0011,1,150,2:CAL
L FIRE
 290  CALL FIRE1:CALL FIRE1:CALL FIRE1
 300  IF ?LIDEAD=1 PROCDEAD
 310  IF ?MORT=1 PROCMORT
 320 UNTIL ?PRAS=12 OR LI%=0
 330  IF LI%=0 GOTO470
 340  CALL RESET
 350  IF ?VIT=2 PROCBONUS
 360  IF L=0 GOTO 400
 370  IF RND(4)=2 CALL FD2:?VIT=2:ELSE CALL FD1
 380  CI=CAOS:MI=MS12
 390  L=0:GOTO190
 400  CI=GOOD:MI=MOV12:L=1
 410  J=J-1
 420  IF J<5 J=5
 430  ?VIT=J
 440  ?VITO=?VITO+1
 450  IF ?VITO>14 ?VITO=14
 460  GOTO 190
 470  CLS
 480  MODE7
 490  *FX15,1
 500  PROCHI
 510  PROCHITABLE
 520  IF S$="Y" GOTO 100 ELSE END
 530 DEFPROCDEAD
 540 CALL DREXP
 550  SOUND&0010,2,RND(3)+3,4
 560  FOR A=0 TO 20:NEXT
 570 CALL COALIEN
 580  SC%=SC%+10*?SCR
 590  IF SC%>4000 AND T=0 LI%=LI%+1:SOUND&0010,2,1,4:P
ROCLI:T=1
 600 CALL EFAEXP
 610  PROCSCORE
 620 ?LIDEAD=0
 630 ENDPROC
 640 DEFPROCMORT
 650 CALL SDEAD
 660  SOUND&0010,2,6,20
 670 FOR A=1 TO 1000:NEXT
 680  LI%=LI%-1
 690 CALL FDEAD
 700  PROCLI
 710  PROCGROW
 720 ?MORT=0
 730 ENDPROC
 740 DEFPROCREADY
 750  COLOUR 1
 760  PRINTTAB(12,30);LEFT$("00000",5-LEN(STR$HI%));HI
%
 770 ENDPROC
 780 DEFPROCSCORE
 790 COLOUR1
 800 PRINTTAB(3,30);LEFT$("00000",5-LEN(STR$SC%));SC%

 810 ENDPROC
 820 DEFPROCLI
 830 COLOUR3
 840 PRINTTAB(9,30);LEFT$("00",2-LEN(STR$LI%));LI%
 850 ENDPROC
 860 DEFPROCGROW
 870 IF LI%=0 ENDPROC
 880 COLOUR 3:PRINTTAB(6,22);"Press 'A'"
 890 REPEAT S$=GET$:UNTIL S$="A"
 900 COLOUR 0:PRINTTAB(6,22);"Press 'A'"
 910 ENDPROC
 920 DEFPROCHITABLE
 930 FOR A=0 TO 2 STEP 2:PRINTTAB(4,A);CHR$(129);"----
--------":NEXT
 940 PRINTTAB(4,1);CHR$(130);"Best Scores"
 950 I=0
 960 FOR A=3 TO 21 STEP 2
 970 I=I+1
 980 PRINTTAB(3,A);CHR$(131);I;".";TAB(6,A);CHR$(130);
LEFT$("00000",5-LEN(STR$NI%(I)))NI%(I);
 990 PRINTTAB(0,A+1);CHR$(129);NI$(I)
1000 NEXT
1010 PRINTTAB(4,24);CHR$(130);"Another Game ?"
1020 REPEAT:S$=GET$:UNTIL S$="Y" OR S$="N"
1030 ENDPROC
1040 DEFPROCHI
1050 I=0
1060 REPEAT
1070 I=I+1
1080 UNTIL NI%(I)<SC% OR I=10
1090 IF NI%(I)<SC% P=10:REPEAT:NI%(P)=NI%(P-1):NI$(P)=
NI$(P-1):P=P-1:UNTIL P=I-1 ELSE GOTO 1130
1100 NI%(I)=SC%
1110 INPUTTAB(1,18)"Your Name ",NI$(I)
1120  HI%=NI%(1)
1130  CLS
1140 ENDPROC
1150 DEFPROCBEGIN
1160  FOR I=9 TO 10
1170  PRINTTAB(9,I)CHR$141CHR$136CHR$133CHR$157CHR$134
"SPACE PANIC  "CHR$156:NEXT
1180 PRINTTAB(2,12);CHR$(133);"LEFT";TAB(31,12);CHR$(1
33);"RIGHT";TAB(14,18);CHR$(133);"SPACE-BAR"
1190 PRINTTAB(3,14);CHR$(134);"Z";TAB(33,14);CHR$(134)
;"X";TAB(16,20);CHR$(134);"FIRE"
1200 PRINTTAB(11,22);CHR$(132);"Any Key to play"
1210 REPEAT S$=GET$
1220 ENDPROC
1230 DEFPROCPLANET
1240 GCOL0,2
1250 MOVE 536,104
1260  RESTORE 1280
1270 FOR A=1 TO 22:READ X,Y:DRAW X,Y:NEXT
1280 DATA 0,104,0,112,544,112,504,64,184,64,184,28,544
,28,544,44,568,44,568,28,704,28,704,44,728,44,728,28,10
88,28,1088,64,768,64,736,112,1279,112,1248,140,24,140,0
,112
1290  MOVE 584,116
1300 FOR A=1 TO 10:READ X,Y:DRAW X,Y:NEXT
1310 DATA584,124,536,64,736,64,688,124,688,116,584,116
,584,124,688,124,688,116,720,64
1320 MOVE 562,64:DRAW 584,116
1330 MOVE 1279,112:DRAW1279,104:DRAW 736,104
1340 MOVE 768,72:DRAW 1072,72:DRAW1088,64:MOVE184,64:D
RAW200,72:DRAW 504,72
1350  ENDPROC
1360 DEFPROCBONUS
1370 E%=4+RND(6)
1380 CALL FDEAD
1390 FOR D=1 TO E%
1400 SC%=SC%+40+RND(40)
1410 PROCSCORE
1420 SOUND&0010,2,1,4
1430 FOR X=0 TO 600:NEXT
1440 NEXT
1450  IF SC%>4000 AND T=0 LI%=LI%+1:SOUND&0010,2,1,4:P
ROCLI:T=1
1460 ENDPROC
```





REWRITE THE HIGH SCORE TABLES

With the Gunshot, you'll have all your enemies cowering in corners. 8-directional action and an all-in-one moulded stem allows accurate annihilation and strength to survive those all-night sessions. Dual fire buttons for fading fingers (and a rapid fire version when they're really coming thick and fast). And, if you break it (and we know you'll try) our 12 month guarantee will prove invaluable. The Gunshot plugs directly in to practically all popular home computers (ask about Vulcan interfaces for the BBC, Spectrum, Electron, C16, Plus 4). Only £8.95.



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SOFTWARE

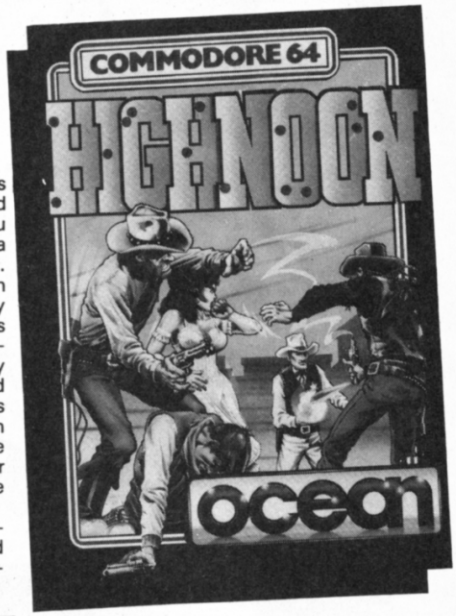


S.O.S.

Runs on: 48K Spectrum
Made by: Visions
Price: £5.95

S.O.S means Save Our Souls and is what is shouted by the stranded humans on the planet's surface. You may have guessed that this game is a type of lunar lander and rescue game. You must fly past many layers of alien types or meteors which are superbly animated and scroll smoothly across the screen. At the top is your mother-ship. When ready you will need to fly down to one of the six landing pads and pick up one of the six stranded humans and again, avoiding or shooting alien space ships, make your way back to the mothership where docking is required or the humanoid will fall down to the ground and meet a nasty death.

S.O.S. features great graphics, instructions in the program, good sound and Kempston and Sinclair joystick options. Well worth a look at.



BENEATH THE STARS

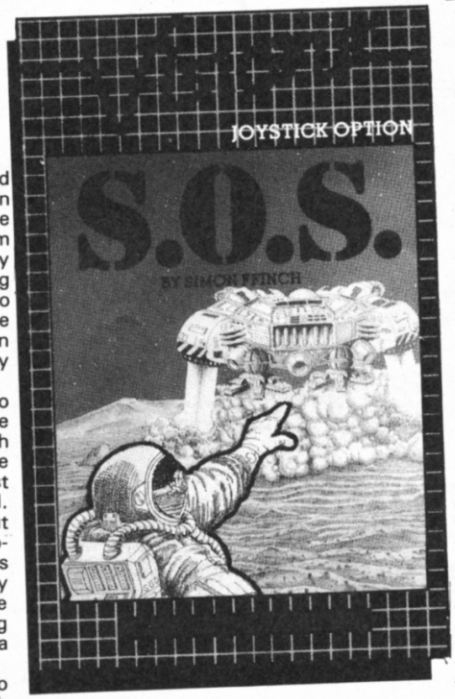
Runs on: T199/4A (Basic)
Made by: Intrigue
Price: £7.95

Alien type multi-digit hands are needed to keep up with the key pressing action demanded in this game. Nine keys are used to defend your space base from alien attack. You lose power if they damage your force field or if you bring your laser cannon or neutron gun into action. Help is at hand though in the shape of a repair craft, which can restore the force field and hence energy levels.

If more than one alien crashes into your generators you're finished. There are six types of alien to destroy, each with a different points score. There are five difficulty levels and the five highest scores are automatically recorded. Standard keys are set for playing, but these can be altered by selecting the appropriate menu option. Error checking is limited since the program is tightly squeezed into the TI memory, so take care in resetting keys or by pressing enter as default you could end up with a stuck game.

Only one key operates at a time, so the game has an infuriatingly high frustration quotient. In this respect the game is cleverly fashioned to give you so many things to think about that you don't worry about the typically jerky movement of the slow TI basic. All the while a lower screen display monitors your defence levels and score.

The packaging and instructions are to Intrigue's usual high standard. Slow TI basic or not, this is an altogether professional effort, giving very good value for money.



HIGH NOON

Runs on: CBM 64
Made by: Ocean
Price: £7.90

As with most games these days, this comes as a fast loader and a reliable one at that. It loaded first time on every attempt. The first thing to strike you is the quality of the music. Gilbert and Sullivan to amuse you while the loading takes place and then into a rendition of the High Noon theme which is a minor masterpiece in its own right.

The principle of play is simple. Shoot all the outlaws to prevent them robbing the bank or making off with the saloon girls and don't get shot yourself. Joystick control is smooth and accurate but so are the outlaws' bullets and staying alive can be difficult. Each screen ends with a fast draw challenge but these are fairly easy to win. As you progress, you have to face riders on horseback and throwers of dynamite who make your task even more hazardous.

As a game, however, this offers no new concepts. What saves it from mediocrity is the attention to detail. The graphics in the early screens of the town street are excellent. The swing doors on the saloon actually swing each time you enter or leave. the sprite characters are well drawn and most delightful is Rigor Mortis, the undertaker, who rushes around collecting all the dead bodies including yours if you re not careful. The final screen of the 'Hole in the Wall'' outlaw hideaway is not as graphically adventurous which is a bit of a letdown.

One word of warning! the instructions tell you that the outlaws will not fire where there is a chance of shooting each other and suggest that you can take strategic advantage of is. The outlaws in the version I played showed no sign of such scruples as I found to my cost.

Overall, an unremarkable game plot saved by high quality graphics and sound and an attention to he little details. Even the instructions have been well produced in booklet format and include playing hints to help you gain the highest scores. Probably worth the asking price.

FULL THROTTLE

Runs on: 48K Spectrum
Made by: Micromega
Price: £6.95

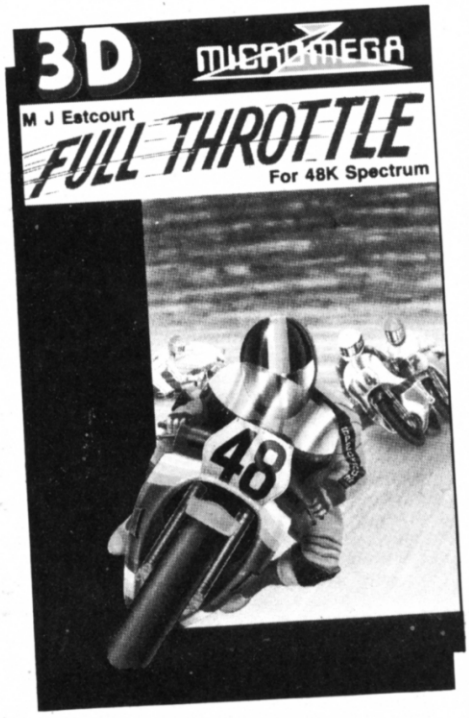
Full Throttle is a motorcycle racing game and is a version of Pole Position. The game features 40 other motorcycles to compete with, ten tracks, and up to five laps.

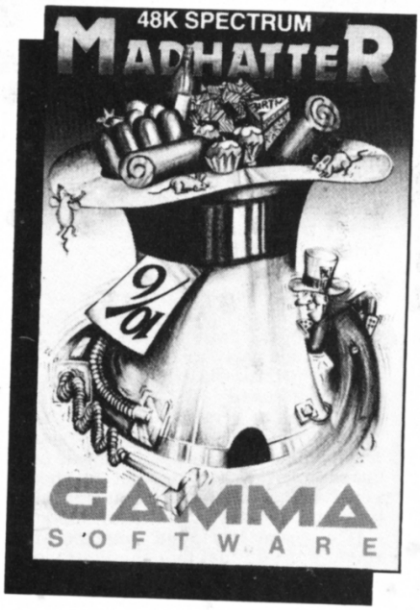
The game works very well, but unfortunately all the motorcyclists (except you) are green, so is the grass arond the course and the hills in the background and therefore the graphics are not always clear. The motorcyclists are well animated but your competitors flicker a bit and are not figures but just coloured shadows.

If a player, however, is carrying on, once he comes off the track he slows down almost to an absolute standstill. Also, most of the opponents once faced with being overtaken, swerve to give the player a penalty and slow him down.

The main thing wrong with the game is that if you come in 40th you are not given a time. The game features a new loading system which cuts out many minutes of frustrated waiting. However the game still takes a fair time to load.

Full Throttle features a number of joystick options. Overall, I think it beats similar games like Chequered Flag for sheer addictiveness. A very worthy addition to any library.





HATTER

Runs on: Gamma Software
Made by: 48K Spectrum
Price: £6.95

"Oh No", "What am I going to do?" wails the mad hatter, and in my opinion he certainly has something to, wail about, for being such a scatter brain as he is he finds it very difficult to remember things. He has however just remembered that today is his unbrthday and he has invited all his friends over to tea to celebrate the occasion, but he forgot to get in anything to eat.

There is still time to save the day if he hurries, so help the mad hatter to collect his tea time treats and carry them to the table, but you must look out for the mice. Those nasty mice will pinch anything from right under your nose and the mouse poison never seems to kill anything but the mad hatter himself.

While you are doing all this with one hand you must proceed to clean up the house before the guests arrive, with the other hand. So get the hoovers out. Whoops, oh dear, those mice have been at it again, they have rigged up your hoovers to suck twice as hard so don't get to close or you will find yourself sucked upwards very rapidly. Luckily you are able to turn the hoovers off every once in a while by touching the plug, which seems to float around the room, like everything else in this mad place. And even curiouser, you will find that not only the mice eat the sweets you must collect, but the poison and the plugs eat them as well.

To pass the first phase you must collect five chocolate rolls but you need ten sweets for every chocolate roll. the second phase is very similar except that a large yellow ball has escaped from somewhere so watch out for that. Following phases are very similar.

Mad Hatter is played at quite a speed so it takes some time to get used to and can be highly confusing. Still great fun for all ages.

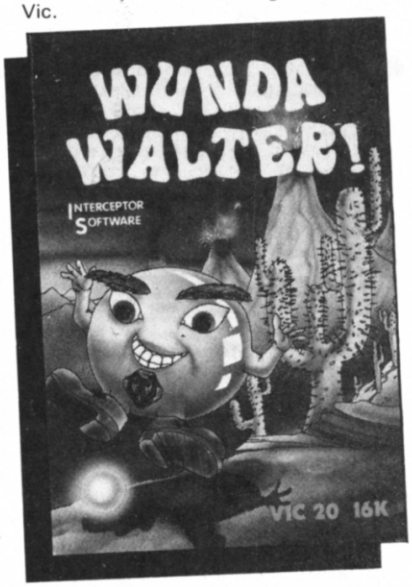
WUNDA WALTER

Runs on: Vic 20 16K + joystick
Made by: Interceptor Micros
Price: £6.00

Wonderful! Brilliant! Superb! Fabulous! As I was beginning to give Vic software up for dead, along comes Wunda Walter from Interceptor for the 16K expanded Vic 20 and joystick.

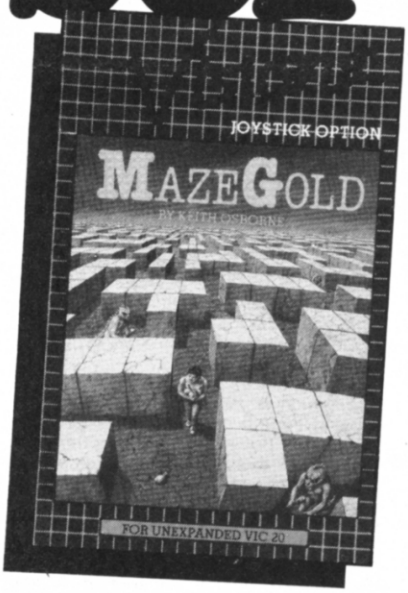
Walter is a balloon which you control and which is floating over 3D mountains in superb graphic illustration of a landscape. But every now and then (all the time) there are high volcanoes which you must float over, by going up (fire button). But in the sky there are lots of baddies flying along which you must go under or over to avoid. If a nasty comes along the top of the screen and you are over a volcano and it explodes, well, you lose one of your five Walters. If you land on any rough surface, you lose a Walter.

To score points you must land on the diamonds, but beware if you don't bounce back up quickly enough, you will land on a sharp surface and POP, another Wlater gone! With brilliant graphics, good sound, a high-score table and messages moving along the bottom of the screen, as you play, this is definitely the best-ever game for hte Vic.



REVIEWS

SOFTWARE



MAZEGOLD

Runs on: Vic 20 (Unex)
Made by: Visions
Price: £5.99

Mazegold is a 100% machine code program although first impressions look like it could have been written in BASIC. . . By a monkey!

The idea is not an original game concept. You have to guide you intrepid explorer in search of, yes you guessed it, gold. Unfortunately there are many perils in your quest of gold fever. Deadly poisonous. . . Pillars? Also in your wake a murderous dog-like beasty chases you everywhere. Fortunately on each side of the screen there are exits for you to escape into. . . Yes you guessed it. . . Another room of poisonous pillars and monsters. This could, and does, become monotonous if your idea of fun is running around immensely crowded rooms all day.

Although the game only takes three and a half minutes to load, it's not really worth waiting for, unless you turn down the brightness and just listen to the sound or better still turn the television off. The program has a pause facility and can 'toggle' the music on and off.

There are a number of bugs in the program. For a start the name of the game is spelt differently in several places. It is spely ''Mazmegold'' in the program and ''Mazegold'' in the documentation. So somebody up high in Visions didn't like the original name. Also the monster decided it might be more fun if he turned himself invisible to he human eye. This resulted in the length of my game being considerable less than my usual life of ten seconds.

The game is fairly cheap but really not worth the money for another old har maze maze game.

PSYCHO SHOPPER

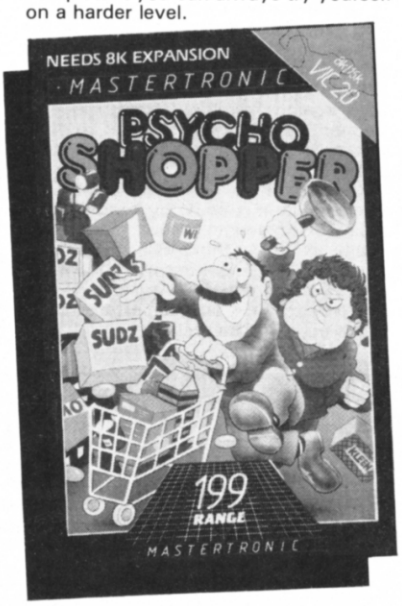
Runs on: Vic (8K expanded)
Made by: Mastertronic
Price: £1.99

Another Frogger type game but with a difference. You play the Psycho Shopper who has to cross the road collecting coins on his way avoiding cars and lorries that speed along the highway at awesome speeds. The game has four total different screens. Three of them being a definitive Frogger style of sheet and the fourth resembling the inside of a supermarket where you get to spend your hard earned, (even if you did find it laying by the side of the road), money.

The game has good graphics and sound but I do feel that the writer has something against old Granny Gladdis, for on every sheey you have to avoid her headly touch. The game has six skill levels between one which is the easiest (Huh! and six being virtually impossible, as there are so many cars and lorries plus out old friend Gladdis, all out to get you and keep you off the road.

There is no way you can jump ahead into the supermarket without crossing every road (You have been warned).

The game has a pause faciliy and is very addictive. The instructions scroll along the title page character by character rather quickly and becomes quite hard to read. Also the score, hiscore, and time remaining are printed at the top of the screen, unfortunately they are all cluttered together and a glance at the score during a game registers nothing. The game itself is easy to follow because most of it has been worked out not to produce a jumbled mess everywhere with every movement. This game is extremely addictive although it is immensely hard to play. It won't take you just one day to complete the whole game. If you ever complete it you can always try yourself on a harder level.





PIROMANIA

Runs on: 48K Spectrum
Made by: Automata
Price: £6.00

Our little friend Pi-man is at it again, this time he is frantically trying to put out fires which have broken out in various parts of the building in this platform type game. Around the building are water taps from which he fills his bucket, then rushes to the nearest fire and throws the water over the conflagration and if he is lucky he can put it out and rush to the next outbreak.

To add to his problems someone has left the odd stick of dynamite which have to be removed to safety before the lot goes up. There are people to be rescued and valuables to retrieve as well so there is not much time to admire the scenery. On the top floor is a dancing pink elephant (Yes a pink elephant) I am not too sure what Pi-man is supposed to do with that, if you have ever tried carrying a pink elephant through a blazing building littered with dynamite then I suggest you give up whatever it is that you are taking.

Seriously though, although as usual with Automata games everything is of a very high standard with Pi-man moving in a very realistic fashion and all the usual action and colour. But somehow I felt that there is more to life than just rushing about with buckets of water. This game is rather like candyfloss, good to look at and great to eat, but after you have eaten it there is that slight feeling of having been cheated. But then I must declare that my interest is more in the direction of adventure and arcade adventure games so for those who just live for the minute, Piromania will do quite nicely.

Oh Yes, the record on the reverse side ''Put The Cat Out Mother'' by ''Safety & Matches'' provided a few minutes light relief which is all this game did for me I'm afraid. Still you can't please everyone can you?



S.A.S. COMMANDER

Runs on: B.B.C
Made by: Comsoft
Price: £5.95

The first impressions I had upon seeing the title of this program were ones of Bodie and Doyle and masked characters storming embassys to rescue hostages. After loading the cassette without problem the concise instructions st a scene not too dissimilar.

Within the three creens of this program differing urban street scenes are excellently depicted upon which a lonely character under your keyboard command is drawn. The aim of the game is that with simple key strokes you move horizontally across the screen awaiting the appearance of a gun firing guerilla. In a window or a door, on a roof or in the open, it's kill or be killed — but be careful, a hostage will appear at random and your superior don't like them dead. You can fire vertically which, whilst making manoeuverability less complex, invariably places you at greater risk. Defeat ten enemy gunmen without incurring more than four hits to yourself and the next scene is revealed.

With a time bonus commencing at five hundred points and a reqard of ten points for a kill, your score accumulates as the screens progress. Camsoft are awarding cash and software prizes for the highest scores before April 1985 but be warned that a code relevant to your score must also be declared before claiming.

This is an excellent program especially suited to the younger player but not without great appeal to the older of us. A very tempting game expertly produced and with all the refinements, such s freeze frame and quiet option, one has come to expect.

PARCO GOLF

Runs on: T199/4A (Extended Basic)
Made by: Parco Electrics
Price: £5.95

This game of golf follows the rules as much as possible. With half set of irons, a couple of woods and a putter, you can pit your skill against an opponent over a changing nine or eighteen hole course. Trees, water and bunkers are all there as obstacles between tee and hole and the distance and par for each hole are indicated at the top of the screen.

Each player in turn selects the power, angle and club for the stroke to be played. If the ball lands in the trees or a bunker, then trying to thrash it out by brute strength can be just as costly as in the real game. Similarly, landing out of bounds or in the water attracts a penalty stroke and a dropped ball.

Drivers only drive from tees and putters only put on greens. The computer decides who starts the game, thereafter the player furthest from the hole plays first and the player who wins the hole starts the next. Although the ball of the player to play is supposed to darken to avoid confusion, it is very difficult to discern and downright annoying to send what you don't consider, but turns out to be, your ball in totally the wrong direction!

At the end of each hole a score card appears with details relating to the round. Besides an overhead view of the course, a helpful side view appears at the bottom of the screen. This shows the trajectory of strokes and gives an idea of how high a ball is lofted.

The instructions are clear and, of its kind, this game is a respectable and faithful rendition.

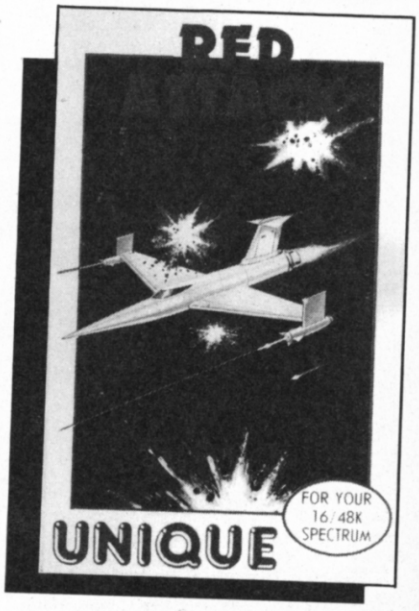
RED ATTACK

Runs on: 16/48K Spectrum
Made by: Unique Software
Price: £5.95

Yet another version of the old invaders game which initiated the arcade craze but now all seems so dated, and another which presents a standard well below that of the prestigious 'arcadia' which is considered by many to be the ultimate home ''shoot 'em up'' game.

The graphics are large and smooth, but the fact that each wave of aliens is in a single colour makes the display less impressive. If the player survives all the coloured waves of an attack level he then progresses to the next level, which features ''meaner'' aliens of different shapes than the previous level, although the colour sequence is the same for each level. There are five levels in total, and in each level the aliens move in different formations. These formations have been so carelessly choreographed however, that the aliens on level one for instance, will all move into your line of fire and thus commit suicide, allowing you to destroy all the sheets of the first level and thus progress to the second. It is for this reason that I suggest that you commence play at level B.

In addition to the level selection, five speeds of play are available — normal, two faster than normal, and two slower. The playing controls are either a joystick or a choice of keys, and the directions are up, down, left, right and fire. Moves up or down seems to have little advantage over staying at the bottom of the screen, as firing is always vertical.



REVIEWS



ADVENTURE into PROGRAMMING

Three different methods of scoring are to be found in adventure games. The earliest adventures, such as 'Colossal Caves', usually involve searching for and recovering treasures. These are then taken to a given location where you will be given points. More recent games have tended to give scores for solving certain puzzles or visiting locations.

The following examples show how you can adapt these techniques to your own requirements.

Method 1

The first thing you will need to do is to insert a line into the main control loop of your program to send control to a subroutine or procedure. eg.

```
420 IF G$ = "SCO" THEN GOSUB 2300
or
420 IF G$ = "SCO" THEN PROCscore
(for BBC micro)
```

Supposing you are writing a game which you must find ten items of treasure, which are identified by the numbers 1,3,5,6,7,8,11,14,17 and 21 in the DATA lines, and take these to the pawnbrokers, which is location 56 in your game. You will then need to decide how many points each treasure is worth. In the example shown, you will notice that I have given each treasure 10 points.

```
2295 REM ** score routine **
2300 LET S%=0
2310 IF B%(1)=56 THEN LET S%=S%+10
2320 IF B%(3)=56 THEN LET S%=S%+10
2330 IF B%(5)=56 THEN LET S%=S%+10
.
.
.
.
.
.
2400 PRINT CHR$(131);"You have scored ";S%;"
     percent"
2410 RETURN
```

The ten lines starting from 2310 check the location that the object held in the pointer B%(X) is to be found in. If it is location 56, then the score is increased by 10. You will need to adjust the variables used to your own computer. I have used the variable S% to hold the score, BBC users would probably find score% easier to remember, whilst Spectrum users will need to use lower case variables such as b(x). I have, in addition, used the CHR$ command to add colour to the display.

Personally, I find games in which you just try to find and recover treasures a little dull and prefer to play games which have an overall theme.

Method 2

In many of these games, you have a particular test task to perform. There is often a linear progression in this type of game. i.e. each time you solve a problem, it will allow you to move further in the adventure. Thus if the game starts at location number 1, your task might be to reach location 212 (even if it does not exist!). This means that you can give more points by checking the number of the current location eg.

```
2300 DEFPROCscore
2310 IF P%>10 AND S%<10 THEN LET S%=10
2320 IF P%>40 AND S%<20 THEN LET S%=20
.
.
.
.
.
.
.
2400 PRINT"You have scored ";S%;" percent"
2410 ENDPROC
```

This listing shows that you will be given 10% if you manage to get beyond point 10, 20% if you get beyond point 40 etc. If you do use this method, make sure that you set the variable S% to zero at the start of the game.

You will probably be wondering how a game can work if your task is to reach a location which does not exist! This is, however, quite a useful technique because it allows us to control the flow of the program more easily. The following example should illustrate this better.

Writing a game with a main control loop such as:

```
100 REPEAT
.
.
.
.
.
.
400 UNTIL P%=212
410 PROCwin
```





Will repeat the loop until you reach location 212. This may not exist in your game, but it is a useful method of exiting the loop and moving into PROCwin. To illustrate this let us consider a game in which you must kill COUNT DRACULA. When you enter STAB DRACULA, the main loop may send control to a subroutine or procedure such as:

serum in location 45. The main loop will, of course, pass control to a subroutine such as:





```
4000 DEFPROCstab
4010 IF P% <>120 THEN PRINT "I can't do that here !" :ENDPROC
4020 IF AF<>1 THEN PRINT "DRACULA ATTACKS": PROClose
4030 LET P%=212
4040 ENDPROC
```

```
4500 REM *** drink routine ***
4510 IF P%<>45 THEN PRINT "I am not thirsty ": RETURN
4520 PRINT" I drink the serum and I feel a strange glow pass through
my body ":
4530 S%=S%+10
4540 RETURN
```

This procedure will need some explanation. If the location is not 120 then Dracula is not there and the program prints an appropriate message and returns to the main loop. The variable AF is used here to test if you have already solved a previous quest, for example are you carrying the wooden stake. If you have not completed the previous task properly, the value of the variable AF will not be 1 and control will pass to the procedure PROClose, otherwise P% will be set to the location which does exist and you will be able to exit the loop without jumping out of it.

You will need to be very careful to dimension the arrays large enough if you do use this method, otherwise you will find an error being generated. It is usually worth putting a jump at the beginning of the main control loop so that the program does not try to print the descriptions of non-existent locations!

There are times, however, when you will want to give a score for solving certain puzzles. This will mean adopting a different technique. The subroutine or procedure which tell s you the score will not attempt to change the value of the variable S% used to hold the score.

Line 4510 checks to see if you are in location 45 and if not RETURNs to the main loop. If you are in location 45, then you will see that S% is increased by 10. There are problems with this, however, in that you do not want the player to cheat and keep on drinking the serum and increasing their score by 10. This will necessitate adding an extra variable which will be used as a flag. I would suggest that you set a flag such as HJ=0 at the start of the program and add the following lines to the routine:

4515 IF HJ<>0 THEN PRINT "There is no more serum left!": RETURN
4535 LET HJ=1

Next month I shall look in more detail at the use of flags and will also look at methods of packing more locations and problems into your game.



```
2300 DEFPROCscore
2310 PRINT "You have scored ";S%;" percent"
2320 ENDPROC
```

Method 3

The variable S% will need to be increased in the subroutines or procedures where you want to increase the score.

It may be that you want to give a score of 10 points for drinking strange



SOFTWARE

ALCATRAZ HARRY

Runs on: 48K Spectrum
Made by: Mastertronic
Price: £1.99

Harry is desperately trying to escape from Alcatraz. To do so he must find the whereabouts of, and then steal, the secret files which are hidden somewhere underground. The only access being through one of the ventilation shafts under a grid in the floor. He must choose the right grid however for only the grid leading to the files has the necessary ladder to enable Harry to escape.

Once the files are found, Harry must then proceed to peruse the camp and collect every peice of useful escape equipment that he can find, but beware, guards are dotted all over the camp and if you pass through a section containing a guard more than once, you will be arrested for loitering, and the prison camp officials will mete out the rather drastic punishment of death. If however, you are lucky enough not to experience such a fate you might continue with the game.

Once you have collected all the equipment that you can or are going to, you must return to the compound from which you started. To do this you can either walk through the various sections carefully avoiding these sections that you know contain guards, or you can find a section containing a small, yellow car. This car will drive you to the compound. If you find that you are stuck somewhere, there is an additional aid of tunnels. Upon entering a tunnel you will immediately be taken to another section. Which section this is will not be known until you get there.

When you have successfully returned to the compound, you deposit your equipment. You then get a brief glimpse of a map showing the positions of the mines in the minefield which you must avoid. Then you set off to find the hole in the fence and freedom. If you succeed your score is totted up to give you a HI-SCORE to beat the next time you play.

There are four levels of skill in this entertaining game, giving you a harder challenge once you have mastered the lower level. Not a particularly fast game so it gives you plenty of time to think about what to do next. Only a carefully pre-planned technique can help Harry to escape the confinement of Alcatraz.

FRED

Runs on: CBM 64
Made by: Quicksilva
Price: £7.95

Any similarity between the hero of this game and Indiana Jones is no doubt purely intentional. The setting is the maze of tunnels beneath the pyramid of 'Tootiecarmoon' which, as Indiana would have pointed out, has no relationship to historical accuract. King Tut was interred in a tomb and not a pyramid.

Fred, our intrepid archaelogist hero, seems none the wiser and must battle through ghosts and mummies to collect the ancient treasures and find the exit. There is the usual amount of rope climbing and dodging of drippoing acid to add to the perils but Fred has his trusty revolver to defend himself. The gun will only free six rounds but fortunately the ancient Egyptians have had the foresight to scatter replacement cartridges around the tunnels.

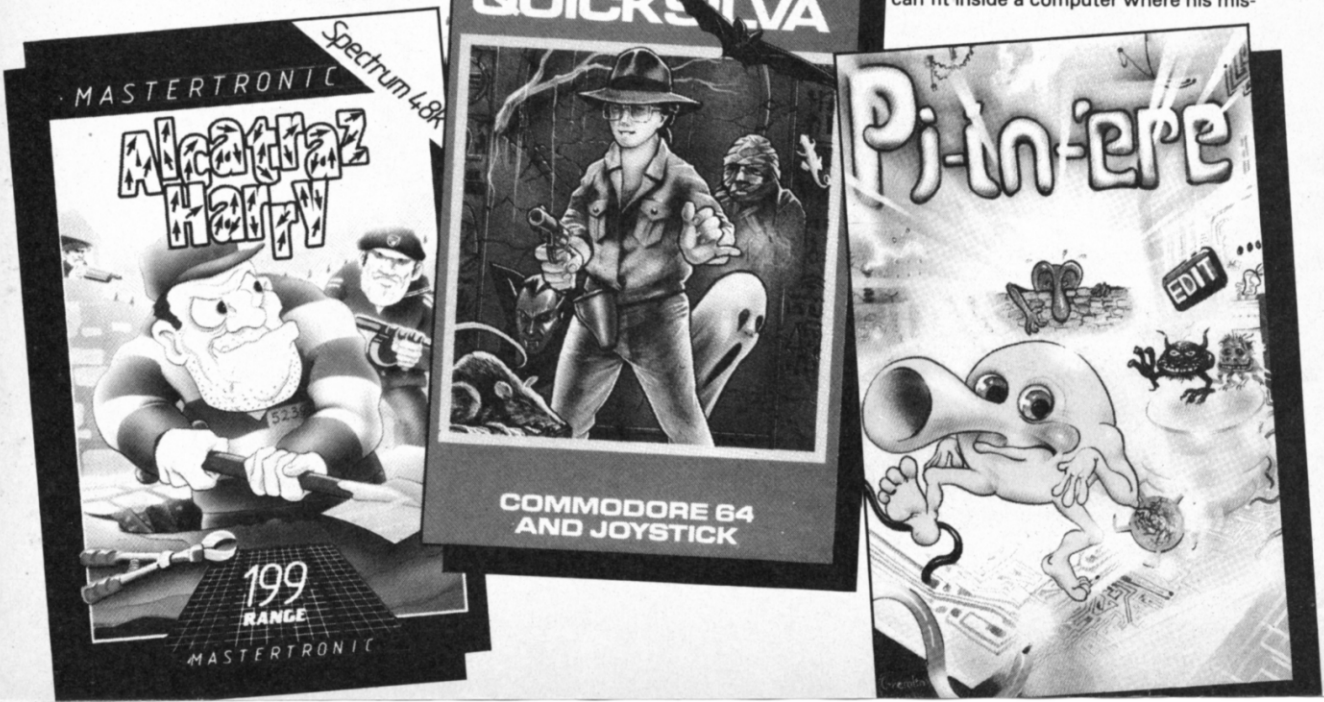
Contact with any of the varied hazards drains the energy from our hero and final loss of life is signalled by the sudden appearance of a gravestone. Fred can refresh himself with the invigorating potion of Queen Nefertiti which has no doubt improved in the keeping. The key to escape is the finding of a bomb which, when detonated against the grill covering the exit tunnel, will allow Fred to flee into yet more tunnels in a maze of even greater complexity with increasingly aggressive opposition.

This game is highly reminiscent of the sort of stuff that came out in the early days of the 64. The graphics are adequate but uninspired and the game plot is tedious and repetitive. There are now some truly excellent games on the market that exploit the capabilities of the 64 to a much greater extent. Games of this calibre will have a hard time competing against the best of the 'pocket money' games which must surely be better value for money. Quicksilva is definitely capable of better and, to keep their reputation, better they will have to do. One last point, why is the music used in this game the High Noon theme?

PI-IN-'ERE

Runs on: 48K Spectrum
Made by: Automata
Price: £6.00

This is the latest from the Automata stable starring, once again, Burt who this time has shrunk so small that he can fit inside a computer where his mis-



sion is to track down the evil bugs, hence the title of the game Pi-In-'Ere (Pi in Here, subtle isn't it?).

Scattered around the innards of your computer are revolting edit keys, and passing under one of these with bugs in hot pursuit will cause the key to drop and squash the bugs, would that debugging a program was that easy!

The display screens are well done with Burt's movement being quite smooth although I found that with the playing area small and Burt so large it was somewhat difficult to manoeuvre him around.

I cannot think of any real negative comments to make about this game except to say I think it has all been done before, perhaps not with bugs in a computer but this chasing around collecting some things and killing other things is, to me, old hat now, but having said that I would recommend this game to someone just embarking on a lifetimes devotion to he silicon chip.

In conclusion therefore, a good game that should hold your interest for a short while and as is usual with Automata games an audio track on the reverse side. Now if the audio track is supposed to be played simultanously with the game then Automata probably only expect you to be playing this game for about three minutes which in my estimation is about right but then perhaps I have been spoilt by the wealth of good new games available for the Spectrum.

B.C. BILL

Runs on: 48K Spectrum
Made by: Beau Jolly
Price: £5.50

Reviewing a game by Imagine is rather like writing an obituary, you try and say only the nice things. However, in the case of B.C. Bill the game has been taken over by Beau-Jolly so I suppose one can be honest. Having said that I found the game rather good.

You are Mr Bill, a prehistoric caveman whose only objective in life is to club young ladies, drag them away to his cave, and have his wicked way with them. That's the good news. The bad is that having fathered children you then have to feed them and the wives who seem to recover very rapidly from their rather strange courtship. You are allowed five years to collect your first wife and then have to provide for the children for 17 years, failure to do so will result in the wives dying and the children leaving home. The object of the game of course is to collect as many wives as possible and keep all your children at home for the 17 years required.

Keeping the family in grub involves going out and clubbing anything that moves especially dinosaurs who are better clubbed from behind as they have a nasty habit of biting if approached from the front. If by some mischance you fail to keep your family in the style to which they have been accustomed then you will die of a broken heart (some might say that would be a happy release after all that hunting and clubbing, but Bill is somewhat primitive).

There is good use of both sound and graphics with caves and mountains well depicted with the only reservation being that there is only one screen which somewaht limits the lasting interest but having said that it does have a subtle quality to it and well worth a look at, provided that is, you are not into womens liberation. Perhaps another version should be issued called B.C. Brenda and let the wives do all the hunting for once!

ASTRO CHASE

Runs on: CBM 64
Made by: Statesoft
Price: £8.95

There is a book and film called 'The Last Starfighter' which is based on the idea of a space war arcade game being used to select those with the talent to be ace starfighters. The game is virtually impossible to complete for all but the most skillful. I have a strong suspicion that Astro Chase might have been that game. As is now common, this comes as a fast loader which worked reliably.

There is an opening screen which makes full use of the graphic capabilities of the 64 to show the courageous saucer taking off from Earth base. Then you are quickly out amongst the stars and planets in your craft, ready to defend Earth from the dreaded Megard Empire with their Mega Mines and attack fighters. You must dodge your way among the planets seeking out the enemy and destroying them. Hitting a planet causes you to bounce and lose energy.

It is somewhat disconcerting to find that you also bounce off what seem like distant stars represented as points of light. Such are the vagaries of space no doubt. The graphics are excellent in respect of the planets and background but the various ships and mines are rather less imaginative. Tchaikowsky's 1812 Overture provides background music but there is an option to turn it off which is welcomed after a few minutes.

This action is fast and furious and nimble fingers will be needed on the joystick to stand any chance of saving Earth from what seems like an inevitable fate. If any of the Mega mines should reach the planet, then there is a devastating explosion and pieces of Earth hurl shatteringly in all directions. This becomes a familiar sight. There are reputed to be 34 levels of play but I have failed to get through level one so far. An animated sequence is promised for each level successfully completed but it was interesting to find that falure



REVIEWS

SOFTWARE

to start a new chase within a certain time period produces an animated return to earth by the pilot wondering where everyone has gone.

This is undoubtedly a game for the experts who will appreciate the level of difficulty involved. A good example of the space war 'shoot-em-up'' game.

FRANK N STEIN

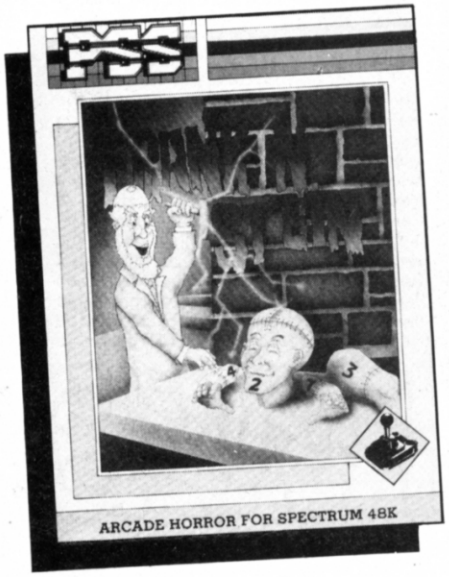
Runs on: 48K Spectrum
Made by: P.S.S.
Price: £5.99

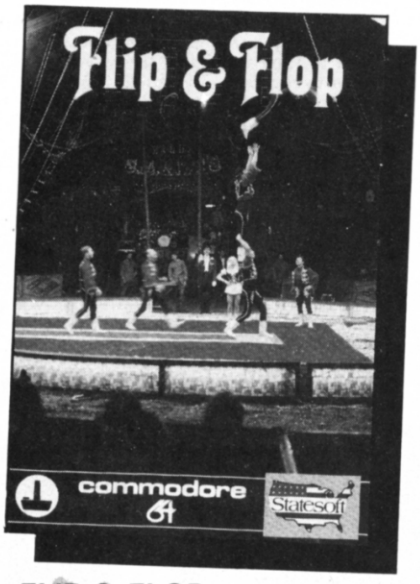
As the name would suggest, in this game you are the evil professor Stein who spends most of his time wandering around his laboratory looking for bits of skeletons to transform into a living being. These bits have to be collected in a certain order whilst at the same time avoiding the various nasties that lurk about including spiders, caterpillars, lobsters, and man eating pumpkins.

The game itself is a fairly standard platform type with 50 screens with movement to the next screen being achieved when the monster has been built and brought to life with a charge of electricity. Prof Stein starts at the top of the screen and whilst he can walk down the stairs is unable to walk back up them, instead springs are thoughtfully placed at intervals upon which he steps to be sprung back up to the previous level. Timing is important to avoid getting zapped by the nasties. On each alternative level you have to climb from the bottom of the screen to shut off the power supply to deactivate the monster.

Only three keys are used, Left, Right and Jump (activate the spring) so although it is not difficult to complete each level it does require some skill in avoiding the hazards and collecting the bones in the right order. The use of colour and sound is quite imaginative with a quite brilliant piece of animation being used when Prof Stein slips about on a stretch of ice.

Whilst the concept of the game is original it has borrowed from several other sources in its implementation, but this does not prevent it from being an interesting and quite addictive game that should keep you occupied well into the winter months. A good buy.





FLIP & FLOP

Runs on: CBM 64
Made by: Statesoft
Price: £8.95

At first glance this game seems to be a variation on the Qubert theme. In reality it turns out that this is head and shoulders better. I have a theory that a successful game should be one where you can improve quickly and where your eventual 'death' can always be attributed to some silly slip that you just know you won't make next time. This game certainly meets this criterion.

A reliable fast load quickly brings you to the three dimensional arena where Flip the kangaroo and Mitch the monkey battle to retain their freedom and escape the dreaded zoo-keeper with his flying net. The arena consists of multi-level platforms made up of squares and joined by ladders. To complete each screen, all the marked squares must be traversed but you must be careful to avoid sticky 'trap' squares of falling over the edge. Initially you are working against the clock but on higher screens the zoo-keeper and his net must be evaded as well. Your pursuers can, however, be enticed onto the sticky squares to give you some extra time to complete the grid.

Flip, the kangaroo, has a hard enough job negotiting the grid but the real challenge for your 3D perception is Mitch who swings from the underside of the squares. It is all too easy to make the false move that sends him plummeting into oblivion. Joystick control only on this one and you will need all your dexterity. Every fifth level successfully negotiated results in the appearance of a magic ladder which allows you to visit the circus ring below and see one of the performers in action. then it's back to an even more complex grid.

There are 36 different levels and on higher levels you actually have to cover each square twice just to make it harder. The instructions arewell presented in booklet form complete with playing hints to help you achieve those elusive high scores. This is one of the most addictive game I have seen recently and one of the most challenging uses of the 3D concept. It has excellent graphics and sound and certianly deserves a place in your collection.

RAPSCALLION

Runs on: 48K Spectrum
Made by: Bug-Byte
Price: £6.95

Bug-Byte have described this new game as ''A fully animated cartoon adventure'' so it was with some interest that I loaded up Rapscallion. Having plowed through the instructions which also include the story so far. To start you are the king who has had his castle stolen by Rapscallion the rogue who has cast you into the dungeon, fortunately there is a fairy princess (isn't there always?) who sets you free by transforming you into a bird but also allowing you to turn into a fly. In these forms you can fly around your castle to search for keys that will allow you to reach the magic labyrinth and thus defeat Rapscallion and regain your castle.

The graphics are strangely only done at half resolution which gives the game a rather primitive look, perhaps that was done to save memory, in which case I think I would have preferred less chambers but more detail in those shown. Each of the chambers has a different feature or features, in one chamber for instance you come across a game of tennis where you have to avoid the play, then there are cats and lily ponds and baby concordes (the flying variety) to avoid.

Mapping the chambers is somewhat confusing as there is no logical way from one chamber to another, you would think that if you exit one chamber from the top of the screen you would arrive in the next at the bottom, not a bit of it. This means that you spend quite a time just wandering around trying to work out where you are, where you have been, where you are going and whether the answer to the meaning of life is 42.

I thought that the best feature of this game was being killed, that is not as daft as it sounds as you are then turned into a ghost which allows you to wander around at will through all the

chambers with no harm coming to you (you can't kill a ghost). Of course the reverse side of this is that you cannot achieve anything either but I spent many happy hours just meandering around admiring the scenery. To obtain your real form again you press a ''Transform'' key and you are back in business.

If you manage to catch up with Rapscallion you are given the freehold of your castle. There is a save facility but if you use this to complete the game then you will only get the lease-hold of your castle but I suppose even that is better than being locked up in your own dungeon even if you don't have to pay the mortgage.

In summary then an entertaining game which has some amusing moments but to the more skilled at this type of game will probably not have lasting interest as it is not too hard to catch up with Rapscallion but it is still worth adding to your collection and should find a place in the top 40.

BOUNCING BERTY

Runs on: 16/48K Spectrum
Made by: Power Software
Price: £6.95

Bouncing Berty is an extremely fast moving game in which you need to keep your wits about you at all times in order to get anywhere at all. You, Bouncing Berty, bounce happily around the screen on your page stick. The area which you must keep inside is made up of a pyramid of cubes and you must colour in the top surface of each cube by bouncing on it at least once. You bounce up and down in a diagonal direction only but beware of bouncing too far for Berty will quite happily bounce right off the edge of the pyramid to his death if you do not keep him under control. That is not the only danger that can befall poor Berty in his mundane task of colouring in the pyramid, bouncing balls which home in on Berty's bounces are out to get him. Once Berty and his bouncing fees collide all is lost, or at least another life is.

To assist you in getting to the top of the pyramid, if the balls get in your way, there are two spinning coloured discs, one on either side of the pyramid. If you leap on to one of these discs (beware, it is not easy to do so without missing), it will take you directly to the top of the pyramid, from where you may bounce down away from the balls instead of towards them.

Good luck with this game because in my opinion you need it. It imposes a great challenge in that you deserve a gold medal if you can get past the first pyramid. I have no idea what comes after the first pyramid, I didn't get that far but I expect someone is clever enough to have far more success than I did. Anyhow, it wouldn't be any fun if it was too easy.

ZETA 7

Runs on: CBM 64
Made by: Mogul
Price: £7.95

This game has the dubious distinction of being the only one in a recent batch of reviews which did not feature some form of fast load. Almost twenty minutes after initiating the load, it became hard to understand how we ever survived in the days when all games loaded like this. To be fair, this was an advance copy and it is to be hoped that fast loading will be used on the production version. Mogul please note.

As for the game itself, it is fairly straightforward space war shootout. Instructions are included in the program but the principle is simple. You are charged with defending the spacesta tion Zeta 7 from hostile spacecraft. Included among these craft appears to be a renegade Enterprise which has no doubt temporarily fallen to the Klingons. You are located in a defence pod some distance from Zeta and are equipped with a plasma bolt with which to blast the attackets.

Naturally the enemy will also fire back and, although you have shields to deflect their blasts, you may sustain sufficient famage to destroy you. You must be equally wary lest too much damage is inflicted on Zeta 7 causing it to explode spectacularly, with a horrendous number of cicilian casualties.

Control is by joystick and this operates reasonably smoothly. The main problem of this game is the relatively slow movement of your plasma cannon compared with the frantic dodging of the enemy. It has been pointed out that in any real space war, the velocities involved would make it impossible to aim weapons by hand. Computer control would be essential. This game is a fairly good illustration of that fact. Nonetheless the graphics are of a reasonable standard and the game is an average example of its type. You may feel, however, that you'd rather spend your money on something with a bit more originality.



REVIEWS

Once upon a time, there lived an old Miller who had three sons. When he died he was so poor that all he left was his mill, his donkey and his old black cat. The eldest son inherited the mill, the middle one the donkey and all that was left for the youngest son was the old cat.

Now this was no ordinary cat and you can imagine the Miller's sons amazement when the cat spoke to him. 'Find me a bag, a pair of boots and I will find you a beautiful princess to marry', he said.

In this game, you will take the roll of the Miller's son and the computer will become your cat. You must give instructions in the form of two word sentences such as EAT MOUSE. remember, of course, that cat's have limited vocabulary and if it doesn't understand you, you should try another command.

If you find that the game is very long, you can save it onto tape by typing SAVE and following the instructions which appear on screen. A saved game may be reloaded by typing LOAD.

Here is a list of some of the words I understand:

N,S,E,W, IN, OUT, UP, DOWN, EXAMINE, SCORE, SAVE, LOAD, ASK, SAY, TALK, GIVE, DROP, LEAVE, PUT, KILL, ATTACK, GET TAKE, PRAY, HELP, EAT, DRINK, DANCE, ENTERTAIN, DINE, WAIT

RUNdown

Lines	Action
10-40	Select colours.
50	Instructions/titles.
60-80	Fill arrays.
90-560	Main control loop.
570	Solve game.
580-1510	Subroutines for GET/DROP etc.
1520-1650	Data for locations/objects.
1660-1710	Win game.
1700-1800	Save game to tape.
1810-1910	Load previously saved game.
1920-	Titles/instructions.

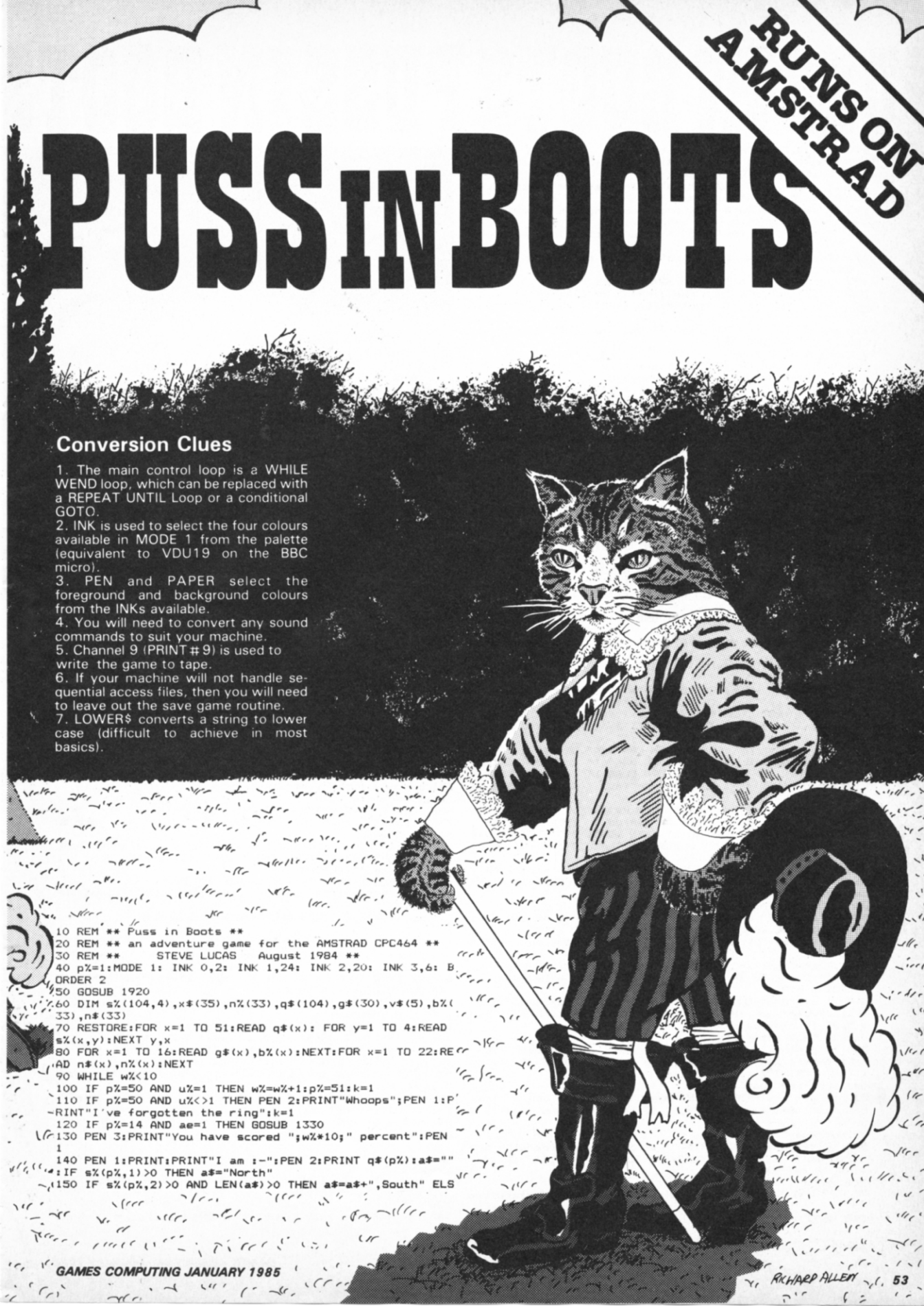


RUNS ON AMSTRAD

PUSS IN BOOTS

Conversion Clues

1. The main control loop is a WHILE WEND loop, which can be replaced with a REPEAT UNTIL Loop or a conditional GOTO.
2. INK is used to select the four colours available in MODE 1 from the palette (equivalent to VDU19 on the BBC micro).
3. PEN and PAPER select the foreground and background colours from the INKs available.
4. You will need to convert any sound commands to suit your machine.
5. Channel 9 (PRINT#9) is used to write the game to tape.
6. If your machine will not handle sequential access files, then you will need to leave out the save game routine.
7. LOWER$ converts a string to lower case (difficult to achieve in most basics).



```
10 REM ** Puss in Boots **
20 REM ** an adventure game for the AMSTRAD CPC464 **
30 REM **      STEVE LUCAS    August 1984 **
40 p%=1:MODE 1: INK 0,2: INK 1,24: INK 2,20: INK 3,6: B
ORDER 2
50 GOSUB 1920
60 DIM s%(104,4),x$(35),n%(33),q$(104),g$(30),v$(5),b%(
33),n$(33)
70 RESTORE:FOR x=1 TO 51:READ q$(x): FOR y=1 TO 4:READ
s%(x,y):NEXT y,x
80 FOR x=1 TO 16:READ g$(x),b%(x):NEXT:FOR x=1 TO 22:RE
AD n$(x),n%(x):NEXT
90 WHILE w%<10
100 IF p%=50 AND u%=1 THEN w%=w%+1:p%=51:k=1
110 IF p%=50 AND u%<>1 THEN PEN 2:PRINT"Whoops";PEN 1:P
RINT"I've forgotten the ring":k=1
120 IF p%=14 AND ae=1 THEN GOSUB 1330
130 PEN 3:PRINT"You have scored "¡w%*10;" percent":PEN
1
140 PEN 1:PRINT:PRINT"I am :-":PEN 2:PRINT q$(p%):a$=""
:IF s%(p%,1)>0 THEN a$="North"
150 IF s%(p%,2)>0 AND LEN(a$)>0 THEN a$=a$+",South" ELS
```


RICHARD ALLEN

PUSS IN BOOTS PUSS IN BOOTS

```
E IF s%(p%,2)>0 THEN a$="South"
160 IF s%(p%,3)>0 AND LEN(a$)>0 THEN a$=a$+",East" ELSE
 IF s%(p%,3)>0 THEN a$="East"
170 IF s%(p%,4)>0 AND LEN(a$)>0 THEN a$=a$+",West" ELSE
 IF s%(p%,4)>0 THEN a$="West"
180 IF p%=45 THEN a$="nowhere! The King won't let me!"
190 IF p%=2 OR p%=4 THEN a$=a$+",In"
200 IF p%=8 THEN a$="Up,Out" ELSE IF p%=9 THEN a$="Down
"
210 IF p%=18 THEN a$=a$+",Up" ELSE IF p%=22 THEN a$=a$+
",Down"
220 IF p%=46 OR p%=51 THEN a$="nowhere!"
230 IF g%>100 THEN THEN PEN 3:PRINT x$(17):PEN 1
240 PRINT:PRINT"I can go :-":PEN 2:PRINT a$:PRINT:PRINT
:PEN 1
250 e=0:FOR x=1 TO 20:pp%=0:IF b%(x)=p% THEN pp%=1
260 IF pp%=1 THEN 280
270 NEXT: GOTO 300
280 IF e=0 THEN PRINT"That looks like :-"
290 PEN 2:PRINT g$(x):e=e+1:GOTO 270
300 PEN 1:PRINT:PRINT"What shall I do now ";:INPUT z$:z
$=LOWER$(z$):b$=LEFT$(z$,2):c$=LEFT$(z$,3):d$=LEFT$(z$,
4)
310 CLS:SOUND 5,20,20
320 k=0:IF c$="ask" OR c$="tal" OR c$="say" THEN GOSUB
1440 ELSE IF c$="loo" THEN k=1
330 IF c$="sco" THEN k=1:PRINT"I've already told you yo
ur score!" ELSE IF c$="eat" THEN PRINT"I'm too full to
eat anything!":k=1
340 IF c$="rub" THEN PRINT"Don't be absurd!":k=1 ELSE I
F c$="dri" THEN PRINT"I'm not thirsty!":k=1 ELSE IF c$=
"hel" THEN GOSUB 1090
350 IF c$="run" THEN GOSUB 1220 ELSE IF c$="say" OR c$=
"spe" OR c$="tal" THEN k=1:PRINT"I talk but nobody seem
s TO listen"
360 IF c$="wea" OR c$="try" THEN GOSUB 1240 ELSE IF c$=
"pra" OR c$="cry" THEN k=1:GOSUB 1040
370 IF (b$="n" OR d$="go n") AND s%(p%,1)<>0 THEN p%=s%
(p%,1):k=1
380 IF (b$="s" OR d$="go s") AND s%(p%,2)<>0 THEN p%=s%
(p%,2):k=1
390 IF (b$="e" OR d$="go e") AND s%(p%,3)<>0 THEN p%=s%
(p%,3):k=1
400 IF (b$="w" OR d$="go w") AND s%(p%,4)<>0 THEN p%=s%
(p%,4):k=1
410 IF (b$="n" OR b$="s" OR b$="e" OR b$="w") AND k=0 T
HEN PRINT"I can't go that way!":k=1
420 IF c$="rea" THEN PRINT"Sorry I forgot my glasses!":
k=1 ELSE IF c$="pho" THEN PRINT"I'm not E.T. you know !
":k=1
430 IF c$="ent" OR c$="fee" OR c$="ban" OR c$="lun" THE
N GOSUB 1500 ELSE IF b$="fu" OR b$="pi" THEN GOSUB 1270
440 IF c$="hid" THEN GOSUB 1390 ELSE IF c$="buy" THEN P
RINT"What with?":k=1 ELSE IF c$="inv" THEN k=1:GOSUB 91
0
450 IF c$="row" OR c$="sai" THEN PRINT"not here!":k=1 E
LSE IF b$="up" OR c$="cli" OR d$="go u" THEN GOSUB 580
460 IF c$="dow" OR d$="go d" THEN GOSUB 590 ELSE IF c$=
"out" OR d$="go o" THEN GOSUB 600 ELSE IF c$="in" OR d$
="go i" THEN GOSUB 610
470 IF c$="pus" THEN GOSUB 1180 ELSE IF c$="was" THEN k
=1:PRINT"I'm not a servant you know!":k=1 ELSE IF c$="d
an" THEN PRINT"O.K. I
dance but it impresses nobody!":k=1
480 IF c$="rid" OR d$="go r" THEN PRINT"not at the mome
nt!":k=1 ELSE IF c$="wai" THEN k=1: GOSUB 1190
490 IF c$="sav" THEN GOSUB 1700 ELSE IF c$="loa" THEN G
OSUB 1810
500 IF c$="jum" THEN PRINT"Not likely. I might break my
 neck!":k=1 ELSE IF c$="get" OR c$="tak" OR c$="gra" TH
EN GOSUB 620
510 IF c$="dro" OR c$="lea" OR c$="put" THEN GOSUB 830
ELSE IF c$="swe" THEN PRINT"Don't be a silly billy!":k=
1 ELSE IF c$="ope" THE
N PRINT"Not yet!":k=1
520 IF c$="unl" THEN GOSUB 1370  ELSE IF c$="sea" THEN
k=1:PRINT"I can't find anything useful!" ELSE IF c$="ex
a" THEN PRINT"I can't
see anything special":k=1
530 IF c$="kis" THEN PRINT"Uggghhh  We cats don't like
that sort ofthing!":k=1 ELSE IF c$="giv" THEN PRINT"I d
on't feel like giving
things away":k=1
540 IF c$="swi" THEN PRINT"Just give me a direction and
 I'll swim  if I have to!":k=1 ELSE IF c$="hit" OR c$="
kil" OR c$="att" THEN
GOSUB 950
550 IF k=0 THEN PRINT"I'm afraid I don't understand you
!"
560 WEND
```



```
570 GOSUB 1660
580 k=1:IF p%=8 THEN p%=9:PRINT"I climb the steps!":RET
URN ELSE IF p%=18 THEN p%=22:PRINT"o.k.":RETURN ELSE PR
INT"I can't do that he
re!":RETURN
590 k=1:IF p%=9 THEN PEN 3:PRINT"O.k.":PEN 1:p%=8:RETUR
N ELSE IF p%=22 THEN p%=18:PRINT"O.K.":RETURN ELSE PRIN
T"I'm sorry I can't do
 that here!":RETURN
600 k=1:IF p%=21 THEN p%=4:PRINT"O.K.":RETURN ELSE IF p
%=8 THEN p%=2:PRINT"O.K.":RETURN ELSE PRINT"Not here du
mmy!":RETURN
610 k=1:IF p%=4 THEN p%=21:PRINT"I go into the shop":RE
TURN ELSE IF p%=2 THEN p%=8:PRINT"O.K.":RETURN ELSE PRI
NT"Not here !":RETURN
620 k=1:GOSUB 790 :IF l%<>1 THEN RETURN
630 e%=0:FOR x=1 TO 16:IF b%(x)=p% AND b%(n%(r))=p% THE
N e%=1
640 NEXT:IF e%=0 THEN PEN 2:PRINT"I can't see it here!"
:RETURN
650 IF r=1 OR r=2 THEN PRINT"Don't be silly!":RETURN
660 IF r=11 THEN x$="I cut myself and bleed to death":G
OSUB 950
670 IF r=12 THEN PRINT"Not Bloomin' Likely":RETURN ELSE
 IF (r=18 OR r=19) THEN u%=1
680 IF r=5 THEN aa=1 ELSE IF (r=6 OR r=7) THEN ac=1 ELS
E IF r=8 THEN ad=1
690 IF r=8 AND sa=0 THEN w%=w%+1:sa=1
700 IF r=9 THEN GOSUB 1280:IF ae<>1 THEN RETURN
710 IF r=10 AND ad<>1 THEN PRINT"I need a bag to catch
it in!":RETURN ELSE IF r=10  THEN af=1
720 IF r=22 THEN ag=1 ELSE IF r=14 THEN PRINT"I'd need
a spade!":RETURN
730 IF r=13 THEN ah=1 ELSE IF r=15 OR r=16 THEN PRINT"W
hat a Wally!":RETURN
740 IF p%=21 AND (r=3 OR r=4) AND aa<>1 THEN PRINT"The
assistant won't let me!":RETURN ELSE IF r=3 OR r=4 THEN
 ab=1
750 e%=0:FOR x=1 TO 3:IF v$(x)="" THEN v$(x)=g$(n%(r)):
e%=1:x=7
760 NEXT:IF e%=0 THEN PRINT"My hands are full":RETURN
770 b%(n%(r))=0:RETURN
780 k=1
790 l$="":FOR x=1 TO LEN(z$): IF MID$(z$,x,1)=" " THEN
```

PUSS IN BOOTS PUSS IN

RUNS ON AMSTRAD



```
1$=RIGHT$(z$,(LEN(z$)-x)):x=90
800 NEXT:r=0:1%=0:IF LEN(1$)<2 THEN RETURN
810 FOR x=1 TO 27:IF LEFT$(n$(x),LEN(1$))=1$ THEN 1%=1:
r=x
820 NEXT:RETURN
830 k=1:GOSUB 780:IF 1%<>1 THEN PRINT"I can't see a ";1
$:RETURN
840 e%=0:FOR x=1 TO 3:IF v$(x)=g$(n%(r)) THEN v$(x)="":
e%=1
850 NEXT:IF e%=0 THEN PRINT"I haven't got it!":RETURN
860 b%(n%(r))=p%:IF r=5 THEN aa=0 ELSE IF r=18 OR r=19
THEN u%=0 ELSE IF r=3 OR  r=4 THEN ab=0
870 IF r=6 OR r=7 THEN ac=0 ELSE IF r=8 THEN ad=0
880 IF p%=17 AND r=10 AND sb=0 THEN GOSUB 1360
890 IF af=1 AND r=10 THEN af=0 ELSE IF r=22 THEN ag=0 E
LSE IF r=13 THEN ah=0
900 RETURN
910 PRINT"I have :-":PEN 2: PRINT aq$: PEN 1
920 f%=0:FOR x=1 TO 3:IF v$(x)<>"" THEN PRINT v$(x):f%=
1
930 NEXT:IF f%=0 THEN PRINT"not a sausage!"
940 RETURN
950 k=1:  IF p%<103 THEN PRINT"Not here and now!":RETURN
960 PRINT"That's not a good idea!":RETURN
970 k=1:CLS
980 PEN 2:PRINT"That's done it !!!!":PRINT:PRINT:PRINT:
PEN 3:PRINT x$
990 LOCATE 1,15:PEN 2:PRINT"The King is very sad to los
e me."
1000 LOCATE 1,20:PEN 1:PRINT"Would you like another gam
e <Y>es/<N>o ?";
1010 h$=INKEY$:h$=LOWER$(h$):IF h$="y" THEN RUN
1020 IF h$<>"n" THEN 1010
1030 LOCATE 1,24:PEN 3:PRINT"G O O D B Y E":END
1040 IF p%<28 THEN PRINT"nothing happens!":RETURN
1050 IF a%<>0 THEN PRINT"I can only be transported TWIC
E!"
1060 IF a%>2 THEN RETURN
1070 PRINT CHR$(7):IF p%=28 AND a%<>2 THEN a%=a%+1:p%=4
9:PRINT"Wow ! I've been transported somewhere!":RETURN
1080 p%=28 :IF a%<2 THEN PRINT"Wow! I've been transport
ed somewhere!":s%(28,1)=0:q$(28)="In an empty chamber.
The door is locked":a%
=a%+1:RETURN
1090 k=1:IF p%=21 THEN PRINT"Shop assistant's don't GIV
E anything    away!":RETURN ELSE IF p%=39 THEN PRINT"I'
ve heard that Ogres ca
n turn into     anything they like... why not ask him ?
":RETURN
1100 IF p%=37 THEN PRINT"This meadow is so large that I
 won't getfat without running!":RETURN ELSE IF p%=12 TH
EN PEN 2:PRINT"Rabbits
 are very fond of lettuce!":PEN 1:RETURN
1110 IF p%=2 OR p%=4 THEN PRINT"Why not go in ?":RETURN
 ELSE IF p%=21 THEN PRINT"Why not go out ?":RETURN ELSE
 IF p%=9 OR p%=22 THEN
 PRINT"I'd go down!":RETURN ELSE IF p%=8 OR p%=18 THEN
PRINT"I'd go up!":RETURN
1120 IF p%=46 THEN PRINT"There's nothing much to do her
e except  WAIT!":RETURN ELSE IF p%=14 THEN PRINT"The gu
ard says that he will
not let me  in if I don't bring a gift for the King":RE
TURN
1130 IF p%=17 THEN PRINT"I've heard that the King is fo
nd of     rabbits and pheasants!":RETURN ELSE IF p%=44
THEN PRINT"Why not pre
tend that you own the cottageand ENTERTAIN the King and,
 his party ?":RETURN
1140 IF p%=13 THEN PRINT"The guards only let visitors b
earing    gifts of rabbits in!":RETURN ELSE IF p%=45 TH
EN PRINT"The miller's
son is getting on well withthe Princess. I'd just wait
around!":RETURN
1150 IF p%=35 THEN PRINT"The King will be riding past s
hortly.   Why not hide the Miller's son's clothes?":RET
URN ELSE IF p%=36 THEN
 PRINT"Those bushes look a good place to hide  things!"
:RETURN
1160 IF p%=28 THEN PRINT"A Wedding Ring would come in u
seful!":RETURN ELSE IF p%=50 THEN PRINT"When I forget s
omething I usually pra
y!":RETURN
1170 IF p%=30 THEN PRINT"Don't touch the Knife!":RETURN
 ELSE IF p%=33 THEN PRINT"Have you got the key?":RETURN
 ELSE PRINT"I'm sorry
I don't have a clue!":RETURN
1180 k=1:PRINT"Do you always have to be so stupid ?":RE
TURN
1190 CLS:PRINT"O.K.":FOR x=1 TO 1000: NEXT x:IF p%=45 T
HEN PRINT"That seems to have done the trick!. The Mille
r's son proposes marri
age to the   Princess and she accepts. The King puts me
 into a carriage!":p%=46:RETURN
1200 IF p%=46 THEN PRINT"The carriage comes to a rest a
nd they   all get out.":p%=47
1210 RETURN
1220 k=1:IF p%<>37 THEN PEN 2:PRINT"I'm too tired at th
e moment!":PEN 1: RETURN
1230 p%=38:PRINT"O.K. I run as fast as my legs will
   carry me!":w%=w%+1:RETURN
1240 k=1:IF ab<>1 THEN PRINT"not yet!":RETURN ELSE PRIN
T"O.K. I wear the wellies":FOR x=1 TO 3: IF v$(x)=g$(2)
 THEN v$(x)=""
1250 NEXT:ab=3:aq$="a pair of wellies (WORN) plus:-":s%
(11,3)=12:w%=w%+1:RETURN
1260 PRINT"not yet":RETURN
1270 k=1:CLS:PEN 2:PRINT"How dare you speak to me like
that ?":PEN 1:FOR x=1 TO 1000: NEXT:x$="The King's sold
iers arrest me for usi
ng bad language!":GOSUB 970
1280 k=1:IF ae=1 THEN RETURN ELSE IF ac<>1 THEN PRINT"I
 need something to entice the rabbit   with!"
1290 IF ad<>1 THEN PRINT"I need a bag to trap it in!
1300 IF (ac=1 AND ad=1) THEN PRINT"I put some lettuce l
eaves into the bag, the rabbit rushes over and I trap i
t":ae=1
1310 IF ae=1 THEN s%(13,2)=14: q$(13)=LEFT$(q$(13),21)
1320 RETURN
1330 k=1:w%=w%+1:ae=0:FOR x=1 TO 3:IF v$(x)=g$(6) THEN
v$(x)=""
1340 NEXT:PRINT"The guards take my GIFT of a RABBIT off
 me and present it to the King"
1350 PRINT"He is very pleased and asks for a        PART
RIDGE": RETURN
1360 k=1:IF af<>1 THEN PRINT"I don't have it !":RETURN
```

PUSS IN BOOTS

PUSS IN BOOTS

```
ELSE PEN 2:PRINT"The King thanks me for my generosity a
ndcalls his dogs out o
f the way":s%(17,3)=30:sb=1:w%=w%+1:q$(17)=LEFT$(q$(17)
,22):RETURN
1370 k=1:IF p%<>33 THEN PRINT"Not here & now!":RETURN E
LSE IF ag<>1 THEN PRINT"I have no key!":RETURN
1380 PRINT"O.K. I unlock the gate":q$(33)="by an open g
ate":s%(33,2)=34:w%=w%+1:RETURN
1390 k=1:IF p%<>36 THEN PRINT"I can't hide anything her
e!":RETURN
1400 IF ah<>1 THEN PRINT"I don't have anything to hide!
":RETURN
1410 FOR x=1 TO 3: IF v$(x)=g$(10) THEN v$(x)=""
1420 NEXT:ah=0:w%=w%+1:PRINT"The King rides past your m
aster (The    Miller's son) and sees that he is in    d
istress. He takes your
 master for a    ride in the Royal Carriage. You run on
  ahead!"
1430 p%=37:RETURN
1440 k=1:IF p%<>39 THEN PRINT"I can't do that here!":RE
TURN
1450 IF sd<>0 THEN RETURN
1460 CLS:PEN 2:PRINT"O.K. I ask the ogre if he can turn
 into something."
1470 PEN 2:PRINT:PRINT"He says 'Of course I can'":sd=1:
PEN 1:PRINT:PRINT:PRINT"What would you like me to turn
into    ";:INPUT z$
1480 z$=LOWER$(z$):c$=LEFT$(z$,3):IF c$<>"mou" THEN x$=
"He turns into a tiger and eats me":GOSUB 970
1490 CLS:PRINT"The Ogre turns into a mouse":PEN 2:PRINT
:PRINT:PRINT"I pounce upon it and kill it!":g$(12)="a d
ead mouse":s%(39,2)=40
:w%=w%+1:n$(15)="mouse":n$(16)="dead":q$(39)=LEFT$(q$(3
9),40):RETURN
1500 k=1:IF p%<>44 THEN PRINT"Don't be silly":PEN 2:PRI
NT"How can I do that here?":PEN 1: RETURN
1510 w%=w%+1:PRINT"O.K. I invite the King and the Princ
ess into the cottage.":PEN 2:PRINT"The servants provide
 a slap up meal and th
e King is most impressed!":p%=45:PEN 1:RETURN
1520 DATA outside an old rundown mill,2,5,7,3,outside a
 disused barn,0,1,0,0,on an overgrown footpath,0,4,1,0,
standing outside the v
illage shop,3,0,0,0,inside the old mill. It's full of
     cobwebs,1,6,0,0
1530 DATA in the living quarters. It's deserted,5,0,10,
0,in an overgrown garden,0,0,11,1,Inside the old barn.
A ladder leads up  int
o the hayloft,0,0,0,0,inside the hayloft. A ladder lead
s down,0,0,0,0
1540 DATA In a bedroom full of dust,0,0,0,6,on a narrow
 footpath. It's too muddy to go east without wearing We
llies.,0,0,0,7,by a ra
bbit hole,0,13,0,11,outside an old castle. The guards w
ill  not let me pass South into the castle,12,0,0,0
1550 DATA in a rundown courtyard. The guard will  not l
et me go North,0,15,0,0,at the entrance to the king's c
hamber,14,18,16,19,at
the northern end of the King's        chambers,0,17,0,15
1560 DATA in the King's chamber. A passage leads  East
but two enormous dogs block my way.The King is in his b
ed.,16,0,0,0,at the bo
ttom of some steps.,15,0,0,0,on a path leading across w
indswept       moorland,0,20,15,0
1570 DATA on a bracken covered hillside. There arepheas
ants to be seen everywhere,19,0,0,0,inside a small vill
age shop,4,0,0,0,at th
e top of a flight of stairs,0,23,0,0,in a long narrow p
assage,22,26,24,27,in a narrow passage,0,0,25,23
1580 DATA in a small dusty room. Everything is    cover
ed with sheets.,0,0,0,24,on the battlements. I can see
fields in the distance
,23,0,0,0,in a passage,0,28,23,29,in an empty chamber,2
7,0,0,0,in a large library,0,0,27,0,in the royal kitche
ns,0,0,31,17
1590 DATA by the royal dustbins,0,32,0,30,on a footpath
,31,33,0,0,by a locked gate,32,0,0,0,by the river banks
,33,35,0,0,on the bank
s of the river. The Miller's son is swimming here,35,36
,0,0,by some shrubs,35,0,0,0
1600 DATA in a very large meadow,37,37,37,37,on a footp
ath outside a cottage,0,39,0,0,inside the doorway of th
e OGRE's cottageThe ev
il OGRE is here !,38,0,0,0,in a large kitchen full of f
ood,39,0,0,41,in a small passage,42,0,40,43
1610 DATA in a large living room,0,41,0,0,at the entran
ce to the house,0,0,41,44,by the open door to the dead
Ogre's      house. The
King is here in his carriage with the Miller's son and
the beautiful princess,0,0,43,0
1620 DATA seated in the banquet hall. With the    King;
 the miller's son and the princess,0,0,0,0,riding in th
e Royal Carriage with
the    King; the Miller's son and the Princess,0,0,0,0,i
n a stationary carriage,0,0,48,0
1630 DATA outside the village church,49,0,0,47,walking
down the aisle. The Wedding     march is playing. I hop
e I remembered    the r
ing,0,48,0,50,at the altar. The Princess; the King andt
he Miller's son are here,0,0,49,0,getting married,0,0,0
,0
1640 DATA a shop assistant,21,a pair of old Wellies,21,
some coins,10,some lettuce leaves,7,an old bag,9,a fat
rabbit,12,a partridge,
20,a rusty knife,30,a dead rat,25,the miller's son's cl
othes,35,some bushes,36,The Evil Ogre,39,some food,42
1650 DATA a gold wedding ring,28,the palace guard,13,a
key,29,shop,1,assistant,1,pair,2,wellies,2,coins,3,lett
uce,4,leaves,4,bag,5,r
abbit,6,partridge,7,knife,8,rat,9,clothes,10,bushes,11,
ogre,12,evil,12,food,13,wedding,14,ring,14,palace,15,gu
ard,15,key,16
1660 MODE 1:PEN 1: LOCATE 10,2:PRINT"W e l l    D o n e"
1670 PEN 2: LOCATE 1,5:PRINT"You have helped the Miller
's son to     marry the beautiful princess and you    l
ive happily ever after
 in the palace   with the new Prince and Princess."
1680 PEN 3: LOCATE 1,22:PRINT"Would you like another ga
me <Y/N> ?"
1690 a$=INKEY$:a$=LOWER$(a$):IF a$="y" THEN RUN ELSE IF
 a$="n" THEN PRINT"goodbye":END ELSE 1690
1700 CLS:PRINT"Please insert blank tape and press the
<SPACE BAR> when ready"
1710 k=1:ff$=INKEY$:IF ff$<>" " THEN 1710
1720 OPENOUT "data"
1730 FOR x=1 TO 51: PRINT#9,q$(x):FOR y=1 TO 4: PRINT#9
,s%(x,y):NEXT y,x
1740 FOR x=1 TO 16: PRINT#9,g$(x),b%(x):NEXT
1750 FOR x=1 TO 22: PRINT#9,n$(x),n%(x):NEXT
1760 FOR x=1 TO 3: PRINT#9,v$(x):NEXT
1770 PRINT#9,aa,ab,ac,ad,ae,af,ag,ah,ai,aj,ak,al,am,an,
ao,ap,aq,ar,as,at,au,av,p%,sb,u%,w%
1780 PRINT#9,aq$
1790 CLOSEOUT
1800 PRINT"finished":RETURN
1810 CLS:PRINT"Please insert data tape and press the
<SPACE BAR> when ready"
1820 ff$=INKEY$:IF ff$<>" " THEN 1820
1830 k=1:OPENIN "data"
1840 FOR x=1 TO 51: INPUT#9,q$(x):FOR y=1 TO 4: INPUT #
9,s%(x,y):NEXT y,x
1850 FOR x=1 TO 16: INPUT#9,g$(x),b%(x):NEXT
1860 FOR x=1 TO 22: INPUT#9,n$(x),n%(x):NEXT
1870 FOR x=1 TO 3: INPUT#9,v$(x):NEXT
1880 INPUT #9,aa,ab,ac,ad,ae,af,ag,ah,ai,aj,ak,al,am,an
,ao,ap,aq,ar,as,at,au,av,p%,sb,u%,w%
1890 INPUT #9,aq$
1900 CLOSEIN
1910 PRINT"Finished":RETURN
1920 CLS:LOCATE 12,2:PEN 3:PRINT"Puss in Boots"
1930 PEN 2:PRINT:PRINT"    by   Steve Lucas    1984"

1940 PEN 1:PRINT:PRINT"Once upon a time there was a Mil
ler who had three sons.  He was so poor that    when he
 died, he left nothing
 but his"
1950 PRINT"mill, his donkey and his cat."
1960 PRINT"The mill, of course, he left to his    elde
st son, the donkey to the next and  all that was left f
or the youngest son  w
as his cat."
1970 PRINT"'Do not worry' said the cat to his new   mas
ter. 'Find me a bag and a pair of    boots and I shall
solve all your
problems"
1980 LOCATE 1,25:PEN 3:PRINT"Press the <Space Bar> to c
ontinue";:PEN 1
1990 a$=INKEY$:IF a$<>" " THEN 1990
2000 CLS:PRINT"My name is Puss, and you are the
Miller's youngest son."
2010 PRINT"You must help me to help you by giving  me i
nstructions in the form of two word sentences such as G
ET LAMP"
2020 PRINT:PRINT"If I don't seem to understand you, you
  should try another command (Cat's don't speak good en
glish you know !)"
2030 PRINT:PRINT"You can save the game at any point by
  typing 'SAVE' and your saved game may bereloaded by t
yping 'LOAD'"
2040 RETURN
```

ROBOTS

Robots, depending on your point of view, can either be evil monsters intent on taking over the world, nasty pieces of work designed to replace all humans, or 'your plastic pal who's fun to be with' (as in the Hitch Hiker's Guide).

It is the last aspect that we shall be looking at. Robots range from cheap and simple to vastly expensive and extremely complex in function and design. Here Mike Roberts looks at a representative batch ranging in price from an affordable £8 to the luxury £2000.

Many of the cheaper robots are great fun to play with and hours of enjoyment can be got from them. The more expensive ones are really educational, or for the total robot freak. When you get into the £1000 + bracket it is only schools and colleges than can afford them, but we have included a couple just to show you what a real robot can do.

The very cheapest is more of a toy and has very little electronics inside it, and no computer power. Its 'intelligence' is provided by mechanical linkages.

The most expensive has a huge ammount of computer power built in, and can perform a variety of useful tasks.

GEORGE

Made by: CGL
Price: £34.95

George comes into the class of turtle-like robots. Externally he is very round shaped, and bears more than a passing resemblance to Vin-Cent out of the film 'Black Hole'. He is driven via two wheels on the base which can be individually driven to provide steering. There are also two sets of balance wheels to stop him falling over.

The important part of him is the 25 key keypad on his hat. It is through this that George can be programmed to do various things.

George is programmed by entering a function and a time parameter. The time parameter dictates how long a particular action will last. The timer for this is reasonably accurate (to about 10%) but I wouldn't set my watch by it.

George can be programmed to do the following things:

Forward
Backward
Rotate left
Rotate right
Curve left
Curve right
Demo one
Demo two
Gear shift
Stop
Horn
Multiply time
Delete program
Delete last entry
Run program
Return to start

Most of these functions are obvious, but some need explanation. Gear shift allows you to program three different speeds in. The demos go through a pre-programmed sequence of moves, but be warned they need a huge ammount of space to work in.

The horn makes an electronic wailing sound and flashes a light, excellent for scaring the cat, and can either be on or off. This means that it can be going while George is running around (after the cat perhaps?)

Multiply time is an interesting function and is used to increase the length of time that a movement can take. Normally the longest time that an action can take is nine seconds. By multiplying you can stretch it out to 81 (9x9).





Return to the start is a great function, if it would only work! The idea is that using this as the last function of a program will make George retrace his exact steps (can a robot step?) but in reverse order, resulting in him returning to the start. In practice this is not so because George is not very accurate on turning and after a short while he gets a bit lost.

This inaccuracy shows up worst in turning, it is very difficult to get an absolute 90° turn as he is driven by ordinary motors that are just timed instead of stepper motors that will turn a precise angle. Timing is also difficult as speeds change when the batteries run down.

All in all this is excellent value and will provide a great aid in teaching programming and logical thinking to younger children. Schools currently paying up to £200 for 'turtles', George provides most of the functions of a turtle at a real fraction of the price. George is one of the only real robots that I have seen in this price range, he is great fun for everybody.

HERO 1

Made by: Maplin
Price: £1300 (kit) £2200 (built)

HERO is the Rolls Royce of the hobby robotics world. Standing two feet high at the shoulder and weighing in at 50 lbs he is certainly a robot not to be messed with.

Hero is a squat cylinder with a 12 key keypad on top with an led display, there is a bread board also on top for attaching external sensors. The top part of the body is the head, this houses most of the sensors — ultra sonic motion and sonar detectors, infra red projector and detector. The main body houses the sound detection microphone and the speaker for the speech synthesis system.

The arm is attached to the head and is a fully mobile arm that is very similar to the type that has been portrayed on television over the past few years ie. a pincer arrangement on the end of a cabled crane-like appendage. It may look ugly but it is capable of getting into any position and lifting some substantial weights.

VERBOT

Made by: TOMY
Price: £40

Verbot is rather unique in the world of home robots in as much as it is controlled by voice alone. Its shape is that of an Omnibot, but smaller — a sort of cylinder with a dome on top and two arms projecting forward.

There is a keyboard on his 'chest' with which you teach him the words that you want to use. There are eight buttons and two LEDs. To teach a word you must first lay him on his back and press one of the buttons, each button refers to some action that the robot can make. Here is a list of functions:

Forward
Backward
Stop
Lift
Drop
Rotate right
Rotate left
Bleep

All these functions are self explanatory except for drop and lift. These functions allow the user (owner?, keeper?, tamer?) to pick up and drop objects in the 'hands' of the machine. The hands move upwards coming together as they do so, this means that the object that is being picked up must be just the right size.

When the robot is supine and a function is selected a light will flash. Say a word into the microphone and the light will become steady. Repeat this for the other actions and you are ready to go. There is no facility to store your phrasing but this would probably be an unnecessary expense.

So you merrily yell into the microphone and see your verbot run around the room picking up all sorts of bits and bobs, its a pity you can't fit him with a hoover attachment!

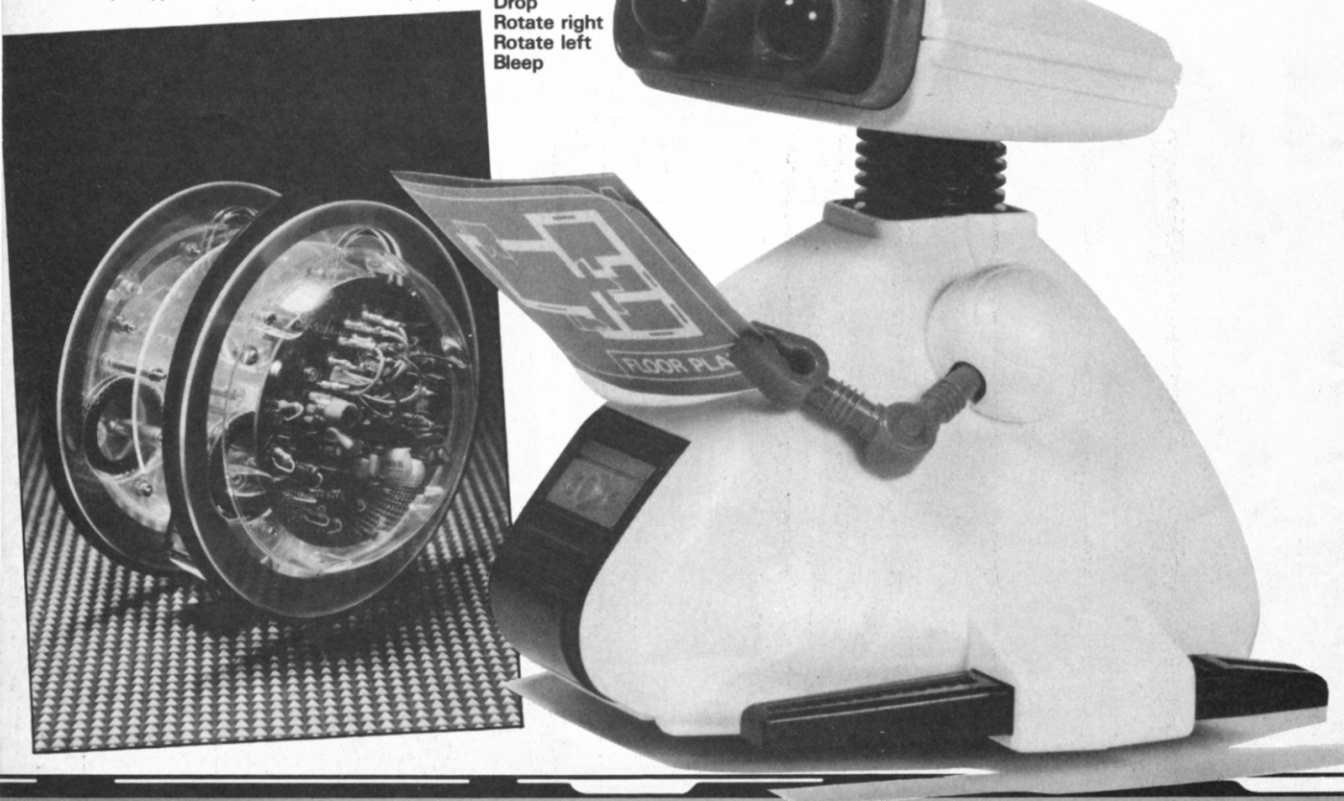
Again the question is price, but if you want to spend £40 on a device such as this then alright, but take a good look at George first.

DINGBOT

Made by: TOMY
Price: £8

Dingbot isn't really? a robot — but exactly what is a robot!

Dingbot does look like a robot and displays a certain amount of decision making along pre-programmed

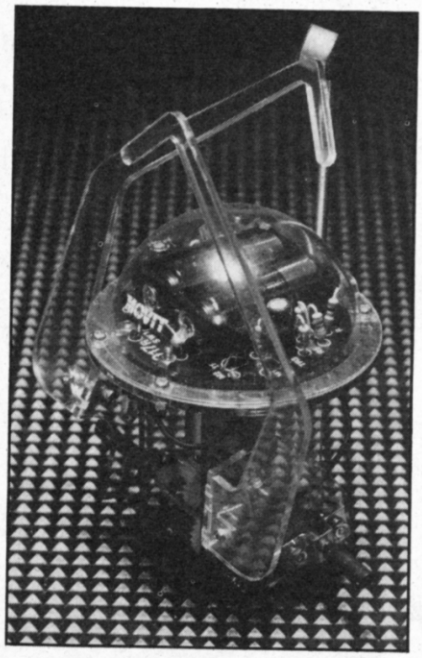


guidelines. Just because this programming is in mechnical linkages and not solid state electronics shouldn't reduce him to a second class citizen, robotite, automaton or whatever.

Dingbot is about four inches high, looks like an automatic E.T. and runs on a single HP7. What Dingbot does is run around whatever surface you put it on, occasionally stopping, looking around and at his map, and emitting the kind of wail that induces sympathy in the most hard nosed of hackers.

The other thing that he does is avoiding objects. If he hits something he will turn around and run off in the opposite direction.

As I said earlier — more of a toy than a robot — but would make a reasonably priced Christmas present for a young robot buff.



OMNIBOT

Made by: TOMY
Price: £200

This automaton is potentially the most useful of all the robots I have looked at, I'll come to why later.

Omnibot is an R2-D2 shaped cylinder with arms on either side and a flat base. On the front of the body is a clock and a tape recorder. The tape recorder can play music, record, or anything that a normal tape recorder can do, plus some other things. The clock is a perfectly normal LCD clock and can be used to control the tape recorder.

Unfortunately the arms can only be moved manually, not under control. Omnibot is controlled with a radio control link that provides the following commands:

Rotate left
Rotate right
Forwards
Backwards
Sound one
Sound two
Tape on
Tape off
Voice

The sounds are just different kinds of electronic warbling noises. Tape on/off is self explanatory. Voice is an interesting feature and according to the people on one of our sister magazines (Ham Radio Today) there may be some problems with the radio transmission regulations. The voice function means that you can talk into your radio controller and it will come out of the speaker on the robot. This is where British Telecom will become interested as radio control frequencies are reserved exclusively for use of radio control models and robots etc. Not speech.

Programming the Omnibot was, in a lot of ways, very easy — but there were a few hiccups. To explain how it works I should first mention how the radio controller transmitts information. You know how a tape interface works with a computer, a series of tones. One tone for a zero, and another tone for a one. The omnibot controller is similar except that it transmits a number of tones, one type of tone for each movement.

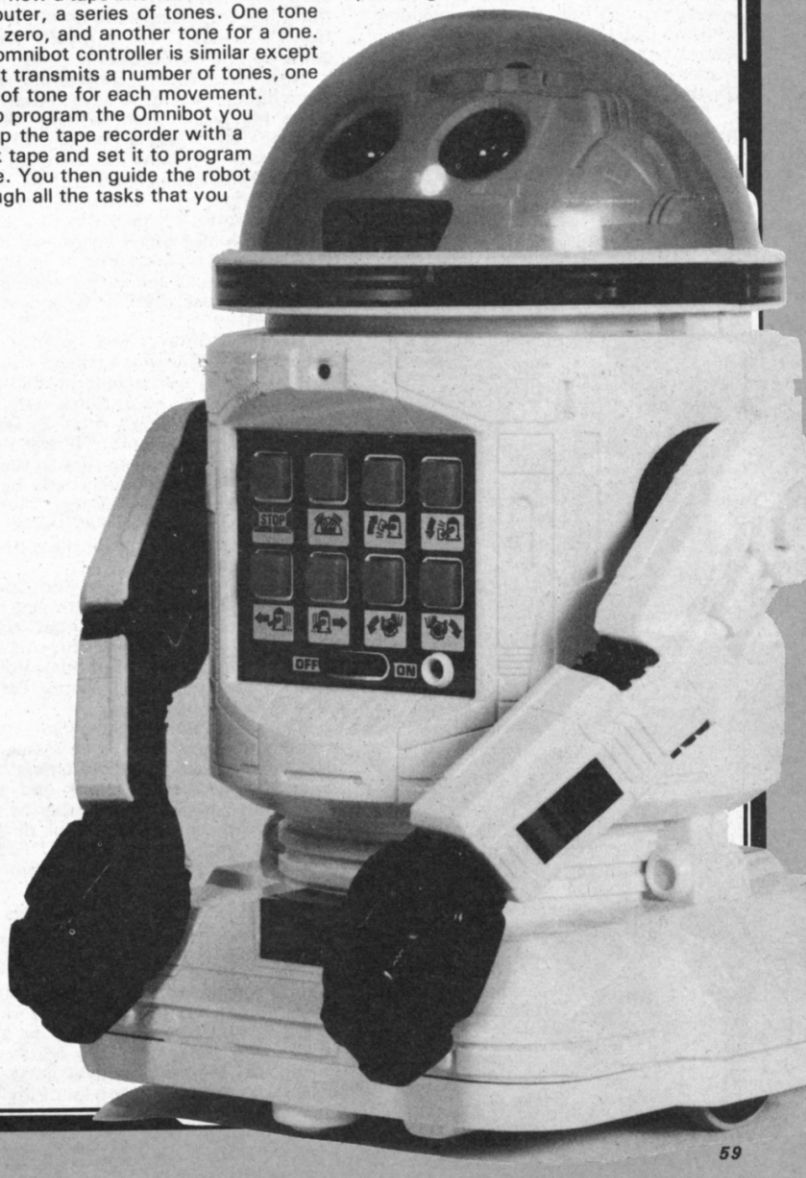
To program the Omnibot you set up the tape recorder with a blank tape and set it to program mode. You then guide the robot through all the tasks that you want it to perform. The transmitted tones are recorded on the tape.

When you have finished you end up with a programmed tape of whatever you made the robot do — including speech. This is really great as it means than you can have a collection of tapes to do various things.

It becomes feasable to have a tape with one route on side 'A' and the return route on side 'B'. Or even a circular route around some offices as a messenger. Omnibot comes supplied with a tray to carry things and with this his scope is limitless.

You can terrify people at up to about 15 yards with the remote controller. Drive is provided by four wheels — two on each side of the base. There are three balance wheels at the front to stop it falling over. Power comes from something that resembles a motorbike battery that is bolted into the insides, this is charged up through an adaptor.

Looks like a robot, acts like a robot, and a great ice breaker at parties. It all depends if you can afford the £200 price tag.



SOFTWARE SUPERSTARS

What will you be doing over Christmas — playing the computer games probably. That is if you can prise the telly off the members of your family that are fanatical 'Sound of Music' watchers. But what of the software houses?

The Christmas rush is over and they can all take a breather. What do they do over Christmas then? Mike Roberts, Liz Graham, and Marie Curry have been chatting to them to find out what they will be up to. . .

Mike Fitzgerald, of A 'n' F Software, is being a bit mean — "We cancel Christmas for our programmers" he said. "They're going to have Christmas in March". He went on to explain: "They're working on some new projects. **Doug Anderson**, who had a hand in most things from A 'n' F, including Chuckie Egg on the Amstrad and Cylon Attack on MSX". "And of course I'll be working — I still believe in Father Christmas"!

Marcus Altman — programmer for Alligata — who wrote Heist for the BBC, and Uncle Claude for the BBC/Electron, was straightforward: "I'll be getting drunk, most probably!"

All of English Software's programmers are freelance, so they will probably be sleeping, says **Philip Morris** — software Manager. "I'll be watching the Queen's speech and then playing Henry's House' " — a royalty based game by English Software.

New Generation Software's **Paul Bunn** had quite a lot to say: "After I've made my million from writing 'Shoot the Rapids', I'll buy a Porche 911 3.3 Turbo, write 'Eugene' on the side, and break 30 mph speed limits with it". And there is more — "I'll also be buying a Bell helicopter. I'll take the Christmas turkey with me, which my mum will be cooking, and tucking into it in flight. Then I'll get well and truly inebriated". Christmas cheer seems to be in demand this year!.

David Collier, the author of Decathlon for Ocean is taking it slowly: "I'll be having two weeks holiday as I need a break. I'll be at home with the wife and kids". Unlike A 'n' F, David doesn't believe in Santa. "If Star Wars is on I shall be watching that as well".

Sumlock's **David Aron** will be in Holland celebrating Christmas. "I won't be doing much because I'm Jewish. I'll be getting drunk in the evening and having a Mexican meal".

Superior sales manager **Ken Campbell** (that is Superior Software, not that he is better than any other Sales Manager). "I'll be opening presents and having a drink. I shall be at home enjoying Christmas, and I hope Father Christmas will be coming".

Richard Hansom of Superior — not a programmer any more, but managing director — said: "Programmers are quite strange people, very odd and slightly insane. They'll probably be doing anything that you can think of that is slightly crazy". As for him?: "Father Christmas wil be dropping in down the chimney".

Richard and Elaine Shepherd, of Richard Shepherd Software, are getting away from it all "We're going to Cypress", for how long? "Forever if I have anything to do with it!" says Elaine. At the moment they are working on their new game 'Up A Gum Tree'.

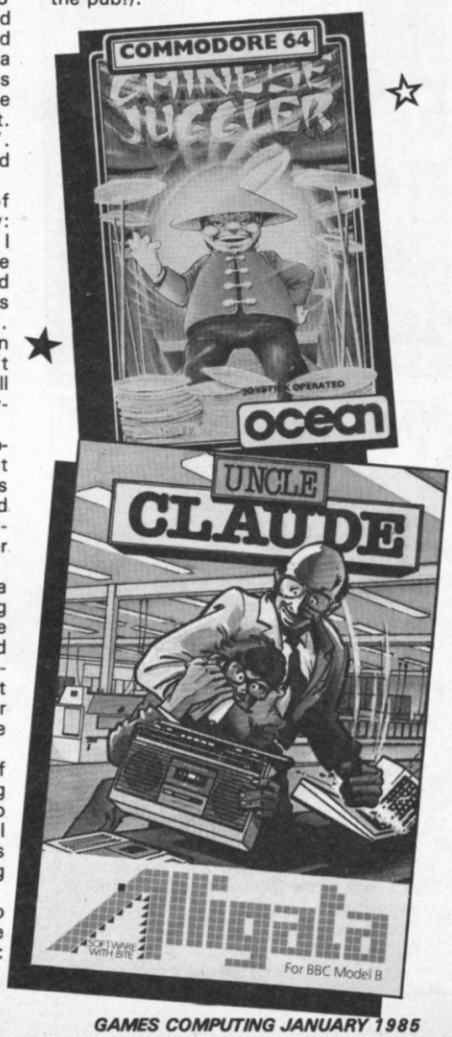
Yak the Hairy (or **Jeff Minter** to some) of the 'alternative software house' Llamasoft is up to a lot of things: "I'll be writing the fourth issue of my newsletter 'The Nature of the Beast', finishing off my new game, and going down the pub". However after Christmas he is taking his family (all 11 of them!) on a skiing holiday "It's his treat for us" said his mum".

Ultimate Play the Game didn't know what they're up to. "We're all a bit late here. We haven't arranged anything yet".

And as for **Games Computing**? We'll probably be following the crowd (into the pub!).









"THE FIRST IN INTERACTIVE MULTIPLAYER ADVENTURE GAMES....."

RED SHIFT

BACK ON THE MAP!!

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A FREE LIGHTPEN!

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- Draw free handed on the screen anything from a Micky Mouse to your latest integrated circuit! With all the fill colour and erase facilities of course!
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- Or directly copy the drawing on the screen to the printer! And keep it for ever or send to a friend as a post card!
- Design your own colourful sprites and characters
- Play the games in the package! or use the light pen in your own games/education/programs

GRAPHKIT is available on disk and tape. Tape version is £1595 and disk version (recommended) is £19.95.



All you 1540/1541 disk users **DMON!** Is here at last. Dmon is the disk monitor you have been waiting for it will allow you to:

- read/write blocks from/to the disk
- display and edit blocks on the screen
- display and send disk messages/commands
- transfer your programs from tape to disk or disk to disk or even disk to tape! ● and more!

DMON comes on DISK at only £9.95.

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Do you use tapes? Are you sick and tired of waiting for your programs to be Loaded/Saved from/on the tape? Then you need a **TORNADO!!** Tornado allows you to Save/Load/Verify your Basic/machine code programs faster than a CBM 1541 disk drive does! Due to popular demand! Tornado now comes with new and more powerful commands plus extra instructions to assist you in making fast versions of your existing machine code/Basic programs. Tornado is available on tape for CBM 64 and 8K + Vic 20.

BREAKER 20/64

Do your Run/Stop and Restore keys often fail? Do you want to come out of those crashes?! Or get into those unbreakable programs?! Then what are you waiting for, get yourself a **BREAKER!!** Reset switch and let your computer know who is the boss!! Breaker can be connected to your machine in seconds, no soldering. Included with the Breaker is a copy of basic recovery software on tape. Now available for any CBM 64 or Vic 20.

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Please send me .....Breaker at £7.95

Please send me .....Light Pen at £11.95

Please send me .....Graphkit at £15.95 (tape) + my free LP

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I enclose cheque/PO/cash to the sum of £.....

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.....

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ROCKMAN FILES

Tron was hailed as a spectacular film, a breakthrough in video technology and the way in which films of the future will be made. It may have lacked a plot but it was fun to watch. The computer graphics gave it a crisp feeling. Now a film with the kind of graphics which makes Tron's stuff look like Space Invaders.

The last Starfighter is a science fiction film with, as usual, the hero being given the job of saving the universe with a boy-meets-girl sub-plot. The way in which the story unfolds is pretty good so I won't ruin it by giving too much away. The mix between com puter effects and live action is very good. All the computer work was done by Digital Productions in America. They have a Cray-XMP supercomputer.

This is the most powerful computer in the world, four times more powerful than the Cray 1. At $12m each they are not something that anyone can afford to waste time on. Even mainframe computers only have a limited lifetime and must recoup the original cost and make a profit for the company before they are made obsolete by newer, faster machines.

Most Cray's are owned by governments who use them to crack codes, there are several in Britain including one at the London Weather Centre. Digital Productions are responsible for some of the best commercials seen on US television. Unfortunately we only get to see them in programmes on computer graphics.

Normally space operas use loads of different techniques, combining puppetry and model-making. No scale models were made for The Last Starfighter, all the action took place inside the memory of the Cray. The resolution is so high that the results look more like paintings than anything else.

If the same computers that produced TRON had been used for this project it would have taken 16 years to process. Each ship consisted of a million polygons and some frames took up to 10 minutes to produce. Normally a mainframe can do several jobs at once,



when it's drawing a spaceship it can only do that one job. If you have played Acornsoft's Elite you will have some idea of what the space battles are like.

Elite Up For Grabs

Talking of Elite, all sorts of rumours are coming out of Cambridge. The rights to Elite on other machines are being auctioned by a company called Marjaq Micro. A software house which wants to have Elite for the Z80 could bid for the name and the formula. They would also be able to use the same packaging as the Acornsoft original and have the co-operation of the authors. Marjaq have been inundated with bids.

Perhaps the most exciting project is a version of Elite for the Commodore 64. This is being writen by Ian Bell and David Braben, the authors of the Beeb version but is not part of the auction. At the launch of Elite I asked if there were any plans for a second processor version. At the time I did not know of any such project and was interested to find out if Acornsoft had any plans for games to use the second 6502. I was told that there were no other versions of Elite and that was that.

However, I have since heard from three independent sources that such a game does exist, and putting the titbit together I understand that it has a beautiful title screen, a demo mode and colour. It is of course a lot faster than the regular version since the second processor is such a wonderful device. It is a shame that Acorn are not pushing it for home use. I'm sure that there is room for both domestic use and the bitstick/ISO Pascal type package.

The sequel to Elite is already being discussed and if it does get completed it will be the hit of Christmas '85.

This Christmas should see some great new games. I originally thought that a video game of the film "Ghostbusters" was mere exploitation, however, having seen the film and spoken to people who have played the game it sounds great.

Skyline Attack is a new '64 game from Century Communications, since it was written by a couple of friends it would be wrong for me to say how wonderful it is here, however it does have a feature to make it especially noteworthy. That is a turbo load which leave the screen on and plays a game while the main game loads. Since Skyline Attack is around 60K long it takes about 5 minutes to load even at high speed. You can while away this time playing Sssnake. This makes Skyline really special.

Amstrad CPC464 Problems

We have had a lot of letters about he Visitor from Space program in the November issue. Most of these were from people who have had problems with the DATA. This must be typed in EXACTLY as in the magazine. That means that all the spaces and upper and lower case letter must be as printed.

There is one mistake and this a missing quote in line 1660. There should be a speech mark (") after the second two stars. Other than that the program is fine, and is quite fun to play.



Boot Error is a one player game played usng a joystick on any Atari with 32K and BASIC.

The object of the game is to successfully load a program into memory. You have five lives. You will lose one if:

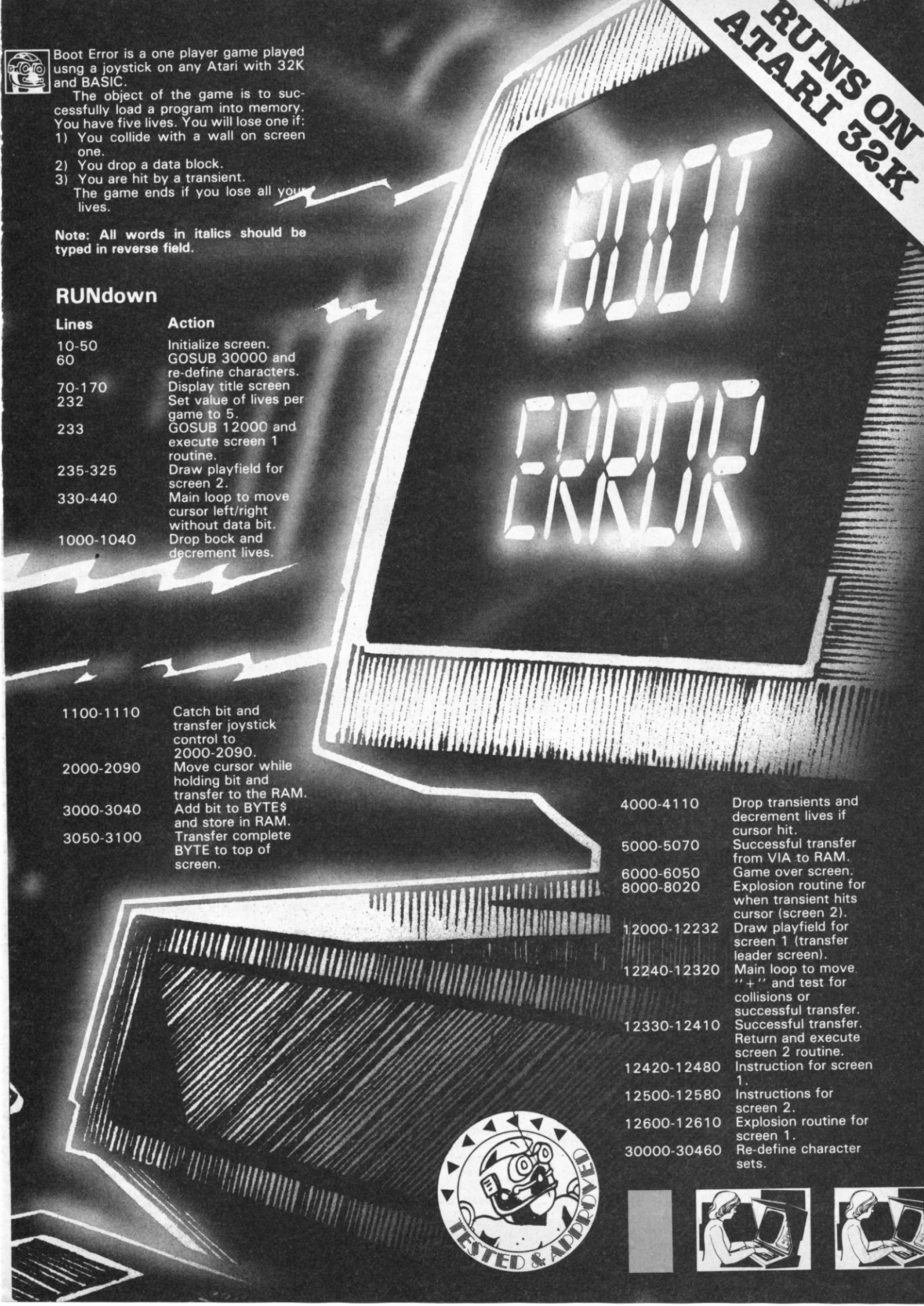
1) You collide with a wall on screen one.
2) You drop a data block.
3) You are hit by a transient.

The game ends if you lose all your lives.

Note: All words in italics should be typed in reverse field.

RUNdown

Lines	Action
10-50	Initialize screen.
60	GOSUB 30000 and re-define characters.
70-170	Display title screen
232	Set value of lives per game to 5.
233	GOSUB 12000 and execute screen 1 routine.
235-325	Draw playfield for screen 2.
330-440	Main loop to move cursor left/right without data bit.
1000-1040	Drop bock and decrement lives.
1100-1110	Catch bit and transfer joystick control to 2000-2090.
2000-2090	Move cursor while holding bit and transfer to the RAM.
3000-3040	Add bit to BYTE$ and store in RAM.
3050-3100	Transfer complete BYTE to top of screen.
4000-4110	Drop transients and decrement lives if cursor hit.
5000-5070	Successful transfer from VIA to RAM.
6000-6050	Game over screen.
8000-8020	Explosion routine for when transient hits cursor (screen 2).
12000-12232	Draw playfield for screen 1 (transfer leader screen).
12240-12320	Main loop to move "+" and test for collisions or successful transfer.
12330-12410	Successful transfer. Return and execute screen 2 routine.
12420-12480	Instruction for screen 1.
12500-12580	Instructions for screen 2.
12600-12610	Explosion routine for screen 1.
30000-30460	Re-define character sets.



```
5 REM BOOT ERROR. BY A. SHAW. JUNE '84
10 GRAPHICS 18:SETCOLOR 0,15,12:SETCOLOR 4,1,2
20 POSITION 4,2:? #6;"INITIALIZING"
30 POSITION 9,4:? #6;"BOOT"
40 POSITION 7,6:? #6;"ERROR!"
50 POSITION 4,8:? #6;"PLEASE  WAIT"
60 GOSUB 30000:REM REDEFINE CHARACTERS
70 GRAPHICS 17:SETCOLOR 0,9,12:SETCOLOR 1,14,15
80 POSITION 8,2:? #6;"BOOT"
90 POSITION 7,4:? #6;"ERROR!"
100 POSITION 0,7:? #6;"written by":POSITION 6,9:? #6;"A
NDREW SHAW"
110 POSITION 0,12:? #6;"designed by":POSITION 6,14:? #6
;"KENNETH SHAW"
120 POSITION 0,19:? #6;"PRESS start TO PLAY"
130 IF PEEK(53279)<>6 THEN POKE 711,PEEK(20):GOTO 130
170 COLOR 32:FOR CY=0 TO 23:PLOT 0,CY:DRAWTO 19,CY:SOUN
D 0,CY*CY,10,10:FOR W=1 TO 20:NEXT W:NEXT CY:SOUND 0,0,
0,0
232 LI=5
233 GOSUB 12000:REM CALL SCREEN 1
235 GRAPHICS 1:SETCOLOR 4,0,0:SETCOLOR 2,12,4:SETCOLOR
1,0,14:SETCOLOR 0,5,8:POKE 752,1
240 POKE 756,CHSET1
250 COLOR 33:PLOT 0,14:DRAWTO 3,14
252 COLOR 38:PLOT 4,14:COLOR 35:PLOT 4,15:DRAWTO 4,19
254 COLOR 37:PLOT 5,17:DRAWTO 10,17:COLOR 36:PLOT 5,18:
DRAWTO 10,18:PLOT 5,19:DRAWTO 10,19
256 COLOR 93:PLOT 15,0:DRAWTO 15,16:COLOR 33:PLOT 16,16
:DRAWTO 19,16:COLOR 33:PLOT 15,16
258 POSITION 1,16:? #6;"via"
260 POSITION 4,2:? #6;"--------"
262 POSITION 4,3:? #6;".!!!!!!&"
265 POSITION 4,4:? #6;"] 6502 #"
270 POSITION 4,5:? #6;"'[[[[[[,"
275 POSITION 4,6:? #6;"b+++++++"
280 POSITION 16,0:? #6;"ram"
285 POSITION 15,1:? #6;"'[[[["
287 COLOR 35:PLOT 12,0:DRAWTO 12,15:COLOR 93:PLOT 14,0:
DRAWTO 14,15
290 REM *** SET VARIABLES ***
300 X=12:Y=18:DX=6:DY=16:RAM=2
310 ? :? "PRESS FIRE TO START"
320 IF STRIG(0)=1 THEN 320
325 ? "}"
330 S=STICK(0)
335 BIT=170:IF INT(RND(0)*2)+1=2 THEN BIT=189
337 IF RND(0)>0.89 THEN GOSUB 4000:REM TRANSIENT
340 IF S=15 THEN 370
350 IF S=11 THEN X=X-1
360 IF S=7 THEN X=X+1
365 IF LI<=0 THEN 6000:REM GAME OVER
370 POKE 756,CHSET1:SOUND 0,200,10,15
380 DX=DX+1
382 IF X>15 THEN X=15
384 IF X<11 THEN X=11
386 IF DX=12 THEN GOSUB 1000
390 POSITION X,Y:? #6;"  "
400 POSITION DX,DY:? #6;" ";CHR$(BIT);" "
410 POKE 756,CHSET2:SOUND 0,0,0,0
420 SC=SC+10
430 POKE 656,1:POKE 657,5:? "SCORE ";SC;"  LIVES ";LI;"
 "
440 GOTO 330
1000 IF X=DX-1 THEN 1100
1001 REM 1010-->1040 DROP DATA BIT
1010 FOR I=DY TO 22:POSITION DX,I:? #6;" ":POSITION DX,
I+1:? #6;CHR$(BIT)
1020 FOR W=1 TO 4:SOUND 0,INT(RND(0)*200)+180,10,10:NEX
T W:NEXT I:DX=6
1030 LI=LI-1:IF LI<=0 THEN POP :GOTO 6000
1040 RETURN
1099 REM 1100 CATCH BIT.
1100 POSITION DX,DY:? #6;" ":DY=DY+1:POSITION DX,DY:? #
6;CHR$(BIT)
1110 GOSUB 2000:RETURN :REM 2000-->2090 MOVE CURSOR HOL
DING DATA BIT
2000 DX=DX-1
2005 S=STICK(0)
2010 IF S=15 THEN 2040
2020 IF S=11 THEN X=X-1:DX=DX-1
2030 IF S=7 THEN X=X+1:DX=DX+1
2035 IF LI<=0 THEN 6000:REM GAME OVER
2040 POKE 756,CHSET1:SOUND 0,200,10,15
2052 IF X>16 THEN X=16
2053 IF DX>16 THEN DX=16
2054 IF X<11 THEN X=11
2055 IF DX<11 THEN DX=11
2060 POSITION X,Y:? #6;"  "
2070 POSITION DX,DY:? #6;" ";CHR$(BIT);" "
2075 IF DX=16 THEN GOSUB 3000:DX=6:DY=16:RETURN :REM 30
00-->3040 ADD BIT TO  RAM
2080 POKE 756,CHSET2:SOUND 0,0,0,0
2090 GOTO 2005
3000 IF DX<>16 THEN RETURN
3010 POSITION DX,DY:? #6;"  ":DY=DY-2
3020 BYTE$(LEN(BYTE$)+1)=CHR$(BIT)
3030 POSITION DX,DY:? #6;BYTE$:IF LEN(BYTE$)=4 THEN 305
0:REM MOVE BYTE TO  TOP OF RAM
3040 FOR P=1 TO 50:SOUND 0,P,10,10:NEXT P:SOUND 0,0,0,0
:DY=DY+1:RETURN
3050 FOR I=DY-1 TO RAM STEP -1
3060 POSITION DX,I:? #6;BYTE$
3070 POSITION DX,I+1:? #6;"  "
3080 SOUND 0,100-I,10,10
3090 NEXT I:SOUND 0,0,0,0:RAM=RAM+1:IF RAM=15 THEN POP
:BYTE$="":GOTO 5000:REM RAM FULL,SHEET COMPLETE
3100 DY=DY+2:BYTE$="":RETURN
4000 MX=13:FOR MY=2 TO 21
4010 POSITION MX,MY:? #6;" "
4020 POSITION MX,MY+1:? #6;"/"
4025 IF MY<9 AND STRIG(0)=0 THEN GOSUB 4100:SC=SC+50:RE
TURN :REM DESTROY TRANSIENT
4030 SOUND 0,MX*MY,10,10
4040 LOCATE MX,MY+2,Z
4050 IF Z<>95 THEN 4070
4055 LI=LI-1:POSITION MX,MY+2:? #6;" ":POSITION MX,MY+1
:? #6;" "
4060 IF Z=95 THEN FOR P=0 TO 200 STEP 5:SOUND 0,P,10,10
:POKE 712,P:NEXT P:SOUND 0,0,0,0:POKE 712,0:RETURN
4070 IF LI<=0 THEN 6000:REM GAME OVER
4080 NEXT MY:SOUND 0,0,0,0:RETURN
4100 POSITION MX,MY+1:? #6;" ":FOR P=0 TO 200 STEP 10:S
OUND 0,P,0,15:POKE 712,P:NEXT P:SOUND 0,0,0,0:POKE 712,
0
4110 RETURN
5000 FOR P=200 TO 0 STEP -1:SOUND 0,P,10,10:SOUND 1,P+2
,10,10
5010 NEXT P:SOUND 0,0,0,0:SOUND 1,0,0,0
5020 GRAPHICS 18:SETCOLOR 4,9,2:SETCOLOR 0,0,14
5030 POSITION 4,2:? #6;"WELL DONE!":POSITION 2,4:? #6;"
TRANSFER COMPLETE"
5040 POSITION 2,6:? #6;"SCORE:";SC
5060 FOR W=1 TO 1000:NEXT W
5070 GOTO 233:REM REPEAT LOOP
6000 FOR P=200 TO 0 STEP -2:POKE 712,P:SOUND 0,P,10,10:
SOUND 1,P+2,10,10:NEXT P:POKE 712,146:SOUND 0,0,0,0
6010 SOUND 1,0,0,0
6020 GRAPHICS 18:SETCOLOR 4,9,2:SETCOLOR 0,12,14
6025 POSITION 5,0:? #6;"boot error!"
6030 POSITION 6,2:? #6;"GAME OVER"
6040 POSITION 6,3:? #6;"---- ----"
6050 POSITION 6,5:? #6;"SCORE:";SC
6060 POSITION 0,7:? #6;"PRESS start TO PLAY."
6070 IF PEEK(53279)<>6 THEN POKE 709,PEEK(20):GOTO 6070
6080 RUN
8000 FOR P=0 TO 200 STEP 10:SOUND 0,P,0,10:NEXT P:SOUND
 0,0,0,0
8010 LI=LI-1:IF LI=0 THEN 6000
8020 RETURN
12000 GOSUB 12420:GRAPHICS 0:SETCOLOR 1,0,14:SETCOLOR 2
,11,4:SETCOLOR 4,14,8:POKE 752,1:POKE 82,0:POKE 559,0
12010 POSITION 13,0:? CHR$(17);:FOR N=1 TO 9:? CHR$(18)
;:NEXT N:? CHR$(5)
12015 POSITION 13,1:? CHR$(124);"ATARI 800";CHR$(124)
12020 POSITION 13,2:? CHR$(26);CHR$(18);CHR$(18);CHR$(1
```

Variables Used

LI	Lives.
SC	Score.
K	ASCII code of last key pressed.
P	Pitch in sound commands.
CX,CY	Used to erase parts of screen.
W	Delay loops.
S,S1	Joystick variables.
X,Y	Position of cursor on playfield.
DX,DY	Position of last bit on screen, leader on screen.
BIT	ASCII code of bit being transfered.
RAM	Used to calculate how far up the screen byte should be moved when LEN(BYTE) = 4.
CHSET1, CHSET2	Page address of new character sets. Absolute addresses are equivalent to CHSET1 or CHSET2 * 256.

```
8);CHR$(5);" ";CHR$(17);CHR$(18);CHR$(18);CHR$(18);CHR$
(3)
12030 POSITION 13,3:? "    ";CHR$(124);" ";CHR$(124)
12040 POSITION 13,4:? "    ";CHR$(124);" ";CHR$(124)
12050 POSITION 13,5:? "    ";CHR$(124);" ";CHR$(26);:FO
R N=1 TO 8:? CHR$(18);:NEXT N:? CHR$(5)
12055 POSITION 13,6:? "    ";CHR$(124);:FOR N=1 TO 10:?
 CHR$(32);:NEXT N:? CHR$(124)
12057 POSITION 13,7:? "    ";CHR$(26);:FOR N=1 TO 8:? C
HR$(18);:NEXT N:? CHR$(5);" ";CHR$(124)
12060 POSITION 13,8:? "                ";CHR$(124);" ";CHR
$(124)
12070 ? "  ";CHR$(17);:FOR N=1 TO 23:? CHR$(18);:NEXT N
:? CHR$(3);" ";CHR$(124)
12080 ? "  ";CHR$(124);:FOR N=1 TO 25:? " ";:NEXT N:? C
HR$(124)
12090 ? "  ";CHR$(124);" ";CHR$(17);:FOR N=1 TO 23:? CH
R$(18);:NEXT N:? CHR$(3)
12100 ? "  ";CHR$(124);" ";CHR$(124)
12110 ? "  ";CHR$(124);" ";CHR$(26);:FOR N=1 TO 23:? CH
R$(18);:NEXT N:? CHR$(5)
12120 ? "  ";CHR$(124);:FOR N=1 TO 25:? " ";:NEXT N:? C
HR$(124)
12130 ? "  ";CHR$(26);:FOR N=1 TO 23:? CHR$(18);:NEXT N
:? CHR$(5);" ";CHR$(124)
12140 FOR N=1 TO 26:? " ";:NEXT N:? CHR$(124);" ";CHR$(
124);" ";CHR$(17);:FOR N=1 TO 5:? CHR$(18);:NEXT N:? CH
R$(5)
12150 ? "  ";CHR$(17);:FOR N=1 TO 23:? CHR$(18);:NEXT N
:? CHR$(3);" ";CHR$(124);" ";CHR$(124);"ATARI";CHR$(124
)
12160 ? "  ";CHR$(124);:FOR N=1 TO 25:? " ";:NEXT N:? C
HR$(124);" ";CHR$(124);" 410 ";CHR$(124)
12170 ? "  ";CHR$(124);" ";CHR$(17);:FOR N=1 TO 23:? CH
R$(18);:NEXT N:? CHR$(3);" ";CHR$(26);CHR$(18);CHR$(5);
" ";
12175 ? CHR$(17);CHR$(18);CHR$(3)
12180 ? "  ";CHR$(124);" ";CHR$(124);:FOR N=1 TO 27:? "
 ";:NEXT N:? CHR$(124);" ";CHR$(124)
12190 ? "  ";CHR$(124);" ";CHR$(26);:FOR N=1 TO 27:? CH
R$(18);:NEXT N:? CHR$(3);" ";CHR$(124)
12200 ? "  ";CHR$(124);:FOR N=1 TO 31:? " ";:NEXT N:? C
HR$(124)
12210 ? "  ";CHR$(26);:FOR N=1 TO 31:? CHR$(18);:NEXT N
:? CHR$(3);
12230 DX=33:DY=19:S1=15:S=S1:POSITION DX,DY:? CHR$(19)
12235 POKE 559,34
12240 S1=STICK(0):IF S1<>15 THEN S=S1
12250 IF S=14 THEN ODY=DY:ODX=DX:DY=DY-1
12255 IF S=13 THEN ODY=DY:ODX=DX:DY=DY+1
12260 IF S=11 THEN ODY=DY:ODX=DX:DX=DX-1
12265 IF S=7 THEN ODY=DY:ODX=DX:DX=DX+1
12266 IF DX<3 THEN DX=3
12267 IF DX>33 THEN DX=33
12268 IF DY<1 THEN DY=1
12269 IF DY>22 THEN DY=22
12270 LOCATE DX,DY,DZ
12275 IF DZ<>19 AND DZ<>32 AND DZ<>73 THEN 12600
12280 IF LI=0 THEN 6000
12290 POSITION ODX,ODY:? " ":POSITION DX,DY:? CHR$(19)
12300 SOUND 0,DX*DY+200-(STRIG(0)*100),10,10
12302 POSITION 2,2:? "LIVES ";LI;" "
12306 IF STRIG(0)=1 THEN 12310
12307 FOR W=1 TO 5:NEXT W
12310 IF DX=18 AND DY=1 THEN 12330
12320 GOTO 12240
12330 FOR P=200 TO 0 STEP -2:SOUND 0,P,10,10:SOUND 1,P,
2,10:NEXT P:SOUND 0,0,0,0:SOUND 1,0,0,0
12400 SC=SC+500:SC=SC+(LI*10)
12410 GOTO 12500
12420 GRAPHICS 18:SETCOLOR 4,9,2:SETCOLOR 0,9,12
12430 POSITION 3,1:? #6;"TRANSFER LEADER"
12440 POSITION 2,3:? #6;"FROM THE CASSETTE"
12450 POSITION 0,5:? #6;"UNIT TO THE COMPUTER"
12455 POSITION 3,7:? #6;"USE TRIGGER":POSITION 2,9:? #6
;"FOR SPEED CONTROL"
12460 FOR W=1 TO 500:NEXT W
12470 FOR C=15 TO 2 STEP -1:SETCOLOR 0,9,C:FOR W=1 TO 5
:NEXT W:NEXT C
12480 RETURN
12500 GRAPHICS 17:SETCOLOR 4,9,2:SETCOLOR 0,9,12
12510 POSITION 3,3:? #6;"TRANSFER DATA"
12520 POSITION 3,5:? #6;"FROM THE VIA"
12530 POSITION 3,7:? #6;"TO THE RAM."
12540 POSITION 1,9:? #6;"AVOID THE FALLING"
12550 POSITION 4,11:? #6;"TRANSIENTS."
12555 POSITION 0,13:? #6;"USE FIRE BUTTON TO":POSITION
0,15:? #6;"DESTROY TRANSIENTS."
12560 FOR W=1 TO 600:NEXT W
12570 FOR C=15 TO 2 STEP -1:SETCOLOR 0,9,C:FOR W=1 TO 5
:NEXT W:NEXT C
12580 RETURN
12600 LI=LI-1:FOR P=0 TO 200 STEP 5:SOUND 0,P,0,10:POKE
 710,P:NEXT P:SOUND 0,0,0,0:POSITION DX,DY:? " "
12604 POKE 710,196
12605 IF LI=0 THEN 6000
12610 GOTO 12000
29999 END
30000 CHSET1=PEEK(106)-8:CHSET2=PEEK(106)-16
30010 CHSET1A=256*CHSET1:CHSET2A=CHSET2*256
30020 DIM MC$(32):FOR I=1 TO 32:SOUND 0,I*10,10,10:READ
 A:MC$(I,I)=CHR$(A):NEXT I:SOUND 0,0,0,0
30030 DATA 104,104,133,213,104,133,212,104,133,215,104,
133,214,162,4,160,0,177,212,145,214
30040 DATA 200,208,249,230,213,230,215,202,208,240,96
30050 I=USR(ADR(MC$),57344,CHSET1A)
30060 I=USR(ADR(MC$),57344,CHSET2A)
30070 DIM CHAR$(18),BYTE$(4):CHAR$="/!#$%&'.,+-=*@[]_"
30080 FOR I=1 TO LEN(CHAR$):SOUND 0,I*10,10,10
30090 CHPOS=CHSET1A+(ASC(CHAR$(I))-32)*8
30100 FOR J=0 TO 7:READ K:SOUND 1,J*10,10,10
30110 POKE CHPOS+J,K
30120 NEXT J:NEXT I
30130 FOR I=1 TO LEN(CHAR$):SOUND 0,I*10,10,10
30140 CHPOS=CHSET2A+(ASC(CHAR$(I))-32)*8
30150 FOR J=0 TO 7:READ K:SOUND 1,J*10,10,10
30160 POKE CHPOS+J,K
30170 NEXT J:NEXT I:SOUND 0,0,0,0:SOUND 1,0,0,0
30180 REM DATA FOR CHSET1 FOLLOWS
30185 DATA 24,24,24,24,24,24,24,24
30190 DATA 255,255,0,0,0,0,0,0
30200 DATA 3,3,3,3,3,3,3,3
30210 DATA 102,102,102,102,102,102,102,102
30220 DATA 255,255,85,85,85,85,255,255
30230 DATA 255,255,3,3,3,3,3,3
30240 DATA 192,192,192,192,192,192,255,255
30250 DATA 255,255,192,192,192,192,192,192
30260 DATA 3,3,3,3,3,3,255,255
30270 DATA 255,66,66,66,66,0,0,0
30280 DATA 0,0,0,66,66,66,66,255
30290 DATA 255,231,231,231,231,231,255,255
30300 DATA 255,195,195,219,219,195,195,255
30310 DATA 255,255,255,255,255,255,255,0
30315 DATA 0,0,0,0,0,0,255,255
30317 DATA 192,192,192,192,192,192,192,192
30319 DATA 0,0,0,126,126,0,0,0
30320 REM DATA FOR CHSET2 FOLLOWS
30325 DATA 24,24,24,24,24,24,24,24
30330 DATA 255,255,0,0,0,0,0,0
30340 DATA 3,3,3,3,3,3,3,3
30350 DATA 102,102,102,102,102,102,102,102
30360 DATA 255,255,170,170,170,170,255,255
30370 DATA 255,255,3,3,3,3,3,3
30380 DATA 192,192,192,192,192,192,255,255
30390 DATA 255,255,192,192,192,192,192,192
30400 DATA 3,3,3,3,3,3,255,255
30410 DATA 255,66,66,66,66,0,0,0
30420 DATA 0,0,0,66,66,66,66,255
30430 DATA 255,231,231,231,231,231,255,255
30440 DATA 255,195,195,219,219,195,195,255
30450 DATA 255,255,255,255,255,255,255,0
30455 DATA 0,0,0,0,0,0,255,255
30457 DATA 192,192,192,192,192,192,192,192
30459 DATA 0,0,0,126,126,0,0,0
30460 RETURN
```

CHSET1A, CHSET2A	Absolute addresses of new character sets.	A,K	Used to read data from DATA statements.	BYTE$	character at DX,DY. Used to move 4 bits from bottom of screen to top of screen.
I	Loop variable (general).	CHPOS	Position in character set of next character to be defined.	MC$	Machine code routine to move character set from ROM into RAM.
MX,MY	Transient X and Y co-ordinates.	J	Loop variable (general).	CHAR$	Characters to be re-defined.
Z	ASCII code of character on screen 2 places in front of MY.	ODX,ODY	Old position of leader on screen 1.		
		DZ	ASCII code of		



The Runaway Robot Replies

Dear Ed
In reply to the letter concerning "Pirate's Cove" in your October issue. The way to remove the Snakes is to drop the Parrot in the Monastery, it then attacks the snakes after a few goes. Then get the second treasure, wake the pirate and set sail back to Pirate's island.

At Pirate's island get the blood stained book and say 'YOHO' to return to London.

This adventure is number two in the Scott Adams series. I also have number three 'Mission Impossible' which I have completed, if anybody wishes to know how to complete it please write to me at the address below.

I also have number five 'The Count' which I cannot complete, so if anybody knows how to complete it please write.
Yours sincerely
Darren Walters
52 Woodfield Heights
Tettenhall
WV6 8PT.

As you can see we had a great response to Steven's cry for help both in the last issue and this. The original letter dealt with the TI but all of Scott Adam's adventures are identical across the range of machines. All these hints apply equally to my Commodore 64 versions of the games!

Pirate's Island doesn't end there though. We've just received Return to Pirate's island. It has full graphics and is very good. The only hint I can give is that you must wear glasses before you can see any of the graphics at all!

If you have any questions or answers on any type of game then please send them in.

Dear Editor
I would like you to clear up some misleading inaccuracies in your joystick review which will have adverse effects on our sales of Delta 3S joysticks.

Overlooking a number of false statements in the Delta 14b description the main point is that it states that our Delta 3S switched joystick is fitted with potentiometers making it a different control action. I would like it made clear that the Delta 3S joystick is fitted with rotary slide switches which act as the stops of the movement. Also our joyticks are so tight to use that they can be held in the hand and do not have to be rested on a flat surface so that we do not want rubber stickers on them.

In response to your "What the third central button is for we can only guess". The button is either common to the other two, or for interfaces, such as the Cambridge Computing Programmable Interface it can be made to act separately. Also on the Delta 3b single the centre fire button is a separate button to the outside two being read into inputs Io0 and Io1 of the BBC respectively.
Yours sincerely
A I Pearmain
Sales Director
Voltmace Ltd
Park Drive
Baldock
Telephone (0462) 894410
What do our readers think? Write and tell us.

Dear sir's
May I first thank you for supporting the TI 99/4A in your excellent magazine and hopefully your continued support.

The reason that I am writing to you is that I recently started the NOTT's 99er's GROUP for the TI 99/4A and 99/4. I am looking to increase the membership.

The group producers a monthly newsletter containing letters, programming tips, help with programming, news, reviews etc. . .

Could you please give the group a brief mention and ask any person interested in joining or wishing further info to contact me at the below address.

Thank you for your time and hopefully for giving the group a brief mention.
Yours faithfully
Gordon P. Tomlinson
NOTT's 99ER's USER's GROUP
75A Rossell Drive
Stapleford
Nottingham
NG9 7EG

Dear Editor
Whilst playing on Mugsey and acting the goat I found a bug in the program. If Loey asks you how much you are going to pay to keep the boys' loyal, type in a minus number, this number is then added onto your dollars, thus giving you a lot of the things needed like guns and hoods.
Marc Whitaker
Lancashire

Have you got any opinions to air, has someone somewhere upset you and you want to grizzle and gripe? Or maybe you're full of the joys of spring and feel like telling a happy story?
Whatever you want to say, be it good, bad or indifferent drop us a line here at Games Computing and get it off your shoulders.
Send your letters to:
'Postman Pat', Games Computing, 1 Golden Square, London W1.

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CARGO
PROBE

MARS MINER

RUNS ON BBC



TESTED & APPROVED

The objective of this game is to collect from or mine the precious egg shaped droplets of uranium ore. The droplets of ore are found in the deep caves under the surface of Mars.

Previous expeditions have left refuelling pads in strategic positions around the caverns which you must use to take the droplets, one at a time, up to the mothership. Due to the unusual gravity of Mars your ship drifts not only downwards but also to the right of the screen, you must constantly counteract this drift with just the right amount of thrust to navigate your way to the lower caverns.

The droplets of uranium ore are only found in the deepest of the caverns but two have been left near the surface on a ledge, beside a fuel pad. These two droplets are a reminder of ill-fated missions before yours, as captains miss-calculated the amount of fuel needed and drifted helplessly into the cavern walls.

To help you, an alarm has been fitted into your ship which will warn you when you need to refuel. To refuel, the whole of the underside of the main engine must be in contact with the yellow pad, otherwise your ship will sink through the fuel and crash into the red rocks below. It does not matter at what speed you land at, but slow controlled fights and landings re more fruitful. The type of landing pad is such that once it has refuelled your ship it gives an assisting boost which re-launches you.

To pick up an ore droplet, manoeuvre the craft underneath it and then slowly move up until the top of the ship is in contact with the ore. The ship will automatically lock onto the droplet and will only release it when you have docked with the white area of the mothership. Any contact with the red hull of the mothership is fatal.

You gain points by collecting eggs and transporting them safely up to the mothership. Points are also awarded for your flight skills in landing the ship on the fuel pads around the mine. Different pads are more difficult or easy to land on and the points vary in respect.

You have three ships per game which you manoeuvre using the following keys.

Caps Lock = Thrust left..
CTRL = Thrust right.
TAB = Main engines.

RUNdown

Lines	Action
100	Moves TV picture down so that it all fits on the screen.
110	Sets up the variables and arrays which must only be set up once.
150	Flush all internal buffers.
160	Disable the cursor.
170-270	Display title page.
280-290	Set up envelopes.
300-380	Define characters.

420-550	Gives instructions.
590-640	Set up any remaining variables.
650	Join text and graphics cursors.
660-670	Call procedure to draw the first screen.
700	Notes the ships position.
720	Ends game if there are no ships left.
730-760	Displays information at the top of the screen fuel act.
770	Updates hi-score.
780-800	Controls. Sets flags and updates variables.
810-850	Draws the fire from the engines.
860	Calls the procedure which decides is the ship has crashed or landed.
880-890	Causes the ship to drift.
900	Rubs out the ship if it has moved.
910-940	Draws ship.
990-1040	Procedure to rub out the ship.
1060-1340	Procedure which checks to see if the ship has landed, crashed or caught an egg.
1370-2220	Procedure which draws the screens.
2250-2370	Explosion procedure which destroys a ship.

Variables Used

C(1 to 7)	Hold the values for the colour of points around the ship.
NEG(1 to 2)	Number of eggs left in each screen.
HI	Hi score.
CX,CY	Check to see if the ship had moved.
SKILL	Skill level (set in program).
A$,B$	Used as GET$ to wait until the user is ready.
X,Y	Ships postiion on the screen.
FUEL	Fuel left.
SHIPS	Number of ships left.
XDRIFT	Drift added to x-directions movement.
YDRIFT	Drift added to y-directions movement.
SCORE	Score.
SCREEN	Screen number (1 or 2).
S,L	Loop variables used throughout game.

Flags

LEFT	Left engine (1 = on. 0 = off.)
RIGHT	Right engine (1 = on. 0 = off).
UP	Main engine (1 = on. 0 = off).
EGG	1 = ship has an egg. 0 = ship has no egg.

```
 10 REM ***************************************
 20 REM *                                     *
 30 REM *           Mars Miner                *
 40 REM *        BY S.GREEN AUGUST 84         *
 50 REM *                                     *
 60 REM ***************************************
 70 :
 80 :
 90 :
100 *TV255
110 HI=0
120 DIMC(7)
130 DIMNEG(2)
140 MODE7
150 *FX15,0
160 VDU23;8202;0;0;0;
170 VDU32,32,141,132,157,131
180 PRINT"     MARS   MINER      ";:VDU156
190 PRINT
200 VDU32,32,141,132,157,134
210 PRINT"     MARS   MINER      ";:VDU156
220 PRINT TAB(3,10) CHR$(129);:PRINT"THRUST DOWN.....TAB"
230 PRINT TAB(3,12);CHR$(129);:PRINT"THRUST LEFT.....CapsLock"
240 PRINT TAB(3,14) CHR$(129);:PRINT"THRUST RIGHT.....CTRL"
250 PRINT TAB(3,16) CHR$(129);:PRINT"RETURN.....INFO"
260 PRINT TAB(9,7);CHR$(134);:PRINT"HI SCORE=";HI
270 PRINT TAB(5,20) CHR$(129);:PRINT"Any Key to start"
280 ENVELOPE2,8,1,-1,1,1,1,1,121,-10,-5,-2,120,120
290 ENVELOPE3,3,0,0,0,0,0,0,30,-2,-2,-5,120,80
300 VDU23,240,12,190,255,255,159,31,63,127
310 VDU23,241,48,125,255,255,249,248,252,254
320 VDU23,242,0,52,127,223,110,18,0,0
330 VDU23,243,0,80,234,253,126,36,0,0
340 VDU23,244,63,63,127,47,125,246,41,18
350 VDU23,245,252,252,252,220,238,191,42,4
360 VDU23,246,0,255,255,255,255,255,102,102
370 VDU23,247,255,255,255,255,255,255,255,255
380 VDU23,248,8,28,62,123,85,79,97,62
390 CX=0:CY=0
400 SKILL=0.25
410 :
420 A$=GET$
430 IF A$<> CHR$(13) THEN 580
440 CLS
450 PRINT TAB(4,3)"Guide the landing pod "
460 PRINT TAB(4,5)"onto  the yellow pads  "
470 PRINT TAB(4,7)"using the  Thrusters."
480 PRINT TAB(4,9)"Collect each egg and"
490 PRINT TAB(4,11)"take  it  up  to the"
500 PRINT TAB(4,13)"mother ship."
510 PRINT TAB(4,15)"  You gain points for"
520 PRINT TAB(4,17)"landing  on the  pads"
530 PRINT TAB(4,19)"and  for  collecting"
540 PRINT TAB(4,21)"eggs.ANY KEY TO START"
550 B$=GET$
560 :
570 :
580 MODE1
590 VDU23;8202;0;0;0;
600 X=100:Y=900
610 LEFT=0:RIGHT=0:UP=0
620 FUEL=900:SHIPS=3
630 XDRIFT=10:YDRIFT=-10
640 EGG=0:SCORE=0:NEG(1)=2:NEG(2)=10
650 VDU5
660 SCREEN=1
670 PROCSCREEN
680 :
690 :
700 CX=X:CY=Y
710 VDU4
720 IF SHIPS<1 THEN GOTO 140
730 PRINT TAB(0,0)"FUEL=";FUEL;" ":VDU5
740 VDU4:PRINT TAB(9,0)"SHIPS:";SHIPS;" ":VDU5
750 VDU4:PRINT TAB(17,0)"SCORE:";SCORE;"  ":VDU5
760 VDU4:PRINT TAB(28,0)"HI:";HI;"    ":VDU5
770 IF SCORE>HI THEN HI=SCORE
780 IF INKEY(-97) AND FUEL>0 THEN YDRIFT=YDRIFT+1:UP=1:FUEL=FUEL-5
790 IF INKEY(-2) AND FUEL>0 THEN XDRIFT=XDRIFT-1:LEFT=1:FUEL=FUEL-5
800 IF INKEY(-65) AND FUEL>0 THEN XDRIFT=XDRIFT+1:RIGHT=1:FUEL=FUEL-5
810 GCOL4,0
820 IF UP=1 THEN MOVEX,Y-32:VDU244,245:UP=0:GCOL4,0:MOVEX,Y-32:VDU244,245
830 IF RIGHT=1 THEN MOVEX-32,Y:VDU242:RIGHT=0:GCOL4,0:MOVEX-32,Y:VDU242
840 IF LEFT=1  THEN MOVEX+2*32,Y:VDU243:LEFT=0:GCOL4,0:MOVEX+2*32,Y:VDU243
850 GCOL4,0
860 PROCCHECK
870 GCOL4,0
880 X=X+XDRIFT
890 Y=Y+YDRIFT
900 IF X<>CX OR Y<>CY THEN PROCOUT
910 GCOL4,3
920 MOVEX,Y:VDU240,241
930 IF EGG=1 THEN MOVEX+15,Y+32:VDU248
940 GCOL4,3
950 GOTO700
960 :
```



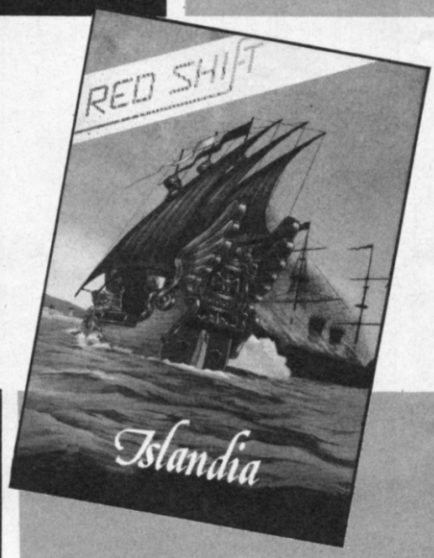
RUNS ON BBC

```
 970 :
 980 :
 990 DEFPROCOUT
1000 GCOL0,0
1010 MOVECX,CY:VDU240,241
1020 IF EGG=1 THEN MOVECX+15,CY+32:VDU248
1030 GCOL0,3
1040 ENDPROC
1050 :
1060 DEFPROCCHECK
1070 XDRIFT=XDRIFT+SKILL:YDRIFT=YDRIFT-.25
1080 GCOL0,2
1090 IF X>1300 OR X<-100  THEN PROCEXPLODE
1100 C(1)=POINT(X-3,Y+5)
1110 C(2)=POINT(X+32,Y+5)
1120 IF EGG=1 THEN C(2) =POINT(X+20,Y+32)
1130 C(3)=POINT(X+65,Y+2)
1140 C(4)=POINT(X,Y-33)
1150 C(5)=POINT(X+32,Y-32)
1160 C(6)=POINT(X+64,Y-32)
1170 FORS=1 TO 6
1180 IF C(S)=1 THEN PROCEXPLODE
1190 NEXTS
1200 IF SCREEN=1 AND X>206 AND X<265  AND Y>510 AND Y<550 AND C(4)=2 AND C(5)=2
 AND C(6) =2 THEN SCORE=SCORE+1
1210 IF SCREEN=1 AND X>990 AND X<1060 AND Y>160 AND Y<200 AND C(4)=2 AND C(5)=2
 AND C(6) =2 THEN SCORE=SCORE+1
1220 IF SCREEN=2 AND X>350 AND X<400 AND Y>650 AND Y<700 AND C(4)=2 AND C(5)=2
AND C(6) =2 THEN SCORE=SCORE+2
1230 IF SCREEN=2 AND X>980 AND X<1070 AND Y>640 AND Y<720 AND C(4)=2 AND C(5)=2
 AND C(6) =2 THEN SCORE=SCORE+3
1240 IF SCREEN=2 AND X>100 AND X<170 AND Y>340 AND Y<400 AND C(4)=2 AND C(5)=2
AND C(6) =2 THEN SCORE=SCORE+4
1250 IF SCREEN=2 AND X>910 AND X<960 AND Y>130 AND Y<190 AND C(4)=2 AND C(5)=2
AND C(6) =2 THEN SCORE=SCORE+7
1260 IF C(1)=2 AND EGG=0 OR C(2)=2 AND EGG=0 OR C(3)=2 AND EGG=0 THEN EGG=1:SOU
ND1,1,100,50:NEG(SCREEN)=NEG(SCREEN)-1:SCORE=SCORE+5
1270 IFC(4)=2 AND C(5)=2 AND C(6) =2 THEN SOUND1,-15,100,1:FUEL=FUEL+50:XDRIFT=
.25:YDRIFT=-.25
1280 IF FUEL>=1000 THEN YDRIFT=3:FUEL=990:XDRIFT=0:SOUND1,-15,100,2
1290 IF SCREEN=2 AND Y>960 THEN SCREEN=1:X=435:Y=37:PROCSCREEN
1300 IF SCREEN=1 AND Y<=0 THEN X=448:Y=896:SCREEN=2:PROCSCREEN
1310 IF SCREEN=1 AND Y>992 THEN SCREEN=0:Y=64:PROCSCREEN
1320 IF EGG=1 AND C(2)=3 THEN SOUND1,2,100,10:EGG=0:YDRIFT=-1:SCORE=SCORE+20:PR
OCSCREEN
1330 IF FUEL<150 THEN SOUND1,-15,255,3
1340 ENDPROC
1350 :
1360 :
1370 DEFPROCSCREEN
1380 VDU4:CLS:VDU5
1390 VDU19,1,0,0,0,0,0
1400 GCOL0,1
1410 MOVE0,960:MOVE0,930:PLOT85,1280,960
1420 MOVE1280,960:MOVE1280,930:PLOT85,0,960
1430 MOVE384,960:MOVE384,896:PLOT85,608,960
1440 MOVE384,896:MOVE608,896:PLOT85,608,960
1450 MOVE384,896:MOVE416,896:PLOT85,416,832
1460 MOVE576,896:MOVE608,896:PLOT85,576,832
1470 GCOL0,3
1480 MOVE416,864:MOVE416,896:PLOT85,576,864
1490 MOVE416,896:MOVE576,896:PLOT85,576,864
1500 GCOL0,2
1510 GCOL0,1
1520
1530 IF SCREEN>1 THEN GOTO1790
1540 :
1550 :
1560 GCOL0,1
1570 MOVE0,500:MOVE400,500:PLOT85,320,0
1580 MOVE250,0:MOVE544,416:PLOT85,512,128
1590 MOVE0,0:MOVE320,0:PLOT85,0,500
1600 MOVE320,0:MOVE320,500:PLOT85,544,416
1610 MOVE450,256:MOVE320,0:PLOT85,512,128
1620 MOVE736,384:MOVE896,320:PLOT85,1280,512
1630 PLOT85,736,544
1640 MOVE896,320:MOVE1280,512:PLOT85,1280,256
1650 MOVE1280,0:MOVE1280,128:PLOT85,608,0
1660 MOVE928,50:MOVE1280,128:PLOT85,928,128
1670 MOVE1250,128:MOVE1280,256:PLOT85,1024,320
1680 PLOT85,1280,0
1690 MOVE1280,224:MOVE1280,384:PLOT85,832,256
1700 GCOL0,0
1710 MOVE320,0:MOVE300,150:PLOT85,650,200
1720 VDU19,1,1,0,0,0,0
1730 GCOL0,2
1740 MOVE1024,160:VDU246,246,246,246
1750 MOVE200,516:VDU246,246,246,246
1760 IF NEG(1)=0 THEN 1780
1770 MOVE855,240:FORL=1 TO NEG(1):VDU248:NEXTL
1780 GOTO2220
1790 CLS
1800 X=448:Y=928
1810 VDU19,1,0,0,0,0,0,0
1820 GCOL0,1
1830 MOVE1120,0:MOVE1280,960:PLOT85,1280,0
1840 MOVE192,64:MOVE0,128:PLOT85,192,320
1850 MOVE0,320:MOVE0,128:PLOT85,192,320
1860 MOVE992,0:MOVE1120,0:PLOT85,1120,96
1870 MOVE0,0:MOVE0,64:PLOT85,1152,64
1880 MOVE0,0:MOVE1038,0:PLOT85,1152,64
1890 MOVE1280,960:MOVE1120,960:PLOT85,1120,0
1900 MOVE0,128:MOVE0,32:PLOT85,320,32
1910 MOVE736,0:MOVE884,0:PLOT85,800,128
1920 MOVE192,192:MOVE192,320:PLOT85,320,320
1930 MOVE192,192:MOVE320,320:PLOT85,416,288
1940 MOVE192,192:MOVE640,192:PLOT85,640,384
1950 MOVE448,288:MOVE544,416:PLOT85,640,384
1960 MOVE640,192:MOVE704,256:PLOT85,640,384
1970 MOVE0,320:MOVE0,416:PLOT85,96,320
1980 MOVE0,416:MOVE0,960:PLOT85,256,736
1990 MOVE0,960:MOVE256,736:PLOT85,320,960
2000 MOVE128,576:MOVE256,736:PLOT85,448,480
2010 MOVE252,416:MOVE224,576:PLOT85,448,480
2020 MOVE448,480:MOVE480,608:PLOT85,252,608
2030 MOVE608,960:MOVE704,768:PLOT85,1120,960
2040 MOVE1024,928:MOVE1152,800:PLOT85,1120,960
2050 MOVE704,768:MOVE800,768:PLOT85,832,832
2060 MOVE832,832:MOVE1056,928:PLOT85,928,800
2070 MOVE1184,608:MOVE768,608:PLOT85,1152,192
2080 MOVE1152,192:MOVE896,224:PLOT85,768,608
2090 MOVE768,608:MOVE672,544:PLOT85,864,384
2100 MOVE768,608:MOVE832,672:PLOT85,992,576
2110 MOVE832,480:MOVE896,224:PLOT85,800,252
2120 MOVE448,736:MOVE480,704:PLOT85,480,800
2130 MOVE960,96:MOVE960,64:PLOT85,1024,64:PLOT85,1024,96
2140 GCOL0,2
2150 MOVE96,352 :VDU246,246,246,246
2160 MOVE992,640:VDU246,246,246,246
2170 MOVE352,640:VDU246,246,246,246
2180 MOVE928,128:VDU246,246,246
2190 VDU19,1,1,0,0,0,0
2200 GCOL0,2
2210 MOVE245,175:FORL=1 TO NEG(2):VDU248:NEXTL
2220 ENDPROC
2230 :
2240 :
2250 DEFPROCEXPLODE
2260 GCOL0,2
2270 MOVEX,Y:VDU244,244
2280 FORL=0 TO 20
2290 VDU19,128,3,0,0,0,0
2300 VDU19,0,0,0,0,0,0
2310 GCOL0,0:MOVEX,Y:VDU244,244
2320 SHIPS=SHIPS-1
2330 SOUND0,3,6,50
2340 FOR S=0 TO 6:C(S)=0:NEXTS
2350 SCREEN=1:X=100:Y=800:CX=X:CY=Y:EGG=0:XDRIFT=10:YDRIFT=
     -10:PROCSCREEN
2360 FUEL=990
2370 ENDPROC
```

Earth terrorised by evil aliens, mind control of all adults from the age of 14, huge three legged war machines stomping on everybody — all good sci-fi stuff from John Christopher in his 'Tripod' series of books and now a TV series. Red Shift are producing a computer game based on the first book and the BBC series.

Mike Roberts has been talking to Charles Ablett of Red Shift about 'Tripods' and all the other things that Red Shift are up to.





RED SHIFT

Being a dedicated fan of the Tripods trilogy, it was with some interest that I received the news of its imminent arrival as a computer game. The game will be a sort of adventure game in a similar mould to 'The Lords of Midnight' except it is better at just about everything — like there is true perspective graphics: "On Lords of Midnight every scene is shown as if you were standing on a hill", said Charles, "on Tripods if you are standing in front of a forest you can see very little, only trees, on LOM you can see the mountains and castles beyond", "You can also use binoculars to get a better view of things".

Another interesting addition is the ability to have between one and four players, making it a true family game. "We are looking into the possibility of playing multi-player games using more than one computer linked up", that ought to be interesting. Another user friendly advantage is that it is menu driven — no more hunting for the right pidgin English expression to do a simple thing.

T.V. Tie Up

"The idea of the game closely follows the TV series and the first book", he explained, "you must travel across Europe from Winchester to the Alps, the game shouldn't lose its appeal over a long period of time as you can take many alternative routes to get to your objective". "Of course you must avoid the Tripods and the black guard, and beg, borrow, or steal food". "There are real-time elements in the game that should throw map makers off the scent".

Adventures are getting more and more different from their original verb/-noun you-are-in-a-long-tunnel format, although the success of Melbourne House's 'Classic Adventure', the original adventure game, reveals that there is still a market for this kind of product, rather like imagining a scene from a book and seeing it in a film.

What does Charles see as a adventure game and the relationship that games like Lords of Midnight and Tripods, which are drawing away from the standard adventure format, have to standard adventures like The Hobbit or Classic Adventure: "An adventure is a game were you can take on the role of a character and have as many options and choices as in real life".

"You don't get many options with Lords of Midnight, I don't find it repetitive, but it doesn't work as an adventure game — it is a very good war game". "Tripods is a game where you can have adventures, it is a true adventure game".

Tripods is being launched for the Commodore 64 and the Sinclair Spectrum at the same time, a BBC version is to follow later. The may be the possibility of an Amstrad version at a later date but "The Amstrad is very difficult to program" said Charles.

Enthusiastic Beginnings

Where did Red Shift come from? "It developed out of Miniture Wargames magazine, a couple of people there thought that there was a market for war and strategy games. The backer of the magazine provided the finance and it started from there".

The first game to be released was Apocalypse. This was a licenced version of the board game created by Games Workshop. There was to be a follow up, of a different game called Battlecars, but there were problems: "The programmers left after three months when the program was 90% complete, taking the program with them. I believe that they sold it to Games Workshop Software for £4000".

The Name's The Game

From there they went from strength to strength, releasing some games that attracted a real cult following amongst wargamers. "We haven't really got a name for ourselves yet, we are hoping that Tripods will give it to us".

What of the future? "We're bringing out a space tactical/strategy game that is, as yet, unnamed and a fantasy game", not called the golden tower (the programmers name for it), "names are very important". Well the name Red Shift should be here for some time.

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At the start/finish line you strap on your helmet, check your instruments, gun your engine and surge onto the course.
Through the corners, up the hills, into the ruts and down the straights you manoeuvre for position and try to beat the clock.
Stay ahead if you can. But whatever you do, stay on course.
Stay ahead if you can. But whatever you do, stay on the course.
If you don't, one of two things will happen.
You'll slow down and lose valuable seconds getting back into the race. Or worse, you'll end up on the seat of your pants.
Who says computers don't like to get dirty?

Your agents risked their lives to find the enemy's secret headquarters.
Now you're risking yours to destroy it.
And they know you're coming.
Time is short, so you'll have to fly. But fly too fast, and you'll squander your precious fuel supply.
Needless to say, they don't issue parachutes on missions like this.
As you soar over hundreds of miles of distinctly unfriendly territory, the action is thick, fast and frighteningly three-dimensional.
Fighter aircraft. Surface-to-air missiles. Helicopter gunships.
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Even from behind.

Edison, the kinetic android, leads a frustrating life.
All he really wants to do is build his circuit boards and go with the flow. But things keep getting in the way.
Ohms — a negative influence — plug him regularly. They're harmless, but only from a distance.
Flash, the lightening bolt, disconnects everything in his path. Which can be frustrating after a hard day on the circuit.
And the cunning Killerwatt is out to fry poor Edison's brains.
But our hero simply solders on.
Juice! is the ultimate current event. You'll get a charge out of it. And a few jolts, too!

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RUNdown

Lines	Action
5-10	Turn off CAPS,cursor & key click.
40	Counts which sheet is in play.
280-460	Main Program.
280	Time limit per sheet.
282-288	Amount of time left & display.
290	Kopter sound.
300-360	Check & move rocket launcher.
370	Check if rocket is fired.
380-450	Randomly move Kopters and set boundaries.
460	Next second in time.
470-640	Out of time. Drop helicopters out of the sky.
1000-1160	Define special characters & initialise score & sheet no.
1200-1470	Introductory sequence.
1500-1740	Instructions.
2000-2060	Setup screen on bombing a kopter.
3000-3070	Check for rocket hitting kopter or satellite.
3700-3820	Plays tune on you failing.
4000-4190	Sets up screen for game.
5000-5050	Deletes satellite on impact of rocket and increments score.
5060-5190	Game successfully completed. Message of congratulation and displays total time taken. Sheet completed successfully.
7000-7060	Move kopter on sheet 1.
7200-7270	Move kopters on sheet 2.
7400-7500	Move kopters on sheet 3.
8000-8050	Drop flares on sheet 1 and check for hits.
8060-8160	Launcher hit by flare.
8400-8480	Drop flares on sheet 2.
8800-8880	Drop flares on sheet 3.

KAMIKAZE KOPTERS

RUNS ON ORIC



Watch out! Here they come! It's those kamikaze kopters trying to get you. Don't worry — they can be stopped with your trusty rocket launcher. Only problem is that they are remote controlled and highly explosive. They receive their signals from the ten satellites in the outer atmosphere — if you can clear these then you are safe. However, a second and third wave are ready to replace the first lot if you manage to shoot them down in the given time.

If you cannot complete this task within the set time the Kopters turn kamikaze and just crash to the ground — killing you in the explosion. In addition each kopter drops flares which are reasonably harmless — that is if they don't hit you directly — if they do then you're dead.

While you are trying to clear the satellites, the kopters are busy hovering above you generally making a nuisance of themselves trying to get into your line of fire. If they do this then they have accomplished their mission — as again you will be killed in the explosion.

It's up to YOU now to save the base and airstrip — GOOD LUCK!

Variables Used

S1	Sheet number
T$	S1 as a string
N	Length of time on each sheet
TI$	N as a string
SC	Score
S$	SC as a string
TY	Time remaining
TY$	TY as a string
S	Random no. used for frequency of flares
P,Q	Co-ords of launcher
R	Random no. used for moving kopters
X,Y & L,M	Co-ords of kopters
P,S	Co-ords of rocket
E$	Solid block for airstrip
TS	Total time taken
TS$	TS as a string
XB,YB	Co-ords of flares
XC,YC	Co-ords of flares
XD,YD	Co-ords of flares

KAMIKAZE KOPTERS

```
5 PRINTCHR$(20)
10 POKE618,10
20 GOSUB1000
25 GOSUB1200
30 GOSUB4000
40 S1=S1+1
280 FORN=1TO150
282 TY=150-N
283 TY$=STR$(TY)
284 S=INT(RND(1)*20)
285 PLOT28,0,TY$
286 IFN>50THENPLOT31,0," "
288 IFN>140THENPLOT30,0," "
290 PLAY5,5,6,280:SOUND6,220,9
300 K=PEEK(520)
310 PP=P:QQ=Q
320 IFP<2THENP=2:PP=1
330 IFP>34THENP=34:PP=35
340 PLOTP,Q,"d"
345 IFP=2THENPLOT1,23," "
347 IFP=34THENPLOT35,23," "
350 IFK=(157)THENP=P+1:PLOTP,Q,"d":PLOTPP,Q," "
360 IFK=(149)THENP=P-1:PLOTP,Q,"d":PLOTPP,Q," "
370 IFK=(174)THENGOSUB3000
380 R=RND(1)
390 IFR<=.5THENX=X+3:W=X-3:Z=Y
395 IFR<=.5THENL=L+2:O=L-3
400 IFR>.5THENX=X-3:W=X+3:Z=Y
405 IFR>.5THENL=L-2:O=L+3
410 IFX<3THENX=3:IFW<6THENW=6
415 IFL<3THENL=3
420 IFX>35THENX=35:IFW>32THENW=32
425 IFL>35THENL=35
430 IFY<0THENY=0:IFZ<3THENZ=3
440 IFY>20THENY=20:IFZ>17THENZ=17
450 ONS1GOSUB7000,7200,7400
460 NEXT
470 REM OUT OF TIME
480 ONS1GOSUB500,530,570
483 EXPLODE
484 WAIT10
485 CLS
486 GOSUB3700
487 CLS
488 PLOT10,12,"OUT OF TIME - CRASHED!"
490 PLOT13,14,"YOU SCORED"
493 PLOT16,15,S$
495 PLOT15,16,"POINTS"
497 GOTO600
500 REPEAT
505 Y=Y+1
510 PLOTX,Y-1,"   "
515 PLOTX,Y,"abc"
520 WAIT10
525 UNTILY=23
528 RETURN
530 REPEAT
534 Y=Y+1
538 PLOTX,Y-1,"   "
540 PLOT38-X,Y-1,"   "
544 PLOTX,Y,"abc"
550 PLOT38-X,Y,"ghi"
555 WAIT10
560 UNTILY=23
565 RETURN
570 REPEAT
574 Y=Y+1
576 M=M+1
578 PLOTX,Y-1,"   "
580 PLOT38-X,Y-1,"   "
582 PLOTL,M-1,"   "
584 PLOTX,Y,"abc"
588 PLOT38-X,Y,"ghi"
590 PLOTL,M,"abc"
592 WAIT10
594 UNTILY=23
595 PLOT13,14,"YOU SCORED"
597 PLOT16,15,S$
598 RETURN
600 PLOT8,20,"ANOTHER GAME Y/N?"
605 PRINTCHR$(20)
610 GETA$
620 IFA$="Y"THENRUN
630 IFA$="N"THENCLS:END
640 GOTO610
1000 REM DEFINE SPECIAL CHARACTERS
1010 FORI=0TO71
1020 READJ
1030 POKE46856+I,J
1040 NEXTI
1050 DATA0,0,0,32,31,32,0,0
1060 DATA31,0,7,31,63,31,7,3
1070 DATA63,32,60,6,18,22,60,24
1080 DATA0,18,18,18,30,30,63,63
1090 DATA8,8,8,8,8,8,8,28
1100 DATA4,14,0,21,0,14,4,0
1110 DATA63,1,15,24,18,26,15,6
1120 DATA62,0,56,62,63,62,56,48
1130 DATA0,0,0,1,62,1,0,0
1135 SC=0:S1=0
1140 S$=STR$(SC)
1145 T$=STR$(S1)
1150 TI$=STR$(N)
1160 RETURN
1200 REM INTRODUCTION
1210 CLS
1215 PLAY5,5,6,280:SOUND6,220,9
1220 I1$="ghi--KAMIKAZE KOPTERS
1225 I2$="                BY GARY MARTIN--abc "
1230 PAPER3:INK0
1240 FORX=36TO7STEP-1
1250 A=A+1
1260 PLOTX,10,LEFT$(I1$,A)
1265 PLOT1,12,RIGHT$(I2$,A)
1270 WAIT30
1280 NEXT
1290 WAIT200
1300 ZAP:ZAP
1310 Y=9:Z=11
1320 REPEAT
1330 Y=Y+1:Z=Z+1
1340 PLOT7,Y,"   "
1350 PLOT27,Z,"   "
1360 PLOT7,Y+1,"ghi"
1370 PLOT27,Z+1,"abc"
1380 WAIT20
1390 UNTILZ=25
1400 CLS:EXPLODE:PAPER0
1410 WAIT200
1420 PAPER6:INK4
1430 PLOT4,12,"DO YOU WANT INSTRUCTIONS Y/N"
1440 GETA$
1450 IFA$="n"THENRETURN
1460 IFA$="y"THENGOTO1500
1470 GOTO1440
1500 REM INSTRUCTIONS
1505 PRINT
1510 PRINTSPC(10)"INSTRUCTIONS"
1520 PRINTSPC(10)"============"
1530 PRINT"     THE AIRSTRIP IS UNDER ATTACK BY"
1540 PRINT"REMOTE CONTROLLED HELICOPTERS.THEY"
1550 PRINT"RECEIVE THEIR SIGNALS FROM THE 10"
1560 PRINT"SATELLITES IN THE OUTER ATMOSPHERE."
1570 PRINT"TO SAVE THE BASE YOU HAVE TO SHOOT"
1580 PRINT"DOWN ALL THE SATELLITES,BUT BE WARNED"
1590 PRINT"YOU ONLY HAVE A CERTAIN TIME TO DO "
1600 PRINT"THIS.IF TIME DOES RUN OUT,THE KOPTERS"
1610 PRINT"FALL TO EARTH AND EXPLODE - KILLING"
1620 PRINT"YOU.IF YOU SHOOT THE KOPTERS,THEY"
1630 PRINT"WILL EXPLODE - AGAIN KILLING YOU."
1640 PRINT"FINALLY,BEWARE OF THE FLARES DROPPED"
1650 PRINT"BY THE KOPTERS.THESE ARE ONLY FATAL"
1660 PRINT"IF THEY HIT YOU DIRECTLY."
1670 PRINT"          GOOD LUCK!"
1675 PRINT
1680 PRINT"USE O TO MOVE LAUNCHER LEFT"
1690 PRINT"USE P TO MOVE LAUNCHER RIGHT"
1700 PRINT"USE A TO FIRE THE ROCKETS"
1710 PRINT:PRINT"[THERE ARE THREE SHEETS TO COMPLETE]"
1720 PLOT8,25,"PRESS N TO CONTINUE"
1730 GETA$
1740 GOTO1450
2000 EXPLODE:CLS
2010 FORN=4TO0STEP-1
2020 PAPERN
2030 WAIT15
2040 NEXT
2045 GOSUB3700
2047 CLS
2050 PLOT4,9,"YOU'VE BLOWN UP THE HELICOPTER"
```

KAMIKAZE KOPTERS

RUNS ON ORIC

```
2053 PLOT9,11,"AND IT'S FUEL - "
2054 PLOT11,13,"YOU'RE DEAD!"
2055 PLOT12,16,"YOU SCORED"
2057 PLOT11,18,S$
2058 PLOT16,18,"POINTS"
2060 GOTO8120
3000 REM ROCKET FIRE
3010 S=0
3020 FORS=1TO22STEP2
3030 PLOTP,23-S,"e"
3035 WAIT1
3040 PLOTP,23-S," "
3050 IFSCRN(P,21-S)=97ORSCRN(P,21-S)=98ORSCRN(P,21-S)=
99THEN2000
3051 IFSCRN(P,22-S)=97ORSCRN(P,22-S)=98ORSCRN(P,22-S)=
99THEN2000
3053 IFSCRN(P,22-S)=103ORSCRN(P,22-S)=104ORSCRN(P,22-S
)=105THEN2000
3055 IFSCRN(P,21-S)=102ORSCRN(P,22-S)=102THEN5000
3060 NEXT
3070 RETURN
3700 REM LOSER MUSIC
3710 ZAP:ZAP
3715 PLOT15,13,"OOPS!"
3720 FORN=1TO8
3730 READA,B,C
3740 MUSIC1,3,A,7
3750 PLAY1,4,1,200
3760 WAITB
3770 WAITC
3780 PLAYO,0,0,0
3790 NEXT
3800 DATA8,21,21,3,7,7,2,7,7,3,7,7,4,21,21,3,21,63,7,2
1,21,8,21,21
3810 PLAYO,0,0,0
3815 EXPLODE
3820 RETURN
4000 E$=CHR$(255)+CHR$(255)
4010 CLS
4020 PAPER0:INK6
4030 PLOT2,26,E$+E$+E$+E$+E$+E$+E$+E$+E$+E$+E$+E$+E$+E
$+E$+E$+E$
4040 PLAY5,5,6,280
4050 SOUND6,220,9
4055 S$=STR$(SC)
4060 X=10:Y=10
4070 W=10:Z=10
4075 L=17:M=9
4080 PLOT2,25,E$+E$+E$+E$+E$+E$+E$+E$+E$+E$+E$+E$+E$+E
$+E$+E$+E$
4100 P=15:O=23
4110 PLOT2,24,E$+E$+E$+E$+E$+E$+E$+E$+E$+E$+E$+E$+E$+E
$+E$+E$+E$
4125 PRINT
4130 PRINT"
4140 PRINT"
4160 PLOT10,25,"KAMIKAZE KOPTERS"
4170 PLOT6,0,"SCORE:"
4175 PLOT12,0,S$
4177 PLOT18,0,"TIME LEFT:"
4185 PLOT0,0,20
4190 RETURN
5000 REM MISSILE HIT
5010 EXPLODE
5020 PLOTP,21-S," ":PLOTP,22-S," "
5025 PLOTP,23-S," ":PLOTP,24-S," "
5030 SC=SC+10
5035 S$=STR$(SC)
5038 PLOT12,0,S$
5040 IFSC=1000R SC=200THENGOSUB6000
5045 IFSC=300THENGOTO5060
5050 GOTO3060
5060 REM END ROUTINE
5065 TS=TS+N
5068 TS$=STR$(TS)
5070 FORN=7TO0STEP-1
5080 PAPERN
5090 WAIT50
5100 NEXT
5110 CLS
5120 PLOT10,8,"**********"
5130 PLOT10,9,"*WELL DONE*"
5140 PLOT10,10,"**********"
5145 PLOT7,14,"YOU COMPLETED THE GAME"
5147 PLOT8,16,"IN"
5148 PLOT11,16,TS$
5149 PLOT16,16,"SECONDS"
5150 PLOT8,20,"ANOTHER GAME Y/N?"
5155 PRINTCHR$(20)
5160 GETA$
5170 IFA$="Y"THENRUN
5180 IFA$="N"THENCLS:END
5190 GOTO5160
6000 REM CLEARED A SHEET
6005 TI$=STR$(N)
6006 TS=TS+N
6010 CLS
6020 PLOT8,12,"YOU CLEARED THE SKY"
6030 PLOT10,14,"IN"
6040 PLOT13,14,TI$
6050 PLOT19,14,"SECONDS"
6055 WAIT300
6060 GOTO30
7000 PLOTW,Z,"
7010 PLOTX,Y,"abc"
7020 IFS=8THEN GOSUB8000
7040 WAIT10
7060 RETURN
7200 PLOTW,Z,"
7210 PLOT38-W,Y+1,"
7220 PLOTX,Y,"abc"
7230 PLOT38-X,Y+1,"ghi"
7240 IFS=8THENGOSUB8000
7250 IFS=3THENGOSUB8400
7260 WAIT10
7270 RETURN
7400 PLOTW,Z,"
7410 PLOT38-W,Y+1,"
7420 PLOTO,M,"
7430 PLOTX,Y,"abc"
7440 PLOT38-X,Y+1,"ghi"
7450 PLOTL,M,"abc"
7460 IFS=8THENGOSUB8000
7470 IFS=3THENGOSUB8400
7480 IFS=1THENGOSUB8800
7490 WAIT10
7500 RETURN
8000 YB=Y:XB=X
8005 REPEAT
8010 YB=YB+1
8015 PLOTXB+1,YB,"*"
8020 WAIT2
8025 PLOTXB+1,YB," "
8030 IFSCRN(XB+1,YB+1)=100THEN8060
8040 UNTILYB=23
8050 RETURN
8060 EXPLODE
8065 WAIT10
8070 CLS
8075 GOSUB3700
8077 CLS
8080 PLOT12,12,"YOU'RE DEAD!"
8090 PLOT13,14,"YOU SCORED"
8100 PLOT12,16,S$
8110 PLOT17,16,"POINTS"
8120 PLOT8,22,"ANOTHER GAME Y/N?"
8125 PRINTCHR$(20)
8130 GETA$
8140 IFA$="Y"THENRUN
8150 IFA$="N"THENCLS:END
8160 GOTO8130
8400 YC=Y+1:XC=38-X
8410 REPEAT
8420 YC=YC+1
8430 PLOTXC+1,YC,"*"
8440 WAIT2
8450 PLOTXC+1,YC," "
8460 IFSCRN(XC+1,YC+1)=100THEN8060
8470 UNTILYC=23
8480 RETURN
8800 YD=M:XD=L
8810 REPEAT
8820 YD=YD+1
8830 PLOTXD+1,YD,"*"
8840 WAIT2
8850 PLOTXD+1,YD," "
8860 IFSCRN(XD+1,YD+1)=100THEN8060
8870 UNTILYD=23
8880 RETURN
```

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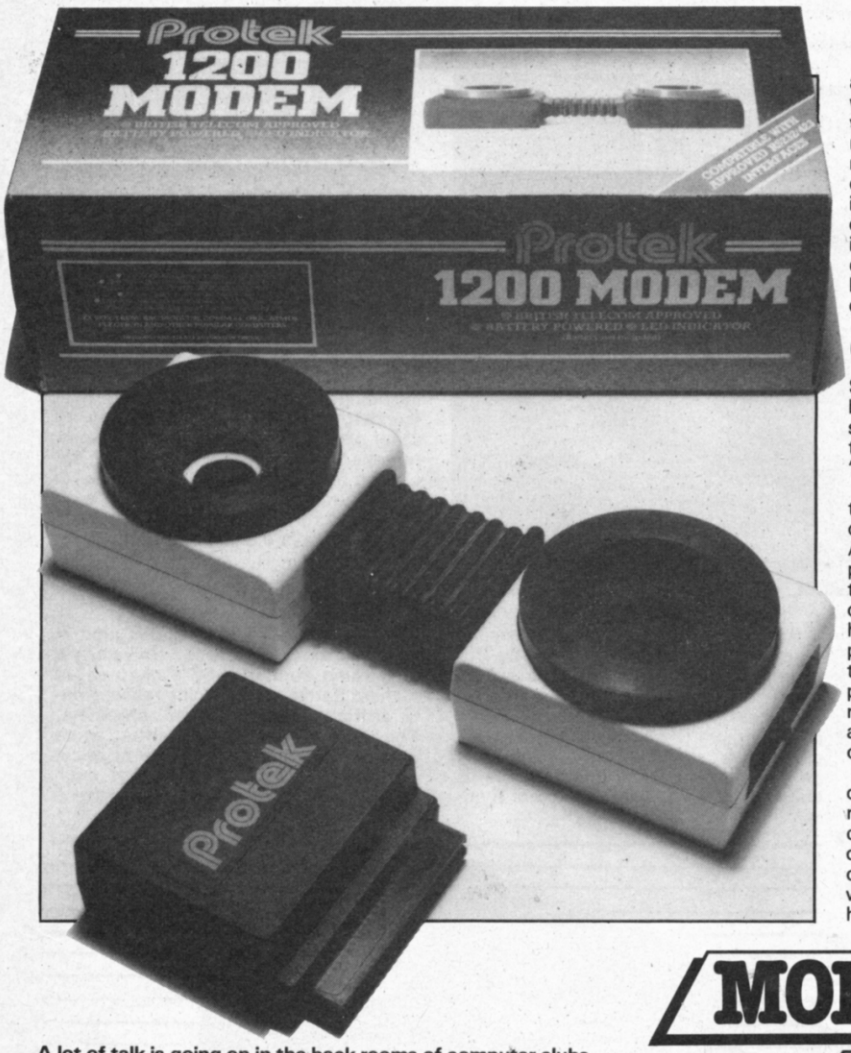
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MODEMS REPORT

A lot of talk is going on in the back rooms of computer clubs about the subject that has been on everybody's mind since the film War Games. What are they all talking about? Modems. What is so interesting about them? Will they revolutionise information technology? And can you really start world war three with one? These and many other questions will now be answered when Mike Roberts starts his TX.

There are two things you need to know about modems — what is one? And what can it do? What one is has a simple answer. Modem stands for "MOdulator DEModulator", how it works can be simplified if you think about how a tape interface functions. When you write information to tape, the tape interface inside your computer turns the bits of data into tones, one tone for a 1 another tone for a 0. These tones can then be recorded via standard audio means (a tape recorder). The interface can also detect the tones coming in and load a program or data into the machine.

A modem is similar. It converts data sent be the terminal computer into tones (modulates) and decodes data sent by the host computer into data for your micro (demodulates). The complexities occur when you have two way data transfer, often at the same time, and possibly at different speeds. Prestel was the original guilty party in this as you transmit data at 75 baud and receive at 1200 baud. Baud is pronounced 'bored' and is a measure of data transfer speed per second (approximately). This includes things like check digits and start/stop bits, the upshot of it all is that: 10 baud = 1 byte per second communicated. It is important to know this as it is one of the most talked of quantities in modems.

Connections

So the end result of a modem is a small black box that attaches to your micro somehow, and will connect to your telephone allowing your machine to 'talk' down the telephone line.

There are two methods of connecting your modem to the telephone — direct connect and acoustic coupler. Acoustic couplers used to be the most popular method because they don't interfere with the telephone system directly. They have a sort of reverse handset which the normal handset plugs into. There is a speaker opposite the microphone and a microphone opposite the speaker. This system is rather error prone, but does have the advantage of being usable on all types of telephone system.

The other type, now more common due to British Telecom becoming more reasonable about what is allowed to be connected to their bits of wire, is the direct connect system. If you have one of the 'new style' BT sockets in your wall, the sort with the little slide up hatch, you can use one of these. They



MODEMS REPORT



plug directly into these sockets and sing straight down them instead of going through the conversion to sound and back again process. This system is error free as long as you have a good line.

There are various other features a modem may have such as auto dial, auto answer or automatic baud rate detect. These are listed in order of importance. Auto dial is useful but you can do without it. It means that the computer can ring up the data base or billboard itself. This has two advantages — firstly, if you are using an acoustic coupler or a direct connect modem without a splitter plug, you don't have to dial the number on your phone, wait until you hear the carrier tone, then hurridly connect up the computer and modem before the host computer goes off line. Secondly, instead of keeping a directory full of 10 digit telephone numbers you can just keep a file of them on disk and call them up when necessary.

Auto answer and auto baud rate select are more for the person who is going to run a bill board or data base. Auto answer will answer the phone (as long as it is a computer that's calling!) so that you can have a fully automated bill board system. Auto baud rate detect will keep swopping its baud rates around until it finds the one that the computer it is talking to is using.

There are other things that modems can have such as ring-back timers, but these are rather specialised and are unlikely to be found on cheap home modems.

It's Very Pretty Dear, But What Can It Do?

What can you do with modem once you've got one? Their main use up to now has been to access Prestel/Micronet the British Telecom mega-database that is all things to all people and can do almost everything that you would expect from a huge public access data base. Almost everybody knows about Prestel so I shall concentrate on Micronet.

Micronet is a database within a database and is intended purely for microcomputer users on Prestel, instead of the more simpler terminals. Micronet has such things as interactive games where thousands of players can play at one, such as Starnet. Starnet is an adventure/strategy/trading game of huge proportions. There are other functions such as gossip/ chat/magazine pages that work very much the same as a normal magazine with news reviews and program submissions, but because Micronet is electronic media the news can be published the same day that it happens and programs can be 'downloaded' directly into your computer. Downloading simply means loading a program into your computer through a modem. You can also buy software over the wire in the same way, your micronet account being debited automatically.

Another system that has just started up is called Compunet. This is very similar to Micronet except that it runs on its own computer and is dedicated to one particular type of micro — the Commodore 64, and is owned and run by Commodore themselves.

Micronet and Prestel use teletext graphics, the same as those used on Ceefax/Oracle and the BBC Micro. They can handle eight colours and a crude form of graphics as well as text. Compunet is designed for a single machine so that it can use full graphics and 16 colours to build up a display. All the facilities of Prestel/Micronet are there including downloading, electronic mail (sending 'screens' of information to other users), and large games. Compunet's 'mega-game' is MUD. Much appraised by Simon Rockman in his page. Regular readers will be familiar with MUD, but for the others, or if you just forgot, there is a short explanation.

More And More MUD

MUD stands for Multi User Dungeon. It was written on Essex University's mainframe computer by a chap called Richard Bartle, who is doing research into artificial intelligenee on computers. The game of MUD is an adventure game where many players can play at once, and players can actually meet each other, have conversations, and fight!



There are various levels of skill that you can attain in MUD, the top being Wizard (our Simon is one of these) and being a Wizard on MUD gives you all sort of wierd and wonderful powers.

This is no where near all that you can do with modems. There are literally hundreds of bulletin boards spread around the country. They are like mini databases and are generally run as a hobby from somebody's home. Some of them can be quite sophisticated, although generally only one user can access them at a time.

One last word. Buying a modem is quite cheap — as low as £50 now — but running them costs a lot because you are hooked up to the telephone for long amounts of time. Also Computnec and Prestel/Micronet cost money to join and use.

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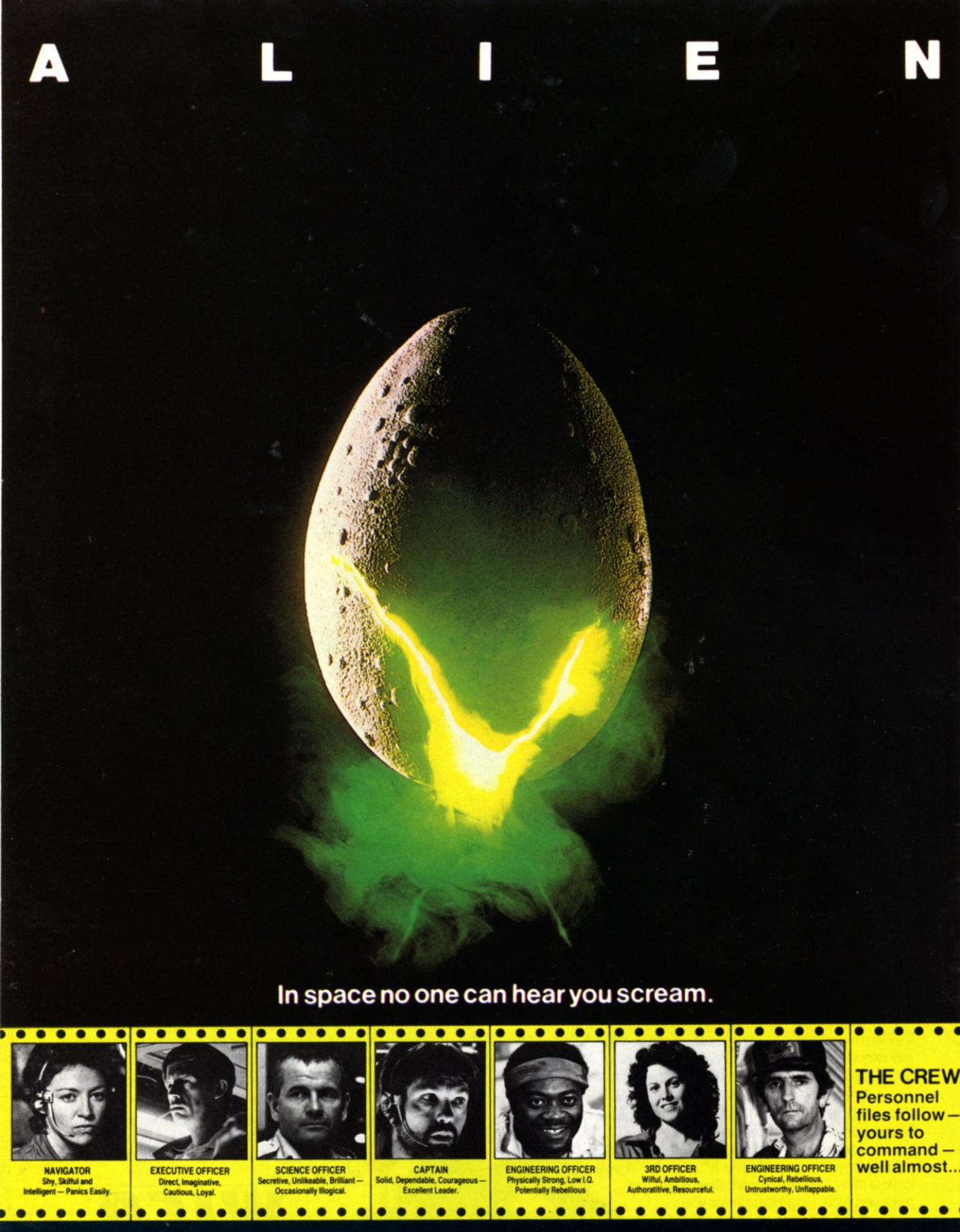


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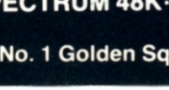
In space no one can hear you scream.



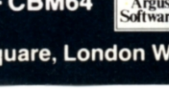
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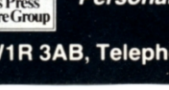
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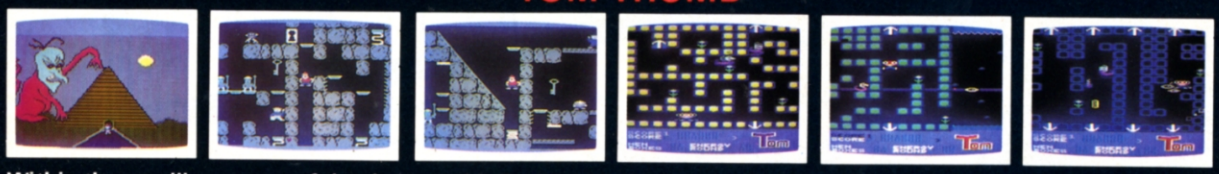
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RUNS ON CBM 64



The object is to collect sacks of wheat thrown out the windmill. You control Marmaduke mouse with joystick in port #2.

Full instruction are contained in the program.



WINDMILL TALES



RUNdown

Lines	Action
0-1	Set up variables.
2-26	Main subroutine for joystick control. Read data set up memory and graphics.
57-80	Scoring and collision detection, game restart and win test, random rat jumping.
90-95	Random sack placing.
100-410	Music and UDGS DATA.
5000-5110	High score table.
9000-9015	Bell sound.
10000-10035	Lose sequence and optional game end.
20000-25000	Windmill graphics.
30000-40670	Sprite data.
50000-50160	M/c data for rat movement.
55000-55070	Play music.
60000	Random multi-colour
61000	Switch interrupts back to normal.

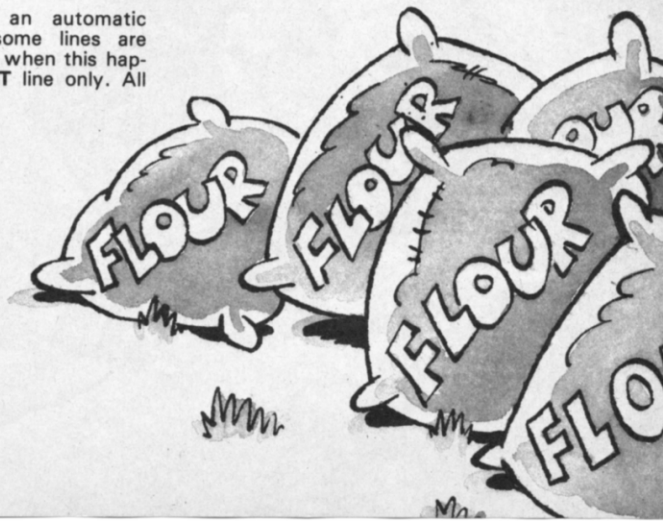
Variables Used

V	Start of video chip.
E1	Start of video chip +1
S	Sound chip start (SID)
JV	Joystick status.
FR	Fire button.
X,Y	Mouse position.
G	For formating score.
CH	Memory pointer for sprites.

Important Note

In the listing there are some REM statements that contain words like 'CRU' and 'CRD' these refer to the following line which contains reverse field characters and explain their function.

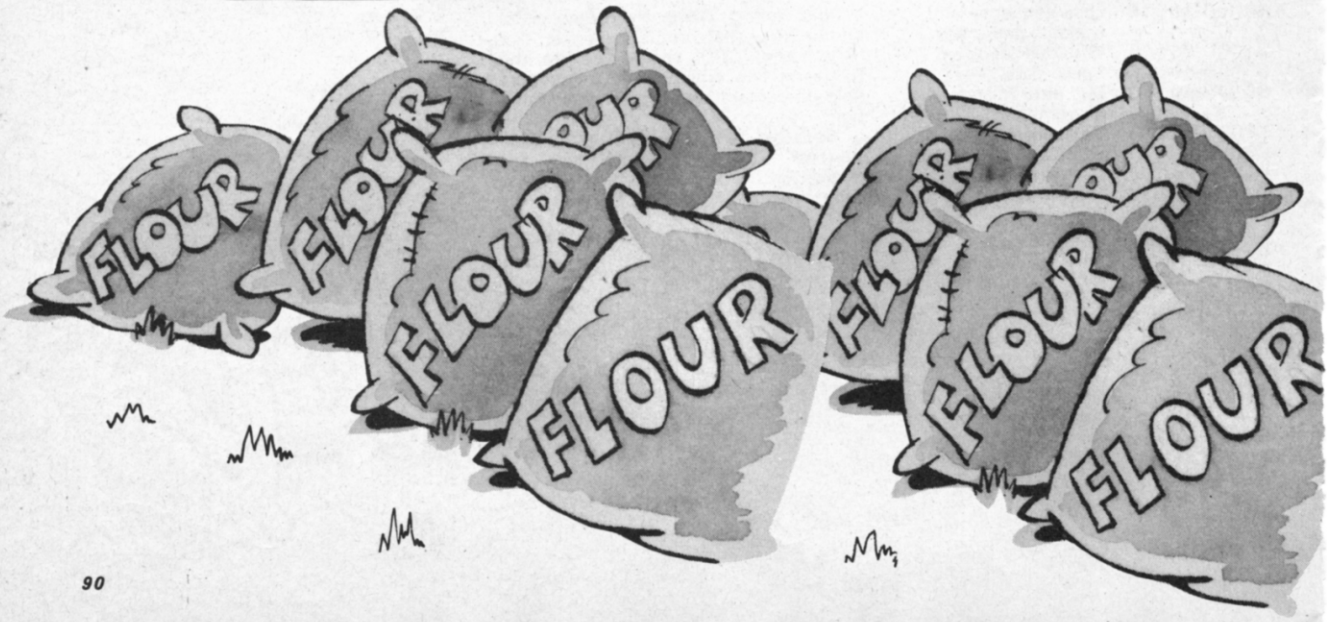
Because we use an automatic system to do this some lines are duplicated (ie. 62999) when this happens type in the **FIRST** line only. All REMs can be left out.



```
10 poke53281,0:poke53280,5
19 rem clr-orn
20 print"■■■";chr$(14)
29 rem   2*crd
30 printtab(8);"■■Tales Of The Windmill"
39 rem   2*crd
40 printtab(12);"■■Instructions"
44 rem crd
45 printtab(6)"■PLACE JOYSTICK IN PORT#2"
49 rem crd
50 print"■This program does not need to be run"
59 rem crd crd
60 print"■every time.The second program is ■independent"
69 rem crd
70 print"■and can be run on its own":gosub63000
79 rem clr-crd
80 print"■■This is the story of MARMADUKE MOUSE"
90 print"who works in a magic land as a MILLERS  helper.
   He has to collect the
100 print"sacks of ground wheat thrown out the"
105 print"Windmill by climbing ,jumping and
110 print"running along the windmill walls"
120 print"MARMADUKE is a magic mouse and his touch"
129 rem cru
130 print"■changes the sacks of wheat  to loafs."
140 print"There are exceptions to this rule as
150 print"MARMADUKES magic is not that strong."
160 print"The Windmill is full of rats.
170 print"In this magic land mice are bigger than
180 print"rats.If the rats touch a sack or a loaf"
190 print"while MARMADUKE is touching it they will
199 rem cru
200 print"■not change and he has to try again"
210 print"if he has to jump to reach a sack he
220 print"must not touch a rat on the way up or"
230 print"on the way down.At the same time no rats
239 rem cru
240 print"■must touch a sack or loaf during a jump"
249 rem cru
250 print"■":gosub63000
259 rem clr crd
260 print"■"tab(8)"■METHODS OF SCORING"
269 rem crd
270 print"■You start of with approx 6000 points"
280 print"this is eaten away everytime a rat"
290 print"touches MARMADUKE or touches a sack,loaf
299 rem cru
300 print"■or two rats collide"
309 rem crd
310 print"■You gain points by touching the sacks"
320 print"and making them change into loaves."
330 print"At the start you have to change ten
340 print"loaves.This is increased by 2 loaves
350 print"every time you complete a game."
360 print"If you lose by allowing your points to
370 print"reach zero you are started of at the
380 print"same number of sacks."
390 print"A bell rings everytime a sack changes to
399 rem cru
400 print"■a loaf."
409 rem crd
410 print"■A tune plays on completion of mission."
   :gosub63000

498 rem clr-  2*crd
500 print"■■■This is a fast action game as the rats"
510 print"move independently of the BASIC program."
519 rem cru
520 print"■If you press the run/stop during a game"
530 print"the rats will still move."
540 print"Use RUN/STOP and RESTORE to switch them
550 print"off.Then type RUN <return> to restart."
559 rem crd
560 print"■The bottom of the screen contains the"
570 print"status of play in this order."
579 rem crd
580 print"■Score,Hi Score,Present Job Number"
589 rem crd
590 print"■Number Of Jobs To Do"
599 rem crd
600 print"■When the 2 right hand figures match this"
610 print"means you have only to complete the"
620 print"present job to win that stage.":gosub63000
629 rem clr   2*crd
630 print"■"tab(3)"■■CONTROLLS (JOYSTICK(PORT#2))"
639 rem   2*crd
640 print"■■MARMADUKE is the grey mouse in white
650 print"pants and white top hat at the bottom
660 print"left hand corner of the screen."
670 print"You control him with the joystick"
679 rem   2*crd
680 print"■■RIGHT=move to right
689 rem crd
690 print"■LEFT=move to left
699 rem crd
700 print"■UP  =move up when under a pole"
709 rem crd
710 print"■DOWN=move down when over a pole"
719 rem crd
720 print"■FIRE BUTTON=MAKE MARMADUKE JUMP":gosub63000
729 rem clr
730 print"■Do you want to re-read instructions Y/N"
740 poke198,0:wait198,1:geta$:ifa$="y"ora$="Y"thenrun
750 ifa$="n"ora$="N"then800
760 goto740
799 rem clr-  4*crd
800 print"■■■■■Please wait while second part loads "
809 rem   2*crd
810 clr:print"■■Use SHIFT/RUN/STOP to load next part"
62999 end
62999 rem crd-rvs off
63000 printtab(6)"■■press a key to continue■"
63010 poke198,0:wait198,1:poke198,0:return ready.
```



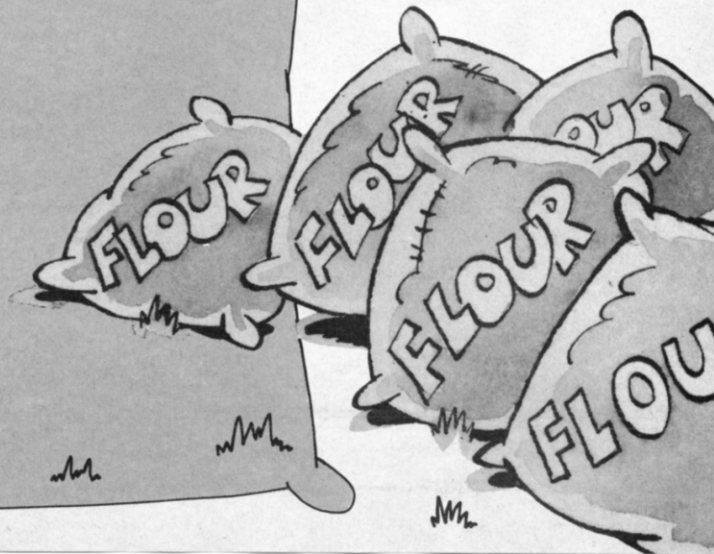


RUNS ON CBM 64

TESTED & APPROVED

WINDMILL TALES

```
0 dd=12:v=53248:e1=v+1:s=54272:poke54296,15:fori=stos+24:pokei,0:g=1000000:next
1 ch=2040:l2=209:u1=211:r1=213:jo=56320:fb=16:fc=15:r%=8:l3=4:u=1:d=2:goto27
2 jv=peek(jo):fr=jvandfb:jv=fc-(jvandfc)
6 ifjv=r%thenx=x+r%:pokech,r1+(peek(ch)=r1):ifx>248thenx=248
7 ifjv=l3thenx=x-r%:pokech,l2+(peek(ch)=l2):ifx<16thenx=16
8 ifjv=0thenpokech,u1-1
9 iffr<>0ory=40then15
10 forj1=ytoy-35step-1:pokee1,j1:pokech,u1+(peek(ch)=u1):next
11 foraa=jltoy:pokee1,aa:pokech,u1+(peek(ch)=u1):next:return
15 ifx=112orx=208then17
16 return
17 ifjv=uandy=206thenfory=yto159step-1:pokee1,y:next:return
18 ifjv=uandy=158thenfory=yto112step-1:pokee1,y:next:return
19 ifjv=uandy=111thenfory=yto41step-1:pokee1,y:next:return
20 ifjv=dandy=40thenfory=yto110:pokee1,y:next:return
21 ifjv=dandy=111thenfory=yto157:pokee1,y:next:return
22 ifjv=dandy=158thenfory=yto205:pokee1,y:next
26 return
26 rem orn-bwn-lrd-gr1-gr2-lgn-lbl-gr3 clr-  4*crd blk
27 poke53281,7:cl$="[CLR][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN]":print"[RVS][BLK]"tab(8)"[WHT]tales of the windmill"
28 poke53280,5:poke53276,peek(53276)or3
29 dimtt(4)
30 printchr$(142):poke52,48:poke56,48:poke56334,peek(56334)and254
31 printchr$(142):poke52,48:poke56,48:poke56334,peek(56334)and254
32 gosub55000:poke1,peek(1)and251:fori=0to511:pokei+12288,peek(53248+i):next
33 poke1,peek(1)or4:poke56334,peek(56334)or1
35 fori=12800to13015:reada:pokei,a:next
35 rem hom
36 print"[CLR]":gosub20010:ko=5:tt=1000
37 fori=13312to14207:reada:pokei,a:next
39 pokev+37,1:pokev+38,9:pokev+39,11:pokev+40,0:pokev+45,9:pokev+46,8
40 poke53272,(peek(53272)and240)+12
50 b=0:forz=49152to49283:readb:b=b+a:pokez,a:next
51 ifb<>18371thenprint"m/c data wrong check data":stop
52 poke2040,208:poke2041,217:poke2042,218:poke2043,219:poke2044,216
53 pokev+40,0:pokev+41,9:pokev+42,11:pokev+43,0:pokev+44,1:pokev+28,3
54 pokev+21,255:e%=e%+1:ife%=1thensys49152:pokev+5,111:i1%=0:j1%=0
55 pokev+23,32:pokev+29,32:pokev+11,100:pokev+10,35:pokev+16,32:gosub20000
56 sc$g+6000:poke2046,214:poke2047,214:gosub90:x=40:y=206:pokee1,y:pokev,x
57 gosub2:pokev,x:pokee1,y
58 cd=peek(v+30):if(cdand8)=8thensc=sc-150
59 if(cdand2)=2thensc=sc-75
60 if(cdand4)=4thensc=sc-125
61 if(cdand16)=16thensc=sc-250
62 ifi1%=1thenpokev+21,191:goto64
63 ifcd=129orcd=193thengosub9000:i1%=1:sc=sc+500+int(rnd(0)*ch):poke2047,215
64 ifj1%=1thenpokev+21,127:goto66
65 ifcd=65orcd=193thenj1%=1:gosub9000:sc=sc+500+int(rnd(0)*ch):poke2046,215
66 ifi1%=landj1%=1thengosub90:x%=x%+1:i1%=0:j1%=0:pokev,40:pokee1,208:goto57
67 ifx%=kothenx%=0:gosub5000:goto55
68 sc$=right$(str$(sc),6):ifsc<=gthensc$="000000":sc=g
68 rem hom- 23*crd-blk
69 print"[HOME][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN][DOWN]sc="sc$" hi="tt" job="x%+1" win="ko
70 ifsc<=gthenx%=0:i1%=0:j1%=0:gosub10000:goto55
75 ifrnd(0)<.009thenpokev+2,int(rnd(0)*r1)+fb:pokev+7,int(rnd(0)*r1)+fb
76 ifrnd(0)<.009thenpokev+9,int(rnd(0)*r1)+fb:pokev+4,int(rnd(0)*r1)+fb
80 pokev+21,255:goto57
90 pokev+12,int(rnd(0)*r1)+27:pokev+13,int(rnd(0)*100)+80
92 poke2046,r1+u:poke2047,r1+u
93 x=40:y=206:i1%=0:j1%=0:ff=peek(v+30)
94 pokev+4,int(rnd(0)*255)
95 pokev+14,int(rnd(0)*230)+20:pokev+15,int(rnd(0)*100)+80:return
100 rem 'udg's
118 rem music
120 data8,97,10,10,143,10,7,233,10,8,97,10,10,143,10,11,48,10
121 data9,104,20,10,143,20,7,223,20,9,104,20,9,104,20,10,143,20,11,48,50
122 data11,48,200,9,104,300
125 data-1,-1,-1
130 rem roof
135 data255,255,255,253,253,163,163,131
140 data255,253,189,189,157,155,139,136
150 data255,255,239,231,231,199,135,3
151 rem mice
162 data1,33,97,248,31,63,126,66
163 data4,6,7,6,79,46,62,31
164 data32,96,224,96,242,116,120,240
165 data36,102,102,126,90,102,60,24
166 data128,132,134,159,248,252,126,66
170 rem roof
180 data131,163,163,253,253,255,255,255
190 data136,139,155,157,189,189,253,255
200 data3,135,199,231,231,239,255,255
212 data4,76,76,124,142,188,142,92
213 data15,15,31,63,63,127,127,255
214 data240,240,248,252,252,254,254,255
215 data1,1,1,3,3,7,7,15
216 data128,128,128,192,192,224,224,240
220 rem brick's
230 data3,3,3,3,3,3,3,3
260 data192,192,192,192,192,192,192,192
265 data0,126,126,126,0,30,30,30
280 data0,254,254,254,0,254,254,254
290 data255,255,240,224,192,192,192,192
330 data255,255,0,0,0,0,0,0
340 data255,255,15,7,3,3,3,3
```



WINDMILL

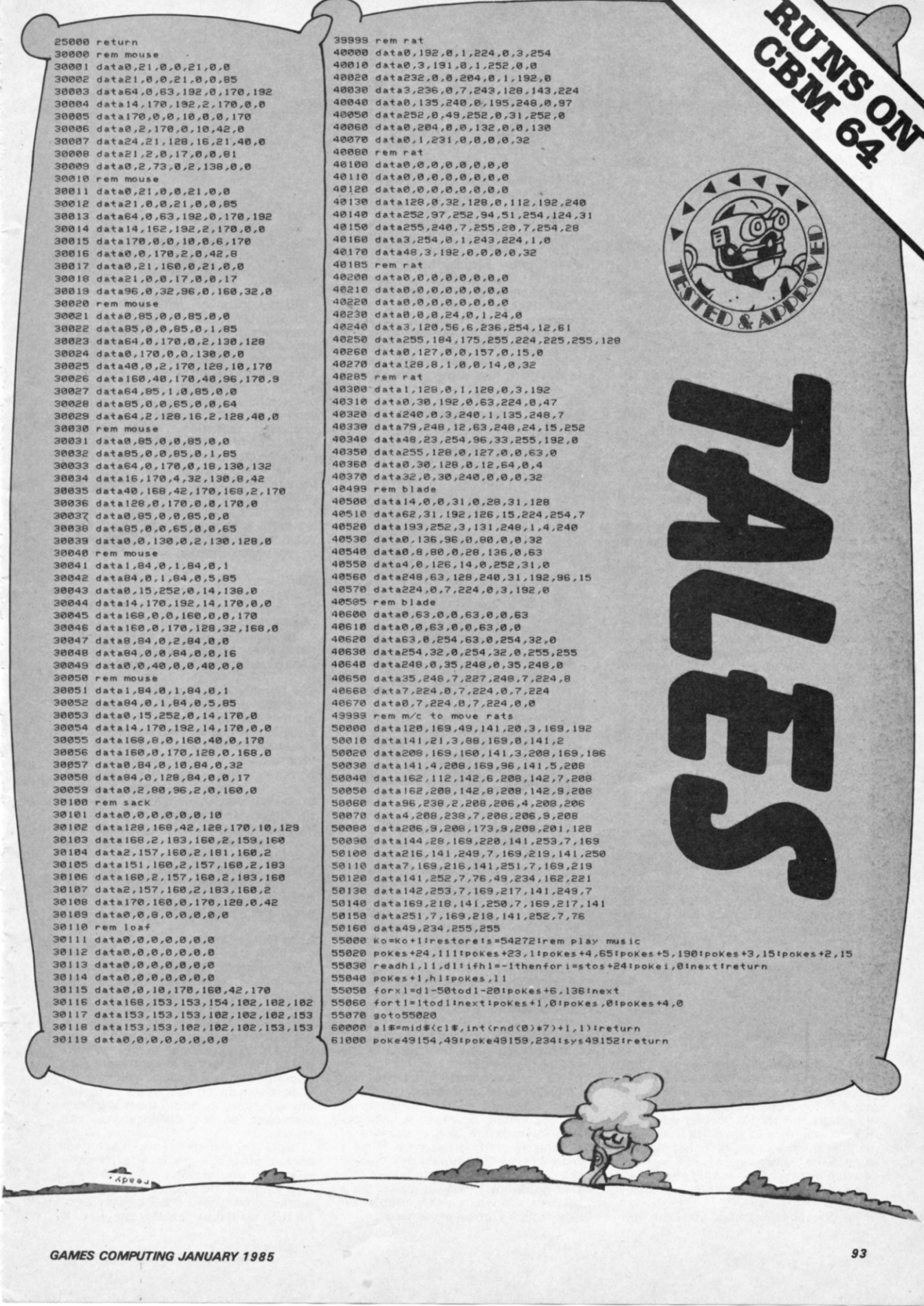
```
370 rem roof
380 data255,255,42,85,162,65,255,255
390 data255,255,65,162,85,42,255,255
400 data192,240,120,120,60,15,3,3
410 data3,3,15,60,120,120,240,192
5000 i1%=0:j1%=0:sc=sc-g:tt=sc:gosub55000:rem hi score
5005 z1=0:forx1=1to4:ifttthentt(x1)=tt(x1+1):x1=x1+1:x1=5
5010 next:ifz1=0thenreturn
5019 rem clr-  2*crd
5020 input"■■■you win  enter name";n$:iflen(n$)>20thenn$=left$(n$,20)
5040 ifz1=10then5060
5050 forx1=3toz1step-1:tt(x1+1)=tt(x1):tt$(x1+1)=tt$(x1):next
5060 tt(z1)=tt:tt$(z1)=n$
5079 rem clr red
5080 print"■"tab(8)"■hi score"
5090 forx1=1to4
5094 rem crd
5095 print"■";x1;tab(10)tt(x1);tab(23);tt$(x1)
5100 next
5109 rem crd
5110 print"■press a key to restart":poke198,0:wait198,1:poke198,0:return
8999 rem bell
9000 pokes+1,130:pokes+5,9:pokes+15,30:pokes+24,15:forl8=0to1:pokes+4,21
9010 foru7=1to150:next:pokes+4,20:foru8=1to20:next
9015 foru8=stos+24:pokeu8,0:next:return
9999 rem hom-  9*crr- 10*crd
10000 print"■■■
```

```
25000 return
30000 rem mouse
30001 data0,21,0,0,21,0,0
30002 data21,0,0,21,0,0,85
30003 data64,0,63,192,0,170,192
30004 data14,170,192,2,170,0,0
30005 data170,0,0,10,0,0,170
30006 data0,2,170,0,10,42,0
30007 data24,21,128,16,21,40,0
30008 data21,2,0,17,0,0,81
30009 data0,2,73,0,2,138,0,0
30010 rem mouse
30011 data0,21,0,0,21,0,0
30012 data21,0,0,21,0,0,85
30013 data64,0,63,192,0,170,192
30014 data14,162,192,2,170,0,0
30015 data170,0,0,10,0,6,170
30016 data0,0,170,2,0,42,8
30017 data0,21,160,0,21,0,0
30018 data21,0,0,17,0,0,17
30019 data96,0,32,96,0,160,32,0
30020 rem mouse
30021 data0,85,0,0,85,0,0
30022 data85,0,0,85,0,1,85
30023 data64,0,170,0,2,130,128
30024 data0,170,0,0,130,0,0
30025 data40,0,2,170,128,10,170
30026 data160,40,170,40,96,170,9
30027 data64,85,1,0,85,0,0
30028 data85,0,0,65,0,0,64
30029 data64,2,128,16,2,128,40,0
30030 rem mouse
30031 data0,85,0,0,85,0,0
30032 data85,0,0,85,0,1,85
30033 data64,0,170,0,10,130,132
30034 data16,170,4,32,130,8,42
30035 data40,168,42,170,168,2,170
30036 data128,0,170,0,0,170,0
30037 data0,85,0,0,85,0,0
30038 data85,0,0,65,0,0,65
30039 data0,0,130,0,2,130,128,0
30040 rem mouse
30041 data1,84,0,1,84,0,1
30042 data84,0,1,84,0,5,85
30043 data0,15,252,0,14,138,0
30044 data14,170,192,14,170,0,0
30045 data168,0,0,160,0,0,170
30046 data160,0,170,128,32,168,0
30047 data8,84,0,2,84,0,0
30048 data84,0,0,84,0,0,16
30049 data0,0,40,0,0,40,0,0
30050 rem mouse
30051 data1,84,0,1,84,0,1
30052 data84,0,1,84,0,5,85
30053 data0,15,252,0,14,170,0
30054 data14,170,192,14,170,0,0
30055 data168,8,0,160,40,0,170
30056 data160,0,170,128,0,168,0
30057 data0,84,0,10,84,0,32
30058 data84,0,128,84,0,0,17
30059 data0,2,80,96,2,0,160,0
30100 rem sack
30101 data0,0,0,0,0,0,10
30102 data128,168,42,128,170,10,129
30103 data168,2,183,160,2,159,160
30104 data2,157,160,2,181,160,2
30105 data151,160,2,157,160,2,183
30106 data160,2,157,160,2,183,160
30107 data2,157,160,2,183,160,2
30108 data170,160,0,170,128,0,42
30109 data0,0,8,0,0,0,0,0
30110 rem loaf
30111 data0,0,0,0,0,0,0
30112 data0,0,0,0,0,0,0
30113 data0,0,0,0,0,0,0
30114 data0,0,0,0,0,0,0
30115 data0,0,10,170,160,42,170
30116 data168,153,153,154,102,102,102
30117 data153,153,153,102,102,102,153
30118 data153,153,102,102,102,153,153
30119 data0,0,0,0,0,0,0,0
39999 rem rat
40000 data0,192,0,1,224,0,3,254
40010 data0,3,191,0,1,252,0,0
40020 data232,0,0,204,0,1,192,0
40030 data3,236,0,7,243,128,143,224
40040 data0,135,240,0,195,248,0,97
40050 data252,0,49,252,0,31,252,0
40060 data0,204,0,0,132,0,0,130
40070 data0,1,231,0,0,0,0,32
40080 rem rat
40100 data0,0,0,0,0,0,0,0
40110 data0,0,0,0,0,0,0,0
40120 data0,0,0,0,0,0,0,0
40130 data128,0,32,128,0,112,192,240
40140 data252,97,252,94,51,254,124,31
40150 data255,240,7,255,20,7,254,28
40160 data3,254,0,1,243,224,1,0
40170 data48,3,192,0,0,0,0,32
40185 rem rat
40200 data0,0,0,0,0,0,0,0
40210 data0,0,0,0,0,0,0,0
40220 data0,0,0,0,0,0,0,0
40230 data0,0,0,24,0,1,24,0
40240 data3,120,56,6,236,254,12,61
40250 data255,184,175,255,224,225,255,128
40260 data0,127,0,0,157,0,15,0
40270 data128,8,1,0,0,14,0,32
40285 rem rat
40300 data1,128,0,1,128,0,3,192
40310 data0,30,192,0,63,224,0,47
40320 data240,0,3,240,1,135,248,7
40330 data79,248,12,63,248,24,15,252
40340 data48,23,254,96,33,255,192,0
40350 data255,128,0,127,0,0,63,0
40360 data0,30,128,0,12,64,0,4
40370 data32,0,30,240,0,0,0,32
40499 rem blade
40500 data14,0,0,31,0,28,31,128
40510 data62,31,192,126,15,224,254,7
40520 data193,252,3,131,248,1,4,240
40530 data0,136,96,0,80,0,0,32
40540 data0,8,80,0,28,136,0,63
40550 data4,0,126,14,0,252,31,0
40560 data248,63,128,240,31,192,96,15
40570 data224,0,7,224,0,3,192,0
40585 rem blade
40600 data0,63,0,0,63,0,0,63
40610 data0,0,63,0,0,63,0,0
40620 data63,0,254,63,0,254,32,0
40630 data254,32,0,254,32,0,255,255
40640 data248,0,35,248,0,35,248,0
40650 data35,248,7,227,248,7,224,8
40660 data7,224,0,7,224,0,7,224
40670 data0,7,224,0,7,224,0,0
49999 rem m/c to move rats
50000 data120,169,49,141,20,3,169,192
50010 data141,21,3,88,169,0,141,2
50020 data208,169,160,141,3,208,169,186
50030 data141,4,208,169,96,141,5,208
50040 data162,112,142,6,208,142,7,208
50050 data162,208,142,8,208,142,9,208
50060 data96,238,2,208,206,4,208,206
50070 data4,208,238,7,208,206,9,208
50080 data206,9,208,173,9,208,201,128
50090 data144,28,169,220,141,253,7,169
50100 data216,141,249,7,169,219,141,250
50110 data7,169,216,141,251,7,169,219
50120 data141,252,7,76,49,234,162,221
50130 data142,253,7,169,217,141,249,7
50140 data169,218,141,250,7,169,217,141
50150 data251,7,169,218,141,252,7,76
50160 data49,234,255,255
55000 ko=ko+1:restore:s=54272:rem play music
55020 pokes+24,111:pokes+23,1:pokes+4,65:pokes+5,190:pokes+3,15:pokes+2,15
55030 readhl,ll,dl:ifhl=-1thenfori=stos+24:pokei,0:next:return
55040 pokes+1,hl:pokes,ll
55050 forx1=d1-50tod1-20:pokes+6,136:next
55060 fort1=1tod1:next:pokes+1,0:pokes,0:pokes+4,0
55070 goto55020
60000 a1$=mid$(c1$,int(rnd(0)*7)+1,1):return
61000 poke49154,49:poke49159,234:sys49152:return
```

RUNS ON CBM 64

TESTED & APPROVED

TALES



BrainWare

BRIDGE

Runs on: VIC 20, CBM 64, ATARI
Made by: Allrian
Price: £7.99

This is possibly the only card game of bridge on computer. First impressions given are of user friendliness allowing for possible colour chances of border, screen, and text. This is very useful for black and white televisions. After initial set ups you must enter a number to change the possible duplicating of any sets of card hands.

I eagerly waited six and a half minutes for the program to load for my first glimpse of Bridge. The program is designed for the player who has a knowledge of the game. According to the documentation the program responds properly to the "Blackwood Sequence". Who knows the Blackwood Sequence? If you know how to play Bridge then you can initialise the Blackwood sequence.

You control the players at the ends North and South. the idea is to lay a higher card than any of the others at East and West. The winner is the player or computer with the highest points at the end of the game. You can score extra points by getting tricks. If you have read this far and understand the game of Bridge then you can relay the same game with differents odds and with each player having the same hand at the previous round. (An easy way to cheat and win. . . hopefully). You can, of course, start a fresh game by entering a new number on which the computer can randomize upon.

The game could have been improved by letting the documentation include some basic rules of how to play this complicated card game and some definitions of facts such as a Rubber, or why you should Double — and, what does this involve.

The game is only recommended for purchase if you and a friend want to play Bridge on your own. Not a game for the trigger happy.

FAME QUEST

Runs on: CBM 64
Made by: Braingames
Price: £7.95

This is described as a strategy game but really has closer links with adventures, except that in this case you are provided with the map. The basic idea is that you start out as the lowest grade of Knight and have to establish your right to promotion by earning fame and fortune in the big wide world. This world is conveniently mapped out for you showing forests, houses, castles and sanctuaries.

In these sanctuaries you can exchange your hard won wealth for weapons with which to face the many enemies that await you. Each encounter with an enemy offers you the opportunity to fight, talk or run. Choosing the fight option enables you to see the encounter actually battled out in miniature, accompanied by suitable sounds of clashing swords and clanging shields. Taking produces interesting responses from some characters while others have little to say. Running will sometimes prove the widest course although you may not always escape and will often lose some of your face.



Not all encounters are unfriendly, however, and some characters will aid you in times of need or offer you the chance to gamble for fame. This seems a somewhat dubious concept but chivalry is upheld in that refusing requests for aid from maidens in distress and the like will seriously damage your fame balance. Indeed you can easily end up with a negative score. But beware, all is not as it may seem and honesty is undoubtedly a virtue. As you progress, so you must earn increasing fame to ensure promotion until eventually you become the mightiest warrior in the land and receive you well deserved acolade from the assembled inhabitants of the castle.

This game has some good ideas and is initially quite absorbing. Once you have discovered all the attributes of your opponents, however, it becomes much more routine and attainment of the highest grading becomes more a matter of time than luck or skill. Having once completed the quest you will probably not want to play it again. On a final note, this was a highly reliable fast loader which worked every time.

ELITE

Runs on: BBC Model B
Made by: Acornsoft
Price: £14.95

To begin to review Elite was rather a daunting prospect. Instead of writing two pages of praise on this masterpiece I hope it will suffice to say that it is the best piece of software I have seen on any games-playing micro. From the author of planatoids, another feat of programming, comes a game with at least 5 different aspects to keep your undivided attention. These include great arcade action, strategy, adventure and unbelievable graphics. The aim of the game is to trade between planets, buying and selling different products.

You start at the planet lave, in one of the eight galaxies, each of which contains over 250 planets. You are given the following choices.

Buy Cargo

Pressing F7 will display a list of the 17 available products, ranging from radioactives to minerals. When you have decided which products are reasonably priced, pressing F1 will enable you to make your purchases.

Sell Cargo

If the products you purchased at another planet are selling for a higher price on the planet upon which you are currently docked selling wuld be advisable if you aim to make money quickly. For example, if you can buy minerals at 10 credits per tonne and sell them for 20 credits you would make 100% profit. Other goods such as narcotics can be bought and sold at huge profits but these may affect your legal status as narcotics are illegal to trade. Your legal status begins as 'Clean' but can become 'Offender' or 'Fugitive' if you trade in illegal goods or shoot the police ships that patrol the galaxies.

Long Range Chart

This is a view of the galaxy that you are currently in. By use of the joystick or the cursor keys you move across around the screen towards the planet of your choice and press F6 for information on that planet. Each of the planets has its own data and this data is all very relevant. You cannot travel to any planet that is further in light years than your fuel status will allow. You may only purchase seven light years of fuel at any one time, therefore there is quite a restriction on the distance you can travel.

Data on planets is also useful for several other reasons ie. If a planet is anarcistic you may be risking life and limb entering that zone, although the profits to be gained could be very high. All data on the planets, by the way, is

significant to the game in that the consituation of the planets directly affects the play of the game.

Equip Ship

When you have traded prudently and have amassed sufficient funds you are then able to equip your ship. Lasers are available for the aft view as well as port and starboard and advanced lasers may be purchased at 15 times the price of normal lasers. Other more sophisticated equipment can be bought, including fuel scoops, which can be used to pick up cargo seen floating in space or debris from ships you have attacked. If you re low on hyperspace fuel you may use the scoop to pick up energy by flying close to any passing sun.

The objective of the game is to trade as astutely as possible thereby amassing credits with which you c purchase extra equipment to transform your meagre space ship into an invincible war machine. Having attained this objective you may then begin to think about fighting seriously. Based on the amount of ships you destroy, you are judged with various status levels. These levels are harmless, mostly harmless, poor, average, above average, competent, dangerous, deadly and finally, elite.

When you have reached a satisfactory stage in the game you have the option to 'Save' the data for later playing. Don't be fooled into thinking that you will be able to reach any of these levels in one session. It has been said that it could take several months to reach even 'Dangerous' whilst 'Elite' possibly a year. However, I shall let you into a secret, games ace that I am, after a week of intensive effort I have achieved the status of 'Dangerous'. Modesty forbids me to say how long it will take me to reach 'Elite', but watch this space.

In summary therefore this has to be the best game ever for the BBC, or indeed for any home micro, and a must to buy for any serious arcade/adventure/strategy addict. Do not be put off by the high price, it is well worth it. Go out and buy it now! Do not borrow it from a friend as once you have it you will not want to let it go, and above all once you have bought your own copy fo not lend it to anyone as you will never see it again.

The best buy of the decade.

ATLANTIS

Runs on: TI-99/4A
Made by: Intrigue Software
Price: £7.95

Following hard on the heels of Adventuremania and Mania, Atlantis is the latest offering from Intrigue Software.

This Graphics adventure features no less than 85 different screens, through which you must discover the secrt of Atlantis.

Operating a smoothly animated diver controlled by keys or joystick through eight different diving angles, the player collects points by obtaining treasures from various locations, eventually discovering the secret tomb of Atlantis.

In playing you are faced with planning direction and the conservation of oxygen, whilst avoiding losing lives by being bitten by lively sharks and squid, or bumping into rocks.

The diver rotates anticlockwise with Q key or left joystick, clockwise by P key or right joystick. Key A and joystick forward make him speed ahead, space bar and joystick back stop him.

Sixteen graphic shapes in the program, ensure the diver's authentic swimming movements in the water, adding to the adventure's realism. While you are bust selecting which way your diver will fin next, oxygen is being consumed, as the emptying bubble gauge shows on the lower part of the screen. Need more oxygen? Fin up to the surface and recharge the bubbles. This simple sounding solution becomes a problem as in real diving, because as you go deeper, your oxygen limits your progress. While there are oxygen bottles to refill from at strategic points, you can enter the wrong cavern. . .

The energy bar giving eighteen lives is reduced by shark or squid attacks or by hitting any underwater obstacles, or making the wrong decision about an oyster. This bar is displayed below the bubble gauge, together with continual and hi scores. Diving deeper, the depth gauge shows vertically on the right of the screen. Collecting gems and pearls in the correct sequence gives oxygen bonuses which are also essential to discover the secret.

So far, only three players have solved the adventure, so I shall be playing Atlantis for some time still.

The Texas owner will welcome action and adventure such as Atlantis which is not beset by clues, and gives satisfying success by dive planning. Atlantis, because of programming techniques used, loads in just under eight minutes with screen title changes.

Intrigue have utilised the 16K Basic almost to he last byte, setting a new standard which will be difficult to follow, especially with the animation of the diver and other denizens of hte deep.

Atlantis is very well presented, with a full colour cover and audio wallet, and comprehensive instructions. It is an adventure for all the family, if you let them get near it!



SOFTWARE REVIEWS

BUYERS GUIDE

This is it, the big one. The comprehensive guide to all you ever wanted to know about which computer to buy for Christmas but were afraid to ask.

We present here the guide to end all guides, the list to end all lists, etc etc. . . . . Mike Roberts has taken a look at all the computers on the market, this is a totally accurate spec list for all the commonly available computers on the market for under £500. All these machines should be available through normal high street dealers such as Spectrum dealers, Dixons, or any of the main chain stores.

The headings are fairly self explanatory, price is the general price that you can obtain one of these machines, if you shop around you should get a cheaper quote. **Memory size** is the amount of ROM and RAM that the computer comes with and the actual amount of RAM that you can use.

Keyboard gives a description of the keyboard, its layout, and quality. **Screen** describes the graphical output of the computer along with some of its pitfalls and quirks.

Sound gives number of channels and extra features. Languages refers to the programming language supplied and also the number of other language options available. A **Processor** is the actual 'brain' of the computer. The most popular and powerful processor for home use is the 6502 series, this includes the 6502, 6502A, 6510, and the new 7801. The next most common is the Z80 series, and some comupter's use the 6809 or 9900.

I/O stands for Input/Output and is the computer's way of conversing to the outside world, either listening to a joystick, talking to a printer, or having a chat with a disk drive.

Speed is the speed of the computer. This can be processor dependent, but other things must be taken into account. Theoretically the Z80 is faster, but in practice the 6502 outstrips it. Speed dictates the speed that games will play at. BBC games are very fast and playable. Electron games are quite slow.

Software is a short evaluation of what kind of software base the machine has.

Last, but by no means least, is my **opinion** on whether the computer is any good or not. I know a lot of people out there will disagree with me, so please no 'my Spectrum is better than his BBC' letters!

COMMODORE C16

Price:£139
Memory:16K RAM (12K or 4K useable depending on graphics)

Keyboard: Same as Commodore 64 except that function keys can be defined from Basic and the layout is different. Separate dedicated function keys and space bar.
Screen: Three modes from Basic, 320 x 200 and 160 x 200 graphics, 320 x 160 and 160 x 160 with five lines of text, and 40 x 20 text. There are 128 colours and flashing all available at the same time. The Basic's graphics handling is superb and unsurpassed. Outside Basic there is another three modes and UDGs which need to be accessed by POKEing.
Sound: Two channels of sound or one sound and one noise.
Languages: Commodore Basic 3.5. A full implementation of Basic with structuring and the most comprehensive set of graphics commands on any micro. Assembler monitor also included. The screen editor is superb and supports full screen editing and windows.
Processor: 7801 (6502 compatible).
Speed: Fast to medium.
Software: Four software packages supplied as standard — chess, two zap games, and a drawing program. More software should appear as lots of these should be sold up to Christmas.
Opinion: This is a real Spectrum beater. The best value computer on the market, comes complete with software and a tape recorder.

AMSTRAD CPC464

Price:£229, £349
Memory:64K RAM 32K ROM (42K useable)

Keyboard: Comprehensive typewriter style. 12 user-definable keys already defined as a numeric keypad. Dedicated cursor control keys, real space bar.
Screen: Three modes, 640x200, 320x200, 160x200 in 2,4 or 16 colours selected from a palete of 27 and 80, 40 or 20 characters per line. Changing modes does not increase memory consumption.
Sound: Three sound and one noise channel through internal speaker.
Languages: Locomotive Basic included. Very good at certain functions like graphics, sound and structuring but needs spaces everywhere which is very awkward. The editor is also rather crude.
Processor: Z80A. **Speed:** Fast.
Software: Amsoft, the software arm of Amstrad, is commissioning as big a range of software that it can get together. There should be lots of games out by the time you read this. The games currently out are very poor quality but this should improve.
Opinion: Good value with the inclusion of a monitor and a tape recorder. Reliability may be a problem as Amstrad has a bad reputation for this. Tape recorders can be incompatible between each other.



COMMODORE PLUS/4

Price:£299
Memory:64K RAM 32K ROM (60K or 50K useable depending on graphics)

Keyboard: Similar to the SX64 in feel. Function keys can be defined from Basic. Cursor keys set in a cross shape.
Screen: Same as C16.
Sound: Same as C16.
Languages: Same as C16.
Processor: 7801 (6502 compatible.
Speed: Fast to medium.
Software: Four home/business packages built in — spreadsheet, word-processor, database, graphs. Games software should appear as this machine is compatible with the C16.
Opinion: As this computer can run all C16 software, games should be widely available after Christmas.





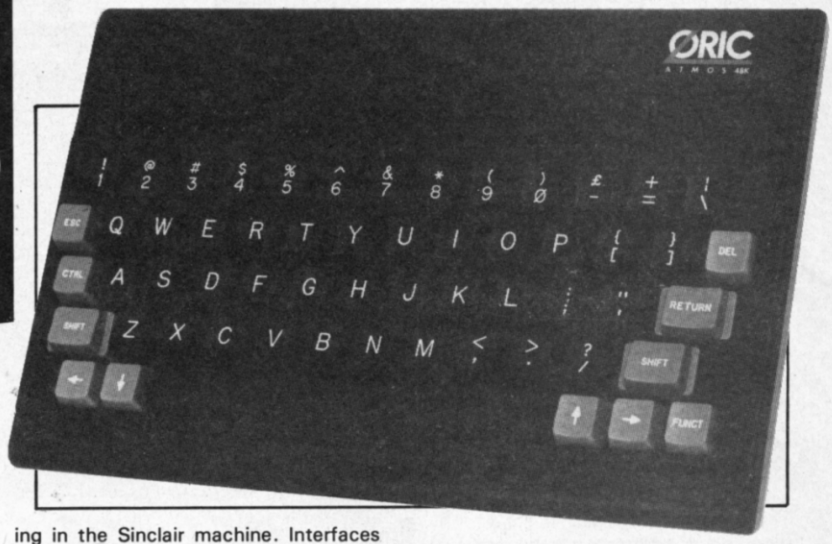
ELECTRON

Price:£199
Memory:32K RAM (9K to 12K useable depending on graphics mode used) 32K ROM

Keyboard: Typewriter style, 56 keys, space bar, no dedicated cursor control keys, no dedicated user definable keys though the numeric keys double with the use of a function key.
Screen: Similar to the BBC micro, except for the lack of Teletext mode, sound and speed.
Sound: One channel through internal speaker, otherwise as BBC.
Languages: BBC BASIC is built in, FORTH and LISP are available.
Processor: 6502A.
I/O none on basic machine though there is an expansion slot into which an expansion board can be plugged that will



BUYERS GUIDE



give the same sort of interfacing options as the BBC but at extra cost.
Speed: Medium.
Software: A growing range as software houses convert BBC programs.
Opinion: As this computer is almost BBC compatible with only some minor differences most of what I say for the BBC is true here except for the references to price.

ATMOS

Price:£179
Memory:64K RAM (47K useable in text mode, 39K in graphics mode) 16K ROM

Keyboard: Full typewriter, 57 keys, space bar, dedicated cursor control keys, no definable function keys, two funtions per key.
Screen: 40 columns by 28 rows Teletext compatible text diplay, two user definable character sets, eight foreground and eight background colours, double height, flashing and inverted attributes available for each character. Graphics screen gives 240 by 200 resolution, colours and attributes are definable on a grid of 40 by 200. In each of these areas the foreground and background can be defined in eight colours, flashing and inverted output is also supported. In graphics mode three lines at the bottom of the screen also appear, and these are the same as the text mode lines.
Sound: sound generator with three channels and noise generator. There is a certain amount of envelope control. Pre-programmed sounds to produce pings and zaps etc. Sound is produced through an internal speaker although hi-fi output is available through a DIN socket.
Languages: Extended Microsoft BASIC built-in, FORTH available, BBC-like BASIC planned.
Processor: 6502A.
I/O: Centronics parallel printer port, user port, monitor port, expansion connector.
Speed: Fast.
Software: Badly supported from day one. Range growing smaller.
Opinion: This computer was originally compared to the Spectrum, and this was justified as they were outwardly similar, and look the same. The BASIC is easier and is a structured form of the de-facto standard Microsoft basic. The keyboard is better, the graphics are better, and it has real sound which is lacking in the Sinclair machine. Interfaces are built in that would normally cost extra. The edge that the Spectrum has is more software. The more recent Spectrums will not run some of the available software due to internal design differences.

VIC 20

Price:£129
Memory:6K RAM (3.5K useable) 20K ROM

Keyboard: Typewriter quality, 67 keys. space bar, dedicated cursor controls, four user definable function keys.
Screen: 22 column by 23 lines, eight colours for text, 16 for background, border and graphics. All characters user definable, lower case, inverted output, two character sets. High-resolution possible with expansion cartridge or with extra programming but BASIC does not support this. Two modes, 160 by 128 in eight colours and 80 by 128 in 16 colours.
Sound: three channels and one noise channel covering nine octaves through TV speaker.
Languages: Commodore BASIC supplied, compatible with PET and Commodore 64. Extended BASIC, at extra cost gives access to the Hi-res sound, and user definable function keys. Forth, Comal and Pilot are available.
Processor: 6502A.
I/O: IEEE 488 serial BUS, RS232, user port, cartridge port, joystick port, two paddle port (two analogue to digital converters).
Speed: Medium to fast.
Software: Many cassette tapes and cartridges from independents and Commodore.
Opinion: This is a nice machine to get started on and it comes as a package containing, a computer, a cassette recorder, a beginners guide to BASIC and a games tape. So the initial high price for a 3.5K machine is somewhat offset. The BASIC is very easy to learn and is microsoft compatible. This type of BASIC was first used by Commodore on the first widely available micro in 1977 so there is a lot if compatible software around.

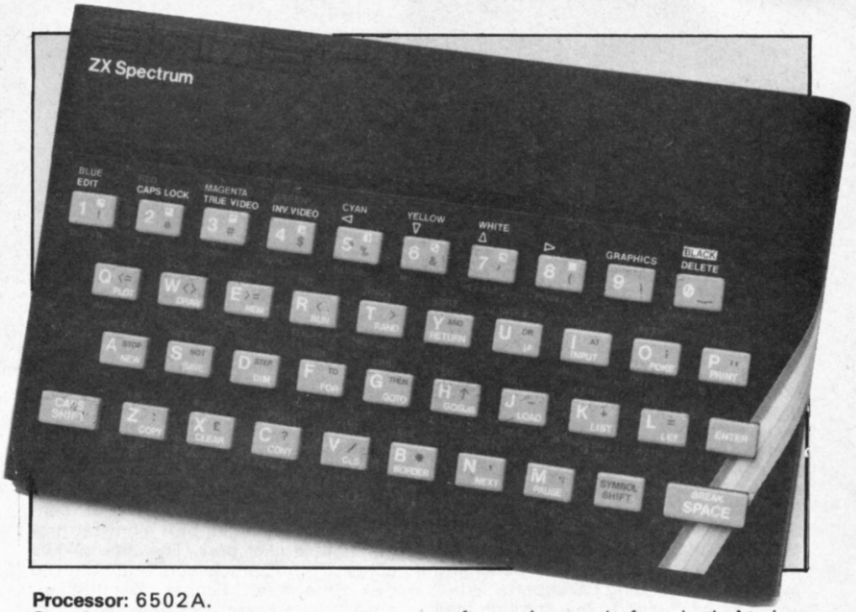


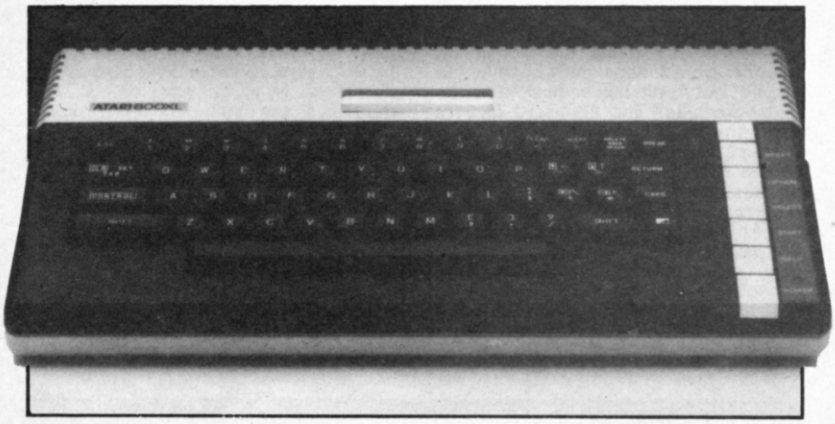
SINCLAIR ZX SPECTRUM

Price:£99/£129
Memory:16K 48K RAM (7.5K useable) 16K ROM

Keyboard: rubber mat type, 40 keys, no space bar, definable function keys or dedicated cursor control keys, five or six funtions per key.
Screen: 32 colours by 24 rows, but only 22 rows are availabe to the user. 256

by 76 high resolution graphics supported by BASIC, two colours from a pallete of eight are available in 704 areas on the screen. Foreground and background colours for each of these areas can be selected as well as whether the contents of the area are flashing or not. Two levels of intensity are also supported. 21 user defined characters are available.
Sound: Internal beeper.
Languages: Sinclair BASIC. This version is an extended form of the type used in the ZX81. The extensions do not cover structured programming or aid functions and only deal with the graphics and file handling. This BASIC is very non-standard.
Software: A lot of software is available for almost all applications, particularly games.
Opinion: When the Spectrum first appeared it was an innovation as the lowest priced colour computer. But newer designs have arrived recently with better technical specifications and more useable memory at similar prices. The colour display is not good and a colour display cannot be produced on a few colour TVs. For editing and the method of keyword entry see ZX81. With the Spectrum there are more keywords to be fitted on the same size of keyboard. Sound is through a beeper only. The range of software is enormous.





ATARI 600XL/800XL

Price:£99/£199
Memory:16K/64K RAM (amount useable varies with graphics mode used) 26K ROM

Keyboard: Full typewriter style keyboard, 58 keys, four function keys, space bar but no dedicated cursor control keys.
Screen: 16 screen modes comprising five text modes and 11 graphics modes. Text is 40 columns by 24 line in up to 256 colours. The graphics have a maximum resolution of 320 by 192 in the biggest hi-res mode. All characters are user definable and come in predefined shapes to start with. Player-missile graphics — like sprites — are also available.
Sound: Four channel sound generator with full software support.
Languages: Atari BASIC included and these are available: Forth, Pilot, Logo, WSSM, Pascal, Microsoft BASIC. Two types of assembler editor are also available.
Processor: 6502A.
Speed: medium to fast.
I/O: Serial input/output port along with two connectors for two joysticks or paddles. Other interfaces may be added via interface bus. Slot for ROM cartridges. Cassette port will only allow connection of Atari cassette recorder at £49.99, so this must be taken into account when considering costs.
Software: the XL series of software is compatible with older models so lot of software is on sale from both Atari — which has a library of 500 titles — and from independents, including US imports.

TI-99/4A

Price:£70-80
Memory:16K RAM (14.5K useable) 26K ROM

Keyboard: Typewriter style, 48 keys, including row of function keys (not user-definable), space bar. Two functions per key.
Screen: 32 columns by 24 rows text, 129 characters, all user-definable, 16 colours each for foreground and background. The way colour is handled is rather odd — a colour is assigned to a particular group of characters. There are 16 groups of eight characters, so a particular colour is assigned, for example, to the letter A but will also effect B to H. High resolution graphics only available with TI plug-in cartridges.
Sound: Three channels of five octaves with noise channel.
Languages: TI BASIC is included, but cannot use machine code, so arcade quality programs cannot be written or



BUYERS GUIDE



bought on cassette for the standard model. To write or use the machine code programs, TI's Mini Memory or Editor Assembler cartridges are needed. Machine code can also be used with extended BASIC, provided 32K is added.
Processor: TMS 9900.
Speed: Slow.
I/O: joystick and cartridge ports.
Software: More software is becoming available — including US imports — but you may be forced to buy through mail order. TI sold a range of sophisticated cartridge software which is more expensive.
Opinion: An interesting computer which is now quite good value at its new low price. Its drawback is that machine code cannot be used with the standard model so there is not much arcade-type cassette software, although this is slowly increasing. However, if all the games that interest you are from TI and you are willing to pay cartridge prices, then this is a good machine. For programmers it has a line editor which, although one of the better versions, is awkward to use. The BASIC is slow but easy to use and comprehensive. Its worst features are that there can be just one statement per line and spaces are essential. Maths functions are good but string functions leave something to be desired. The computer is very well built and looks attractive. The TI is no longer manufactured but information on its status can be got from Parco Electrics.

BBC Model B

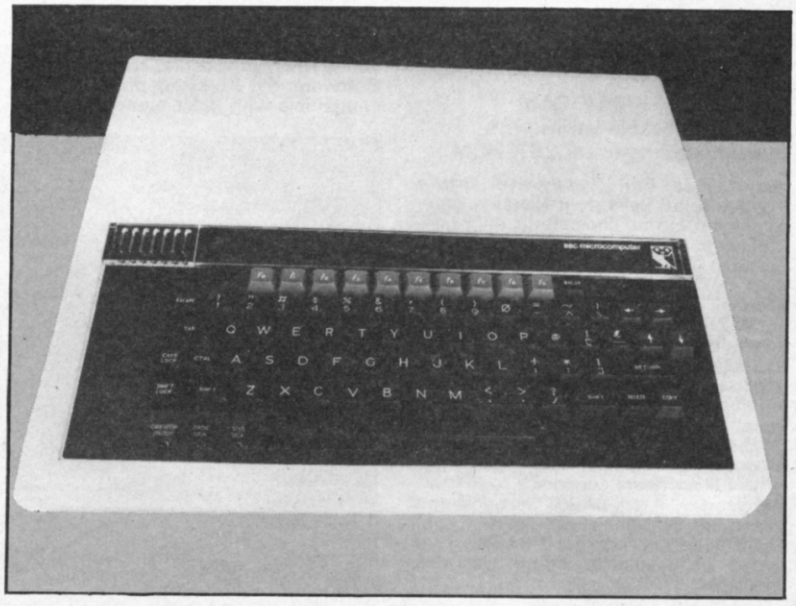
Price: £3.99
Memory: 32K RAM (28K to 9K useable depending on graphics mode used) 32K ROM

Keyboard: Typewriter style, 73 keys, 10 user definable function keys, dedicated cursor control keys. Space bar.
Screen: Very complex. The simplest mode is Teletext compatible and gives eight colours, flashing characters, double height, and block graphics. Text is 40 columns by 25 lines. There are seven other modes of screen operation ranging from 640 by 256 hi-res in two colours with 80 by 32 text to 160 by 256 hi-res in eight colours with 20 by 32 text. All 256 characters are user definable in all but the Teletext mode.
Sound: Three channel music with a noise channel through internal speaker. Full velope control is available from BASIC.
Languages: BBC BASIC is included — a very comprehensive implementation. As assembler is also built in for machine code access. Forth, Lisp and BCPL are also available.
Processor: 6502A.
I/O: RS 423 and Centronics printer ports. Four analogue to digital converters for joysticks etc. eight bit programmable user port. The tube allows connection of processors and so on to disk interface, Econet networking, speech synthesizer can be added.
Speed: Fast.
Add-ons: A great deal available from independents and Acorn.
Software: A very large and well-written range available, including a lot from Acornsoft, the maker's software arm. Many educational programs of varying quality.
Opinion: the BBC is an excellent machine if you ignore the high price. Support from independent suppliers is superb, but Acorn has been slow on the hardware side. The keyboard is very good and there is a useful set of function keys. The screen uses split cursor screen editing which is next best thing to full screen editing but not quite as easy to use. The BASIC is excellent and makes good use of all the hardware features. This computers is used by about 75 per cent of all secondary schools. So it is good for education as well as games. It also makes a good business computer, particularly with networking available for the future.

COMMODORE 64

Price: £199
Memory: 64K RAM (40K useable) 20K ROM

Keyboard: Typewriter quality, 67 keys, space bar, dedicated cursor controls, four user definable function keys although full use of these can only be had through an expansion program.
Screen: 40 columns by 25 rows, 16 colours, all characters user definable, lower case, inverted output, two character sets. There are four different text modes but the format is the same for all, the only difference is in the handling of the colour. There are two graphics modes 320 by 200 and 160 by 200 resolutions in 16 colours. The difference is to do with colour: one mode uses the attribute system, similar to the Spectrum, the other uses a palette system where each dot is its own individual colour, similar to the BBC or Dragon computers. Unfortunately the BASIC does not support the graphics so you must write your own routines or buy a BASIC extension. Modes may also be mixed. Eight sprites are avialable and although the BASIC does not support these directly instructions are given in the manual on how to achieve them.



Sound: Three channel music synthesizer. Full envelope control and waveform selection. BASIC does not support sound directly although, like the sprites, instruction is given in the manual on how to use sound.
Languages: Commodore BASIC supplied. Simons BASIC, Forth, Pilot, LOGO, Pascal available from Commodore along with BASIC compiler.
Processor: 6510 (6502 compatible with memory banking), Z80 available as option.
I/O: IEEE 488 serial BUS, RS232, user port, cartridge port, two Atari-type joystick ports, four analogue to digital converters for paddles or proportional joysticks.
Speed: medium.
Add-ons: Most of the VIC-20 add-ons produced by Commodore will fit. Others are exclusive to the 64 that involve the cartridge port, like the Z80 second processor with CP/M. There is also a speech synthesizer and several other options, including 32 Megabyte hard discs and daisy-wheel printers. Many add-ons available from independants.
Software: There is now quite a lot of software around, both for games and other applications. With business software and the vast amount of decent peripherals, the Commodore 64 is one of the few computers which can be seriously considered as an effective business micro as well as for use at home.
Opinion: An excellent computer and the available commercial software makes good use of its features. The big disadvantage is that the BASIC is simple, making it hard to write your own programs using the sophisticated features. Simon's BASIC, on cartridge, goes some way towards curing this. On the other hand, it is easy to use and memory space is not used to provide fashionable features at the expense of the functions you really need. It is almost totally compatible with the PET series of computers and the massive base of software that provides. Commodore's own cassette recorder must be bought at extra cost. Although interfaces to domestic recorders do exist, it is wise to go for Commodore's reliable recorder.

DRAGON 32

Price: Less than £100
Memory:32K RAM (30K to 24K RAM useable depending upon graphics mode used) 16K ROM

Keyboard: 52 key typewriter style, space bar, no user definable function keys, there are dedicated cursor control keys. Keyboard quality could be improved.
Screen: Text mode 32 columns by 24 rows, text in one colour, no lower case or user definable graphics in colour, but there is an inverted output option. Text mode does have block graphics in colour though. Graphics mode: ranges from 256 by 192 in one colour to 128 to 192 in four colours. Text is not supported in this mode.
Sound: One channel music g erator covering five oc aves, good software control.
Languages: Microsoft Extended Colour BASIC included. Identical to Tandy colour computer BASIC. Other languages from independents.
Processor: 6809E.
I/O: User port, centronics parallel printer port, two joystick ports, cartridge port.
Add-ons: Joysticks, disc drives from Dragon and Cumana. Lots available from independents, ranging from printers to disc drives. Most Tandy suppliers have peripherals that will fit Dragon, likewise Tandy software. But software has only a certain amount of compatibility and it is wise to check.
Software: Quite a lot available from Dragon and independents and (but check) Tandy.
Opinion: This micro is limited by its very basic sound system and its horrible text mode with very limiting formats. The BASIC is very good at manipulating screen graphics although it does not allow structuring. An altogether much better buy than the Tandy computer to which it is so similar because it already has much of the expansion that comes at extra cost for the Tandy machine and at a price that is lower than the basic initial price of the Tandy machine.
Also a point to consider is the continuing availability of this machine since the crash of Dragon.

DRAGON 64

Price: Varies £200 +
Memory:64K RAM (up to 48K useable) 16K ROM

Dragon's new model offers three modes of operation: an emulation of the Dragon 32, Extended BASIC with 48K of useable RAM or as what the company calls a "soft machine". In this mode the BASIC is switched out for machine code programs or to add languages like Pascal. An RS-232 interface is standard and the OS/9 multi-user operating system can be added. A small amount of disc-based software, including business applications, is available at present.

MSX

Price: Varies around £250
Memory: Usually 64K RAM (24K usable) 32K ROM

Keyboard: Just about the onl thing that varies from machine to machine. They can be quite good but I have used some awful ones. 73 keys including five function keys and dedicated cursor control keys.
Screen: Up to 40×24 text with 256×192 graphics in 15 colours. All characters user definable.
Sound: Three channels plus noise.
Speed: Medium.
Languages: Microsoft MSX Basic built in, Pascal and Forth may be available.
Software: Very little at present although it may pick up as software houses start converting their existing games to fit MSX.
Opinion: MSX is not a single comupter, rather a single design of computer that is made by different Japanese and Far Eastern electronics companies. The only difference between models is the keyboard and external styling, although some machines such as the Yamaha and the Sony are notable exceptions respectfully having music synthesizer and light pen options.
This has the advantage that all of the machines should be able to run the same software and, to a greater or lesser extent, hardware.
The resulting compromise of a lot of Japanese companies arguing has resulted in a very mediocre computer. Only software support, marketing, and price will see if these machines become successful.



VIDEO VYING

WAR GAMES

Runs on: Colecovision
Made by: Coleco
Price: £29.95

This game is based on the film with you as the commander of NORAD defending the USA against an enemy ICBM attack.

Your first vital decision is to chose which defence sector is in the greatest jeopardy. You then have to chose which weapon you want to defend that sector. You can chose from sub patrols, ABMs, interceptor jets and satellites.

If your defence is successful you stop the NORAD computer from launching a counterstrike that will result in the destruction of mankind.

There are eight difficulty levels — the higher the level the more time you have to defend America, but the aggressor attacks much faster.

two things can result at the end of the game — a cease fire or a counterstrike. A cease fire means you bought enough time for diplomats to negotiate with the aggressor. The second result occurs because you could not stop the ICBM counterstrike.

Points are awarded when missiles, enemy subs and bombers are destroyed. If you are successful you earn a cities saved bonus and a military bases saved.

War Games is the only game of real strategy on a video console rather than a computer. Simulation is very good and the game is very accurate to the film in both graphics and gameplay. Although difficult to play at first War Games is addictive and will last longer than most zap-zap games.

Overall, War Games can be summed up as a thinking man's Missile Command.





BURGER TIME

Runs on: Colecovision
Made by: Coleco
Price: £29.95

This game has a chef armed with pepper, fighting off Mr. Hot Dog, Mr. Egg and Mr. Pickle, so that he can prepare his gourmet burgers.

To build burgers for Chef Peter Pepper's customers, you have to make the chef climb the ladders to different levels of the kitchen with the joystick.

As the chef moves across burger parts — buns, lettuce, beefburger, etc — they drop to the next lower level. The chef has to keep moving round the Grille until all the burger parts are assembled on the plates at the bottom of the kitchen.

The three food foes are out to destroy Peter. Once they touch him, one of his five lives is lost. Peter is armed with a limited supply of pinches of pepper. He can throw a pinch at one of the foes who is too close for comfort and the enemy will be stunned for a few seconds.

From time to time while Peter is building burgers, tempting treats — ice-cream, hot coffee and french fries — appear in the Grille. If he manages to catch them before they disappear you earn bonus points and an extra pinch of pepper.

There are six scenes, each with four skill levels. Points are rewarded for dropping a burger part down a level, for flattening food foes, for sending them for a ride on a burger part and for grabbing a treat.

Graphics are quite good, although the characters in the game are too small to be seen very clearly. Also, the graphics chip can display 32 sprites at once, but is only capable of displaying four in any one horizontal line, so occasionally parts of the characters disappear. But, as usual Coleco software handles it well by flipping about which four are on at any one time.

Burger Time has a different concept to the usual ladders and walkways games.

FRENZY

Runs on: Colecovision
Made by: Coleco
Price: £29.95

Trapped in an alien high-tech structure and surrounded by robots your Commando moves from cell to cell as you face a band of deadly mechanical monsters. Evil Otto, robots and skeletons are out to capture your Commando.

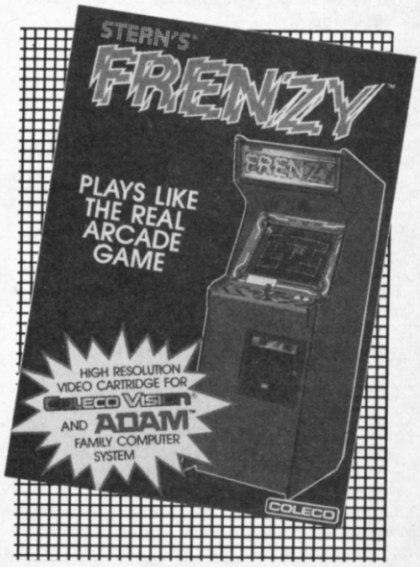
Your first opponents can not fire at you, but their touch is deadly. You can fire laser bullets to destroy them.

On the screen different kinds of walls can be seen. When robots and skeletons move behind dot walls your first shot eliminates a dot, your second shot eliminates the enemy. But, solid or dotty white walls reflect bullets so you could easily kill yourself if you are not careful, or, if used efficiently, they can reflect a bullet and destroy an enemy who is round a corner. ■

In each maze there is an exit door, but once you leave a maze the door closes and you can never return.

Some mazes contain a feature cell at their centre. You earn extra points for disabling and freezing its operation.

Evil Otto can enter mazes at any time. It takes three or four shots to eliminate this smiling, bouncing face.



VIDEO VYING



Frenzy is colourful, with very good graphics and it is unusual — which has to be good in these days of so-similar games. It has some nice touches. For example, the Commander is a thin green man with very realistic movements, and when you shoot at Otto his smile gradually disappears!

CABBAGE PATCH KIDS' ADVENTURE IN THE PARK

Runs on: Colecovision
Made by: Coleco
Price: £29.95

You control Anna Lee, one of the Cabbage Patch Kids, and she is taking a walk through the park.

The first obstacle Anna Lee faces is a pond. She has to grab a swinging vine, jump onto a lily pad and then catch another vine. She then has to show off her jumping abilities — she has to jump her way across four trampolines. You can make her jump high to catch an apple in one of the trees overhead for extra points.

As well as trampolines Anna Lee also has to jump over puddles and on and off blocks and fountains.

Along with these main obstacles, Anna Lee also has to jump over rocks, cabbages, rolling balls and fires, and dodge dandelion puffs and fish jumping from the puddles.

There are 50 screens that Anna Lee has to make her way through, each one more difficult than its predecessor. You stay in Babyland Park until all your three kids fall over. If one does fall down she will cry for a few seconds and shake her fists! The Kids also have to leave the park before dark so there is a time limit on the game.

Despite its slight similarities to Pitfall, this game is very enjoyable to play. Even though the game is based on a bunch of dolls, its difficulty level is quite high, but I do not think this would put off any determined child.

Graphics are excellent and sound is average. A very pleasant game and suitable for the very young as well as the more seasoned player.

DESTRUCTOR

Runs on: Colecovision
Made by: Coleco
Price: £29.95

To play this game you need the Expansion Module 2 (the steering wheel) which is used to guide your Ram-car through Araknid's maze.

Your mission is to collect precious crystals from Araknid, a city on the planet Arthos and take them back to earth.

To obtain the crystals you have to hit the Krystaloids with the Ram-car. This creates a chain reaction that causes it to form a crystal. You then have to push the crystal with your car to the starcruiser shown on the screen.

Baddies contained in the maze are known as Insektoids. They eat metal and synthetics which means they feast on Ram-cars.

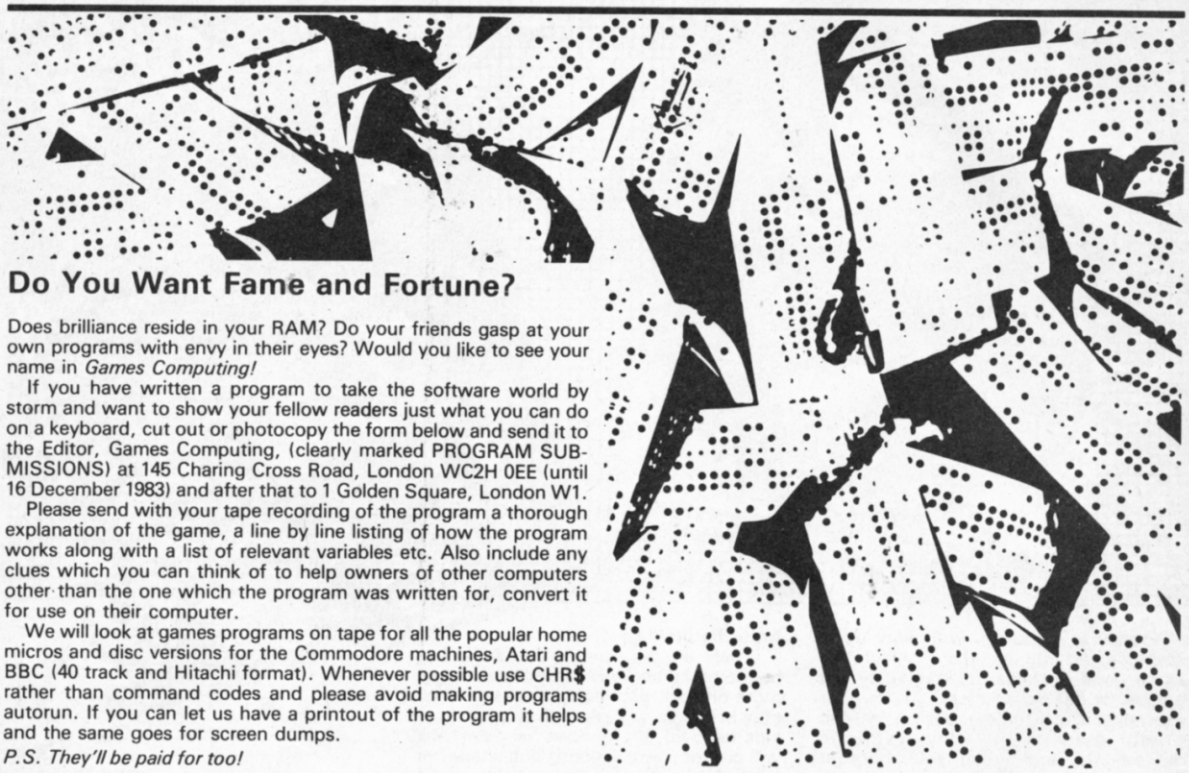
Destructor can appear at any time. He, or it, is the master of the Insektoids and it can never be destroyed. It eats crystals as well as your car. The Destructor lays eggs — so perhaps it should be a she — which hatch into new Destructors.

Teleporters are dotted around the maze. If you drive the Ram-car into one of these you travel to the Master Teleporter on the Starcruiser where you are temporarily safe from Insektoids.

If you collect all the crystals your starcruiser blasts of to return to earth. More difficult rounds follow and you have to keep going until you lose all your Ram-cars.

This is a colourful, unusual game. To begin with controlling the car is fairly difficult and kept drowning myself in the acid river. But, once I master the controls I quite enjoyed collecting crystals and avoiding giant spiders.

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

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Program Name

Computer/memory size it runs on

Amount of memory program occupies

Other computers/memory size which your program runs on

Does your game need joysticks? Yes No

Any known bugs? If so, what are they?

Have you sent your game to another magazine Yes No

Is it original/or a variation on a theme?

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Times to contact you

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