WIN AN MSX COMPUTER

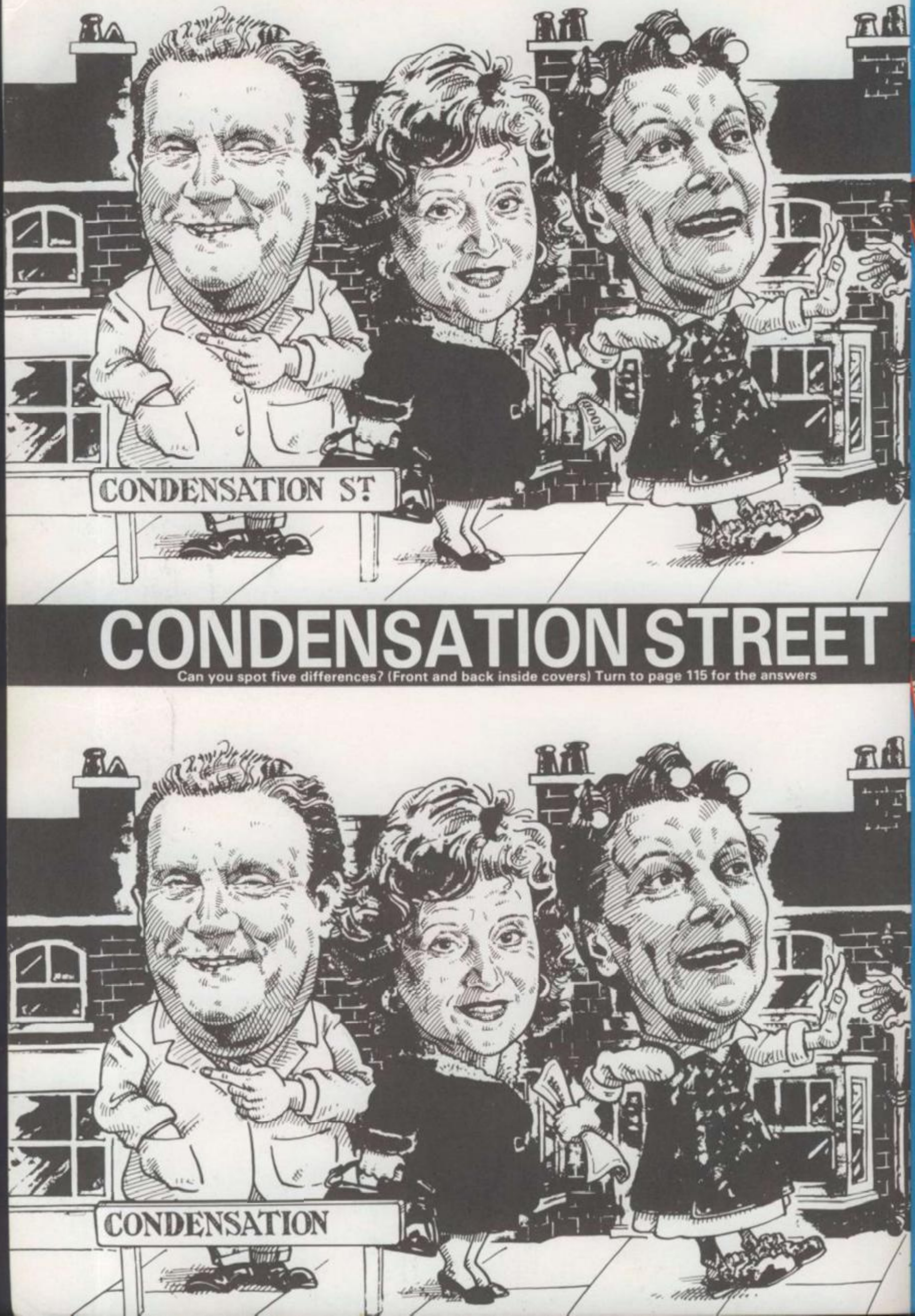
COMPUTER & VIDEO GAMES

YEARBOOK 1985

132 FUN PACKED PAGES

CONDENSATION STREET

Can you spot five differences? (Front and back inside covers) Turn to page 115 for the answers



THE 1984 ARCADE CHAMP

Mark Payne is the 1984 *Computer & Video Games* Champion! He won the title in an action-packed event at a posh London nightclub. Clare Edgeley, *C&VG's* Arcade ace, reports.

The new *Computer & Video Games* 1984 Arcade Champion took his crown in the closing stages of a nail-biting contest at Xenon, a posh nightclub in the heat of the West End of London.

Seventeen arcade hotshots battled it out on a sweltering August day over a series of heats using *Dragon's Lair, Track & Field, Gyruss* and *Star Wars.*

Jools Holland, star presenter of The Tube, Channel 4's pop show, then invited the four finalists with the highest scores on each machine to tackle each other in a grand final on *Flicky* — a brand new game unveiled for the first time at the *C&VG* championships. *Flicky* features a mother duck and her chicks involved in a series of death defying adventures.

Mark Payne, elected by Jools to go first, scored a magnificent 28,860 in his five minute session, setting a tough task for those to follow.

Stephen Munroe and Michael Chilton found it a little more difficult to control *Flicky*, the motor duck, and her chicks and both came away with some 14,000 points.

Finally, David Bushby played and almost reached 28,000 — but the whistle blew. Phew! A close finish which left a beaming Mark Payne from Redcar, Cleveland the *C&VG* Champ!

Jools Holland presented Mark with a table top version of *Hunchback* provided by Taitel, who co-sponsored the championships.

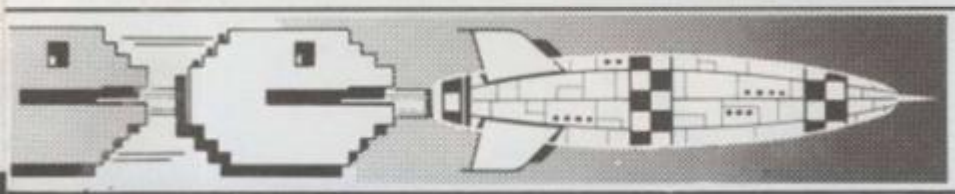
Taitel also presented Mark with a new games cartridge for the machine — *Amazing Heart Attack*. Mark will be able to swap cartridges in his prize machine for a different challenge. Two games in one. Not bad.

He'll also be able to go back to Taitel for more cartridges for the machine whenever he gets too good at the games we provided!

Mark, who qualified for the final on *Track & Field* with 64,660, suitably dressed in a pair of running shorts and trainers said, "I put this gear on just in case I got too hot playing *Track & Field.*

"I really enjoyed myself and I'm glad I've won. I'll be looking around for some new games to practise on to enter into next year's championships. I'll probably put *Hunchback* in my bedroom!"

All the finalists went home with special *C&VG* certificates, a hand held pinball game and watch from CGL and the soundtrack of *Electric Dreams* — a brand new film release from Virgin Films.



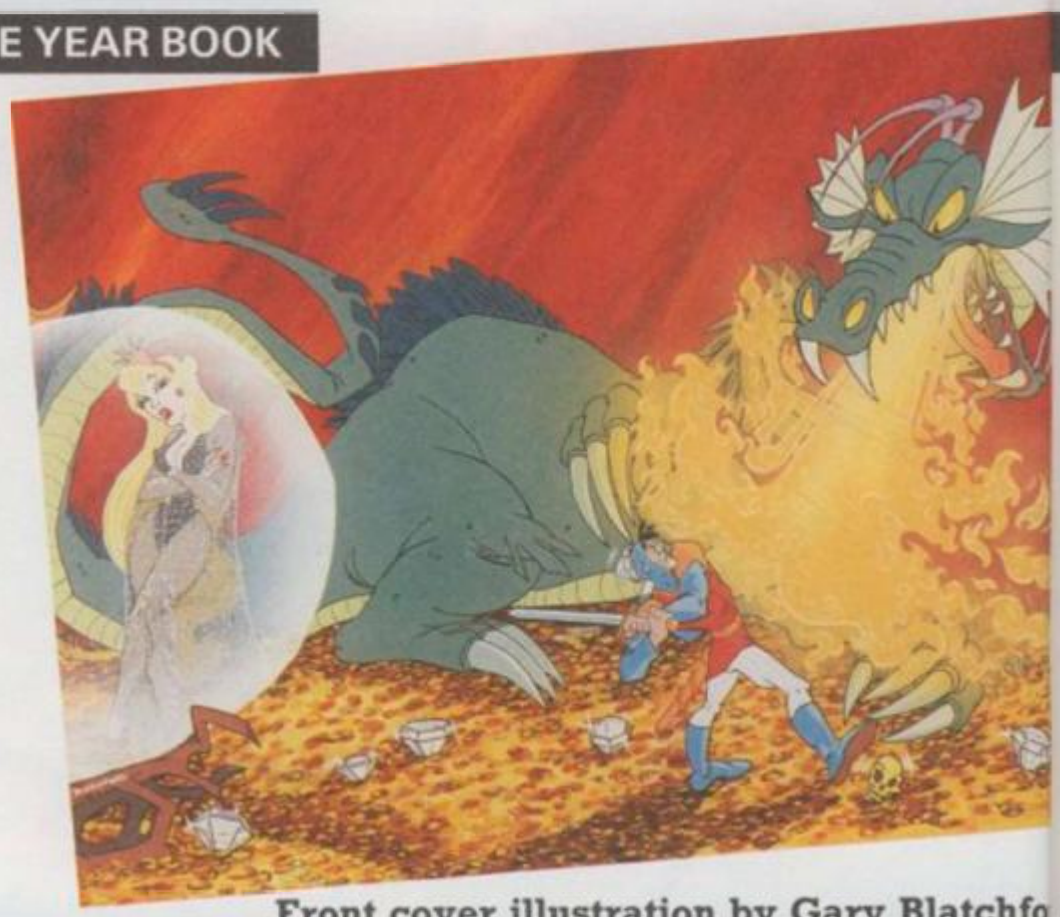
C·O·N·T·

WELCOME TO THE YEAR BOOK

Congratulations! You are now the lucky owner of the second *Computer & Video Games* Yearbook and we hope you enjoy what you'll find crammed into these fun-packed pages. We've attempted to bring you a lot of new and exciting features — like our tips on *Dragon's Lair* and playing strategy games. But we've also included a few old favourites this time, too — like Bug Hunter's round-up of programs that help you write games and our top ten games designers. There are some tried and testing listings too, plus our very special competition with an MSX computer as the big prize.

So stop reading this and turn the page — it's much more interesting over there!

The Ed.



Front cover illustration by Gary Blatchfo

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Avoid crashing into the sun at all costs — and watch out for the *C&VG* logo!

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Will you make it through the centre of an asteroid field to refuel your space craft?

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Manoeuvrability is no easy task as you try to bomb six munitions factories from your Zeppelin.

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A defenceless little ball needs three lives, when it is being chased by Killers and Super-Killers!.

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Ace magician, Paul Daniels, tells us how he first got hooked on computers.

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Vince Clark, quite apart from his interest in computerised music, also has a passion for video games.

TERRY JONES 86
We talk to ex-Monty Python member, Terry Jones, about his new Adventure game, *Erik the Viking*.

THE THOMPSON TWINS 122
Find out more about the amazing flexi-disc which we gave away in October.

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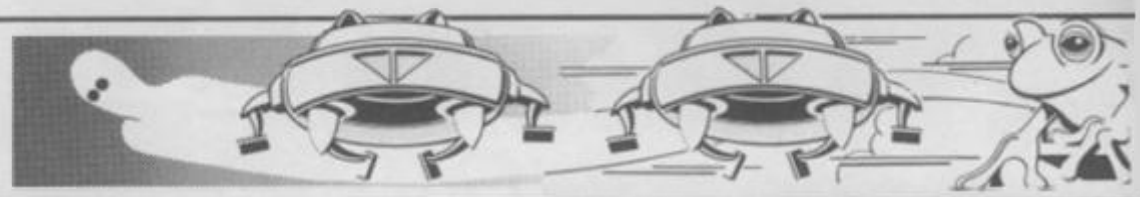

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We put faces to the names you've probably only seen on the cassette inlay of your favourite game.

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DESIGNING YOUR OWN GAMES 84
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Join Marcus, a latter day Alice Through The Looking Glass, as he journeys beyond his computer screen into the land of *Berzerk!* Find out how he copes with mutant bytes, exploding sprites and that grumpy old Turtle.

OLYMPIC HOLIDAY WINNERS 128
Take a trip to the USA with the lucky winners of *C&VG's* grand Olympic holiday contest. Gavin and Nathan Cox had an amazing time and sent us some of their holiday snap shots to show you.

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Ace Adventurer Keith Campbell often finds his house full of mailbags bursting with pleas for help from fellow Adventurers having tough times with Trolls and other assorted nasties. This is all about how Keith answers those appeals for help!

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Trevor Truran brings you Puzzaders, the only alien invaders who could win Mastermind! Plus lots of mind boggling brain-twisters.

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Our top adventurer makes his choice and picks his ten favourite fantasy games and tells you why.

STAR TURN

Dave Greenfield

Dave Greenfield, keyboard player with ex-punk band, *The Stranglers*, doesn't spend all his time making music. Dave often sits down at a keyboard of the computerised kind to play Adventure games. Adventure programmer, MIKE TURNER, talked to Dave about his obsession.

Dave Greenfield, keyboard man with the mean and moody *Stranglers*, always had the right interests to produce an inevitable obsession with home computers. Growing up in Brighton in the sixties, he spent a lot of time in amusement arcades and also started collecting board games which he played regularly.

He became good at chess, puzzles fascinated him and he was quick to buy a TV video-game system when they first became available. At first, this was only a simple "ping pong" type but Dave later upgraded to a cartridge system, ending up with the now venerable Atari VCS console.

Dave's interest in board games, of the type made famous by *Waddingtons* and *Parkers*, eventually led him into fantasy role playing game, in particular *Advanced Dungeons & Dragons*.

He built up a circle of regular players and one of these friends acquired a Sinclair ZX81 and began to write and play Adventure and strategy games on it. Dave decided to look for a computer of his own. He liked his Atari VCS system and wanted something with similar graphics for arcade games.

At that time, few computers could equal the Atari range for colour or sound and he was impressed enough to buy an 800 model. Then followed a long period of mastering their *Star Raiders* cartridge!

"I started using Basic the easy way, by copying programs from magazines!", he recalls. "But there were bugs in these and I didn't know enough to correct them."

Tours and recording left little time to learn programming, particularly as he found that the Atari manuals were a long way from being friendly and it wasn't until his American girlfriend, Pam, persuaded him to get a Sinclair Spectrum, (mainly because she was fascinated by Pimania!) that he began to write his own programs.

Although he admits that he is still at a very early stage, he finds a great deal of satisfaction doing this. Actually some of it comes fairly naturally, as both the synthesisers he currently uses with the band require some kind of programming.

He soon discovered that the Spectrum membrane keyboard didn't match the Atari for serious use, so he fitted a D.K.Tronics replacement. He also added a Kempston joystick and finally a Cheetah speech unit so that his programs could talk back to him!

"So far I haven't consciously tried to write a particular program, I've just developed ideas from experimenting, asking what happens if I do this and that. Then I combine all the mini-bits to make a useable program," he explains.

Dave plays far fewer arcade zap-and-pow style games than he used to — he always carried a few handheld electronic games around with him in the past. Now he tends to prefer the more studied challenge of a good computer strategy or Adventure game.

"I'd rather play arcade games in amusement arcades," he says. "At home, I prefer games that need more thought." Despite his chess skills, he rarely plays against the computer, being quite satisfied with his dedicated electronic chessboard.

He has between 40 and 50 tapes of commercial software for the Spectrum, but fewer for the Atari. His favourite games currently are *Oracles Cave* for the Sinclair and *Crush, Crumble and Chomp* on the Atari.

"My main complaint about software is misrepresentation. I've often bought programs described as Adventures, only to find that they're strategies or even arcade games! The other thing is price. I can't see why Atari stuff should need to cost three or four times as much as the Spectrum equivalent."

His problem is still time. He seems to get only a few locations into an Adventure and then has to leave off. "Pam tours with me a lot, so she doesn't manage any more than I do!"

Dave is very close to obtaining a pilot's licence. He only needs a few more hours flying time, so understandably he is extremely interested in flight simulation programs. He has three different examples so, as a pilot, what does he think of them?

"As a rule, I find the controls aren't as quick to respond as the real thing, although *Fighter Pilot* for the Spectrum isn't so bad, except on landing."

He has most of the better known Adventure programs for both machines, including *Valhalla* and, of course, the *Hobbit* of which he says: "I've just about completed it, having killed the dragon and picked up the treasure. I had a lot of trouble after that, but I now know how to get back home."

Dave feels home computing has a great future. "Unless, of course, something supersedes them the way they did the TV games. Computers will eventually be used to run the house." What are Dave's future computing aspirations? "I hope to find time to learn to use them properly!"

Why You Should Buy C & VG

So, you're now the proud owner of the *Computer & Video Games* Yearbook. You either grabbed it off the shelves because you are a regular reader of the first and best fun computer magazine — or because you simply liked the look of the cover! Whatever made you purchase this amazing publication, we're glad you did. But remember, what you find packed between the covers of this Yearbook is just a sample of the delights to be discovered in *Computer & Video Games* — the magazine — each and every month.

Computer & Video Games was the first magazine to appear which was devoted entirely to computer games. That was well over two years ago and, since then, several other magazines have been quick to copy our style.

But we like to think we do it better than any of the opposition. Who else brings you professionally written listings by top programmers like Matthew Smith — the man who had two number one games hogging the *C&VG/Daily Mirror* Top 30 for several weeks this year — and the zany Jeff Minter of *Mutant Camels* fame?

And talking about the Top 30, which other magazine has taken the games world as seriously as *C&VG?* We were the first in the field with a properly researched and truly independent games software chart — developed with the assistance of the *Daily Mirror* newspaper and NOP Market Research, the leading research company in this country. You can get up to date

news on the charts every other Saturday in the *Daily Mirror*. The chart was also featured on BBC's *Superstore* and *Saturday Morning Picture Show* during the summer.

No other magazine brings you competitions as amazing as our terrific Olympic Holiday contest — which you can read about on page 128 of this Yearbook.

No other magazine brings you the latest games news as quickly and — more often than not — exclusively, as *Computer & Video Games*.

Who else has World Champion games players on the games reviews staff? Both Atari world champs, Andrew Brzezenski and Stuart Murray review games for *C&VG* plus of course our 1983 Arcade Champion, Julian Rignall!

Then there's Keith Campbell's much praised Adventure column — plus the extremely useful Adventure Helpline which has saved many an Adventurer from a fate worse than death. *Computer & Video Games* is a must for Adventure games fans everywhere!

In fact, *C&VG* is a must for any computer gamer — whether you enjoy blasting aliens or getting tough with Trolls. So if you've enjoyed reading this Yearbook and fancy some more of the same on a monthly basis during 1985, why not rush down to your newsagent and place an order for THE computer games magazine, *Computer & Video Games*. Accept no substitute!

C&VG'S GOLDEN JOYSTICK AWARDS 1984

Use this form to nominate your favourite games, software house or programmer. No nominations will be accepted unless they come on this form. Send it to *Computer & Video Games*, Golden Joystick Awards, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.

Game of the Year
First choice: .....
Second choice: .....

Software House of the Year
First choice: .....
Second choice: .....

Best Original Game
First choice: .....
Second choice: .....

Best Adventure Game
First choice: .....
Second choice: .....

Best Strategy Game
First choice: .....
Second choice: .....

Best Arcade-style Game
First choice: .....
Second choice: .....

Programmer of the Year .....

The time has come to talk of many things. Of great graphics, neat routines and above all, your favourite games! Yes, it's Golden Joystick Award time again. Time for you, the respected *Computer & Video Games* reader, to sit down and work out your nominations for the best games of 1984.

The *Computer & Video Games* Golden Joystick Awards are the only awards made to the games software industry decided exclusively by the games player. And because of that fact, the software houses regard our awards as being among the most worthwhile to receive.

You'll find a form below which details the categories and asks for your choices. Fill it in and rush it off to *C&VG*. We'll be announcing the date and venue for the awards ceremony shortly. Meanwhile, we'll give you a better idea of what we want you to think about when you make your nominations.

Game of the Year — this is pretty easy to work out. Any game, whether it's an arcade-style shoot-out or a graphic Adventure, qualifies for this award.

Software House of the Year—does your favourite software house produce high quality games? Does it offer good after-sales service? Do you always look out for a new game? If so—then enter it here!

Best Original Game—again this is pretty easy to explain. What's the most exciting new game you've seen this year which has a totally original concept and/or design?

Best Adventure Game—text or graphic Adventures can win their own Golden Joystick Award for the first time this year. How about The Hobbit? Or Lords of Midnight?

Best Strategy Game—another new category for 1984. This includes war games, board game conversions, simulations other than sports, and all the original strategy games that are zooming up the charts like *Mugsy*, *Psytron*, and *Worse Things Happen at Sea*.

Best Arcade-style game—found a great space shoot-out? Or the ultimate version of *Star Wars*? Nominate it now in this category designed exclusively for computer games that first saw the light of day somewhere in an arcade—or look as if they should have done!

Programmer of the Year — The third new category for the 1984 Awards. This gives you the chance to show your appreciation for all the hard work that goes on behind the scenes at YOUR favourite games designer.

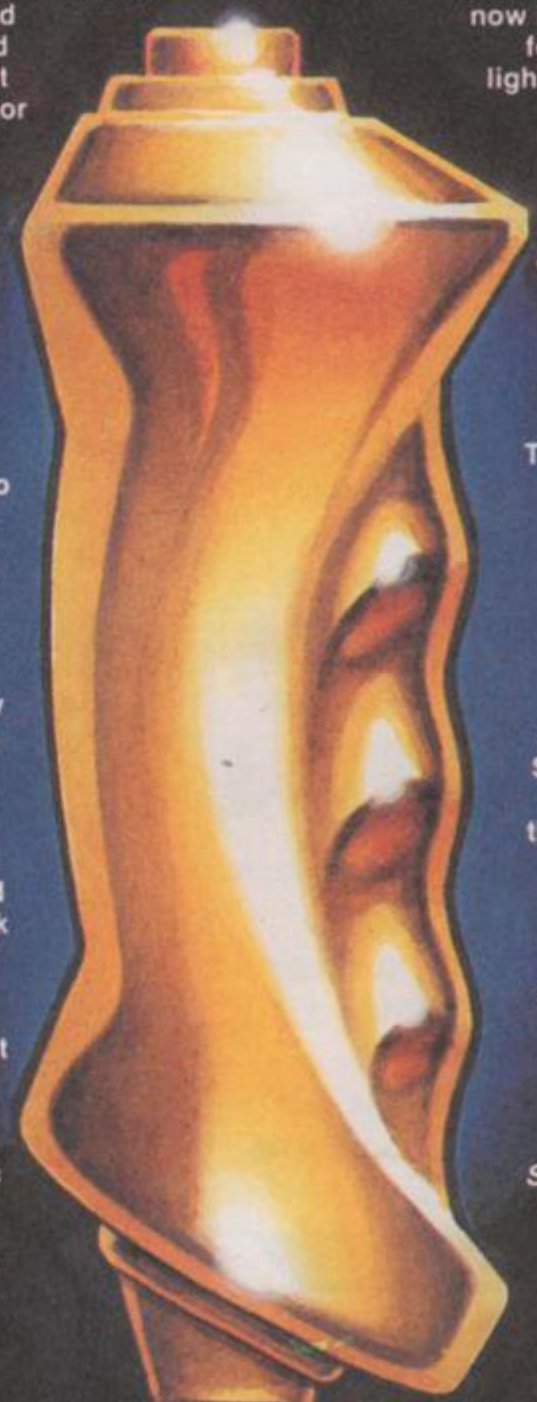
Best Sports Simulation Game—1984 has been the year of the sports simulation with dozens of games for all the popular machines. To mention a few that have charted in the *C&VG/Daily Mirror* Top Thirty — *International Soccer*, *Basketball* and *Match Point*.

Jet Set Willy is out in front of the Game of the Year Category, though *Fighter Pilot*, *Sabre Wulf* and *Hunchback* are all pulling up fast.

Software Projects are edging ahead of last year's winner, Ultimate, in the Software House of the Year category. There is still plenty of time to vote, though, as in all the categories. Other companies doing well here are Ocean, Llamasoft and Microdeal.

The Adventure Game category looks like being one of the most fiercely contested this year with *Questprobe*, *Twin Kingdom Valley* and *Lords of Midnight* making the running so far.

Original games nominated for a Golden Joystick this year are *Trashman* which is in the lead, with *Scuba Dive* and *Fred* hot on his heels. There is still bags of time to vote. So sit down and have a good think and fill out the form below. The closing date for entries is 31st December 1984. Remember, it's your vote that counts in the Golden Joystick Awards, so make sure you use it. Remember, we really NEED your votes. Every one counts towards the final result. Without you the awards just wouldn't happen.



SPACEW

Here's a real first for *C&VG*. This game will keep you occupied while you're waiting for some professional software to arrive for your QL.

The game makes full use of sound and graphics and even prints the *C&VG* logo on screen as well!

The object of the game is to dock your ship with the fuel pod in the shortest time. Don't crash into the sun, though, as this means death for sure. You have only a limited amount of fuel for each mission.

Two graphics characters are used for the ship and the fuel pod. These are in line 720, which is typed as CTRL-SHIFT W and 740, which is CTRL-SHIFT R. The game runs in TV mode, so press f2 when you have turned your QL on.

RUNS ON A NEW ISSUE QL

BY MICHAEL LEVERS

```
100 INSTRUCTIONS
110 REPeat CONTROL_LOOP
120 VARIABLES
130 SCREEN
140 MAIN_LOOP
150 GAME_OVER
160 END REPeat CONTROL_LOOP
170 DEFine PROCedure INSTRUCTIONS
180 S$='SPACE WARP':MODE 256:BORDER 0:BO
RDER£2,0:BORDER£0,0:PAPER 0:SCALE 255,0,
0:LOGO:TITLES:CSIZE 3,1:CLS£0:CLS:CURSOR
 2,2:INK 4:OVER 1:PRINT'          ';S$:IN
K 6:CURSOR 0,0:PRINT'          ';S$:CSIZE
 0,0:INK 5:PRINT'    Copyright Mike Leve
rs 1984'
190 Y=0:FOR X=0 TO 1
200 INK 2*(X=0)+7*(X=1):CURSOR 2*X,28+X*
2:PRINT\\' OBJECT: TO DOCK YOUR SPACE SH
IP WITH'\\'THE FUEL UNIT ORBITING THE SU
N.'
210 PRINT\'USE LEFT/RIGHT ARROW KEYS TO
```

WARP

```
ALTER'\\'RADIUS OF ORBIT & UP/DOWN KEYS
TO'\\'ALTER SPEED. KEEP AN EYE ON YOUR F
UEL'\\"IF IT RUNS OUT YOU'RE DEAD!"
220 END FOR X
230 CSIZE 0,1:INK 3:FLASH 1:PRINT\' PLEA
SE PRESS SPACE-BAR TO CONTINUE';
240 CSIZE 0,0:FLASH 0
250 WAIT_SPACE:HIGH=9999:HIGH$='0L':H$='
99:99'
260 END DEFine
270 DEFine PROCedure WAIT_SPACE
280 REPeat LOOP
290 KEY$=INKEY$(0):IF KEY$=' 'THEN EXIT
LOOP
300 END REPeat LOOP
310 END DEFine
320 DEFine PROCedure TITLES
330 CLS:CSIZE 3,1::OVER 1:FOR X=1 TO 80
340 CURSOR 280-(X-1)*2,X-1:INK 2:PRINT S
$:CURSOR 280-X*2,X:INK 7:PRINT S$:BEEP 0
,X,0,0,1,15,10,0
350 END FOR X
360 INK 0:FOR X=0 TO 80
370 CURSOR 280-X*2,X:PRINT S$:BEEP 0,80-
X,0,0,1,15,10,0
380 END FOR X
390 BEEP
400 FOR X=0 TO 128
410 INK RND(1 TO 3)
420 LINE 192,140 TO RND(412),RND(255):IN
K 7:CURSOR 120,80:PRINT S$
430 BEEP 0,-X*2,255,0,0,15,5
440 END FOR X
450 BEEP:PAUSE 50:PAUSE 100:CLS
460 END DEFine
470 DEFine PROCedure VARIABLES
480 RANDOMISE:SHIP%=20+RND(60)
490 UNIT%=20+RND(60):POS=PI:DEGR=0:SPD=(
RND(1 TO 5))/10
500 IF SHIP%>UNIT%-8 AND SHIP%<UNIT%+8 T
HEN GO TO 490
510 FUEL%=5000:SX%=0:SY%=0:UX%=0:UY%=0:N
OVA%=0
520 SHIP_POS:UNIT_POS:SPEED=5E-2
530 END DEFine
540 DEFine PROCedure SHIP_POS
550 OSX%=SX%:SX%=212+SHIP%*SIN(POS)
560 OSY%=SY%:SY%=88+SHIP%*COS(POS)
570 END DEFine
580 DEFine PROCedure UNIT_POS
590 OUX%=UX%:UX%=212+UNIT%*SIN(DEGR)
600 OUY%=UY%:UY%=88+UNIT%*COS(DEGR)
610 END DEFine
620 DEFine PROCedure SCREEN
630 OVER 0:CLS:INK£0,6:CSIZE£0,3,1:AT£0,
0,0:PRINT£0;'FUEL:        TIME:':INK£0,7:
AT£0,0,6:PRINT£0;FUEL%:AT£0,0,18:PRINT£0
;'00:00'
640 INK 7:CURSOR 212,88:PRINT'*'
650 FOR X=1 TO 50:POINT RND(414),RND(255
)
660 END DEFine
670 DEFine PROCedure MAIN_LOOP
680 BEEP 0,100,0,990,-2,7,10,10:SDATE 19
84,1,1,0,0,0:REPeat LOOP
690 FOR DEGR=0 TO 2*PI STEP SPD
700 UNIT_POS:SHIP_POS
710 INK 5:CURSOR OSX%,OSY%:PRINT' '
720 CURSOR SX%,SY%:PRINT'7'
730 INK 4:CURSOR OUX%,OUY%:PRINT' '
740 CURSOR UX%,UY%:PRINT'2'
750 IF (SX%>UX%-3 AND SX%<UX%+3) AND (SY
%>UY%-3 AND SY%<UY%+3) THEN D$=DATE$:TM$
=D$(16 TO): RETurn
760 INK£0,7:AT£0,0,6:PAPER£0,2*(FUEL%<20
00):PRINT£0;FUEL%;' ':PAPER£0,0:FUEL%=FU
EL%-SPEED*100:IF FUEL%<1 THEN AT£0,0,6:P
APER£0,2:PRINT£0;'0   ':PAPER£0,0:RETurn
770 AT£0,0,18:D$=DATE$:PRINT£0;D$(16 TO)
780 OVER -1:INK RND(1 TO 7):CURSOR 212,8
8:PRINT'*X+'(RND(1 TO 3)):OVER 0:KEY%=CO
DE(INKEY$(0))
790 SHIP%=SHIP%+(KEY%=192)-(KEY%=200)
800 SPEED=SPEED+5E-2*(KEY%=208)-5E-2*(KE
Y%=216)
810 IF SPEED<5E-2 THEN SPEED=5E-2
820 IF SPEED>.5 THEN SPEED=.5
830 IF SHIP%<9 THEN NOVA%=1:RETurn
840 IF SHIP%>80 THEN SHIP%=80
850 POS=POS+SPEED:IF POS>2*PI THEN POS=0
```

Illustration: Gary Wing

```
860 END FOR DEGR
870 END REPeat LOOP
880 DEFine PROCedure GAME_OVER
890 BEEP:IF NOVA% THEN NOVA
900 IF FUEL%<1 THEN
910 OVER -1:FOR X=1 TO 120
920 INK RND(1 TO 7):CURSOR SX%,SY%
930 PRINT'£HIO*=-X'(RND(1 TO 8))
940 BEEP 0,RND(30),RND(30 TO 100),100,2,
7,3,10
950 END FOR X:OVER 0:CURSOR SX%,SY%:PRIN
T' '
960 END IF
970 BEEP:CLR%=2
980 FOR X=99 TO 5 STEP -5
990 IF X=99 THEN CLS
1000 BORDER X,CLR%:CLR%=CLR%+1:IF CLR%=8
 THEN CLR%=1
1010 END FOR X
1020 FOR X=3 TO 99 STEP 3
1030 BORDER X,0
1040 END FOR X:BORDER 0
1050 FOR X=1 TO 27
1060 FOR Y=1 TO 8:PAN£0,-2
1070 AT£0,0,27:PRINT£0;'        GAME OVE
R          '(X)
1080 END FOR X
1090 IF FUEL%<=0 OR NOVA%=1 THEN NEW_GAM
E:RETurn
1100 CLS:CSIZE 3,1:INK 5
1110 PRINT          WELL DONE!'\\'
YOU DOCKED IN:'
1120 SCORE$=TM$(1 TO 2)&' mins '&TM$(4 T
O)&' secs':INK 6:PRINT\FILL$(' ',INT((27
-LEN(SCORE$))/2));SCORE$
1130 IF 60*TM$(1 TO 2)+TM$(4 TO 5)>=HIGH
 THEN PAUSE 100:NEW_GAME:RETurn
1140 FLASH 1:INK 4:PRINT\'        NEW HIGH
 SCORE!':FLASH 0:INK 7:CSIZE 0,0
1150 REPeat ENTER
1160 INPUT\\'YOUR NAME: ';HIGH$:IF LEN(H
IGH$)>0 AND LEN(HIGH$)<12 THEN EXIT ENTER
1170 END REPeat ENTER
1180 HIGH=TM$(1 TO 2)+TM$(4 TO):H$=TM$
1190 NEW_GAME
1200 END DEFine
1210 DEFine PROCedure NOVA
1220 FOR X=1 TO 30 STEP 5
1230 INK (X+9)/5:FOR Y=X TO X+4
1240 FILL 1:CIRCLE 206,137,Y:FILL 0:BEEP
 0,Y,30,20,2,7,7,0
1250 END FOR Y
1260 END FOR X:FILL 0:BEEP 0,10,50,30,4,
7,10,10
1270 INK 2:FOR X=1 TO 80
1280 LINE 206,137 TO RND(412),RND(255)
1290 END FOR X:PAUSE 25:PAUSE 25:BEEP:PA
USE 50
1300 END DEFine
1310 DEFine PROCedure NEW_GAME
1320 FOR Y=1 TO 20
1330 FOR X=0 TO 7
1340 BEEP 0,X
1350 END FOR X
1360 END FOR Y
1370 BEEP
1380 FOR X=1 TO 20:SCROLL£0,-1
1390 CLS:CSIZE 3,1:INK 5:CURSOR 2,2:PRIN
T'          ';S$:INK 3:CURSOR 0,0:OVER 1:
PRINT'          ';S$
1400 CSIZE 0,1:SCORE$='BEST TIME: '&H$&'
 BY '&HIGH$
1410 INK 6:PRINT\\FILL$(' ',INT((37-LEN(
SCORE$))/2));SCORE$
```

```
1420 CSIZE 3,1:INK 2:PRINT\\'  PRESS SPA
CE-BAR TO PLAY':CSIZE 0,0
1430 WAIT_SPACE
1440 END DEFine
1450 DEFine PROCedure LOGO
1460 INK 6:CLS
1470 FOR X=127 TO 134 STEP .1
1480 CIRCLE X+80,X-4,60
1490 END FOR X
1500 INK 4:CIRCLE 214,130,60
1510 CSIZE 3,1:INK 7:OVER 1:FOR X=156 TO
 160:CURSOR X,70:PRINT'COMPUTER'
1520 CSIZE 3,1:CURSOR 160,70:INK 2:PRINT
'COMPUTER'
1530 INK 7:FOR X=183 TO 187:CURSOR X,113
:PRINT'GAMES'
1540 INK 2:CURSOR 187,113:PRINT'GAMES'
1550 INK 6:FILL 1:LINE 144,137 TO 287,13
7 TO 279,117 TO 136,117 TO 144,137:FILL 0
1560 CSIZE 0,0:INK 1:CURSOR 180,96:PRINT
'& VIDEO'
1570 FOR X=255 TO 0 STEP -1:BEEP 0,X
1580 FOR X=1 TO 15
1590 FOR Y=4 TO 1 STEP -1
1600 INK Y:CSIZE 3,1:CURSOR 160,70:PRINT
'COMPUTER':CURSOR 187,113:PRINT'GAMES':I
NK Y-1:CSIZE 0,0:CURSOR 180,96:PRINT'& V
IDEO':BEEP 0,RND(30),0,3,2,0,0
1610 END FOR Y
1620 END FOR X
1630 BEEP:PAUSE 10:PAUSE 140:FOR X=40 TO
 99:BORDER X,0
1640 BORDER 0
1650 END DEFine
```

THE TOP 30

HOW THE HITS ARE CHARTED

Each month in *Computer & Video Games* and on the wall of your favourite computer shop you'll find a top 30 games software chart. It's compiled for *Computer & Video Games* by National Opinion Polls. We decided to tell you just how that chart is put together!

Every fortnight in computer shops all over the country a big bright poster materialises on their walls and causes a big stir in the wonderful world of computer games. Why? Because it's the *Computer & Video Games/Daily Mirror* Top 30 Chart, that's why!

Our chart first started appearing earlier this year. Since then, it's established itself as THE chart to watch. It's the only truly independent Top 30 for the computer games industry and is compiled by one of the country's leading market research companies NOP.

Why did *C&VG* decide to start the chart? Well, we thought it was about time there was a Top of the Pops to bring all the razzmatazz of the pop world to the games scene!

How is the chart put together by those wizards with statistics at NOP? That's what we're going to tell you next!

When *C&VG* and the *Daily Mirror* approached NOP with the idea for the chart, they quickly went about discovering how many specialist computer dealers there were in the country. No easy task, as you can imagine.

Further investigations of a more technical kind followed as the NOP wizards worked away at discovering the best and most accurate method to calculate the top 30 computer games every fortnight.

Then NOP recruited around 300 specialist computer games shops — ranging from major stores to independent shops — to help them in their task.

The owners of these stores and shops were presented with a special *C&VG/Daily Mirror* chart diary which they were asked to fill in, detailing how many games tapes they sell each fortnight.

The diary asks them the name of each game they sell, who makes it, how many machines the game works on and just how many copies of the game are sold.

THIS WEEK	LAST WEEK	WEEKS IN CHART	TITLE	Publisher	Computer	(Available on) SPECTRUM	VIC 20	COMMODORE 64	ELECTRON	ATARI	DRAGON	ORIC	BBC	MEMOTECH
1	2	10	JET SET WILLY	SOFTWARE PROJECTS	SPECTRUM	●								
2	5	3	TORNADO LOW LEVEL	VORTEX	SPECTRUM	●								
3	1	4	SABRE WULF	ULTIMATE	SPECTRUM				●					
4	3	5	BEACH HEAD	ACCESS/U.S. GOLD	COMMODORE 64									
5	24	2	FULL THROTTLE	MICROMEGA	SPECTRUM	●								
6	4	5	MUGSY	MELBOURNE HOUSE	SPECTRUM	●								
7	8	11	FIGHTER PILOT	DIGITAL INTEGRATION	SPECTRUM	●								
8	11	9	CODE NAME MAT	MICROMEGA	SPECTRUM	●								
9	—	1	MATCH POINT	PSION	COMMODORE 64				●					●
10	11	2	ARABIAN NIGHTS	INTERCEPTOR	B.B.C.									
11	—	1	FORTRESS	PACE	SPECTRUM	●								
12	18	5	JACK & THE BEANSTALK	THOR	SPECTRUM	●								
13	17	4	LORDS OF MIDNIGHT	BEYOND	SPECTRUM	●								
14	7	6	PSYTRON	BEYOND	COMMODORE 64	●				●				
15	6	3	VALHALLA	LEGEND		●				●				
16	13	10	MANIC MINER	BUGBYTE/SOFTWARE PROJECTS	SPECTRUM	●								
17	9	8	TRASHMAN	NEW GENERATION	SPECTRUM	●								●
18	12	11	ATIC ATAC	ULTIMATE	COMMODORE 64					●	●			
19	20	4	BLAGGER	ALLIGATA	COMMODORE 64					●		●		
20	19	6	INTERNATIONAL SOCCER	COMMODORE	COMMODORE 64					●				
21	10	3	AZTEC CHALLENGE	COSMI/U.S. GOLD	SPECTRUM	●								
22	—	1	HOBBIT	MELBOURNE HOUSE	SPECTRUM	●								
23	23	10	NIGHT GUNNER	DIGITAL INTEGRATION	COMMODORE 64					●				●
24	—	1	VEGAS JACKPOT	MASTERTRONIC	MEMOTECH									●
25	—	1	OBLOIDS	CONTINENTAL SOFTWARE	B.B.C.									
26	—	1	FRAK	AARDVARK	SPECTRUM	●								
27	27	2	WAR OF THE WORLDS	C.R.L.	SPECTRUM	●								
28	—	1	LORDS OF TIME	LEVEL 9	COMMODORE 64					●				
29	—	1	SPACE PILOT	ANIROG	VIC 20					●	●			
30	—	1	FLIGHT PATH 737	ANIROG										

On the Monday and Tuesday after the end of each diary period, the NOP telephone team swing into action. They contact all the stores and shops on the NOP hit list and write down all the information about sales supplied by the owners and managers of these 300 or so computer games outlets.

This mass of information then goes to the statisticians who collate and check it — and re-check it and check it again before they are satisfied that the figures are correct.

Finally, the chart for that particular fortnight is drawn up and whisked by motorcycle courier to the *Computer & Video Games* offices and the *Daily Mirror*. This happens every other Wednesday. Shortly afterwards, the details of the new chart are rushed to a nearby printer to be transformed into the poster you see on the walls of your local computer store.

The printers typeset the information on the chart from NOP and then each poster is surrounded by illustrations of the cassette inlays from games in the charts or just bubbling under — and you can tell if it's the genuine article by looking for the *Computer & Video Games* and *Daily Mirror* logos on the top!

Strangely enough, there are absolutely no computers involved in the compilation of our Top 30! All the work at NOP is done by hand — and human brain — which they reckon is the best and quickest way of doing things.

In any event, you can rely on the fact that the *C&VG/Daily Mirror* chart is the most accurate reflection of the top selling games. The chart also appears in the *Daily Mirror* every fortnight and — we have to admit it — they have the most up to date chart each fortnight! Because *C&VG* is a monthly magazine, our production schedule means that we're always a bit behind the newspaper people. Throughout the summer, the *C&VG/Daily Mirror Top 30* chart was also featured on BBC's *Saturday Picture Show* every other Saturday. Presenter, Mark Curry, gave a rundown of the Top 10 each fortnight.

Wherever you see the *C&VG/Daily Mirror* Top 30 — in print, on our poster or on TV — you can rest assured that it is the most accurate, most up to date games software chart to be found anywhere. And we mean anywhere!

DON'T LET THE GREMLINS GET THE BETTER OF YOU, WRITE TO...

ADVENTURE HELPLINE

In each and every issue of *Computer & Video Games* Keith Campbell, our ace Adventurer, deals with appeals for help from fellow Adventurers stuck in dark dungeons or threatened by large firebreathing dragons. This is the story of how the Adventure Helpline came to be — and how Keith manages to deal with all the piles of letters which are gradually taking over his house!

Back in the days when the Spectrum was but a twinkle in a ZX81's eye, the first fun computer magazine was born — *Computer & Video Games.*

One of the features in that first issue was a whole page devoted to Adventure games, the introduction to a series of programming tips, plus reviews.

Writing a monthly programming series had its difficulties. Each article had to be complete in itself so as to appeal to the occasional reader, yet follow on from the previous one, allowing the regular reader to get the benefit of the series as a whole.

After some eighteen months, Terry Pratt, founder editor of *C&VG,* told me over a drink at a Christmas party that he had decided to curtail that part of my page — I was to neatly wind it up.

"After all," he said, "the circulation has grown so much since we first started, that most readers are out on a limb — they've missed too many of the basic steps."

He was right, of course, but I headed home heavy of step and with the prospect of a frugal New Year ahead.

Later Terry noticed that I was getting quite a considerable number of letters asking for help in solving Adventures, all unsolicited. *C&VG's* policy was —and still is — to provide first class reader-support in all fields and Terry suggested I started an official Adventure Helpline.

So in June 1983, the Adventure Helpline was launched. It was the first in the field, later to be imitated by other computer games magazines.

The letters I had been receiving contained many tips as well as pleas and I filed them neatly away, to consult for clues when needed. I had the feeling that making the Helpline official might produce a substantial increase in mail and I could see no easy way of retrieving information from files when, at a later date, there might be many thick volumes.

Being a little obsessed with computer games doesn't mean we at *C&VG* can't manipulate our devices to actually work for us, so I set about writing a database program on my Model III TRS-80, to help reference the correspondence. Information retrieval is, of course, one of the main functions of a computer.

Sure enough, my prediction turned into fact a couple of weeks after the July issue appeared on the newsstands. The Adventure correspondence had increased almost tenfold! Luckily I already had "the technology" to manage it!

On to diskettes went all the details — name and address, games on subjects mentioned, category of subject (tips, pleas and various other categories), micro used, letter-number (yes, they all had to be numbered to find them again easily!) and so on.

Many people seem to think that a computer eliminates the personal touch but, with the use of my new database, I was able to check quickly if a writer had written before. If he had, within seconds I could locate his previous letters and continue the correspondence as if I were writing to an old friend. Well, I was really, for I consider all readers who write to me to be friends and try to reply accordingly.

That is no easy task when dealing with dozens of letters each week, so I felt pleased that I was using my computer to personalise replies, rather than the opposite.

Three months later, so fast and furious were letters arriving, that I had to expand the disc files. To reduce head movement, these had been pre-allocated on the disc.

Disaster struck — I did the inexcusable! I created new blank files on a clean disc and wrote a short routine to read records from drive 0 and write to drive 1. I accidentally

switched the discs and wrote blank records over the painstakingly built-up name and address data! The inexcusable was the fact that I had failed to make a back-up copy before commencing the operation!

It took nearly a fortnight to recover — I had to go through the paper files and type my way back in from scratch!

This had to be done very carefully, so as to get the pointers right, else I would have to type the other files back in as well! When completed, it came home to me just how valuable the program was. I would not have considered repeating all that typing if I wasn't getting a lot of use out of it!

THE POSTCARDS

Up to this time I had been replying by letter typed on a word processor (Scripsit — on which all my articles are written). This meant printing the letter and a file copy tied up the computer, leaving me idle, or having to constantly break my train of thought by playing a review game on another micro.

There were three options available to overcome this — a hardware spooler (a device which stores the data waiting to be printed, thus freeing the computer for less mundane tasks), a second TRS-80 with drives, or postcards!

The first two options were very expensive, whilst the third, surprisingly, had other advantages. They are quick to write by hand and specially printed ones with tailor-made artwork would, I thought, make an attractive personal greeting. So the cards were printed and have become the standard medium for all but the longest answers.

As time went on, searching the database to list letters on a particular game often produced a long list, involving leafing through numerous fat loose-leaf files.

Many of the letters, when found, didn't contain the particular clue I needed and I felt there had to be a more efficient way of getting to the actual information needed.

COPING WITH THE CLUES

What was needed was another database containing the tips themselves. So I set about writing another program. Into this goes every worthwhile tip I come by, on any game.

It might be thought that I am unlikely to forget things like how to get past the Adventureland bear, but I still keep the well-remembered as well as the obscure clues on file.

This allows me to save time by automatically printing out a series of clues for readers with multiple problems and concentrate my time on a personal message.

These programs have served me — and you — and have proved very much worth the time they took to write, adapt, adopt and improve. But, of course, they won't actually write the letters — only people can do that.

P. COPPINS & S. MARSH

The story of the Helpline wouldn't be complete without mentioning Paul Coppins and Simon Marsh, the two lads who help me cope with the ever-increasing volume of mail.

Paul and Simon were recruited from amongst the regular writers to Helpline and do an outstanding job in helping to keep the answers flowing. The clues we pass on to those in distress come from our own experience and the carefully collated tips sent in by readers. These are freely given and not always accompanied by a reciprocal plea for help. Many are extremely detailed, including maps and, in some cases, complete solutions.

Finding an answer to some letters can be extremely difficult and time consuming. Like the time I spent a whole Christmas afternoon playing my way through *Pyramid of Doom* just to answer one letter! I kept dying and for the life of me couldn't remember how I had originally solved the game!

Some letters are very gratifying to read. One such just over a year ago came from a reader who first bought *C&VG* while he was considering which computer to buy. He said he has never missed an issue since and, reading my review of *Pyramid of Doom*, bought the game for his recently acquired Atari.

He soon completed the whole Scott Adams series and enclosed a sealed envelope to pass on to a reader in distress with *Golden Voyage*, "to put back in some of the enjoyment which you and the magazine have given me in the past."

I sent on that clue — to a P. Coppins of Essex. He was too shy to use his Christian name in those days! I looked the correspondence up before writing this — and found a coincidence. The letter was from a W.H. Ferran of New Malden — home town of a certain S. Marsh!

REBECCA CORWEL ET AL

Perhaps the most cruel and difficult letter ever was an early *Hobbit* problem. It was from a young lady — Rebecca Corwel of Edgware. My *Hobbit* knowledge was almost nil at that time, so I put it to one side whilst I pressed on with the rest of the pile.

A few weeks later, of course, it surfaced and, full of guilt about leaving the poor girl without an answer for so long, I spent frantic hours searching through my then undocumented file. I finally pieced together an answer and replied in grovelling tones of abject apology for the delay in writing back to her.

Two months later, I noticed a vast envelope stuffed full of readers' letters hanging on the *C&VG* office wall. It was labelled "Rebecca Corwel letters". I became suspicious and asked Robert Schifreen, quite casually, who she was.

"Oh, that's me! I used it as a pen-name in the Mailbag. Those are the answers!" he replied chirpily.

"Are you a *Hobbit* player by any chance?" I seethed. "Oh! I'd forgotten about that! Yes, I was stuck, and I thought it would be a good way of testing the Helpline!" I had sweated blood over that reply!

It had gone in the office out-tray a couple of yards from Robert's desk, then downstairs for franking and posting and was duly delivered on his doormat in Edgware the following day!

If you still have your copy of the December 1983 issue of *C&VG*, you might care to turn to the opening paragraphs of my review of *Circus*. You probably didn't realise it at the time — I was getting my own back!

Every now and then I get a good laugh from a letter. Like one from a pupil at a remote boarding school — who shall be nameless to protect the guilty, but he knows who I mean!

He was bored to death by the lack of any life in the locality — *C&VG* always got delivered three weeks late, if at all — and to cap it all he was stuck in a boring Adventure.

He said that if I didn't help him, he'd take up something really interesting like reading a roll of wallpaper. I ran off the reply by feeding some cut-down wallpaper into my printer!

Occasionally I get a letter that irritates. Those are the ones that offer tips for cash. Those readers get short — but polite — shrift! We don't pay for tips — and we don't charge for them. The concept of the Helpline is a free exchange of information between Adventurers — given a bit of momentum by Paul, Simon and myself.

TYING IT ALL UP

After our replies have been sent, I re-read the letters for previously un-recorded tips and add them to the database. Finally, I load Scripsit and go through the letters once again, picking out the problems that proved unanswerable and the tips sent in response to previous pleas in the magazine, for printing upside down in my regular column.

But the story doesn't end there. When it's time to write the next Adventure Helpline page, I edit the Scripsit text and remould my rough notes into a readable article, to appear about two months later.

And then the cycle starts all over again!

THE ALCHEMIST OF AROANIA

"What's your program of the day then, Dan?" enquired Lizzie Thomas of her diligent brother. Dan, huddled over his keyboard, muttered something in reply which Liz did not catch.

She looked up from her own computer and from the exciting new historical adventure she was in the process of composing and tried again: "Hey! Genius! What are you writing?" "Shut up woman", was the rejoinder from the young biochem-genetic engineer, intent on his next line of code. "Now look what you've made me do!" he exclaimed, "I've gone and mis-spelt an important word and the program's hung!"

His sister glanced at her own VDU screen and said "Funny, so has mine." "What did you just type in?" Dan mentioned the word and they looked at each other in amazement. "That just has to be one of the greatest coincidences ever" said Dan. "But look what's happening to the screen" shouted Lizzie, pointing frantically to her VDU. Dan, equally stunned, was watching the screen imagery change from his familiar alpha-numerics to a fantasy landscape populated by mystic beings but with curiously mortal expressions . . .

The Thomas Twins' discovery was a window into a fabled land created by the incredible chance of typing that magic word at precisely the same instant. They looked and heard a small rubber suited figure announce:

"Now listen with care to WET-
SUITED WILLY,
Ignoring my message would be
really silly.
It's happened my friends; The
Word has been typed.
We're under inspection, their
screens have been wiped.
A careful review of the neatly drawn
pics
Will reveal two young GBs with
metals to mix
The name of this earliest alloy of
fame
Is the key which unlocks this in-
credible game!
'Twill give you, Dear Reader, the
start you deserve,
Tis the Word which the Twins
found to let them observe
The Alchemist's caverns and all
that's there shown,
Success to your Quest and your
search for the stone"

Dan and Liz immediately shouted "But we know the word!" but their cry was in vain for no sound can penetrate the scene . . .

But you, gentle quiz-solving person, must write the Word in the place appointed or find your effort's doomed! Wait, though! Let us see what new wonders appear on the Twins' screens: A child-like figure, the MANIC MINOR, appears from deep within the cave and, pressing buttons on a huge console, intones:

"The object of your true desire
Requires the keenest mind
To scan the scene for knowledge
won
From matrices designed
To run with ease a program bold,
A Symbol so defined
In days of yore well known to those
Who sought mutation's kind
Reward for diligence in crushing
rock
To leave pure Gold refined!
The Year-Book bids you write the
name
In modern terms assigned . . ."

The Thomas Twins could see at once the method needed and set to their keyboards with a will but Liz, being more literary than mathematically inclined, soon gave up the fruitless task and turned to watch Dan's acute perception produce a beautiful symbol on his screen . . . A little feverish research soon gave them the answer!

As they watched fascinated, the fur-capped figure of The Alchemist himself glowed bright in front of his furnace and their screens flickered with letters and disjointed words such as Lucifer and Tipperary. Andy Adept (for it is he — you can tell by the fur hat) turned to them and recited:

"Give me the name of the man and
the date
When first he was truly aware
Of the stuff he had made in his fur-
nace so late
(You must treat it with infinite
care!)

From their "window", the Twins saw only one clue so perhaps our clever readers will get there first . . . After all, the Thomas's are not exactly in the running for prizes! But again it was Dan who got this one, Liz being thwarted once more. To atone however, she was far ahead when Commodore Atari of The Imperial Japanese Navy had finished *his* little ditty . . .

"Some Peopas computas in homes
Some peopas go down big harrs
Pray games on machines velly fast
on the scleens
Prace is named flom whea Sticks
Liver farrs!"

But instantly from the depths of the cave, a Puffer called Gine retorted: (Ed's note: Puffers are low grade alchemist's assistants mainly recruited from the ranks of failed BSc's in chemistry and discarded software writers — this one goes around muttering "I'm a gine, I'm a gine", so is known, of course, as The Gine . . .)

"That poem won't work, you slitty-
eyed Berk!
We *must* have the latties and longs
To pinpoint the peak where the
Alchemist's reek
Is produced from cowpatties and
pongs . . .!

Naturally, Liz, having grown up with classical geography, was home and dry on this one. Dan's interest diverted to a sum he had spotted on an oilcan (could this be the perfect base from which to construct the final clue?) But some strange jazzy music brought their attention to MERLINN DRUMM chanting:

"I sign a quarter area!"

Time had flown and, although the Twins put their minds together as to how this could help with the problem, Dan began to fret for his tea (highlight of his young life!). Finally, it was Liz who had sown the first seed of a solution. Things in the music suggested a strong Latin influence and she took a moment to reflect that the power alone could signify Elemental forces . . .

STANDARD BASIC

```
10  GOSUB 200
15  INPUT A$
20  FOR B = 1 TO 3
25      LET B$ = A$ + A$
30      LET C = C + 1
35      LET B$ =  MID$ (A$,B,1)
40      LET C$ = C$ + A$
45  NEXT B
50  LET D =  INT ( RND (1) * 999) + 1
55  PRINT D
60  LET C$ = ""
65  IF C >  = 20 THEN
        LET C = 0
70  GOTO 15
75  GOSUB 200
80  LET X = X + 1
85  IF X = 100 THEN
        PRINT "C&VG"
90  PRINT :
    IF X = 200 THEN
        LET X = 0
95  GOTO 80
100 GOSUB 200
105 INPUT A$
110 IF  LEN (A$) <  > 3 THEN
        PRINT "***":
    GOTO 105
115 FOR B = 1 TO 3
120     LET B$ =  MID$ (A$,B,1)
125     LET C =  ASC (B$) - 17 - A
130     LET B$ =  CHR$ (C)
135     LET C$ = C$ + B$
140 NEXT B
145 LET D =  VAL (C$)
150 PRINT D
155 LET C$ = ""
160 LET A = A + 1
165 IF A > 16 THEN
        LET A = 0
170 GOTO 105
200 LET A = 0
205 LET C = 0
210 LET X = 0
215 LET C$ = ""
220 PRINT "ENTER DATA:"
225 PRINT
230 PRINT
235 RETURN
999 END
```

SPECTRUM BASIC

```
10  GOSUB 200
15  INPUT A$
20  FOR B = 1 TO 3
25      LET B$ = A$ + A$
30      LET C = C + 1
35      LET B$ = A$(B TO B)
40      LET C$ = C$ + A$
45  NEXT B
50  LET D =  INT ( RND  * 999) + 1
55  PRINT D
60  LET C$ = ""
65  IF C >  = 20 THEN
        LET C = 0
70  GOTO 15
75  GOSUB 200
80  LET X = X + 1
85  IF X = 100 THEN
        PRINT "C&VG"
90  PRINT :
    IF X = 200 THEN
        LET X = 0
95  GOTO 75
100 GOSUB 200
105 INPUT A$
110 IF  LEN (A$) <  > 3 THEN
        PRINT "***":
        GOTO 105
115 FOR B = 1 TO 3
120     LET B$ = A$(B TO B)
125     LET C = CODE(B$) - 17 - A
130     LET B$ =  CHR$ (C)
135     LET C$ = C$ + B$
140 NEXT B
145 LET D =  VAL (C$)
150 PRINT D
155 LET C$ = ""
160 LET A = A + 1
165 IF A > 16 THEN
        LET A = 0
170 GOTO 105
200 LET A = 0
205 LET C = 0
210 LET X = 0
215 LET C$ = ""
220 PRINT "ENTER DATA:"
225 PRINT
230 PRINT
235 RETURN
999 STOP
```

Merlinn started to beat a bizarre rhythm on a sharpening instrument called a Clone Hone and, in his richest baritone, accompanied it with:

"Take these letters now in English,
Re-arrange in ancient tongue
To make an elemental square,
A quarter to each one.

Three parts play well with alloy bright
(Of Copper, Zinc and Lead!)
The last one must you write with care
In language long since dead.

For it will guide your searching eye
To regions where exist
Those ciphers, keys to final quest;
Computers now enlist!

Count with Title starting true,
The problem will unfold,
Take no note of dot nor dash,
The Final Story's told . . .

Take care! Read well! Those lines will tell
Just what you have to do.
We've shown you all which way to go,
The rest is up to you . . ."

The screens faded and the Twins looked at each other for a moment — all thoughts of tea forgotten now — and set to work on their keyboards with a feverish intensity. For the prize is great and they have YOU to beat . . . And *C&VG* do not stint their rewards for success in their Quests . . .

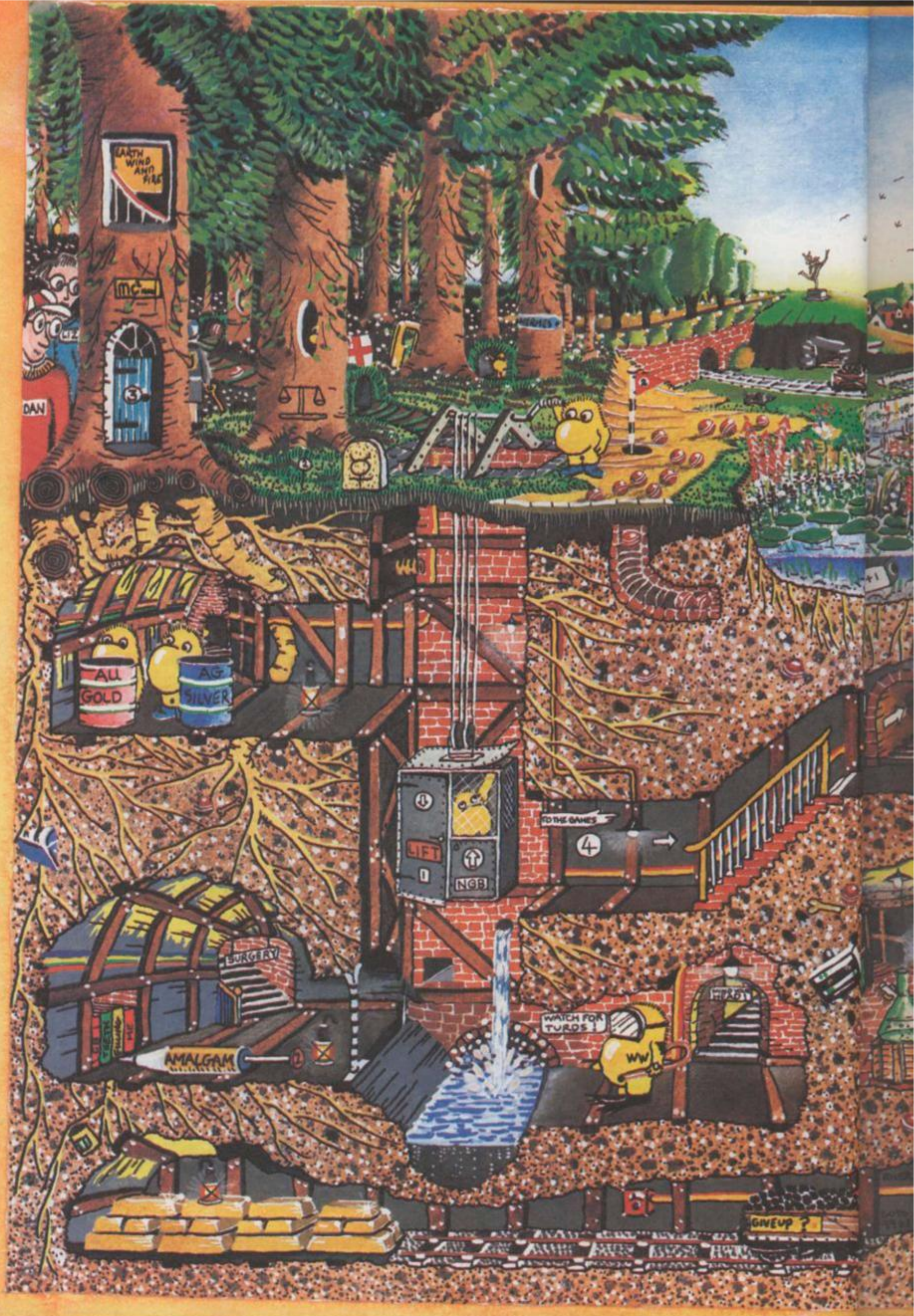
```
AAB EBJ HCF HDJ

   FHL ILI GGH LHJ LKM

KRM STT MOS NSV QOO QUW XQQ

   RTX IBA FGE LCC

DHM FII ILL HNL LQN LJQ

   MNL LSP OPP SRM


ORU RUV SQQ TWV ADC BDI FGC

   EMD FFI IGJ

GGH QJL OLM NKQ LRT QSS

   NTV VRS POT TPY ZSQ

JIE JFI GDI DDE GMF FFI OMN

   HHI PRR JJM NLL TTM QPT


OOQ WTX PSR TVQ CJB

   JKH KGL HED FFI MNH

GIN KMJ IQK MJJ OPQ OMM

   PNR NNO WVV TSV YXU

BBD EDC FGE HLK HIF GNF KKP

   MLP JOQ KKN SNS

LLM QMR RRP ROQ SYP

      RTU EBA ECD FDD DDJ EHN
```

UNIVERSAL GRAPHICS DEMONSTRATION

```
  2 REM APPLE LINES
  4 REM SPECTRUM LINES
  6 REM BEEB & ELECTRON LINES
 10 REM COMMON LINES
 12 SA = 4
 14 LET SA = 2
 16 SA = 10
 32 HGR2 :HCOLOR=3
 34 PAPER 0:BORDER 0:INK 7
 36 MODE 4
102 R=50:S=0:E=6.3:CX=140:CY=95
104 LET R=40:LET S=0:LET E=6.3:LET CX=128:LET CY =88
106 R = 275:S = 0:E = 6.3:CX = 600:CY = 500
110 GOSUB 1000
112 R=85:S=-.78:E=.79:CX=140:CY=-42
114 LET R=75:LET S=2.35:LET E=3.92:LET CX=128:LET CY=205
116 R = 425:S = 2.35:E = 3.92:CX = 600:CY = 1200
120 GOSUB 1000
130 FOR B = 0 TO SA
132 HPLOT 138+B,149 TO 138+B,191
134 PLOT 126 +B,5:DRAW 0,40
136 MOVE 310+B,875: DRAW 310+B,975
142 HPLOT 77 +B,0 TO 77+B,23
144 PLOT 75+B,172:DRAW 0,-24
146 MOVE 895+B,885:DRAW 895+B,975
152 HPLOT 197+B,0 TO 197+B,23
154 PLOT 182+B,172:DRAW 0,-23
156 MOVE 300,150+B:DRAW 900,150+B
162 HPLOT 80,160+B TO 200,160+B
164 PLOT 68,30+B:DRAW 120,0
166 MOVE 585+B,225:DRAW 585+B,25
170 NEXT B
176 GOTO 176
200 GOTO 200
1000 FOR B = 0 TO SA
1002 HPLOT CX + SIN(S)*(R+B),CY+COS(S)*(R+B)
1004 LET XO = CX+SIN(S)*(R+B):LET YO =CY+COS(S)*(R+B):
     PLOT XO,YO
1006 MOVE CX+SIN(S)*(R+B),CY+COS(S)*(R+B)
1010 FOR A = S TO E STEP .1
1012 HPLOT TO CX+SIN(A)*(R+B),CY+COS(A)*(R+B)
1014 LET XN=CX+SIN(A)*(R+B):LET YN=CY+COS(A)*(R+B):DRAW
     XN-XO,YN-YO:LET XO=XN: LET YO=YN
1016 DRAW CX+SIN(A)*(R+B),CY+COS(A)*(R+B)
1020 NEXT A : NEXT B
1100 RETURN
```

COMMODORE 64

```
 10 REM COMMODORE & OTHER COMPUTERS
 20 FOR A=1TO30
 30 PRINT
 40 NEXT A
 50 A$="-O----------O"
 60 B$="-----O"
 70 C$="-OOOOOOOOOOOOO"
 80 D$="---OO------OO"
 90 E$="--------O"
100 F$="---O--------O"
110 G$="--O----------O"
120 H$="----O------O"
130 PRINT A$: PRINT A$: PRINT A$: PRINT A$: PRINT G$:
    PRINT F$: PRINT H$: PRINT B$: PRINT D$: PRINT G$:
    PRINT G$
140 FOR A=1TO5: PRINT A$: NEXT A
150 PRINT G$: PRINT G$: PRINT D$: PRINT B$: PRINT E$:
    PRINT C$: PRINT E$: PRINT E$: PRINT E$
160 GOTO 160
200 END
300 REM DASHES REPRESENT SPACES   DO NOT TYPE MINUS
    SIGNS!
```


EARTH WIND AND FIRE
MC
3
DAN
ALL GOLD
AG SILVER
LIFT
NGB
TO THE GAMES
4
BURGERY
AMALGAM
WATCH FOR TUROS !
WW
GIVE UP ?

ARDANIUS
ARCADEia
IM A GINE
FOR SALE
ARDANIUS
NGB
WAY OUT
AA
TO THE MINE
MM
P 15
WAY OUT
MURRAY

THE GREAT ESCAPE

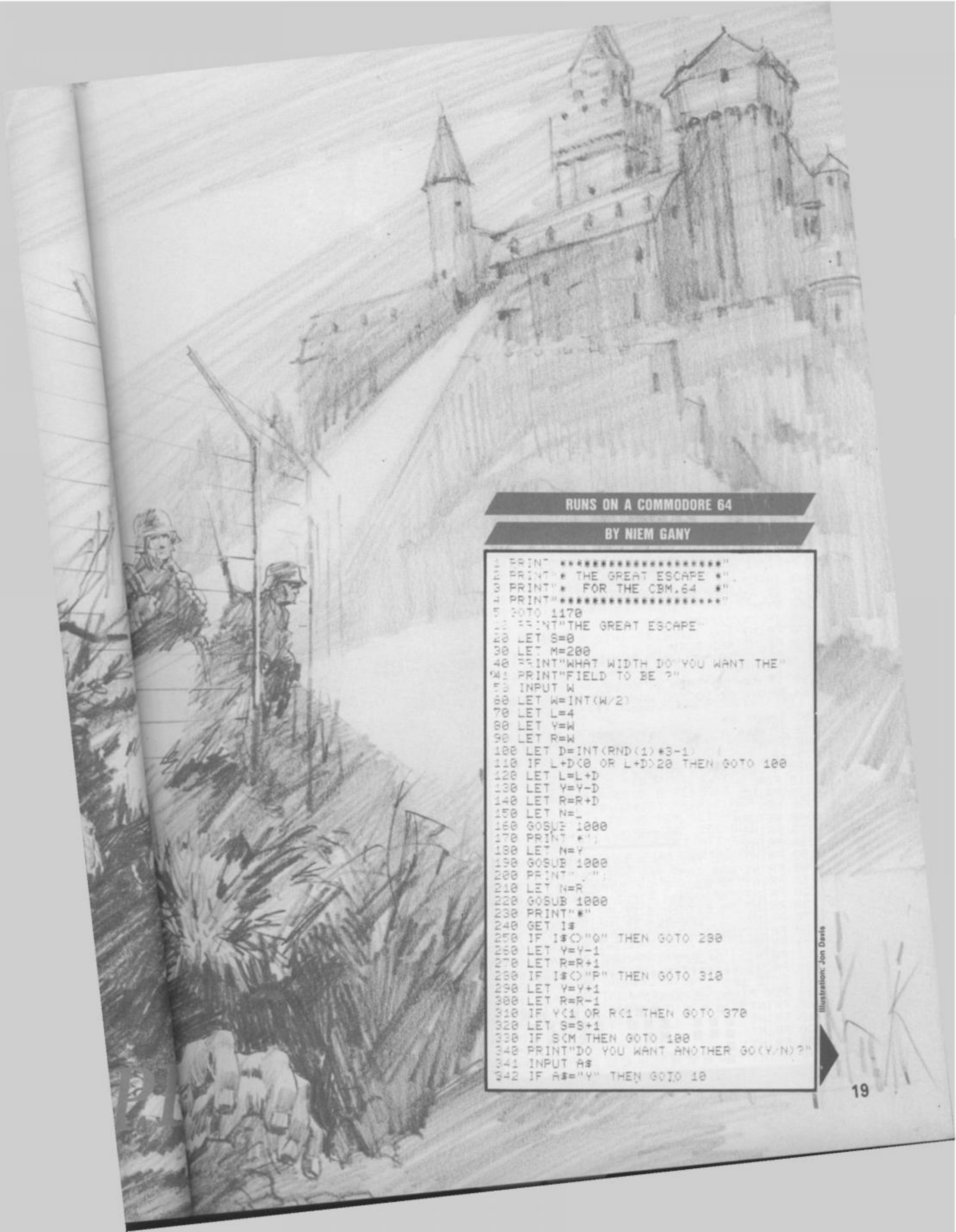
Computer games based on famous films books have been all the rage recently. *Tron*, *Star Wars* and *War Games* have all undergone the transition from film to micro-chip.

So, *C&VG* has decided to get in on the act and publish a game based on the theme of a film.

We racked our brains to think of a film that had all the tension and high speed action that was needed to produce a good video game and we decided that *The Great Escape* — one of Hollywood's greatest movies — fitted the bill perfectly.

For any of you who have been unfortunate enough to miss the film, it is about a group of British and American soldiers who attempt a mass breakout from a German prisoner of war camp during the Second World War.

Full instructions are included in the listing

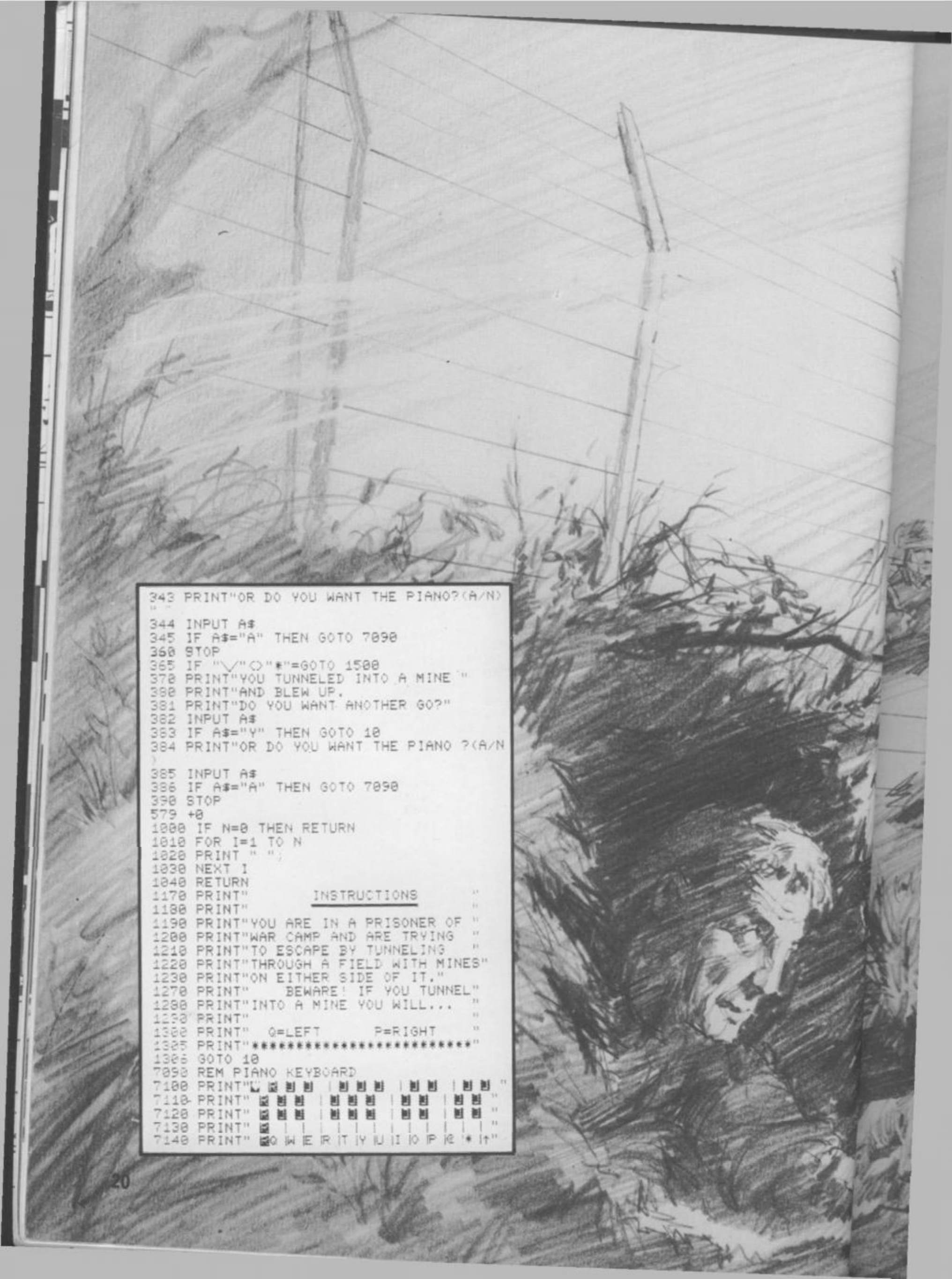


RUNS ON A COMMODORE 64

BY NIEM GANY

```
1 PRINT "**********************"
2 PRINT"* THE GREAT ESCAPE *"
3 PRINT"*  FOR THE CBM.64  *"
4 PRINT"**********************"
5 GOTO 1170
10 PRINT"THE GREAT ESCAPE"
20 LET S=0
30 LET M=200
40 PRINT"WHAT WIDTH DO YOU WANT THE"
41 PRINT"FIELD TO BE ?"
50 INPUT W
60 LET W=INT(W/2)
70 LET L=4
80 LET Y=W
90 LET R=W
100 LET D=INT(RND(1)*3-1)
110 IF L+D<0 OR L+D>20 THEN GOTO 100
120 LET L=L+D
130 LET Y=Y-D
140 LET R=R+D
150 LET N=L
160 GOSUB 1000
170 PRINT "*";
180 LET N=Y
190 GOSUB 1000
200 PRINT" ";
210 LET N=R
220 GOSUB 1000
230 PRINT"*"
240 GET I$
250 IF I$<>"Q" THEN GOTO 280
260 LET Y=Y-1
270 LET R=R+1
280 IF I$<>"P" THEN GOTO 310
290 LET Y=Y+1
300 LET R=R-1
310 IF Y<1 OR R<1 THEN GOTO 370
320 LET S=S+1
330 IF S<M THEN GOTO 100
340 PRINT"DO YOU WANT ANOTHER GO(Y/N)?"
341 INPUT A$
342 IF A$="Y" THEN GOTO 10
```

Illustration: Jon Davis



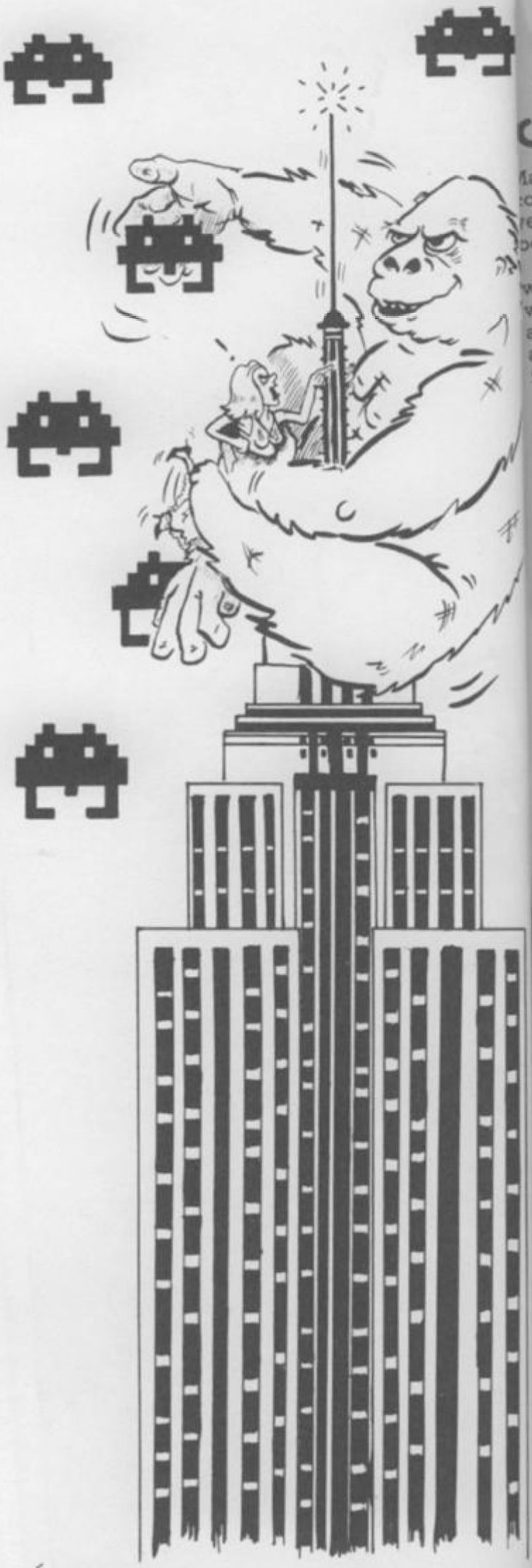
```
343 PRINT"OR DO YOU WANT THE PIANO?(A/N)
" "
344 INPUT A$
345 IF A$="A" THEN GOTO 7090
360 STOP
365 IF "\/"<>"*"=GOTO 1500
370 PRINT"YOU TUNNELED INTO A MINE "
380 PRINT"AND BLEW UP.
381 PRINT"DO YOU WANT ANOTHER GO?"
382 INPUT A$
383 IF A$="Y" THEN GOTO 10
384 PRINT"OR DO YOU WANT THE PIANO ?(A/N
)
385 INPUT A$
386 IF A$="A" THEN GOTO 7090
390 STOP
579 +0
1000 IF N=0 THEN RETURN
1010 FOR I=1 TO N
1020 PRINT " ";
1030 NEXT I
1040 RETURN
1170 PRINT"        INSTRUCTIONS        "
1180 PRINT"                            "
1190 PRINT"YOU ARE IN A PRISONER OF "
1200 PRINT"WAR CAMP AND ARE TRYING  "
1210 PRINT"TO ESCAPE BY TUNNELING   "
1220 PRINT"THROUGH A FIELD WITH MINES"
1230 PRINT"ON EITHER SIDE OF IT."
1270 PRINT"    BEWARE! IF YOU TUNNEL"
1280 PRINT"INTO A MINE YOU WILL...  "
1290 PRINT"                         "
1300 PRINT"  Q=LEFT       P=RIGHT   "
1305 PRINT"**************************"
1306 GOTO 10
7090 REM PIANO KEYBOARD
7100 PRINT"▙ ▙ ▙ ▙ | ▙ ▙ ▙ | ▙ ▙ | ▙ ▙ "
7110 PRINT" ▙ ▙ ▙ | ▙ ▙ ▙ | ▙ ▙ | ▙ ▙ "
7120 PRINT" ▙ ▙ ▙ | ▙ ▙ ▙ | ▙ ▙ | ▙ ▙ "
7130 PRINT" ▙ | | | | | | | | | | | | "
7140 PRINT" ▙Q |W |E |R |T |Y |U |I |O |P |@ |* |↑"
```

```
7150 PRINT"■'SPACE' FOR SOLO OR POLYPHON
IC"
7160 PRINT"■'F1,F3,F5,F7' OCTAVE SELECTI
ON"
7170 PRINT"■'F2,F4,F6,F8' WAVEFORM■"
7180 PRINT"HANG ON, SETTING UP FREQUENCY
 TABLE..."
7190 S=13*4096+1024:DIMF(26):DIMK(255)
7200 FORI=0TO28:POKES+I,0:NEXT
7210 F1=7040:FORI=1TO26:F(27-I)=F1*5.8+3
0:F1=F1/2↑(1/12):NEXT
7220 K$="Q2W3E4R5T6Y7U8I9O0P@-*£↑"
7230 FORI=1TOLEN(K$):K(ASC(MID$(K$,I)))=
I:NEXT
7240 PRINT"□
                "
7250 AT=0:DE=0:SU=15:RE=9:SV=SU*16+RE:AV
=AT*16+DE:WV=16:W=0:M=1:OC=4:HB=256:Z=0
7260 FORI=0TO2:POKES+5+I*7,AT*16+DE:POKE
S+6+I*7,SU*16+RE
7270 POKES+2+I*7,4000AND255:POKES+3+I*7,
4000/256:NEXT
7300 GETA$:IFA$=""THEN7300
7310 FR=F(K(ASC(A$)))/M:T=V*7:CR=S+T+4:I
FFR=ZTHEN7500
7320 POKES+6+T,Z:REM FINISH DEC/SUS
7325 POKES+5+T,Z:REM FINISH ATT/REL
7330 POKECR,8:POKECR,0:REM FIX OFF
7340 POKES+T,FR-HB*INT(FR/HB):REM SET LO
7350 POKES+1+T,FR/HB:REM SET HI
7360 POKES+6+T,SV:REM SET DEC/SUS
7365 POKES+5+T,AV:REM SET ATT/REL
7370 POKECR,WV+1:FORI=1TO50*AT:NEXT
7375 POKECR,WV:REM PULSE
7380 IFP=1THENV=V+1:IFV=3THENV=0
7400 GOTO7300
7500 IFA$="■"THENM=1:OC=4:GOTO7300
7510 IFA$="■"THENM=2:OC=3:GOTO7300
7520 IFA$="■"THENM=4:OC=2:GOTO7300
7530 IFA$="■"THENM=8:OC=1:GOTO7300
7540 IFA$="■"THENW=0:WV=16:GOTO7300
7550 IFA$="■"THENW=1:WV=32:GOTO7300
7560 IFA$="■"THENW=2:WV=64:GOTO7300
7570 IFA$="■"THENW=3:WV=128:GOTO7300
7580 IFA$=" "THENP=1-P:GOTO7300
7590 IFA$="□"THEN7200
7600 GOTO7300
7800 PRINT"HIT A KEY"
7810 GETA$:IFA$=""THEN7810:WAIT FOR A KE
Y
7820 PRINTA$:RETURN
```

'...I think it's called NUMBER-CRUNCHING....'

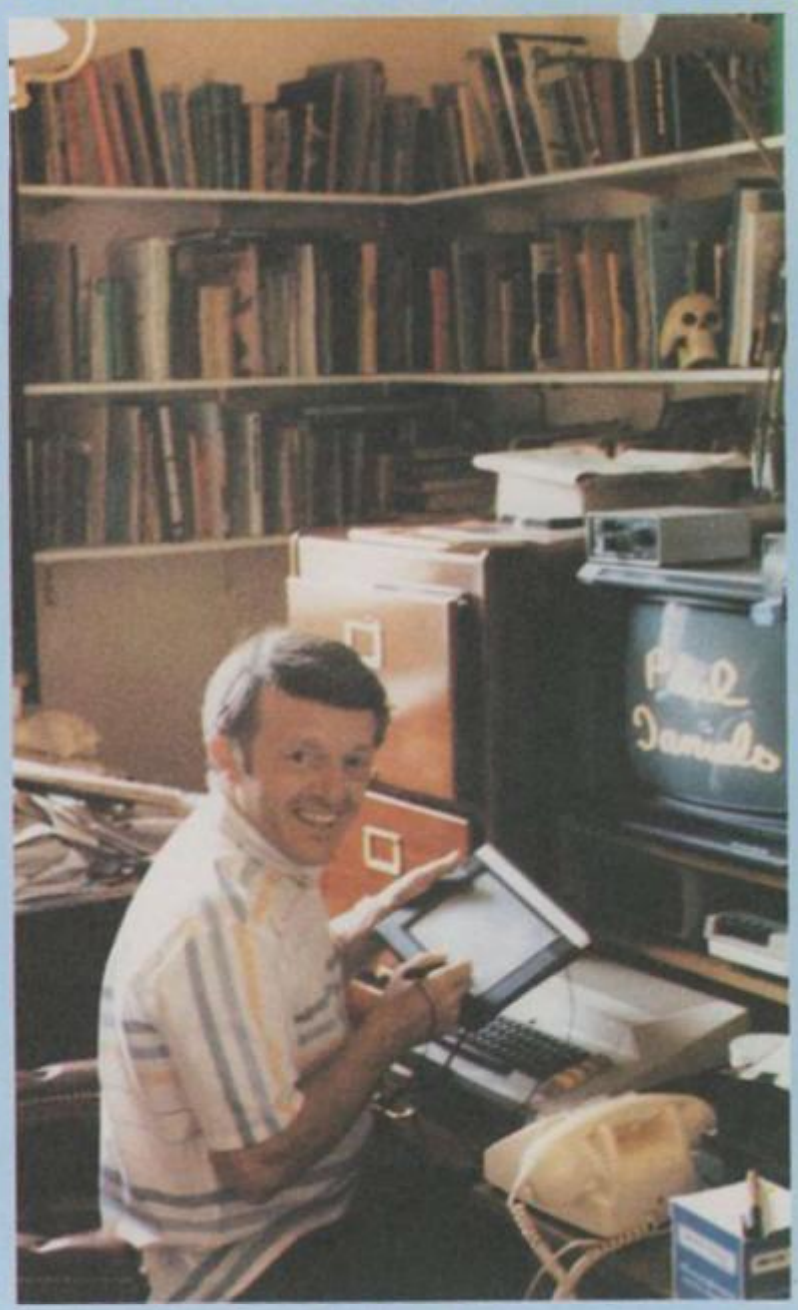
'When I said I wanted a TURTLE, I didn't quite have this in mind.....'

'-I'd like to complain about the User-Friendly computer that you sold me...'



'...Since you discovered Spa Invaders you've lost all interest in our RELATIONSHIP..

STAR TURN



Paul Daniels

We all know that computers can perform magic — but what happens when a real magician gets his hands on one? Mike Gerrard went to see ace magic man and TV star, Paul Daniels, who not only enjoys playing computer games but also had a hand in writing a computer Adventure.

Magician Paul Daniels isn't a new recruit to the computer craze, as he's owned his Atari 800 for four years *now* and first got interested in micros a year before that.

"It seemed that every other person I got up on stage was a computer programmer and I'd no idea what that was at all. I think it's part of my job to be able to talk to as many of the audience as possible about their jobs and also I wanted to find out about computers out of interest.

"For a year I bought every magazine on the market, read everything in them and at the end I was none the wiser. I don't know about now, but then they were written by people who knew something for other people who knew something, not for the likes of me who knew nothing. You don't try to teach people French by showing them a book written entirely in French, do you? But that's what they seemed to be doing.

"Anyway, at the end of that year I simply walked into a shop and said, "Look, there's £1,000, I want a computer and I know nothing about them." The assistant said, "Have a ZX-80," and I said, 'No thanks, I know that much. I do want one with a keyboard."

"I really believe I got very lucky because that guy sold me an Atari 800 and that machine's been switched on virtually non-stop for about four years and it's fine. And I mean non-stop — I literally leave it on the whole time."

For his £1,000 Paul also acquired a disc drive, a cassette player and a few programs. In the meantime he has added an Epson MX-80 printer, a buffer that allows him to use the Atari and the printer simultaneously and a couple of modems.

"I love those . . . when you start talking to other people with micros, that's when the fun starts. One of the modems restricts me more or less to England, but with the other I've been plugged into the States and everywhere. I also do a lot of letter-writing on the Atari."

"I got into programming by typing in listings from magazines and I learned more from doing that a line at a time and discovering what each one did than from any book . . . certainly not the manual which I couldn't understand. I'm delighted with the Atari and I'd only get another micro now if I could run the house with it when I'm away . . . you know, switch the lights on and off and draw the curtains and things.

Paul loves games and had a hand in writing *Paul Daniels' Magic Adventure* which was published a few months ago.

"It's a traditional type Adventure but I also wanted it to have games sections and a few tricks in it. Someone else did the programming, but I gave him the storyline, the jokes and devised the games that are in it."

"At one point you go to a magic show, for which you need a real pack of cards. You cut the deck and then, after answering a few questions, the computer tells you what your card is. Very clever! I'm also involved in another piece of software that should be out soon which consists entirely of magic tricks on the computer written by someone in Cambridge who's a magician, a programmer and a mathematician."

We asked Paul about his favourite games.

"I tell you what I've been using more than anything lately and that's the *Atari Touch Tablet* and *Atari Artist*. It is absolutely brilliant and I sit here for hours just playing around with it . . . the shimmering rainbow effect you can get is beautiful."

"My all-time favourite joystick game, though, is one called *Sea Dragon* by Russ Wetmore which has been out a couple of years. You go through a series of underground passages, shooting mines and dodging things and so on. The sound and graphics are excellent and really bring the best out of the Atari. I have got through it to the end but only after hours and hours at it. I've had more fun with this than with anything. In fact, I wrenched two joysticks apart playing it which took me to designing and building my own. They're quite easy to make, really."

Paul says that his specially designed joysticks may find their way onto the market, but the details for that haven't been finalised yet. He also mentioned a software protection device that he stumbled across while designing his Adventure. "But I'm not telling you what it is!"

We should have known: magicians never reveal their secrets.

STRATEGY GAMES: Beg

War games have been around for ages — almost as long as conflict itself — but only recently have they started to become really playable on computers. Strategy and war games are enjoying a boom at the moment, thanks to Mike Singleton's *Lords of Midnight* epic game, from Beyond Software, and companies like Lothlorien who have a range of authentic war game programs. Here, Mike Turner takes a look at the history of strategy games and the shape of things to come.

In the mid-sixties mainframe computers were huge ponderous items that took up half a room and offered approximately 6k of user memory. Practically all programming was done in binary code and time on the system was amazingly expensive. In view of all this, it seems unlikely that anyone should go to the time and trouble of trying to program games on these machines!

There was a sound reason however. A lot of software was written specially for a specific customer, often after the computer had been installed and, in order to get the operators acquainted with the machine, it was the custom of software houses to put some games on for people to play with.

The most complicated one of these was called *Kingdoms* or sometimes *Hammurabi*, after an ancient king — and this game was the true forerunner of most of today's strategy games.

Now, the principle of the game was that you had to rule a small country, dependent on wheat crops for its survival. Each game turn represented a year, and each year the computer would tell you how much land you had, how much grain and how many subjects you ruled. Then you had to enter how much land you were going to buy or sell, how much grain you would plant, store and use to feed your people.

The computer would do some calculating, add in a few random numbers and then print up your status for the next year.

If you hadn't allowed enough corn for planting, you weren't like to have a good crop and if you hadn't given sufficient out for food, some of your population would die of starvation.

At random the program would throw in such horrors as harvests spoiled by weather, rats eating some of your grain store and plague amongst your subjects.

Just as the first Adventure programs had been inspired by the game of *Dungeons and Dragons*, so the first business simulations were inspired by board games such as *Monopoly*. Someone must have looked at the early *Kingdom* programs and realised that exactly the same principle could be used to simulate almost any kind of control situation.

Monopoly itself soon became available under a number of titles from software houses, drawing fire from the board game manufacturers frantically trying to protect their copyright.

In most of these computerised versions it was possible to play against the computer or an opponent, with the computer keeping track of the positions and finances.

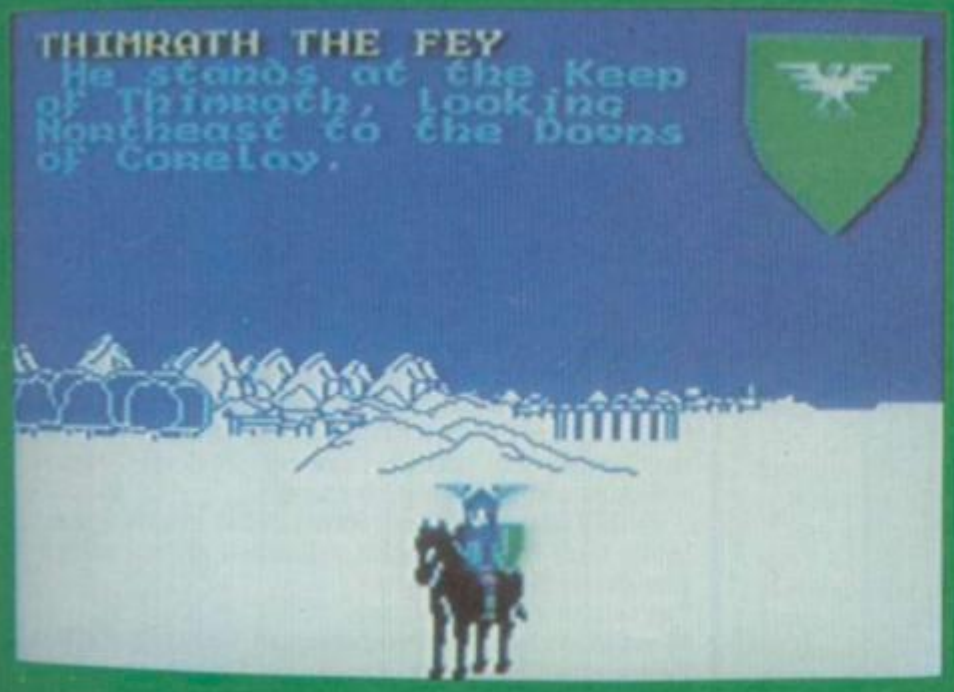
The *Kingdom* principle is now being applied to all kinds of situations from games that put you in the hot seat at air traffic control at a major international airport or give you charge of the economy or even put you at the head of a Chicago gang in the Roaring Twenties!

In early times all computer readout was either in the form of punch tape or as text on a printer but, at a trade fair in 1968, computer giant Honeywell displayed a computer playing noughts and crosses with a feature that was to revolutionise computer use, and game playing in particular.

It featured a television type screen. Of course, space invaders was still a long way away, as indeed was the idea of being able to use any form of computer in an amusement arcade!

But it did make strategy war games a possibility, with the screen keeping track of the armies, ships, spaceships or whatever. The first example of this to emerge was a space tactical game most commonly called *Star Trek* after the television series. The object was to command the U.S.S. *Enterprise*, explore the galaxy and destroy all the alien invading spaceships

...ings To The Present Day



before a certain date.

The computer would randomly set up a galaxy consisting of a number of sectors, each with the possibility of enemy ships, stars and refuelling stations.

The early machines had no graphics as we know them now. The program would use letters, question marks and stars to represent the various objects in the game, but later on, block graphics made pictures possible.

The Star Trek program proved so popular that it is still available for most machines in one form or another. There have been no less than three versions available for the Spectrum from R and R Software, Silversoft and Star Dreams, all of which are faithful to the original concept although a little more sophisticated!

It was quite early in the development of home computers that game programmers saw the potential of proper war games, using the computer as an opponent.

This was a little more complicated than either *Star Trek* or *Hammurabi*, because the computer needed to "think" its way to a particular objective.

The type of programming logic was already in use as chess programs had been around for a long time, and of course the super-powers have been playing serious simulation games since they first had the necessary computer technology. This has been recently highlighted in the film *War Games*, in which a micro user manages to get his machine linked by phone to the U.S. nuclear simulation and begins to play at what he thinks is a game called Thermo-nuclear War! He does not realise that the government has given control of the real defences to his games computer.

It is true that there really is a computer in the States that spends all its time playing at nuclear war, and it is a sobering thought that in most of its scenarios, whether a winner emerges or not, Great Britain gets completely destroyed.

Probably the strategy game that has progressed most from the early programs is Beyond Software's new fantasy war game *Lords Of Midnight*. By utilising a new method of displaying scenery that the designer, Mike Singleton calls "landscaping", it is possible to look in any direction across the Land of Midnight and see landmarks, buildings and armies in perspective.

This is made more interesting by the fact that, as you recruit army leaders, it is possible to look through their eyes, injecting more atmosphere into the game than the more conventional "markers on a map" approach.

The game has a fantasy setting, cross between Tolkein's *The Lord of the Rings* and *The Chronicles of Thomas Covenant* by Steven Donaldson, and it may not appeal to serious wargamers, but the programming represents a milestone in strategy gaming, and it is to be hoped that this method may be used for other kinds of settings in the future.

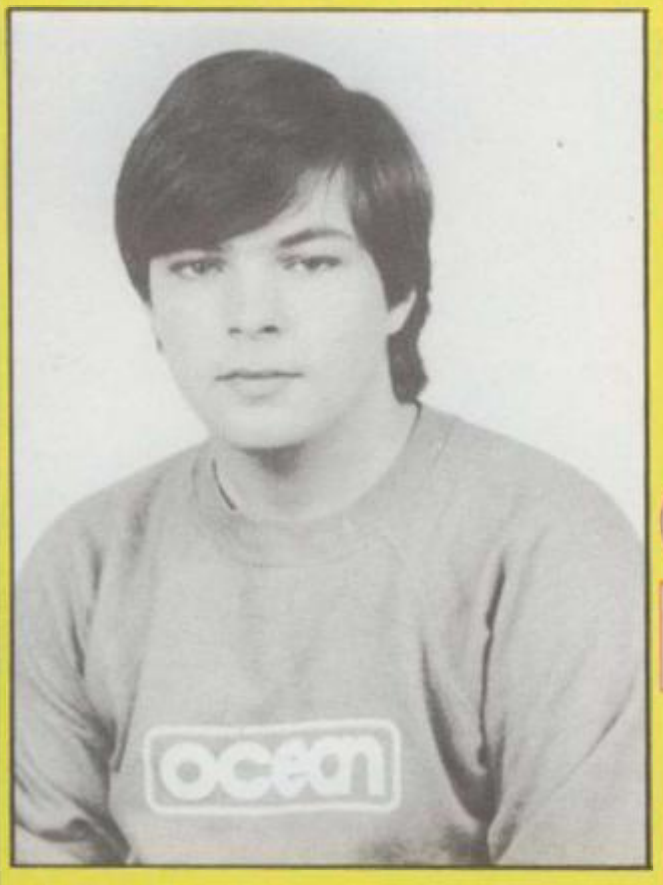
Certainly strategy programs have come a long way from their simple beginnings.

Don't forget to read Mike Singleton's *Fifth Column* every other month in *Computer & Video Games*. It's THE column for war-gamers and strategy games fans.

Mike will be bringing you all the up-to-date news and reviews about strategy and war games — on computer and play-by-mail too! Mike is the man behind *Lords of Midnight*, *Treachery* and — the one that started it all — *C&VG's* gone but not forgotten *Seventh Empire* play-by-mail game.

So don't forget to look out for *C&VG's Fifth Column* — before it finds you!

GAMES DESIGNER



NAME: Christian Urqhart
GAMES: Cavelon, Hunchback, Eskimo Eddie, Transversion, Decathlon.
BORN: Brighton, 1967.

Most people's first encounter with a home computer is a pretty humble experience — a BBC model B, or ZX Spectrum in the school computer room. Not so for Christian Urquhart, Ocean's top programmer, who went to school in Abu Dhabi. Things are slightly larger there. "It was on an IBM mainframe which we used from terminals," he recalls. "I knew then that I wanted to be a programmer, though I didn't imagine I would be a full time games writer."

Christian is presented with projects by Ocean and does not have to think up ideas for games. "*Cavelon* is my favourite game which is licensed from the arcade game by Jet Soft. *Hunchback* is also a licensed game".

At 17, Christian is Ocean's youngest programmer and already has a string of best selling games under his belt. This fact has not escaped his employers at the Manchester-based firm — when *C&VG* called to arrange this interview a spokesman said: "Oh no, he's going to get so big headed"!

Favourite Food: Fish.
Favourite Drink: Lager.
Most Watched TV Programme: "I don't watch much, but I do like a good film".
Favourite Computer Program: *Cavelon, Sabre Wulf, Dragon's Lair*, the arcade game.
Countries Visited: Nigeria, Abu Dhabi
Favourite Pop Groups: Nik Kershaw, Frankie Goes to Hollywood, Status Quo.
Ambitions: To own my own software company.
Worst game I've ever played: *Krazy Kong* by C Tech.
The one thing about computing that most makes me want to throw up: "A spike through the mains. It can cause you to lose everything you've done over the last few hours".

GAMES DESIGNER

NAME: Malcolm Evans
GAMES: Trashman, Knot in 3D, 3D Tunnel, 3D Monster Maze.
BORN: Romford, Essex, 1954.

Malcolm Evans is a self confessed workaholic. "My hobby is computing. When I want to relax, I like to sit down at the computer".

This situation is not helped by the fact that New Generation's offices are now situated at the bottom of the garden.

Malcolm's first contact with computers was in his previous job when he worked on computer control systems for jet engines.

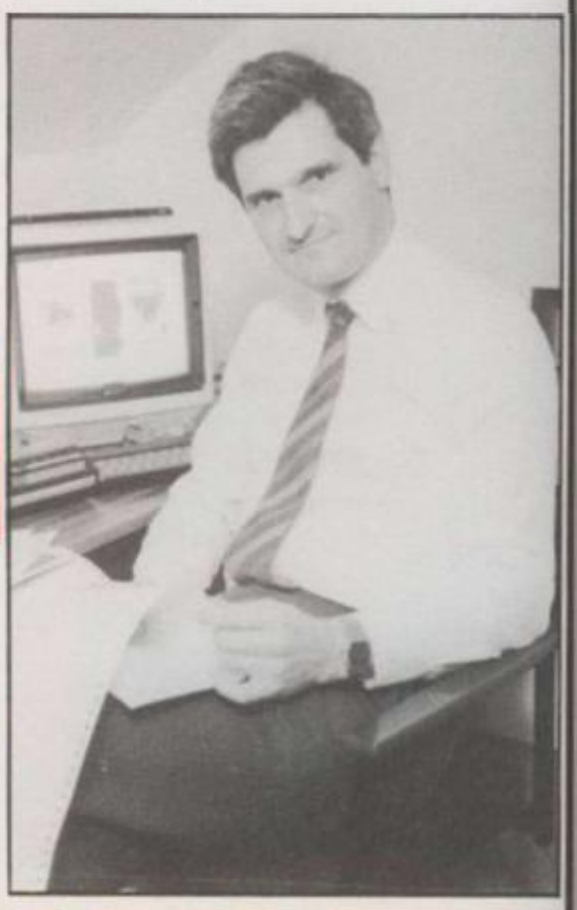
Like many programmers now working full time on writing games, Malcolm started off writing games in his spare time as a hobby.

"My first games were for the ZX81 and were published by a company called J.K. Greye."

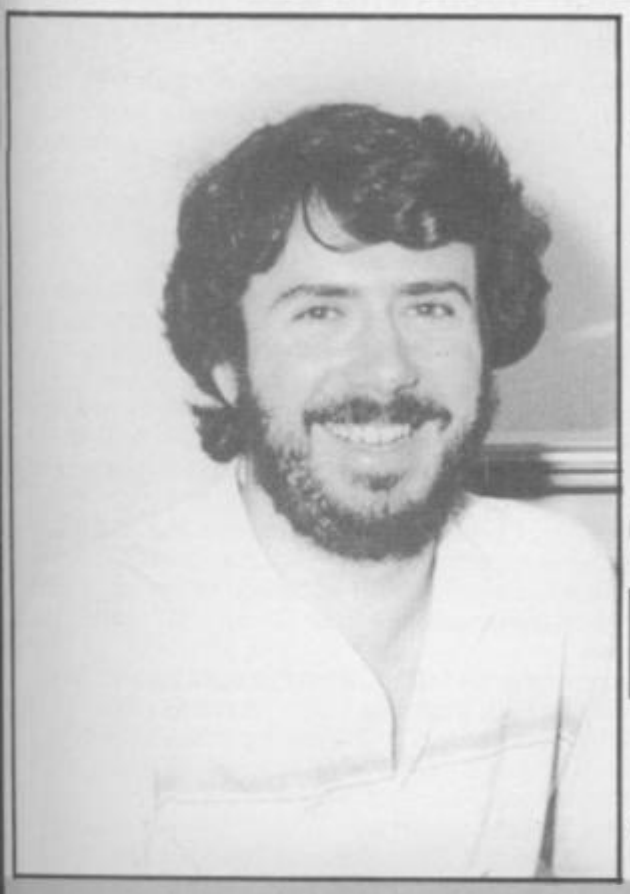
New Generation has since bought the rights to these games and now publish them. Malcolm's twin brother, Rod, also works for the company, handling the business side, leaving Malcolm free to concentrate on games writing.

With *Trashman I* and *II* still in the charts, the future looks very bright for the dustbin software company.

Favourite Food: Curry.
Favourite Drink: Lager.
Most Watched TV Programme: *Tomorrow's World.*
Favourite Computer Program: *Trashman.*
Countries Visited: Scandinavia, the Canaries.
Ambitions: To continue to run my own company.
Pets: "I've got two children"
Favourite Musician: John Williams.
Worst game I've ever played: *3D Star Wars.* "It sounded good so I bought it. It was dreadful. The company that made it has now gone out of business".
The one thing about computing which most makes me want to throw up: Frustration when my programs won't do what I them to do!



GAMES DESIGNER



NAME: Philip Mitchell
GAMES: The Hobbit, Penetrator, Mugsy, Sherlock Holmes.
BORN: Melbourne, 1961.

Of all our featured deisigners, Philip Mitchell has the strongest track record — four games, four smash hits.

The Hobbit is now the standard Adventure game on four home computers — Spectrum, 64, BBC and Atmos.

Penetrator is still the best Scramble-type game for the Spectrum and *Mugsy* introduced a whole new area of gaming with its mix of arcade, strategy and superb graphics.

With *Sherlock* riding high in the *C&VG* / Daily Mirror charts, this game could well be bigger than even *The Hobbit*.

Philip began his programming career with Melbourne House after taking a Computer Science degree at the local University.

Philip's next project, now that *Sherlock* is on sale, is likely to be *Lord of the Rings* though he exercises typical Melbourne House caution on this subject. "Nothing has been decided yet, though as soon as I am given the word I will start on the program".

Favourite Food: Italian, apricots, oysters.
Favourite Drink: Coffee.
Most Watched TV Programme: "I don't watch TV. I prefer reading Asimov and other science fiction authors".
Favourite Computer Program: Classic Adventure on mainframes, *Manic Miner*.
Countries Visited: England, New Zealand.
Ambitions: To retire rich and be young enough to enjoy the money.
Favourite Pop Groups: Fleetwood Mac, Eagles.
Worst game I've ever played: *Valhalla* and *Psytron*.
The one thing about computing that most makes me want to throw up: "Nobody makes the computer that I really want. It should have at least one megabute,a 68000 chip,and very high resolution graphics."

NAME: Orlando
GAMES: Zalaga, Frak.
BORN: Unknown.

There are a lot of things we don't know about Aardvark Software's Orlando. Like how old he is, where he was born, what he eats for breakfast — all the things that games players are dying to find out.

And why are you deprived of this essential information? "I'm a very private person. I don't want my life to become public property," says Orlando, in his lazy London-Italian accent.

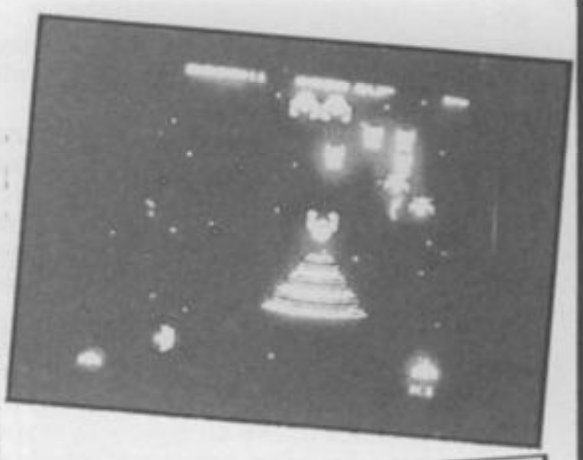
So what do we know about this wizard of the Beeb keyboard. Well — we can tell you that he studying something somewhere in England.

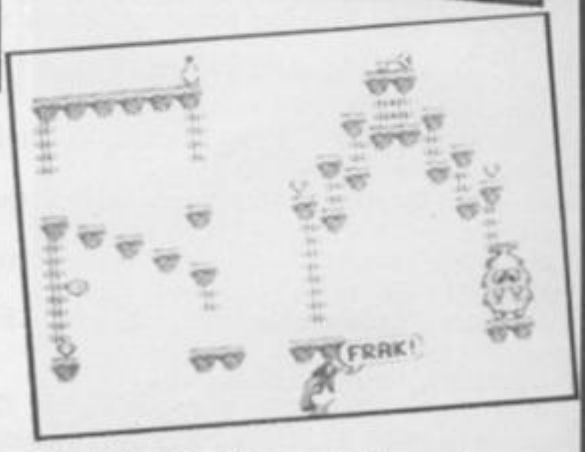
We also know that his motivation for writing Beeb games that are better than Acornsoft's is not only to make money. "I enjoy writing games and playing games. It's as simple as that," he says.

Orlando started out in computer games four years ago when he wrote his first game on the Atom. "It was called *Hedgehog*. I suppose you'd call it a Frogger game now, although it was produced long before Frogger went on sale".

After that, he wrote an *Invaders*-style game "You've got to write an *Invaders* at some stage in your life."

Favourite Food: Pizza Orlando.
Favourite Drink: Malibu and Babycham with a slice of lemon, Guinness.
Most Watched TV Programme: "I don't watch the telly really, although I occasionally plug in a video".
Favourite Computer Program: *Planetoid, Star Raiders, Miner 2049'er.*
Countries Visited: Lots.
Ambitions: To be happy, fulfilled and complete.
Favourite LP of all time: Go by XTC.
Worst game I've ever played: Bega's *Battle* — the arcade game.
The thing about computing that most makes me want to throw up: "Computer illiteracy and stupidity and people talking about artificial intellifence".





GAMES DESIGNER

GAMES DESIGNER

NAME: Tony Crowther
BORN: Sheffield, 1962.
GAMES: Loco, Killer Watt, Son of Blagger, Potty Pidgeon, Monty Mole.

Tony Crowther wrote his first computer game for *Computer & Video Games* only to have it turned down by us two years ago.

"It was a Mastermind game with moving coloured pages. It ran on the Pet and I was absolutely thrilled to bits with it".

Two years later it seems unlikely that any magazine would turn down a Tony Crowther program.

"I borrowed the Pet from a friend. I became hooked and decided to buy a Vic. I really learned to program on the Vic. I wrote about eleven programs on it. One of the games was a *Galaxians* which I was really chuffed with."

Tony now works full time for Gremlin Graphics. "I do most of my work at home, at night — it's easier to work then. As well as writing programs for Gremlin, I'm also a director of the company and spend quite a lot of my time looking at other games we want to publish.

Favourite Food: Nothing foreign.
Favourite Drink: Tetley's Bitter.
Most Watched TV Programme: "I tend to watch videos. I like *The Evil Dead*"
Favourite Computer Program: *Frak* on the BBC, *Encounter* on the 64.
Countries Visited. Spain, France, Germany, Malta.
Pets: A cockatiel called Silver.
Favourite Pop Groups: Iron Maiden, Cheap Trick, Jean Michel Jarre.
Ambitions: To be successful.
Worst game I've ever played: *Super Copter* (it's supposed to be a chopper flight simulation. It's written in Basic — a completely dreadful program) and *Psyclon* by Rabbit.
The thing about computing that most makes me want to throw up: The amount of time it takes up.

GAMES DESIGNER

NAME: Andy Spencer
GAMES: International Soccer, Basketball, High Noon (with a partner).
BORN: 1960.

You would expect the programmer of two of the best sports simulations ever written to be a keen footballer or basketball player, but Andy Spencer is neither.

"It's just coincidence . . . I'm not particularly keen on football, I just wanted to have a go at representing the game on computer".

Unlike *One on One*, Electronic Arts rendition of basketball, Andy's game features three players on each side which enables the game to incorporate passing, an essential feature of the real game.

"The first time I came across a computer was at the technical college at which my dad taught during the summer holidays. I sat down and played games and became hooked."

"Soon after, I bought a half share in a Pet and learned how to program. I wrote some games, one of which was a noughts and crosses program. I sent them to Commodore but they did not get published".

Andy now works full time as a programmer. "Well, I wouldn't say full time but I don't have another job, if that's what you mean". When he's not glued to a VDU, he enjoys painting — pictures not walls.

Favourite Food: Fish and chips.
Favourite Drink: Cider.
Most Watched TV Programme: *Spitting Image.*
Favourite Computer Program: *Aztec Challenge, Forbidden Forest.*
Countries Visited. France, Greece, Belgium, Holland.
Ambitions: To travel the world.
Favourite Pop Group: *The Smiths.*
Worst game I've ever played: *Pac Man.*
The thing about computers that most makes me want to throw up: Nothing in particular.

GAMES DESIGNER

NAME: Mike Singleton
GAMES: Lords of Midnight, 3Deep Space, Shadowfax.
BORN: Wirral, Cheshire, 1951.

Ask most top games designers if they like playing games and chances are you'll get the same answer: "I don't really play them much. I only enjoy doing the programming".

This is not the case with *Lords of Midnight* designer — Mike Singleton. "I enjoy playing games. *Go* is my current favourite. I think it's a real classic game that will survive the test of time."

Mike first became hooked on games as a board gamer. He designed his own James Bond-style board games when he was 13.

"I graduated to play-by-mail games when I got hooked on an American game called *Star Web* in 1977. It only had 15 players and I eventually managed to win the game two years later. I now run my own play-by-mail game — *Star Net* — which had over three thousand players at the last count."

Favourite Food: Steak and chips.
Favourite Drink: Lager.
Most Watched TV Programme: *Dr Who.*
Favourite Computer Program: *Lords of Midnight, Defender.*
Countries Visited: France, Switzerland, Spain, Holland, Morocco.
Ambitions: To write a real classic game — the computer equivalent of chess — a game that people will still be playing long after I am dead and gone.
Pets: Two cats — Kim and Kerry.
Favourite Pop Groups: Pink Floyd, Deep Purple, Led Zeppelin.
Worst game I've ever played: *Invasion* by ASP Software.
The one thing about computing which most makes me want to throw up: waiting for Sinclair equipment to arrive.

NAME: Matthew Smith
GAMES: Manic Miner, Jet Set Willy.
BORN: Liverpool, 1965.

Matthew Smith is the most successful programmer in our top ten line up. His *Jet Set Willy* topped the *C&VG / Daily Mirror* Top Thirty for no less than four months earlier this year.

With *Manic Miner* also selling well, and both games now on the Commodore 64 as well as the Spectrum, this 19-year-old Liverpudlian could well turn out to be the richest teenager to come out of Merseyside since Paul McCartney.

Matthew is not just one of Software Projects' top programmers. He is also on the board of directors of the company.

Despite his executive status, Matthew comes across more as a refugee from an illegal pop festival than a director of a software company.

His soft spoken accent, completely devoid of any trace of Scouse, puts you at your ease as he tells you that he doesn't like television and enjoys listening to *Pink Floyd.*

Like many games writers, Matthew had the nocturnal approach to programming — sleeps all day and works all night.

Favourite Food: I'm a gourmet, I like all sorts.
Favourite Drink: Southern Comfort in large quantities.
Most Watched TV Programme: I don't like TV much.
Favourite Computer Program: *Ultima II* by Sierra On Line, *Atic Atac*, and *Escape* From Fractulus.
Countries Visited: Most of Europe and America.
Ambitions: I don't have many left though I'd like to get into space.
Favourite pop groups: "How many pages have you got?"
Worst game I've ever played: *Ah Diddums!*
Pets: A cat called Big Cat and a dog called Zoey.
The one thing about computing that makes me want to throw up: "Magazines that rip-off my programs!"

GAMES DESIGNER

GAMES DESIGNER

NAME: Jeff Minter.
GAMES: Gridrunner, Attack and Revenge of the Mutant Camels, Hovver Bover, Sheep in Space.
BORN: Reading, Berkshire in 1961.

Jeff learned Basic on the school Pet although was not considered the local computer whizz, being denied a place on the computing course. He was not the school dunce either, learning A levels in Physics, English, Maths and a university place. The academic life did not suit Jeff and he found himself carpeted by his tutor. A change of college and of courses followed soon after.

It was during his time at college number two — Oxford Polytechnic — that Jeff bought a Vic-20 and learned machine code. Looking at the software available, Jeff was convinced he could do better and set out to write a copy of the arcade game *Defender* on his Vic. Encouraged by demand for his game Jeff wrote another one — *Traxx* — and took them both to the Barbican show where they sold well.

Now there was no looking back — and Llamasoft was born — named after his favourite animals.

The game that really made Minter's name is *Gridrunner* — a super fast shoot 'em up — which is selling well in the US as well as in Britain, having knocked *Choplifter* off the number one slot in the American charts earlier in the year.

Favourite Food: Liver sausage sandwiches, burgers, and most junk foods.
Favourite Drink: Coke, Guinness, and wine.
Most Watched TV Programme: *Not the Nine O'Clock News.*
Favourite Computer Program: *Hovver Bovver, Repton, Stix.*
Countries Visited: America, France, Spain.
Pets: Two Siamese cats and an Afghan hound called Woody.
Ambitions: To writer better and better games.
Favourite Pop Groups: Pink Floyd, Genesis.

GAMES DESIGNER

NAME: Dave Marshall.
GAMES: Fighter Pilot.
BORN: Longeaton, 1954.

Dave Marshall is not at all worried that his fledgling company is becoming known as the flight simulation specialists.

"When I speak to games players at computer fairs, they always want to know when the next simulation is coming out, not whether we are going to do anything else". Dave and his partner, Rod Swift, are so committed to computerised flight that their next two products will also be flight simulations — to add to *Night Gunner* and *Fighter Pilot.*

With no less than nine flight simulations in the current NOP Top Thirty, it is difficult to fault Digital's commitment to this type of game.

Dave gave up a high-powered job with the Ministry of Defence, where he worked on computer flight control systems and travelled extensively, to set up Digital Integration.

"I have no regrets . . . I always wanted to have my own company. I am still friendly with the people I used to work with and I think they slightly envy me.

Dave's first contact with computers came at Bath University where he studied systems engineering on a special MOD sponsored course. "It was just a terminal of a mainframe. My first real experience of micros was when I bought a kit computer in 1976. It was a very simple machine — made by National Semi Conductor — you couldn't do much with it.

Favourite Food: Pork in white wine sauce.
Favourite Drink: Southern Comfort.
Most Watched TV Program: *MASH.*
Favourite Computer Program: *Fighter Pilot, Death Chase.*
Countries Visited: USA, Greece, Germany, France, Yugoslavia.
Ambitions: To run a very successful company.
Pets: Only my eighteen month old son — Stephen.
Favourite Pop Groups: Jethro Tull, James Taylor, Ralph McTell.

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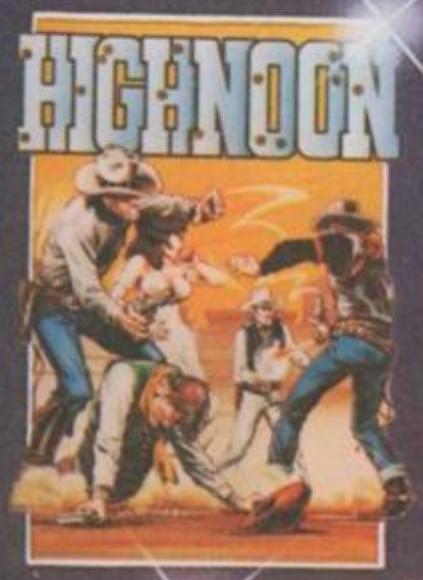
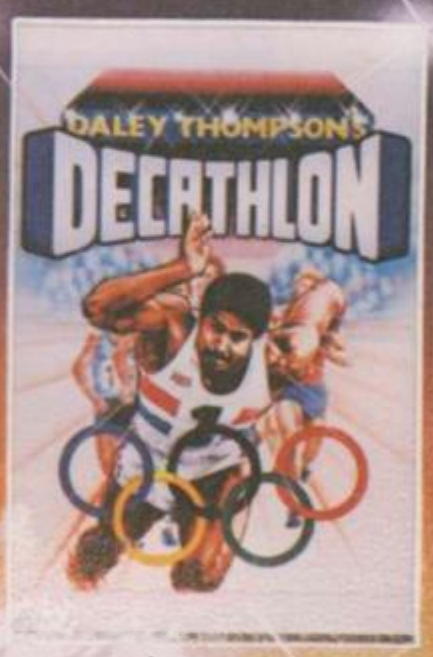
A new wave of real winners from Ocean. new games... new horizons!





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All these releases are available for the Commodore 64.

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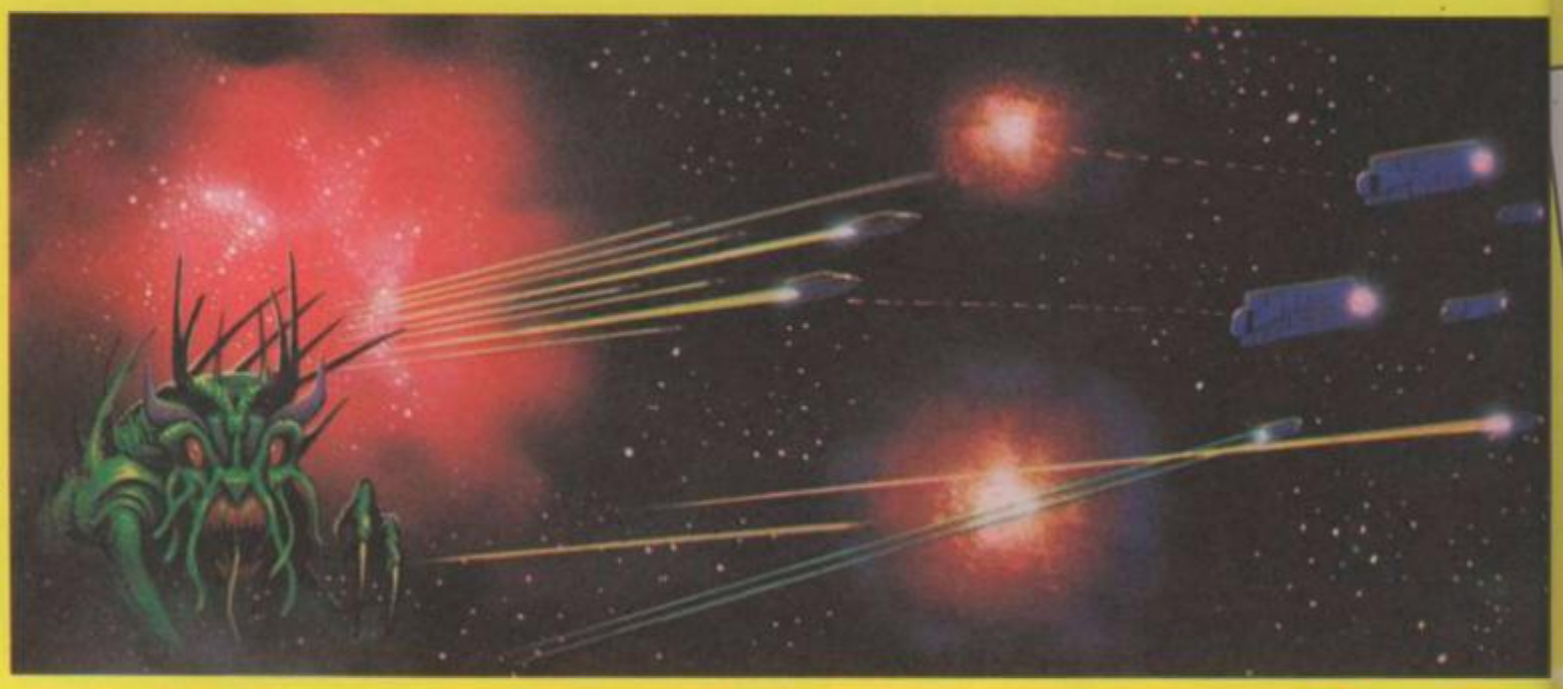


Illustrations: John Higgins

ASTRO SPY

AN ADVENTURE FOR BEGINNERS

BY MIKE TURNER — *RUNS ON A SPECTRUM*

Never played an Advendure before? Then you don't know what you're missing! Admittedly, they can be a bit daunting if you've never dealt with one — finding the correct way to address your micro can cause a few problems. But once you've been bitten by the bug, there will be nothing that will stop you plugging into the darkest dungeon in search of fame, fortune and excitement. But just how do you get started? Byplaying this mini-adventure written by MIKE TURNER, that's how! Read on and discover the world of the Astrospy . . .

COMMUNICATION FOR ASTROSPY 0077 / CLASSIFIED TOP SECRET

The Federation needs your help. A race of hostile aliens from a planet system far beyond our galaxy has declared war. They have developed new secret weapons, code-named Astrogun. Federation scientists are anxious to obtain one of these super-weapons to copy it. Fortunately, following a fierce space battle, the enemy were forced to abandon a ship with an Astrogun on board. Your task is to get on board that ship and take the Astrogun. Security systems are still operative on the ship, so your mission will — as usual — be extremely dangerous. A ship awaits you in Boarding Bay 23. It will ferry you to the abandoned ship and then beam you aboard. From then on, you are on your own . . . Good luck! The security of the Federation is in your hands.

END OF MESSAGE

```
 10 REM * ASTRO SPY (mk2) *
 20 REM ADVENTURE 1
 30 REM THE ASTROGUN AFFAIR
 40 REM
 50 REM A SCI-FI ADVENTURE
 60 REM          by Mike Turner.
 70 REM
 80 REM © Star Dreams 1982
 90 REM Set up
100 LET a$="You have entered a
room with ": LET b$="doors each
with a giant number  painted on
it in orange.": CLS
110 LET platform=0
120 LET tr=0: LET id=0: LET rcc
=0: LET we=0: LET bo=0: LET ky=0
: LET rcv=0: LET ft=0
130 BORDER 6: PAPER 6: INK 0: C
LS
140 GO TO 380
150 REM Corridor
```

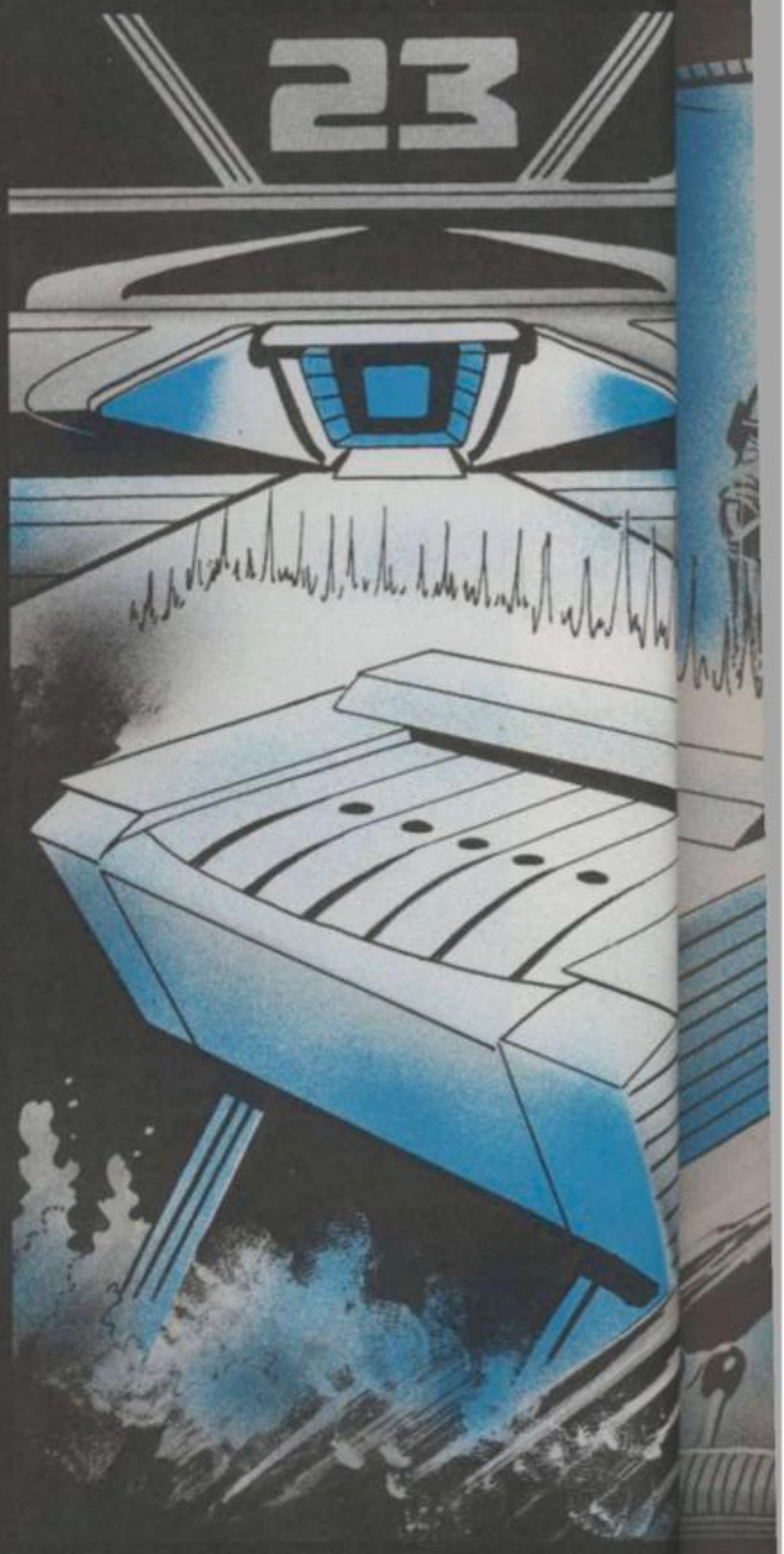
```
160 PAPER 6: INK 0: BORDER 6
170 CLS : PRINT "You have ente
ed a corridor.    This is tubul
r and made of a    silver metal.
180 PRINT "At regular interval
lit bands  of bright colour ci
cle the      centre walkway, whi
h is an irongrid"
190 IF RND<.4 THEN GO TO 240
200 PAUSE 200: PRINT : PRINT "
ou now open the next door.    P
ress any key to continue...."
210 IF INKEY$<>"" THEN GO TO 21
0
220 IF INKEY$="" THEN GO TO 220
230 RETURN
240 REM Robot
250 PRINT : PRINT "A hatch slid
es up on one wall   and a robot
comes down the      corridor tow
ards you.": IF id THEN PRINT "I
t ignores you": GO TO 200
```

```
 260 FOR c=1 TO 3: BEEP .3,8: BE
EP .3,10: NEXT c
 270 PRINT '"It shoots at you"''
"Press any key to find out if yo
usurvived.........."
 280 IF INKEY$<>"" THEN GO TO 28
0
 290 IF INKEY$="" THEN GO TO 290
 300 IF RND>.9 THEN GO TO 1690
 310 PRINT "You made it!!!": BEE
P 1,8: GO TO 200
 320 REM Locked door
 330 CLS : PRINT "This door will
not open"''"Press any key to co
ntinue"
 340 BEEP .75,-8
 350 IF INKEY$<>"" THEN GO TO 35
0
 360 IF INKEY$="" THEN GO TO 360
 370 RETURN
```

```
 410 FOR g=1 TO 3: FOR c=0 TO 60
: BEEP .01,c: NEXT c: NEXT g
 420 PRINT AT 21,19; FLASH 1;"Pr
ess any key"
 430 IF INKEY$="" THEN GO TO 430
 440 CLS
 450 REM Instructions
 460 PRINT FLASH 1;"*The Federat
ion needs your help*": PRINT
 470 PRINT "A race from beyond t
he galaxy   has declared war. Th
ey have a   secret weapon:- The
Astrogun."
 480 PRINT "Federation scientist
s are eager to obtain one of the
se to copy  it."
 490 PRINT "    The enemy has bee
n forced to abandon a spaceship
with an     Astrogun on board. Y
ou will be  teleported onto the
ship and    your task is to get
the weapon  and find a way off."
```

```
 500 FOR c=1 TO 10: IF INKEY$=""
 THEN BEEP 1,30: BEEP 1,24: NEXT
 c
 510 PRINT : PRINT " Good luck!
 the Federation      is dependin
g on you..........": PRINT : P
RINT "Press any key to start"
 520 IF INKEY$<>"" THEN GO TO 52
0
 530 IF INKEY$="" THEN GO TO 530
 540 REM Reception
 550 CLS
 560 IF ft THEN PRINT a$
 570 IF NOT ft THEN PRINT "You h
ave been teleported into": LET f
t=1
 580 PRINT "a room with 2 ";b$(
TO 30);b$(32 TO 48)'b$(50 TO )
 590 PRINT "Also in the room is
a round"'"platform with a contro
l board"''"To step onto the pla
tform"'"Press 'P'"'"To leave by
door 1"'"Press '1'"'"To leave by
 door 2"'"Press '2'"
 600 IF INKEY$<>"" THEN GO TO 60
0
```

```
 610 IF INKEY$="1" THEN LET plat
form=0: GO TO 650
 620 IF INKEY$="2" THEN LET plat
form=0: GO TO 680
 630 IF INKEY$="p" OR INKEY$="P"
 THEN GO TO 700
 640 GO TO 610
 650 IF rcc+rcv>0 THEN GO TO 820
 660 GO SUB 320
 670 CLS : PRINT "The room has 2
";b$( TO 17)'b$(19 TO 30);b$(32
 TO 48)'b$(50 TO ): GO TO 590
 680 IF rcc>0 THEN GO TO 830
 690 GO TO 660
 700 IF platform THEN CLS : PRIN
T "You are unable to, as there
   appears to be a force field i
n  your way!": PAUSE 300: GO TO
670
 710 CLS : PRINT "There are five
 buttons"'"No.1 has a picture o
f a spanner"'"No.2 is plain red"
'"No.3 has a question mark on it
": IF NOT tr THEN PRINT '"No.4 a
nd No.5 have writing on  them t
hat you don't understand."
 720 IF tr THEN PRINT "No.4 has
 'AUTO DESTRUCT' on it"'"No.5 has
 'TELEPORT TO BRIDGE' onit"
 730 LET platform=1: PRINT '"Whi
ch one will you press?"
 740 IF INKEY$<>"" THEN GO TO 74
0
 750 IF INKEY$="1" THEN LET rcc=
1: BEEP .25,10: GO TO 670
 760 IF INKEY$="2" THEN BEEP .25
,10: GO TO 810
 770 IF INKEY$="4" THEN LET bo=1
: BEEP .25,10: GO TO 670
 780 IF INKEY$="3" THEN LET rcv=
1: BEEP .25,10: GO TO 670
 790 IF INKEY$="5" THEN BEEP .25
,10: GO TO 1790
 800 GO TO 750
 810 CLS : FOR c=1 TO 8: PRINT F
LASH 1; INVERSE (c/2=INT (c/2));
"**** The Ship Has Exploded ****
": NEXT c: GO TO 1690
 820 GO SUB 150: LET ft=1: GO TO
 920
 830 GO SUB 150: LET ft=1
 840 REM Engineering
 850 CLS : PRINT "This is the en
gineering centre. There are two
doors, one paintedred, one silve
r."'"Both have writing on them";
 860 IF NOT tr THEN PRINT " whic
h you can't read"
 870 IF tr THEN PRINT ". The  re
d one says:"'"DO NOT ENTER HOT,
 ENGINE AREA ,"'"the silver one
says:"'"RECEPTION'"
 880 PRINT "Which door will you
open          (S OR R)?"
 890 IF INKEY$="s" OR INKEY$="S"
 THEN GO TO 540
 900 IF INKEY$="r" OR INKEY$="R"
 THEN GO TO 1690
 910 GO TO 890
 920 REM Lounge
 930 CLS : PRINT a$;"4"'b$'"This
 is the ships lounge."
 940 PRINT "There are couches, t
ables and  games boards"'"To go
 out of a door enter its  numbe
r"
 950 IF INKEY$<>"" THEN GO TO 95
0
 960 LET q$=INKEY$: IF q$<"1" OR
 q$>"4" THEN GO TO 960
 970 GO SUB 150: IF q$="1" THEN
GO TO 540
 980 IF q$="4" THEN GO TO 1520
 990 IF q$="3" THEN GO TO 1390
1000 REM Store
1010 CLS : PRINT a$;"2"'b$
```



```
1020 PRINT "A store room.""Pile
d high on racks are some    boxe
s. Do you wish to look in    them
?"
1030 IF INKEY$<>"" THEN GO TO 10
30
1040 IF INKEY$="n" OR INKEY$="N"
 THEN GO TO 1220
1050 IF INKEY$<>"y" AND INKEY$<>
"Y" THEN GO TO 1040
1060 FOR k=1 TO 20: NEXT k
1070 IF tr THEN GO TO 1100
1080 PRINT "You have found a tra
nslator": GO SUB 1160: IF q$="y"
 THEN LET tr=1
1090 GO TO 1220
1100 IF id THEN GO TO 1130
1110 PRINT "You find an I.D. bad
ge": GO SUB 1160: IF q$="y" THEN
 LET id=1
1120 GO TO 1220
1130 IF bo THEN GO TO 1210
1140 PRINT "You find a small met
al sphere": GO SUB 1160: IF q$="
y" THEN LET bo=1
1150 GO TO 1220
1160 PRINT "Do you wish to take
this?"
1170 IF INKEY$<>"" THEN GO TO 11
70
1180 IF INKEY$="y" OR INKEY$="Y"
 THEN LET q$="y": RETURN
1190 IF INKEY$="n" OR INKEY$="N"
 THEN LET q$="n": RETURN
1200 GO TO 1180
1210 PRINT "You find nothing of
interest"
1220 PRINT "Exit by door 1 or 2?
"
1230 IF INKEY$<>"" THEN GO TO 12
30
1240 IF INKEY$="2" THEN GO TO 12
70
1250 IF INKEY$="1" THEN GO SUB 1
50: GO TO 920
1260 GO TO 1240
1270 IF id AND rcc THEN GO TO 12
90
1280 GO SUB 320: GO TO 1000
1290 GO SUB 150
1300 REM Weapon
1310 CLS : PRINT a$;"2"'b$'"The
Armoury"
1320 IF NOT we THEN PRINT "In fr
ont of you on a bench is    the A
strogun; which you take."
1330 PRINT "There is a small met
al spere.": GO SUB 1160: IF q$="
y" THEN GO TO 810
1340 LET we=1: PRINT "Exit by wh
ich door (1 or 2)?"
1350 IF INKEY$<>"" THEN GO TO 13
50
1360 IF INKEY$="1" THEN GO SUB 1
50: GO TO 1000
1370 IF INKEY$<>"2" THEN GO TO 1
360
1380 GO SUB 150
1390 REM Bridge
1400 CLS : PRINT a$;"3"'b$
1410 PRINT "This is the ships br
idge.": IF ky THEN GO TO 1440
1420 PRINT "You see a key.""Are
 you going to pick it up?"
1430 GO SUB 1170: IF q$="y" THEN
 LET ky=1
1440 PRINT "Exit by door 1,2 or
3?"
1450 IF INKEY$<>"" THEN GO TO 14
50
1460 LET q$=INKEY$: IF q$<>"1" A
ND q$<>"2" AND q$<>"3" THEN GO T
O 1460
1470 IF q$>"1" OR id=1 THEN GO T
O 1490
1480 GO SUB 320: CLS : GO TO 141
0
```

AT LAST...

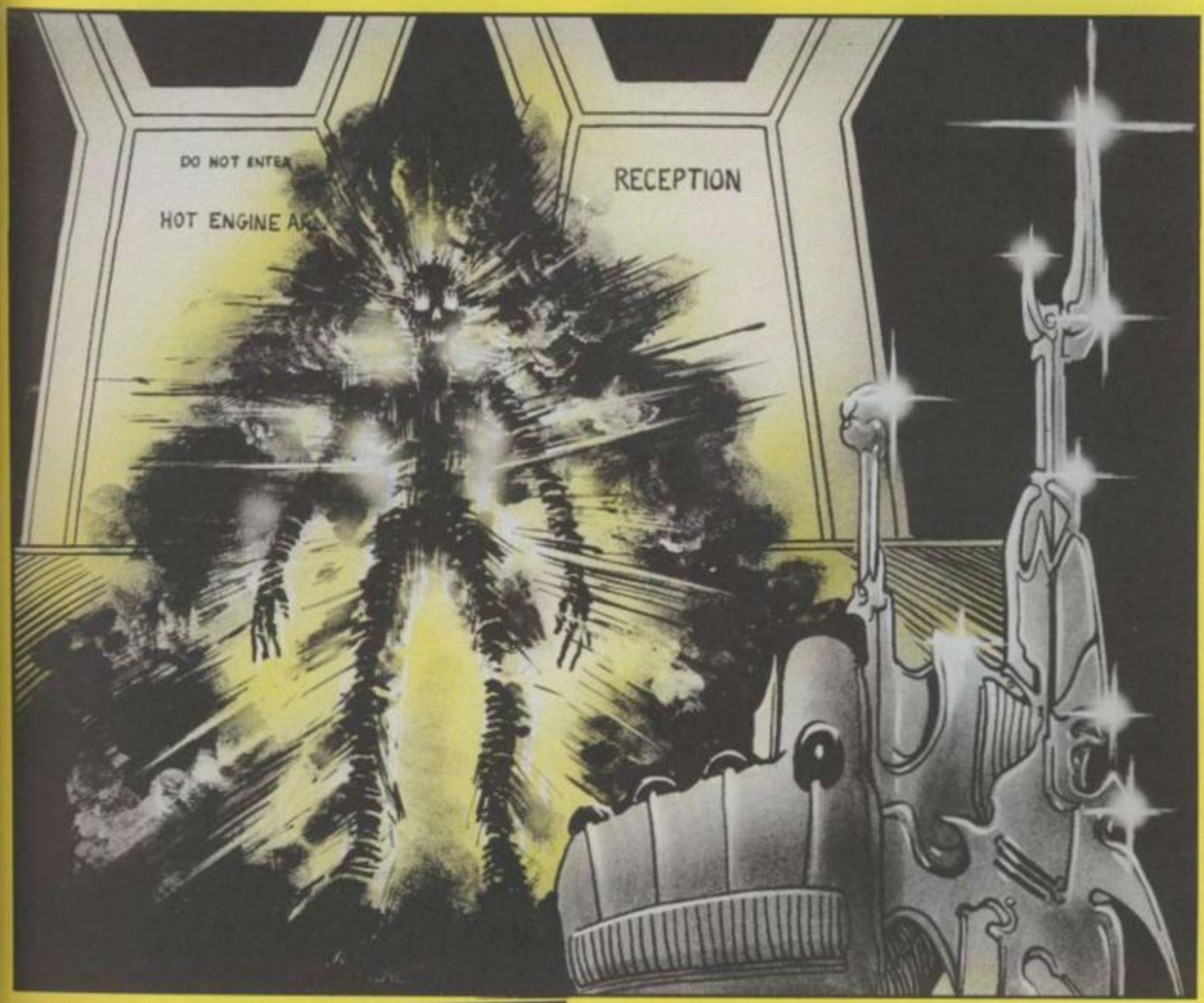
A MAGAZINE GEARED ESPECIALLY FOR THE

QL USER.

SUPRISINGLY ITS CALLED

QL USER.

For the latest information on every QL hardware and software release, turn to QL USER. Every month we review the latest games, educational and business packages, together with program listings, book reviews and your readers' letters. Plus, of course, hints and tips on how to get the most from your QL. If you're a QL user, choose the magazine written exclusively for your machine—QL USER. Available on a monthly basis from all good newsagents.




```
1490 IF NOT rcc AND NOT rcv THEN
 GO TO 1480
1500 GO SUB 150: IF q$="1" THEN
GO TO 1300
1510 IF q$="2" THEN GO TO 920
1520 REM Shuttle
1530 CLS : PRINT a$;"2"'b$
1540 PRINT "Shuttle launch area"
1550 PRINT "Steps lead down to a
 parked     shuttle craft. Are y
ou going to decend and get into
it?": GO SUB 1170: IF q$="y" THE
N GO TO 1610
1560 PRINT "Exit by which door (
1 or 2)?"
1570 IF INKEY$<>"" THEN GO TO 15
70
1580 LET q$=INKEY$: IF q$<>"1" A
ND q$<>"2" THEN GO TO 1580
1590 GO SUB 150: IF q$="1" THEN
GO TO 1390
1600 GO TO 920
1610 IF ky THEN GO TO 1630
1620 PRINT "You can't open its d
oor": GO TO 1560
1630 PRINT "You find instruction
s in the    cockpit";
1640 IF NOT tr THEN GO TO 1680
1650 PRINT ". You read them. Do
you  wish to take off? (Y or N)"
: GO SUB 1170: IF q$="n" THEN GO
 TO 1560
1660 IF bo THEN PRINT "."'"You c
an't take off because": GO TO 81
0
1670 GO TO 1810
1680 PRINT " but you can't read
them": GO TO 1560
```

```
1690 REM Death
1700 PRINT : PRINT "**You have b
een blown to bits**"
1710 PRINT "so you have failed y
our mission.";
1720 FOR c=1 TO 5: BEEP 1,40: BO
RDER 6: BEEP 1,0: BORDER 2: NEXT
 c
1730 PRINT ''"Do you wish to try
 again?"'"(Y or N)": GO SUB 1170
: IF q$="y" THEN RUN
1740 STOP
1750 REM End
1760 BORDER 3: PAPER 3: INK 6
1770 CLS : PRINT AT 8,0;"
"; FLASH 1;" CONGRATULATIONS ";
FLASH 0;"
                 You have esca
ped with the     Astrogun and
saved the        Federation.
                 You will rece
ive a Citation.
                ": PRINT : PRIN
T "          ****************
"
1780 FOR c=1 TO 6: LET d=.5: FOR
 g=1 TO 20: LET d=d-.025: BEEP d
,g: NEXT g: PAUSE 5: NEXT c: STO
P
1790 IF rcv+rcc>0 THEN GO TO 139
0
1800 GO TO 1690
1810 IF we THEN GO TO 1750
1820 PRINT ''"  You don't have t
he Astrogun, ": GO TO 1710
```

ASTEROIDS

Space, as you well know, is a dangerous place. And we at Computer & Video Games are here to alert you to all the dangers we can find lurking out in the deep, dark universe.

You are the pilot of a spacecraft on a routine refuelling mission to a nearby space station.

Blocking your way is a huge belt of fast moving meteors and asteroids.

To reach the space station in time, you must pass right through the centre of the asteroid field.

Armed with only a single laser cannon, you must blast every single asteroid to space dust before you can reach your destination.

Full instructions are included in the program listing.

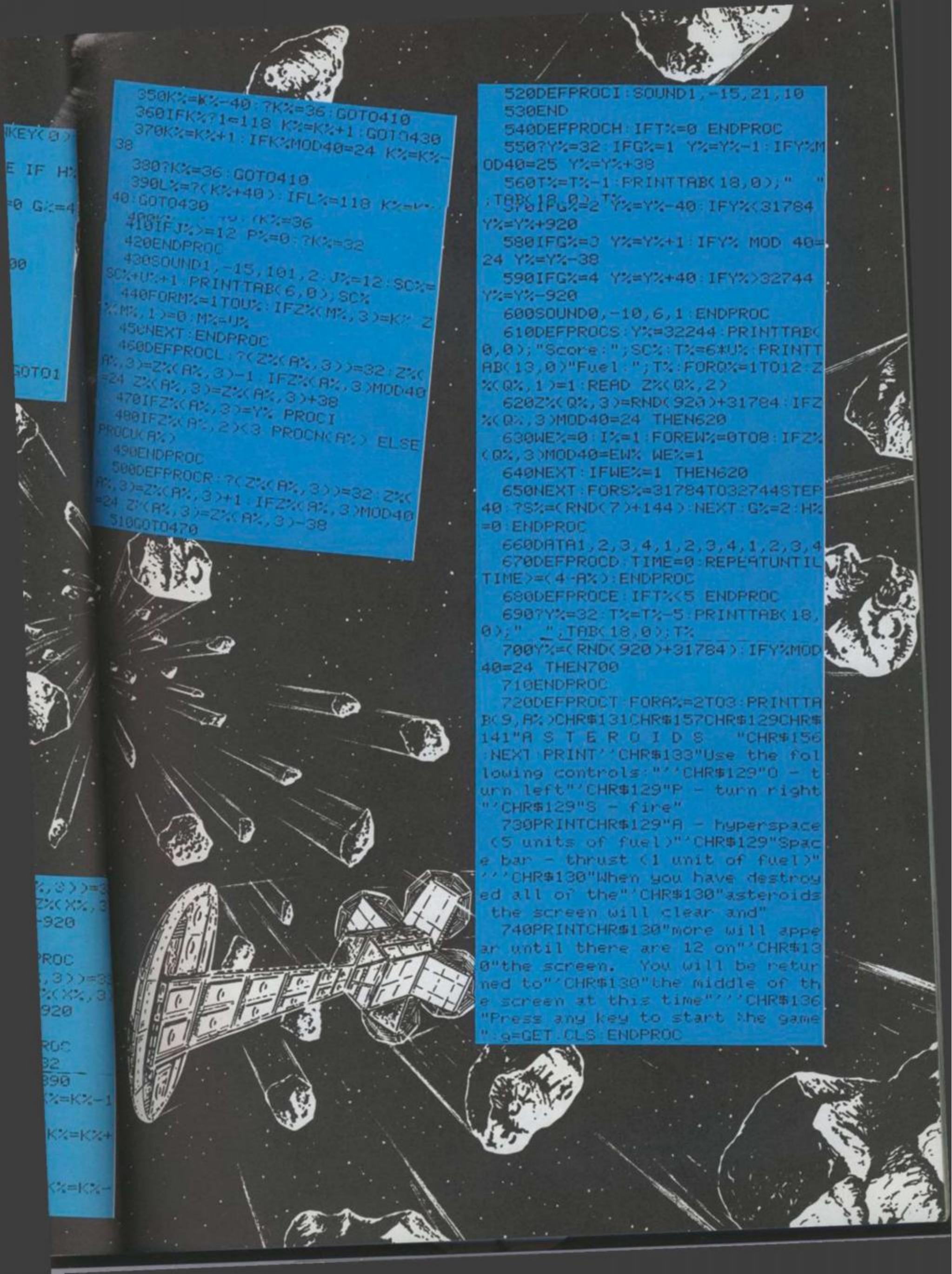
BY ANON

RUNS ON A BBC MODEL B

```
  10MODE7:U%=4:SC%=0:VDU23;8202
;0;0;0;:PROCT:DIMZ%(12,3):PROCS
  20FORB%=1TO4:FORA%=1TOU%:PROC
D:PROCF:IFZ%(A%,1)=0 THEN40
  30IFZ%(A%,2)<3PROCN(A%) ELSEP
ROCU(A%)
  40NEXT:PROCM:NEXT:FORA%=1TOU%
:PROCD:PROCF:IFZ%(A%,1)=0 THEN60
  50IFZ%(A%,2)MOD2=1 PROCL ELSE
PROCR
  60NEXT:PROCM:D%=0:FORC%=1TOU%
:IFZ%(C%,1)=1 D%=1:C%=U%
  70NEXT:IFD%=1 THEN20
  80U%=U%+1:IFU%>12 U%=12
  90?Y%=32:RESTORF:PROCS:GOTO20
```

```
 100DEFPROCM:PROCF:H%=INKEY(0
*FX15,1
 110 IFH%=-1 THEN160 ELSE IF H
=80 G%=G%+1:IFG%=5 G%=1
 120IFH%=79 G%=G%-1:IFG%=0 G%=
 130IFH%=65 PROCE
 140IFH%=32 PROCH
 150IFH%=83 THEN 210
 160ONG%GOTO170,180,190,200
 170?Y%=230:ENDPROC
 180?Y%=245:ENDPROC
 190?Y%=185:ENDPROC
 200?Y%=183:ENDPROC
 210IFP%=1 ENDPROC
 220P%=1:I%=G%:J%=0:K%=Y%:GOTO1
60
```

```
 230DEFPROCN(X%):?(Z%(X%,3))=
:Z%(X%,3)=Z%(X%,3)+40:IFZ%(X%,
>32744 Z%(X%,3)=Z%(X%,3)-920
 240IFZ%(X%,3)=Y% PROCI
 250?(Z%(X%,3))=118:ENDPROC
 260DEFPROCU(X%):?(Z%(X%,3))=
:Z%(X%,3)=Z%(X%,3)-40:IFZ%(X%,3
<31784 Z%(X%,3)=Z%(X%,3)+920
 270GOTO240
 280DEFPROCF:IFP%=0 ENDPROC
 290J%=J%+1:IFJ%<>1 ?K%=32
 300ONI%GOTO310,340,360,390
 310L%=?(K%-1):IFL%=118 K%=K%-
:GOTO430
 320K%=K%-1:IFK%MOD40=25 K%=K%+
38
 330?K%=36:GOTO410
 340L%=?(K%-40):IFL%=118 K%=K%-
40:GOTO430
```



```
  350K%=K%-40:?K%=36:GOTO410
  360IFK%?1<=118 K%=K%+1:GOTO430
  370K%=K%+1:IFK%MOD40=24 K%=K%-
38
  380?K%=36:GOTO410
  390L%=?(K%+40):IFL%=118 K%=K%-
40:GOTO430
  400K%=K%-40:?K%=36
  410IFJ%>=12 P%=0:?K%=32
  420ENDPROC
  430SOUND1,-15,101,2:J%=12:SC%=
SC%+U%+1:PRINTTAB(6,0);SC%
  440FORM%=1TOU%:IFZ%(M%,3)=K% Z
%(M%,1)=0:M%=U%
  450NEXT:ENDPROC
  460DEFPROCL:?(Z%(A%,3))=32:Z%(
A%,3)=Z%(A%,3)-1:IFZ%(A%,3)MOD40
=24 Z%(A%,3)=Z%(A%,3)+38
  470IFZ%(A%,3)=Y% PROCI
  480IFZ%(A%,2)<3 PROCN(A%) ELSE
PROCU(A%)
  490ENDPROC
  500DEFPROCR:?(Z%(A%,3))=32:Z%(
A%,3)=Z%(A%,3)+1:IFZ%(A%,3)MOD40
=24 Z%(A%,3)=Z%(A%,3)-38
  510GOTO470
```

```
  520DEFPROCI:SOUND1,-15,21,10
  530END
  540DEFPROCH:IFT%=0 ENDPROC
  550?Y%=32:IFG%=1 Y%=Y%-1:IFY%M
OD40=25 Y%=Y%+38
  560T%=T%-1:PRINTTAB(18,0);"  "
;TAB(18,0);T%
  570IFG%=2 Y%=Y%-40:IFY%<31784
Y%=Y%+920
  580IFG%=3 Y%=Y%+1:IFY% MOD 40=
24 Y%=Y%-38
  590IFG%=4 Y%=Y%+40:IFY%>32744
Y%=Y%-920
  600SOUND0,-10,6,1:ENDPROC
  610DEFPROCS:Y%=32244:PRINTTAB(
0,0);"Score:";SC%:T%=6*U%:PRINTT
AB(13,0)"Fuel:";T%:FORQ%=1TO12:Z
%(Q%,1)=1:READ Z%(Q%,2)
  620Z%(Q%,3)=RND(920)+31784:IFZ
%(Q%,3)MOD40=24 THEN620
  630WE%=0:I%=1:FOREW%=0TO8:IFZ%
(Q%,3)MOD40=EW% WE%=1
  640NEXT:IFWE%=1 THEN620
  650NEXT:FORS%=31784TO32744STEP
40:?S%=(RND(7)+144):NEXT:G%=2:H%
=0:ENDPROC
  660DATA1,2,3,4,1,2,3,4,1,2,3,4
  670DEFPROCD:TIME=0:REPEATUNTIL
TIME>=(4-A%):ENDPROC
  680DEFPROCE:IFT%<5 ENDPROC
  690?Y%=32:T%=T%-5:PRINTTAB(18,
0);"  ";TAB(18,0);T%
  700Y%=(RND(920)+31784):IFY%MOD
40=24 THEN700
  710ENDPROC
  720DEFPROCT:FORA%=2TO3:PRINTTA
B(9,A%)CHR$131CHR$157CHR$129CHR$
141"A S T E R O I D S   "CHR$156
:NEXT:PRINT''CHR$133"Use the fol
lowing controls:"''CHR$129"O - t
urn left"'CHR$129"P - turn right
"'CHR$129"S - fire"
  730PRINTCHR$129"A - hyperspace
 (5 units of fuel)"'CHR$129"Spac
e bar - thrust (1 unit of fuel)"
'''CHR$130"When you have destroy
ed all of the"'CHR$130"asteroids
 the screen will clear and"
  740PRINTCHR$130"more will appe
ar until there are 12 on"'CHR$13
0"the screen.  You will be retur
ned to"'CHR$130"the middle of th
e screen at this time"'''CHR$136
"Press any key to start the game
":g=GET:CLS:ENDPROC
```

TREACHERY

IT IS THE YEAR 1984 AND THANKFULLY BIG BROTHER IS STILL JUST A DISTANT NIGHTMARE. YET, A MENACE JUST AS PERILOUS THREATENS THE WORLD....

THE SINISTER PROFESSOR **SCHWEINSTEIN!**

HEHEHEH!

AFTER MANY YEARS OF SECRET RESEARCH, SCHWEINSTEIN SUCCEEDED IN CREATING WHAT COULD BE THE ULTIMATE WEAPON....

A DEVICE HE CALLED THE **MINDBOMB!**

WHEN DETONATED, IT SIMPLY WIPES CLEAN THE **MEMORIES** OF ANYONE WITHIN TEN MILES OF THE EXPLOSION.

EVEN WHEN IT IS DOING NOTHING, IT HAS A TENDENCY TO CAUSE RANDOM OUTBREAKS OF AMNESIA FOR MILES AROUND!

TIK TAK

SCHWEINSTEIN HAS ALSO PERFECTED A SUPERB DELIVERY SYSTEM FOR HIS WEAPON, THE **MANDROID!**

IN REALITY AN ANDROID, IT SO CLOSELY RESEMBLES A MAN THAT IT IS VIRTUALLY UNDETECTABLE.

CHORTLE

WITH THE MINDBOMB CONCEALED IN THE MANDROID'S ABDOMEN, SCHWEINSTEIN IMAGINED HE COULD BLACKMAIL THE WORLD.

HOWEVER, JUST AS HIS CREATION WAS COMPLETE, AN ACCIDENT OCCURED AND SCHWEINSTEIN BECAME THE FIRST VICTIM OF HIS OWN WEAPON....

FUMP!

HE FORGOT EVERYTHING!

HE FORGOT ABOUT THE MANDROID AND ITS HOMING BEACON....

DUHHHHHH?

HE FORGOT ABOUT THE MINDBOMB AND ITS REMOTE FIRING BUTTON....

HE EVEN FORGOT ABOUT HIS TWO HOLLOW TEETH, WHICH CONTAIN THE AMNESIA ANTIDOTE AND THE ENTIRE HISTORY OF HIS RESEARCHES ON MICRO-DISK.

HE ALSO FORGOT ABOUT THE BLACKMAIL LETTERS HE SENT TO THE BRITISH AND THE SOVIETS!

@@#!?+x!

?

NOW **MI6** AND THE **KGB** ARE SEARCHING DESPERATELY FOR SCHWEINSTEIN, HIS FIRING BUTTON AND HIS HOMING BEACON.

SCHWEINSTEIN IS A BROKEN MAN, ROAMING THE URBAN WILDERNESS IN SEARCH OF HIS LOST IDENTITY....

SNIFF. KOFF!

WHOEVER FINDS HIM FIRST WILL HAVE PULLED OFF A TREMENDOUS INTELLIGENCE COUP.

MEANWHILE, THE MANDROID IS WANDERING ACROSS EUROPE!

THEY KNOW WHICH CITY IT IS IN AT ANY ONE TIME BY THE INCREASED INCIDENCE OF AMNESIA. BEYOND THAT, THEY CAN GO NO FURTHER IN TRACKING IT DOWN.

TIK TAK TIK TAK

WHICHEVER SIDE GAINS CONTROL OF THE HOMING BEACON AND FIRING BUTTON WILL FIND IT EASY TO WIPE OUT THE ENEMY'S INTELLIGENCE NETWORK COMPLETELY....

LONDON AND MOSCOW ARE IN DANGER OF LOSING THEIR MINDS!

When you are asked to key in your password, please ensure all the red lights are out on your BBC keyboard — and ensure they remain out while you play the game.

Don't try to program the red function keys — otherwise you'll wipe out some of the machine code!

TREAC

INTRODUCTION PROGRAM - TREACHERY

```
   10 REM ------------------------------
   20 REM READ AND SAVE NOTES FOR MUSIC
   30 REM ------------------------------
   40 FORX%=0TO54:READP%,D%:?(&D80+X%*2)=P%:?(&D80+X%*2+1)=D%:NEXT
   50 DATA69,16,69,4,73,4,73,12,69,2,73,8,69,2,61,8,53,2,49,16,81,12,73,12,69,2,
53,2,73,2,81,6,73,6,69,12,61,12,53,12
   60 DATA53,18,41,9,53,9,49,18,33,18,53,3,53,3,49,3,41,3,41,9,69,9,49,18,21,18,
41,9,33,4,23,4,21,4,13,4,5,4,13,4,21,9,49,9,33,9,21,9,41,9,33,4,23,4,21,4,13,4,5
,4,13,4,21,9,49,9,33,9,21,9
   70 REM ------------------------------
   80 REM ASSEMBLE MUSIC MACHINE CODE
   90 REM ------------------------------
  100 P%=&CA3:FORI%=0 TO 3 STEP 3
  110 [ OPTI%:LDA#0:STA&72:STA&76:STA&78:LDA#&FF:STA&74:STX&79:STY&7A
  120 .start LDA#1:STA&71:LDA#&F1:STA&73:LDY&7A:LDA&D80,Y:STA&75:LDA&D81,Y:STA&7
7
  130 .check LDY#&FF:LDX#&FA:LDA#&80:JSR&FFF4:TXA:BEQ check:LDX#&71:LDY#0:LDA#7:
JSR&FFF1:LDA#&F6:STA&73:LDA#2:STA&71
  140 LDY#0:LDX#&71:CLC:LDA&75:ADC#&60:STA&75:LDA#7:JSR&FFF1:INC&7A:INC&7A:DEC&7
9:BEQ end:JMP start:.end RTS
  150 ]
  160 NEXT
  170 REM ------------------------------
  180 REM DRAW FLAGS AND PLAY ANTHEMS
  190 REM ------------------------------
  200 MODE5:VDU5,19,0,7,0,0,0,19,1,7,0,0,0
  210 GCOL0,131:CLG:CLS
  220 GCOL0,1:FORI%=0TO30:READZ%,X%,Y%:PLOTZ%,X%,Y%:NEXT
  230 GCOL0,0:FORI%=0TO23:READZ%,X%,Y%:PLOTZ%,X%,Y%:NEXT
  240 VDU19,0,4,0,0,0,19,1,1,0,0,0,23,224,0,0,1,3,7,15,31,0,23,225,0,0,16,8,4,4,
4,132,23,226,0,0,16,56,102,131,0,0,23,227,68,44,24,60,36,194,0,0
  250 X%=21:Y%=0:CALL&D00
  260 GCOL0,1:MOVE608,488:PLOT4,1248,488:PLOT85,1248,82:PLOT4,608,82:PLOT85,608,
488:GCOL0,2
  270 MOVE660,440:PRINTCHR$224CHR$225:MOVE660,408:PRINTCHR$226CHR$227:MOVE0,0
  280 X%=35:Y%=42:CALL&D00
  290 GCOL0,0:MOVE30,576:PLOT5,30,506:MOVE30,576:PLOT5,1250,576:MOVE30,552:PRINT
" T R E A C H E R Y":MOVE30,506:PLOT5,1250,506:PLOT5,1250,576
  300 GCOL0,1:MOVE760,816:PLOT5,1144,816:PLOT5,1144,754:PLOT5,760,754:PLOT5,760,
816:MOVE860,796:PRINT"M I 6"
  310 MOVE120,316:PLOT5,504,316:PLOT5,504,254:PLOT5,120,254:PLOT5,120,316:MOVE16
0,296:PRINT"K G B":GCOL0,0:MOVE100,50:PRINT"FOR THE BBC MICRO"
  320 REM ------------------
  330 REM LOAD MAIN PROGRAM
  340 REM ------------------
  350 CHAIN"TREACHERY2"
  360 REM ------------------------
  370 REM UNION JACK PLOTTING DATA
  380 REM ------------------------
  390 DATA4,32,840,4,672,840,85,672,750,4,32,750,85,32,840,4,310,1000,4,310,596,
85,394,596,4,394,1000,85,310,1000,4,669,1000,4,642,1000,85,444,864,85,419,870,85
,419,864,4,32,1000,4,32,978,85,226,864,85,259,864,85,32,1000,4,478,730,4,449,730
  400 DATA85,672,594,4,672,616,85,482,730,4,42,594,4,72,594,85,260,730,85,285,73
0,4,285,722,85,72,594,4,672,632,4,672,730,85,502,730,4,285,1000,4,92,1000,85,285
,888,4,419,1000,4,612,1000,85,419,888,4,672,962,4,672,864,85,512,864
  410 DATA4,32,864,4,32,962,85,198,864,4,32,730,4,32,632,85,198,730,4,92,594,4,2
85,594,85,285,708,4,419,708,4,419,594,85,612,594
```

TREACHERY

Treachery is a tricky business at the best of times and you can be sure that the "friend" you are playing will be doing his worst to double-cross you. Bluff and bamboozlement are the weapons to use. A knowing smile or a subtle twitch of an eyebrow as you read through your agents' reports can be enough to send your opponent into a frenzied panic. But beware! He won't start tearing his hair out. He'll just nod calmly at you as if to say: "Yes, you've fallen for my trap." So how do you go about actually *winning*? We asked MIKE SINGLETON, the man behind the game, to give you a few hints and tips.

LESSON ONE: IT'S FOR YOU-HOO!

Sending, receiving and intercepting messages is the key to success in *Treachery*. No self-respecting spymaster forgets that every order he sends and every report he receives *may* have been intercepted en route by the enemy and a clever spymaster uses this fact to his advantage.

Only a real traitor will betray your messages to the enemy and that betrayal will result in a message reporting interception to enemy HQ. With any luck, one of your agents will himself intercept the message of interception and report it back to your HQ. You then discover the identity of the traitor in your midst and you also know that your intercepting agent can be completely trusted. If he really belonged to the enemy, he would never have sent in an interception report.

So, in the early stages, it's a good idea to send orders by the longest routes possible in the hope that they get intercepted. At the same time, you should call in reports by the shortest and safest routes back to HQ since they may carry information you definitely don't want betrayed to the enemy.

LESSON TWO: THE BEST MOLES STAY UNDERGROUND

Until you have some idea of which agents are to be trusted, the best action is no action. If you use your agents James Bond fashion and leave a trail of dead bodies across Europe, you are very likely to lose the game. Your own agents become prominent targets, you waste time that can be more profitably spent gathering information and you are quite likely to bump off someone who is *not* an enemy agent.

Don't forget that even enemy agents can be very useful so long as you know who they are. They will be gathering information too — information that you can intercept and use to your own advantage.

Relocating an agent in a different city should only be done of necessity — you waste valuable spying opportunities and you might, in fact, be moving an enemy double-agent to a better position!

Instead, the first few turns should be spent making innocuous "searches" in the cities where you have agents. Soon you will build up a working knowledge of who to trust. Only then should you begin to think about new stations for your agents.

A vital task is to establish secure routes for your orders and reports by moving men you know you can rely on into gaps or suspect links in your communications.

Appropriately enough, Berlin, notorious for its wealth of spies, is a key centre for routing messages through. Without a man in Berlin, your flexibility in sending orders and calling in reports is severely limited and it is the one place where you might allow yourself the luxury of eliminating the opposition once and for all.

Another essential task is to make sure you have a trusted mole close to or in the enemy HQ, ready to intervene if the opposition finds Schweinstein first and makes a break for home.

LESSON THREE: A SNEAK IN TIME SAVES NINE

Above all, you must be sneaky. Not only is it vital in winning the game, it's also great fun! How sneaky you can be depends on the calibre of your opponent — it's no use employing tortuously subtle ruses against a blockhead — but it always offers rewarding opportunities for creative thinking.

One of my favourites is to send orders to an agent to kill your own Master Spy but to send them by an incomplete route so that they never actually arrive! You make sure, however, that the route includes a traitor who will betray your orders to the enemy. Your opponent immediately gets the impression that you have discovered one of his triple agents and have decided to eliminate him. He never suspects for one moment that you would kill your own Master Spy and now believes he knows an agent he can trust!

LESSON FOUR: DON'T PANIC

Never lose your cool. Rushing into action with all guns blazing is a tempting recourse during a crisis but calm, logical thinking will usually find a quiet solution to the problem. Remember, it is Smiley, not Bond, who wins at *Treachery*.

BBC TREACHERY: CONVERSION BY STEVE WILLIS

The reason for the program being split is due to the usual problem found on the BBC when you wish to use any colour graphics modes.

The game cannot be used on disc without downloading and PAGE must be &E00 whichever filing system is used. I will explain the split by looking at each part in turn.

"TREACHERY" is the introduction program and displays the title page and plays the anthems. More than this, it defines the hammer and sickle characters AND assembles the machine code sound routine and stores the sound data. The routine and the data are stored between &D00 and &DFF and is defined by CALL&D00 within the game.

However, X% must be defined as 21 for MI6 and 35 for KGB while Y% must be 21 ro 42 respectively (X% being the number of notes and Y% the offset from &D00 to the start of the data).

Although this sounds complex, the user need not worry if he copies "TREACHERY" as shown in the listing. This program then CHAINs the main program "TREACHERY2" which must be compacted as far as possible. This listing has a space following the line numbers WHICH MUST BE OMITTED IN THE ACTUAL GAME TYPED IN. All the lines left in are necessary due to conditions or line calls.

If the user wishes to omit the sound at each go, then modifying line 113 to: 113IFP% = 1GOSUB252 ELSE GOSUB254 will achieve this. All REMs had to be removed to save space and, although the user may insert some during typing, they must be removed before playing the game. Also RENUMBER will fail to change several calculated GOSUBs and GOTOS and should be avoided.

In addition, the game DATA has been removed from the main program and, besides the space saving, this gives a major benefit by drastically reducing game start time. The DATA must be SAVEd into a file called "TREDATA" (may be changed by changing line 127). In order to do this, I have written the program DATASAVE which will read all the DATA and then SAVE to "TREDATA" which should immediately follow "TREACHERY2" on the user's tape.

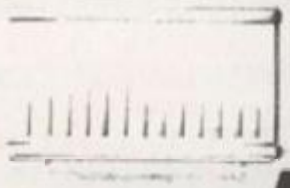
Therefore the order is:

1). Type in and save "TREACHERY".
2). Type in and save "TREACHERY2".
3). Type in and save DATASAVE on another tape.
4). Load DATASAVE.
5). Set up the tape recorder at the end of TREACHERY2 on the main tape.
6). Run DATASAVE which will instruct you to operate the tape recorder to save TREDATA.
7). Play the game!

MAIN PROGRAM: TREACHERY 2

```
  1 CLEAR:*FX4,1
  2 GOTO118
  5 PRINTTAB(1,4)CHR$149CHR$55STRING$(34,CHR$96)CHR$235
  6 FORK%=5TO20:PRINTTAB(1,K%)CHR$149CHR$53CHR$135TAB(35)CHR$149CHR$234:NEXT
  7 PRINTTAB(1,21)CHR$149CHR$117STRING$(34,CHR$240)CHR$250:RETURN
  8 CLS:X%=0:Y%=0:GOSUB113:FORK%=1TO2:PRINTTAB(11,K%)CHR$141CHR$129"TOP SECRET
":NEXT
  9 PRINTTAB(7,6)CHR$133CHR$141P$(P%,1) TAB(7)CHR$133CHR$141P$(P%,1) TAB(9)C
HR$133"OPERATIONAL FILE" TAB(6)"REF: ":P$(P%,2) TAB(6)"Heidelberg Schweinste
n" TAB(6)"GRADE 1 ACCESS ONLY"
 10 PRINTTAB(5,20)CHR$(133)"_____":C$="":FORK%=1TO6
 12 GOSUB270:IFK$<"a"ORK$>"z"GOTO12
 13 K$=CHR$(ASC(K$)-32):C$=C$+K$:PRINTTAB(5+K%,20)K$:NEXT:IFday%=3 G$(P%)=C$
 14 IFC$<>G$(P%)PRINTTAB(14,20)CHR$129"IS INCORRECT":GOSUB113:GOTO10
 15 RETURN
 16 PRINTTAB(6,20)CHR$136"KEY SPACE,COPY OR RETURN";CHR$137
 17 GOSUB270:IFK$<>" "ANDASC(K$)<>13ANDASC(K$)<>135GOTO17
 18 IFASC(K$)=135PRINTTAB(6,20)STRING$(26," "):GOSUB260
 19 PRINTTAB(6,20)STRING$(17," "):RETURN
 20 PROCHEAD:PRINTTAB(6,8)"INCOMING REPORT"TAB(6,10)"PRESS KEY FOR YOUR AGENT"
:GOSUB248:ag%=K%:IFK$=" "RETURN
 21 PROCRANK(ag%):IForank%>erank%ANDASC(MID$(F$(1,ag%),5,1))>0GOTO23
 22 PRINTTAB(6,10)CHR$130CHR$136"NO REPORT IS AVAILABLE"CHR$137:FORK%=1TO1000
:NEXT:GOTO20
 23 IFASC(MID$(F$(1,ag%),2,1))=0GOTO25
 24 M1%=ASC(MID$(F$(1,ag%),2,1)):M5%=ASC(MID$(F$(1,ag%),3,1)):M6%=ASC(MID$(F$(
1,ag%),4,1)):F$(1,ag%)=LEFT$(F$(1,ag%),1)+CHR$0+RIGHT$(F$(1,ag%),12):GOTO27
 25 M1%=17:IFASC(LEFT$(F$(1,ag%),1))>1 M1%=16
 26 M5%=ASC(MID$(F$(1,ag%),6,1)):M6%=0:F$(1,ag%)=LEFT$(F$(1,ag%),5)+MID$(F$(1,
ag%),7,8)+RIGHT$(F$(1,ag%),1)
 27 M2%=ag%:M3%=P%:M4%=day%-1:F$(1,ag%)=LEFT$(F$(1,ag%),4)+CHR$(ASC(MID$(F$(1,
ag%),5,1))-1)+RIGHT$(F$(1,ag%),9):M$=CHR$M1%+CHR$M2%+CHR$M3%+CHR$M4%+CHR$M5%+CHR
$M6%
 28 from%=ASC(LEFT$(N$(ag%),1)):type%=1:de%=18:IFP%=2 de%=25
 29 PRINTTAB(6,8)X$(ag%)" TO ":MID$(P$(P%,1),5,14):GOSUB87:IFK$="x"GOTO20
 30 ME%=stack%-1:MD%=3:PROCHEAD:PRINTTAB(6,8)"INCOMING REPORT"
 31 PROCHEAD:PRINTTAB(6,8)"INCOMING REPORT"
 32 IFE%=1PRINTTAB(6,10)"REPORT HAS BEEN SENT BUT"TAB(6,11)"IT HAS NOT BEEN RE
CEIVED":GOTO16
 33 Y%=7:GOSUB34:GOTO16
```

```
  34 M1%=ASC(MID$(S$(MD%,ME%),1,1)):M2%=ASC(MID$(S$(MD%,ME%),2,1)):M3%=ASC(MID$
(S$(MD%,ME%),3,1)):M4%=ASC(MID$(S$(MD%,ME%),4,1)):M5%=ASC(MID$(S$(MD%,ME%),5,1))
:M6%=ASC(MID$(S$(MD%,ME%),6,1))
  35 IFM1%<10PRINTTAB(6,Y%)RIGHT$(P$(M3%,1),14);" TO ";X$(M2%)
  36 IFM1%>9PRINTTAB(6,Y%)X$(M2%);" TO ":RIGHT$(P$(M3%,1),14)
  37 Y%=Y%+1:GOSUB(37+1*M1%):Y%=Y%+1:PRINTTAB(2,Y%)CHR$61STRING$(34,CHR$44)CHR$
238:RETURN
  38 PRINTTAB(6,Y%)"Go to ":W$(M5%):RETURN
  39 PRINTTAB(6,Y%)"Kill ":X$(M5%):RETURN
  40 PRINTTAB(6,Y%)"Search ":W$(M5%):RETURN
  41 PRINTTAB(6,Y%)"Steal ":R$(M5%):Y%=Y%+1:PRINTTAB(6,Y%)"from agent ":X$(M6%)
:RETURN
  42 PRINTTAB(6,Y%)"Hide ":R$(M5%):RETURN
  43 PRINTTAB(6,Y%)"Transfer ":R$(M5%):Y%=Y%+1:PRINTTAB(6,Y%)"to agent ":X$(M5%
):RETURN
  44 PRINTTAB(6,Y%)"Change status to ":Q$(M5%):RETURN
  45 PRINTTAB(6,Y%)"Switch HOMING BEACON ":O$(M5%):RETURN
  46 PRINTTAB(6,Y%)"Explode MIND-BOMB":RETURN
  47 PRINTTAB(6,Y%)R$(M5%);" captured":Y%=Y%+1:PRINTTAB(6,Y%)"in ":W$(M6%):RETU
RN
  48 PRINTTAB(6,Y%)R$(M5%);" located":Y%=Y%+1:PRINTTAB(6,Y%)"in ";W$(M6%):RETUR
N
  49 PRINTTAB(6,Y%)"SCHWEINSTEIN was seen on":Y%=Y%+1:PRINTTAB(6,Y%)"DAY ";M5%;
" in ";W$(M6%):RETURN
  50 PRINTTAB(6,Y%)"I have got ";R$(M5%):Y%=Y%+1:PRINTTAB(6,Y%)"from ";X$(M6%):
RETURN
  51 PRINTTAB(6,Y%)"I have not got ":Y%=Y%+1:PRINTTAB(6,Y%)R$(M5%):RETURN
  52 PRINTTAB(6,Y%)"Goods have been stolen":RETURN
  53 PRINTTAB(6,Y%)"Message stopped on DAY ";M4%
  54 Y%=Y%+1:IFMD%=1PRINTTAB(6,Y%)"Contents not available":RETURN
  55 ME%=M5%:MD%=MD%-1:GOSUB34:RETURN
  56 PRINTTAB(6,Y%)"Message passed on DAY ";M4%:GOTO54
  57 I$="":M6%=0:PROCHEAD:PRINTTAB(6,8)"OUTGOING ORDER"TAB(6,10)" PRESS KEY FOR
 YOUR AGENT":GOSUB248:M2%=K%
  58 PRINTTAB(6,10)RIGHT$(P$(P%,1),14);" TO"CHR$129;X$(M2%);"    "TAB(6,11)"KEY
 1  Go to city"TAB(6,12)"KEY 2  Kill agent"TAB(6,13)"KEY 3  Search city"TAB(6,14
)"KEY 4  Steal object"TAB(6,15)"KEY 5  Hide object"
  59 PRINTTAB(6,16)"KEY 6  Transfer object"TAB(6,17)"KEY 7  Change status"TAB(6
,18)"KEY 8  Switch BEACON"TAB(6,19)"KEY 9  Explode MIND-BOMB"
  60 GOSUB270:IFK$<"1"ORK$>"9"GOTO60
  62 M1%=VAL(K$):FORK%=1TO9:PRINTTAB(6,10+K%)STRING$(24," "):NEXT:PRINTTAB(6,11
):GOSUB(63+VAL(K$)):M3%=P%:M4%=day%:M$=CHR$M1%+CHR$M2%+CHR$M3%+CHR$M4%+CHR$M5%+
CHR$M6%:from%=18:IFP%=2 from%=25
  63 type%=0:de%=ASC(LEFT$(N$(M2%),1)):GOSUB87:IFK$="x"GOTO57 ELSERETURN
  64 PRINT"Go to . . .":GOTO73
  65 PRINT"Kill . . .":GOSUB78:M5%=ag%:PRINTTAB(11,11)CHR$131X$(M5%):RETURN
  66 M5%=ASC(LEFT$(N$(M2%),1)):PRINT"Search"CHR$131W$(M5%):RETURN
  67 PRINT"Steal . . .":GOSUB79:PRINTTAB(12,11)CHR$131R$(M5%)TAB(6,12)"from age
nt . . .":GOSUB78:M6%=ag%:PRINTTAB(17,12)CHR$131X$(M6%):RETURN
  68 PRINT"Hide . . .":GOSUB79:PRINTTAB(11,11)CHR$131R$(M5%):RETURN
  69 PRINT"Transfer . . .":GOSUB79:PRINTTAB(15,11)CHR$131R$(M5%)'TAB(6)"to agen
t . . .":GOSUB78:M6%=ag%:PRINTTAB(15,12)CHR$131X$(M6%):RETURN
  70 PRINT"Change status to . . .":GOSUB83:PRINTTAB(23,11)CHR$131Q$(M5%):RETURN
  71 PRINT"SwitchHOMING BEACON . . .":GOSUB84:PRINTTAB(27,11)CHR$131O$(M5%):RET
URN
  72 PRINT"ExplodeMIND-BOMB . . .":RETURN
  73 L%=8:M5%=ASC(LEFT$(N$(M2%),1)):FORK%=1TO8:K$=MID$(Y$(M5%),K%,1):IFK$=""L%=
K%-1:K%=8:GOTO75
  74 PRINTTAB(6,12+K%)"KEY ":K%;" ";W$(ASC(K$)-64)
  75 NEXT
  76 GOSUB270:IFK$<"1"ORK$>STR$(L%)GOTO76
  77 GOSUB86:M5%=ASC(MID$(Y$(M5%),VAL(K$),1))-64:PRINTTAB(12,11)CHR$131W$(M5%):
RETURN
  78 PRINTTAB(6,14)"PRESS KEY FOR AGENT":GOSUB248:ag%=K%:L%=1:GOSUB86:RETURN
  79 FORK%=1TO3:PRINTTAB(6,14+K%)"KEY ";K%;" ";R$(K%):NEXT
  80 GOSUB270:IFK$<"1"ORK$>"3"GOTO80
  81 M5%=VAL(K$)
  82 L%=3:GOSUB86:RETURN
  83 FORK%=1TO3:PRINTTAB(6,12+K%)"KEY ";K%;" ";Q$(K%):NEXT:GOTO80
  84 PRINTTAB(6,13)"KEY 1  ON"TAB(6,14)"KEY 2  OFF":GOSUB270:IFK$<"1"ORK$>"2"GO
TO84
  85 M5%=VAL(K$):L%=2
```

IN YOU WON'T FIND OR BUT YOU WILL DISCOVER HOW TO PREVENT CONTROL YOUR  OR TALK TÓ THE WITH YOUR

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```
 86 FORK%=1TOL%:PRINTTAB(6,12+K%)STRING$(25," "):NEXT:RETURN
 87 PRINTTAB(6,13)"Choose route for message"TAB(6,14)"by pressing agent keys."
TAB(6,16)"Destination of message"TAB(6,17)"will end route entry."TAB(6,19)"SPACE
 will cancel."TAB(6,20)"Longest route = 8 agents."
 88 GOSUB248:IFK$=" "K$="x":RETURN
 89 L%=8:GOSUB86:A$="":N%=0
 90 GOSUB249:IFK$=" "L%=8:GOSUB86:GOTO87
 91 C%=ASC(LEFT$(N$(K%),1)):PRINTTAB(6,13+N%)X$(K%)" "TAB(14)W$(C%):N%=N%+1:A
$=A$+CHR$K%:IFC%=de%AND(type%=1ORK%=M2%)FORK%=0TO3000:NEXT:GOTO95
 92 IFN%=8PRINTTAB(6,12)"THIS ROUTE IS TOO LONG        ":VDU7:FORK%=1TO5000:NEXT
:L%=7:GOSUB86:PRINTTAB(6,12)STRING$(26," "):GOTO87
 94 GOSUB270:GOTO90
 95 L%=8:GOSUB86:PRINTTAB(6,13)"MESSAGE TO BE SENT VIA  ":FORK%=0TO2:PRINTTAB(
6,15+K%)::FORJ%=1TO3:IF(K%*3+J%)>N%GOTO97
 96 ag%=ASC(MID$(A$,(K%*3+J%),1)):PRINTX$(ag%)" ";
 97 NEXT:NEXT
 98 PRINTTAB(8,20)"KEY COPY OR RETURN ":K$=INKEY$(0):IFASC(K$)<>13ANDASC(K$)<>1
3560TO98
 99 IFK$=""RETURNELSEIFASC(K$)=135PRINTTAB(6,20)STRING$(24," "):GOSUB260:K$=CH
R$13
 100 IFK$=CHR$13PRINTTAB(6,20)"THE MESSAGE IS BEING SENT        ":FORK%=1TO5000:N
EXT:GOTO102
 101 GOTO99
 102 S$(3,stack%)=M$
 103 E%=0:A$=I$+A$:N%=LEN(A$):FORK%=1TON%:ag%=ASC(MID$(A$,K%,1)):to%=ASC(LEFT$(
N$(ag%),1)):IFE%=1ORVAL(MID$(Z$(from%),to%,1))>1 E%=1:GOTO108
 104 PROCRANK(ag%):IForank%>erank%ORorank%=erank%GOTO108
 105 im%=ASC(MID$(F$(2,ag%),5,1)):IFim%>0ANDASC(MID$(F$(2,ag%),im%+5,1))=stack%
GOTO108
 106 im%=im%+1:F$(2,ag%)=LEFT$(F$(2,ag%),4)+CHR$im%+RIGHT$(F$(2,ag%),9):F$(2,ag
%)=LEFT$(F$(2,ag%),im%+4)+CHR$stack%+RIGHT$(F$(2,ag%),9-im%)
 107 IFASC(MID$(N$(ag%),4,1))<>1 E%=1:IFK%=N%ANDASC(LEFT$(M$,1))<10ANDASC(MID$(
N$(ag%),4,1))=2 E%=0
 108 from%=to%:NEXT:IFASC(LEFT$(M$,1))>9ORE%=1GOTO112
 109 IForank%=0GOTO112
 110 IForank%<erank%ANDASC(MID$(N$(ag%),5,1))<>0GOTO112
 111 N$(ag%)=LEFT$(N$(ag%),4)+CHR$stack%
 112 stack%=stack%+1:RETURN
 113 IFP%=1 X%=21:Y%=0:CALL&D00:GOSUB252 ELSE X%=35:Y%=42:CALL&D00:GOSUB254
 114 RETURN
 117 DATA 4,3,3,4,3,2,3,2,2,3,2,3,2,1,2,1,2,1,2,1,1,2,1,2,1,2,1,2,1,0,1,0,1,0,1
,0,1,0,1,0,1,0,1,0,0,1,0,1,0,1,0,1,0,1,0,1,0,1,0,1,0,1,0,0,0,0,0,0,0,0,0,0,0,0
```

KEYS TO CONTROL THE AGENTS

COMMAND	KEY	COMMAND	KEY
Agent One (& Go To)	1	Agent Papa	P
Agent Two (& Kill)	2	Agent Alpha	A
Agent Three (& Search)	3	Agent Sierra	S
Agent Four (& Steal)	4	Agent Delta	D
Agent Five (& Hide)	5	Agent Foxtrot	F
Agent Six (& Transfer)	6	Agent Golf	G
Agent Seven (& Status)	7	Agent Hotel	H
Agent Eight (& Switch)	8	Agent Juliet	J
Agent Nine (& Explode)	9	Agent King	K
Agent Zero	0	Agent Lima	L
Agent Quiz	Q	Conform	Return
Agent Winter	W	Agent Zulu	Z
Agent Echo	E	Agent X-Ray	X
Agent Romeo	R	Agent Charlie	C
Agent Tango	T	Agent Victor	V
Agent Yankee	Y	Agent Bravo	B
Agent Uncle	U	Agent Noble	N
Agent Ivan	I	Agent Mike	M
Agent Oscar	O	Cancel	Space

WINNING AND HOW TO GO ABOUT IT

The winning player must either capture Professor Schweinstein and take him back to HQ or lead the Mandroid to enemy HQ and detonate the Mindbomb. The HQs are either in London or Moscow.

Neither player knows the exact whereabouts of Professor Schweinstein. However, they both get certain clues as to his location. During each turn, the computer will inform each player where Schweinstein was three "days" ago. The Schweinstein counter is then moved to that city on the main map of Europe.

If either player orders a search of a city and Schweinstein has been there within the last two "days", then the player will be informed how many days ago the Professor was in that city.

If Schweinstein is actually in the city at the time the search is ordered, then the Professor will be captured by the agent who initiates the search.

The computer moves Schweinstein randomly about the board with the following restrictions:

1) He will never stay in a city for more than one turn.
2) He will never return to a city he has visited on the previous turn.
3) He will never go to London or Moscow of his own accord.

At the start of the game, both the Mindbomb's firing button and the Mandroid homing beacon are buried

```
  118 DIMP$(2,2),O$(2),Q$(3),R$(3),S$(3,16),N$(36),F$(2,36)
  119 M$=STRING$(13,CHR$0):FORK%=1TO36:N$(K%)="      ":NEXT:FORK%=1TO36:READA%,B
  123 C%=RND(36):IFASC(MID$(N$(C%),2,1))<>32GOTO123
  124 N$(C%)=CHR$C%+CHR$A%+CHR$B%+CHR$1+CHR$0:F$(1,C%)=CHR$1+M$:IF(A%=1ANDB%=0)O
R(A%=0ANDB%=1)F$(1,C%)=CHR$3+M$:N$(C%)=LEFT$(N$(C%),3)+CHR$3+CHR$0
  125 F$(2,C%)=F$(1,C%):IFC%>26ANDC%<32 N$(C%)=CHR$18+RIGHT$(N$(C%),4)ELSEIFC%>
1 N$(C%)=CHR$25+RIGHT$(N$(C%),4)
  126 NEXT:DIMG$(2),O%(6,5),S%(4),W$(26),X$(36),Y$(26),Z$(26)
  127 X=OPENIN"TREDATA":INPUT£X,P$(1,1),P$(2,1),P$(1,2),P$(2,2),O$(1),O$(2),Q$(
),Q$(2),Q$(3),R$(1),R$(2),R$(3)
  128 FORK%=1TO26:INPUT£X,W$(K%),Y$(K%),Z$(K%):NEXT
  129 FORK%=1TO36:INPUT£X,X$(K%):NEXT:CLOSE£X
  152 day%=3:stack%=1:P%=1:GOSUB154:S%(1)=R%:schwag%=0:FORJ%=1TO5:GOSUB199:NEXT
GOSUB154:btag%=0:btloc%=R%
  153 GOSUB154:IFR%=btloc%GOTO153 ELSEbcag%=0:bcloc%=R%:bcon%=2:manloc%=RND(26):
explod%=0:GOTO163
  154 R%=RND(26):IFR%=18ORR%=25GOTO154
  155 RETURN
  156 GOSUB5:PRINTTAB(5,5)CHR$140LEFT$(P$(P%,1),4);"AGENT & RANK DAY ";day%:Y%=7
:X%=6:FORK%=1TO36:IFASC(MID$(N$(K%),4,1))=0ORASC(MID$(N$(K%),P%+1,1))=0GOTO158
  157 A%=ASC(MID$(N$(K%),P%+1,1)):PRINTTAB(X%,Y%)X$(K%);TAB(8+X%,Y%)A%:Y%=Y%+1:I
FY%=18 Y%=7:X%=19
  158 NEXT:GOTO16
  159 GOSUB5:PRINTTAB(5,5)CHR$140LEFT$(P$(P%,1),4);"AGENT REPORTS DAY ";day%:Y%=
7:X%=6:FORK%=1TO36:IFASC(MID$(N$(K%),4,1))=0GOTO162
  160 PROCRANK(K%):IForank%<erank%ORorank%=erank%ORASC(MID$(F$(1,K%),5,1))=0GOTO
162
  161 PRINTTAB(X%,Y%)X$(K%)TAB(X%+8):ASC(MID$(F$(1,K%),5,1)):Y%=Y%+1:IFY%=18 Y%=
7:X%=18
  162 NEXT:GOTO16
  163 reports%=0:GOSUB8
  164 IFreports%=5ORday%=3GOTO170
  165 PROCHEAD:PRINTTAB(6,8)"YESTERDAY'S FIELD REPORTS"TAB(6,10)"KEY 1  List all
 agents"TAB(13,11)"and their rank"TAB(6,13)"KEY 2  List all agents with"TAB(13,1
4)"reports to send and"TAB(13,15)"how many reports";
  166 PRINTTAB(6,17)"KEY 3  Call in a report"TAB(6,19)"KEY 4  Finish with report
s"TAB(13,20)"Give today's orders"
  167 GOSUB270:ONVAL(K$)GOSUB156,159,20 ELSEIFK$="4" GOTO170 ELSE167
  168 IFK$="3"reports%=reports%+1
  169 GOTO164
  170 orders%=0
  171 IForders%=3GOTO176
  172 PROCHEAD:PRINTTAB(6,8)"TODAY'S ORDERS"TAB(6,10)"KEY 1  List all agents"TAB
(13,11)"and their rank"TAB(6,13)"KEY 2  Give an order"TAB(6,15)"KEY 3  Finish wi
th orders"TAB(13,16)"Operations over"TAB(13,17)"until tomorrow"
  173 GOSUB270:IFK$<"1"ORK$>"3"GOTO173
  174 IFK$="1"GOSUB156:GOTO171
  175 IFK$="2"GOSUB57:orders%=orders%+1:GOTO171
  176 P%=P%+1:IFP%<3GOTO163
  177 GOSUB178:day%=day%+1:FORK%=1TO16:S$(1,K%)=S$(2,K%):S$(2,K%)=S$(3,K%):NEXT:
stack%=1:M$=STRING$(13,CHR$0):FORK%=1TO36:F$(1,K%)=F$(2,K%):F$(2,K%)=MID$(N$(K%)
,4,1)+M$:NEXT:P%=1:GOTO163
  178 CLS:GOSUB5:PRINTTAB(6,5)"END OF DAY ";day%;"'s TREACHERY":GOSUB199:FORK%=1
TO6:FORJ%=1TO5:O%(K%,J%)=0:NEXT:NEXT:no%=0:FORK%=1TO36:O1%=ASC(RIGHT$(N$(K%),1))
:IFO1%=0GOTO180
  179 no%=no%+1:C$="12563":FORZ%=1TO5:O%(no%,Z%)=ASC(MID$(S$(3,O1%),VAL(MID$(C$,
Z%,1)),1)):NEXT:N$(K%)=LEFT$(N$(K%),4)+CHR$0
  180 NEXT
  181 Y%=7:FORO%=1TOno%:ONO%(O%,1)GOSUB211,239,230,237,216,220,245,244,204 ELSE
  182 NEXT:FORK%=1TO36:IFASC(MID$(F$(2,K%),2,1))<>0 F$(2,K%)=LEFT$(F$(2,K%),4)+C
HR$(ASC(MID$(F$(2,K%),5,1))+1)+RIGHT$(F$(2,K%),9)
  183 NEXT:PRINTTAB(6,Y%)"3 days ago SCHWEINSTEIN"TAB(6,Y%+1)"was seen in ";W$(S
%(4)):Y%=Y%+2:IFbcon%=2GOTO185
  184 PRINTTAB(6,Y%)"BEACON ON in ";W$(bcloc%):Y%=Y%+2
  185 IFbtag%=0GOTO186 ELSEPRINTTAB(6,Y%)"FIRING BUTTON detected"TAB(6,Y%+1)"in
";W$(btloc%):Y%=Y%+2
  186 IFexplod%=1GOTO194 ELSED%=VAL(MID$(Z$(manloc%),bcloc%,1))
  187 IFD%=0ANDbcon%=1GOTO193
```

in secret locations and neither are active. During this stage of the game, the Mandroid is moved about the board by the computer completely at random. When the beacon is found and switched on two things will happen:

1) The beacon counter is placed on the board in the correct location.

2) The Mandroid is moved randomly towards it — ie to any city which takes it nearer the homing beacon.

If the beacon is switched off again, the Mandroid moves entirely at random once more.

HOW THE GAME WORKS

In most board games, once you have decided what to do with a piece, you simply pick it up and move it and when something happens to a piece, you get to know about it immediately. Treachery is quite different.

Scattered across Europe are 36 secret agents, some of which you control, some of which you *think* you control and some of which you definitely don't control!

To get an agent to do something, first you have to send him a message from HQ containing your orders. And, if you want any information from him, he first has to send a message to HQ containing his report.

Any messages going between an agent and HQ must be routed through a continuous chain of agents in adjoining cities. For instance, to get a message from Moscow to Tangier, the shortest route would be Istanbul-Athens-Tangier and you could use your agents in those cities to pass on the message. Of course, there are a large

```
 188 N%=0:FORK%=1TO8:IFMID$(Y$(manloc%),K%,1)<>"" N%=N%+1
 189 NEXT
 190 R%=RND(N%):IFbcon%=2 manloc%=ASC(MID$(Y$(manloc%),R%,1))-64:GOTO193
 191 C%=ASC(MID$(Y$(manloc%),R%,1))-64:IFVAL(MID$(Z$(C%),bcloc%,1))>D%ORVAL(MID
$(Z$(C%),bcloc%,1))=D%GOTO190
 192 manloc%=C%
 193 PRINTTAB(6,Y%+1)"MANDROID in "W$(manloc%):Y%=Y%+3
 194 IFS%(1)<>18ANDS%(1)<>25GOTO16 ELSEP%=S%(1)DIV12:PRINTTAB(6,Y%)"SCHWEINSTEI
N IN ":W$(S%(1))TAB(6,Y%+2)P$(P%,1);TAB(6,Y%+3)" HAVE WON THE GAME"
 195 GOSUB113:GOTO195
 199 FORK%=4TO2STEP-1:S%(K%)=S%(K%-1):NEXT:IFschwag%>0RETURN
 200 N%=0:FORK%=1TO8:IFMID$(Y$(S%(1)),K%,1)<>"" N%=N%+1
 201 NEXT
 202 R%=RND(N%):C%=ASC(MID$(Y$(S%(1)),R%,1))-64:IFC%=S%(3)ORC%=18ORC%=25GOTO202
 203 S%(1)=C%:RETURN
 204 IFexplod%=1RETURNELSEag%=0%(0%,2):IFbtag%<>ag% ob%=2:GOTO228
 205 PRINTTAB(6,Y%)"MIND-BOMB explodes in"TAB(6,Y%+1)W$(manloc%):Y%=Y%+2:IFmanl
oc%=18ORmanloc%=25 P%=manloc%DIV12:PRINTTAB(6,Y%);P$(P%,1);TAB(6,Y%+1)" HAVE WON
 THE GAME":GOTO195
 206 Y%=Y%-1:FORK%=1TO36:IFASC(LEFT$(N$(K%),1))<>manloc%THENNEXT
 207 IFbtag%=K%btag%=0
 208 IFbcag%=K%bcag%=0
 209 IFschwag%=K%schwag%=0
 210 N$(K%)=LEFT$(N$(K%),3)+CHR$0+RIGHT$(N$(K%),1):NEXT:explod%=1:RETURN
 211 ag%=0%(0%,2):C%=0%(0%,3):IFASC(MID$(N$(ag%),4,1))=0RETURN ELSEN$(ag%)=CHR$
C%+RIGHT$(N$(ag%),4)
 212 IFbtag%=ag%btloc%=C%
 213 IFbcag%=ag%bcloc%=C%
 214 IFschwag%=ag%S%(1)=C%
 215 PRINTTAB(6,Y%)X$(ag%);" go to ":W$(C%):Y%=Y%+1:RETURN
 216 ag%=0%(0%,2):ob%=0%(0%,3):IFASC(MID$(N$(ag%),4,1))=0RETURN ELSEONob%GOTO21
7,218,219
 217 IFschwag%<>ag%GOTO228 ELSEschwag%=0:RETURN
 218 IFbtag%<>ag%GOTO228 ELSEbtag%=0:RETURN
 219 IFbcag%<>ag%GOTO228 ELSEbcag%=0:RETURN
 220 ag%=0%(0%,2):ob%=0%(0%,3):to%=0%(0%,4):IFag%=to%RETURN
 221 IFASC(MID$(N$(ag%),4,1))=00RASC(MID$(N$(to%),4,1))=0RETURN
 222 fc%=ASC(LEFT$(N$(ag%),1)):tc%=ASC(LEFT$(N$(to%),1)):IFMID$(Z$(fc%),tc%,1)>
"1"RETURN
```

```
 223 ONob%GOTO224,225,226 ELSE STOP
 224 IFschwag%<>ag%GOTO228 ELSEschwag%=to%:S%(1)=tc%:GOTO227
 225 IFbtag%<>ag%GOTO228 ELSEbtag%=to%:btloc%=tc%:GOTO227
 226 IFbcag%<>ag%GOTO228 ELSEbcag%=to%:bcloc%=tc%
 227 F$(2,to%)=LEFT$(F$(2,to%),1)+CHR$13+CHR$ob%+CHR$ag%+RIGHT$(F$(2,to%),10)
 228 IFO%(O%,1)=4XX%=to%ELSEXX%=ag%
 229 F$(2,XX%)=LEFT$(F$(2,XX%),1)+CHR$14+CHR$ob%+RIGHT$(F$(2,XX%),11):RETURN
 230 ag%=O%(O%,2):C%=O%(O%,3):IFASC(MID$(N$(ag%),4,1))=0RETURN ELSEs1%=0:FORK%
3TO2STEP-1:IFS%(K%)=C% s1%=K%
 231 NEXT:IFs1%<>0 F$(2,ag%)=LEFT$(F$(2,ag%),1)+CHR$12+CHR$(day%+1-s1%)+CHR$C%
RIGHT$(F$(2,ag%),10)
 232 IFS%(1)<>C%GOTO234 ELSEIFschwag%=0 schwag%=ag%:XX%=10 ELSEXX%=11
 233 F$(2,ag%)=LEFT$(F$(2,ag%),1)+CHR$XX%+CHR$1+CHR$C%+RIGHT$(F$(2,ag%),10):RE
URN
 234 IFbtloc%<>C%ORbtag%<>0GOTO235 ELSEF$(2,ag%)=LEFT$(F$(2,ag%),1)+CHR$10+CHR
2+CHR$C%+RIGHT$(F$(2,ag%),10):btag%=ag%
 235 IFbcloc%<>C%ORbcon%=1RETURN ELSEIFbcag%=0 bcag%=ag%:XX%=10 ELSEXX%=11
 236 F$(2,ag%)=LEFT$(F$(2,ag%),1)+CHR$XX%+CHR$3+CHR$C%+RIGHT$(F$(2,ag%),10):RE
URN
 237 to%=O%(O%,2):ob%=O%(O%,3):ag%=O%(O%,4):IFag%=to%RETURN ELSEGOSUB221
 238 IFASC(MID$(F$(2,to%),2,1))<>13RETURN ELSEF$(2,ag%)=LEFT$(F$(2,ag%,1)+CHR$1
5+RIGHT$(F$(2,ag%),12):RETURN
 239 ag%=O%(O%,2):to%=O%(O%,3):IFag%=to%RETURN ELSEIFASC(MID$(N$(ag%),4,1))=0R
ASC(MID$(N$(to%),4,1))=0RETURN
 240 C%=ASC(LEFT$(N$(ag%),1)):IFASC(LEFT$(N$(to%),1))<>C%RETURN ELSEN$(to%)=LEF
T$(N$(to%),3)+CHR$0+RIGHT$(N$(to%),1)
 241 IFbtag%=to%btag%=0
 242 IFbcag%=to%bcag%=0
 243 PRINTTAB(6,Y%)X$(to%);" is eliminated ":Y%=Y%+1:IFschwag%=to% schwag%=0:RE
TURN ELSE RETURN
 244 ag%=O%(O%,2):on%=O%(O%,3):IFASC(MID$(N$(ag%),4,1))=0RETURN ELSEIFbcag%<>ag
%ob%=3:GOTO228 ELSEbcon%=on%:RETURN
 245 ag%=O%(O%,2):p1%=P%:P%=O%(O%,5):IFASC(MID$(N$(ag%),4,1))=0 P%=p1%:RETURN E
LSEPROCRANK(ag%):P%=p1%:IFerank%>orank%RETURN ELSEN$(ag%)=LEFT$(N$(ag%),3)+CHR$0
%(O%,3)+RIGHT$(N$(ag%),1):RETURN
```

number of alternative routes for any message. The only restriction on your choice of route is that only eight agents can be used for one message.

So far, it seems simple enough. There is, however, a catch. Some of the agents you use to pass on the message may be traitors, apparently your agents but really under the control of the enemy! If so, nasty things can happen to your message.

Firstly, the traitor will memorize the message and try to report its contents to his own HQ on the following day. Secondly, your message might be stopped altogether and never reach its destination.

If the traitor intercepting the message is ASLEEP, he will pass your message on along its chosen route; if he is AWAKE or ACTIVE, he will stop its progress permanently.

If a message is stopped, you may not get to know about it until it's too late. In the case of orders, you only know that they have been sent out and, unless the order has an obvious and visible result such as your agent moving to another city, you will not know for sure that it has been carried out.

In the case of reports to HQ, you *are* told that the report has not actually arrived but you still don't know which agent in the chain is the traitor.

Things can get more complicated still when the traitor tries to report your message back to his own HQ. One of your agents might intercept the traitor's report and memorize it to send back to *your* HQ. When your agent tries to send his report in . . . well, it could go on forever.

Fortunately, the agents have limited memories and messages about messages about messages are only embedded to a depth of three.

ONE DAY OF TREACHERY

1) The British flag appears on the screen and a British signature tune plays. The MI6 player is asked to enter his clearance code before he can access the Top Secret operational file.
2) MI6 reports: The MI6 player calls in yesterday's reports from his agents in the field. He can call in to HQ a maximum of five reports. If a report fails to arrive, it still counts towards this total. The player doesn't have to call in a report if he doesn't want to.
3) MI6 Orders: The MI6 player sends orders for today to his agents in the field. He can send a maximum of three orders but he can send as few as he chooses.
4) The Russian flag appears on the screen and the same sequence as the MI6 player's is followed by the KGB player.
5) The end of the day. The computer memorizes all of today's messages and executes all of today's order (or, at least, the ones that reached the agents concerned). Then it lists on the screen any events that are public knowledge.
6) The game moves on to the next day.

When one player is using the computer to call in and send out his messages, the other player must be out of sight of the screen, otherwise he would see information he's not entitled to.

None of the pieces on the board should be moved or removed until stage five, the end of the day. At this stage, both players can look at the screen. All they need do is follow the computer's instructions as

```
 246 DEFPROCRANK(a%):orank%=ASC(MID$(N$(a%),P%+1,1)):erank%=ASC(MID$(N$(a%),4-P
%,1)):ENDPROC
 248 GOSUB270:IFK$=" "RETURN
 249 IFK$>"`"ANDK$<"{" K%=ASC(K$)-96:GOTO250ELSE IFK$>"/"ANDK$<":" K%=ASC(K$)-2
1:GOTO250ELSE GOTO248
 250 IFASC(MID$(N$(K%),4,1))=0GOTO248 ELSERETURN
 251 DEFPROCHEAD:GOSUB5:FORK%=5TO6:PRINTTAB(0,K%)CHR$141CHR$149CHR$53CHR$135SPC
(3)P$(P%,1)"   DAY   ";day%;:NEXT:ENDPROC
 252 HIMEM=&57F0:MODE5:VDU5,19,0,7,0,0,0,19,1,7,0,0,0:GCOL0,131:CLG:GCOL0,1:RES
TORE260:FORI%=0TO30:READZ%,X%,Y%:PLOTZ%,X%,Y%:NEXT:GCOL0,0:FORI%=0TO23:READZ%,X%
,Y%:PLOTZ%,X%,Y%:NEXT:VDU19,0,4,0,0,0,19,1,1,0,0,0:D=GET:MODE7:RETURN
 254 HIMEM=&57F0:MODE5:VDU5:GCOL0,1:MOVE320,690:PLOT4,960,690:PLOT85,960,284:PL
OT4,320,284:PLOT85,320,690:GCOL0,2:MOVE372,642:PRINTCHR$224CHR$225:MOVE372,610:P
RINTCHR$226CHR$227:MOVE0,0:D=GET:MODE7:RETURN
 260 DATA4,324,554,4,964,554,85,964,464,4,324,464,85,324,554,4,602,714,4,602,31
0,85,686,310,4,686,714,85,602,714,4,962,714,4,934,714,85,736,578,85,712,584,85,7
12,578,4,324,714,4,324,692,85,518,578,85,552,578,85,324,714,4,770,444
 261 DATA4,742,444,85,964,308,4,964,330,85,774,444,4,334,308,4,364,308,85,552,4
44,85,578,444,4,578,436,85,364,308,4,964,346,4,964,444,85,794,444,4,578,714,4,38
4,714,85,578,602,4,712,714,4,904,714,85,712,602,4,964,676,4,964,578
 262 DATA85,804,578,4,324,578,4,324,676,85,490,578,4,324,444,4,324,346,85,490,4
44,4,384,308,4,578,308,85,578,422,4,712,422,4,712,308,85,904,308
 270 *FX21,0
 271 K$=GET$:RETURN
```

to which pieces have a new location and which pieces need to be removed from the board. (NB If the Mindbomb explodes, all the agents in that city must be eliminated.)

On his first turn, each player enters a six-letter clearance code of his own choice before accessing his top secret file. The player should make a very careful note of the code.

After turn one, he won't be able to access his file again unless he enters the correct code. This is to stop the other player trying to cheat by accessing his opponent's file.

Because there is such a lot of information going backwards and forwards each turn, we have included a hard-copy option for each of the information pages a player can access.

Once such a page is on the screen, by pressing COPY (key Z) the player can get a copy of that page on the ZX printer. If you haven't got a printer, we suggest you keep pen and paper handy to make a note of any important items of information.

THE AGENTS

There are 36 agents in the game and each agent has two ranks, one his rank in MI6, the other his rank in the KGB. An agent is always loyal to the player he ranks highest with; this player is his controller. The agent is a traitor to the player he ranks lowest with; this player is known as the dummy!

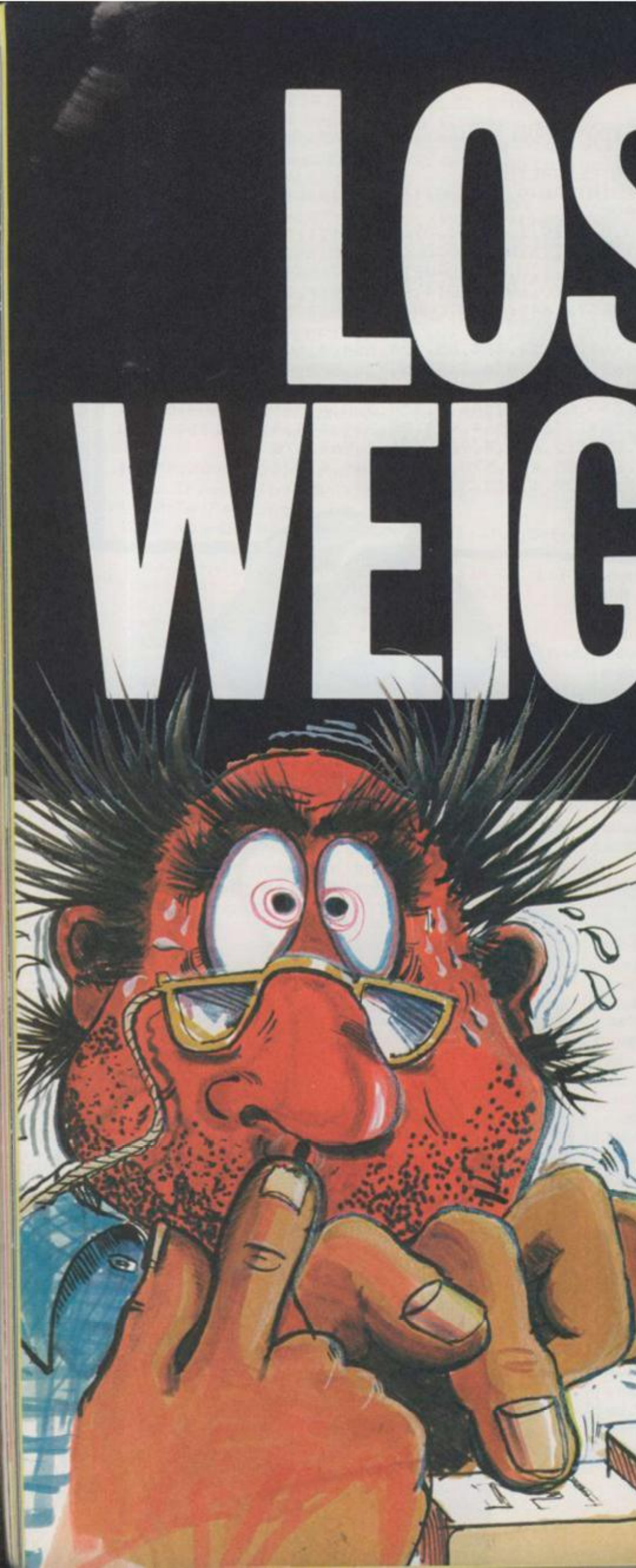
However, players are only told by the computer the rank each agent holds in their *own* organisation. So, at the start of the game, they have no idea which agents are really theirs and which are traitors!

Two numbers, MI6 rank and KGB rank, define the type of agent. The 36 agents are comprised as follows:

1 4-3 MI6 Master Spy
2 3-2 MI6 Triple Agents
4 2-1 MI6 Double Agents
8 1-0 MI6 Single Agents
6 0-0 Couriers under no player's control
1 3-4 KGB Master Spy
2 2-3 KGB Triple Agents
4 1-2 KGB Double Agents
8 0-1 KGB Single Agents

So, each side has 15 loyal agents and there are six neutral pieces. However, at the beginning of the game, it will *appear* to each player that he controls one Master Spy, three Triple Agents, six Double Agents and 12 Single Agents — a total of 22 agents! Seven of these agents are, in fact, traitors whose treachery may be revealed later in the game.

LOSE WEIGHT!



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)+"0"
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EE,ST
  580
  590
,YKNM
V1ZU,
```

DATA SAVING PROGRAM

```
  10 REM ------------------------
  20 REM DATAFILE CREATION PROGRAM
  30 REM ------------------------
  40 MODE7:PRINTTAB(4,10)CHR$130"PLACE A REWOUND BLANK TAPE"''CHR$130"IN YOUR C
ASSETTE RECORDER. MARK IT"'''TAB(12)CHR$131"'DATAFILE'"
  50 PRINTTAB(11,20)CHR$136CHR$129"PLEASE WAIT"
  60 REM --------------------
  70 REM READ VARIOUS STRINGS
  80 REM --------------------
  90 DIM V$(12)
 100 FOR K%=1 TO 12:READV$(K%):NEXT
 110 REM ----------------------
 120 REM READ CITIES AND AGENTS
 130 REM ----------------------
 140 DIMW$(26),X$(36),Y$(26)
 150 FORK%=1 TO26:READW$(K%),X$(K%):NEXT
 160 FORK%=27TO36:READX$(K%):NEXT
 170 FORK%=1 TO26:READY$(K%):NEXT
 180 REM ---------------------
 190 REM CITY TO CITY DISTANCE
 200 REM ---------------------
 210 DIMZ$(26):NN%=26:E%=1:A$="":B$="":N%=0:FORK%=1TO26:Z$(K%)=STRING$(K%-1," "
)+"0"+STRING$(26-K%," ")
 220 FORJ%=1TO8:IFJ%>LEN(Y$(K%)) J%=8:GOTO240 ELSE J$=MID$(Y$(K%),J%,1)
 230 L%=ASC(J$)-64:Z$(K%)=LEFT$(Z$(K%),L%-1)+"1"+RIGHT$(Z$(K%),26-L%):N%=N%+1:A
$=A$+CHR$K%:B$=B$+CHR$L%
 240 NEXT:NEXT
 250 NN%=NN%+N%:IF NN%=676 GOTO350
 260 C$="":D$="":NS%=N%:N%=0:E%=E%+1:E$=STR$(E%)
 270 FORI%=1TONS%:K%=ASC(MID$(A$,I%,1)):J%=ASC(MID$(B$,I%,1))
 280 FORM%=1TO8:M$=MID$(Y$(J%),M%,1):IFM$=" " M%=8:GOTO310
 290 L%=ASC(M$)-64:IFMID$(Z$(K%),L%,1)<>" " GOTO310 ELSE Z$(K%)=LEFT$(Z$(K%),L%
-1)+E$+RIGHT$(Z$(K%),26-L%)
 300 N%=N%+1:C$=C$+CHR$K%:D$=D$+CHR$L%
 310 NEXT:NEXT:A$=C$:B$=D$:GOTO250
 320 REM ---------------------
 330 REM SAVE DATAFILE ON TAPE
 340 REM ---------------------
 350 VDU7:CLS
 360 PRINTTAB(5,10)CHR$130"PRESS RECORD ON CASSETTE"''CHR$130"THEN PRESS 'SPACE
BAR' TO SAVE FILE"''TAB(7)CHR$130"ONTO YOUR BLANK TAPE."
 370 D=GET:IF D<>32 GOTO370
 380 ON ERROR GOTO470
 390 X=OPENOUT"TREDATA"
 400 FOR K%=1 TO 12:PRINT#X,V$(K%):NEXT
 410 FOR K%=1 TO 26:PRINT#X,W$(K%),Y$(K%),Z$(K%):NEXT
 420 FOR K%=1 TO 36:PRINT#X,X$(K%):NEXT
 430 CLOSE#X
 440 VDU7:CLS /
 450 PRINTTAB(3,10)CHR$131"STOP RECORDER AND REMOVE TAPE"
 460 END
 470 CLOSE#X:CLS:PRINTTAB(4,10)CHR$136CHR$129"ERROR, PLEASE CHECK LISTING":VDU7
:STOP
 480 REM ---------------
 490 REM VARIOUS STRINGS
 500 REM ---------------
 510 DATA MI6 LONDON CONTROL,KGB MOSCOW CENTRAL,SCHW.315b/QZ,LIQ./ROBOTNIK/S-20
,ON,OFF,ASLEEP,AWAKE,ACTIVE,SCHWEINSTEIN,FIRING BUTTON,HOMING BEACON
 520 REM ---------------
 530 REM CITIES & AGENTS
 540 REM ---------------
 550DATA AMSTERDAM,ALPHA,BELGRADE,BRAVO,VIENNA,CHARLIE,PARIS,DELTA,OSLO,ECHO,LI
SBON,FOXTROT,MADRID,GOLF,TANGIER,HOTEL,WARSAW,IVAN,ROME,JULIET
 560 DATA ATHENS,KING,ISTANBUL,LIMA,BUCHAREST,MIKE,SOFIA,NOBLE,PRAGUE,OSCAR,COP
ENHAGEN,PAPA,REYKJAVIK,QUIZ,LONDON,ROMEO,BRUSSELS,SIERRA,BERLIN,TANGO
 570 DATA HELSINKI,UNCLE,BUDAPEST,VICTOR,DUBLIN,WINTER,ZURICH,X-RAY,MOSCOW,YANK
EE,STOCKHOLM,ZULU
 580 DATA ZERO,ONE,TWO,THREE,FOUR,FIVE,SIX,SEVEN,EIGHT,NINE
 590 DATA PTSR,VMNKJC,OVBJXT,STXJGR,UZPRWQ,WRGH,RDJKHF,KFG,YVOTPZ,CBKGDX,NLHGJB
,IKNM,YLNBV,MLKB,IVCT,EZITAR,UEW,EPASDGFW,ATDR,PIOCXDSA,YZEQ,IYMBCO,QERF,TCJD,LM
VIZU,UYIPE
```

COMMODORE 64 NOTES: CONVERSION BY DAVID ESTELL

The Commodore version of Mike Singleton's game keeps faithfully to the original with only a few minor alterations to suit the 64. Details of the control codes are included at the end of the program and there are lots of REM statements to help you along. Printouts require a dot-matrix printer — and if you want to copy a screen to your printer use key Z. Keys for the agent are the same as the BBC and Spectrum versions. See the panel for details.

Don't forget to read carefully through the introduction before you start playing the game. And Mike Singleton's tips on how to play are required reading too. Just like any good masterspy you'll need to do a bit of research into your subject first. You'll find the control keys listed at the end of the program listing. David has kept them the same as the Spectrum and BBC versions — but it's a good idea to have them by your side as you start to play. Elsewhere you'll find a page full of the counters you need to play — plus the all important map. We hope you enjoy your search for the Mandroid!

```
10 REM ===TREACHERY 64===
15 REM
20 GOTO2000
95 REM ===PRINT MESSAGE SHEET===
100 PRINT"■■■
```

```
485 M2=AG:M3=P:M4=DY-1:M$=CHR$(M1)+CHR$(M2)+CHR$(M3)+CHR$(M4)+CHR$(M5)+CHR$(M6)
486 F$(1,AG)=LEFT$(F$(1,AG),4)+CHR$(ASC(MID$(F$(1,AG),5,1))-1)+MID$(F$(1,AG),6)
487 FR=ASC(N$(AG,1)):TY=1:DE=18:IFP=2THENDE=25
488 PRINT"■■■
```

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16

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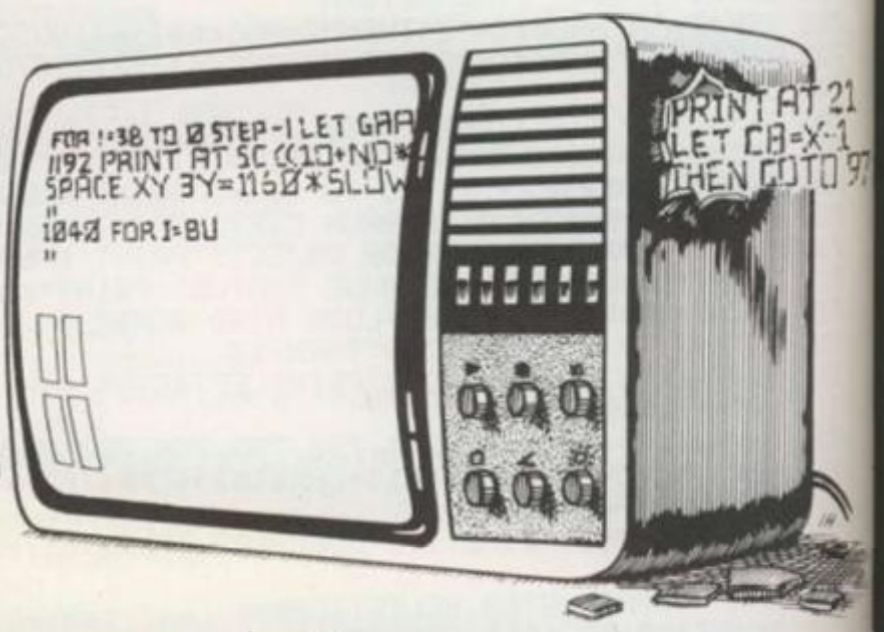

```
731 PRINT"KILL ...":GOSUB760:M5=AG:PRINT"■■■
```

AGENT STATUS

An agent can be ASLEEP, AWAKE or ACTIVE. At the start of the game, all agents are ASLEEP, except the Single Agents which are ACTIVE and do not respond to the enemy at all. Only the player really in control of an agent can change its status.

An agent who is ASLEEP will obey orders from either player and pass on messages from either player. If both players try to give him orders, he will choose to obey his controller's orders only. An agent who is AWAKE will still obey orders from either player but he will stop any messages from the dummy. An agent who is ACTIVE will only obey orders from his controller and will stop any messages from the dummy.

In all cases, agents will only report back to their controller, even if the report is in response to an order given by the dummy!

COURIERS will pass on messages from either player but will not obey orders from anyone nor make any reports. They remain in the same city throughout the game.

ORDERS YOU CAN GIVE TO AN AGENT

GO TO (CITY): Your agent moves to an adjacent city.
KILL (AGENT): Your agent kills another agent. Both agents must be in the same city. No agent will obey an order to kill himself!
SEARCH (CITY): Your agent searches the city he is in for Schweinstein, the Firing Button or the Homing Beacon. If he finds one of these, he will report its presence and stop his search. If the object does not belong to anyone else, he will capture it; if it does, he just reports it.
STEAL (OBJECT) FRO
(AGENT): Your age
steals Schweinstein, t
Button or the Beacon fro
another agent. The oth
agent must be in the sam
or an adjacent city and
must possess the object.
HIDE (OBJECT): Your age
hides Schweinstein, t
Button or the Beacon in t
city he is in. Your age
must possess the objec
Once the object is hidde
no one possesses it.
TRANSFER (OBJECT) T
(AGENT): Your age
transfers Schweinstei
the Button or the Beacon
another agent. The oth
agent must be in the sam

```
837 GOTO827
840 S$(3,SK)=M$
845 REM ===MESSAGE INTERCEPTION===
850 E=0:A$=I$+A$:N=LEN(A$):FORK=1TON:AG=ASC(MID$(A$,K,1)):TT=ASC(N$(AG,1))
852 IFE=1ORVAL(Z$(FR,TT))>1THENE=1:GOTO860
853 AW=ASC(N$(AG,P+1)):ER=ASC(N$(AG,4-P)):IFAW>=ERTHEN860
854 IM=ASC(MID$(F$(2,AG),5,1))
855 IFIM>0ANDASC(MID$(F$(2,AG),IM+5,1))=SKTHEN860
856 IM=IM+1:F$(2,AG)=LEFT$(F$(2,AG),4)+CHR$(IM)+MID$(F$(2,AG),6)
857 F$(2,AG)=LEFT$(F$(2,AG),IM+4)+CHR$(SK)+MID$(F$(2,AG),IM+6)
858 IFASC(N$(AG,4))=1THEN860
859 E=1:IFK=NANDASC(LEFT$(M$,1))<10ANDASC(N$(AG,4))=2THENE=0
860 FR=TT:NEXTK:IFASC(LEFT$(M$,1))>9ORE=1THEN870
867 IFAW=0THEN870
868 IFAW<ERANDASC(N$(AG,5))<>0THEN870
869 N$(AG,5)=CHR$(SK)
870 SK=SK+1:RETURN
895 REM ===PRINT FLAG===
900 PRINTLEFT$(YY$,Y+1);:FORK=1TO14:PRINTLEFT$(XX$,X);U$(P,K):NEXT
902 IFP=1THENRETURN
905 POKE53269,1:POKE53287,7:POKE53249,55+8*Y
906 DM=0:IF147+8*X>255THENPOKE53264,1:DM=256
907 POKE53248,(147+8*X)-DM
910 RETURN
945 REM ===PLAYER TUNE===
950 SN=54272:FORK=SNTOSN+23:POKEK,0:NEXT:POKESN+5,9:POKESN+6,9
955 POKESN+24,15:FORK=1TOLEN(V$(P,1)):DD=VAL(MID$(V$(P,2),K,1))
960 FQ=N(ASC(MID$(V$(P,1),K,1))-64):HF=INT(FQ/256)
965 LF=FQAND255:POKESN,LF:POKESN+1,HF:POKESN+4,17:FORJ=1TODD*50:NEXT
970 POKESN+4,16:FORJ=1TO30:NEXTJ,K
972 RETURN
975 REM ===SPRITE DATA===
980 DATA0,16,0,0,16,0,0,254
981 DATA0,0,56,0,0,68,0,0
982 DATA0,0,0,0,0,0,63,0
983 DATA0,7,192,0,0,240,0,240
984 DATA56,1,224,28,3,240,12,1
985 DATA156,14,0,6,14,12,3,140
986 DATA30,0,220,63,0,120,119,192
987 DATA248,97,255,206,0,127,3
995 REM ==='TOP SECRET' DATA===
1000 DATA"
1005 DATA"
1010 DATA"
1015 REM ===MUSIC DATA===
1020 DATA7217,8101,4291,4817,5407,5728,6430,14435,16203,8583
1022 DATA9634,10814,11457,12860,17167,19269,0
1025 REM ===TUNE STRINGS===
```

```
1030 DATA"MMNNMNMLKJHNMKNLHNMLJQ"
1032 DATA"822614141866111133668l"
1035 DATA"JAJBGJJBAAMBEAGFEDCDEBGEAGFEDCDEBGEQ"
1037 DATA"6336611113366311111133333111111133351"
1040 REM ===VARIOUS STRINGS===
1045 DATA"MI6 LONDON CONTROL"
1050 DATA"KGB MOSCOW CENTRAL"
1055 DATA"SCHW.315B/QZ"
1060 DATA"LIQ./ROBOTNIK/S-20"
1065 DATA"ON","OFF","ASLEEP","AWAKE","ACTIVE"
1070 DATA"SCHWEINSTEIN","FIRING BUTTON","HOMING BEACON"
1075 DATA4,3,3,4,3,2,3,2
1080 DATA2,3,2,3,2,1,2,1
1085 DATA2,1,2,1,1,2,1,2
1090 DATA1,2,1,2,1,0,1,0
1095 DATA1,0,1,0,1,0,1,0
1100 DATA1,0,1,0,0,1,0,1
1105 DATA0,1,0,1,0,1,0,1
1107 DATA0,1,0,1,0,0,0,0
1110 DATA0,0,0,0,0,0,0,0
1115 REM ===CITIES & AGENTS===
1120 DATA"AMSTERDAM","ALPHA"
1125 DATA"BELGRADE","BRAVO"
1130 DATA"VIENNA","CHARLIE"
1135 DATA"PARIS","DELTA"
1140 DATA"OSLO","ECHO"
1145 DATA"LISBON","FOXTROT"
1150 DATA"MADRID","GOLF"
1155 DATA"TANGIER","HOTEL"
1160 DATA"WARSAW","IVAN"
1165 DATA"ROME","JULIET"
1170 DATA"ATHENS","KING"
1175 DATA"ISTANBUL","LIMA"
1180 DATA"BUCHAREST","MIKE"
1185 DATA"SOFIA","NOBLE"
1190 DATA"PRAGUE","OSCAR"
1195 DATA"COPENHAGEN","PAPA"
1200 DATA"REYKJAVIK","QUIZ"
1205 DATA"LONDON","ROMEO"
1210 DATA"BRUSSELS","SIERRA"
1215 DATA"BERLIN","TANGO"
1220 DATA"HELSINKI","UNCLE"
1225 DATA"BUDAPEST","VICTOR"
1230 DATA"DUBLIN","WINTER"
1235 DATA"ZURICH","X-RAY"
1240 DATA"MOSCOW","YANKEE"
1245 DATA"STOCKHOLM","ZULU"
1250 DATA"ZERO","ONE","TWO","THREE","FOUR","FIVE","SIX","SEVEN","EIGHT","NINE"
1255 DATA"PTSR     ","VMNKJC   ","OVBJXT   ","STXJGR   ","UZPRWQ   "
1260 DATA"WRGH     ","RDJKHF   ","KFG      "
1265 DATA"YVOTPZ   ","CBKGDX   ","NLHGJB   ","YKNM     ","YLNBV    "
1270 DATA"MLKB     ","IVCT     ","EZITAR   ","UEW      ","EPASDGFW","ATDR     "
1275 DATA"PIOCXDSA","YZEQ     ","IYMBCO   ","QERF     "
1280 DATA"TCJD     ","LMVIZU   ","UYIPE    "
1995 REM ===GAME START===
2000 POKE53281,15:POKE53280,15:PRINT"■■■■■■■■■■■■■■T R E A C H E R Y"
2005 PRINT"■■■■■WHEN THE ■KGB■ AND ■MI6■ WAGE A WAR OF"
2010 PRINT"■■WITS THROUGH THE CAPITALS OF EUROPE,"
2015 PRINT"■■NOTHING IS SIMPLE!"
2020 REM ===READ SPRITE DATA===
2025 FORK=832TO894:READL:POKEK,L:NEXT:POKE2040,13
2030 REM ===READ 'TOP SECRET'===
2035 DIMT$(3):FORL=1TO3:READT$(L):NEXT
2040 REM ===CONSTRUCT FLAG STRINGS===
2045 DIMU$(2,14):U$(1,1)="■■■ ■■■■   ■■   ■■   ■■■■ ■■"
2050 U$(1,2)="■■■■■■■ ■■■■  ■■   ■■  ■■■■ ■■■■"
2055 U$(1,3)="■■ ■■■■ ■■■■ ■■   ■■ ■■■■ ■■■■ "
2060 U$(1,4)="■■  ■■■■ ■■■■■■   ■■■■■■ ■■■■  "
2065 U$(1,5)="■■   ■■■■ ■■   ■■■■ ■■■■   "
2070 U$(1,6)="      ■■■  ■■■■■■■■■■■■■■■■■■■■■■":U$(1,9)=U$(1,6)
2075 U$(1,7)="■■■■■■■■■■■■■■■■■■■
```

or an adjacent city. Your agent must possess the object.

CHANGE STATUS TO (STATUS): Your agent is ordered to become ASLEEP, AWAKE or ACTIVE. This order will only succeed if you are the controller. If you are the dummy, his status will not change.

SWITCH BEACON (ON/OFF): Your agent switches the Homing Beacon on or off. He must possess the Beacon.

EXPLODE MIND-BOMB: Your agent detonates the Mind-bomb in the city where the Mandroid is. Your agent must possess the Firing Button.

An agent can only obey one order per turn. You can attempt to give an order to any agent you choose, yours or not. You can also attempt to give orders that can't be carried out. Such orders will be sent as messages in the normal way and may even reach the agent concerned.

All that will happen to an order that can't be obeyed is that the computer will ignore it at the end of the turn. You will only get to know about it indirectly from the fact that the agent has not carried it out.

The same applies to the routing of messages. You can given an impossible route for a message if you choose (or are careless). The computer will not tell you that the route is impossible. It will just move the message as far as it can along the route.

STARTING THE GAME

When you RUN the program, the British and Russian flags appear on the screen and the two signature tunes play. There is then a five minute or so delay while the computer works out the details of its "telephone network". We suggest you use this time to place the agents in their starting positions and to explain the rules to your opponent (or yourself!).

When the game is ready to go, the British flag appears on the screen with the Top Secret document page. The MI6 player enters his chosen clearance code and the game begins. Note that the game actually starts on day three of the crisis. This might seem silly, but in fact it's to prevent negative day numbers appearing — remember Schweinstein's position up to three days ago has to be kept track of by the computer. Also note that neither player can call in reports on the first turn – there aren't any to call in.

```
2080 U$(1,10)="■■   ■■■ ■■■■   ■■■ ■■■■   "
2085 U$(1,11)="■■   ■■■ ■■■■■■   ■■■■■ ■■■   "
2090 U$(1,12)="■■ ■■■ ■■■ ■■   ■■ ■■■ ■■■ "
2095 U$(1,13)="■■■ ■■■ ■■   ■■ ■■■ ■■■"
2100 U$(1,14)="■■■ ■■■   ■■   ■■ ■■■ ■"
2105 FORK=1TO14:U$(2,K)="■■                                    ":NEXT
2125 YY$="■■■■■■
```

```
2310 R=INT(RND(1)*26)+1:IFR=18ORR=25ORR=BTTHEN2310
2315 BC=0:BO=R:BN=2:ML=INT(RND(1)*26)+1:EX=0:GOTO5000
3495 REM ===PRINT AGENT RANKS===
3500 GOSUB100:PRINT"■■■■■■■■■■■■■";MID$(P$(P,1),1,4);"RANK / AGENT DAY";DY
3505 Y=7:X=6:FORK=1TO36:IFASC(N$(K,4))=0ORASC(N$(K,P+1))=0THEN3550
3510 A=ASC(N$(K,P+1)):PRINTLEFT$(YY$,Y+1);LEFT$(XX$,X);"■■";A;"■";X$(K):Y=Y+1
3515 IFY=18THENY=7:X=18
3550 NEXTK:GOTO200
3595 REM ===LIST AGENT REPORTS===
3600 GOSUB100:PRINT"■■■■■■■■■■■■■";MID$(P$(P,1),1,4);"AGENT REPORTS DAY";DY
3605 Y=7:X=6:FORK=1TO36:IFASC(N$(K,4))=0THEN3660
3610 AW=ASC(N$(K,P+1)):ER=ASC(N$(K,4-P))
3615 IFAW<=ERORASC(MID$(F$(1,K),5,1))=0THEN3660
3620 PRINTLEFT$(YY$,Y+1);LEFT$(XX$,X);X$(K);ASC(MID$(F$(1,K),5,1))
3625 Y=Y+1:IFY=18THENY=7:X=18
3660 NEXTK:GOTO200
4995 REM ===PLAYER TURN REPORTS===
5000 RP=0:GOSUB150
5005 IFRP=5THEN5100
5010 GOSUB100:IFDY=3THEN5100
5015 PRINT"■■■■■■■■■■■■■";P$(P,1);" DAY";DY:PRINT"■■■■■■YESTERDAY'S FIELD REPORTS"
5020 PRINT"■■■■■■KEY 1:LIST ALL AGENTS":PRINT"■■■■■      AND THEIR RANK"
5025 PRINT"■■■■■■KEY 2:LIST AGENTS WITH":PRINT"■■■■■      REPORTS TO SEND AND"
5030 PRINT"■■■■■      HOW MANY REPORTS"
5035 PRINT"■■■■■■KEY 3:CALL IN A REPORT":PRINT"■■■■■■KEY 4:FINISH WITH REPORTS"
5040 PRINT"■■■■■      GIVE TODAY'S ORDERS"
5045 GETK$:IFK$<"1"ORK$>"4"THEN5045
5050 IFK$="1"THENGOSUB3500:GOTO5005
5055 IFK$="2"THENGOSUB3600:GOTO5005
5060 IFK$="3"THENGOSUB400:RP=RP+1:GOTO5005
5095 REM ===PLAYER TURN ORDERS===
5100 AW=0
5105 IFAW=3THEN5150
5110 GOSUB100:PRINT"■■■■■■■■■■■■■";P$(P,1);" DAY";DY
5115 PRINT"■■■■■■TODAY'S ORDERS":PRINT"■■■■■■KEY 1:LIST ALL AGENTS"
5120 PRINT"■■■■■      AND THEIR RANK":PRINT"■■■■■■KEY 2:GIVE AN ORDER"
5125 PRINT"■■■■■■KEY 3:FINISH WITH ORDERS":PRINT"■■■■■      OPERATIONS OVER"
5130 PRINT"■■■■■      UNTIL TOMORROW"
5135 GETK$:IFK$<"1"ORK$>"3"THEN5135
5140 IFK$="1"THENGOSUB3500:GOTO5105
5145 IFK$="2"THENGOSUB700:AW=AW+1:GOTO5105
5150 P=P+1:IFP<3THEN5000
5195 REM ===END OF DAY===
5200 GOSUB6000:DY=DY+1:FORK=1TO16:S$(1,K)=S$(2,K):S$(2,K)=S$(3,K):NEXTK
5205 SK=1:M$="":FORK=1TO13:M$=M$+CHR$(0):NEXTK:FORK=1TO36
5210 F$(1,K)=F$(2,K):F$(2,K)=N$(K,4)+M$:NEXTK:P=1:GOTO5000
5995 REM ===EXECUTE ORDERS===
6000 GOSUB100:PRINT"■■■■■■■■■■■END OF DAY";DY;"■■'S TREACHERY":GOSUB7000
6005 FORK=1TO6:FORJ=1TO5:O(K,J)=0:NEXTJ,K:NO=0:FORK=1TO36
6010 O1=ASC(N$(K,5)):IFO1=0THEN6035
6015 NO=NO+1:O(NO,1)=ASC(LEFT$(S$(3,O1),1))
6020 O(NO,2)=ASC(MID$(S$(3,O1),2,1)):O(NO,3)=ASC(MID$(S$(3,O1),3,1))
6025 O(NO,4)=ASC(MID$(S$(3,O1),4,1)):O(NO,5)=ASC(MID$(S$(3,O1),5,1))
6030 N$(K,5)=CHR$(0)
6035 NEXTK:Y=7:FORO=1TONO:IFO(O,1)=9THENGOSUB7100
6040 NEXTO:FORO=1TONO:IFO(O,1)=1THENGOSUB7200
6045 NEXTO:FORO=1TONO:IFO(O,1)=5THENGOSUB7300
6050 NEXTO:FORO=1TONO:IFO(O,1)=6THENGOSUB7400
6055 NEXTO:FORO=1TONO:IFO(O,1)=3THENGOSUB7500
6060 NEXTO:FORO=1TONO:IFO(O,1)=4THENGOSUB7600
6065 NEXTO:FORO=1TONO:IFO(O,1)=2THENGOSUB7700
6070 NEXTO:FORO=1TONO:IFO(O,1)=8THENGOSUB7800
6075 NEXTO:FORO=1TONO:IFO(O,1)=7THENGOSUB7900
6080 NEXTO:FORK=1TO36
6085 IFASC(MID$(F$(2,K),2,1))=0THEN6095
6090 F$(2,K)=LEFT$(F$(2,K),4)+CHR$(ASC(MID$(F$(2,K),5,1))+1)+MID$(F$(2,K),6)
6095 NEXTK:PRINTLEFT$(YY$,Y+1);"■■■■■■3 DAYS AGO SCWEINSTEIN":Y=Y+1
6100 PRINTLEFT$(YY$,Y+1);"■■■■■■WAS SEEN IN ";W$(S(4)):Y=Y+1
6105 IFBN=2THEN6115
6110 PRINTLEFT$(YY$,Y+1);"■■■■■■BEACON ON IN ";W$(BO):Y=Y+1
6115 IFBT=0THEN6125
6120 PRINTLEFT$(YY$,Y+1);"■■■■■■FIRING BUTTON DETECTED":Y=Y+1
6123 PRINTLEFT$(YY$,Y+1);"■■■■■■IN ";W$(BL):Y=Y+1
```

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We do check the listings but occasionally a little debugging may be required. But if you decide to send us your program PLEASE try to ensure it's bug-free.

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```
6125 IFEX=1THEN6300
6130 D=VAL(Z$(ML,BO)):IFD=0ANDBN=1THEN6200
6135 N=0:FORK=1TO8:IFMID$(Y$(ML),K,1)<>" "THENN=N+1
6140 NEXTK
6145 R=INT(RND(1)*N)+1:IFBN=2THENML=ASC(MID$(Y$(ML),R,1))-64:GOTO6200
6150 C=ASC(MID$(Y$(ML),R,1)-64):IFVAL(Z$(C,BO))>=DTHEN6145
6155 ML=C
6200 PRINTLEFT$(YY$,Y+1);"▮▮▮▮▮▮MANDROID IN ";W$(ML):Y=Y+1
6300 IFS(1)<>18ANDS(1)<>25THEN200
6305 IFS(1)<>18THEN6320
6310 PRINTLEFT$(YY$,Y+1);"▮▮▮▮▮▮SCHWEINSTEIN IN LONDON":Y=Y+2
6315 PRINTLEFT$(YY$,Y+1);"▮▮▮▮▮▮MI6 HAVE WON THE GAME":P=1
6320 PRINTLEFT$(YY$,Y+1);"▮▮▮▮▮▮SCHWEINSTEIN IN MOSCOW":Y=Y+2
6325 PRINTLEFT$(YY$,Y+1);"▮▮▮▮▮▮THE KGB HAVE WON THE GAME":P=2
6330 GOSUB950:GOTO6330
6995 REM ===MOVE SCHWEINSTEIN===
7000 FORK=4TO2STEP-1:S(K)=S(K-1):NEXT:IFSG>0THENRETURN
7005 N=0:FORK=1TO8:IFMID$(Y$(S(1)),K,1)<>" "THENN=N+1
7010 NEXT
7015 R=INT(RND(1)*N)+1:C=ASC(MID$(Y$(S(1)),R,1))-64
7017 IFC=S(3)ORC=18ORC=25THEN7015
7020 S(1)=C:RETURN
7095 REM ===EXPLODE MINDBOMB===
7100 IFEX=1THENRETURN
7105 AG=O(O,2):IFBT<>AGTHENOB=2:GOTO7480
7110 PRINTLEFT$(YY$,Y+1);"▮▮▮▮▮▮MIND-BOMB EXPLODES IN":Y=Y+1
7115 PRINTLEFT$(YY$,Y+1);"▮▮▮▮▮▮";W$(ML):Y=Y+1
7130 IFML<>18THEN7140
7135 Y=Y+1:PRINTLEFT$(YY$,Y+1);"▮▮▮▮▮▮THE KGB HAVE WON THE GAME":P=2:GOTO6330
7140 IFML<>25THEN7150
7145 Y=Y+1:PRINTLEFT$(YY$,Y+1);"▮▮▮▮▮▮MI6 HAVE WON THE GAME":P=1:GOTO6330
7150 FORK=1TO36:IFASC(N$(K,1))<>MLTHEN7170
7155 N$(K,4)=CHR$(0):IFBT=KTHENBT=0
7160 IFBC=KTHENBC=0
7165 IFSG=KTHENSG=0
7170 NEXTK:EX=1:RETURN
7195 REM ===GO TO CITY===
7200 AG=O(O,2):C=O(O,3):IFASC(N$(AG,4))=0THENRETURN
7205 N$(AG,1)=CHR$(C):IFBT=AGTHENBL=C
7210 IFBC=AGTHENBO=C
7215 IFSG=AGTHENS(1)=C
7220 PRINTLEFT$(YY$,Y+1);"▮▮▮▮▮▮i";X$(AG);" GO TO ";W$(C);"▣":Y=Y+1:RETURN
7295 REM ===HIDE OBJECT===
7300 AG=O(O,2):OB=O(O,3):IFASC(N$(AG,4))=0THENRETURN
7305 ONOBGOTO7310,7320,7330
7310 IFSG<>AGTHEN7480
7315 SG=0:RETURN
7320 IFBT<>AGTHEN7480
7325 BT=0:RETURN
7330 IFBC<>AGTHEN7480
7335 BC=0:RETURN
7395 REM ===TRANSFER OBJECT===
7400 AG=O(O,2):OB=O(O,3):TT=O(O,4):IFAG=TTTHENRETURN
7401 IFASC(N$(AG,4))=0ORASC(N$(TT,4))=0THENRETURN
7402 FC=ASC(N$(AG,1)):TC=ASC(N$(TT,1)):IFZ$(FC,TC)>"1"THENRETURN
7405 ONOBGOTO7410,7420,7430
7410 IFSG<>AGTHEN7480
7415 SG=TT:S(1)=TC:GOTO7450
7420 IFBT<>AGTHEN7480
7425 BT=TT:BL=TC:GOTO7450
7430 IFBC<>AGTHEN7480
7435 BC=TT:BO=TC
7450 F$(2,TT)=LEFT$(F$(2,TT),1)+CHR$(13)+CHR$(OB)+CHR$(AG)+MID$(F$(2,TT),5)
7455 RETURN
7480 IFO(O,1)=4THEN7490
7485 F$(2,AG)=LEFT$(F$(2,AG),1)+CHR$(14)+CHR$(OB)+MID$(F$(2,AG),4):RETURN
7490 F$(2,TT)=LEFT$(F$(2,TT),1)+CHR$(14)+CHR$(OB)+MID$(F$(2,TT),4):RETURN
7495 REM ===SEARCH CITY===
7500 AG=O(O,2):C=O(O,3):IFASC(N$(AG,4))=0THENRETURN
7505 SL=0:FORK=3TO2STEP-1:IFS(K)=CTHENSL=K
7510 NEXTK:IFSL=0THEN7520
7515 F$(2,AG)=LEFT$(F$(2,AG),1)+CHR$(12)+CHR$(DY+1-SL)+CHR$(C)+MID$(F$(2,AG),5)
7520 IFS(1)<>CTHEN7530
```

```
7521 IFSG<>0THEN7523
7522 SG=AG:F$(2,AG)=LEFT$(F$(2,AG),1)+CHR$(10)+MID$(F$(2,AG),3):GOTO7525
7523 F$(2,AG)=LEFT$(F$(2,AG),1)+CHR$(11)+MID$(F$(2,AG),3)
7525 F$(2,AG)=LEFT$(F$(2,AG),2)+CHR$(1)+CHR$(C)+MID$(F$(2,AG),5):RETURN
7530 IFBL<>CORBT<>0THEN7540
7535 F$(2,AG)=LEFT$(F$(2,AG),1)+CHR$(10)+CHR$(2)+CHR$(C)+MID$(F$(2,AG),5):BT=AG
7540 IFBO<>CORBN=1THENRETURN
7541 IFBC<>0THEN7543
7542 BC=AG:F$(2,AG)=LEFT$(F$(2,AG),1)+CHR$(10)+MID$(F$(2,AG),3):GOTO7545
7543 F$(2,AG)=LEFT$(F$(2,AG),1)+CHR$(11)+MID$(F$(2,AG),3)
7545 F$(2,AG)=LEFT$(F$(2,AG),2)+CHR$(3)+CHR$(C)+MID$(F$(2,AG),5):RETURN
7595 REM ===STEAL OBJECT===
7600 TT=O(0,2):OB=O(0,3):AG=O(0,4):IFAG=TTTHENRETURN
7605 GOSUB7401:IFASC(MID$(F$(2,TT),2,1))<>13THENRETURN
7610 F$(2,AG)=LEFT$(F$(2,AG),1)+CHR$(15)+MID$(F$(2,AG),3):RETURN
7695 REM ===KILL AGENT===
7700 AG=O(0,2):TT=O(0,3):IFAG=TTTHENRETURN
7705 IFASC(N$(AG,4))=0ORASC(N$(TT,4))=0THENRETURN
7710 C=ASC(N$(AG,1)):IFASC(N$(TT,1))<>CTHENRETURN
7715 IFASC(N$(TT,1))<>CTHENRETURN
7720 N$(TT,4)=CHR$(0):IFBT=TTTHENBT=0
7725 IFBC=TTTHENBC=0
7730 IFSG=TTTHENSG=0
7735 PRINTLEFT$(YY$,Y+1);"■■■■■";X$(TT);" IS ELIMINATED":Y=Y+1:RETURN
7795 REM ===SWITCH BEACON===
7800 AG=O(0,2):HB=O(0,3):IFASC(N$(AG,4))=0THENRETURN
7805 IFBC<>AGTHENOB=3:GOTO7480
7810 BN=HB:RETURN
7895 REM ===CHANGE STATUS===
7900 AG=O(0,2):PL=O(0,5):IFASC(N$(AG,4))=0THENRETURN
7905 AW=ASC(N$(AG,PL+1)):ER=ASC(N$(AG,4-PL)):IFER>AWTHENRETURN
7910 N$(AG,4)=CHR$(O(0,3)):RETURN
7995 REM ===SCREEN COPY===
8000 SI$=CHR$(15):PO$=CHR$(16)
8005 MF$=CHR$(145):OPEN4,4:PRINT#4
8010 FORCL=3TO21:AS$=MF$:FORRO=4TO30:SC=PEEK(1024+40*CL+RO)
8040 IFSC>=128THENSC=SC-128:RF=1:AS$=AS$+RV$
8045 IFSC<32ORSC>95THENAS=SC+64:GOTO8060
8050 IFSC>31ANDSC<64THENAS=SC:GOTO8060
8055 IFSC>63ANDSC<96THENAS=SC+32
8060 AS$=AS$+CHR$(AS)
8065 IFRF=1THENAS$=AS$+RO$:RF=0
8070 NEXTRO:PRINT#4,SI$;PO$;"20";AS$
8080 NEXTCL:CLOSE4:RETURN

READY.
```

```
10 REM
12 REM      THE CODES USED IN THE
14 REM      PROGRAM ARE AS FOLLOWS
16 REM
18 REM "■" - CTRL + 3
20 REM "■" - CTRL + 5
22 REM "■" - CTRL + 6
24 REM "■" - CTRL + 7
26 REM "■" - COMMODORE FLAG + 1
28 REM "■" - COMMODORE FLAG + 2
30 REM "■" - COMMODORE FLAG + 4
32 REM
34 REM "■" - CURSOR RIGHT
36 REM "■" - CURSOR LEFT
38 REM "■" - CURSOR DOWN
40 REM "■" - CLEAR SCREEN
42 REM "■" - HOME CURSOR
44 REM "■" - REVERSE ON
46 REM "■" - REVERSE OFF
48 REM

READY.
```

KEYS TO CONTROL THE AGENTS

COMMAND	
Agent One (& Go To)	Q
Agent Two (& Kill)	W
Agent Three (& Search)	E
Agent Four (& Steal)	R
Agent Five (& Hide)	T
Agent Six (& Transfer)	Y
Agent Seven (& Status)	U
Agent Eight (& Switch)	I
Agent Nine (& Explode)	O
Agent Zero	P
Agent Quiz	A
Agent Winter	S
Agent Echo	D
Agent Romeo	F
Agent Tango	G
Agent Yankee	H
Agent Uncle	J
Agent Ivan	K
Agent Oscar	L
Agent Papa	Return
Agent Alpha	Z
Agent Sierra	X
Agent Delta	C
Agent Foxtrot	V
Agent Golf	B
Agent Hotel	N
Agent Juliet	M
Agent King	Space
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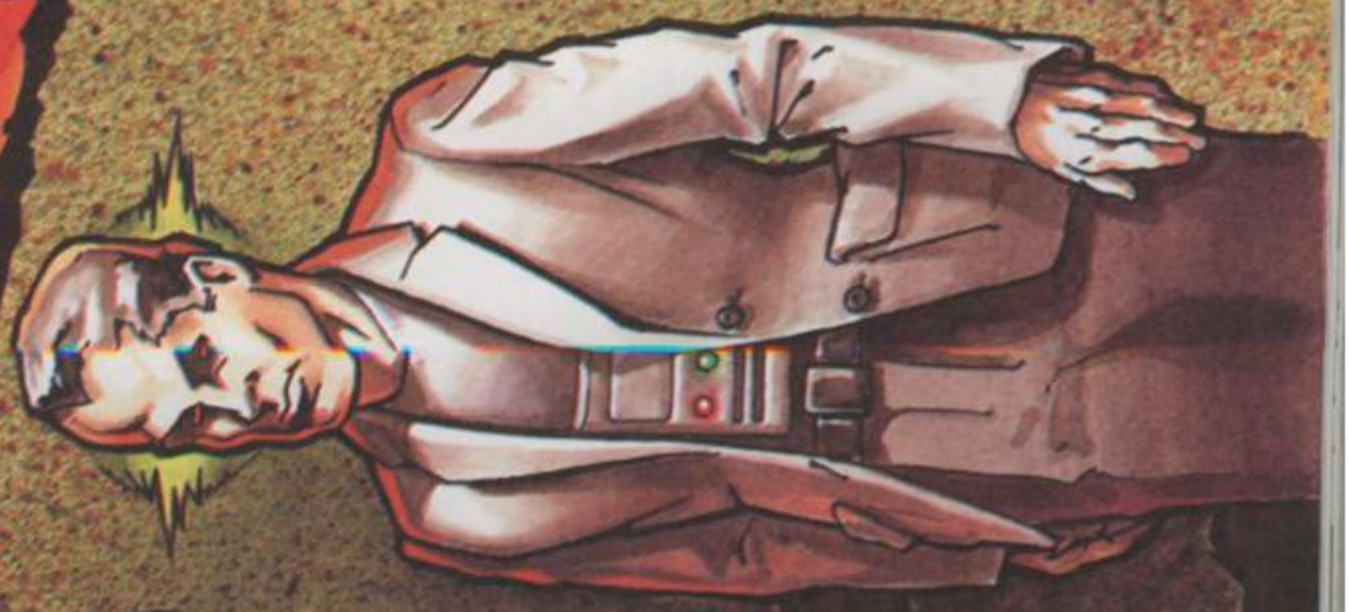

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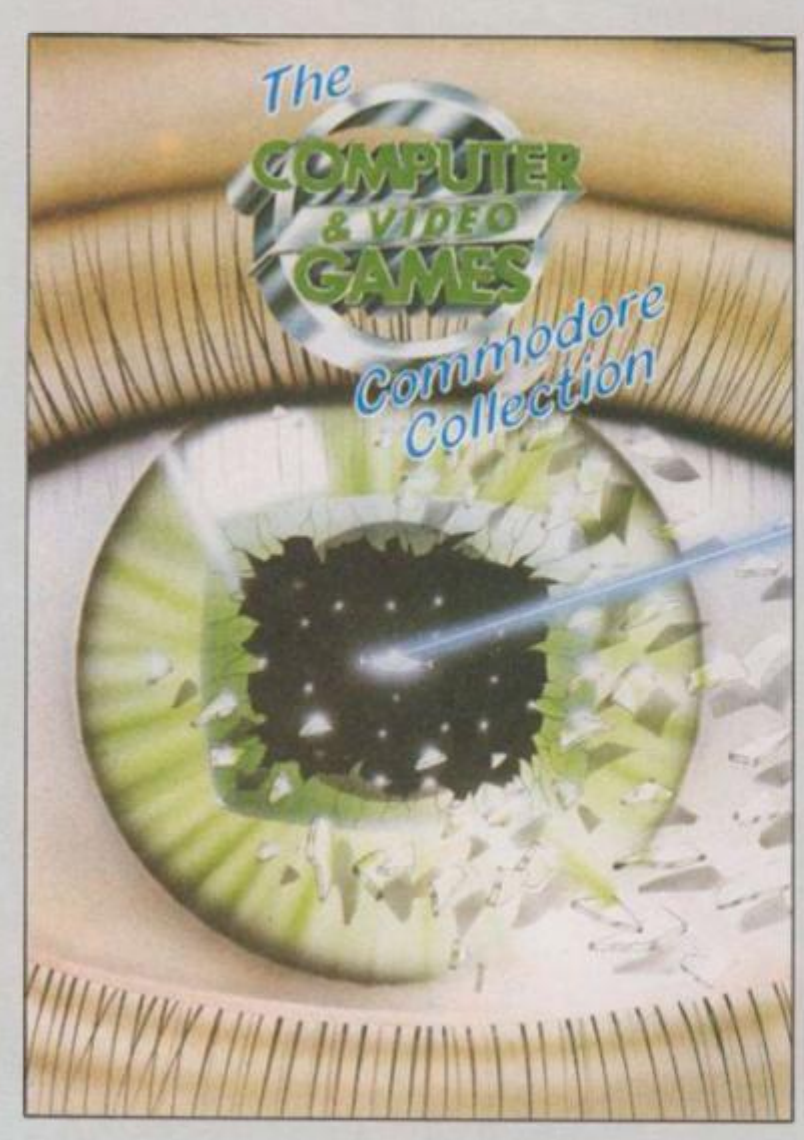

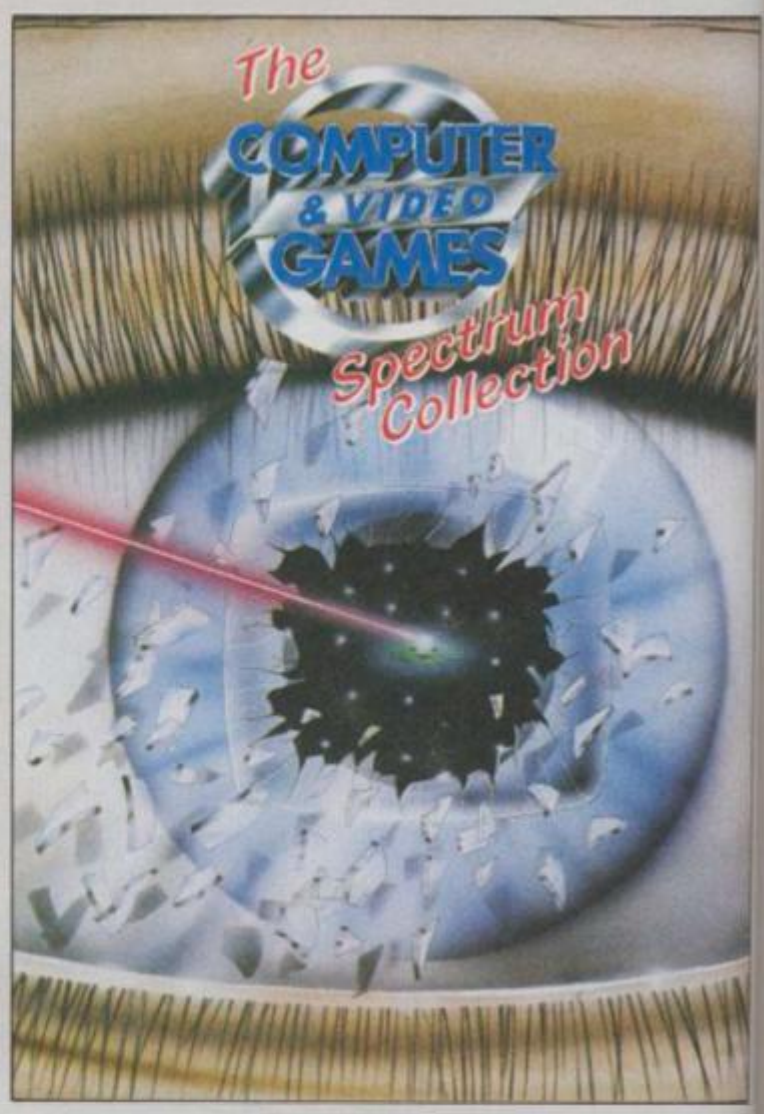

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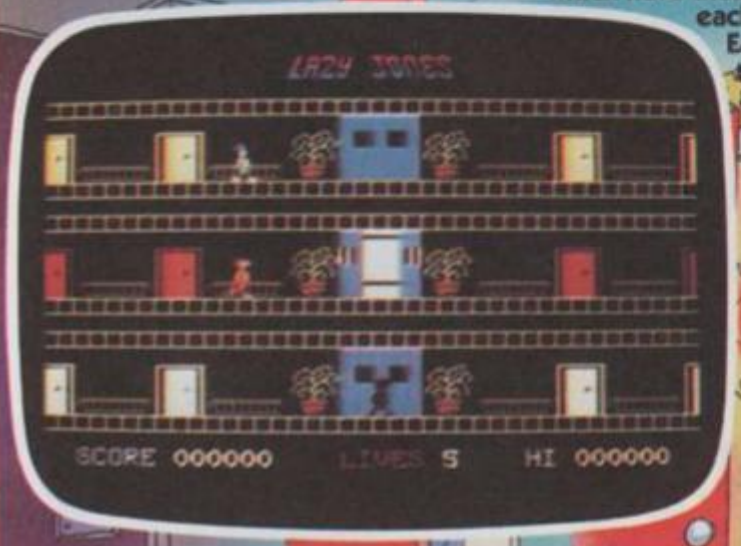

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STAR TURN

Vince Clark

Earlier this year, *Computer & Video Games* ran a micro-music competition and the man who judged all your musical efforts was Vince Clark, once part of *Depeche Mode*, half of *Yazoo* and mastermind behind the *Assembly*. While talking to him about computer music at his amazing studio, we found that he had another interest — playing video games, in particular *Dragon's Lair*! He also let us into some secrets about how he achieves his unique sound.

Inside Splendid Studios, Vince Clark's mission control, lurks one of the most expensive bits of computer hardware yet devised. It's a Fairlight computerised musical instrument — much sought after by musicians everywhere these days — which has a price tag of around £26,000. Just a bit more than your average Spectrum.

But outside the converted church which houses his hi-tech musical instruments Vince enjoys playing arcade machines — and has one of the now sadly defunct Intellivision video games systems at home.

Vince's favourite at the moment is *Dragon's Lair*, one of the first laservideo arcade games to hit the streets. Vince is impressed with the technology which has created this game. But he thinks it might be a step back too. "You're going from electronic imagery back to film," he says.

Vince, like the rest of you, might benefit from the tips we've provided on page 72 of this Yearbook when playing the game.

Vince can be found playing arcade games in Scotland and Brighton when he's not putting together a jigsaw of sounds on his Fairlight.

The Fairlight uses computer technology to "sample" sounds and recreate them electronically. Any sound can be stored away on the Fairlight's big discs and then loaded back into the machine when needed.

The Fairlight has eight channels, each of which can be programmed separately. So you can build up an entire song — minus vocals — using this amazing machine.

Vince says he enjoys using computers when composing because he has overall and absolute control over the finished result. You don't have musical differences with a computer. The Fairlight gets to grips with a programmed sequence and plays it note for note.

He answers critics of computerised music by saying that composers and musicans — like everyone else — have to move with the times. But he does agree that it might be a bit upsetting for someone who has spent years practising an instrument to have a computer stage a takeover bid.

But he adds that everyone thought the electric guitar was terrible until they realised the potential of the instrument.

Many musical instruments have what's called a MIDI interface built in which enables computers to be linked up with the micro.

You can then run several instruments from the computer and composing tunes is made relatively simple as long as you find the right software. But you still need that all important creative spark!

Although the Fairlight is an extremely expensive bit of equipment, you don't need to have vast amounts of the folding green stuff to start playing around with computer music.

Most of the current popular home computers have music synthesiser programs written for them and, depending on the sound chip in your micro, you can produce some nice tunes — as displayed by the entrants to *C&VG*'s micro-music competition earlier this year. Then if you are really musically inclined, there's always a keyboard with a MIDI interface, mentioned earlier.

Playing music on your computer is a great way to learn and enjoy music. And it only goes to show how many more things your home computer is capable of. There's more to them than alien blasting anyhow!

Musicians like Vince are just scratching the surface of what could be achieved using computers and micro-chip technology. But we reckon a computer will never be able to sing like Alison Moyet, Vince's one time partner in *Yazoo*.

Meanwhile, watch out for more music from the *Assembly* — and listen for the Fairlight at work.

Former Walt Disney animators are working on creating stunning laserdisc games — maybe they could add a soundtrack from a new wave composer? Perhaps one day Vince will be able to combine his music with his love of video games.

THE STORY BEHIND

SPACE INVADERS

The early history of the arcade game boom has long been shrouded in mystery. But now, Tom Sato, *C&VG's* Japanese correspondent, can reveal what really happened in those early days. Here he tells all about the Space Invaders boom which spawned a million computer games and something about Taito — the company who created the Invaders and launched a thousand imitators onto the scene.

It was in the mid 1970s when Nolan Bushnell, the founder of the giant Atari company, first thought up the idea of playing games on a TV screen and invented the first ever video game, *Pong*. A few days after he had delivered his latest invention to a customer, he had a telephone call complaining that the machine had broken down. It turned out that people had fed in so many coins that they jammed up the machine!

His company, Atari, which means "a hit" in Japanese, became a huge success and Nolan Bushnell eventually sold it to the telecommunications and film giant, Warner Brothers, in a multi-million dollar deal.

Meanwhile, in Japan, Atari tried to sell the idea of video games to the Japanese but without much success because of lack of marketing expertise in Japan. So *Pong* and others went pretty well unnoticed in Japan.

However, a number of existing arcade companies saw a future in this latest technological wizardry and decided to invest in it. One such company was Taito, the people who created the original *Space Invaders* game and launched the video game boom which followed it soon after.

The story of Taito and *Space Invaders* is an unusual one. Taito is a Japanese company run by a Jewish businessman who was born in Odessa and educated in Japan. His name is Mehile Cogan and he is now 64 years old.

He created the Taito trading company back in 1953 to import juke boxes and pinball machines from the United States. During the booming 60s, his company grew. Within that decade, his company built three factories dotted around the country and became the leading arcade company in Japan.

When Atari came up with *Pong* and other video games, Taito felt that the time was right to invest in this new technology.

Taito will not say exactly who *Space Invaders* was developed by. *Space Invaders* was never patented, to protect its secrecy, and the origin of the game is still shrouded in mystery.

However, from what *C&VG* can gather, the project was a joint venture between Taito and an American company which had the technical know how to produce computer circuits.

The project started in the summer of 1976. According to Made Velasquez, of Taito's Internati Affairs Division, the developm team had lengthy discussions, after day, as to what kind of a gam create. They wanted to introdu new concept into video games.

At that time, science fiction mo were all the rage in Japan. T wanted something to do with o space with high speed action good sound effects.

Before *Space Invaders* came alo there were a lot of two player ar games, such as tennis and cow shoot-outs. But the quality of game really depended upon the of one's opponent.

"Why not make the player against the machine," said member of staff. "Let's use a m processor so we can program machine to fight against the play said another. And from here went on to draw up the blueprin *Space Invaders* with concepts to revolutionary for that time.

You had the machine as opponent and the game invol shooting the enemy with a l cannon in true science fiction st The level of difficulty increased you played, thus making the g more challenging, and finally it terrific sound effects.

The name *Space Invaders* easily decided as the game invol UFOs from outer space invading planet Earth.

Development took a year complete. At that time, there w few arcade games which contain microprocessor. The develop team had to design the hardware software from scratch.

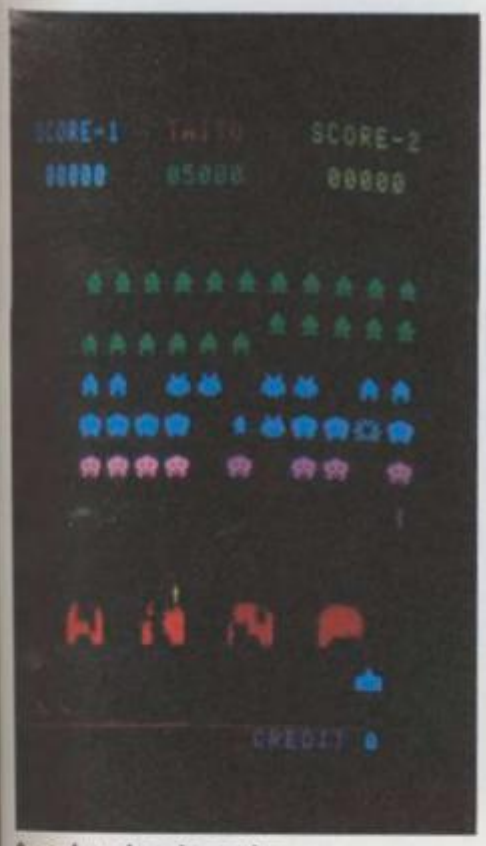
The program was finished in summer of 1977 but it was not June 1978 that Taito finally relea its product. It came a year after release of the first *Star Wars* m and in the middle of the scie fantasy boom. The timing was right.

At the product launch, T showed two arcade games, *Sp Invaders* and another game ca *Blue Shark*. Strangely the dealers critics were not really enthusi about *Space Invaders*. The conc was so different from anyth previously seen and they could quite work it out! Only a machines were sold at the launch then only for trial runs.

But the public knew better. *Sp Invaders* started to take off in a m spectacular way.

At the Amusement Machine Sh in October 1978, Taito received times as many orders than they co possibly produce. Deal demanded the machine wh seemed to eat their custome money as soon as the game switched on.

Illustration: Melyn Bagshaw



Space Invaders in action

One of the main reasons for the success was Taito's clever decision to make two versions of the *Space Invaders* machine — an upright version and a tabletop version. The tabletop version did extremely well. Unlike the upright machines, the *Space Invaders* tables could be placed in all sorts of places — such as cafés, restaurants and hotels — as well as the customary arcade halls.

Café and restaurant owners realised that, instead of having ordinary tables, they could have *Space Invader* tables which would earn money with hardly any cost.

One of the newspaper cuttings which Madalena Velasquez sent us tells what the Invader boom was like in Japan. The headline reads: "JAPAN INVADED BY MONSTER INVADERS!" and shows a picture of a *Space Invader* café packed with players. People queued up for hours to play the *Invaders* while dealers queued up outside Taito's offices and factories to get more machines.

By the spring of 1979, the boom reached epidemic level. People were hooked on the game and were spending vast amounts of money on it. In fact, Japan started to run out of 100 yen coins! The May 13th issue of Japan Economic News translates like this:

"100 YEN COINS DISAPPEAR: 30,000,000 coins eaten nationwide. Bank of Japan strikes back".

The Bank of Japan was forced to mint three times as many (66,000,000) 100 yen coins in the month of April because of the increased demand created by *Space Invaders*.

Apparently, the Bank of Japan did not know why the demand for 100 yen coins was so high. So they sent out a research team to find out what

was going on. That was ironic since they only had to walk into a tea house to find out what was happening. Some tea houses stopped serving tea and instead provided spaces for those money eating *Invaders!*

The fact that the Bank of Japan was minting more coins and that Taito was making a killing out of the game spread some really wild rumours. According to the *Evening Fuji* newspaper, one disgruntled arcade hall owner who couldn't get enough supply of *Invader* machines told a newspaper reporter that, because Taito leased most of their machines, the company got about 60 to 70 percent of the takings.

Every day, he said, 30 eight-ton trucks delivered sacks and sacks of 100 yen coins to Taito's headquarters from all over the country! Well, following this lead, the reporter from the *Evening Fuji* actually went to see if the rumour was true but he couldn't find any trucks loaded with 100 yen coins, let alone a garage large enough to fit a single truck.

Just to make sure, this curious reporter went to the local police station to check it out. "100 yen truck? No, we haven't seen anything like that around here," was the answer he got.

Still, Taito did double its profits that year and was said to have a turnover of Y100,000,000 a day so, although the rumour was unfounded, the amount was probably pretty close to the truth!

Space Invaders is the only game in the world which created so much social disorder. At the peak of the boom, people were skiving off work while teenagers stole money to play the game. With the added troubles at the Bank of Japan, the matter was even discussed at the Japanese Parliament.

However, the boom ended as suddenly as it was started. By late 1979, it was all over in Japan and, by 1980, hardly anyone was playing the game. Why? Well, people got too good at the game and then became bored with it. Besides, *Galaxians* and *Pac-Man* came along and wiped out the now out-dated *Space Invaders*.

Suddenly there was a glut of *Space Invaders* machines everywhere in Japan. What happened to them?

Well, You know what happened. Taito exported them here and that's when you started hearing those strange noises coming out of your local pub which heralded the dawning of the age of the video game!

The game that started it all!

DRAGON'S LAIR

In days of old when knights were bold,
And dragons were mean and vicious,
A knight of steel with a heart of gold,
Rode off to rescue a beautiful princess and found himself in all kinds of trouble.

Well I never was much good at poetry anyway! Can you find a word that rhymes with vicious? As you may have guessed from all the talk about knights, dragons and princesses, we're talking about *Dragon's Lair*, one of the first laser-disc games to reach the UK. It will take you to a land where literally anything can happen!

The hero of *Dragon's Lair*, Dirk the Daring dashes off to a haunted castle to rescue a beautiful princess who's being kept prisoner by a ferocious dragon in the murky depths of the castle.

The graphics — if you can call them that — are beautifully drawn cartoon animations. It's just like controlling the action in your favourite cartoon.

Dragon's Lair is a game where it's essential to know the right moves to proceed through the game — it's not one of those games where you can merrily keep your finger on the firebutton and hope desperately for a really good hi-score!

The player has to react to situations dictated by the computer. The computer then plays out the move. You dictate the direction Dirk should take — the computer works out if it was the right one!

For instance, if you want Dirk to run forward, simply push the joystick away from you and Dirk will move off to the next scene where the next decision has to be made.

Ray Raveneau, who works for Kodak, is an ardent arcader in his spare time and was one of the first people I came across who was able to complete *Dragon's Lair*. Ray gave us a demo of his prowess on this addictive game and also a few tips to help those who constantly get splattered over walls, sucked into mud pools or electrocuted by thousands of volts.

If you're a complete novice at the game, here are a few general points to note. Whenever possible, direct Dirk towards the flashes of light — these generally indicate the direction of his next move. However, occasionally they're red herrings which will certainly cause your demise should Dirk follow the light.

Dirk often assumes a crouching position indicating a move on your part — the direction in which he is looking will often tell you which way to move.

Always listen for the "ping" which will sound whenever you have pushed the joystick in the right direction — you then know that the move has been accepted. In certain scenes where timing is not too important, keep pushing the joystick continually in the direction you want Dirk to take. The "ping" is a great help here in letting you know when the right move's been made.

You will find when playing *Dragon's Lair* that you may have to play the same scene twice — but the second time and scene and therefore your moves will be in reverse order.

It would be impossible, in the space we've got, to describe in detail every scene in *Dragon's Lair* together with the tips — there are so many different paths the computer might choose to get to the Dragon. However, you can expect to have to brave approximately 30 different scenes to complete the game. Each game you play will have a slightly different scenario. The scenes we have chosen, therefore, are those that come up fairly regularly during game play.

Hole in the Wall: One of the first scenes you'll come across when beginning to play shows Dirk running down a corridor. He'll eith enter a room with a bottle labell "Drink Me" or at the end of the co dor will be a brick wall with a la hole in the middle which is rapid being bricked up.

If it's the room, don't drink from t poison bottle but push the joyst right towards the door — Dirk w then escape. If Dirk's runni towards the hole in the wall, push f wards and Dirk should dive throu the hole just before the bricks blo it up.

The Ropes: Dirk is teetering on t edge of a flaming chasm. There are series of ropes hanging from t ceiling which he'll have to use cross the chasm, Tarzan-style. As t rope swings towards Dirk, push t joystick right towards the rope — left if it's in reverse — and D should jump successfully onto t rope.

He'll have to use three ropes cross the chasm. You should w until the rope has reached the f extent of its swing and Dirk extend his arm before pushing the joyst right again. On the final swing, he h to leap off the rope to the far ed and to safety.

The Mechanical Horse: Dirk lea onto a mechanical horse whi abruptly springs to life and takes o in a most unhorse-like manner. races towards a pillar and collisio seems inevitable when a burst flame appears to one side of t pillar. This happens several time and you must push the joystick awa from the flames. The horse will the swerve violently away and ra towards another pillar where t same thing happens. When the hor gallops straight towards an L-shape

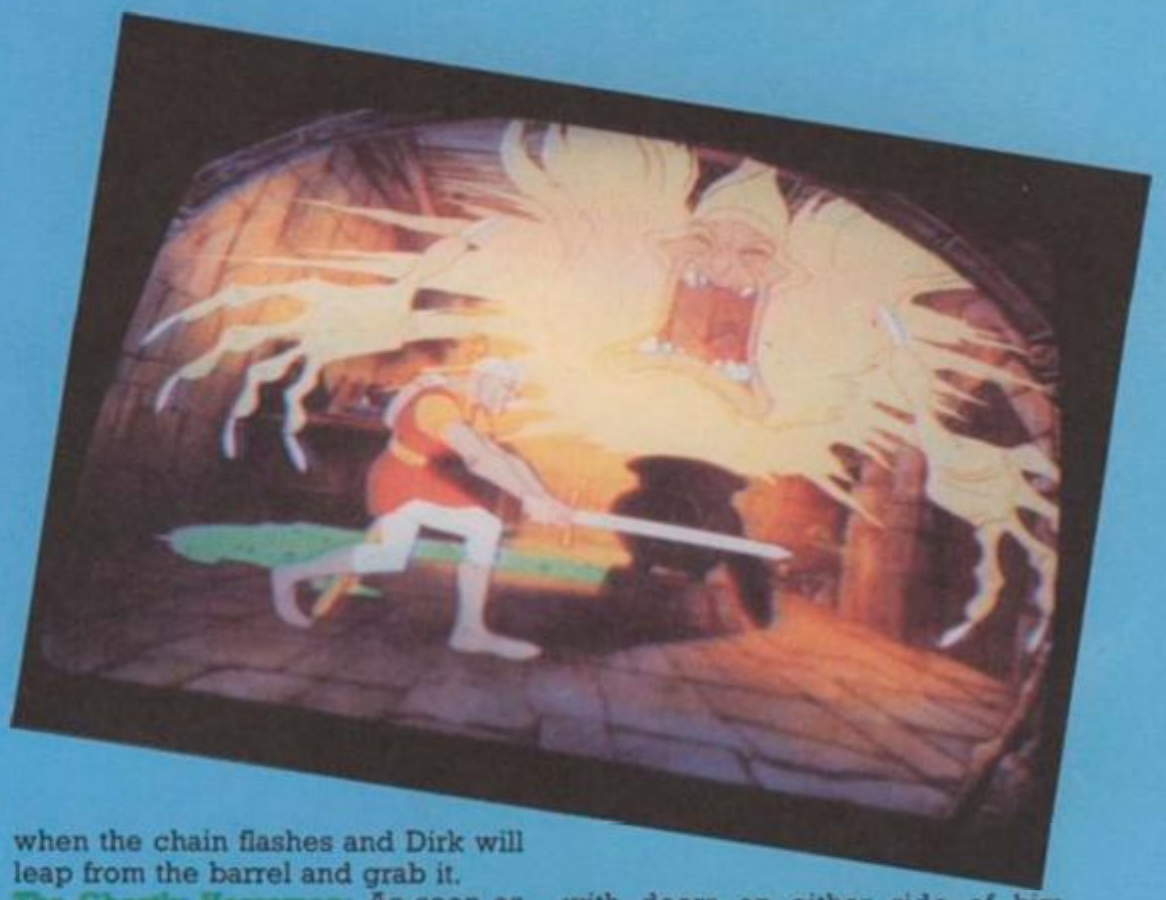
wall, push the joystick left away from the wall.

The Falling Floor: Dirk races through an archway and onto a circular, wooden platform. Horror of horrors! It starts to plummet on an endless journey down — stopping with a knee-jerking jolt for a split second three times on the way down. Each time it stops, you have the chance to push your joystick in the direction Dirk is facing and he'll jump onto a rickety catwalk.

The Giddy Goons: As soon as the Giddy Goon appears — recognisable as a little, purple, furry creature — press the sword button then move the joystick to the right. Dirk will bound up the stairs and encounter a pair of Goons — wait until the Goons are two or three steps away from Dirk and press the sword button. Then push the joystick forwards.

The Lizard King: When the Lizard King raises his weapon over his head, push the joystick to the left. As Dirk approaches a wall, push the joystick right — this move is made when he stops at the entrance between the walls. The instant he looks right, you must move to the right. Dick repeats this move several times along the way until a pile of gold and his sword are in front of him. When you get to this point, push the joystick forward then keep pressing the sword button until Dirk has finished the Lizard King off.

Ye Olde Rapides: This is possibly the easiest section of *Dragon's Lair*. At the beginning of Dirk's journey, when he tumbles into a floating barrel, move the joystick left or right towards the flashes of light. When he reaches Ye Olde Rapides, always move towards the darker yellow patches of water — left and right movements. Dirk will then hurtle towards the whirlpools, here you must steer him around the sides of the whirlpools where there is a wide expanse of water to avoid being sucked into the vortex. At the end of his ride is a chain hanging from the ceiling. Push the joystick forward

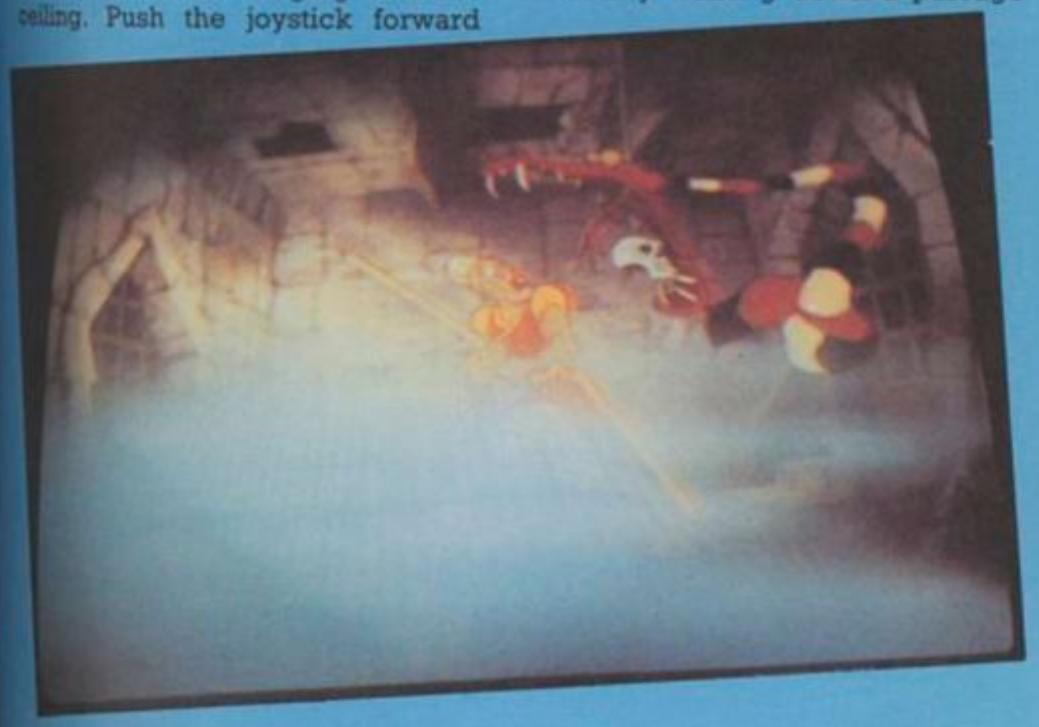


when the chain flashes and Dirk will leap from the barrel and grab it.

The Ghostly Horseman: As soon as Dirk appears in this scene, push the joystick right. When the horseman gallops towards him, wait until the row of stakes beside Dirk spring up. At this instant, push the joystick to the left or right so that Dirk jumps to the other side of the road. This must be accomplished three times — twice to avoid the horseman's sword and the last time to escape completely.

Mud Monsters: In this sequence, timing is not an important factor — making the right moves is. When the Mud Monsters have risen half-way out of their mud pits, press the sword button. However, Dirk is unsuccessful and turns looking for an avenue of escape. He's confronted by a mud-pit. To escape, push the joystick forward, and Dirk will jump towards the flashes of light. When Dirk leaps onto the bridge, ignore the flashes on his left and right and continue to push the joystick fowards.

The Skeleton Attack: Dirk is cautiously walking down a passage



with doors on either side of him. Suddenly he's attacked by a bunch of bouncing skulls. As soon as this happens, push the joystick forward and Dirk will take a leap. When he lands, hit the sword button. Black tar

then starts oozing towards him — at which point, push the joystick forward. Again Dirk will leap. When he lands, push the sword button. Dirk is in a half-crouch and is sheathing his sword when once again he's confronted by the tar. To escape, jump through the doorway where he'll meet some unfriendly Ghouls. To despatch the Ghouls, hit the sword button as soon as they show themselves. Phew!

The Giant Rollerballs: Dirk is running down a tunnel when a huge black ball rolls down the tunnel behind him. There's no escape — so Dirk kicks up his heels and runs for his life as the ball races down at him. To save Dirk, wait until he stops running and turns his head. Pull the joystick back. This occurs several times and each time you must pull the joystick towards you. You will also notice that the floor changes colour as Dirk stops. When the section of ground is a dark purple, get ready to

push forward on the joystick the instant a hole appears in front of him.

The Swinging Bats: No, it's not the latest pop group! In this scene Dirk is confronted by paddles swinging on two poles. The paths of the paddles overlap as they swing in circles and Dirk only has a micro-second to dive between them. He times himself by going into several semi-crouches and then goes into a deep half-crouch which indicates that you should make your move — forward! Once through the bats, Dirk lands on his feet. Push the sword button, as he is faced with a huge spear. Branch-like tentacles then reach out towards Dirk — no doubt from some stray monster. To escape, keep pulling back on the joystick until you hear a "ping" or Dirk starts moving away, then push forward continuously until the same things occur.

The Electrifying Knight: In this scene, a huge Black Knight attempts to turn Dirk into charcoal by sending mega-volts of electricity through the floor. Dirk has to leap away from the current in several well timed moves. There are seven moves to make in all — right, left, forward, left, right, left, right. Got it? The left and right moves are made when the current threatens to surround Dirk. Just before this happens, make the appropriate move by jumping towards that part of the floor which has not been electrified. When Dirk lands in front of the knight, keep jabbing the sword button to finish him off.

The Flying Sword and Anvil: Dirk is surrounded by a ring of fire. Hovering overhead is a sword and mace. The sword suddenly descends to attack Dirk. When it is half-way between Dirk and the height from which it fell, punch the sword button. The instance the mace begins to fall, punch the sword button. In the next scene, in this sequence of attacks, Dirk is confronted by a flying anvil. When the anvil rises, move Dirk to either the left or right — that is, away from the line of fire beside him and consequently away from the path of the anvil. A sword then rises out of a rack and heads for Dirk — press the sword button. Escaping up a flight of stairs, Dirk encounters a statue coming to life — again punch the sword button.

The Tilting Floor: Dirk is standing on a floor which is tilting up and down. Wait until a light flashes to his right then move the joystick back. When Dirk jumps back, a trapdoor opens beneath him. Push the joystick forward and, when he lands, push the joystick left.

The Earthquake: In this scene, the object is to avoid fissures in the ground which threaten to swallow Dirk. If a crack appears to his left or right, jump Dirk in the opposite direction. The movements are similar to those in the Electrifying Knight scene. Wherever a safe space appears, move Dirk in that direction. One more tip — don't wait for the fissures to open up completely before making a move.

The Dragon's Lair: Well, this is folks! The moment you've all bee waiting for. There are several diffe ent moves to make once you' reached the Dragon's Lair and befo you can rescue the princess who kept locked up in a glass bubble.

When Dirk first appears on th scene, you will see behind him huge number of precious objec balanced precariously upon on another. As soon as they flash, mov the joystick to the left. Dirk then run up to and stops in front of the Dragon At this point, move the joystick le again. He runs off and stops besid another pile of objects. These wi flash — push to the left.

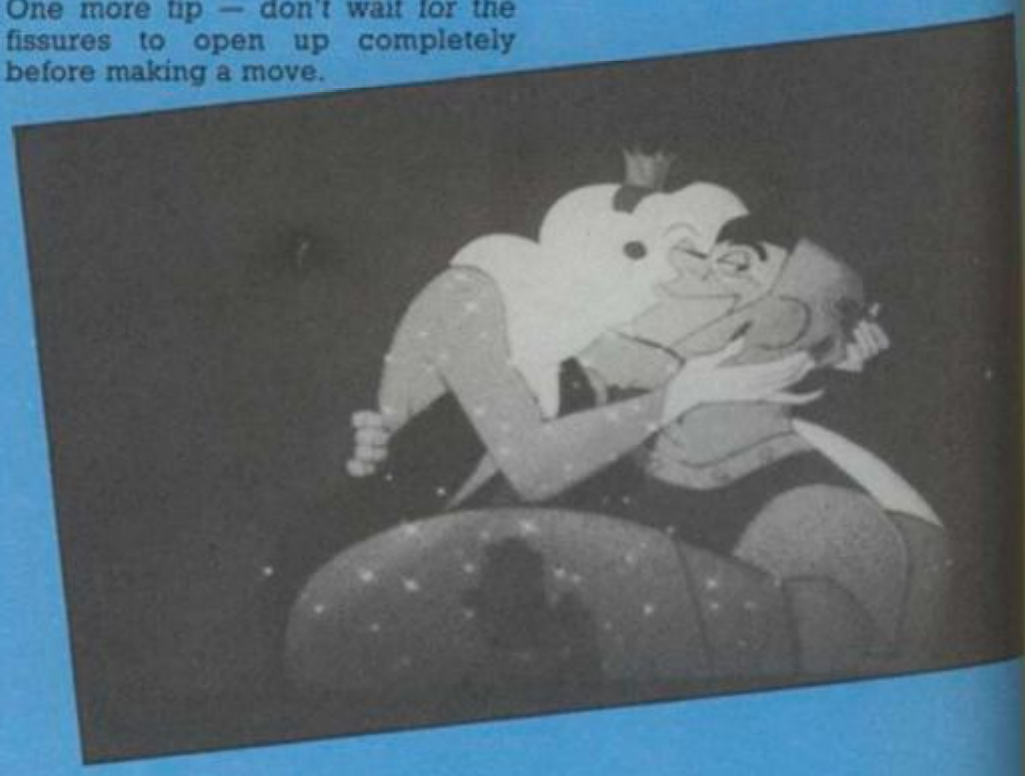
The next scene shows Dirk behin a tree about to be crushed against Wait until the Dragon makes th attempts to crush Dirk. Before h tries a third time, pull back on the joy stick. The Princess then appears o screen — keep pushing the joystic until you hear a "ping".

Dirk takes refuge behind anothe tree. Pull the joystick back before th Dragon makes another attempt t crush him. The Princess appear again — push forward until you hear "ping" and then keep pushing th joystick to the right.

The next scene shows Dirk runnin away from the Dragon. As soon a you see the Magic Sword, push th joystick to the right and then pres the sword button. Continue punchin the sword button until Dirk lifts h sword in front of him then push th joystick left until that familiar "ping" is heard.

When Dirk completes his move press the sword button continuousl until the machine clicks twice. Ye **have killed the Dragon and Rescue the Princess!!**

So now you know how to beat th dragon. *Dragon's Lair* is a brilliant game and we hope these tips will help you make the most of it. So, until your armous turns rusty — keep up the dragon bashing!



Zeppelin

RUNS ON AN AMSTRAD

BY DAVID MUIR

In Zeppelin, the player controls a German airship which moves automatically back and forth across the screen.

The COPY key drops a bomb which descends at an angle from the Zeppelin's bomb hatch at the bottom of the aircraft. Only one bomb can be in mid-air at one time. You must aim for one of the six munitions factories dotted across the landscape. Hitting one factory scores 100 points but hitting all six gives a bonus of another 600 points when a fresh screen of six new factories is displayed.

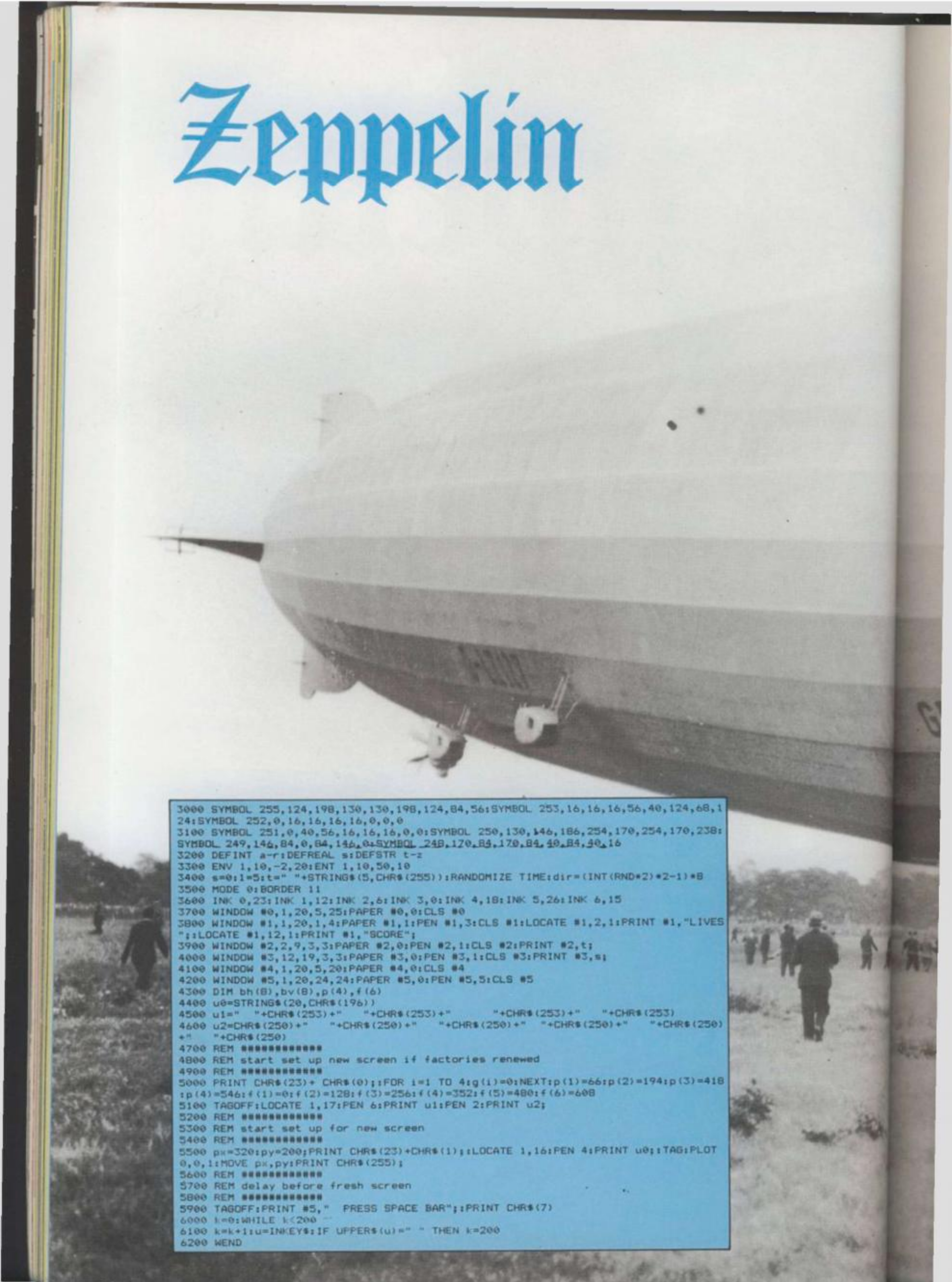
The up and down cursor keys control the altitude at which the airship is flying — this is your only defence against the missiles which are being launched from land-based guns.

Before each fresh screen there is a short pause which can be eliminated by pressing the space bar. This rest gives the player time to adjust to the next level.

It is easier to bomb the factories from a low height and the bombs can be dropped more frequently, but there is less time to manoeuvre away from the shells which are fired more frequently.

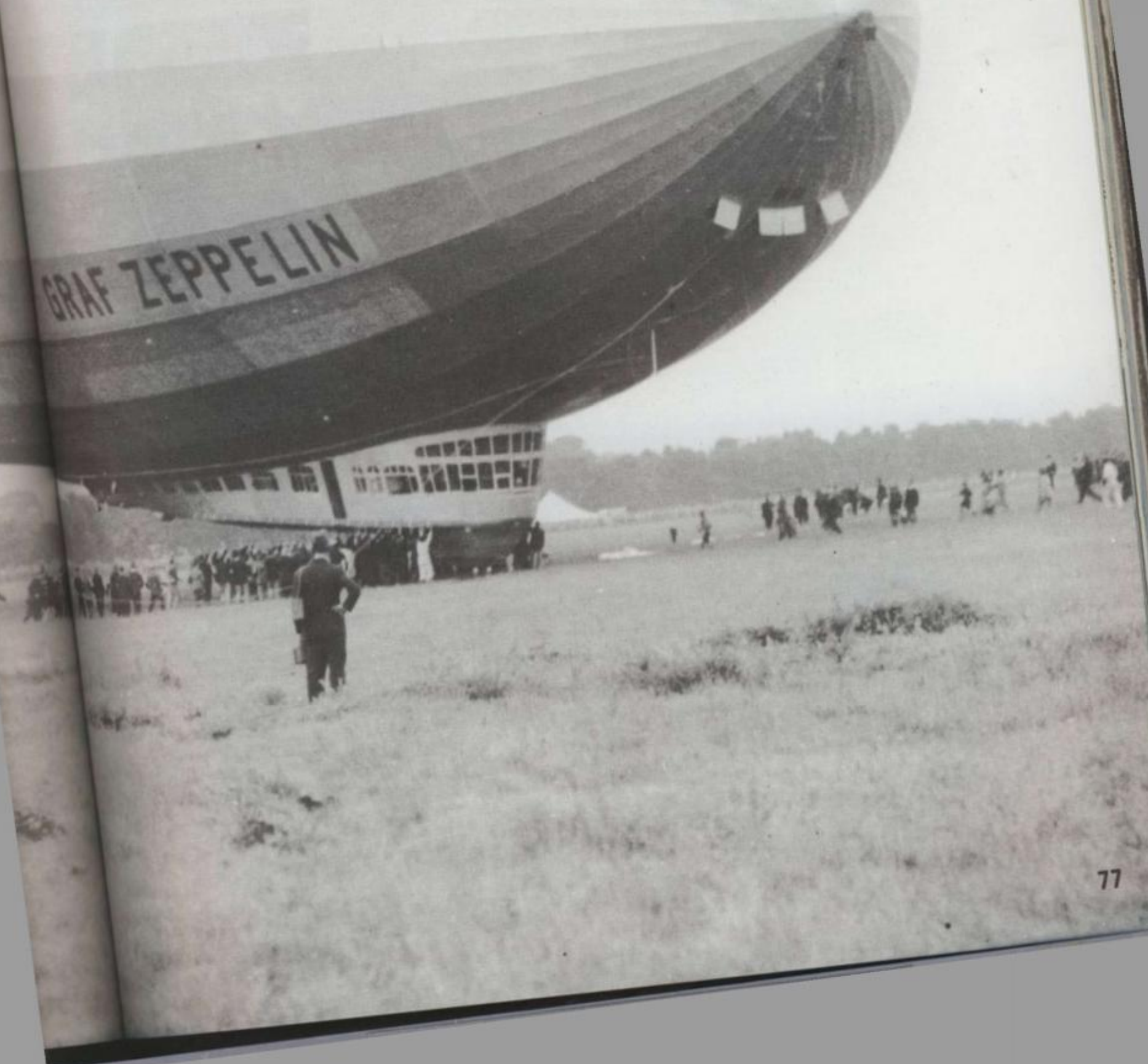
```
10 KEY 128,"mode 2:list"+ CHR$(13)
100 GOTO 3000
200 REM ##############
300 REM move shell,check if past balloon,detect hit on balloon
400 REM ##############
500 IF NOT kg OR 11 THEN RETURN ELSE DI:PLOT 0,0,3:MOVE gx,gy:PRINT CHR$(252);:g
y=gy+16:MOVE gx,gy:PRINT CHR$(252);
600 IF gy>py+16 THEN kg=0:MOVE gx,gy:PRINT CHR$(252);
700 IF ABS(gy-py)<9 THEN IF ABS(gx-px)<13 THEN MOVE gx,gy:SOUND 1,200,50,15,1,1,
7:PRINT CHR$(252);:11=-1:PLOT 0,0,5:MOVE gx,gy:PRINT CHR$(249);:IF kb THEN PLOT
0,0,3:MOVE box,boy:PRINT CHR$(251);
800 EI:RETURN
900 REM ##############
1000 REM check if factory hit
1100 REM ##############
1200 fs=0:FOR i=1 TO 6:IF ABS(f(i)-box)<8 THEN fs=i
1300 NEXT:IF fs=0 THEN RETURN
1400 SOUND 1,900,50,15,1,1,30:PLOT 0,0,5:MOVE f(fs),62:PRINT CHR$(248);:f(fs)=80
0:kb=0
1500 s=s+100:GOSUB 2800:IF s/600=INT(s/600) THEN s=s+600:GOSUB 2800:ad=-1
1600 RETURN
1700 REM ##############
1800 REM move bomb, delete when out of range
1900 REM ##############
2000 IF NOT kb OR 11 THEN RETURN ELSE DI:PLOT 0,0,3:MOVE box,boy:PRINT CHR$(251)
;:boy=boy-12:box=box+bod:MOVE box,boy:PRINT CHR$(251);
2100 IF box<-16 OR box>640 THEN kb=0
2200 IF ABS(boy-60)<8 THEN GOSUB 1200
2300 IF boy<48 THEN kb=0:MOVE box,boy:PRINT CHR$(251);:SOUND 1,900,20,10,1,1,30
2400 EI:RETURN
2500 REM ##############
2600 REM permanent set up graphics, variables,screen windows etc.
2700 REM ##############
2800 PRINT #3,SPACE$(8):PRINT #3,s:PRINT #2,SPACE$(8):PRINT #2,LEFT$(t,1+1):RETU
RN
2900 IF kg THEN RETURN ELSE RANDOMIZE TIME:n=1+INT(RND*4):IF (g(n) OR (p(n)>px A
ND dir=-4) OR (p(n)<px AND dir=4) OR ABS(p(n)-px)>200) THEN RETURN ELSE DI:gx=p(
n):gy=88:kg=-1:PLOT 0,0,3:MOVE gx,gy:PRINT CHR$(252);:SOUND 1,200,5,5,1,1,7:EI:R
ETURN
```

Zeppelin

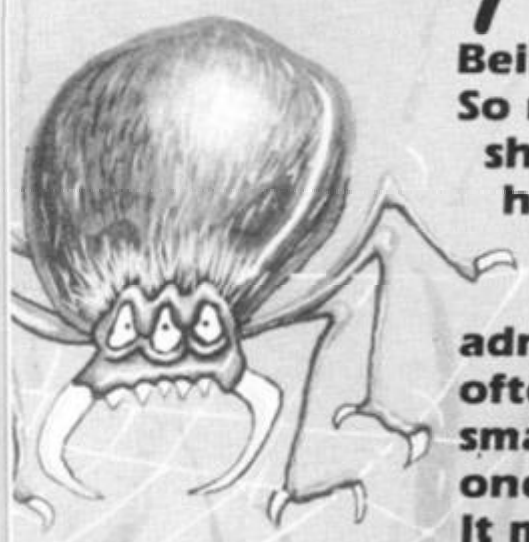


```
3000 SYMBOL 255,124,198,130,130,198,124,84,56:SYMBOL 253,16,16,16,56,40,124,68,1
24:SYMBOL 252,0,16,16,16,16,0,0,0
3100 SYMBOL 251,0,40,56,16,16,16,0,0:SYMBOL 250,130,146,186,254,170,254,170,238:
SYMBOL 249,146,84,0,84,146,0:SYMBOL 248,170,84,170,84,40,84,40,16
3200 DEFINT a-r:DEFREAL s:DEFSTR t-z
3300 ENV 1,10,-2,20:ENT 1,10,50,10
3400 s=0:l=5:t=" "+STRING$(5,CHR$(255)):RANDOMIZE TIME:dir=(INT(RND*2)*2-1)*8
3500 MODE 0:BORDER 11
3600 INK 0,23:INK 1,12:INK 2,6:INK 3,0:INK 4,18:INK 5,26:INK 6,15
3700 WINDOW #0,1,20,5,25:PAPER #0,0:CLS #0
3800 WINDOW #1,1,20,1,4:PAPER #1,1:PEN #1,3:CLS #1:LOCATE #1,2,1:PRINT #1,"LIVES
";:LOCATE #1,12,1:PRINT #1,"SCORE";
3900 WINDOW #2,2,9,3,3:PAPER #2,0:PEN #2,1:CLS #2:PRINT #2,t;
4000 WINDOW #3,12,19,3,3:PAPER #3,0:PEN #3,1:CLS #3:PRINT #3,s;
4100 WINDOW #4,1,20,5,20:PAPER #4,0:CLS #4
4200 WINDOW #5,1,20,24,24:PAPER #5,0:PEN #5,5:CLS #5
4300 DIM bh(8),bv(8),p(4),f(6)
4400 u0=STRING$(20,CHR$(196))
4500 u1="  "+CHR$(253)+"    "+CHR$(253)+"       "+CHR$(253)+"    "+CHR$(253)
4600 u2=CHR$(250)+"    "+CHR$(250)+"    "+CHR$(250)+"  "+CHR$(250)+"    "+CHR$(250)
+"    "+CHR$(250)
4700 REM *************
4800 REM start set up new screen if factories renewed
4900 REM *************
5000 PRINT CHR$(23)+ CHR$(0);:FOR i=1 TO 4:g(i)=0:NEXT:p(1)=66:p(2)=194:p(3)=418
:p(4)=546:f(1)=0:f(2)=128:f(3)=256:f(4)=352:f(5)=480:f(6)=608
5100 TAGOFF:LOCATE 1,17:PEN 6:PRINT u1:PEN 2:PRINT u2;
5200 REM *************
5300 REM start set up for new screen
5400 REM *************
5500 px=320:py=200:PRINT CHR$(23)+CHR$(1);:LOCATE 1,16:PEN 4:PRINT u0;:TAG:PLOT
0,0,1:MOVE px,py:PRINT CHR$(255);
5600 REM *************
5700 REM delay before fresh screen
5800 REM *************
5900 TAGOFF:PRINT #5,"  PRESS SPACE BAR";:PRINT CHR$(7)
6000 k=0:WHILE k<200
6100 k=k+1:u=INKEY$:IF UPPER$(u)=" " THEN k=200
6200 WEND
```

```
6300 PRINT #5,SPACE$(18);:TAG
6400 REM ############
6500 REM interrupts for shell move,bomb drop, gun fire
6600 REM ############
6700 EVERY 6,3 GOSUB 500
6800 EVERY 5,2 GOSUB 2000
6900 EVERY 10,1 GOSUB 2900
7000 IF 11 THEN 8000
7100 REM ############
7200 REM get player action,set up bomb or move balloon
7300 REM ############                    g=ASC(z):IF g=&E0 THEN 7600 ELSE g=4*
7400 EI:z=INKEY$:DI:IF z="" THEN
(g=&F1)-4*(g=&E0)
7500 g=0:IF NOT kb THEN kb=-1:box=px+12:boy=py-24:bod=dir:PLOT 0,0,3:MOVE box,bo
y:PRINT CHR$(251);
7700 IF (px<4 AND dir=-8) OR (px>600 AND dir=8) THEN dir=-dir
7800 PLOT 0,0,1:MOVE px,py:PRINT CHR$(255);:CALL &BD19:MOVE px+dir,py+g:PRINT CH
R$(255);:px=px+dir:py=py+g
7900 IF ad THEN TAGOFF:ad=0:CLS #0: kb=0:g=0:kg=0:GOTO 5000
8000 IF py>330 OR py<110 OR 11 THEN 11=0:1=1-1:GOSUB 2000:IF 1=0 THEN 8900 ELSE
8500
8100 GOTO 7400
8200 REM ############
8300 REM start new screen (bottom screen left intact)
8400 REM ############
8500 TAGOFF:CLS #4:kb=0:g=0:kg=0:GOTO 5500
8600 REM ############
8700 REM new game?
8800 REM ############
8900 MODE 0:PEN 6:PRINT "FINAL SCORE":PRINT S:PRINT:PRINT:PRINT "Another G
o?"
9000 WHILE k<1000
9100 k=k+1:u=INKEY$:IF UPPER$(u)="N" OR UPPER$(u)="Y" THEN k=1000
9200 WEND
9300 IF UPPER$(u)="N" THEN END ELSE RUN
```



So you want to be a BUG HUNTER?



Being a Bug Hunter isn't easy, you know. So many new micros have arrived on the shelves this year alone that it's getting hard to keep track of them all. Many people type in programs from games magazines like *Computer & Video Games*. Occasionally, we have to admit, an error creeps into one of our listings. More often, though, the person typing the listing in makes a small typing error. So, next time you have problems wit one of our games, read this before phoning Bug Hunter. It may save you the cost of a phone call.

RETURN WITHOUT GOSUB

Similar to NEXT WITHOUT FOR. This is a pair of statements which must occur in order. If the computer reaches a RETURN but has not encountered a GOSUB on the way, then you'll get this error.

FILE ALREADY OPEN

You are trying to open a datafile which has already been opened. It may be that it was opened elsewhere in the program but was not closed. When you open a file, the computer creates areas in memory to act as points and buffers. If you do not close a file when you have finished with it, then these areas will not be deleted. Data is often stored in memory blocks and transferred to the file only when each block is full or when the file is closed. If you forget to close a file, then you may well lose the final block of data.

SYNTAX ERROR

This is the most common error message. It means that the program line is not recognised by the computer as being "RUN"able. This may be becaue you have left out a character, eg a bracket, or spelt a word wrongly, eg. IPNUT instead of INPUT. Many syntax errors are quite hard to spot as one very small mistake can cause a whole line to be rejected. Check especially the commas, full stops, colons and semi colons.

VARIABLE NOT FOUND

On some computers, all variables are set to zero when you type RUN. On others, though, they are not given a value until you give them one. So if you set the value of X to 10 and then, further down the program, make a typing mistake and call it Y, you'll get this error unless Y also has a value.

Both systems have their advantages. If your program uses a lot of variables, then it's annoying to have to set them all to zero. It does cut down on typing errors, though.

OUT OF MEMORY

The computer stores a number in memory which tells it how much RAM it has left. If you change this number by poking into it inadvertently, then you'll get the impression that you have less — or even more! — RAM left than you should have. It is possible to poke into a Vic so that typing PRINT FRE(0) will say that you have 64k left even if it's a 3.5k machine. This doesn't mean that you really do have all that space — just that the machine thinks it does.

REDO FROM START

Not exactly an error message, this, but it will happen if you try to enter a string from the keyboard when the program is expecting a number. If the program asks for a number and your input contains any characters apart from the numbers 0 to 9, you'll get this message.

EXTRA IGNORED

Similar to Redo from Start. You'll get this if your response to an input statement contains a comma. This is because Basic uses the comma to separate input statements. If you type a comma, then the current input statement is terminated. If that happens, then everything after the comma (including the comma itself) will be lost.

BAD SUBSCRIPT

An array has been dimensioned with a DIM statement but you are trying to access a part of the array which does not exist. For example, the line DIM A(100) will give array A 100 elements. If you then try to PRINT A(103) you'll get bad SUBSCRIPT. The number in the brackets is known as a subscript. If you get this error, check any lines which deal with arrays, especially DIM lines. If the computer prints an error message when you type RUN, it could be a very small typing error. Even mistaking a comma for a full stop could alter the way in which a program runs. So next time the computer rejects an afternoon's hard typing and prints one of those rude messages, check it with the list below. You never know, it could be just the solution.

CAN'T CONTINUE

When you interrupt a program with BREAK or ESCAPE you can restart it by typing CONTinue. But there are some occasions where you can't continue. For example, if you alter the program in any way, then the machine's memory will be rearranged to fit it. Therefore all previous data is lost and you can't continue running the old program. If you are going to type something before continuing, eg printing the value of a variable, make sure that you type accurately as you can't continue if you get a SYNTAX ERROR.

This is because all variables are reset if an error message occurs.

DIVISION BY ZERO

In maths it is impossible to divide any number by zero. So if you try to do so in your program, you'll get this error. It may be that you've typed the name of the variable wrongly. If your machine sets all variables to zero at the start and you type a variable name that has not been used in the program, it will have a value of zero. If you then try to divide by this variable, you'll get this error.

TYPE MISMATCH

You have referenced two types of variables in the program line and they are of different types. String variables have a dollar sign after them while numeric ones do not. It may be that you're trying to store a letter or word in a numeric variable.

NEXT WITHOUT FOR

A FOR-NEXT loop is a special part of a Basic program. There must be a FOR statement, then part of the program and then a NEXT statement. If the program comes across a NEXT but has not been through the matching FOR, then you'll get this error. As well as incorrect typing of the FOR and NEXT lines, it could be that your GOTOs and/or GOSUBs are wrong. This might make the program jump to a NEXT without going through the FOR first.

ILLEGAL DIRECT

There are two ways to enter a Basic statement. Either with a line number, as part of a program, or without one. This is known as immediate mode. There are some commands, though, which can't be entered in immediate — or direct — mode but only as part of a program. An example is the INPUT command. If you try typing a command in immediate mode which can only be input as part of a program, then you'll get this error. Try typing INPUT A on your computer and you'll see what I mean.

STRING TOO LONG

The program is trying to create a string which is longer than the version of Basic allows. This is no problem on a Spectrum, as there is no limit to the length of a string. On other micros, though, strings usually have a limit of 255 characters. Trying to add characters on to the end of a string without clearing it first will often produce this error. In standard Basic — but not on the Spectrum — the same goes for elements of string arrays. On the Spectrum you cannot have true string arrays.

LINE NOT FOUND/ UNDEFINED LINE

A GOTO or GOSUB statement points to a line of the program which does not exist. On some computers, the Spectrum for example, if a line does not exist, the program will jump to the next available line without producing an error.

REDIMENSIONED ARRAY

Once you have set up an array with a DIM statement, you cannot set it up again without clearing it first, or typing RUN which does the same thing. If you get this error when typing a program from a magazine, then check especially for typing errors in DIM statements. Check all your GOTO and GOSUB statements as well, as a typing error may be making the program jump back to a DIM. This error message may also be called a DD error, which stands for Double Dimension. No jokes about it working wonders, please!

OUT OF DATA

This is one of the most common errors. In many Basic programs, you'll find lines with the word DATA at the beginning. These contain numbers or letters which the program needs to run, and which are read into the program with a READ statement. Each time there is a READ, it will get the next item from the DATA line. But, if there is a READ but no more DATA left to be read, you'll get this error. If this happens, check the DATA lines to make sure that they are typed correctly. Each item of DATA is separated by a comma so, if you miss one of these out, you will merge two DATA items into one. This means that although the DATA is all there, it will appear one short to the computer.

OUT OF MEMORY

Quite self explanatory, really. It means that you haven't got any memory left! This usually means that a program is too large to fit in the machine and that you've run out of RAM. However, there are some typing errors which will result in this error, especially DIM statements which are used to reserve memory for data. If your DIM is too large, then you'll find yourself running out of memory.

BAD MODE

This error is found on BBC micros and is similar to Out of Memory. It can mean that there is not enough memory for the selected mode.

Each of the graphics modes on the BBC takes up a different amount of the computer's memory. This means that the size of the largest program which you can write depends on which graphic mode you use.

TEST MATCH

The England Test team may not be doing well this season, but here's your chance to beat the West Indies — on computer at least.

Perhaps you'll be able to convince the MCC that a Spectrum should captain the England team next season!

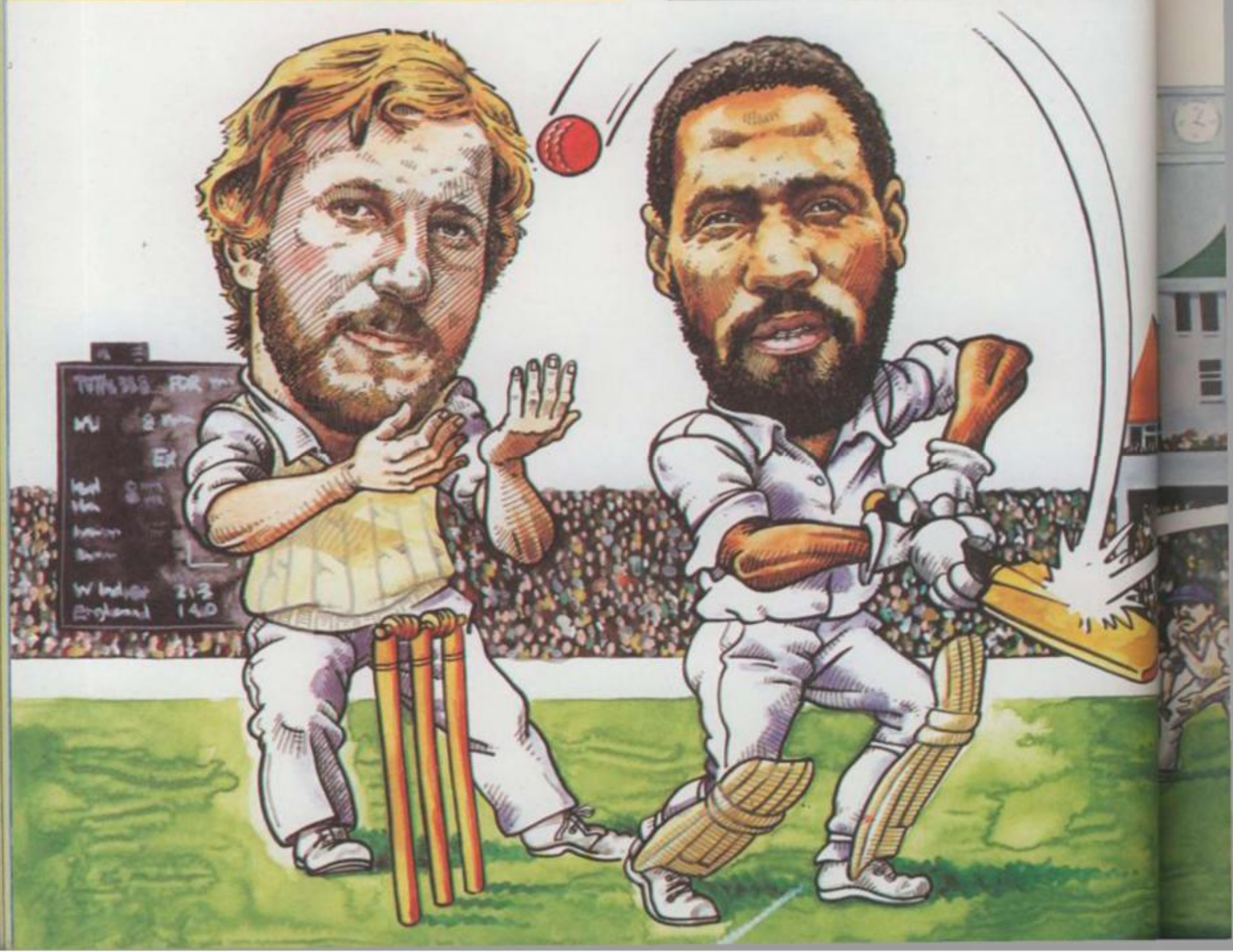
You control the batsman who has to battle his way to a century or so. Mark White has come up with an entertaining computerised version of our traditional summer game which will keep you enthralled for hours. The game includes an end of match score card plus the option to choose the names of the opposing teams. Full instructions are included in the program.

So strap on your pads and prepare to score that century!

BY MARK WHITE

RUNS ON A SPECTRUM IN 16k

```
   1 DIM S(2): LET NO=1: POKE 23
658,8: BORDER 7: PAPER 5: INK 0:
 CLS : GO SUB 9500
   2 CLS : RESTORE 4
   3 FOR F=USR "A" TO USR "B"+7:
 READ a: POKE f,a: NEXT f
   4 DATA 0,0,31,63,127,127,127,
60,112,252,254,255,255,254,252,1
20
   8 PRINT AT 1,5; INK 7;"AB";AT
 4,7;"AB";AT 4,16;"AB";AT 3,27;"
AB"
   9 RESTORE 30
  10 FOR f=USR "a" TO USR "u"+7
  20 READ a: POKE f,a: NEXT f
  30 DATA 0,0,0,0,28,28,11,12,10
,9,8,20,36,66,130,195,32,224,32,
32,32,32,32,0,0,0,0,0,0,0,0,128
  40 DATA 0,0,56,56,16,56,84,146
,84,56,248,36,36,36,36,102,0,0,1
5,0,0,0,0,0
  50 DATA 84,56,[illegible],100,164,3
6,102,0,0,0,0,0,[illegible]
  60 DATA 0,1,1,[illegible],1,1
  65 DATA 0,0,0,0,0,0,192,1[illegible]
  66 DATA 128,252,0,0,0,0,0,0,12
8,128,64,32,16,8,0,0
  67 DATA 0,1,1,[illegible],17,[illegible],5,163
  68 DATA 0,0,0,[illegible],48,[illegible],16,48,8
0,80,16,[illegible],0,6,[illegible],208,16,1
6,16,1,[illegible],16,4[illegible]
```

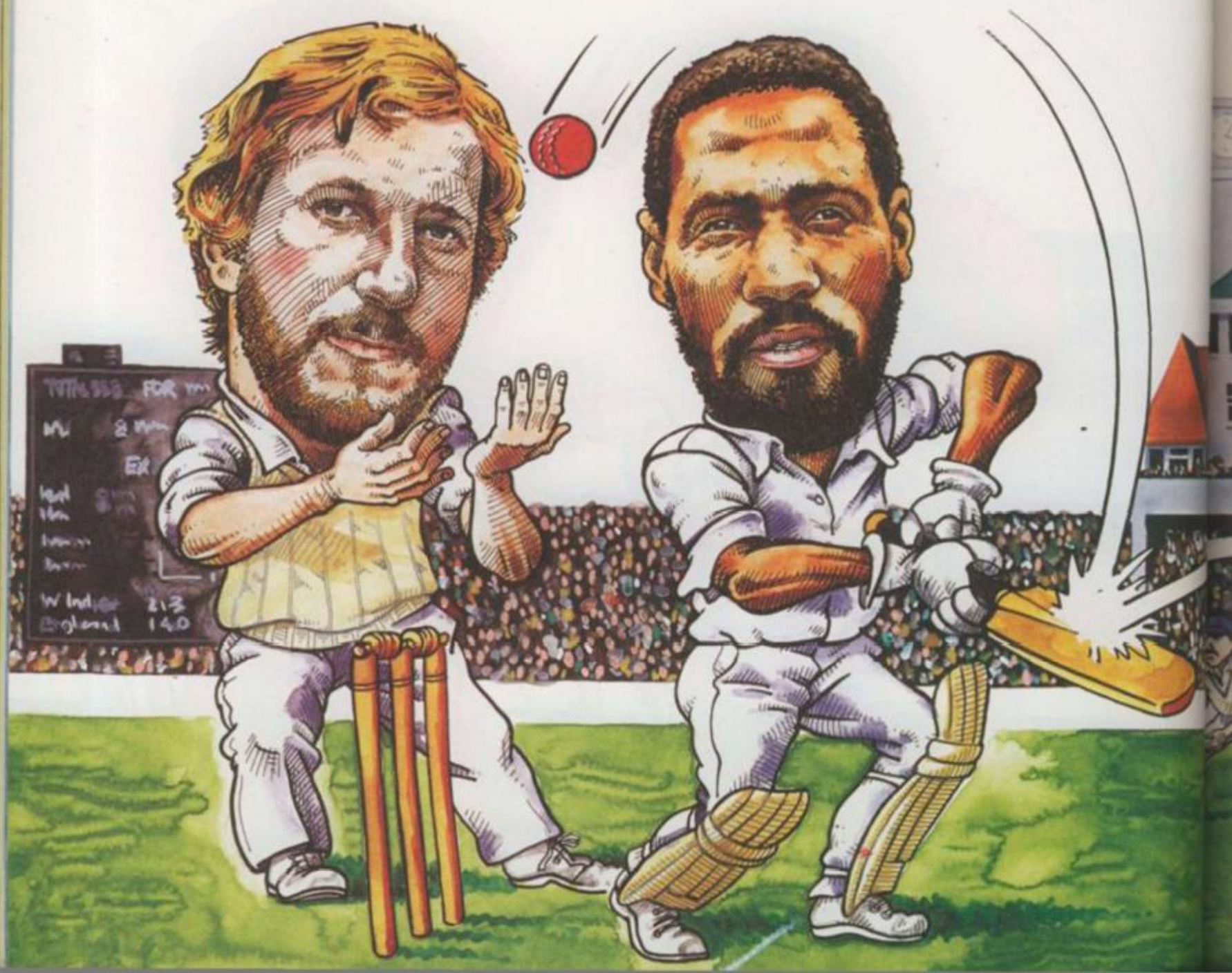


```
  69 DA    16,8,4,52,52,20,56,208
,16,16,16,16,40,68,66,198
  70 DATA 0,0,0,24,24,16,16,48,8
0,136,136,68,38,64,128,192
  76 LET W  kets=0
  80 FOR    R TO 21: PRINT AT f,
0; PAPER
                ": NEXT f
  85 PRINT AT 20,27; PAPER 4;"fo
r";AT 19,27;"000";AT 21,28;"0":
PLOT 215,0: DRAW 0,24: DRAW 26,0
: DRAW 0,-24
  95 PRINT AT 11,17;"J";AT 11,3;
"J": PLOT INK 0,0,79: DRAW INK 0
,255,0: PRINT AT 10,1;"T";AT 11,
1;"U"
  96 RESTORE 1000
 100 LET a=17: LET b=9: LET pace
=INT (RND*12)+1
 101 PRINT AT 10,3;"  E ";AT 11,
3;"JGF "
 102 PRINT AT 10,29;"O";AT 11,29
;"Q"
 103 FOR f=29 TO 19: STEP -1
 104 PRINT AT 10,f;"U ";AT 11,f;
"Q ": IF f<24 THEN PRINT AT 11,4
;"IH"
 105 FOR g=1 TO 25: NEXT g: IF f
<24 THEN PRINT AT 11,4;"GF"
 106 PRINT AT 11,  ;"P ": FOR g=1
 TO 25: NEXT g: NEXT f
 107 PRINT AT 10,1;"R ";AT 11,1
8;"S ": FOR g=1 TO 25: NEXT g
 108 PRINT AT 9,17; INK 2;"K";AT
 10,18; INK 0;"O ";AT 11,18;"P"
 109 GO SUB 150
 110 IF INKEY$="" THEN GO TO 109
 111 PRINT AT 10,3;"  E ";AT 11,
3;"JIH "
 112 FOR f=1 TO 10: NEXT f
 120 PRINT AT 10,3;"  AD";AT 11,
3;"J BC "
 125 GO TO 2000
 130 PAUSE 1: PAUSE 0
 135 PRINT AT 10,18;" ";AT 11,18
;" "
 140 GO TO 100
 150 PRINT AT b,  " ": LET a=a-1
: IF a=6 THEN GO TO 200
 152 IF a=15 OR a=10 THEN LET b=
b+1
 154 PRINT AT b,a; INK 2;"K"
 155 FOR f=1 TO pace: NEXT f
 160 RETURN
 200 IF RND>.5 THEN GO TO 7000
 201 GO SUB 210: GO TO 255
 210 FOR f=6 TO 4 STEP -1
 220 PRINT AT 11,f; INK 2; OVER
1;"K"
 230 FOR g=1 TO pace: NEXT g
 240 PRINT AT 11,f; OVER 1;"K"
 245 PRINT AT 10,4;" AD";AT 11,4
;" BC"
 250 NEXT f
 251 RETURN
 255 PRINT AT 11,3;"N"
 256 PRINT AT 10,4;" AD ";AT 11,
4;" BC "
 260 PRINT AT 11,2;"K"
 310 PRINT AT 3,13;"OUT!": GO SU
B 7500: FOR G=1 TO 75: NEXT G: P
RINT AT 3,13;"     ": PAUSE 1: PA
USE 0: PRINT AT 11,2;" ";AT 11,1
8;" ";AT 10,18;" ": GO TO 100
1000 IF s(no)>1000 THEN LET s=s-
1000
1001 PAPER 4: PRINT AT 19,27;"00
0"( TO 3-LEN STR$ s(no));s(no):
PAPER 5
1002 RETURN
```

Illustration: John Storey

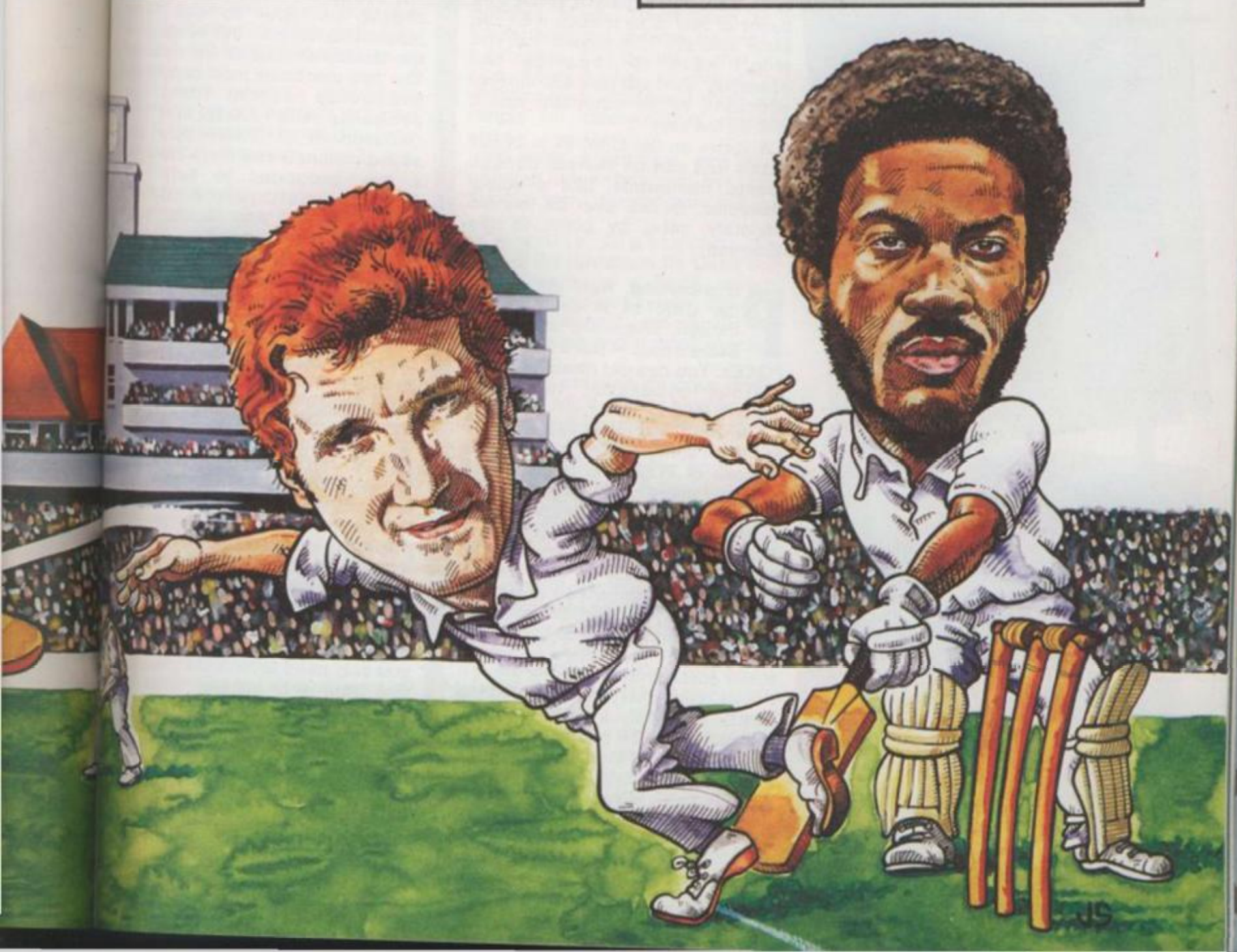
```
1010 IF RND>.75 THEN PRINT AT 2,
10;"NOT OUT!": LET s(no)=s(no)+s
1: PRINT AT 9,10;s1;" run" AND s
1=1;" runs" AND s1>1: GO SUB 100
0: FOR g=1 TO 200: NEXT g: PRINT
 AT 9,10;"          ";AT 2,10;"
          ";AT 1,11;"
": PAUSE 1: PAUSE 0: PRINT AT 11
,28;" ";AT 10,28;"  ": GO TO 100
1020 PRINT AT 2,13;"OUT!"
1030 FOR g=1 TO 150: NEXT g
1040 GO SUB 7500
1045 PAUSE 1: PAUSE 0: PRINT AT
2,13;"    ";AT 1,11;"          ";A
T 11,28;" ";AT 10,28;" "
1050 GO TO 100
2000 IF a>7 THEN GO TO 5000
2001 PRINT AT 11,f; INK 2;" "
2010 LET d=INT (RND*4)+1
2020 IF d=1 THEN GO TO 2500
2030 IF d=2 THEN GO TO 3000
2040 IF d=3 THEN GO TO 3500
2050 LET d=0: LET s1=INT (RND*4)
+1: FOR f=12 TO 21
2060 PRINT AT f,6; INK 8; PAPER
4; OVER 1;"K"
2070 FOR g=1 TO d: NEXT g: LET d
=d+1
2080 PRINT AT f,6; PAPER 4; OVER
 1;"
2090 NEXT
2100 PRINT AT 10,5;"E ";AT 11,4;
"GF "
2490 LET s(no)=s(no)+s1: GO SUB
1000: PRINT AT 9,10;s1;" run" AN
D s1=1;" runs" AND s1>1: PAUSE 1
: PAUSE 0: PRINT AT 11,18;" ";AT
 10,18;" ";AT 9,10;"          ": GO
TO 100
2500 LET w=11: LET s1=INT (RND*4
)+1: LET pos=18
```

```
2505 PRINT AT 11,4;" BM"
2510 FOR f=7 TO 29
2516 IF f=8 THEN PRINT AT 11,4;"
 BL"
2517 IF f=17 THEN PRINT AT 10,5;
"E ";AT 11,4;"GF "
2520 PRINT AT w,f; INK 2;"K"
2530 GO SUB 8500
2540 PRINT AT w,f;" "
2550 LET w=w-1
2555 PRINT AT 11,pos;"S"
2560 NEXT f: GO TO 1005
3000 LET d=0: LET s1=INT (RND*4)
+1: FOR f=8 TO 31
3010 PRINT AT 11,f; INK 2;"K";AT
 11,17; INK 0;"JP"
3020 FOR g=1 TO d: NEXT g: LET d
=d+0.5
3025 PRINT AT 11,f;" "
3030 IF f=23 THEN PRINT AT 11,4;
"GF ";AT 10,5;"E "
3040 NEXT f
3050 GO TO 2490
3500 LET w=12: LET d=0: LET s1=I
NT (RND*4)+1
3510 FOR f=7 TO 17
3520 PRINT AT w,f; INK 8; PAPER
4; OVER 1;"K"
3525 IF f=13 THEN PRINT AT 10,5;
"E ";AT 11,4;"GF "
3540 FOR g=1 TO d: NEXT g: LET d
=d+1
3550 PRINT AT w,f; PAPER 4; OVER
 1;"K"
3555 LET w=w+0.75
3560 NEXT f
3570 GO TO 2490
5000 IF A=15 OR A=10 THEN LET A=
A-1: PRINT AT B,A+1;" "
5001 FOR f=a TO 7 STEP -1
```

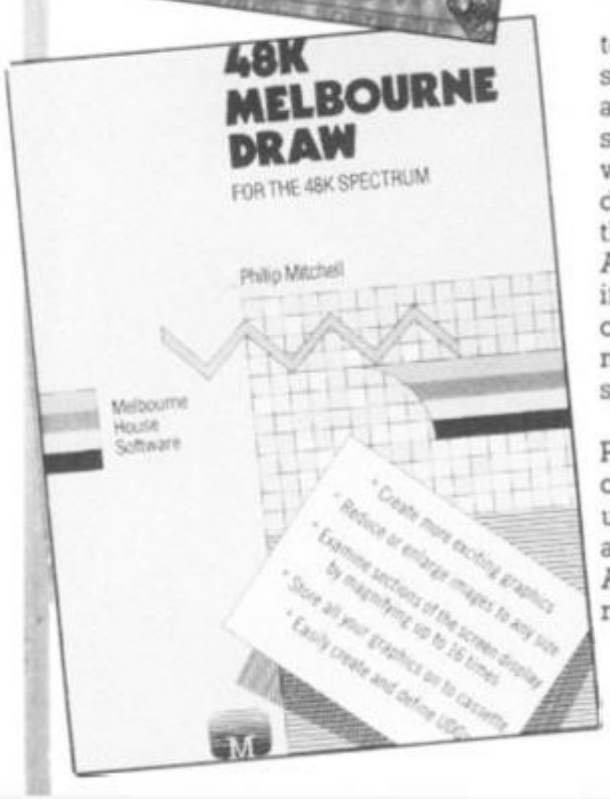


```
5010 IF f=15 OR f=10 THEN LET b=
b+1
5020 PRINT AT b,f; INK 2;"K"
5030 FOR g=1 TO pace: NEXT g
5040 PRINT AT b,f;" "
5045 NEXT f
5050 PRINT AT 11,7; INK 2;"K"
5060 FOR f=1 TO 10: NEXT f
5070 PRINT AT 11,7; INK 2;" K"
5075 FOR f=1 TO 15: NEXT f
5076 PRINT AT 10,5;"E ";AT 11,4;
"GF "
5080 PAUSE 1: PAUSE 0
5090 PRINT AT 11,8;" ";AT 10,18;
" ";AT 11,18;" "
5100 GO TO 100
7000 PRINT AT 10,5;"AD";AT 11,4;
" BC"
7005 GO SUB 210
7010 PRINT AT 11,2;"KJ"
7070 FOR G=1 TO 25: NEXT G
7080 PRINT AT 7,1;"Lucky, ball p
itched off wicket.";AT 10,5;"E "
;AT 11,4;"GF "
7090 FOR g=1 TO 75: NEXT g
7100 PRINT AT 7,1;"
                  "
7110 PRINT AT 11,2;" ": PAUSE 1:
 PAUSE 0: PRINT AT 11,18;" ";AT
10,18;" "
7120 GO TO 100
7500 LET wickets=wickets+1
7510 IF wickets=10 THEN PRINT AT
 9,7;s$(no);AT 9,5;"ALL OUT FOR
";s(no): GO TO 7530
7515 PRINT AT 21,28; PAPER 4;WIC
KETS
7525 RETURN
```

```
7530 LET no=no+1
7535 IF NO<3 THEN GO TO 7540
7536 IF s(1)>s(2) THEN PRINT AT
7,0;s$(1);" beat ";s$(2);" by ";
s(1)-s(2);" runs.": GO TO 7600
7537 IF s(1)<s(2) THEN PRINT AT
7,0;s$(2);" beat ";s$(1);" by ";
s(2)-s(1);" runs.": GO TO 7600
7538 PRINT AT 7,0;"  A Draw.": G
O TO 7600
7540 PRINT AT 6,0,"Press any key
 for the innings of";s$(no)
7550 PAUSE 1: PAUSE 0
7555 GO TO 2
7560 GO TO 100
7600 PRINT AT 9,5; FLASH 1;"Anot
her game ?": IF INKEY$="" THEN G
O TO 7600
7610 IF INKEY$="Y" THEN RUN
7620 IF INKEY$="N" THEN STOP
7630 GO TO 7600
8500 LET pos=pos+.45: PRINT AT 1
1,17;"J"
8510 PRINT AT 10,pos-1;" O";AT 1
1,pos-1;" O"
8520 RETURN
9500 DIM s$(2,10): PRINT AT 9,8;
"Team No.1 ?"
9510 INPUT LINE s$(1)
9520 PRINT AT 9,15;"2"
9530 INPUT LINE s$(2)
9540 PRINT AT 9,8;"                "
9550 PRINT AT 12,0;" Press any k
ey for the innings          of ";s
$(1)
9560 PAUSE 1: PAUSE 0
9570 CLS
9580 RETURN
```



GREAT GAMES —



So, you're fed up with playing other people's games on your computer? You think you could do better? Well, why not try writing your own? With a good book on Basic by your side, it's not hard to write a simple game. But presentation is as important as the game itself. A good game also has an intricate loading title screen and well

Sprites will be pretty familiar to anyone who's ever tried to write a game on a Commodore 64 or Atari. A sprite is just like a user defined graphics character which you can move anywhere on the screen using simple commands from Basic. But a sprite is more than that. Special commands are included in the Basic language to handle them and you can perform special functions with sprites which you can't do with normal characters.

One feature of the Commodore 64 is the ability to expand a sprite by a factor of two or to reduce it by the same amount. This means that you won't have to redesign the character. You just give the correct command to the computer and it will do the rest.

A sprite on the CBM 64 is 24×21 pixels and can be moved, through special commands, like a single character. It can also be moved smoothly, pixel by pixel, in any direction.

Programming with sprites on the CBM 64 is complicated, though. There are no special Basic words — just a long list of POKEs. You can get round this with various programs, including Simon's Basic.

The Atari machines can have up to five sprites. Again, it takes streams of POKEs to set them up and to move them around the screen. But if you're beginning to wonder why no machine has a decent set of sprite commands, then take a look at the Texas. Although TI Basic lacks the facility, if you buy the Extended Basic cartridge, then you're in luck. Your machine will now have a full set of sprite commands.

And you don't need a single POKE! To set up a sprite, use the command SPRITE and to magnify it, use MAGNIFY. Colours of sprites are set with COLOR — it's an American machine, you'll remember. If you want to find out any more about this area of graphics programming, look through the books at your local micro shop. Or try your local library. It's surprising how many good computing books you'll find there.

If it's an entire game which you're trying to write, then you may find use for a games designer program.

If you want to know what these are all about, then dig out your copy of *C&VG* of December 1983. You'll find two fact-packed pages all about games designers in there, starting on page 90.

If music's your area, then you should be able to get some reasonable sounds out of many of the micros around at the moment. The two machines most capable of producing decent tunes are probably the Atari and the Commodore 64. These have four sound channels and there are quite a few programs to help you program multi-part music. If percussion is your fancy, then Quicksilva has a package for the Beeb called *Drum Kit*. It won't make you into a Stewart Copeland, but it's great fun if you're into drums and things.

Now, let's have a look at some of the programs designed specifically to help you in your programming.

First, here's a treat for Adventure fans. The Quill is now available for the Commodore 64. When this program was first launched for the Spectrum, it was one of the most popular programming utilities around. The program is designed to help you write Adventure games. In the past, you had to be good at ideas and programming in order to write a good Adventure, but now you only need to have the ideas and the Quill will actually write the program for you.

Once you've loaded the program, you use a special language to set up the Adventure. The first thing that you'll need to do is to draw a map to include all the locations and their

S — BY DESIGN

designed sprites which take time. Luckily, though, many software houses are coming to our rescue with programs designed to make programming easier. Here, we take a look at some of the best of these programs. But first we ask what exactly do these programs do? And how do they do it? The Bug Hunter reveals all!

contents. You also have to define the paths which link the locations.

You can then add certain effects to the program like, for example, a message which will appear when you go into a certain room.

You also have to set up a score system so that the program knows how many points to give you for each object collected.

You can invent your own vocabulary, so you can allow the game to understand any words which you want.

Once you've completed your Adventure, then you can test it by selecting the test option from the main Quill menu. If all is well, then the Quill will save your game on to cassette.

You now have a complete Adventure program which will load into your computer just like any commercial program. Isn't that great?

Many of the Adventures around in the shops at the moment were actually written with Quill. There's nothing wrong with this as it doesn't make them any harder or easier to play. In fact, unless you were told, you wouldn't know that they were not written by a professional programmer. *Denis Through the Drinking Glass* is an example. You can get more information from Gilsoft, on 0446 7322765.

Graphics fans may be more interested in Scope than Quill. Scope, from ISP, stands for Simple Compilation of Plain English and is a graphics programming language for writing fast arcade-style games.

This is another program which has recently been launched on the Commodore 64 after proving its worth on the Spectrum.

The language has a vocabulary of around 45 words which allow you to create graphics and sound effects.

Scope is a compiled language which means that the programs you write are converted to machine code before you run them. This makes Scope programs run a lot faster than if a similar program was written in Basic. Scope is from ISP who are based in Basingstoke.

Once you have designed your game, it would be nice to give it a professional-looking title screen as used by most of the professional software houses.

Screen machine is a screen editor for the Spectrum. It has 19 commands to help you produce professional screen displays for your games.

The main concept behind Forth is defining words. Each word is a Forth command and can be used in a program. The beauty is that you can extend the language by defining new words and these can simply be extensions of existing ones.

To write a program, you keep defining new words until, by typing just one word, the program will run.

White Lightning, for the Spectrum by Oasis Software, is a Forth system. But it also has over 100 extra words designed specifically for programming fast-moving graphics for games.

A sprite creation program is also included so, if you're prepared to sit down and learn a new language, you can produce some really professional results with this package. I've seen it demonstrated and it really is impressive.

Of course, if it's just large pretty characters for a display you're after, then there's DLAN from Campbell systems. DLAN stands for Display Language and will produce moving displays on a Spectrum with a choice of 11 character sets.

Well, we've talked about a whole host of programs aimed at making life simpler for someone who's trying to write his or her own game. If you need any more info, then give the company a ring. Or write to me at Bug Hunter. Good luck with the programming!

STAR TURN

Terry Jones

Games based on books have been one of the trends of the last year. *Erik the Viking*, a book by ex-Monty Python member Terry Jones, was one of them. *C&VG*'s Adventurer-in-Chief, Keith Campbell, met Terry and Erik and talked about Vikings, pet fish, tech-fear and, of course, Adventures.

I was there on the day Terry Jones met computerised Erik for the first time in a small room at Mosaic Publishing's London offices.

Terry was intrigued by the game and enjoyed the way Pete Austin, of Level 9 Computing, famed for their Adventures, had converted his hero into a computer game.

But first things first. I asked Terry how Erik came into his life.

Had it not been for a certain Bill Jones, aged six, it is likely that neither book nor game would have come into being.

Bill has an older sister called Sally, whose father wrote her a fairy story. Feeling a bit left out, Bill decided it was high time Dad wrote one for him. So Dad dreamed up Erik, and wrote a series of stories that turned into a saga — and eventually a successful, lavishly illustrated children's book.

But what about computers? Had the ex-Pythonees come across a micro before, I asked?

"Yes, we have a Spectrum at home," replied Terry and, "But I must confess to being an absolute computer illiterate!

"Sally and Bill make the most use of our micro. So you'll have to tell me what to do!"

Pete and Terry sat down facing the Spectrum and, after a few moments explaining how an Adventure game works, Pete started it off.

He then handed over to Terry, who guided Erik around the Viking farm and into the Great Hall.

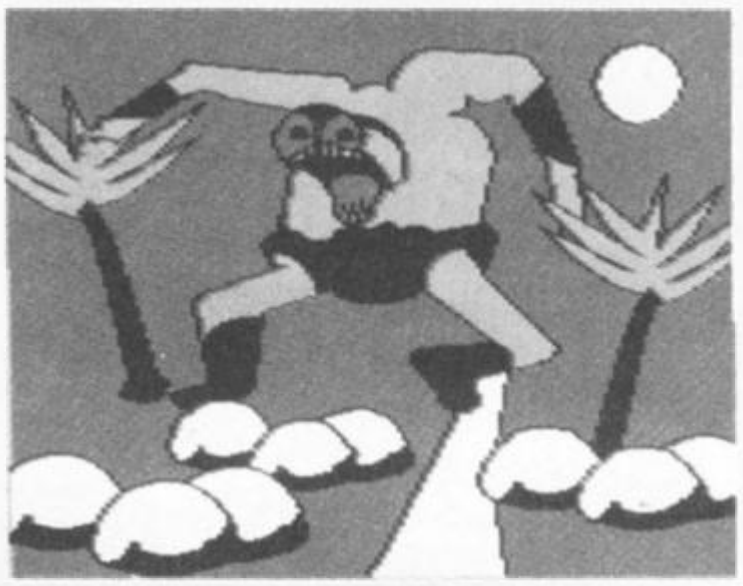
Terry was absolutely intrigued by the graphics and suddenly full of questions. "So many pictures — I've never seen anything with pictures like that before on a micro."

Level 9 are renowned for their extensive text games and so Erik marks a departure for them, being their first venture into graphical Adventures.

Pete stopped Erik outside a church. "There, Terry — a classic getting-into-the-church problem. It's all yours." Terry took over again and had a go. He had taken easily to the Adventure playing and now proved that he could be quite a violent man when unable to get through a door! On the keyboard, that is!

Eventually, Erik came upon the giant — and Terry loved the picture! "Worth all the trouble getting there just to see him," he smiled.

Meanwhile, I asked Terry why had he chosen the name Erik for his hero — could it have been anything to do with a pet fish? One featured in a famous Python sketch. "Never even crossed my mind!" Terry admitted — "mmm, yes — Erik the half-Viking . . ."



Was Terry's main occupation writing? "Well I've just spent the last six months lecturing on Chaucer," he replied. "Do any other members of the Python team have a micro?"

"Well, I'm not sure. But I think Terry Gilliam must have — he's that sort!" he joked.

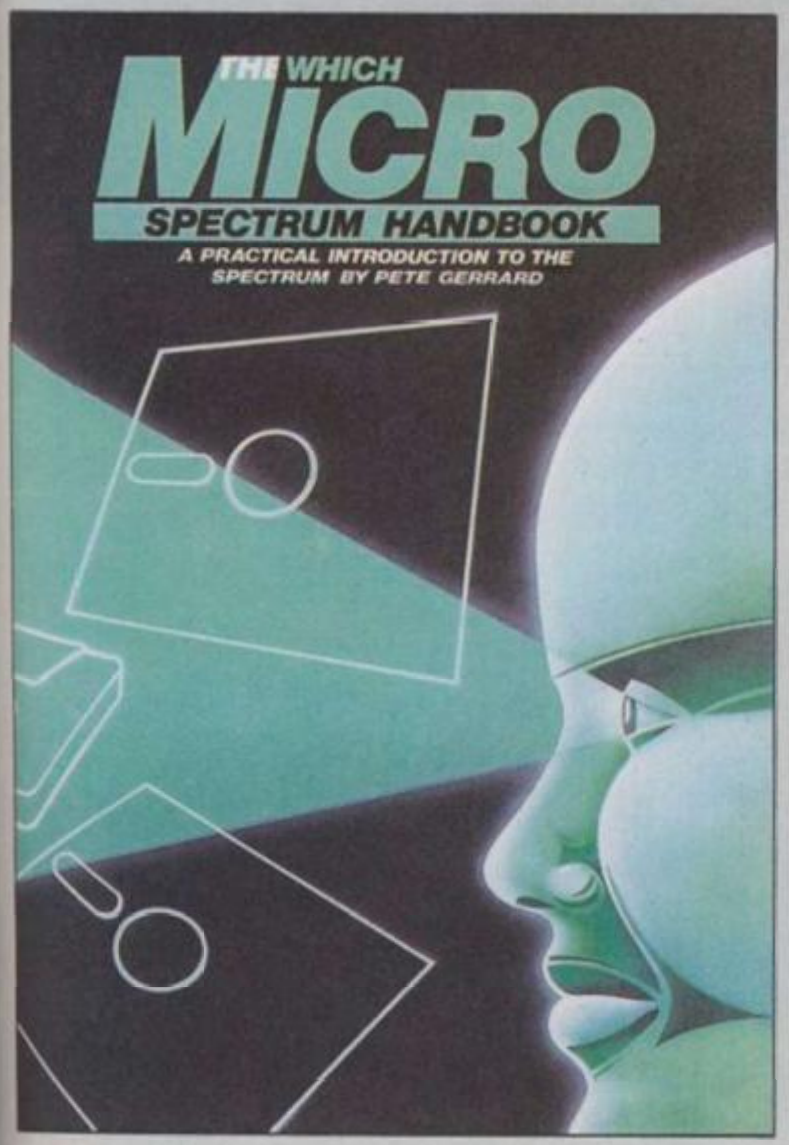
Had there been close collaboration between Pete and Terry during the adaptation of Erik? "No, not as much as there should have been," admitted Pete, "although we did speak to each other about it. And, of course, Terry had a copy of our synopsis."

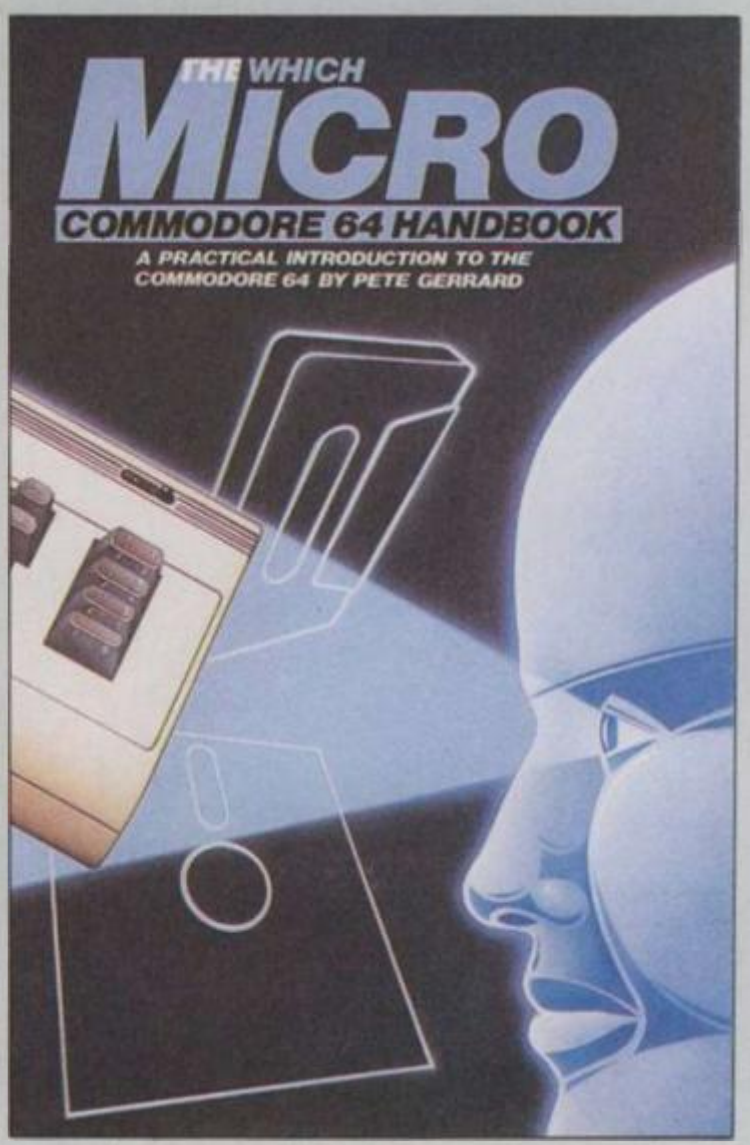
In order to design and write *Erik the Viking*, Pete Austin spent a considerable time in York, carrying out research into the subject at the recently discovered Viking settlement in that city.

"We have been pretty thorough," he said, "and you may not realise it, but all the pictures and text references in the game are really quite authentic."

Terry had a confession to make about Vikings. "I don't really like them. Nasty bloodthirsty people!"

Erik might go some way toward altering people's opinions about Vikings — and maybe get more people playing Adventure games. Even Terry, perhaps?





Britain's two most popular personal computers, the Commodore 64 and Spectrum are covered from basic to semi-expert in **Which Micro magazine's Handbooks.**

Author Pete Gerrard, a regular columnist for **Which Micro**, has put together an accurate and practical guide to both computers, at £4.99 per book.

Many programs are included and both 160-page books are spiral bound for easy use and are available in all good bookshops from November or direct through your letterbox by filling in the coupon below

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TOP TEN

We asked the statisticians at NOP — compilers o the UK's most accurate computer games chart – to work out the Top Ten best selling games o 1984.

NOP stands for National Opinion Polls and i the name of one of the top three marke research companies in this country. The nam may be familiar to some of you from the genera elections when opinion polls are all you eve seem to hear about on the TV.

The expertise of NOP ensures that the *C&VG* / *Daily Mirror* Top Thirty is the number one chart.

1 JET SET WILLY

Jet Set Willy is the best selling game of 1984, having reigned supreme at number one for over three months. As we go to press, Willy is still there — fighting off the attacks from Vortex, Ultimate and Melbourne House.

Jet Set Willy was always bound to be a smash hit — gamers had enjoyed *Manic Miner* so much, with its addictive game play and zany graphics. There was a constant chorus of "Have you got *Jet Set Willy* yet?" in every computer shop in the country in the weeks leading up to the launch.

The sequel to *Manic Miner* finally found its way into the shops and surprised no one when it zoomed straight in at number one in the Top Twenty. What did surprise the pundits is the amount of time it stayed there.

Sabre Wulf came and went and Willy stayed at the top. So did *Lords of Midnight, Tornado Low Level, Mugsy, Psytron* and countless other great games. Well done Willy, you certainly are the people's favourite.

1

2 FIGHTER PILOT

Fighter Pilot is the second best selling game of '84 just pipping *Manic Miner* at the post.

A World War II flight simulation incorporating combat, this game rocketed Digital Integration into the big league of games software houses.

Fighter Pilot's programmer, Dave Marshall, knows a thing or two about computers and aero-planes, having worked on computer engine control systems for jet liners. This expertise comes across in the game which plays just as if you were in a real aircraft.

Fighter Pilot precipitated a flight simulation boom with several versions appearing from dozens of companies trying to emulate Digital's hit on other systems.

Since *Fighter Pilot*, Digital has launched three more games — each one a success.

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3 MANIC MINER

Manic Miner was the first computer game to feature ridiculous sounding characters, with names like the Man-Eating Toilets, Bouncing Cheques, and Mutant Telephones.

Now almost all computer games have some ridiculously named individuals in them — to the point of complete boredom.

The idea of the game is to get Willy, a cute little miner with peaked cap, safely to the top of the twentieth mine.

To get to the top of a mine, he must first collect all the various artifacts left behind by previous prospectors.

En route there are a couple of digs at rival software companies — like Eugene's Lair which represents Imagine Software — the now defunct but one time rival Liverpool neighbours of Software Projects.

Manic Miner paved the way for the success of *Jet Set Willy* by establishing Miner Willy as a well known and likeable video game character.

With both Miner Willy games now available on the Commodore 64 as well as on the Spectrum, this is one underground worker who looks set for even more fame and fortune, whatever the outcome of the miner's strike.

4

4 ATIC ATAC

Atic Atac was the first game to successfully combine frenetic arcade action with a genuinely challenging Adventure scenario.

You can act the part of a Knight, Surf, or a Wizard in a search to find the four keys to the ACG room. ACG stands for Ashby Computer Graphics — the firm that owns Ultimate.

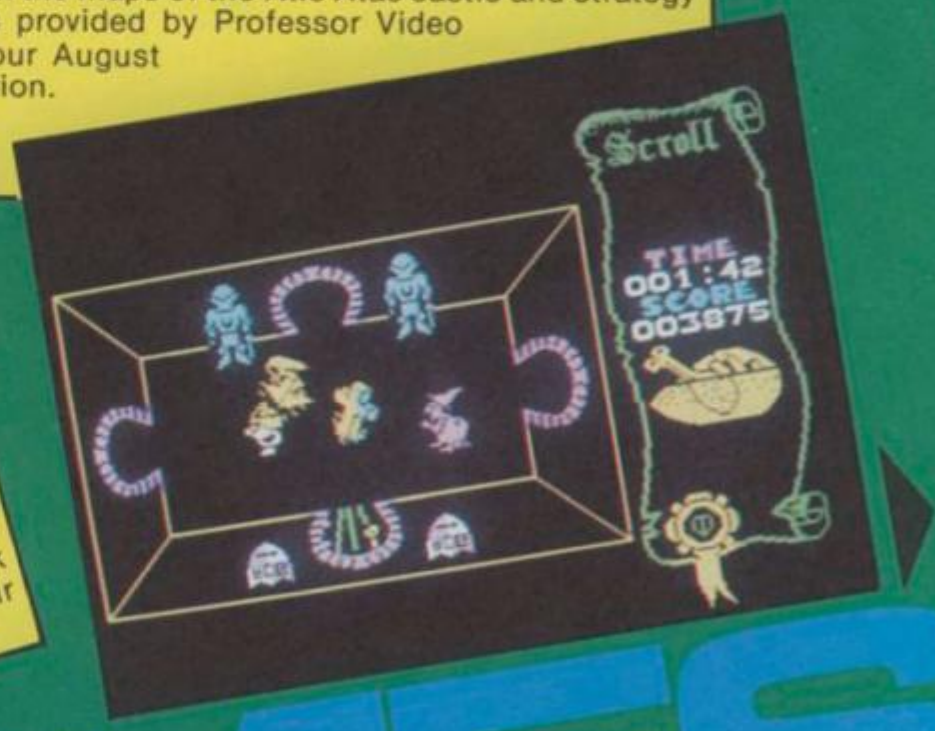
Atic Atac is the fourth best selling game of '84, having stayed at number one in the charts for several weeks.

High scores have flooded into *C&VG's* office on this game — proving that *Atic Atac* certainly has that obscure element of addiction that keeps you reaching for your Spectrum.

Regular *C&VG* readers will have benefited from from the maps of the *Atic Atac* castle and strategy tips provided by Professor Video in our August edition.

5 CHEQUERED FLAG

n Psion launched their racing car simulation, y were greeted by sighs of relief from ousands of Spectrum owners.
There was not one decent race game for the pectrum until *Chequered Flag* hit the shops.
Now there are several race games — with *Full hrottle* and *Pole Position* following in the used racks of *Chequered Flag*.
The game is up to Psion's usual high standard with superbly detailed graphics and a choice of racing tracks.
Chequered Flag features several authentic driving controls with brakes, gears, accelerator and working instruments on the dash. Earlier this year, in *C&VG*, Formula One driver Martin Brundle voted this game the most authentic racing simulation he'd seen.
With Psion now converting some of their games to the 64 and BBC, non-Spectrum owners can look forward to playing *Chequered Flag* on their systems.



2

GAMES

TOP TEN

6 HUNCHBACK

Hunchback proved an enormous hit for Ocean on the Commodore 64 as well as on the Spectrum.

The multi-screen climbing game cast the player in the chivalrous role of the hero who rescues the fair Esmerelda.

But before you can carry her off in your arms, there are several nasties to be dealt with — like the natives with their spears at the ready and the gaping caverns to be swung across.

As sixth best selling game of 1984, *Hunchback* really put Ocean on the map and was followed up by a number of other successes.

Ocean's *Hunchback* was officially licensed from the arcade game of the same name.

Hunchback was also the first Spectrum game to be advertised nationally on television.

6

10

10 MANIC MINER

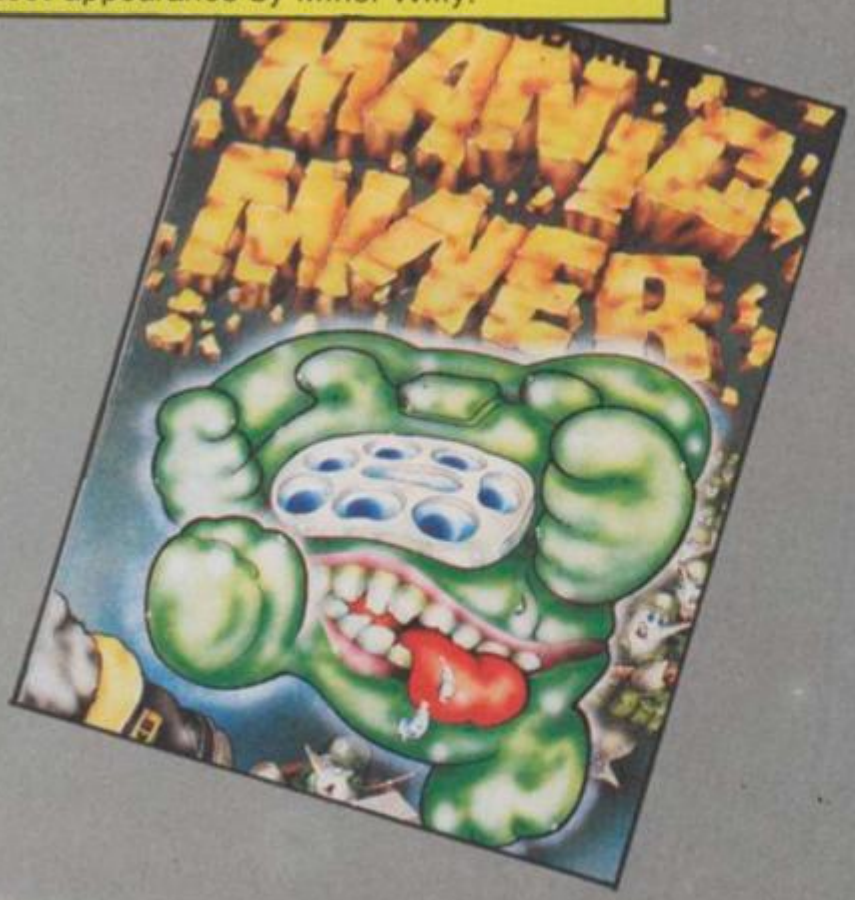
Tenth best selling game of 1984 is the Commodore 64 version of *Manic Miner.* This number one hit on the Spectrum was converted to the 64 by Chris Lancaster.

The conversion is a painstakingly accurate job which also benefits from the extra sound capabilities of the 64.

Miner Willy is now looking forward to making his third and — according to Software Projects — final appearance in a computer game.

This mystery game is also going to be converted to run on the 64 after its launch on the Spectrum.

A mole in Liverpool also tells me that Software Projects is looking at MSX computers with a view to a guest appearance by Miner Willy.



7

7 SABRE WULF

Sabre Wulf is the first of four games from Ultimate in the Sabre series.

You are an intrepid jungle explorer trying to escape from the jungle. You have to survive attacks from countless wild animals as well as poisonous flowers.

As in *Atic Atac*, you have to find four pieces of a hidden object to complete the game.

Sabre Wulf maps have been flooding into the C&VG office since the game went on sale in June. As we go to press, it is already the seventh best selling game of 1984 and is likely to improve this position as the year wears on.

The most striking thing about *Sabre Wulf* when it appears on screen is the beauty of the graphics with its pretty flowers and green foliage. It's a joy to watch as well as play.

8

8 NIGHT GUNNER

Night Gunner challenges you to fly a night bombing mission over enemy territory. Enemy fighters come screaming in for the kill and you must fight for your life!

Night Gunner was originally a very successful program on the ZX81. When the two partners who comprise Digital Integration went full time last year, the game was converted to run on the Spectrum and was an instant hit.

Many people were surprised that Digital had produced two similar programs, *Fighter Pilot* and *Night Gunner* but, similar or not, both games proved themselves real winners in the charts.

Digital are not concerned that they are getting a reputation for being flight specialists — the two releases after *Fighter Pilot* and *Night Gunner* are also flight games.

In a very short space of time, Digital has pulled up alongside Ultimate and Software Projects as companies that have two games in the Top Ten best selling games of the year.

9

9 JET PAC

Jet Pac was voted Game of the Year by *C&VG*'s readers in the 1984 Golden Joystick Awards.

Ultimate's first release, this game hogged the Top Twenty for months.

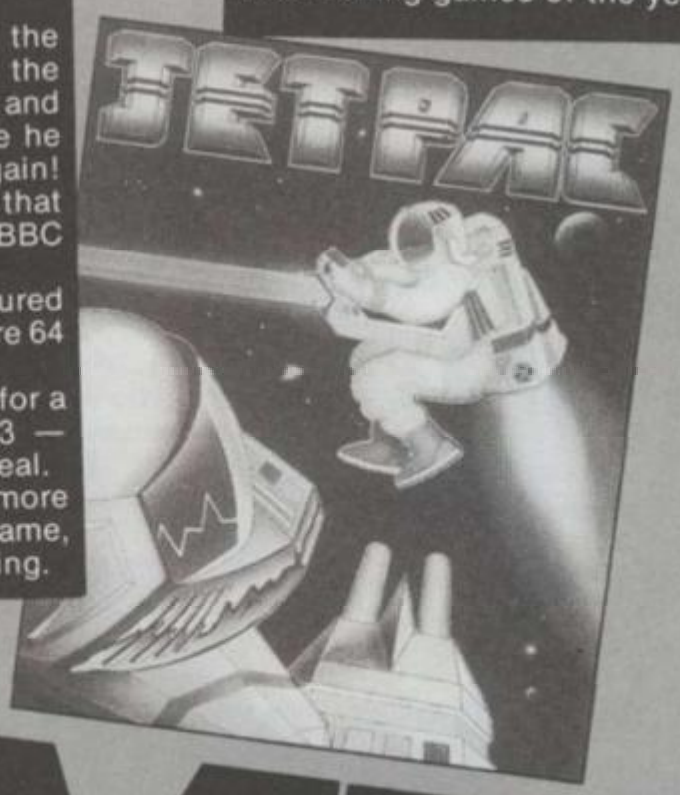
You control Jet Man who has to fly around the screen powered by his jet pack picking up the three sections of his rocket, assembling it and then blasting off to the next planet — where he has to go through the same routine all over again!

The game was such a popular release that Ultimate has now converted it to run on the BBC and Vic-20 as well as on the Spectrum.

As we go to press, it is also strongly rumoured that Ultimate will be bringing out a Commodore 64 version of this excellent title.

Ninth best selling game of 1984 is not bad for a game launched as long ago as summer '83 — which just goes to prove its long-lasting appeal.

Jet Pac is also distinguished by receiving more *C&VG* Hall of Fame entries than any other game, so its popularity is showing no sign of flagging.



GAMES

KILLER

Follow the bouncing ball! This all-action game for the Atari will soon have you hooked. Here's what you have to do.

The player is represented by a ball in the centre of the screen. The digits one to nine are randomly placed around him, coloured blue. You must run over the digits in ascending order — Red numbers must be tackled in descending order — while the bonus points for completion rapidly drop with the passing of time.

The first four screens are easy and allow a player to settle in. On the first two screens there is no possibility of losing one of your three lives. After that, one extra Killer is placed in the arena with each successfully cleared screen. A Killer looks like an electricity pylon and is stationary. Hit it and you lose a life.

From screen five, a Super-Killer joins you which dashes around at very high speed — touch it and a life is lost. From screen eight, there are two Super-Killers. Note that when a life is lost, the player must still complete the screen, but whatever caused him to lose a life is removed to allow for easier completion. If one of the two Super-Killers kills the player, both are removed.

At the completion of a screen, the bonus is added to your score. If your score reaches a multiple of 1500, an extra life is granted. A top ten scoreboard is maintained for the duration of the game.

Player and Super-Killer movement is always smooth and fast, being controlled by machine code.

The ball moves in the direction in which the stick is pulled, and stops immediately the stick is released. To line up when needing to move a small distance, it is easier to use the trigger.

The ball will move only one space when the trigger is down and will not move again until the trigger is released or the stick is released and pushed again.

RUNS ON AN ATARI 800 WITH JOYSTICK

BY SIMON GOODWIN

```
REM THE FOLLOWING ARE IN INVERSE:
REM LINE 100 KILLER
REM LINE 1020 SOUND Lives SCORE
REM LINE 3610 high scores
POKE 106,150:GRAPHICS N:IL=37480:BON
K=37457:POKE 752,1:POKE 82,N:? "
KILLER "
10 GOSUB 5000:GOSUB 6000
000 POKE 710,N:? CHR$(125):A=37408:POKE
A+N3,70:POKE A+N6,134:FOR J=A+7 TO J+29
:POKE J,N4:NEXT J
1010 A=USR(SETUEC):POKE 512,N:POKE 513,N
5:POKE 54286,192:GOSUB 7000
1020 POSITION N,N:? "ROUND 1    bonus 50
0lives 3 SCORE 0":R=N1:S=N:EX=N:L=N3
1050 POKE 203,12:POKE 204,148:POKE TL+42
0,77:F=N
1100 IF R/N2<>INT(R/N2) OR R/N5=INT(R/N5
) THEN GOSUB 16000:F=F+N1
1110 IF R/N2=INT(R/N2) OR R/N5=INT(R/N5)
THEN GOSUB 17000:F=F+N1
1120 IF R>N2 THEN GOSUB 16500
1130 IF R>N4 THEN GOSUB 17500
```

```
1150 SOUND N,N,N,N:SOUND N1,N,N,N
1200 POKE 1783,F:GOSUB 14000
2000 FOR J=15 TO N STEP -0.3:SOUND N,250
,10,J:SOUND N1,245,10,J:NEXT J
2010 SOUND N,N,N,N:SOUND N1,N,N,N:POKE 1
791,N1:C1=N
2020 P=PEEK(1785):IF P<>N THEN 2035
2025 IF STICK(N)<>15 THEN FOR J=15 TO N
STEP -N1:SOUND N,90,12,J:NEXT J
2030 IF PEEK(1783)=N THEN 3000
2031 IF PEEK(1780)<>N THEN 3500
2032 IF STICK(N)=15 THEN SOUND N,N,N,N
2035 GOTO 2020
2035 POKE 1785,N:IF P=N2 THEN 2100
2040 FOR J=8 TO 15 STEP 0.5:SOUND N,100,
10,J:NEXT J:FOR J=14 TO N STEP -N2:SOUND
N,150,10,J:NEXT J:GOTO 2020
2100 FOR J=14 TO N STEP -N2:FOR K=150 TO
100 STEP -10:SOUND N1,K,10,J:NEXT K:NEX
J:GOTO 2020
2900 C1=C1+N1:IF C1<10 THEN 2020
2910 FOR J=1700 TO J+N1:A=PEEK(J)+PEEK(J
+N2)*256:POKE A,N:NEXT J
2920 RESTORE 30060:GOSUB 5050:A=PEEK(203
)+PEEK(204)*256:POKE A,N
2950 K=S:X=100:FOR J=N TO N2:A=PEEK(BONU
S+J)-16:IF A>N AND A<10 THEN S=S+X*A
```

```
30060 X=X/10:NEXT J:POSITION 34,N:? S:? H
$:EX=EX+S-K:IF EX>1500 THEN GOSUB 3200
3070 GOSUB 3800:IF KC>N THEN FOR J=N1 TO
 KC:H=IL+KX(J)+KY(J)*40:POKE H,N:NEXT J
3075 R=R+N1:POSITION 17,N:? "500"
3080 POSITION N6,N:? R:? H$:GOTO 1050
3100 FOR H=N TO 50:NEXT H:RETURN
3200 EX=EX-1500:L=L+N1:POSITION 26,N:? C
HR$(L+16):? H$
3210 H=N:FOR J=9 TO 80
3220 SOUND N,J,10,N6:SOUND N1,J-N3,10,N6
:SOUND N2,J-N6,10,N6:SOUND N3,J-9,10,N6:
NEXT J
3230 H=H+N1:IF H=N2 THEN FOR J=N TO N3:S
OUND J,N,N,N:NEXT J:POSITION 26,N:? L:?
H$:RETURN
3240 FOR J=80 TO 9 STEP -N1:GOTO 3220
3500 L=L-N1:POSITION 26,N:? L:? H$:IF L=
N THEN 3600
3510 FOR J=150 TO 250:SOUND N,J,14,15:NE
XT J
3520 IF PEEK(1780)=N1 THEN A=PEEK(205)+P
EEK(206)*256:POKE A,N:GOTO 3580
3530 FOR J=1700 TO J+N1:POKE (PEEK(J)+PE
EK(J+N2)*256),N:NEXT J:POKE 1770,N
3580 POKE 1780,N:GOTO 2000
3600 FOR J=N TO 150:SOUND N,J,8,15-J/10:
NEXT J:H=N:Y=N:IF S>HS(10) THEN GOSUB 40
00
3610 GRAPHICS 17:RESTORE 30200:FOR J=708
 TO J+N3:READ A:POKE J,A:NEXT J:? #N6;"
   high scores":? #N6:? #N6
3620 FOR J=N1 TO 10:? #N6;"
EXT J                    ";HS(J):N
```

```
3630 FOR J=N1 TO 10:POSITION 10,J+N2:? #
N6;NAME$(J*N6-N5,J*N6):NEXT J:? #N6:? #N
6
3640 ? #N6;"     press start":X=N1
3650 IF Y<>N THEN GOSUB 3700
3655 A=PEEK(709):A=A+16:IF A>256 THEN A=
8
3660 POKE 709,A:IF PEEK(53279)=7 THEN 36
50
3670 RESTORE 30060:GOSUB 5050:GRAPHICS N
:POKE 756,156:GOTO 1000
3700 LUCHIE X,Y,J:J=J+128:COLOR J:PLOT X
,Y
3710 LUCHIE X-N1,Y,J:J=J-128:IF J>N THEN
 COLOR J:PLOT X-N1,Y
3720 X=X+N1:IF X>18 THEN X=N1
3730 RETURN
3800 FOR J=250 TO 50 STEP -10:FOR K=15 T
O N STEP -N3:SOUND N,J,14,K:NEXT K:NEXT
J:GOSUB DELAY
3810 SOUND N,243,10,15:GOSUB DELAY:SOUND
 N,162,10,12:GOSUB DELAY:SOUND N,243,10,
8:GOSUB DELAY:SOUND N,N,N,N:RETURN
4000 GRAPHICS N:POKE 709,N:POKE 710,INT(
RND(N)*16)*16+8:? "          A NEW HIGH
SCORE!"
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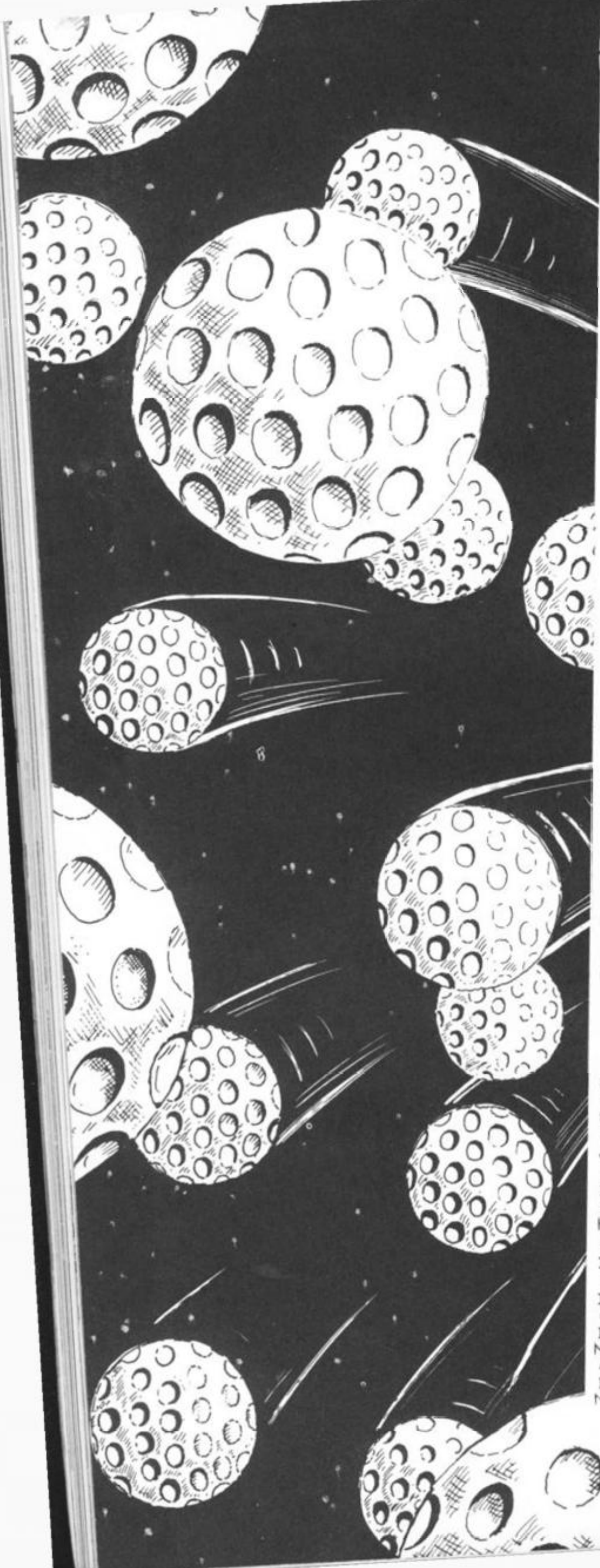

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4005 ? :? "          PLEASE ENTER YOUR N
E":POKE 82,17:?
4010 INPUT I$:FOR J=N1 TO 10
4015 IF LEN(I$)<N6 THEN I$(LEN(I$)+N1)=
 ":GOTO 4015
4020 POKE 82,N:IF S>HS(J) THEN A=J:Y=A+
2:J=10
4030 NEXT J:FOR J=11 TO A+N1 STEP -N1
4040 HS(J)=HS(J-N1)
4050 NAME$(J*N6-5,J*N6)=NAME$((J-N1)*N6-
N5,(J-N1)*N6):NEXT J
4060 HS(A)=S:NAME$(A*N6-N5,A*N6)=I$:RETU
RN
5000 REM N1,N2,N3,N4,N5,N6:DIM S1$(N6),
S2$(11),S3$(45):DELAY=3100
5010 FOR J=N1 TO N6:READ A:S1$(J,J)=CHR$
(A):NEXT J:FASTIO=ADR(S1$)
5020 FOR J=N1 TO 11:READ A:S2$(J,J)=CHR$
(A):NEXT J:SETVEC=ADR(S2$)
5025 FOR J=N1 TO 45:READ A:S3$(J,J)=CHR$
(A):NEXT J
5030 FOR J=38656 TO J+N3:READ A:POKE J,A
:NEXT J
5040 NK=20:DIM KX(NK),KY(NK),HS(11),NAME
$(66),I$(N6),H$(N1):POKE 1772,N:POKE 177
3,N:H$=CHR$(N)
5045 FOR J=N TO 11:HS(J)=N:NEXT J:NAME$(
N1)=" ":NAME$(66)=" ":NAME$(N2)=NAME$
5050 FOR J=1774 TO 1791:READ A:POKE J,A:
NEXT J:POKE 1770,N
5060 FOR J=1700 TO 1715:READ A:POKE J,A:
NEXT J
5100 RETURN
6000 A=USR(ADR(S3$),39936)
6010 RESTORE 31000:FOR J=40448 TO J+127:
REM A:POKE J,A:NEXT J:POKE 756,156:J=15
36:POKE 37426,N4
6020 ? :? "YOU BEGIN WITH THREE LIVES, A
ND GAIN AN EXTRA LIFE EVERY 1500 POINTS.
"
6025 ? "KILLERS APPEAR FROM ROUND THREE,
":? "ONE SUPER KILLER APPEARS IN ROUND F
IVE, AND A SECOND IN ROUND EIGHT."
6026 ? :? "RUN OVER BLUE NUMBERS FROM 1
TO 9.":? :? "RUN OVER RED  NUMBERS FROM
9 TO 1."
6030 ? :? "     YOU     KILLER     SUPER KI
LLER":? "      ";CHR$(13);"          ";CHR$(
142);"          ";CHR$(143)
6035 ? :? ,"      PLEASE WAIT"
6040 READ A:IF A<>-N1 THEN POKE J,A:J=J+
N1:GOTO 6040
6050 J=38912
6060 READ A:IF A<>-N1 THEN POKE J,A:J=J+
N1:GOTO 6060
6070 J=39424
6080 READ A:IF A<>-N1 THEN POKE J,A:J=J+
N1:GOTO 6080
6100 RETURN
7000 RESTORE 30100:FOR J=708 TO J+N3:REP
D A:POKE J,A:NEXT J:RETURN
14000 FOR J=TL TO J+39:POKE J,64:POKE J+
880,64:NEXT J
14010 FOR J=TL+40 TO J+800 STEP 40:POKE
J,64:POKE J+39,64:NEXT J:RETURN
16000 C=N1:J=66:GOSUB 18000:RETURN
16500 KC=R-N2:IF KC>NK THEN KC=NK
16510 C2=N1:C=N1:J=206:GOSUB 18000:C2=N:
RETURN
17000 C=N1:J=194:GOSUB 18000:RETURN
17500 POKE 37521,207:GOSUB 17750:IF R<8
THEN POKE 1770,N1:RETURN
17510 POKE 38358,207:GOSUB 17750:POKE 17
70,N2:RETURN
17750 FOR J=N TO 50 STEP 10:FOR K=15 TO
N5 STEP -N1:SOUND N,J,10,K:SOUND N1,J+N1
,10,K:NEXT K:NEXT J
17760 SOUND N,N,N,N:SOUND N1,N,N,N:RETUR
N
```

```
...X=INT(RND(N)*35)+N2:Y=INT(RND(N)*1
...+N3:A=TL+X+Y*40
18010 IF PEEK(A)<>N THEN 18000
18020 IF PEEK(A+N1)<>N THEN 18000
18030 IF PEEK(A-N1)<>N THEN 18000
18040 IF PEEK(A+40)<>N THEN 18000
18050 IF PEEK(A-40)<>N THEN 18000
18060 POKE A,J:FOR K=15 TO N5 STEP -0.5:
SOUND N,210,8,K:SOUND N1,250,8,K:NEXT K
18100 IF C2=N1 THEN 18200
18110 J=J+N1:C=C+N1:IF C>Y THEN RETURN
18120 GOTO 18000
18200 KX(C)=X:KY(C)=Y:IF C=KC THEN RETUR
N
18210 C=C+N1:GOTO 18000
30000 DATA 1,2,3,4,5,6
30010 DATA 104,162,16,76,86,228
30020 DATA 104,162,152,169,7,160,0,32,92
,228,96
30030 DATA 104,240,40,104,133,207,104,13
3,206,169,224,133,205,169,0,133,204,162,
0,161,204,129
30040 DATA 206,230,204,208,8,230,205,165
,205,201,228,240,8,230,206,208,236,230,2
07,208,232,96,0
30050 DATA 7,14,11,13
30060 DATA 3,200,244,1,0,0,0,0,5,0,0,0,6
5,202,10,0,0,0
30070 DATA 145,214,146,149,1,40,1,40
30080 DATA 0,1,1,0,0,2,15,15
30100 DATA 220,106,122,58
30200 DATA 120,58,124,106
31000 DATA 85,85,85,85,85,85,85,12,51
,51,51,51,12,0
```

```
31220 DATA 32,153,173,132,2,240,5,169,0,
141,248,6,173,120,2,201,15,208,8,169,0,1
41,248,6,76
31230 DATA 6,152,173,248,6,208,180,162,3
,189,0,151,205,120,2,240,3,202,16,245,23
2,240,11,142,254
31240 DATA 6,173,132,2,208,3,238,248,6,1
73,254,6,240,148,164,203,132,205,164,204
,132,206,201,2,144
31250 DATA 20,240,27,201,3,240,37,165,20
5,24,105,40,133,205,144,38,230,206,76,17
9,152,230,205,208,29
31260 DATA 230,206,76,179,152,165,205,56
,233,40,133,205,176,15,198,206,76,179,15
2,198,205,165,205,201,255
31270 DATA 208,2,198,206,162,0,161,205,2
40,33,142,254,6,201,64,240,40,205,251,6,
240,50,205,250,6
31280 DATA 240,61,201,206,240,32,201,207
,240,25,169,1,141,249,6,76,6,152,129,203
,169,77,129,205,165
31290 DATA 205,133,203,165,206,133,204,7
6,6,152,238,244,6,238,244,6,206,255,6,76
,6,152,206,251,6
31300 DATA 173,251,6,201,193,208,19,206,
247,6,76,20,153,238,250,6,173,250,6,201,
75,208,3,206,247
31310 DATA 6,169,0,129,205,169,2,141,249
,6,76,6,152,206,240,6,173,240,6,201,255,
208,3,206,241
31320 DATA 6,173,241,6,208,11,173,240,6,
201,49,208,4,238,242,6,96,162,3,202,222,
81,146,189,81
31330 DATA 146,201,16,208,13,236,243,6,2
08,237,169,0,157,81,146,238,243,6,201,15
,208,225,169,25,157
```

```
31010 DATA 60,12,12,12,12,12,63,0,63,3,3
,63,48,48,63,0
31020 DATA 63,51,3,15,3,51,63,0,51,51,51
,51,63,3,3,0
31030 DATA 63,48,48,63,3,3,63,0,63,48,48
,63,51,51,63,0
31040 DATA 63,3,3,3,3,3,3,0,63,51,51,63,
51,51,63,0
31050 DATA 63,51,51,63,3,3,63,0,42,2,2,4
2,42,42,42,0
31060 DATA 42,34,2,10,2,34,42,0,60,215,8
5,125,125,85,215,60
31070 DATA 40,60,170,60,170,20,20,85,255
,255,235,235,235,235,255,255
31100 DATA 72,138,72,8,216,173,239,6,141
,22,208,206,246,6,208,25,173,238,6,141,2
46,6,173,236,6,238,237,6,174,237
31110 DATA 6,224,8,176,17,24,105,2,141,2
46,6,173,236,6,141,23,208,40,104,170,104
,64,224,14,208,11,162,0,142
31120 DATA 237,6,24,105,14,76,38,6,56,23
7,76,38,6,-1
31200 DATA 216,173,255,6,208,3,76,98,228
,173,247,6,208,6,141,255,6,76,6,152,174,
244,6,240,9
31210 DATA 202,32,0,154,173,244,6,208,22
,173,242,6,208,13,206,252,6,208,8,169,1
,141,252,6,32
```

```
31340 DATA 81,146,76,63,153,-1
31500 DATA 189,164,6,133,205,189,166,6,1
33,206,222,178,6,240,31,188,176,6,32,119
,154,208,23,169,0
31510 DATA 168,145,205,169,207,145,207,1
65,207,157,164,6,165,208,157,166,6,202,1
6,211,96,173,10,210,41
31520 DATA 15,105,7,157,178,6,169,0,141,
186,6,141,182,6,141,183,6,141,184,6,141,
185,6,173,10
31530 DATA 210,41,3,168,185,182,6,208,24
5,140,187,6,169,1,153,182,6,32,119,154,2
08,9,173,187,6
31540 DATA 157,176,6,76,23,154,238,186,6
,173,186,6,201,4,240,182,76,73,154,32,17
5,154,185,172,6
31550 DATA 208,33,165,207,24,121,168,6,1
33,207,144,2,230,208,168,0,177,207,168,1
92,77,208,10,104,104
31560 DATA 169,2,141,244,6,206,255,6,152
,96,165,207,56,249,168,6,133,207,176,225
,198,208,76,139,154
31570 DATA 165,205,133,207,165,206,133,2
08,96,-1
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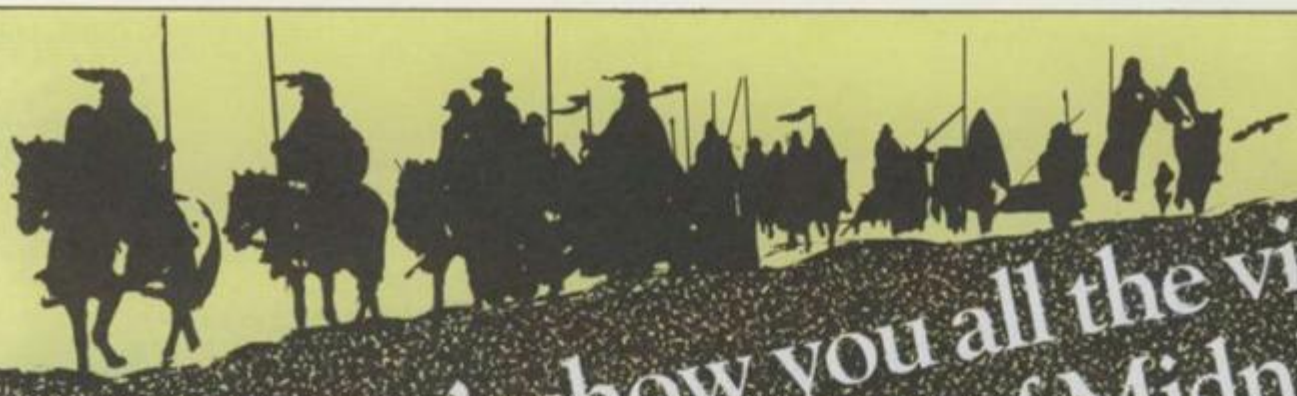

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THE BUGS

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HE'S NEARLY THERE NOW!

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...EEP IN THE DARKEST RECESSES ...F THE BUGS MICRO, SNAG JNR ...S HELPING OUT WITH A GAME!

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GOLDEN GLITTER!

I CAN'T WATCH, ...E'S GOING TO ...ET FRIED!

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ALL BINARY SNAKES ARE ADDERS*!!

!

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HE'S DONE IT!!!

WHEN IT COMES TO ADVENTURE NOBODY BARGAINS LIKE SNAG JUNIOR!

SOME DEAL!

GOLDEN GLITTER! (DEPLETED)

*THE BINARY SNAKE JOKE WAS REPRINTED BY KIND PERMISSION OF ROBIN HILL.

MARCUS AND THE MICRO

Illustrations: Dave McTaggart

Part 1: Enter the Bug

Marcus wasn't very interested in his father's computer. He liked it, but could not write any programs. He loved the games, of course, his favourite being *Berzerk* — shooting all the headless androids.

One morning, Marcus was playing this. He had just walked into an electrified wall.

"HA HA" said the computer, "WE GOT YOU NOW, GAME OVER." One of the androids walked over and replaced Marcus's score with zeroes.

"YOUR SCORE WAS NOUGHT." Marcus could contain himself no longer.

"CHEAT", he typed.

"WHO ARE YOU CALLING A CHEAT?"

"RUN", answered Marcus, to get a new game.

"YOU'LL BE LUCKY." The screen suddenly showed green lettering.

"THERE'S A BUG IN THIS MACHINE."

Marcus knew that a bug was a mistake.

"WHERE?" he typed.

"COME AND FIND ME," said the voice synthesizer.

"I SUGGEST YOU DO THAT," displayed the green letters.

"I DARE YOU", the synthesizer continued, "PICK UP THE JOYSTICK."

Marcus did so and moved it forward. A line moved up the screen.

"Welcome. I am the Analogue to Digital Converter. I turn electricity amounts into numbers and back again," said a voice happily, "Please step beyond, but be careful as you cross the buffer."

Marcus stepped beyond and found himself in front of a sign saying 170 Port. However, between him and the waterfront was a six-lane highway. There were other doors similar to the one he had entered through, named things like R.G.B., Out, Keyboard In, Disc and Audio Out. Marcus started forward across the road but jumped back as something zoomed in front of him.

"Get yourself killed like that," said a voice.

"Eh?" Marcus looked around.

"Down 'ere," it said. Marcus looked down. On the floor was a large frog.

"Are you a bug?" asked Marcus.

"Don't be a fool," snapped the offended frog. "Follow me, quickly!"

He leapt into the road. Marcus followed, dodging the traffic.

"Now what?" asked Marcus.

"Just hop on a bus, but watch out for the snake!" The frog cried, and hopped onto a log which was floating down the river.

Marcus heard a soft hiss. He turned to see a snake-like queue of people by a bus stop.

"Hello," he said to a tall man made of numbers who stood at the end.

"1306," grinned the man.

"Pardon?" asked Marcus.

"1306," repeated the man cheerfully,

"12," said a woman of 1s and 2s.

"0," giggled a rather fat little girl as the bus came in sight. A sign on the front proclaimed "Data Bus. RAM 02AF via CPU". The line filed on, each repeating one word or number. Marcus followed.

"Er excuse me," Marcus said to the driver. There was no reply so he sat down. The bus drove first into a large city, then went round a roundabout and into a dark tunnel. Bats squeaked, toads leapt in front of them.

"0", shrieked the little girl.

"GAME OVER," said someone happily.

"Whooooh," said a ghost.
Rats scurried along the top of the bus and things clanked.

The bus stopped, Marcus nervously followed the people out. They stood in a large labyrinth. The entire floorspace was covered in boxes with names on them, such as XVECT, YVECT, XOTTO, YSHOT. Marcus's travelling companions each climbed into a box, pushing someone else out. "Chicken," grumbled a person who'd been usurped, whilst a "Lucky" crowed over him. The evictees all walked fearfully towards a small dark opening. As they entered, there were delighted munching and gulping noises with the odd burp interspersed. Marcus crept closer and peered in. Inside was a large yellow head with a monstrous pair of jaws.
"Come in!" called the head, licking its lips.
"Er, I'd rather not," said Marcus.
The head laughed. "Who are you?" it roared.
"Well, er, I'm Marcus."
"What?"
"I'm a boy."
"Oh," said the head pleasantly, "Visitors. Don't get them here very often."
"I'm not surprised," muttered Marcus.
"Good heavens, I don't eat people, old boy. That's just old data."
"What?"
"Well you see, I'm garbage collecting. It's my job, not that I don't partake of a little number-crunching, mind you, but my main purpose is to dispose of old and unwanted information."
"I see," said the relieved Marcus.
"Don't go down there," pointed the head with its tongue at where Marcus was starting to go. "That's ghosted Eprom. Take this door to the interpreters."
"Thanks," said Marcus, "Bye."
"Thanks for the visit," shouted the head and departed.

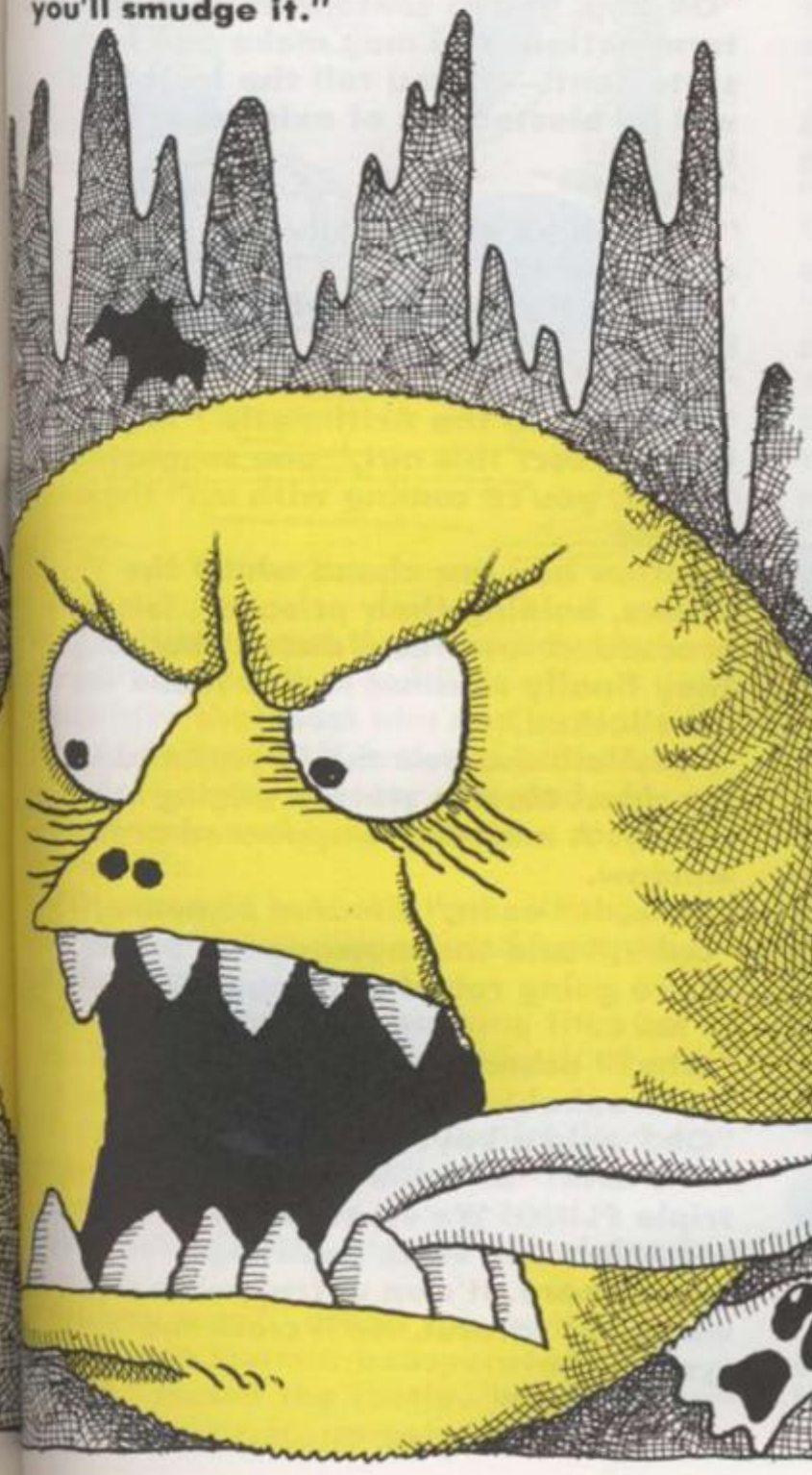
Marcus entered the door. The room beyond was incredibly long and thin. A line of men sat from one end to the other. Marcus approached the end man.
"Hello," he said.
The man whispered to his next-door neighbour, who in turn whispered to his and so on down the line. A clerk at the end wrote something on a slip of paper and posted it through a letter box. Seconds later he took an answer from it. He told the man at his end and the message was whispered back up the line.
"SYNTAX ERROR" announced the man.
"Pardon?" said Marcus.
The message went down the line and back.
"SYNTAX ERROR" repeated the man.
Marcus had an idea.
"PRINT HELLO" he said.
After the round trip the man said "HELLO".

(Interlude in Reality)

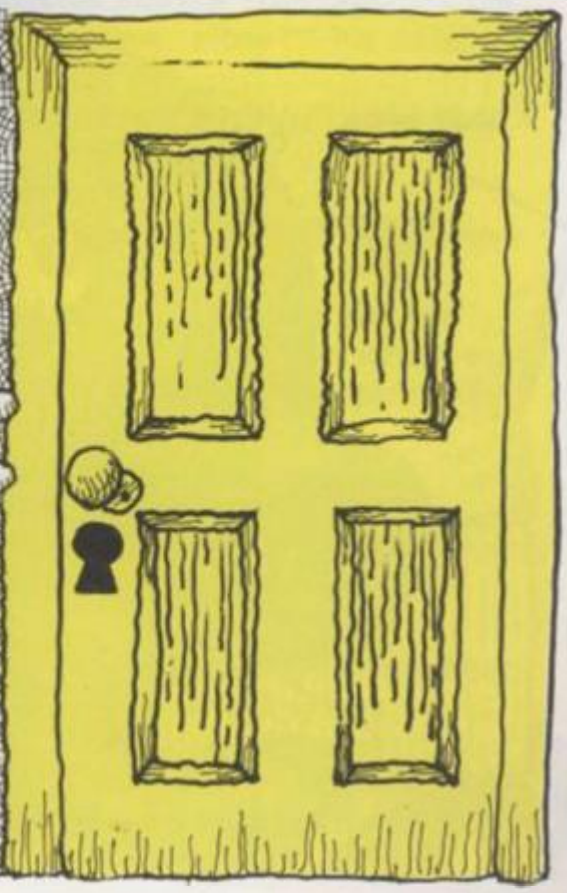
Marcus's mother walked into the computer room. "Marcus!" she called. He was nowhere to be seen. She turned to the computer, typed CLS: PRINT "DINNER IS READY", and left.

A boy walked into the room. He handed a telegram to the man and left. Whisperers whispered, the clerk wrote, and whisperers whispered again.
"DINNER IS READY" said the man.
"Oh thanks," said Marcus.
"SYNTAX ERROR" announced the man, after some discussion. Marcus left the room by another door. He came to a large square room filled with tables which had numbers scratched on them. A short fat man stood up from the armchair he had been sitting in.
"Hi," he said, "I'm the Base Converter and these are my tables."
"Hello, I'm Marcus," said Marcus, "What are your tables for?"
"Base conversion, of course!"
"What's that?"

"Well, you work in base ten, don't you? But the computer works in base two, so I have to convert one into the other."
"But what is a base?" burst out Marcus.
"Think of it this way. How many numbers before ten?"
"Nine," said Marcus.
"Wrong. What about nought? There are ten single digit numbers before we get to two digits, but if we were in base two . . ." here the Base Converter got up on a table and indicated it, "10 would be equal to two because there would be only two single digit numbers before it."
Marcus wondered if he could live to be a thousand by visiting base two.
"Why can't computers use base ten?"
"They can't, very stupid machines you know. Just think, without me you would never be able to communicate with the system. Marcus! Don't lean on the Octal, you'll smudge it."

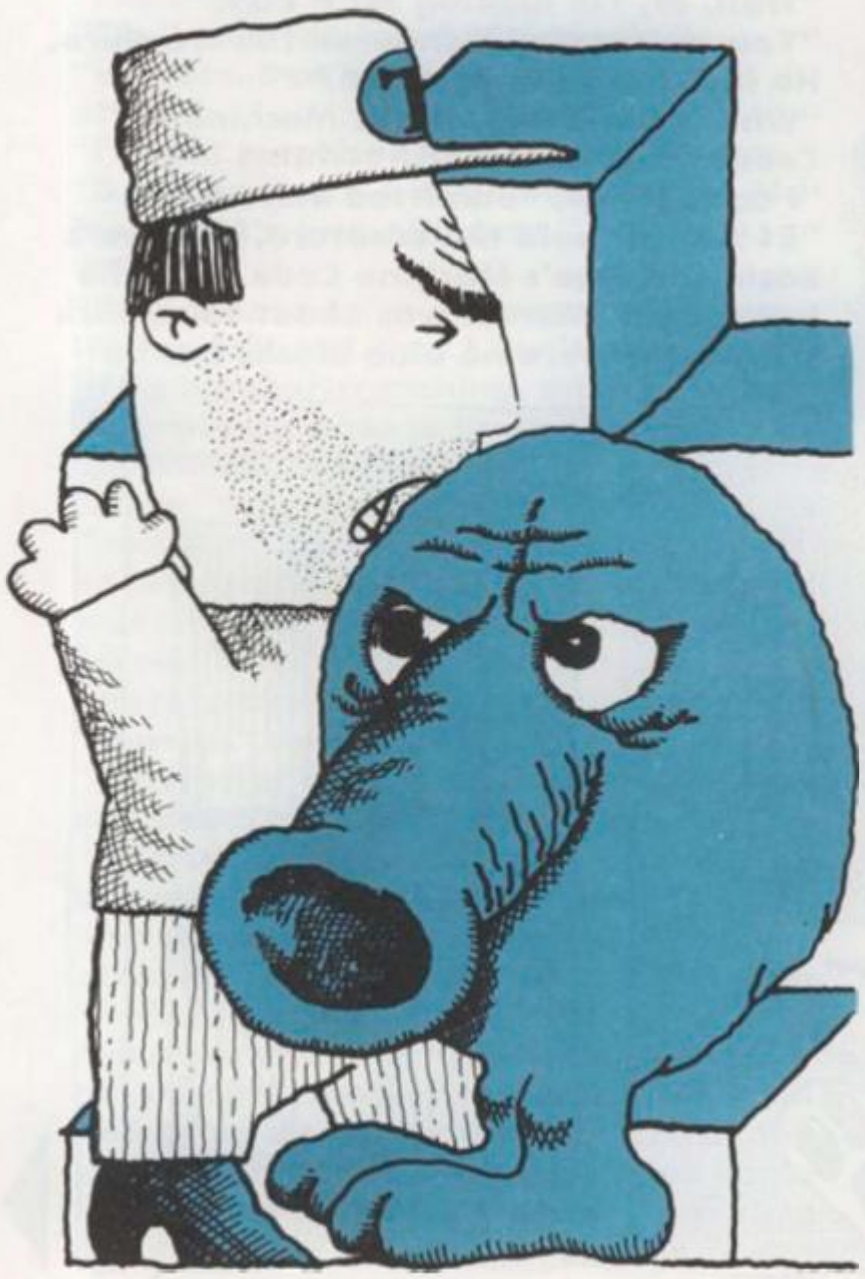


"Sorry," said Marcus.
"Of course, as soon as someone invents a machine that uses values instead of numbers, I'm out of a job. Back to bases, though!" He jumped on another table. "Things get even more complicated with [illegible] (base sixteen), you have to use letters for single digit numbers, so ten becomes A and twelve becomes C. See?"
Marcus gulped. "Sort of."
"Anything else?" asked the Base Converter.
"No thank you," replied Marcus.
"Oh well," sighed the Converter. "Bye. If you go that way, you'll find the Compiler. It's faster than the Interpreter."
"Bye," said Marcus and exited.
He found himself on a pyramid of yellow boxes.
"What are you doing here?" asked a voice.
Marcus turned to find himself looking at a pair of eyes, a long snout and two legs, with very little to hold them together.
"Well, er, I'm looking for a bug."
"You, debugging!" sneered the creature. He indicated the pyramid.
"What's Basic and what's Machine Code?" he demanded.
"I don't know," admitted Marcus.
"£$%&*!!!" said the creature. "Yellow's Basic and Blue's Machine Code," and he jumped off. Marcus was about to remark that there were no blue blocks but he



saw that, as the creature jumped down, the blocks he landed on turned blue. Marcus started to jump down after him. When he reached the bottom he found the creature arguing with a truck driver. As soon as he saw Marcus, he let out shrieks of discontent and jumped onto a spinning disc which gently rose up towards the top of the pyramid. The truck driver grinned.
"So you're the programmer who can't program to save his life?"
"Yes," said Marcus, "who are you?"
"I'm the Loader, got to shift all these." He indicated the pyramid. "Give us a hand and you can 'ave a lift."
"OK" said Marcus and climbed in.

"Oh! Where is that wretched child?" exclaimed the wretched child's mother. "Marcus! Dinner's getting cold."
"I hope he hasn't gone off with a strange man in a lorry," she thought worriedly.
Which was exactly what he had done.



Part 2: The Bug Goes Berzerk

Marcus thanked the loader for the lift and started walking towards the city centre. Suddenly he was grabbed from behind. He saw a ring of the telegram boys encircling him.
"Who is he?" asked one.
"He's a spy. I saw him peeking at the interpreter."
"No, he's a bug. He was trying to mess old Bert up. Let's debug him."
"Delete him!"
"Poke him out of existence!" they called excitedly.
"NO!" shrieked Marcus.
"Tell Lisa to take the Rat to the Basket," added some thoughtful soul.
"OK Bug, you're sentenced to immediate termination. You may make one last statement — if you tell the truth you will be blasted out of existence, if you lie . . ."
"What?"
"You will be nibbled alive by centipedes!"
"This isn't true," moaned Marcus to himself.
"CHEAT!" yelled the boys.
"Take him to the Arithmetic / Logic Unit, to sort this out," one suggested.
"Right, you're coming with us!" they agreed.
Another boy ran ahead whilst the others, holding their prisoner, leisurely proceeded towards a distant building. They finally reached it, but found the door locked.

"Hello!" shouted the boys, knocking at the door. Marcus started edging away slowly. A messenger appeared at the window.
"Here, let us in," shouted someone.
"Can't," said the messenger, "Stuck. We're going round and round in circles in here."
"Why?" asked someone.
"Unbreakable paradox, you fool!"
"Oh," said a boy.
"Yes OH!!!" said the messenger, "With triple PLING! We've got infinite recursion. The stack's spilling everywhere. It's an untrappable error. If we're not careful, we'll crash the system!"
"What now?"
"Get rid of the bug. QUICK!"

Marcus turned and fled, the boys in hot pursuit. Suddenly a red bolt of electricity shot past him and exploded. Marcus dodged left and was passed by a blue bolt, seconds later. He made for a blue stream and leaped onto a rock in the middle.

"Oi, scram!" said the rock, lifting itself out of the water, "How would you like me to sink?"

"Well," said Marcus, realising that he was in fact standing on the back of a large turtle, "not really."

"I'm not here," said the Turtle, "to be your stepping stone. What's wrong with your wings?"

"But I haven't any wings," complained Marcus.

"Are you sure?" asked the Turtle.

"Yes!" said Marcus, exasperated.

"Hmm," mused the Turtle. "sorry. I thought you were somebody else."

He obligingly swam to the shore and let Marcus climb off. He then crawled onto the bank.

"Who did you think I was?" asked Marcus.

"No one important," said the Turtle. "Oh here they are. Push off!"

A number of bright translucent creatures about 20 centimetres long fluttered around on tiny scintillating wings.

"Hello dear Turtle, and who is this?" they called out shrilly.

"Not sulking I hope, dear Turtle," one said playfully. "Now who is your charming friend?"

"Nothing to do with you," said the Turtle.

"Look!" said Marcus. "What's that?"

He pointed to a hole, rather like a door, in the air from which the strange creatures had come. Above it was written BERZERK.

"Oh don't go in there. Nasty, violent place," they said, dissolving into fits of giggles.

"Who are you?" asked Marcus.

"They're sprites," said the Turtle contempuously.

"Oh don't be jealous, dear Turtle. We are only here to brighten up your life."

At this the sprites exploded in a fabulous display of pyrotechnics and then imploded. They repeated this a number of times.

"We can add some colour to your cold, slow world."

This enraged the Turtle further.

"What do you mean, slow?" he said coldly.

"Of course not, dear Turtle," said the sprites, looking shocked,

"But we only meant . . ."

"Forget what you meant!" growled the Turtle.

"Hey!" said Marcus. "Can we go in?"

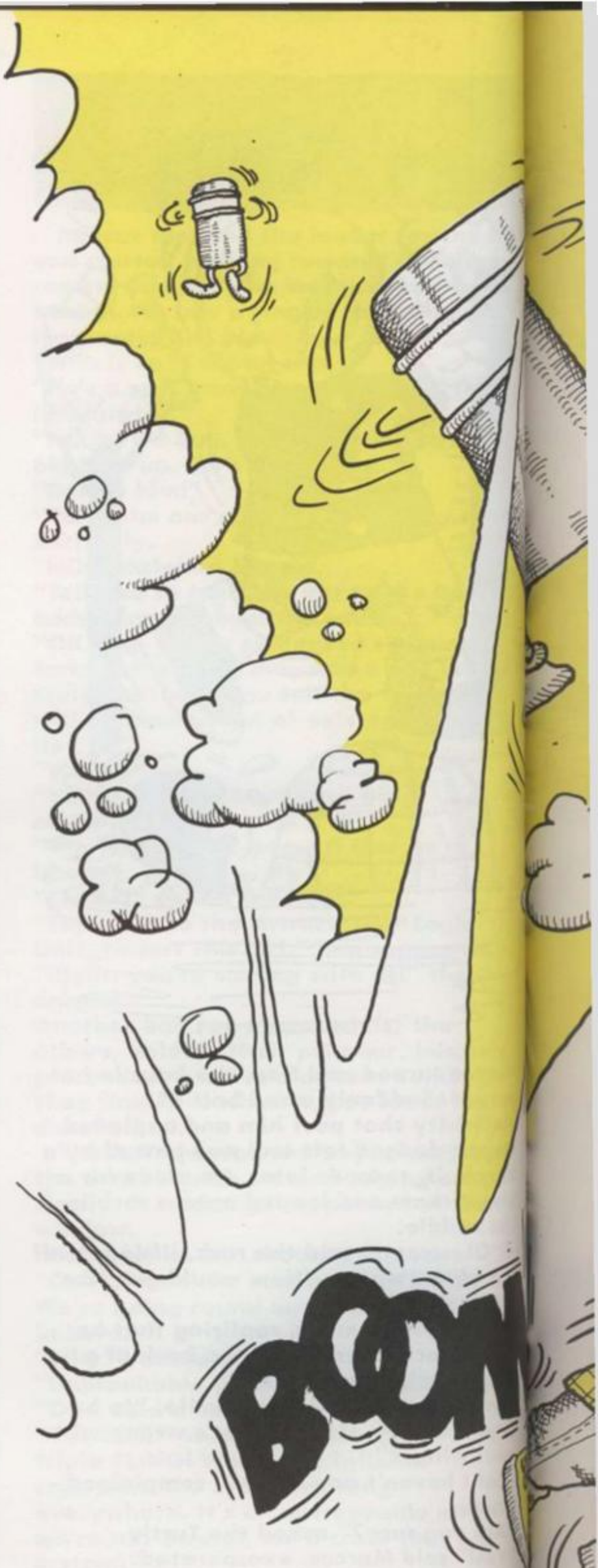
"If you want to, but I have to draw out silly walls instead of sensible pictures," muttered the Turtle.

"We turn into lovely shapes and coloured lights," giggled the sprites. "And we play at being big, bad androids and shoot each other in a display of explosions."

Marcus had already reached the door. They all entered but the Sprites fluttered away and turned into androids. The Turtle dashed round leaving electrified walls behind and finished by sealing the door. The

androids marched on Marcus.
"Shoot them," said the Turtle.
"What with?" asked Marcus.
"Haven't you got a blaster?" asked the Turtle.
"No!" said Marcus.
One of the androids shot an electricity bolt at them which they both dodged.
"You try and lead them into walls. I'll draw some more," the Turtle said and dashed off. Marcus ducked another bolt and darted between two androids. He turned a corner and ahead saw the Turtle drawing extra walls. An android walked into a wall and exploded. The sprite came and hovered above him.
"What fun," it laughed.
"If you like it," said Marcus sourly.

He was beginning to feel like the Turtle and was not sure he could trust someone who had just tried to shoot him.
"Well, my own fault I s'pose. Bit clumsy that, walking into the hall. I say, do you reckon Turtle's playing fair? Oh, 1's just been shot by 6. Bad luck, Number 1."
The ever increasing number of sprites about his head chattered continuously. Marcus noticed that a large smiling ball was hovering over a wall. It slowly flew towards him. He turned and just stopped himself running into a wall. He could back away no further. Evil Otto hung there a bent and decrepit old man who reminded Marcus of an insect dressed in an old black gown. The man laughed evilly.
"H H Hello," said Marcus.
The man persisted in malign giggling.
"Listen —" growled the Turtle.
The man did not stop his fiendish cackle.
"Hey . . ." said a sprite nervously.
The man's face filled with anger. He poked the sprite firmly on the chest.
It gurgled and disappeared. The rest of the sprites turned invisible.
"Hmm" muttered the man, pulling out a black book.
"Don't let him peek at our address!" came a voice from mid-air. Marcus moved forward but he was too late. The man pointed at nothing and there was another pitiful gurgle.
"Stop it!" shouted Marcus.
"Stop it?" sneered the man. "Why, young man? I see no reason why I should. You have no authority over me."
"Are you a bug?" asked Marcus. The Bug beamed at him.
"Of course, old boy. Marvellous



deduction," he answered pleasantly.
"How do I get rid of it?" Marcus asked the Turtle.
"Find out what it's trying," it hissed.
"I'll tell you what I'm trying!" shouted the Bug.
"What please?" asked Marcus.
"Look!" it yelled and opened a door. Suddenly, something coloured and flashing zoomed out of it.
"Mutant bytes!" exclaimed the Turtle.
"Yes. Straight through the 8-way connector pins. Wham!"
"But the processors will fight!"
"Yup. And we'll win. An end to parallel processing. Early retirement for the CPU."
"The sooner this gets debugged the better," said the Turtle.

There was a smashing crunch and Marcus found himself alone with the Bug in a vast empty white room.
"What . . . what happened?" asked Marcus. The Bug was furious.
"Someone's crashed the system," it yelled, jumping up and down. "We're disconnected."
"How do we get out?" asked Marcus.
"We can't, until we get reselected. Unless someone has taken the cartridge out. Then we're really stuck."

EPILOGUE

"Marcus isn't home yet, is he?" asked Marcus's mother.
"No." said his father.
"Where can he have got to?"
"I don't know. Has this computer been on all day?"
"Oh, I don't know. Marcus was playing with it. Shouldn't we go and find him?"
"Mm. This'll get hot, you know. You must tell him to turn if off when he's not using it." He promptly did so, and put the Berzerk cartridge back alongside Pac-Man and Q*Bert.

It was dark. The Bug sat dejectedly.
"All those mutant bytes gone kerblam. It'll take ages to redo all that."
"How am I to get out?" moaned Marcus.
"No question of that now, you'll have to wait until the cartridge is used again. Then get on to the screen. Your friend the Turtle should show you how to do that."
"So I just have to wait until Dad plays Berzerk again?" said Marcus, much cheered, and he prepared for a few days' wait.

THE END

As the captain of a galactic cargo ship competing in the competitive world of space salvage, you must use your skill and cunning to retrieve junk metal floating in orbit around abandoned planets.

You yourself remain onboard the main ship which orbits a planet known as the graveyard because of its flushushing gravitational pull which can pluck a space craft off its course and bring it crashing down on the planet's surface. Then, using your highly sophisticated robot salvage drone, controlled remotely by you, collect the crashed ships from the planet's surface.

Great skill is required to manoeuvre the craft safely and decide how to use your fuel most efficiently. No attempt should be made to land without use of the landing gear.

If you manage to land in the valley, your drone will be refuelled and you will gain 1,000 points.

On completition of your salvage run, move the robot drone to the top of the screen and press SPACE. This will return the robot to your mother ship.

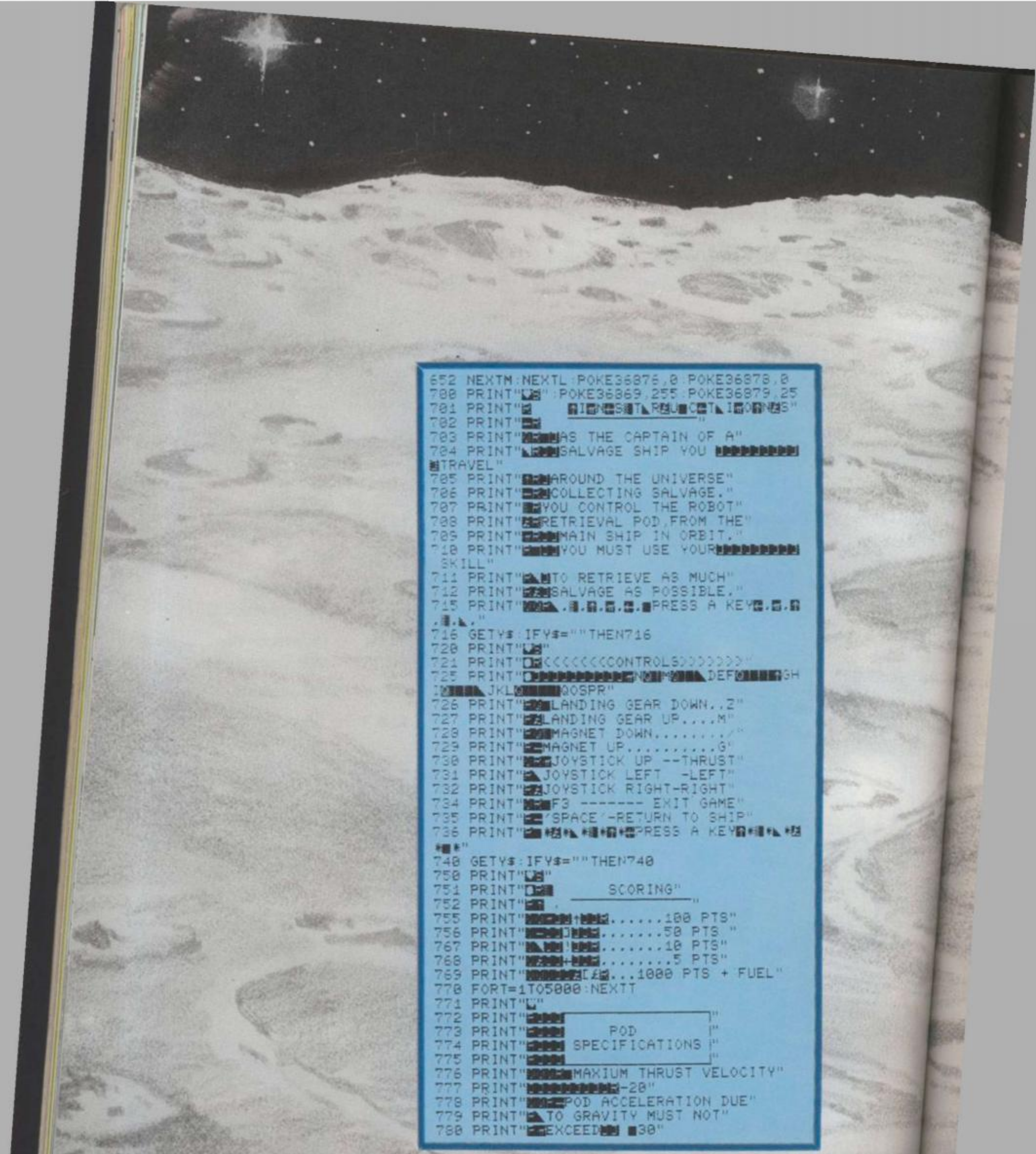
SALVA

SAVAGE ONE

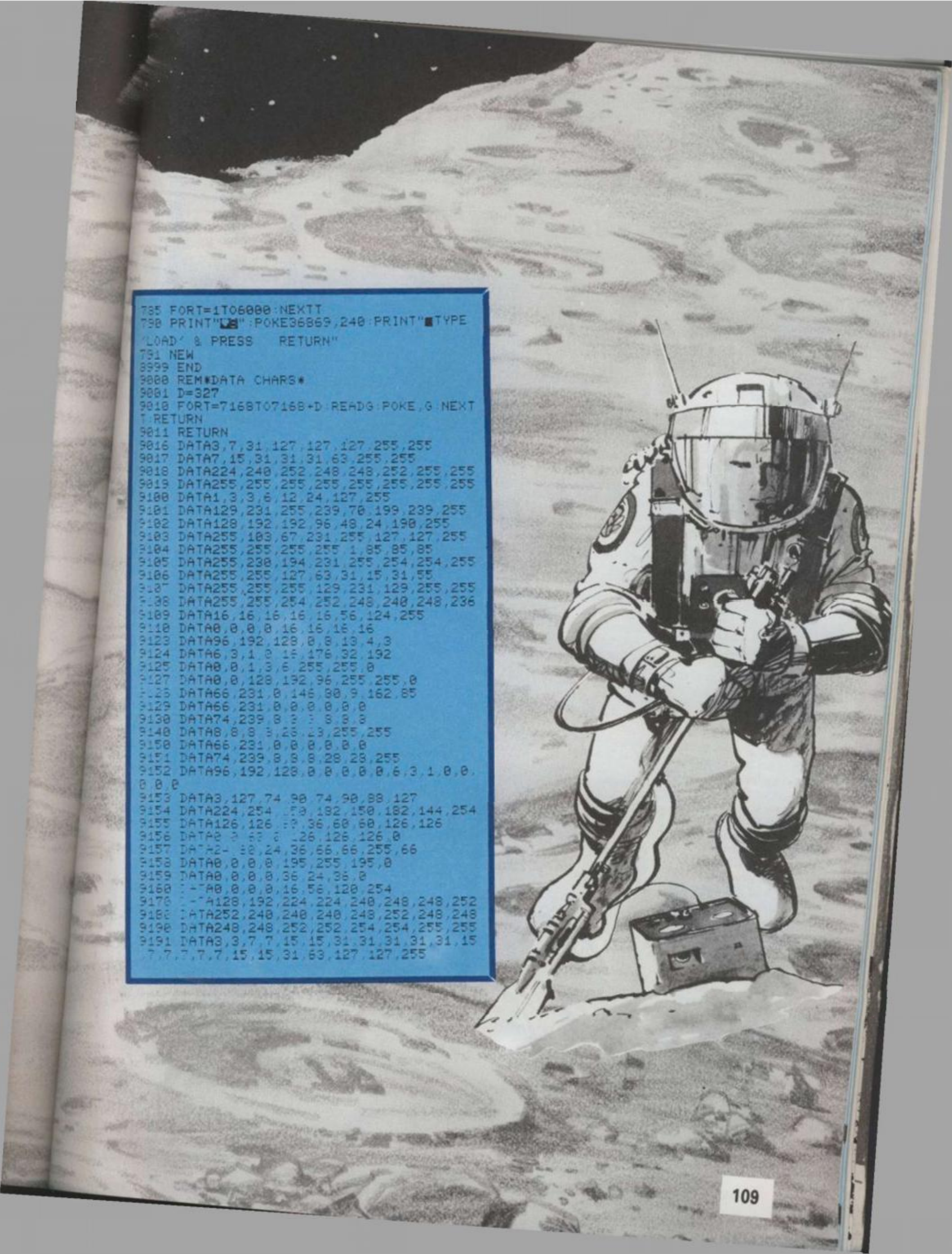
RUNS ON A VIC 20 WITH 3K EXPANSION

BY MARK MANNS

```
1 GOSUB9000
2 REM*                  *
3 REM* SAVAGE  ONE   *
4 REM*                  *
5 REM*       BY         *
6 REM* MARK    MANNS  *
7 REM*                  *
8 REM*@ COPYRIGHT 84*
9 REM*****************
11 PRINT"■■":POKE36869,240:POKE36879,108
:GOSUB100
12 PRINT"■■■■":GOSUB500
13 PRINTA$;"■■■■
```



```
652 NEXTM:NEXTL:POKE36876,0:POKE36878,0
700 PRINT"■":POKE36869,255:POKE36879,25
701 PRINT"■     ■I■N■S■T■R■U■C■T■I■O■N■S"
702 PRINT"■
703 PRINT"■■■AS THE CAPTAIN OF A"
704 PRINT"■■■SALVAGE SHIP YOU ■■■■■■■■■
■TRAVEL"
705 PRINT"■■AROUND THE UNIVERSE"
706 PRINT"■■COLLECTING SALVAGE."
707 PRINT"■■YOU CONTROL THE ROBOT"
708 PRINT"■■RETRIEVAL POD,FROM THE"
709 PRINT"■■■MAIN SHIP IN ORBIT."
710 PRINT"■■■YOU MUST USE YOUR■■■■■■■■■
 SKILL"
711 PRINT"■■TO RETRIEVE AS MUCH"
712 PRINT"■■SALVAGE AS POSSIBLE."
715 PRINT"■■■.■.■.■.■.■PRESS A KEY■.■.■
.■.■."
716 GETY$:IFY$=""THEN716
720 PRINT"■"
721 PRINT"■<<<<<<<<CONTROLS>>>>>>>>"
725 PRINT"■■■■■■■■■■■■N■■M■■■DEF■■■■GH
I■■■■JKL■■■■■QOSPR"
726 PRINT"■■■LANDING GEAR DOWN..Z"
727 PRINT"■■LANDING GEAR UP....M"
728 PRINT"■■■MAGNET DOWN......./"
729 PRINT"■■MAGNET UP.........G'
730 PRINT"■■■JOYSTICK UP --THRUST"
731 PRINT"■JOYSTICK LEFT  -LEFT"
732 PRINT"■■JOYSTICK RIGHT-RIGHT"
734 PRINT"■■■F3 ------- EXIT GAME"
735 PRINT"■■'SPACE'-RETURN TO SHIP"
736 PRINT"■■■■■■■■■PRESS A KEY■■■■■■
■■■"
740 GETY$:IFY$=""THEN740
750 PRINT"■"
751 PRINT"■■■      SCORING"
752 PRINT"■■ .
755 PRINT"■■■■■■■■■■■■■■■.....100 PTS"
756 PRINT"■■■■■■■■■■■■■■■.....50 PTS "
767 PRINT"■■■■■■■■■■■■■■■.....10 PTS"
768 PRINT"■■■■■■■■■■■■■■■.....5 PTS"
769 PRINT"■■■■■■■■■■■■■■■...1000 PTS + FUEL"
770 FORT=1TO5000:NEXTT
771 PRINT"■"
772 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■"
773 PRINT"■■■■■      POD          ■"
774 PRINT"■■■■■ SPECIFICATIONS ■"
775 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■"
776 PRINT"■■■■■■MAXIUM THRUST VELOCITY"
777 PRINT"■■■■■■■■■■■■■-20"
778 PRINT"■■■■POD ACCELERATION DUE"
779 PRINT"■■TO GRAVITY MUST NOT"
780 PRINT"■■■EXCEED■■■ ■30"
```



```
785 FORT=1TO6000:NEXTT
790 PRINT"■■":POKE36869,240:PRINT"■TYPE
'LOAD' & PRESS   RETURN"
791 NEW
8999 END
9000 REM*DATA CHARS*
9001 D=327
9010 FORT=7168TO7168+D:READG:POKE,G:NEXT
T:RETURN
9011 RETURN
9016 DATA3,7,31,127,127,127,255,255
9017 DATA7,15,31,31,31,63,255,255
9018 DATA224,240,252,248,248,252,255,255
9019 DATA255,255,255,255,255,255,255,255
9100 DATA1,3,3,6,12,24,127,255
9101 DATA129,231,255,239,70,199,239,255
9102 DATA128,192,192,96,48,24,190,255
9103 DATA255,103,67,231,255,127,127,255
9104 DATA255,255,255,255,1,85,85,85
9105 DATA255,230,194,231,255,254,254,255
9106 DATA255,255,127,63,31,15,31,55
9107 DATA255,255,255,129,231,129,255,255
9108 DATA255,255,254,252,248,240,248,236
9109 DATA16,16,16,16,16,56,124,255
9110 DATA0,0,0,0,16,16,16,16
9123 DATA96,192,128,0,8,13,4,3
9124 DATA6,3,1,0,16,176,32,192
9125 DATA0,0,1,3,6,255,255,0
9127 DATA0,0,128,192,96,255,255,0
9128 DATA66,231,0,146,80,9,162,85
9129 DATA66,231,0,0,0,0,0,0
9130 DATA74,239,8,8,8,8,8,8
9140 DATA8,8,8,8,28,28,255,255
9150 DATA66,231,0,0,0,0,0,0
9151 DATA74,239,8,8,8,28,28,255
9152 DATA96,192,128,0,0,0,0,0,6,3,1,0,0,
0,0,0
9153 DATA3,127,74,90,74,90,88,127
9154 DATA224,254,150,182,150,182,144,254
9155 DATA126,126,60,36,60,60,126,126
9156 DATA0,0,63,0,126,126,126,0
9157 DATA24,60,24,36,66,66,255,66
9158 DATA0,0,0,0,195,255,195,0
9159 DATA0,0,0,0,36,24,36,0
9160 DATA0,0,0,0,16,56,120,254
9170 DATA128,192,224,224,240,248,248,252
9180 DATA252,240,240,240,248,252,248,248
9190 DATA248,248,252,252,254,254,255,255
9191 DATA3,3,7,7,15,15,31,31,31,31,31,15
,7,7,7,7,7,15,15,31,63,127,127,255
```

PUZZLING

OCTOPOID ATTACK

This mischievous rather than hostile visitor from a spiral galaxy somewhere in the vicinity of Andromeda enjoys nothing more than setting a civilization on its heels and enjoying the consequences.

Just to put a galactic spanner in your own works, Octopoid has thoroughly jumbled up the letters in eight of this year's video and computer titles and a pretty messy program will result unless you can re-arrange the letters of each and find the correct name.

Can you sort out the anagrams quickly enough to speed him on his way before he starts rearranging your machine's memory gap?

Yes, Earthling, you may well tremble in your wellies. The aliens are back!

This time, though, it is not swiftness of key bashing which will save your planet, but strength of brain power.

As the aliens hover above Earth, you have control of the one laser left intact, which may, possibly, have the power to explode the frightful beings before they land and turn us into slaves. But your supply of ammunition is limited.

The number in each box shows how many shots remain to be fired from that base.

Also, the laser moves in a curious way, its blasting to perform. It can travel right or left a distance equal to the number of shots left in the base on which it is standing at the time the move starts.

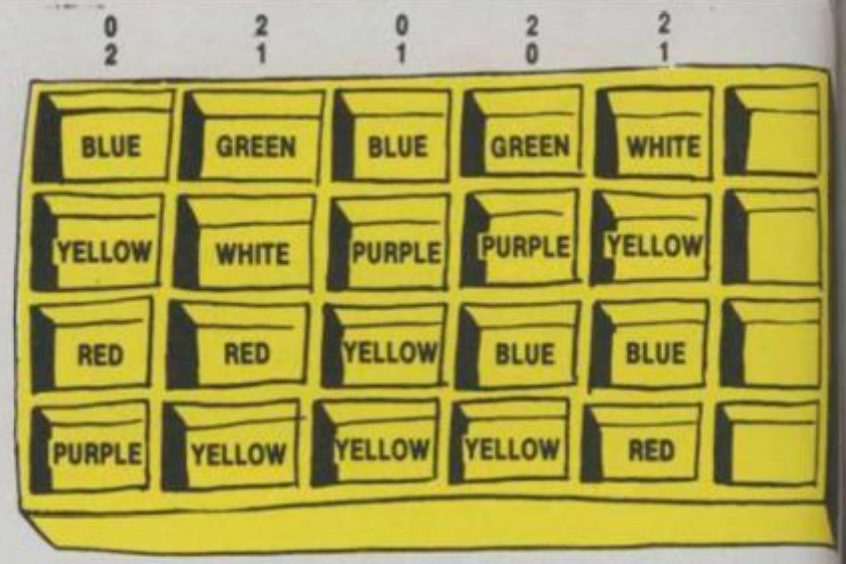
Should the distance to be moved take it to the end of the firing range, then it will bounce off that end and continue in the opposite direction until the move is completed.

Firing is automatic and happens each time the laser comes to rest at the end of a move — and it will fire whether there is an alien directly above it or not.

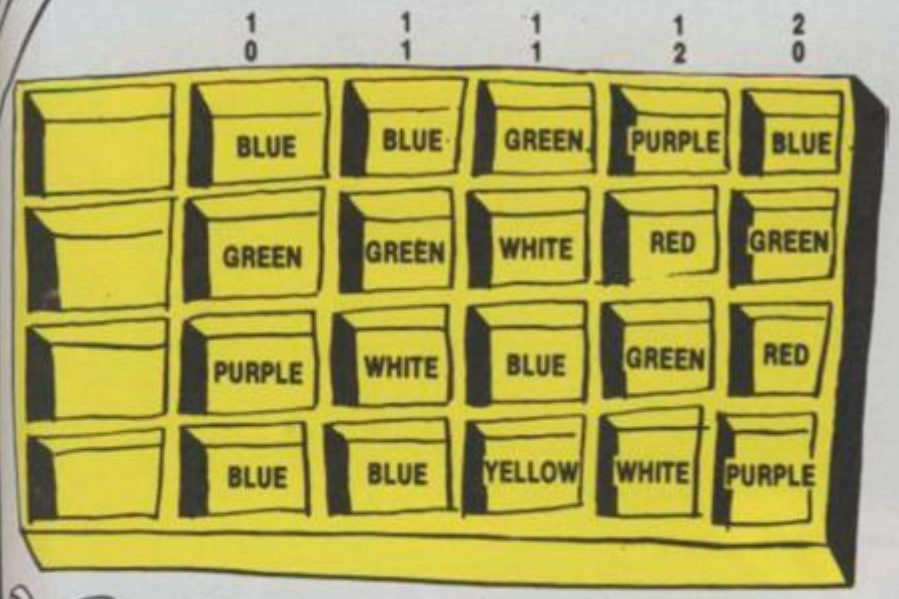
Should the laser be moved to a base which has only one shot left then, after that shot is fired, the value of the base becomes zero and the laser can make no further move.

If this happens where there are still aliens waiting to be zapped, you have failed in your task and an appropriate fate will befall the planet you were raised on.

If you can kill all the aliens, then the Earth is saved and the flags of many nations will be spread over the sky in your honour.



THE MASTER OF MYNDE



It may well only be on Earth that Invicta's classic game, Master Mind, is played for fun with plastic bags.

On Mynde, at least, it serves the far more important task of settling all potential wars before any blood is spilt. The two warring factions set up a force of four units identified by colour.

Each colour is then assigned a power, by random means, and in the latest dispute the power order is Red, Green, Blue, Yellow, White, Purple.

This means that a Red force defeats any colour opposing it — except another Red, where a tie is the result.

Green is defeated by Red but defeats nothing else in the line and so on down to Purple, the weakest, which can do little except hope to be matched against another Purple.

After a highly complicated process of guessing and manoeuvring, the hidden forces are revealed and the consequences worked out. The two pegs facing each other are compared and the lower powered one is removed. The side having most pegs left when all four pairs have been dealt with is the winner of that contest.

Unfortunately, you have chosen to call at an ill-judged moment and have no choice but to join one side or the other.

You have had several guesses as to the line-up of each army and the results are shown in the picture. The top number above a guess shows how many of your choices are exactly right — the right colour in the right spot. The lower number tells you how many are the right colour but placed in the wrong spot.

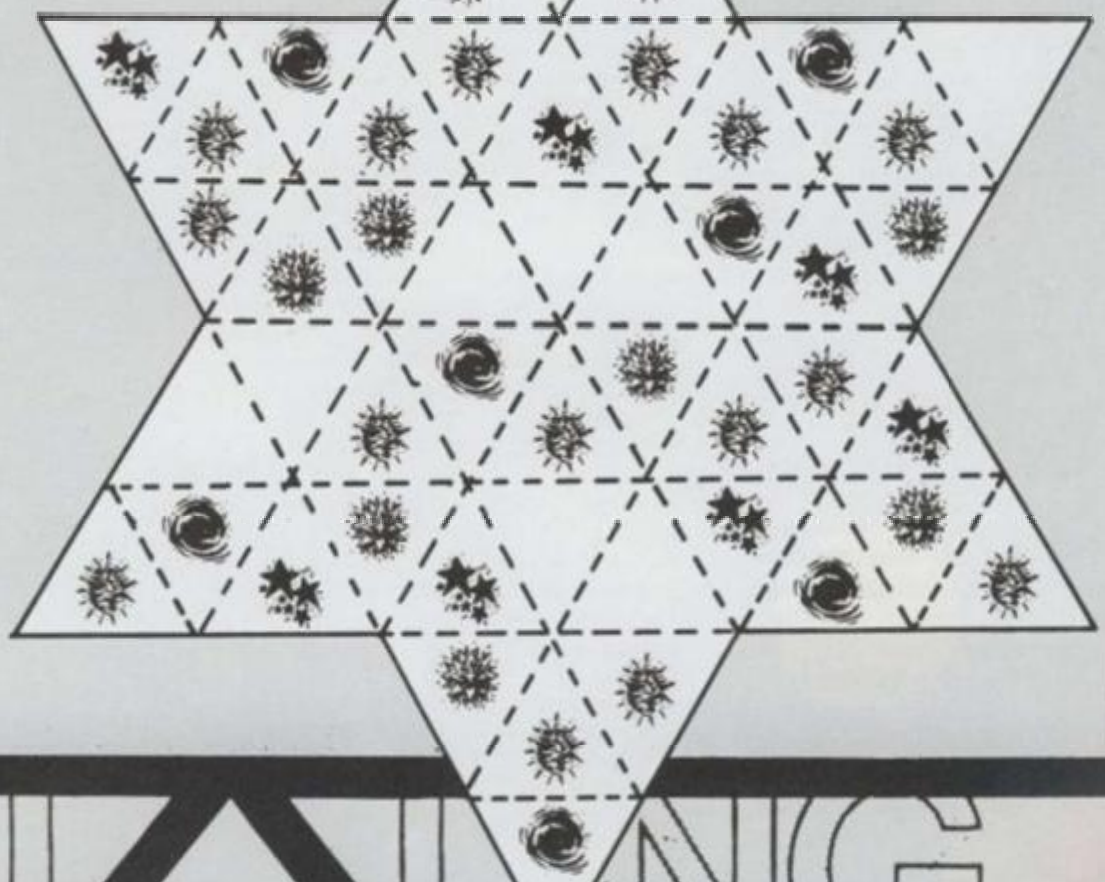
Can you work out how each force is laid out and so decide who will wipe out what and therefore which side will win?

COSMIC CARVE UP

Peace has struck the Empire and, provided the Empire doesn't strike back, it may hold. As long, that is, as the eight ruling lords can carve up their slab of the Universe to the satisfaction of one and all.

Being jealous guardians of their own position, each demands an equal sized share of the interstellar cake which can only be carved along the dotted lines of space warp.

Furthermore, each lord insists that, in his portion, there must reside two galaxies, one pulsar, one quasar and one black hole. Can you work out where the lines should be drawn to achieve eternal tranquility?



PUZZLING

PUZZLING

RUNNING THE PROGRAM

The menu offers you three choices: a new invasion force, a repeat of the last invasion force or a good night's sleep.

A new invasion force is generated by random factors — there may be anything from 0 to four aliens in any vertical line and the number of shots in each locker can vary from one more than the number of aliens to four more.

Thus there are 20 different ways in which each column can be set up and with seven columns that is, umm ... 1,280,000,000 different invasions for you to tackle!

Which ought to keep you occupied for more than a repeat of *Dallas* or two.

The second option permits you to have another try at the last set-up. If you failed, you can try to find a better line of attack. If you succeeded, you may care to try again and improve your scoring by reducing the number of shots needed to wipe out the invading force.

If the family and friends are anxious to have a go, then this option allows each member of the group to try the same situation and you can see who comes off best as a super-hero by achieving the most aliens killed off with the fewest shots being fired.

In some of the situations which arise by the randomness of the selection, it might be that killing off all the aliens is impossible.

To make a start, hit the letter A to G of your choice to position the laser for its first shot.

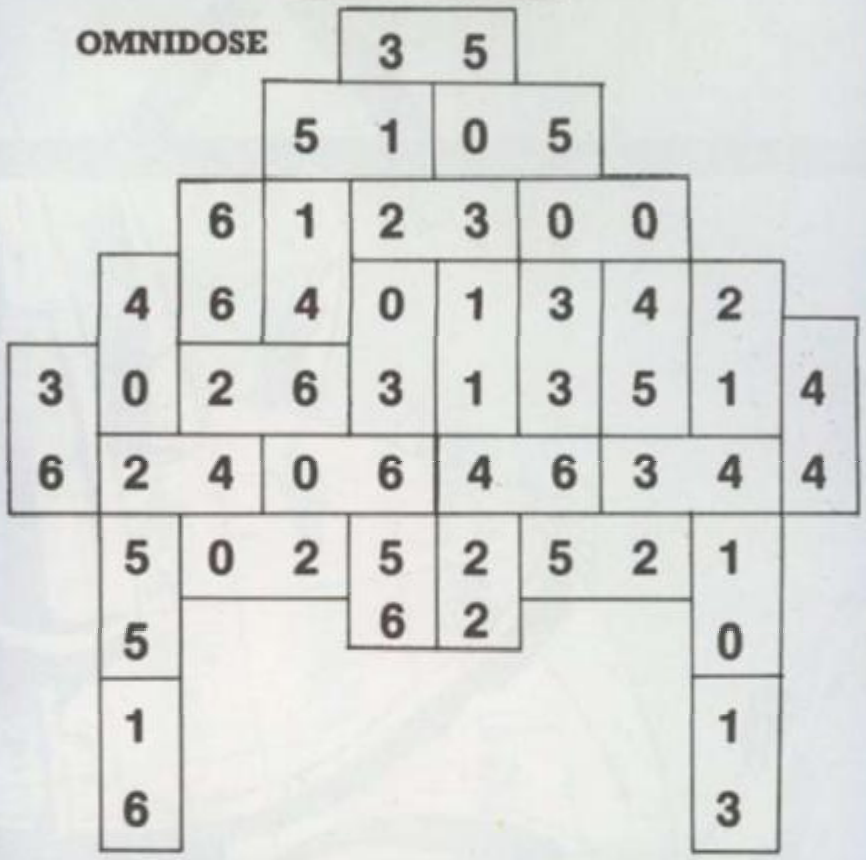
From then on, enter each choice of move by hitting the left cursor key or the right cursor key. And may Einstein speed your choosing!

```
170CL%=0
180DIMlaser%(4),last%(6), al%(6,3)
190REPEAT
200MODE4:PROCmenu
210IF choice%=51 THEN PROCend:END
220 ON ERROR MODE 7:PROCwrong
230MODE2
240VDU5
250PROCinit
260PROCboxes
270IF choice%=51 THEN MODE 4: PROCend:END
280IF choice%=49 THEN PROCstart ELSE PROClast
290PROCbegin
300PROCfire
310PROCscreen
320REPEAT
330PROCmove
340PROCfire
350PROCscreen
360UNTIL laser%(N%)=0 OR alien%=0
370IF alien%<>0 THEN PROCdoom ELSE PROCsaved
380UNTIL FALSE
390DEFPROCinit
400*FX4,1
410CL%=0001:alien%=0:shots%=0:score%=0
420A$="ABCDEFG":B$="SCORE SHOTS"
430E$="CHOOSE START"
440VDU23,240,129,195,98,38,36,60,189,189
450VDU23,241,189,255,129,165,129,189,129,255
460VDU23,242,8,28,62,127,127,62,42,119
470VDU23,243,54,62,62,34,34,34,34,238
480VDU23,244,129,199,68,103,49,17,31,21
490VDU23,245,123,94,210,158,146,18,50,99
500VDU23,246,255,219,255,231,149,149,149,149
510VDU23,247,149,149,149,149,149,149,149,149
520VDU23,248,24,24,24,24,60,60,255,255
530VDU23,250,203,177,66,178,89,66,173,211
540VDU24,0;0;912;1023;
550VDU28,16,31,19,0,
560ENDPROC
570DEFPROCboxes
580GCOL0,3
590 FOR X%=0 TO 768 STEP 128
600MOVEX%,96:DRAW X%+128,96:DRAWX%+128,224:
   DRAWX%,224:DRAWX%,96
610NEXT
620GCOL0,2:FORX%=1 TO 7
630MOVE128*(X%-1)+32,32:PRINTMID$(A$,X%,1)
640NEXT
650ENDPROC
660DEFPROCstart
670FORN%=0TO6:laser%(N%)=0:NEXT
680FOR X%=32 TO 800 STEP 128:N%=(X%-32)/128
690 IF RND(3)>1 THEN GCOL0,RND(6): MOVE X%,460:PRINTCHR
   :MOVE X%,448:PRINTCHR$241:laser%(N%)=laser%(N%)+1
700IF RND(3)>1 THEN GCOL0,RND(6): MOVE X%,600:PRINTCHR
   :MOVE X%,568:PRINTCHR$243:laser%(N%)=laser%(N%)+1
710IF RND(3)>1 THEN GCOL0,RND(6):MOVE X%,720:PRINTCHR
   :MOVE X%,688:PRINTCHR$245:laser%(N%)=laser%(N%)+1
720IF RND(3)>1 THEN GCOL0,RND(6):MOVE X%,840:PRINTCHR
   :MOVE X%,808:PRINTCHR$247:laser%(N%)=laser%(N%)+1
730NEXT
740FOR X%=0TO6:alien%=alien%+laser%(X%):GCOL0,X%+1:MOVE
   (128*X%)+32,160:laser%(X%)=laser%(X%)+RND(4):PRINTla
   er%(X%):NEXT
750PROCstore
760ENDPROC
770DEFPROCbegin
780VDU4:COLOUR3:FOR z=1 TO 1: PRINT" ":PRINTMID$(E$,z,1
790REPEAT:L%=GET:UNTILL%>64 AND L%<72:L%=128*(L%-65)+1
800CLS
810COLOUR1:FOR z=1 TO 15:PRINT" ":PRINTMID$(B$,z,1):NEX
820COLOUR3:VDU31,2,5:PRINTscor%:VDU31,2,16:PRINTshots
830VDU5
840GCOL0,1:MOVE L%,280:PRINTCHR$248
850 ENDPROC
860DEFPROCwrong
870VDU4
880REPORT:PRINTERL
890END
900ENDPROC
910DEFPROCfire
920shots%=shots%+1
930X%=280
940REPEAT
950 X%=X%+8:GCOL0,RND(7)
960SOUND1,-15,(X%-280)/4,1:SOUND2,-15,(X%-272)/4,1
970PLOT69,L%+24,X%:PLOT69,L%+32,X%
980PLOT71,L%+24,X%-8:PLOT71,L%+32,X%-8
990UNTIL POINT(L%+24,X%+8)<>0 OR X%>900
1000PLOT71,L%+24,X%:PLOT71,L%+32,X%
1010IF POINT(L%+24,X%+8)<>0 THEN score%=score%+1
    :alien%=alien%-1:PROCHIT(L%,X%-8)
1020N%=(L%-32)/128
1030GCOL0,0:MOVE L%,160:PRINTlaser%(N%)
1040laser%(N%)=laser%(N%)-1
1050GCOL0,N%+1:MOVEL%,160:PRINTlaser%(N%)
1060ENDPROC
1070DEFPROCHIT(C%,D%)
1080d%=(INT(D%/100)-4)
1090aa=240+(2*d%):ab=241+(2*d%)
1100FOR x=1 TO 10
1110GCOL0,RND(7):MOVEL%,480+(120*d%):PRINTCHR$(aa)
1120MOVEL%,448+(120*d%):PRINTCHR$(ab)
1130SOUND0,-15,20,1
1140NEXT
1150GCOL0,0:MOVEL%,480+(120*d%):PRINTCHR$(aa)
1160MOVEL%,448+(120*d%):PRINTCHR$(ab)
1170ENDPROC
1180DEFPROCpause(T)
1190finishtime=TIME+T
1200REPEAT:UNTIL TIME=finishtime
1210ENDPROC
1220DEFPROCmove
1230*FX15,1
1240REPEAT:M%=GET:UNTIL M%>135 AND M%<138
1250unit=laser%(N%):incx%=8
1260IF M%=136 THEN incx%=-incx%
1270REPEAT
1280IFL%=32 THEN incx%=8
1290IF L%=800 THEN incx%=-8
1300FOR go=0 TO31
1310GCOL0,(go)MOD 2:MOVE L%,280:PRINTCHR$248
1320IF (go)MOD 2=0 THEN L%=L%+incx%
1330NEXT
1340unit=unit-1
```

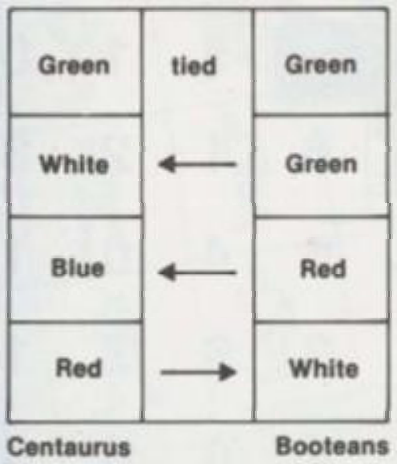
```
1350UNTIL unit=0
1360ENDPROC
1370DEFPROCscreen
1380VDU4
1390COLOUR3:VDU31,2,5:PRINTscore
1400VDU31,2,16:PRINTshots?
1410VDU5
1420ENDPROC
1430DEFPROCdoom
1440FOR z=1000 TO 0 STEP -32
1450SOUND1,-15,z/5,2
1460GCOL0,6:MOVE100,z-32:PRINT"EARTH DOOMED"
1470GCOL0,1:MOVE100,z:PRINT"EARTH DOOMED"
1480PROCpause(10)
1490NEXT
1500CLG:VDU4:CLS
1510ENDPROC
1520DEFPROCsaved
1530FOR z=1 TO 20
1540x=RND(900):y=RND(700)+300:GCOL0,RND(5)
1550 MOVE L%+32,280:DRAW x,y
1560GCOL0,RND(7):PRINTCHR$250:SOUND0,-15,80,2
1570PROCpause(20):NEXT
1580GCOL0,8:MOVE 100,500:PRINT"EARTH SAVED"
1590FOR z=1 TO 200 STEP4:SOUND1,-15,z,1:NEXT:FORz=200
    TO 1 STEP -4:SOUND1,-15,z,1:NEXT
1600PROCpause(300)
1610CLG:VDU4:CLS
1620ENDPROC
1630DEFPROCstore
1640FOR X%= 32 TO 800 STEP 128:P%=(X%-32)/128
1650 al%(P%,0)=POINT(X%+32,460)
1660 al%(P%,1)=POINT(X%+32,580)
1670 al%(P%,2)=POINT(X%+32,688)
1680 al%(P%,3)=POINT(X%+32,840)
1690NEXT
1700FOR X%=0 TO 6:last%(X%)=laser%(X%):NEXT
1710oldalien%=alien%
1720ENDPROC
1730DEFPROClast
1740FOR X%= 32 TO 800 STEP 128:P%=(X%-32)/128
1750GCOL0,al%(P%,0):MOVEX%,480:PRINTCHR$240:MOVEX%,448
    :PRINTCHR$241
1760GCOL0,al%(P%,1):MOVEX%,600:PRINTCHR$242:MOVEX%,568
    :PRINTCHR$243
1770GCOL0,al%(P%,2):MOVEX%,720:PRINTCHR$244:MOVEX%,688
    :PRINTCHR$245
1780GCOL0,al%(P%,3):MOVEX%,840:PRINTCHR$246:MOVEX%,808
    :PRINTCHR$247
1790GCOL0,P%+1:MOVE(P%*128)+32,160:PRINTlast%(P%):
    laser%(P%)=last%(P%)
1800NEXT
1810alien%=oldalien%
1820ENDPROC
1830DEFPROCmenu
1840VDU19,1,3,0,0,0
1850COLOUR1:PRINTTAB(8,3)"P U Z Z A D E R S"
1860PRINTTAB(0,6)"EARTHLING, you have 3 choices:-"
1870PRINTTAB(0,9)"1...a new invasion force."
1880PRINTTAB(0,12)"2...the last invasion again."
1890PRINTTAB(0,15)"3...end it all."
1900PRINTTAB(0,22)"(use L/R cursor keys to move laser)"
1910PRINTTAB(0,26)"(choose start for laser by keys A to
    C)":VDU31,0,18
1920REPEAT:choice%=GET:UNTIL choice%>48 AND choice%<52
1930IF C%=0 AND choice%=50 THEN CLS:PRINTTAB(0,4)"Come
    now, one is trying to muck up our":PRINTTAB(0,8)"progr
    am-choose again for the first round":PROCpause(400):CLS
    :PROCmenu
1940VDU19,1,1,0,0,0
1950C%=1
1960ENDPROC
1970DEFPROCend
1980CLS
1990PRINTTAB(0,4)"Goodbye Earthling."
2000PRINTTAB(0,7)"Sleep well...":PRINTTAB(0,9)"but keep
    your eyes on the sky."
2010PROCpause(600):CLS
2020*FX4,0
2030ENDPROC
```

SOLUTIONS

OMNIDOSE

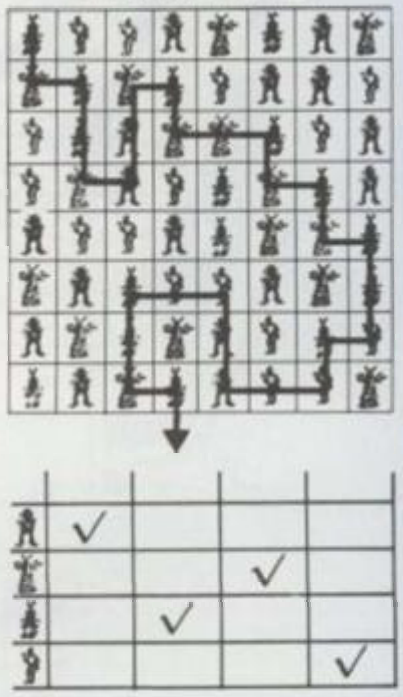


MASTER OF MYNDE

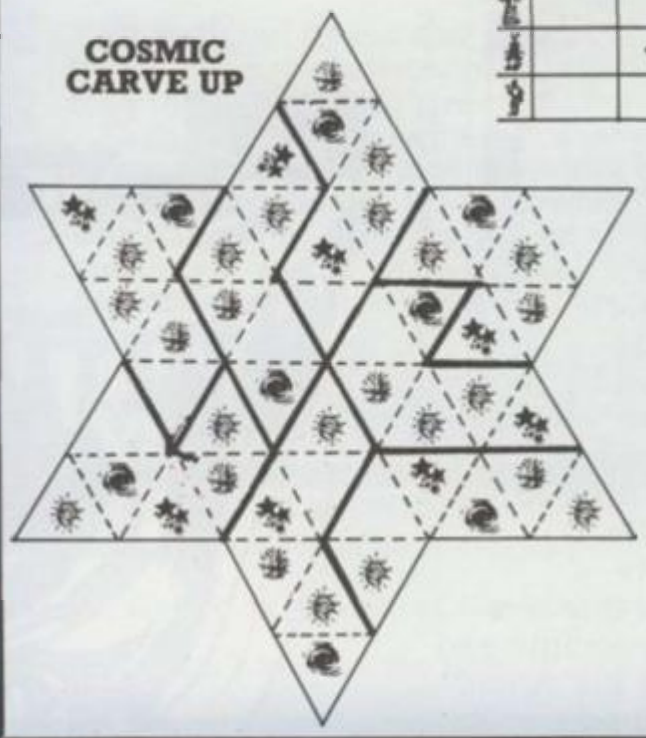


Booteans win 2-1

ALIEN MAZE



COSMIC CARVE UP



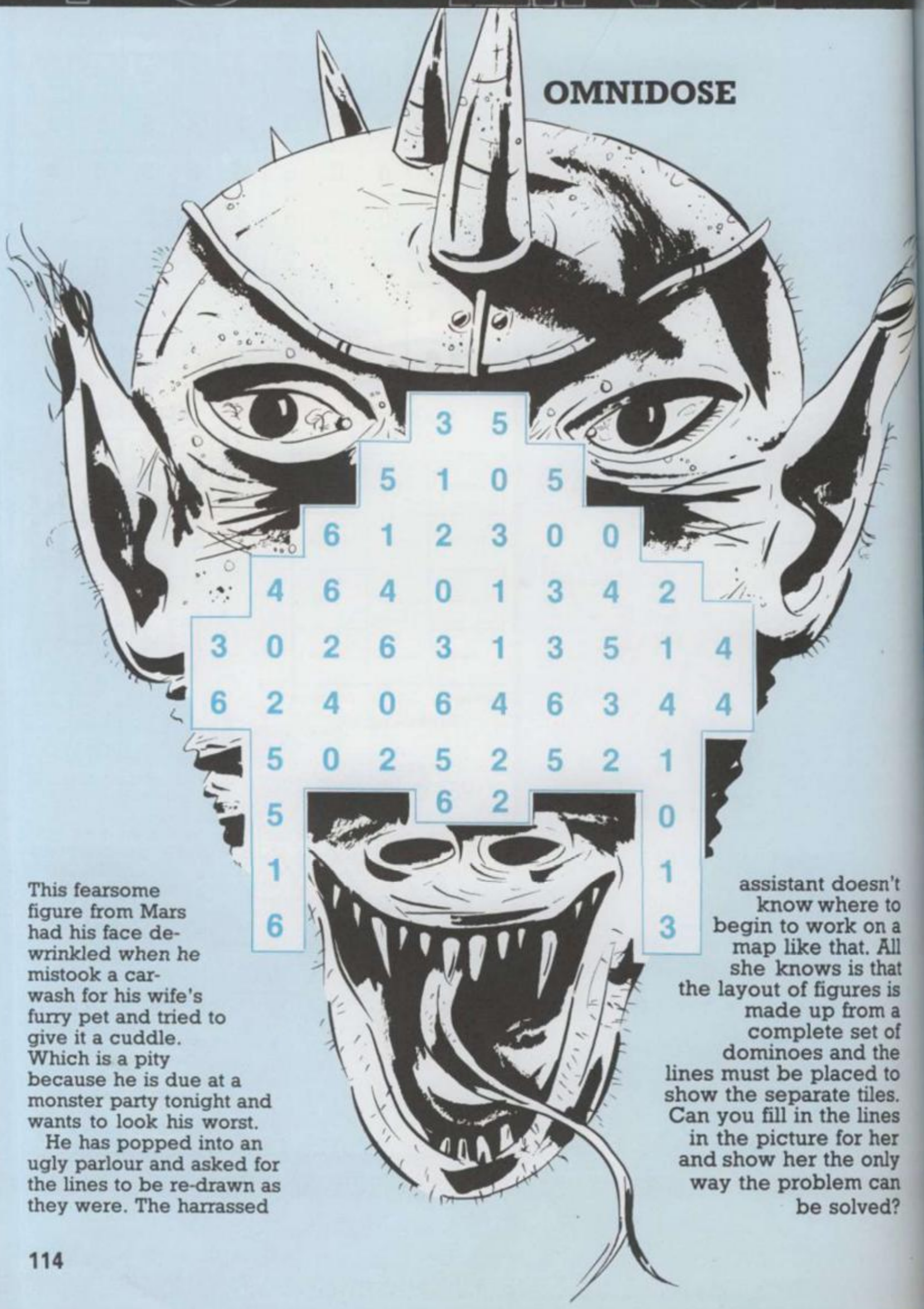
OCTOPOID ATTACK

1. Killer Gorilla.
2. Mutant Camels.
3. Wizard and the Princess.
4. The Hobbit.
5. Manic Miner.
6. Moonraider.
7. Pole Position.
8. Jet Set Willy.

PUZZLING

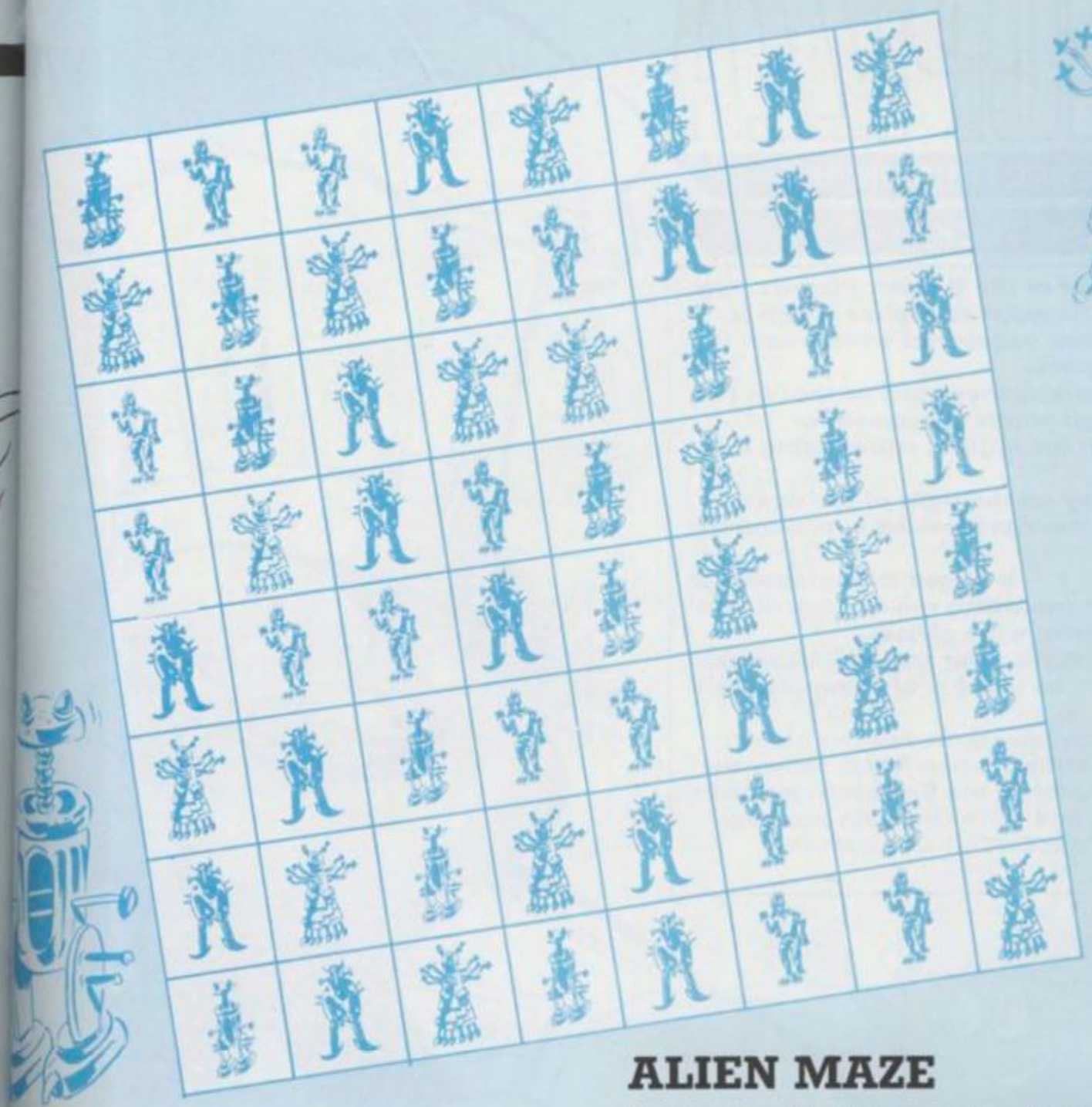
PUZZLING

OMNIDOSE



This fearsome figure from Mars had his face de-wrinkled when he mistook a car-wash for his wife's furry pet and tried to give it a cuddle. Which is a pity because he is due at a monster party tonight and wants to look his worst.

He has popped into an ugly parlour and asked for the lines to be re-drawn as they were. The harrassed assistant doesn't know where to begin to work on a map like that. All she knows is that the layout of figures is made up from a complete set of dominoes and the lines must be placed to show the separate tiles. Can you fill in the lines in the picture for her and show her the only way the problem can be solved?

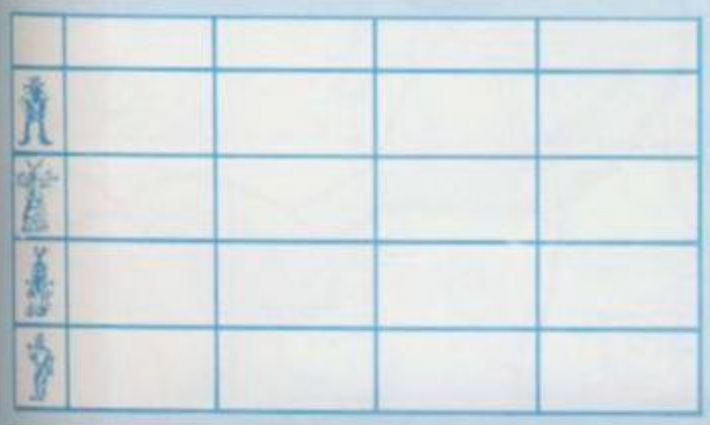


ALIEN MAZE

Your task, and by the way you only have a minute before this page self-destructs, is to find a path from the top of the square to the bottom.

Each cuddly alien figure has a meaning: up, down, right or left, which takes you to the next square. So if you can discover which face has which meaning, then you will be able to choose the correct square on the top line to start from and find your way through and out from under the bottom line.

But there is only one possible path. Can you mark it in time?



CONDENSATION STREET SOLUTIONS

So you've spotted all the differences in our *Condensation Street* puzzle have you? Want to know the answers? Well, here they are . . .

The door knob is missing, so is Hilda's paper, the ST. in the street sign, the buttons on Alf's coat and Bet's bangle.

If you spotted just one or two — well you just didn't look at the picture properly, did you? Go to the bottom of the class.

PUZZLING

ASTROPIZZA

RUNS ON A ZX SPECTRUM IN 16K

BY MARK TUCK

You are the new chef of the Galactic Pizzeria. The house speciality is the giant astropizza which is made from the mutant vegetables which roam throughout outer space.

To make an astropizza, they must be shot in the right order, although points are scored for everything hit, with the highest scores going for hitting mushrooms.

The graphic display on the right of the screen shows how far you have progressed in making the astropizza.

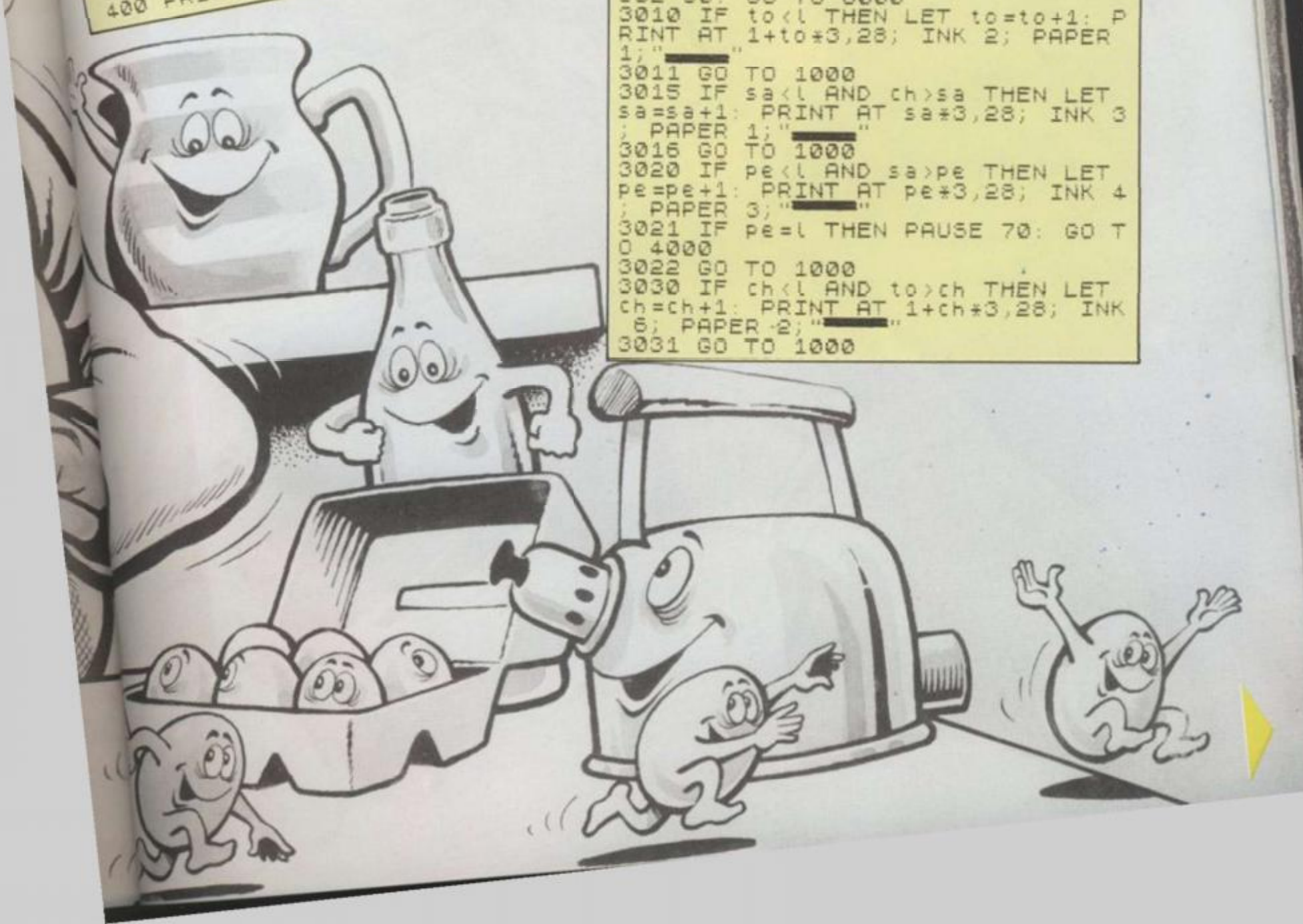
Your craft — Vino 1 — is armed with plasma and runs on cheap red wine which can be replenished by shooting the passive wine glasses.

If you run out of plonk, your ship will be unable to move but will still be capable of firing plasma bolts.

After the main program, there follows a short three line program which, when listed, shows the lines to change in order to use Kempston joysticks.

Delete line 50, 55 and 60 in the main program and type MERGE. Press ENTER and start the joystick program.

```
0)REM © 1984 by Mark Tuck
5 LET t$="Spectrum": LET t=10
ET i$="  ABCDEFGHIJKL": LET w
 _UT■SPN■"
0 GO TO 8000
50 IF w<=0 THEN GO TO 60
50 LET x=x+(INKEY$="9" AND x<2
-(INKEY$="8" AND x>0)
55 LET y=y+(INKEY$="q" AND y<2
-(INKEY$="1" AND y>0)
60 IF (INKEY$="0") AND fc=0 TH
 GO TO 105
00 GO TO 150
05 BEEP .1,5: LET c=x: LET d=y
 PRINT AT d,c; INK 5;"0": LET
c=1
50 IF fc=0 THEN GO TO 175
55 IF d=0 THEN PRINT AT d,c;"
 LET fc=0: GO TO 175
60 LET d=d-1
65 IF SCREEN$ (d,c)<>" " THEN
PRINT AT d+1,c;" ": LET fc=0: GO
TO 175
70 PRINT AT d+1,c;" ";AT d,c;
NK 5;"0"
75 IF x=x0 AND y=y0 THEN GO TO
200
80 PRINT AT y0,x0;" ";AT y0+1,
x0;" ";AT y,x; INK 4;"M";AT y+1,
x; INK 2; PAPER 4;w$(INT w/2+1)
85 LET x0=x: LET y0=y
00 LET k0=INT k: LET j0=j
05 LET j=j+INT (RND*3)-1: IF j
>25 THEN LET j=j-1
10 IF j<0 THEN LET j=j+1
15 IF RND>.98 AND k0<y AND i<>
 THEN GO TO 500
20 BEEP .005,18-k
25 LET k=k+0.2+(0.05 AND s>300
0)+(0.05 AND s>9000)
30 LET w=w-.02
00 IF k>=22 THEN GO TO 750
00 PRINT AT k0,j0;" ";AT k0-1,
j0;" ";AT INT k,j; INK i;i$(i*2)
;AT INT k-1,j; INK i+(2 AND i=2)
-(3 AND i=5);i$(i*2-1)
 405 IF d=INT k AND c=j THEN GO
TO 2000
 410 IF (y=INT k OR y+1=INT k) A
ND x=j THEN GO TO 2500
 500 IF w<1 THEN LET w=0
 505 IF w>=16 THEN LET w=16
 515 GO TO 20
 750 PRINT AT k0-1,j0;" ";AT k0,
j0;" "
 755 LET p=p+1: BORDER 2: PAUSE
5: BORDER 1: PRINT #0;AT 1,7; PA
PER 1;p: IF p=10 THEN GO TO 6000
1000 LET k=1: LET j=INT (RND*25)
1005 IF s=0 THEN LET i=2: GO TO
20
1010 LET i=INT (RND*5.5)+2
1015 IF i=5 THEN LET k=1+INT (RN
D*14)
1020 GO TO 20
2000 PRINT AT k,j; INK i;"0";AT
k-1,j;"0";AT k-2,j;" ": FOR f=48
 TO 12 STEP -3: BEEP .004,f: NEX
T f
2005 PRINT AT k,j; INK i;"R";AT
k-1,j;"R": PAUSE 35: PRINT AT k,
j;" ";AT k-1,j;" ";AT d,c;" ": L
ET fc=0
2010 IF i<>5 AND i<>7 THEN LET s
=s+(10*i)-10: PRINT #0;AT 1,15;
PAPER 6; INK 0;s: GO TO 3000+(5*
i)
2030 IF i=7 THEN LET b=70+INT (R
ND*6)*5: LET b$=STR$ b: PRINT AT
 k,j;b$(2);AT k-1,j;b$(1): PAUSE
 40: LET s=s+b: PRINT AT k,j;" "
;AT k-1,j;" ": PRINT #0;AT 1,15;
 PAPER 6; INK 1;s: GO TO 1000
2040 IF i=5 THEN GO TO 5000
2500 FOR g=1 TO 7: PRINT AT y,x;
 INK g;"0";AT y-1,x;"0";AT y+1,x
;"R";AT y,x+1;"R";AT y,x-1;"R":
BEEP .02,g: BEEP .02,g+2: BEEP .
02,g+4: BEEP .02,g+6: NEXT g: PA
USE 50: GO TO 6000
3010 IF to<l THEN LET to=to+1: P
RINT AT 1+to*3,28; INK 2; PAPER
1;"■■■■"
3011 GO TO 1000
3015 IF sa<l AND ch>sa THEN LET
sa=sa+1: PRINT AT sa*3,28; INK 3
; PAPER 1;"■■■■"
3016 GO TO 1000
3020 IF pe<l AND sa>pe THEN LET
pe=pe+1: PRINT AT pe*3,28; INK 4
; PAPER 3;"■■■■"
3021 IF pe=l THEN PAUSE 70: GO T
O 4000
3022 GO TO 1000
3030 IF ch<l AND to>ch THEN LET
ch=ch+1: PRINT AT 1+ch*3,28; INK
 6; PAPER 2;"■■■■"
3031 GO TO 1000
```



```
00 BORDER 4: CLS
10 PRINT AT 4,11;"Well Done.!"
 6,2;"You have completed the
der";AT 9,13;"BONUS";AT 11,13;
LASH 1;l*500;" ": LET s=s+(l*5
0)
015 PRINT AT 4,23; INK 5;"H";AT
,23; INK 2;"G";AT 2,8;"O";AT 3
; INK 4;"M";AT 4,8; PAPER 2;"


020 GO SUB 9060
025 PRINT AT 21,0; PAPER 4; INK
0;"PRESS ANY KEY FOR THE NEXT O
DER"
030 PAUSE 0: IF l=6 THEN GO TO
5000
035 GO TO 9005
5000 LET w0=w: LET w=w+2+INT (RN
D*6)
5001 IF w>=16 THEN LET w=16
5002 FOR f=w0 TO w: PRINT AT y+1
,x; INK 2; PAPER 4;w$(INT f/2+1)
: BEEP .01,f: NEXT f
5003 GO TO 1000
5500 FOR f=0 TO 5: BEEP .01,k: P
LOT INK i;j0*8+4,167-k0*8: DRAW
INK i;0,9-((y0-k0)*8): NEXT f
5505 PLOT OVER 1;j0*8+4,167-k0*8
: DRAW OVER 1;0,9-((y0-k0)*8)
5510 IF fc=1 AND k0<d AND j0=c T
HEN LET fc=0: PRINT AT d,c;" ":
GO TO 225
5515 IF j0=x0 THEN GO TO 2500
5520 GO TO 225
6000 BORDER 6: CLS
6010 IF pe=6 THEN PRINT AT 1,0;"
AMAZING! You've done a great job
"''"and are promoted to Master C
hef!": GO TO 6030
6015 IF p=10 THEN PRINT AT 1,2;"
You let too much food pass": GO
TO 6025
6020 PRINT AT 1,1;"You've writte
n off your craft"
6025 PRINT AT 3,4;"and you've be
en sacked !"
6030 IF s>t THEN PRINT AT 6,8;"Y
ou have beaten";AT 8,15-(LEN t$)
/2;t$;"'s";AT 10,7;"HIGH SCORE o
f ";t: INPUT "Please enter name"
;t$: LET t=s: GO TO 6040
6035 IF s<=t THEN PRINT AT 7,9;"
You scored ";s
6040 PRINT AT 15,7;"TOP SCORE:";
t;" by";AT 17,16-(LEN t$)/2; FLA
SH 1; INK 4;t$;#0;AT 0,5;"ANY KE
Y TO PLAY AGAIN"
6045 IF s>t THEN LET t=s
6050 PAUSE 0: CLS : GO SUB 9000:
 GO TO 20
```

```
8000 FOR n=USR "a" TO USR "u"+7:
 READ z: POKE n,z: NEXT n
8010 DATA 0,0,0,0,0,4,72,54,44,1
26,255,255,255,255,126,60
8011 DATA 16,56,124,124,124,124,
124,124,124,124,124,68,56,124,12
4,56
8012 DATA 0,48,8,8,8,102,231,221
,221,221,221,221,110,126,60
8013 DATA 0,254,254,124,124,56,5
6,16,16,16,16,16,16,56,254,0
8014 DATA 0,207,254,125,187,215,
206,222,215,223,219,219,222,92,5
6,16
8015 DATA 0,0,0,60,126,255,255,1
95,153,189,126,60,60,60,0,0
8020 DATA 60,36,60,60,60,126,126
,255,0,255,255,255,255,255,255,2
55
8025 DATA 0,126,126,60,60,24,24,
0,0,0,255,255,255,255,255,255
8030 DATA 136,3,104,100,128,22,7
0,64,0,2,32,36,0,0,6,64
8035 DATA 0,0,0,255,255,255,255,
255,0,0,0,0,0,255,255,255
8040 DATA 0,0,0,0,0,0,255,255
8050 PAPER 0: INK 7: CLS : PRINT
 AT 1,11;"ASTROPIZZA";AT 3,10;"b
y Mark Tuck"
8055 PRINT AT 5,1;"AstroPizzas a
re made as follows";AT 7,6;"1st-
Tomato      10pts"'' TAB 6;"2nd-C
heese      50pts"'' TAB 6;"3rd-Sa
lami      20pts"'' TAB 6;"4th-Pep
per      30pts"
8060 PRINT AT 7,18; INK 2;"B";AT
 9,18; INK 6;"I";AT 10,18;"J";AT
 12,18; INK 3;"C";AT 13,18;"D";A
T 15,18; INK 4;"E";AT 16,18;"F";
AT 6,18;"A"
8065 PRINT AT 19,5;"K Mushroom";
TAB 20; INK 2;"G "; INK 7;"Extra
";AT 20,5;"L BONUS";TAB 20;"H WI
NE"
8070 PRINT #0;AT 0,5;"PRESS ANY
KEY TO BEGIN": GO SUB 9060: PAUS
E 0
9000 LET l=0: LET p=0: LET s=0
9005 LET w=16: BORDER 1: CLS
9010 LET l=l+1: LET to=0: LET sa
=0: LET pe=0: LET ch=0
9015 FOR f=2 TO 21: PRINT AT f,2
7; PAPER 1;"  ": NEXT f
9020 FOR f=5 TO 2+(l*3) STEP 3:
PRINT ;AT f,28; PAPER 1;"▬▬": 
NEXT f
9025 PRINT AT 0,27; PAPER 1;"PIZ
ZA";AT 1,27;"ORDER"
9030 PRINT #0;AT 1,0; PAPER 1;"P
ASSED-";p;TAB 21;"TOP-";t
9035 PRINT #0;AT 1,9; PAPER 6; I
NK 0;"SCORE-";TAB 15;s
9040 LET x=13: LET y=20: LET x0=
x: LET y0=y: LET d=0: LET c=0: L
ET fc=0
9050 PRINT AT y,x; INK 4;"M";AT
y+1,x; PAPER 2;" ": GO SUB 9070:
 GO TO 1000
9060 RESTORE 9065: FOR n=0 TO 17
: READ a,b: BEEP a/6,b: NEXT n:
RETURN
9065 DATA 1,15,1,15,1,14,2,10,3,
10,1,14,1,14,1,12,4,8,1,14,1,14,
1,12,2,8,3,8,1,5,1,7,1,8,4,10
9070 RESTORE 9075: FOR n=0 TO 15
: READ a,b: BEEP a/6,b: NEXT n:
RETURN
9075 DATA 1,10,2,12,3,12,1,8,1,1
5,1,12,4,10,1,7,1,5,1,3,2,10,3,1
0,1,7,1,5,1,3,4,3
```

1 SORCEROR OF CLAYMORGUE CASTLE

By Scott Adams, from Adventure International.
For TRS-80, Apple, Atari, CBM 64, BBC and Spectrum.

Claymorgue gets the number one spot in my hit parade, for the sheer enjoyment I have had from any Adventure during the past year. It's one of those games that keeps you at the keyboard till the small hours, when you are likely to be so thrilled on making a new discovery that you'll feel it only right to awaken the whole family and tell them about it!

Graphics versions are available for some micros, but I had my own clear mental image whilst playing a text only version. Short crisp descriptions and replies describe an adventure-land of about three dozen locations, but every word, every object and every location is used to the full in one of the most cleverly interlocked puzzles I have come across.

Set in and around a castle with an enchanted moat, your objective is to collect stars and to deposit them in a treasure store — IF you can find it, AND if you can get them all there! At one point, I had almost a complete galaxy awaiting storage and nowhere to put them.

Solve the mystery of the magic fountain, the precarious chandelier, the raised drawbridge and the enchanted forest, with the help of a variety of unusual spells. Many problems have more than one solution and, until you have unravelled them all, the whole thing won't knit together!

2 SNOWBALL

By Pete and Mike Austin, from Level 9 Computing.
For BBC, CBM 64, Spectrum, Atari, Oric, Lynx and Nascom.

Snowball is my second choice, for its realistic spine chilling effect, coupled with its well planned setting. Whilst playing it, I felt as if I was taking part in a first class science fiction film thriller.

The Adventure is set aboard a spacecraft encapsulated in its own fuel of frozen ammonia — Snowball 9. The craft, en route to Eridani A with 200,000 sleeping colonists aboard, is vast. There are said to be 7,000 different locations, although many of these are lookalikes.

Purely text, this Adventure has lengthy replies which very effectively set the mood. You are agent Kim Kimberley, woken from cryogenic sleep because something aboard has gone wrong. . . . You must save the Snowball.

Sinister robots called Nightingales relentlessly pursue you as you struggle to save the troubled ship. The background is excellently documented in an accompanying booklet and effectively adds to the realism of the scenario. "Everything in *Snowball* has a use" is the claim in the book.

As a bonus, the BBC version loads to the strains of Vivaldi's *Winter* from *The Four Seasons*.

3 CIRCUS

By Brian Howarth. from Digital Fantasia for BBC and Spectrum.
From Channel 8 Software for Atari, CBM 64, Dragon 32.
From Molimerx Ltd for TRS-80, Video Genie.

Another game chosen for its spine-chilling realism, this one is a ghost story set in a deserted circus.

Scott Adams' influence on Brian Howarth comes through clearly in this Adventure, one of the famous *Mysterious Adventure* series. The text is short and lends itself to a neat puzzle — which isn't set until you have triggered it in the right way.

In the meantime, you can try your hand at taming tigers, feeding seals, tightrope walking, acrobatics and even being shot from a cannon! Who is that clown and why does he dart off every time you approach? Why won't the generator work?

I liked it in text, but there are graphics versions available for some micros.

4 HULK

By Scott Adams, from Adventure International.
For TRS-80, Apple, Atari, CBM, BBC and Spectrum.

This one comes high on my list for its innovative approach in combining *Marvel Comic* superheroes with an excellent Adventure.

A *Marvel* comic comes with the game and sets the scene. You start off at a disadvantage, as Bruce Banner, tied hand and foot to a chair. From there on, the puzzles get meaner in the tradition of all Scott's games, but give great satisfaction when solved.

Where are all those gems you need to collect and how can they be obtained? What is the meaning behind the mysterious message told you by Dr Strange and how do you deal with a particularly nasty breed of ant?

This game features what can only be described as an optical illusion – even in the text-only versions! Everyone would like to become the Hulk now and again, wouldn't they? Well, this game gives you the chance!

Since the 1984 yearbook was published, our ace Adventurer, Keith Campbell, has been adventuring through an ever-increasing catalogue of games. Here he presents you with his pick of the

best games.
In compiling this top ten, Keith has considered games that he played for the first time during the past year.
The ones listed stand out as extra special.

5 PETTIGREW'S DIARY

From Shards Software, for Dragon 32, BBC and Electron.
The fifth on the list deserves its place for its most unusual screen presentation, coupled with its interesting and humorous plot.

Three separate programs make up the whole package. Chapter 1, The Burning Farmhouse, is a rather tedious arcade-style Adventure. Chapter 3, European Trek, is a game that is fun to play, testing your reactions, memory and ingenuity.

But Chapter 2, London Frolicks, is the real Adventure, and alone earns *Pettigrew* its place in my honours list. Travel the tube, dodge the London traffic, gamble in an arcade — these are just a few of the things you'll be getting up to, jumping for a while outside the normal Adventure format.

6 FRANKLIN'S TOMB

By Faint Hearted Franklin, from Salamander Software.
For Dragon 32, BBC, and Oric.
For the slick talking private eye, Dan Diamond, and for the wonderful new idea of printing the picture on paper, instead of programming it to display on a cathode ray tube and clutter up computer memory, I award 6th place to *Franklin's Tomb*.

This is the first and best (so far?) of a series. An apparently run of the mill Adventure set in a tomb turns out to be something different when you get deep underground. Solve the main puzzle by solving the individual ones and you'll be set to take on the next in the series. Meanwhile, you'll get a few smiles in the process!

And when you get stuck, browse through the illustrated booklet to see where you'd tried to go but couldn't and wince at Dan's corny American humour!

7 FLINT'S GOLD

By Andy Mitchell, from Mikrograf.
For BBC.
Flint's Gold earns its place for giving me the chance to sit back and be entertained, relax with an Adventure, and not to resent being killed!

With technicolour graphics, a hornpipe to set your feet a-tappin' and stunningly realistic sound effects, this zany game is described as guaranteed to kill or cure sea sickness, scurvy and beri-beri. You have puzzles to solve and treasure to collect, too!

How many boats are moored to the jetty? Which one should you board? What is the meaning of the mysterious message whispered by a dubious seaman in a dark back alley?

Heavily laced with fruity pirate language, this game, an Adventure in its own right, deliberately or not spoofs the famous *Pirate* Adventure — but nicely!

8 XENOS

From Tandy for TRS-80 with disc drive.
A mention for a good Adventure that never took off and deserved to. Why wasn't it converted for other micros?

Xenos starts you off on a highway near a deserted gas station. Along the road, should you decide to leave the mysterious things at the gas station for a while, is a small deserted town. The rest is desert.

Where has everyone gone? What lurks in the fish tank? Why not loot the bank while you have the chance? What strange things are going on out there in the drying heat of the desert? Will you survive to solve the mystery?

9 COUNTDOWN TO DOOM

By Peter Killworthy, from Acornsoft.
For BBC.
I want to complete this one — there's some answers I'm dying to find out, so it deserves a place on my list!

Your space ship has crash landed and your mission is on a strange planet. A fairly verbose text Adventure, this one has some strange devices just begging for answers knocking around!

What earthly use is that robot that putters about after you? What mysteries are concealed within the dome? Is there a need to traverse what seems to be a maze — indeed, is there a way out? Another game, this time solely for the BBC micro, that would stand conversion to other machines.

10 DENIS THROUGH THE DRINKING GLASS

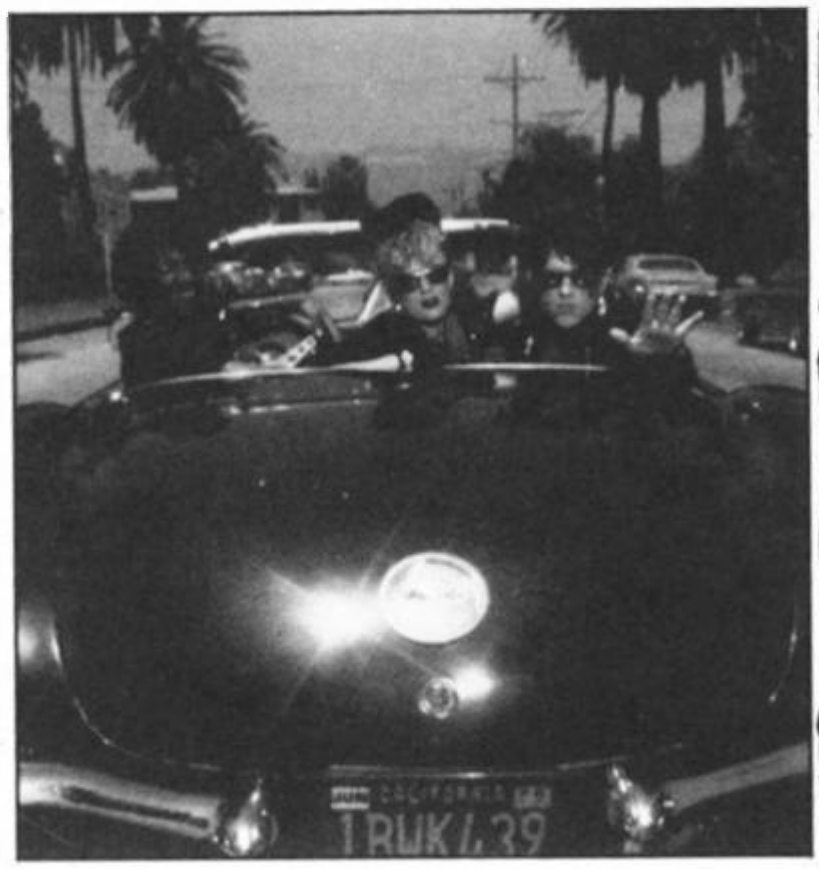
From Applications Software Specialities.
For Spectrum and Atari.
Denis makes the honours list as the first game to be commercially released, written on the Quill. A zany political satire, *Denis* is original in being written mainly in verse.

This is a fun game — take more than ten moves without a swig of gin and you've had it!

Chances are that you'll be a headline in the *Sun* newspaper if you fail in your mission — reaching the cellar of the Gravedigger's Arms.

But first you must escape from Maggie. What a dream — if only we could! Perhaps that is what endeared the game to me.

STAR TURN



Thompson Twins

There we were, sitting around in the *Computer & Video Games* offices, wondering just what to do with our special flexi-disc. Why not put an Adventure game on it, someone said? Yeah, and why not make it an adventure about pop-stars? It is a record after all, said someone else! Great, but who are we going to get to do it? The Thompson Twins! So that's how everyone who grabbed a copy of October's *C&VG* got a very special free gift.
The actual flexi-disc was manufactured by a company called Flexi Records in London who are well known for their work with computers.
Read on for details . . .

After we decided just what we wanted to do with the flexi-disc, a lot of things still had to be done. First, we had to approach the Twins to see what they thought about the idea. And luckily for us their reaction was good.

After a meeting with the Twins' management team we set about choosing a song which would fit in with the Adventure idea.,

After some long and hard deliberation, a recent hit song, *Doctor, Doctor* was chosen.

Then came the hard part — we had to find some programmers good enough to do the job and provide a high quality game for our demanding readers.

We decided to approach Quicksilva, the Southampton-based software company with a reputation for producing well crafted games — including an adaptation of *The Snowman*, the Christmas fairytale by Raymond Briggs and *Ant Attack*, the stunning 3D action game.

Rod Cousens and Mark Eyles at Quicksilva were as excited about the idea as we were — and soon had a couple of their top programmers working on Thompson Twin Adventures for the Spectrum and Commodore 64.

Here at *C&VG* we wanted graphics plus a good Adventure game, that we could base a competition around. After a couple of weeks' intensive work, Quicksilva's programmers came up with the basis of a game based on the Twins' song.

The first screens were taken back to the Thompson's management for approval — and we got the go-ahead for the project.

The actual flexi-disc was manufactured by a company called Flexi Records in London who are well known for their work with computers. They transfer the data onto a master tape and then make a metal copy of the disc which is used to press the plastic discs which you got free with your copy of *C&VG*.

The early graphic screens showed the Twins on a beach, in a forest and in a dark cavern. The idea of the game was to find certain objects to get to the Doctor's lab where a certain mysterious potion was being brewed up. After adding the objects to the potion, you discovered just what this mysterious brew was.

Clues could be found in the lyrics of the *Doctor Doctor* song — a brief snatch was included at the start of the flexi-disc plus a special message to *C&VG* readers from the Twins themselves.

The person who solved the Adventure first won a very special prize — the chance to meet Tom, Alanhah and Joe backstage after one of their recent sell-out concerts.

By now the winner will be well known to all *C&VG* readers. Unfortunately we can't tell you now as this Yearbook has to go to press long before the winner was decided. I'm sure you had a great time — whoever you were!

Hundreds of our readers flooded the *Computer and Video Games* offices with entries and telephone calls, making this competition the most popular *C&VG* has ever organised. Next time we'll make the adventure a bit more difficult.

The Twins took a great interest in the whole idea — especially Joe who was interested in computers and what they can do. Like all modern pop bands, the Twins use computers on and off stage to help produce their own distinctive sound.

There's more about computers and music in the Star Turn which features Vince Clark, if you turn to page 69. And more about pop groups and Adventures in the interview with Dave Greenfield of the *Stranglers* on page 4.

Who knows — maybe 1985 will see more of your favourite musicians working with computers or producing computer games. If they do, you'll know where to read about it first!

MAL FUNCTION

T. HITCH

SNAG JNR

SCREAMING FOUL UP

WOW!

THIS FOOTBALL CARTRIDGE IS SOMETHING ELSE!

IDE THE MICRO...

GET SNAG! HE'S ON A HAT-TRICK!

GRAH!

ULP!

YEEK!!!

SCREECH!

HE NEVER TOUCHED HIM REF! ARE YOU BLIND?

REF

SNARL!

TROMP!

THAT TACKLE WAS DIABOLICAL. MY PLAYER COULD HAVE BEEN OUT FOR THE REST OF THE SEASON.

PROAR!

I'M NOT A STREAKER

SUNDAY SPORT

BANNED STAR SICK AS A PARROT!

WORSE TACKLE I HAVE EVER SEEN! STORMS ATHLETICO BUGS MANAGER.

BYTE UNITED IN CASH CRISIS

DISGRACEFUL SCENES AS BINARY SNAKES INVADE PITCH.

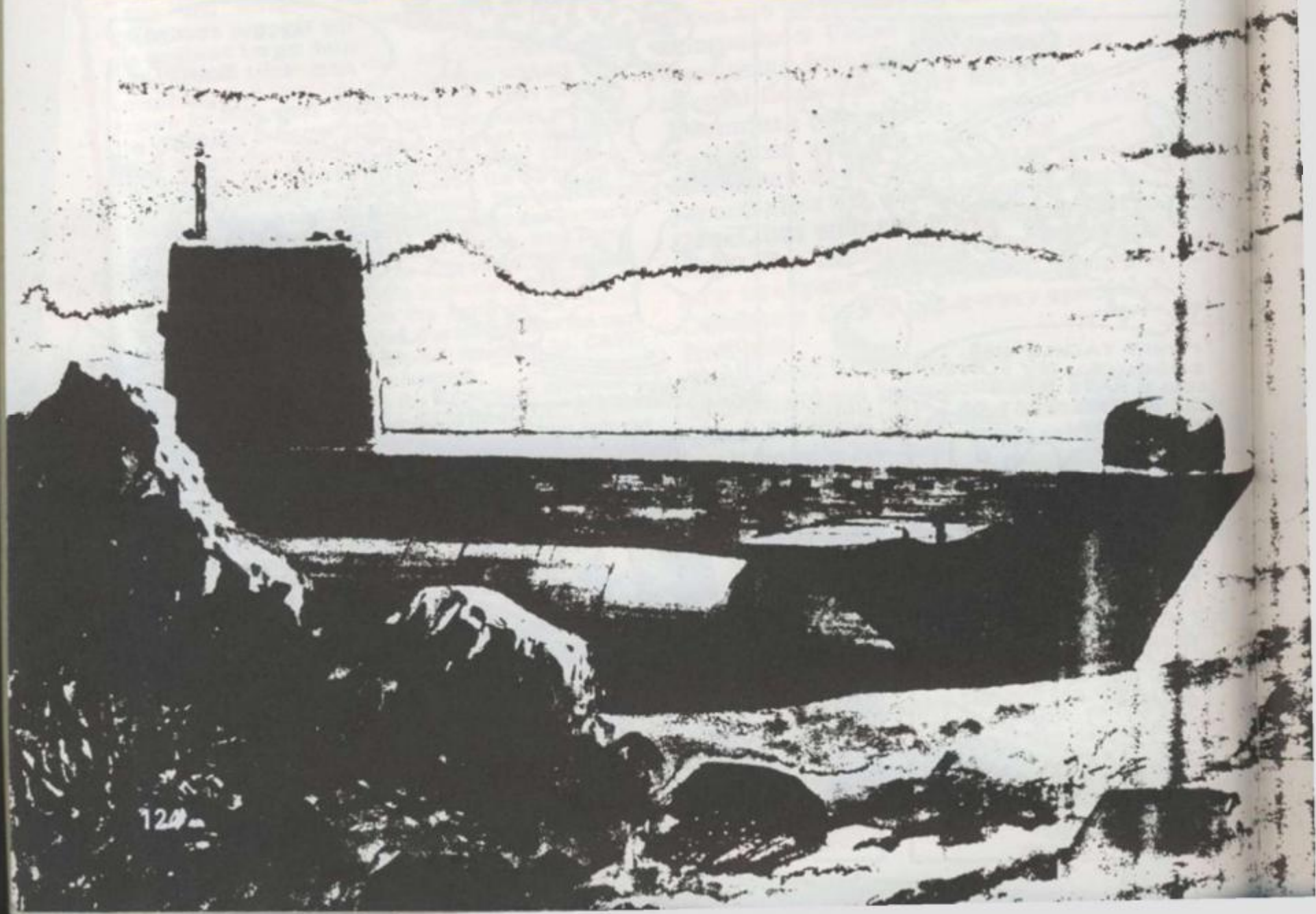
JUST LIKE THE REAL THING!

OPERATION SEAWOLF

RUNS ON A TEXAS WITH TWO JOYSTICKS

As the captain of a hunter killer battle ship, your job is to guard the entrance of a secret underwater defence establishment.
Because of the huge amounts of time and money being ploughed into the defence factory in an attempt to build the ultimate deterrent, there is only enough money to keep a single ship on guard outside the base making sure that no submarines slip past the security net
The lack of money is so acute that even the number of depth charges you have on board has been limited. So you will have to be very careful with your aim.

BY MARK HAWKINS

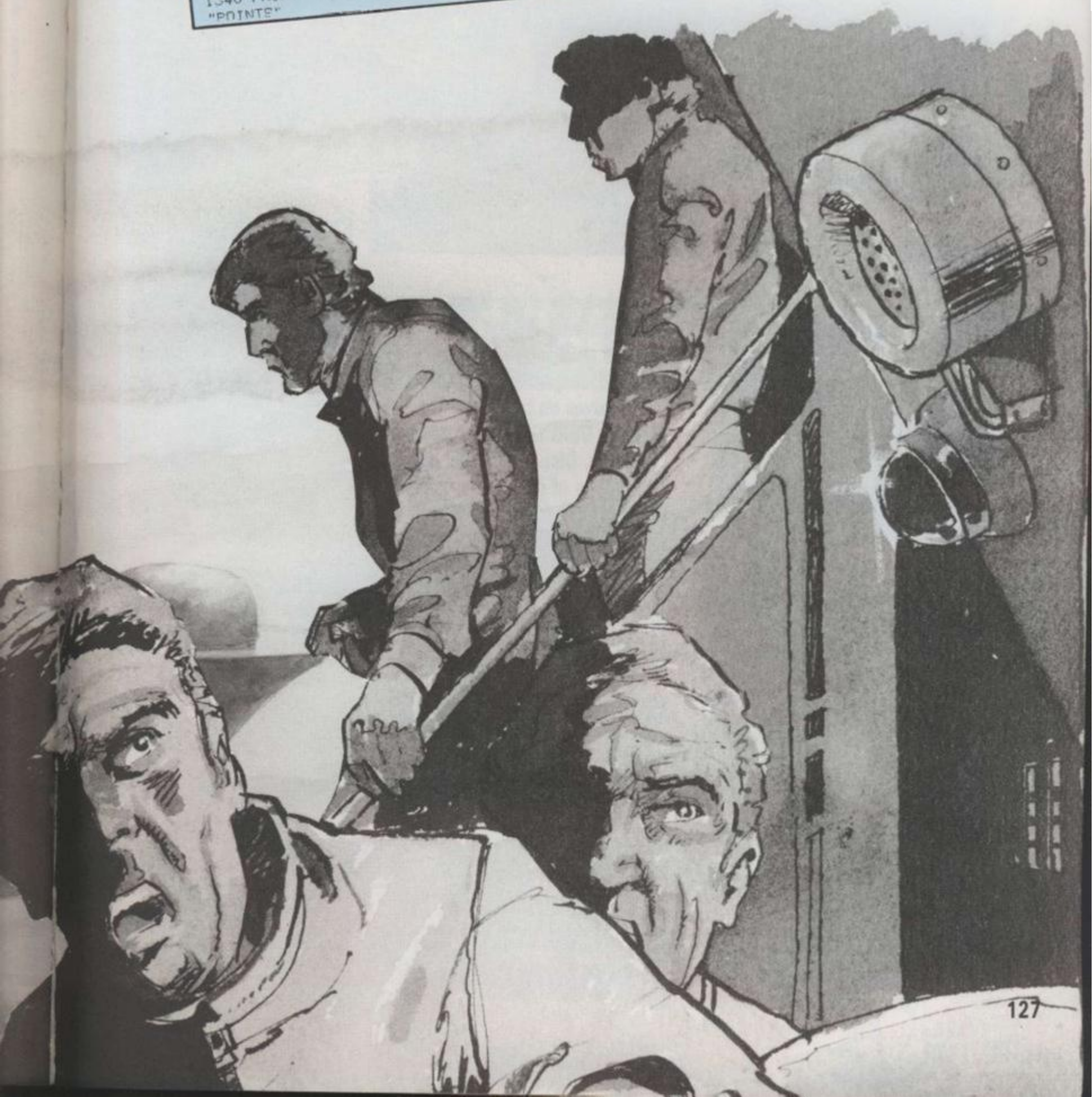


```
100 REM <--OPERATION SEA WOLF-->
110 REM  <--BY MSOFT-->
120 REM  <--(C) 1983 MSOFT-->
130 RESTORE
140 CALL CLEAR
150 CALL CHAR(128,"0082FEE0C0C0C000")
160 PRINT TAB(6);"OPERATION SEA WOLF"::TAB(7);"BY MARK HANKINS"
::TAB(9);"FOR C AND VG"::::::::::
170 FOR A=3 TO 32 STEP 2
180 CALL HCHAR(1,A,128)
190 CALL HCHAR(24,A,128)
200 NEXT A
210 CALL VCHAR(1,3,128,24)
220 CALL VCHAR(1,31,128,24
230 FOR A=1 TO 6
240 READ NOT,DUR
250 CALL SOUND(DUR,NOT,2)
260 NEXT A
270 V$="PRESS ANY KEY TO BEGIN"
280 RO=20
290 CO=5
300 GOSUB 1170
310 CALL KEY(0,K,S)
320 CALL KEY(1,K,S1)
330 IF (S=0)*(S1=0)THEN 310
340 CALL CLEAR
350 PRINT "WOULD YOU LIKE INSTRUCTIONS(Y/N)?"
360 CALL KEY(0,K,S)
370 IF K=89 THEN 1230
380 IF K=78 THEN 390 ELSE 360
390 PRINT "PLEASE ENTER YOUR SKILL LEVEL(0(EASY)-9(HARD))"
400 CALL KEY(0,K,S)
410 IF S=0 THEN 400
420 IF (K<48)+(K>57)THEN 400
430 NSHIP=(K-48)*6+16
440 REM  DEFINE CHARACTERS
441 CALL CHAR(128,"FFFFFFFFFFFFFFFF")
450 CALL CHAR(136,"00030203FF7F3F1F")
460 CALL CHAR(137,"00819E9CFEFEFEFE")
470 CALL CHAR(144,"000003031F3F1F00")
480 CALL CHAR(145,"00309090F8FCF800")
490 CALL CHAR(146,"00007EFFFF7E0000")
500 CALL CHAR(152,"00")
510 REM  SET UP SCREEN
520 CALL CLEAR
530 CALL SCREEN(5)
540 CALL COLOR(12,16,1)
541 CALL COLOR(13,15,1)
550 CALL COLOR(14,15,6)
560 CALL COLOR(15,12,1)
570 CALL COLOR(16,1,6)
580 CALL HCHAR(1,1,152,32*12)
581 CALL HCHAR(2,15,128)
582 CALL HCHAR(3,13,128,5)
583 CALL HCHAR(4,11,128,8)
584 CALL HCHAR(5,11,128,8)
585 CALL HCHAR(6,13,128,5)
590 CALL HCHAR(12,16,136)
600 CALL HCHAR(12,17,137)
610 V$="SCORE=:  0"
620 RO=1
630 CO=1
640 GOSUB 1170
650 REM  SET UP GAME
```

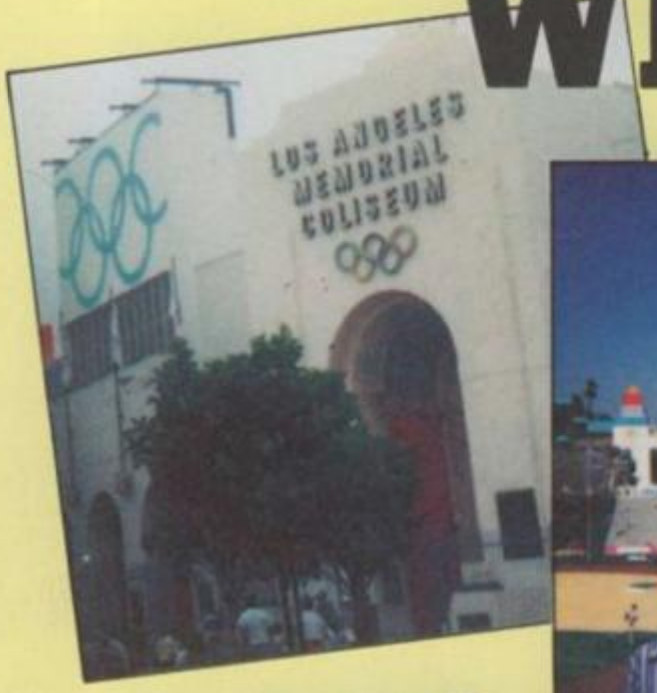
OPERATION SEAWOLF

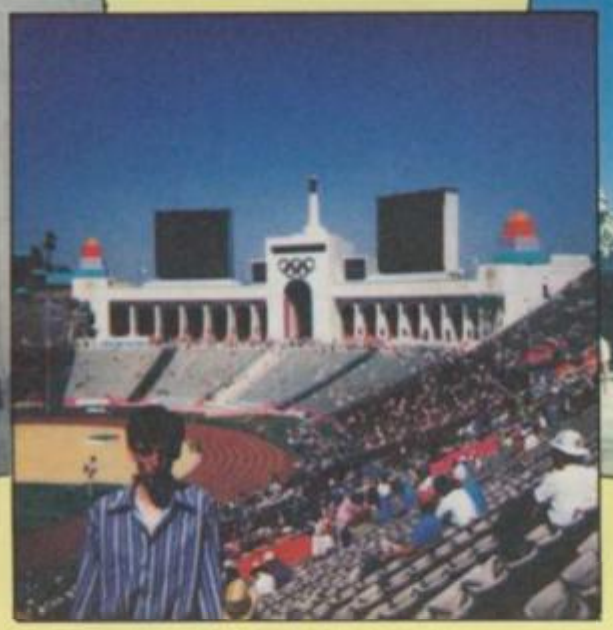
```
660 SC=0
670 ROS=INT(8*RND)+13
680 PO=13
690 SH=0
700 Z=0
710 C=16
720 REM  SUB MOVEMENT
730 FOR Q=31 TO 3 STEP -2
740 CALL KEY(3,K,S)
750 IF K=13 THEN 990
760 RA=C+(K=83)-(K=68)
770 IF (RA<3)+(RA>30)THEN 890
780 IF RA<>C THEN 840
790 CALL JOYST(1,DX,DY)
800 RA=C+DX/4
810 RA=INT(32*((RA-1)/32-INT((RA-1)/32)))+1
820 CALL KEY(1,K,S)
830 IF K=18 THEN 990
840 CALL HCHAR(12,C,152,2)
850 CALL HCHAR(12,RA,136)
860 CALL HCHAR(12,RA+1,137)
870 C=RA
880 IF Z=1 THEN 1010
890 CALL HCHAR(ROS,5,32,28)
900 CALL HCHAR(ROS,Q,144)
910 CALL HCHAR(ROS,Q+1,145)
920 CALL SOUND(150,-1,0)
930 NEXT Q
940 SH=SH+1
950 IF SH=NSHIP THEN 1330
960 ROS=INT(8*RND)+3 ! --
970 GOTO 730
980 REM  FIRE
990 Y=C
1000 IF Z=1 THEN 760
1010 FOR A=PO TO PO+3
1020 CALL GCHAR(A,Y,GET)
1030 CALL HCHAR(A,Y,146)
1040 IF GET=144 THEN 1430
1050 IF GET=145 THEN 1430
1060 CALL HCHAR(A,Y,32)
1070 NEXT A
1080 CALL SOUND(150,-3,0)
1090 PO=PO+3
1100 IF PO>=22 THEN 1140
1110 Z=1
1120 IF Q<3 THEN 940
1130 GOTO 890
1140 Z=0
1150 PO=15
1160 GOTO 890
```

```
1170 FOR A=1 TO LEN(V$)
1180 CH=ASC(SEG$(V$,A,1))
1190 CALL HCHAR(RO,CO+A,CH)
1200 NEXT A
1210 RETURN
1220 REM  INSTRUCTIONS:
1230 CALL CLEAR
1240 PRINT "YOUR JOB IS TO STOP THE":"ENEMY SUBS FROM REACHING":"THE HARBOUR IN
THE LEFT HAND":"CORNER.":: 
1250 PRINT :::"NOTE::":" THE FIRE KEY IS THE ENTER":" KEY":"'S'&'D' MOVE THE SHI
P":::
1260 PRINT ::"IF USING THE JOYSTICKS USE":"JOYSTICK NO.1"
1270 PRINT "ANY KEY TO BEGIN":
1280 CALL KEY(0,K,S)
1290 CALL KEY(1,K,S1)
1300 IF (S=0)&(S1=0)THEN 1280
1310 CALL CLEAR
1320 GOTO 390
1330 CALL CLEAR
1340 PRINT "YOU HIT":SC/100:"SHIPS":"OUT OF A MAXIMUM OF":NSHIP:"YOU SCORED":SC:
"POINTS"
```



OLYMPIC HOLIDAY WINNERS





This is the story of two *Computer & Video Games* readers who entered our great Olympic competition and found themselves on a flight to Los Angeles, USA! They went to the Olympics, Disneyland and had the holiday of a lifetime – just because they picked up *C&VG*. Makes you think doesn't it? Next time it could be you – but meanwhile why not read all about Gavin and Nathan's trip to America?

One minute Gavin Cox and his brother, Nathan, were sitting quietly with their Spectrum in the front room of their home in Old Coulsdon, a sleepy suburb of Croydon, just outside London. The next they were sitting in the Olympic Stadium in Los Angeles watching the track and field events and soaking up the sun!

That's what reading *Computer & Video Games* does for you! Gavin was the winner of our Automata-Activision Olympic holiday competition and the prize was a ten day trip to Los Angeles — all expenses paid — with tickets for the top Olympic events and the Executive Suite in the Sheraton Hotel in Anaheim.

Gavin correctly identified all the events of the decathlon from screen shots of the Activision game featured in the July issue of *C&VG*.

He also came up with a nifty little slogan all about *C&VG* which went like this: "Mega-Supa, Software Smashing, Bad Game Bashing, Has No Trash In, Ever So Dashin' — magazine!"

Gavin came up to London to receive his prize from the PiMan who jogged up from Portsmouth specially to present the tickets and £500 spending money from the Pi-Man's very own bank account. Then a couple of days later they were off — flying high above the Atlantic toward Los Angeles.

Once they arrived, they soon made friends — many young Americans admired their *C&VG* tee-shirts! They visited Disneyland where they tried out all the rides. Gavin's favourite was Space Mountain — a really space-age roller coaster with lasers and death defying loops! Gavin and his brother also visited Knott's Berry Farm — a sort of Wild West theme park — with more giant roller coaster rides.

At the Olympics, the brothers saw Carl Lewis make one of his record breaking runs, watched the heart-stopping finish to the Ladies' Marathon and watched Daley Thompson going for gold.

It was all over too quickly for the two boys — who told *C&VG* afterwards. "It was really great. We'd like to go back one-day. Thanks *C&VG* for such a great prize!"

Which only goes to show that the biggest and best prizes are always in *Computer & Video Games*.

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CONDENSATION STREET

Can you spot five differences? (Front and back inside covers) Turn to page 115 for the answers

GARY BLATCHFORD