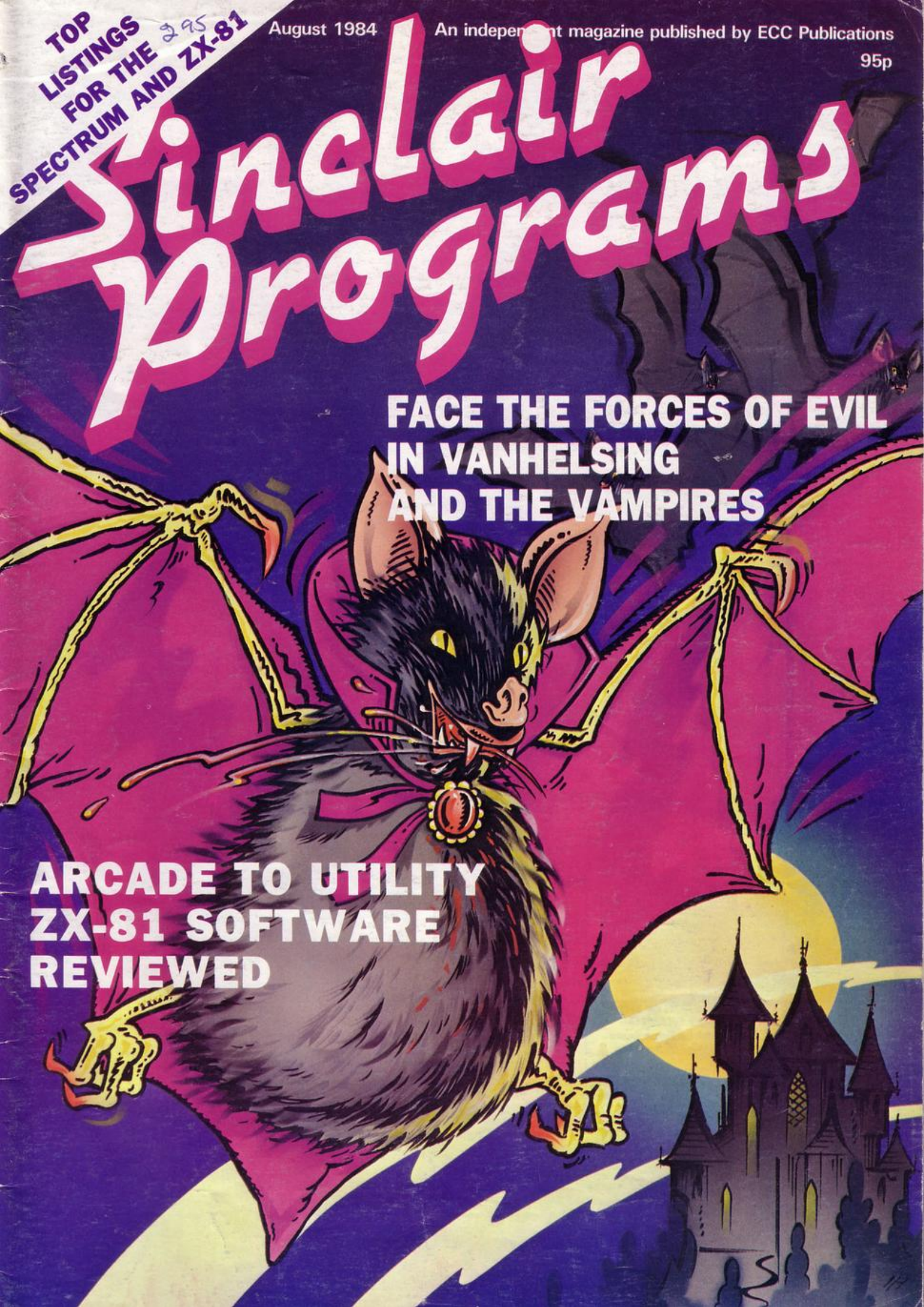
TOP LISTINGS FOR THE SPECTRUM AND ZX-81

August 1984 An independent magazine published by ECC Publications 95p

Sinclair Programs

FACE THE FORCES OF EVIL IN VANHELSING AND THE VAMPIRES

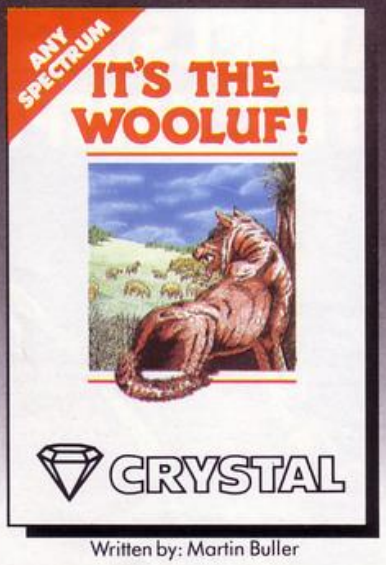


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TUBE WAY ARMY



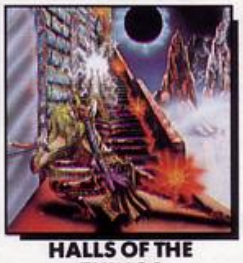
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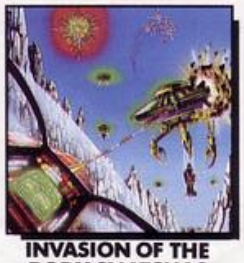
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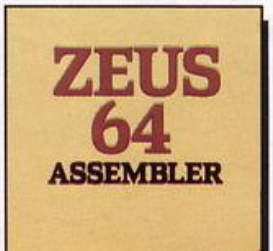
COMING SOON RETURN OF THE THINGS



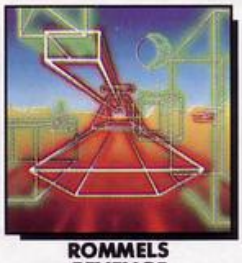
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Written by: Neil Mottershead, Simon Brattel and Martin Horsley



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Written by: Simon Brattel and Neil Mottershead



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

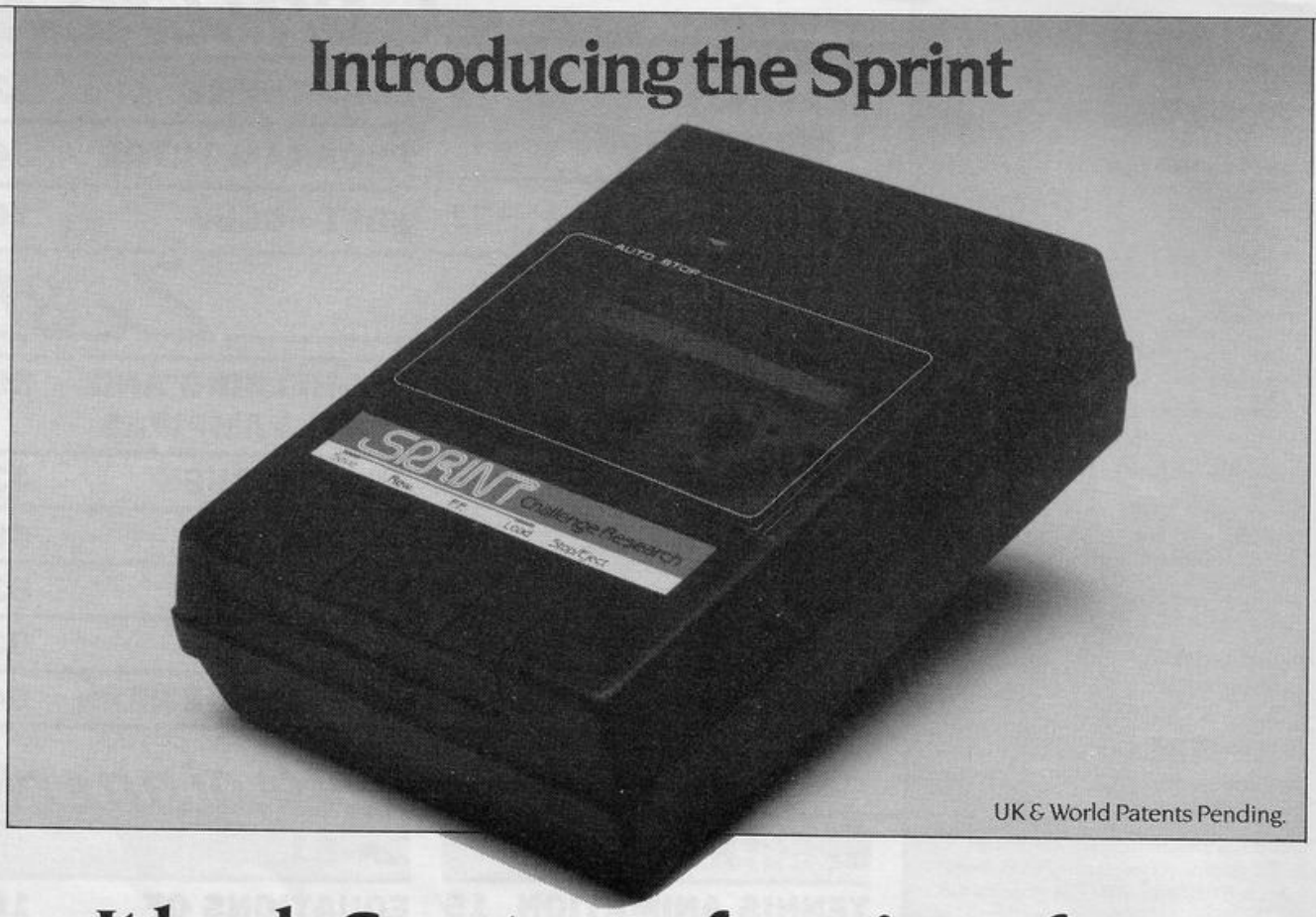
Inverse characters are represented by the letter "i" and graphics characters by "g". Thus an inverse W would be represented by "iw", a graphics W by "gw", and an inverse graphics W by "igw".

Spaces are represented by "sp" and inverse spaces by "isp". Whenever any character is to be used more than once, the number of times it is to be used is shown before it, together with a multiplication sign. Thus "6*isp" means six inverse spaces and "(g4:4*i4:g3)" would be entered as a graphic four, followed by an inverse four repeated four times, followed by a graphics three.

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

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

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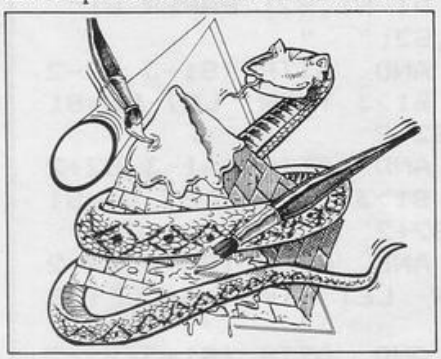
SP8/84

COLOUR THE PYRAMID



THERE IS a myth that all good programs are long and complicated. For those who write programs in a hurry that may be true but if you think about the program first, you can have results such as **Colour the Pyramid.** It is based on the popular game Q*BERT. The graphics are superb and it is worth the effort to type-in.

In this version, you play the part of a little man who must jump from square to square on a 3D pyramid, colouring the pyramid blocks as you go. You can move up and down but all movement is



diagonal. To move in the game the A, Z, K and M keys are used.

When you jump on to a square, it will be filled with the colour shown on the top left of the screen. After the whole pyramid has been filled-in, you move to the next sheet, where it is necessary to jump on the squares twice for them to be coloured correctly.

Colour The Pyramid was written for the 48K Spectrum by Simon Baines of Felixstowe, Suffolk. He took approximately five hours to write it and has owned a Spectrum for a year, having previously had a ZX-81 for six months.

The POKE in line 5 ensures that the response to the request for instructions is in upper-case. If instructions are required, the routine at line 3000 prints them. Line 3050 waits for the player to press a key as well as playing a note.

The routine at line 6 initalises the score counters and prints a string of zeros for score and high score. The reason is that the scores will be printed over the zeros, thus giving a neat effect. Lines 40 to 60 draw the pyramid and those lines contain two conditional loops. Line 40 prints each block of the pyramid. After that, the discs are drawn at line 70 and the starting positions for the ball and snake are at lines 101-102.

The main routine of the program, one large loop at lines 120-390, follows. There several operations are performed. First, a test is made to see if the user is moving the man — line 130. If not, a jump is made to the movement routines for the ball and snake; remember, the ball and snake can move even if you do not.

If you have decided to move, lines 140-165 test to see which way you will move. Immediately after that, two tests have to be made. First, a check in line 171 is made to see if you have fallen from the pyramid; if so, the line also contains a loop to draw the man falling. Next, a test is made to see if the block to which you are about to jump is not coloured; if that is so, it is coloured at line 180.

The remaining major action of this routine is to find your position and alter the direction of the snake and ball, to a limited extent; it is done at lines 280-310.

Last, the main routine can also call a jump to other routines — listed. They perform tasks such as start new game, move to next sheet, and so on.

Main routines

2-5	Instruction prompt.
6-35	Initalise scores.
40	Print pyramid block.
50-102	Draw pyramid and initalise movement variables.
120-390	Main routine — see text.
400-440	Caught routine.
1000-1010	Completed pyramid.
2000-2050	Move disc.
3000-3060	Print instructions.
4000-4002	Save game routine — use after written.
9900-9916	User-definable graphics data.
9900-9999	Wait message and read data.

Pokes used

FLAGS2 (23658) Ensures upper-case input.
Line 9990 Pokes data into UDG area.

Strings used

A$ used for all user input.

Variables used

FI	Holds current number of blocks filled.
HI	High score.
SC	Holds current score.
LIV	Number of lives.
SH	Holds current sheet — round — number.
X	Line position of block.
Y	Character position of block.
F	Used as index for last-row drawing.
B1	Line position of ball.
B2	Column position of ball.
S1	Line position of snake.
S2	Column position of snake.
A	Line position of man.
B	Column position of man.
D	Holds — random — movement pointer for ball and snake.
IK	Holds current ink number of block.

L, M and T Indices used when drawing pyramid.

```
  1 GO TO 9900
  2 CLS
  4 PRINT  AT 7,12; INK 6;"(ig4
:6*g3:g7)"; AT 8,12;"(ig5)"; INK
 2;"Q*BERT"; INK 6;"(g5)"; AT 9,
12;"(ig1:6*ig3:ig2)"
  5 POKE 23658,8: LET HI=0: PRI
NT  AT 11,2;"WOULD YOU LIKE INST
RUCTIONS?": INPUT  LINE A$: IF A
$="Y" THEN  GO SUB 3000
  6 RANDOMIZE
  10 OVER 1: BORDER 0: PAPER 0:
INK 7: BRIGHT 1: CLS
  15 LET SC=0: LET LIV=3: LET SH
=1
  20 PRINT  AT 0,0;"SC:000000";
AT 0,20;"HI:000000"; AT 1,0;"SHE
ET:1"; AT 1,20;"LIVES:3"
  22 PRINT  AT 3,0; INK 4;"AB";
AT 4,0;"BA"
  23 IF SH>1 THEN  PRINT  AT 3,0
```

continued on page 6

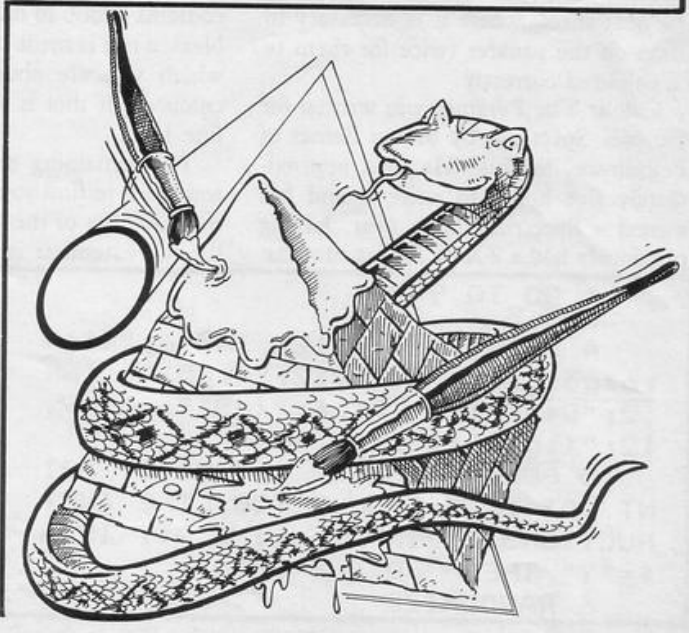
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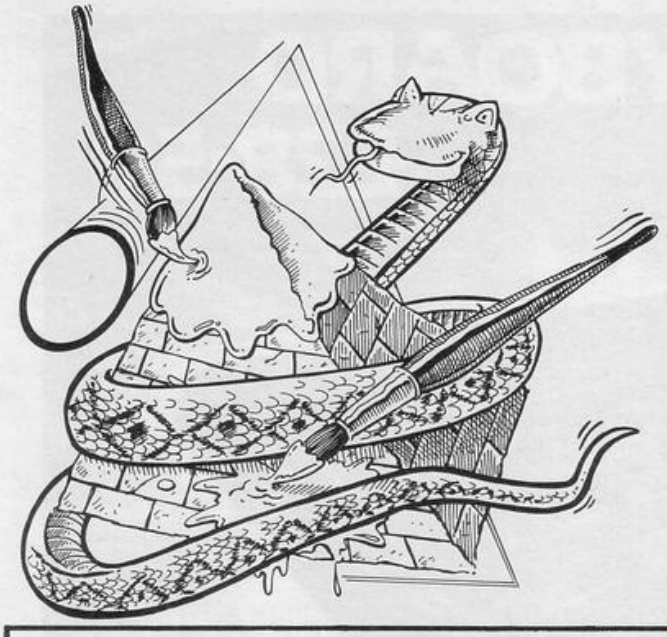
```
; OVER 0; INK 5;"AB"; AT 4,0;"BA
"; AT 5,0; INK 4;"AB"; AT 6,0;"B
A"
  30 OVER 1: PRINT  AT 0,29- LEN
  STR$ HI; OVER 0;HI; AT 0,9- LE
N  STR$ SC; OVER 0;SC; AT 1,26;L
IV; AT 1,0;"SHEET:";SH
  35 LET X=-2: LET Y=15: LET C=1
: LET L=-2: LET M=15: GO TO 50

  40 INK 6: PRINT  AT X+2,Y+1;"A
B"; AT X+3,Y;"A"; PAPER 6;"  ";
PAPER 0;"B"; AT X+4,Y;"B"; PAPER
 6;"  "; PAPER 0;"A"; AT X+4,Y;"
C"; AT X+4,Y+3;"D"; AT X+5,Y+1;"
BA"; AT X+6,Y+1;"D": INK 7: RETU
RN
  50 LET T=7: LET C=1
  55 GO SUB 40: LET X=X+3: LET Y
=Y-2: LET C=C+1: IF C<T THEN  GO
 TO 55
  60 LET L=L+3: LET M=M+2: LET T
=T-1: LET C=1: LET X=L: LET Y=M:
 IF T>1 THEN  GO TO 55
  61 INK 6: PLOT 40,32: FOR F=1
TO 6: DRAW  OVER 0;16,-16: DRAW
 OVER 0;16,16: NEXT F: INK 7
  70 PRINT  AT 8,8; BRIGHT 0;"IJ
"; AT 9,8;"KL"; AT 8,24;"IJ"; AT
 9,24;"KL"
 100 OVER 0: LET A=7: LET B=12:
LET FI=0
 101 LET B1=1: LET B2=16
 102 LET S1=7: LET S2=20
 120 PRINT  AT A,B; PAPER 8; INK
 8;"  "; AT A+1,B;"  "
 130 LET A$= INKEY$ : IF A$ <> "
A" AND A$ <> "Z" AND A$ <> "K" A
ND A$ <> "M" THEN  GO TO 191
 140 IF A$="Z" THEN  LET A=A+3:
LET B=B+2
 150 IF A$="M" THEN  LET A=A+3:
LET B=B-2
 160 IF A$="A" THEN  LET A=A-3:
LET B=B-2
 165 IF A$="K" THEN  LET A=A-3:
LET B=B+2
 170 IF  ATTR (A+2,B)=7 THEN  GO
 TO 2000
 171 IF  ATTR (A+2,B)=71 THEN  O
VER 1: FOR F=A TO 20 STEP 3: FOR
 G=1 TO 2: PRINT  AT F,B; PAPER
8; INK 8;"EF"; AT F+1,B;"GH": NE
XT G: BEEP .01,20-F: NEXT F: OVE
R 0: GO TO 410
 172 IF  ATTR (A+2,B)=68 THEN  G
O TO 181
 173 LET IK=4: IF SH>1 AND  ATTR
 (A+2,B)=70 THEN  LET IK=5
 174 IF SH>1 AND  ATTR (A+2,B)=6
9 THEN  LET IK=4
 180 IF  ATTR (A+2,B) <> 71 THEN
  PRINT  AT A-1,B; INK IK;"AB";
AT A,B-1;"A"; PAPER IK;"  "; PAP
ER 0; OVER 1;" "; OVER 0; AT A+1
,B-1;"B"; PAPER IK;"  "; PAPER 0
;"A"; AT A+2,B;"BA": OVER 1: PRI
NT  AT A+1,B-1; INK 8; PAPER 8;"
C  D": OVER 0: LET FI=FI+(1 AND
IK=4): LET SC=SC+1: PRINT  AT 0,
9- LEN  STR$ SC; OVER 0;SC
 185 IF FI=21 THEN  GO TO 1000

 190 BEEP .01,-20
 191 IF A=S1 AND B=S2 OR A=B1 AN
D B=B2 THEN  GO TO 400
 200 PRINT  AT A,B; PAPER 8; INK
 1;"EF"; AT A+1,B;"GH"
 220 PRINT  AT B1,B2; PAPER 8;"
 "; AT B1+1,B2;"  ": LET B1=B1+3
: LET D= INT ( RND *2)+1: LET B2
=B2+2*(D=1)-2*(D=2): IF SH>2 AND
  RND >.5 AND B1>4 AND  ATTR (B1
-6,B2) <> 71 THEN  LET B1=B1-6

 231 IF B1=19 THEN  LET C=0: LET
 B1=1: LET B2=16
 240 PRINT  AT B1,B2; INK 2; PAP
ER 8;"IJ"; AT B1+1,B2;"KL"
 260 LET D= INT ( RND *4)+1
 270 PRINT  AT S1,S2; PAPER 8;"
 "; AT S1+1,S2;"  "
 280 IF D=1 AND  ATTR (S1-3,S2-2
) <> 71 AND S1>3 THEN  LET S1=S1
-3: LET S2=S2-2
 290 IF D=2 AND  ATTR (S1-3,S2+2
) <> 71 AND S1>3 THEN  LET S1=S1
-3: LET S2=S2+2
 300 IF D=3 AND  ATTR (S1+3,S2+2
) <> 71 THEN  LET S1=S1+3: LET S
2=S2+2
 310 IF D=4 AND  ATTR (S1+3,S2-2
) <> 71 THEN  LET S1=S1+3: LET S
2=S2-2
 320 IF S1=A AND S2=B THEN  GO T
O 400
 321 IF S1<1 THEN  LET S1=1
```





```
 330 PRINT  AT S1,S2; PAPER 8; I
NK 3;"MN"; AT S1+1,S2;"OP"
 340 IF  ATTR (A,B)=114 OR  ATTR
 (A,B)=115 THEN  GO TO 400
 390 GO TO 120
 400 PRINT  AT A,B; INK 1; PAPER
 8;"EF"; AT A+1,B;"GH"; AT A-1,B
+1; FLASH 1; INK 6;"!#*#": FOR F
=1 TO 15: BEEP .01,F: BEEP .01,7
: BEEP .01,15-F: NEXT F
 410 LET LIV=LIV-1: PRINT  AT 1,
20; OVER 0;"LIVES:";LIV: FOR F=1
 TO 150: NEXT F: IF LIV>0 THEN
CLS : GO TO 20

 420 FOR F=1 TO 50: BEEP .01, RN
D *50-20: NEXT F: PRINT  AT 21,2
;"PRESS ANY KEY TO PLAY AGAIN."

 430 IF  INKEY$ ="" THEN  GO TO
430
 435 IF SC>HI THEN  LET HI=SC
 440 GO TO 6

1000 LET SH=SH+1: IF SH/6= INT (
SH/6) THEN  LET LIV=LIV+1
1010 LET SC=SC+100: FOR F=1 TO 4
0: BEEP .01,F: NEXT F: CLS : GO
TO 20

2000 PRINT  AT A,B;"  "; AT A+1,
B;"  "; AT A+2,B;"  ": LET B=B-4
*(B<16)+4*(B>16)
2005 LET A=A-1: LET B=B+(B<16)-(
B>16): BEEP .01,A: PRINT  AT A,B
-1; INK 1;" EF "; AT A+1,B-1;" G
H "; AT A+2,B-1; INK 7;" KL "; A
T A+3,B-1;"    "

2010 IF A>0 THEN  GO TO 2005
2015 PRINT  AT A,B;"  "; AT A+1,
B;"  "; AT A+2,B;"  ": LET A=1:
LET B=16
2025 PRINT  AT 0,0;"SC:000000";
AT 0,20;"HI:000000"; AT 1,0;"SHE
ET:1"; AT 1,20;"LIVES:3"
2026 PRINT  AT 0,29- LEN  STR$ H
I; OVER 0;HI; AT 0,9- LEN  STR$
SC; OVER 0;SC; AT 1,26;LIV; AT 1
,0;"SHEET:";SH
2030 GO TO 200
2050 STOP
3000 CLS : PRINT  AT 0,13;"Q*BER
T"; AT 1,13; INK 3;"(6*g3)"
3010 PRINT '''  CONTROLS:-"
3020 PRINT  AT 3,14;"A  K"; AT 4
,15;"\/"; AT 5,15;"/\"; AT 6,14;
"M  Z"
3030 PRINT '''  JUMP ON THE BLOC
KS TO CHANGE    THEIR COLOUR.AVO
ID THE SNAKE    AND  BOUNCING BA
LL. ON LATER    SCREENS  JUMP ON
 EACH  BLOCK    TWICE.JUMPING ON
 A DISC WILL    FLY  YOU TO  THE
 TOP  OF THE    PYRAMID.ON THE
THIRD SCREEN    THE BALL WILL
BOUNCE UPWARDS"
3040 PRINT  INK 2; AT 19,8;"PRES
S ANY KEY."
3050 IF  INKEY$ ="" THEN  BEEP .
01, RND *50-20: GO TO 3050
3060 CLS : RETURN
4000 SAVE "Q*BERT" LINE 1
4001 VERIFY "Q*BERT"
4002 RUN
9900 DATA 1,3,7,15,31,63,127,255
,128,192,224,240,248,252,254,255

9901 DATA 128,128,128,128,128,12
8,128,128
9902 DATA 1,1,1,1,1,1,1,1
9903 DATA 7,15,27,17,49,49,59,62
,192,224,176,24,24,24,184,248,60
,24,25,15,7,4,4,29,112,240,224,1
92,192,64,64,192
9907 DATA 0,7,31,63,63,127,127,1
27,0,224,248,252,252,254,254,254

9908 DATA 127,127,127,63,63,31,7
,0,254,254,254,252,252,248,224,0

9909 DATA 0,0,60,78,126,60,12,6

9910 DATA 0,0,0,0,24,102,102,198

9911 DATA 6,6,1,0,0,0,0,0
9912 DATA 195,195,195,0,0,0,0,0

9915 DATA 1,3,7,15,15,7,3,1
9916 DATA 128,192,224,240,240,22
4,192,128

9990 PRINT  AT 10,10; FLASH 1;"P
LEASE WAIT": RESTORE 9900: FOR f
= USR "a" TO  USR "P"+7: READ a:
 POKE f,a: NEXT f
9999 GO TO 2
```

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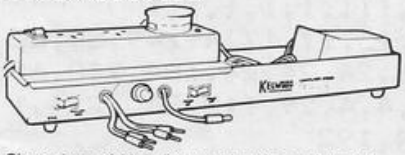


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MICROSTATION

17" square tray for above plus computer and tape
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STOPS ZX81 RAM-PACK WOBBLE
Flat: Ref **SW** £5.25. Tilted: Ref **STW** £6.25
Extra long for printer – Flat: Ref **LW** £5.75. Tilted: Ref **LTW** £6.75

Complete your computer

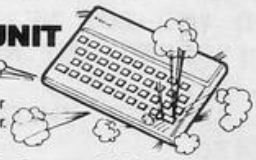
with the sensational **KELWOOD SOUND POWER BASE**
has all the 'basic bits' that Sinclair left off.

- Fully adjustable sound amplification
- LOAD/SAVE switch
- Angled stand
- ON-OFF re-set switch



Does not take up any extra space ● All wires included ● Saves wear and tear on connections ● Gives out distinct click with each key depression ● Amplifies all sound on program and on cassette ● Does not need batteries ● Does not interfere with inside of Spectrum or any other add-ons ● No soldering required, simply plugs in **REF SPBI £19.90**
Standard Power Base without sound
SPECTRUM REF PBSI £13.50 ZX81 REF PBZXI £13

COOL-IT UNIT



Takes the heat out of your computer. Lets your Spectrum or ZX81 run much cooler.

Separate Cool-it Unit
ZX81 Ref **ZXC** £11.65 Spectrum Ref **SC** £11.85

Cool-it units built into other Kelwood add-its
Power Base (Spectrum) Ref **PBSIC** £18.55 ● Power Base (ZX81) Ref **PBZXIC** £19.35 ● Sound Power Base (Spectrum only) Ref **SPBIC** £25.00 ● Back Pack 1 Ref **BP1C** £32.55 ● Back Pack 2 Ref **BP2C** £24.55 ● Back Pack 3 Ref **BP3C** £26.55 ● Back Pack 4 Ref **BP4C** £18.60 ● Back Pack 5 Ref **BP5C** £26.90 ● Back Pack 6 Ref **BP6C** £18.90 ● Wearsaver (Spectrum) Ref **WSSC** £16.00 ● Wearsaver (ZX81) Ref **WSZX** £15.80

WEAR SAVERS

● Cuts out wear and tear on plugs and sockets ● Switching for SAVE/LOAD and 9 volts ON/OFF. ● Simply plugs in
Spectrum Ref **WSS** £9.95
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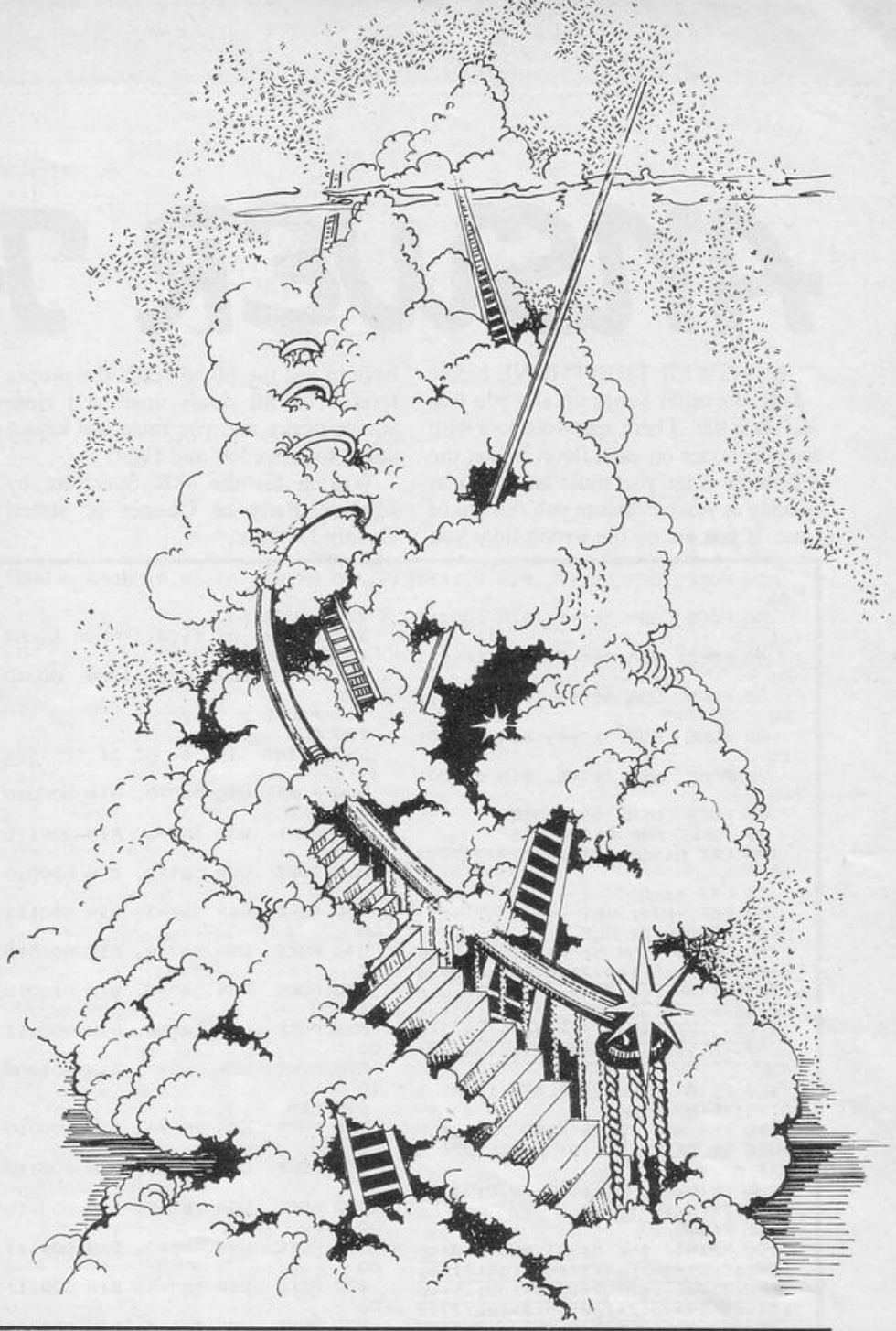
KELWOOD COMPUTING Downs Row, Moorgate, Rotherham *PERSONAL CALLERS WELCOME* WE ALSO STOCK SOFTWARE!

ARMIDA is based on the ancient Chinese game. Four poles and a number of rungs are drawn. One, two or four people can play and each chooses one or two poles depending on the number of players. The players then take turns to place rungs on the poles, forming a ladder effect, until 10 rungs have been placed.

The computer then draws a path from the star at the bottom to one of the letters at the top by going along any rung until it reaches the end. The letter at which it finishes is the winner.

Armida was written for the 16K ZX-81 by Timothy England, of Worksop, Notts.

ARMIDA



```
   1 GOSUB 8000
   2 DIM X$(7)
   3 LET X$="A B C D"
   4 RAND
  10 DIM A$(20,7)
  20 FOR A=1 TO 20
  30 LET A$(A)="■ ■ ■ ■"
  40 NEXT A
  50 GOSUB 8999
  60 PRINT X$
  70 FOR F=1 TO 20
  80 PRINT A$(F)
  90 NEXT F
 100 PRINT AT 21,4;"*"
 102 PRINT AT 0,15;B$
 103 PRINT AT 2,15;C$
 104 PRINT AT 4,15;D$
 105 PRINT AT 6,15;E$
 106 PRINT AT 8,15;F$
 107 PRINT AT 10,15;G$
 108 PRINT AT 12,15;H$
 112 FOR G=1 TO 7
 113 PRINT AT (G*2)-2,12;G;")"
 114 NEXT G
 115 PRINT AT 14,10;"INPUT APPRO
PRIATE RUNG"
 116 PRINT AT 15,10;"ARRANGEMENT
"
 118 FOR G=2 TO 20 STEP 2
 119 INPUT I
 120 IF I=1 THEN LET A$(G)=B$
 125 IF I=1 THEN PRINT AT G,0;B$
 130 IF I=2 THEN LET A$(G)=C$
 135 IF I=2 THEN PRINT AT G,0;C$
 140 IF I=3 THEN LET A$(G)=D$
 145 IF I=3 THEN PRINT AT G,0;D$
 150 IF I=4 THEN LET A$(G)=E$
 155 IF I=4 THEN PRINT AT G,0;E$
 160 IF I=5 THEN LET A$(G)=F$
 165 IF I=5 THEN PRINT AT G,0;F$
 170 IF I=6 THEN LET A$(G)=G$
 175 IF I=6 THEN PRINT AT G,0;G$
 180 IF I=7 THEN LET A$(G)=H$
 185 IF I=7 THEN PRINT AT G,0;H$
 190 NEXT G
 200 CLS
 210 PRINT X$
 220 FOR K=1 TO 20
 230 PRINT A$(K)
 240 NEXT K
 245 PRINT AT 21,4;"*"
 250 PRINT AT 10,10;"WAIT AND I
WILL TELL"
 260 PRINT AT 11,10;"YOU WHO WON
"
1299 LET Z$="C"
1300 FOR Y=20 TO 1 STEP -1
1301 IF Z$="A" THEN PRINT AT Y,0
;"■"
1302 IF Z$="B" THEN PRINT AT Y,2
;"■"
1303 IF Z$="C" THEN PRINT AT Y,4
;"■"
1304 IF Z$="D" THEN PRINT AT Y,6
;"■"
1320 IF Z$="A" THEN GOSUB 3000
1330 IF Z$="B" THEN GOSUB 3250
1340 IF Z$="C" THEN GOSUB 3500
1350 IF Z$="D" THEN GOSUB 3750
1360 NEXT Y
2000 FOR A=0 TO 21
2010 PRINT AT A,8;"
                  "
2020 NEXT A
2100 PRINT AT 11,11;Z$;" WON."
2200 FOR D=1 TO 100
2210 NEXT D
2500 CLS
2510 PRINT "WOULD YOU LIKE ANOTH
ER GAME?"
2550 LET M$=INKEY$
2560 IF M$="Y" THEN RUN
2570 IF M$="N" THEN STOP
2580 GOTO 2550
3000 REM A
3005 IF Y<1 THEN GOTO 2200
3010 IF A$(Y)=E$ THEN LET Z$="B"
3020 IF A$(Y)=G$ THEN LET Z$="C"
3030 IF A$(Y)=H$ THEN LET Z$="D"
3040 IF A$(Y)=F$ THEN LET Z$="B"
3045 NEXT Y
3050 RETURN
3250 REM B
3255 IF Y<1 THEN GOTO 2200
3260 IF A$(Y)=E$ THEN LET Z$="A"
3270 IF A$(Y)=C$ THEN LET Z$="C"
3280 IF A$(Y)=D$ THEN LET Z$="D"
3290 IF A$(Y)=F$ THEN LET Z$="A"
3295 NEXT Y
3300 RETURN
3500 REM C
3505 IF Y<1 THEN GOTO 2200
3510 IF A$(Y)=G$ THEN LET Z$="A"
3520 IF A$(Y)=C$ THEN LET Z$="B"
3530 IF A$(Y)=B$ THEN LET Z$="D"
3540 IF A$(Y)=F$ THEN LET Z$="D"
3545 NEXT Y
3550 RETURN
3750 REM D
3755 IF Y<1 THEN GOTO 2200
3760 IF A$(Y)=H$ THEN LET Z$="A"
3770 IF A$(Y)=D$ THEN LET Z$="B"
3780 IF A$(Y)=B$ THEN LET Z$="C"
3790 IF A$(Y)=F$ THEN LET Z$="C"
3795 NEXT Y
3800 RETURN
8000 CLS
8001 PRINT AT 2,13;"ARMIDA"
8010 PRINT AT 4,0;"THIS PROGRAM
IS BASED ON THE    ANCIENT CHINE
SE GAME. IN THIS    GAME, THERE A
RE 4 ""POLES"" AND A NUMBER OF "
"RUNGS"". THESE ARE    PLACED RA
NDOMLY ON THE POLES."
8011 PRINT AT 11,0;"YOU TAKE IT
IN TURNS TO INPUT    THE ARRANGEM
ENT OF RUNGS TO      PLACE ACROSS
 THE POLES.WHEN YOU  REACH THE BO
TTOM,THE COMPUTER    WILL SHOW YO
U A PATH LEADING     FROM THE STA
R,UP THE POLES,AND   ALONG ANY RU
NG IT COMES TO THE   END OF.THE L
ETTER,AT THE TOP,    WHICH IT REA
CHES IS THE WINNER."
8090 PRINT AT 21,0;"PRESS ANY KE
Y TO CONTINUE."
8100 IF INKEY$="" THEN GOTO 8100
8110 CLS
8120 PRINT AT 2,13;"ARMIDA"
8130 PRINT AT 4,0;"THE GAME CAN
BE PLAYED BY 1,2 OR4 PLAYERS. IF
 THERE IS ONE       PLAYER,THEN C
HOOSE THE POLE,     WHICH YOU THI
NK WILL WIN.          IF THERE AR
E 2 PLAYERS,THEN    ONE TAKES POL
ES A AND B AND THE  OTHER,C AND D
.WHO THE WINNER IS,DEPENDS ON WH
ICHEVER LETTER IT   FINISHES ON."
8140 PRINT AT 13,0;"   IF THERE A
RE 4 PLAYERS,ONE     PLAYER TAKES
 EACH POLE.THE       WINNER IS TH
E PLAYER WHOSE       LETTER IT FI
NISHES ON."
8200 PRINT AT 21,0;"PRESS ANY KE
Y TO START."
8250 IF INKEY$="" THEN GOTO 8250
8300 CLS
8500 RETURN
8999 DIM B$(7)
9000 DIM C$(7)
9001 DIM D$(7)
9002 DIM E$(7)
9003 DIM F$(7)
9004 DIM G$(7)
9005 DIM H$(7)
9006 LET B$="
9007 LET C$="
9008 LET D$="
9009 LET E$="
9010 LET F$="
9100 LET G$="
9200 LET H$="
9997 RETURN
9998 SAVE "ARMIDA"
9999 RUN
```

ANSWER THE 'PH

ANSWER THE 'PHONE before the caller hangs up and you lose a life. There are two floors with six telephones on each floor. When the telephone rings you must answer it as quickly as you can before you run out of time. If you are on the wrong floor you have to use the lift to reach the proper level. The lift doors open and close automatically and you must use keys 5 and 8 to move left and right.

Written for the 48K Spectrum by Michael Batty of Chester le Street, County Durham.

```
  20 POKE  USR "t"+0, BIN 011111
10
  30 POKE  USR "t"+1, BIN 100110
01
  40 POKE  USR "t"+2, BIN 101111
01
  50 POKE  USR "t"+3, BIN 001111
00
  60 POKE  USR "t"+4, BIN 011001
10
  70 POKE  USR "t"+5, BIN 011001
10
  80 POKE  USR "t"+6,255
  90 POKE  USR "t"+7,255
 100 LET hs=0: LET a$="??????????
?"
 110 LET sc=0
 130 LET x=20: LET y=1
 140 BORDER 0: CLS
 150 PRINT  INK 5; AT 12,12;"(sp
:6*ig8:25*sp:ig8:2*sp:2*ig8:2*sp
:ig8:24*sp:ig8:2*sp:2*ig8:2*sp:i
g8:26*sp:4*ig8:28*sp:4*ig8:27*sp
:2ig8:2*sp:2*ig8:26*sp:2*ig8:2*s
p:2*ig8:25*sp:8*ig8:24*sp:8*ig8)
"
 160 PRINT  INK 2; FLASH 1; AT 1
0,12;"RING RING"
 170 FOR n=0 TO 2: BEEP .5,10: P
AUSE 5: BEEP .55,10: PAUSE 27: N
EXT n
 180 PRINT  INK 1; AT 10,0;"(15*
ig8:17*sp:15*ig8)"
 185 PAUSE 23
 190 PRINT  INK 5; AT 0,0;"(3*sp
:2*ig8:29*sp:ig8:31*sp:ig8:31*sp
:ig8:31*sp:ig8:29*sp:3*ig8:29*sp
:3*ig8:29*sp:2*ig8:sp:2*ig8:27*s
p:2*ig8:30*sp:2*ig8:30*sp:2*ig8:
30*sp:2*ig8:28*sp)"
 200 PRINT  INK 5; AT 12,12;"(35
*sp:2*ig8:30*sp:2*ig8:8*sp)"
 210 PAUSE 5
 580 BEEP .1,13
 590 PRINT  AT 6,6;"Press a key
to continue"
 600 BEEP .3,5
 610 IF  INKEY$ ="c" THEN  GO TO
 630
 620 PAUSE 0
 630 CLS
 635 BORDER 1
 640 PRINT  AT 1,0;"PRESS ""5""
TO GO LEFT"
 650 PRINT  AT 3,0;"PRESS ""8""
TO GO RIGHT"
 660 PRINT  AT 5,0;"------------
--------------------"
 670 PRINT  AT 7,0;"PRESS ""1""
TO OPEN LIFT DOOR"
 680 PRINT  AT 9,0;"FOR EACH CAL
L YOU ANSWER YOU GET"
 690 PRINT  AT 11,0;"5 POINTS"

 700 PRINT  AT 13,0;"THE GAME IS
 OVER WHEN YOU LOSE"
 710 PRINT  AT 15,0;"THREE LIVES
"
 720 PRINT  AT 17,0;"THE GAME GE
TS HARDER AS IT "
 730 PRINT  AT 19,0;"GOES ALONG"

 735 PAUSE 50
 740 PRINT  AT 21,0;"PRESS A KEY
 TO CONTINUE"
 750 IF  INKEY$ ="c" THEN  GO TO
 770
 760 PAUSE 0
 770 CLS
 780 PRINT  INK 6; AT 21,0;"(32*
g3)"
 800 POKE  USR "a"+0, BIN 000010
00
 810 POKE  USR "a"+1, BIN 000110
00
 820 POKE  USR "a"+2, BIN 000010
00
 830 POKE  USR "a"+3, BIN 000111
00
 840 POKE  USR "a"+4, BIN 001010
10
 850 POKE  USR "a"+5, BIN 010010
01
 860 POKE  USR "a"+6, BIN 000111
00
 870 POKE  USR "a"+7, BIN 001000
10
 875 REM
 880 POKE  USR "b"+0, BIN 000010
00
 890 POKE  USR "b"+1, BIN 000110
00
 900 POKE  USR "b"+2, BIN 000010
00
 910 POKE  USR "b"+3, BIN 000111
00
 920 POKE  USR "b"+4, BIN 000111
00
 930 POKE  USR "b"+5, BIN 000010
00
 940 POKE  USR "b"+6, BIN 000101
00
 950 POKE  USR "b"+7, BIN 000101
00
 960 REM
 970 POKE  USR "c"+0, BIN 000100
00
 980 POKE  USR "c"+1, BIN 000110
00
 990 POKE  USR "c"+2, BIN 000100
00
1000 POKE  USR "c"+3, BIN 001110
00
1010 POKE  USR "c"+4, BIN 010101
00
1020 POKE  USR "c"+5, BIN 100100
10
1030 POKE  USR "c"+6, BIN 001110
00
1040 POKE  USR "c"+7, BIN 010001
00
1050 REM
1060 POKE  USR "d"+0, BIN 000100
00
1070 POKE  USR "d"+1, BIN 000110
00
1080 POKE  USR "d"+2, BIN 000100
00
1090 POKE  USR "d"+3, BIN 001110
00
1100 POKE  USR "d"+4, BIN 001110
00
1110 POKE  USR "d"+5, BIN 000100
00
1120 POKE  USR "d"+6, BIN 001010
00
1130 POKE  USR "d"+7, BIN 001010
00
1131 LET l=3
1140 PRINT  AT 0,0;"SCORE-";sc;"
 HI-";hs;" LIVES-";l
1150 PRINT  INK 6; AT 12,0;"(24*
g3)"
1160 PRINT  INK 5; AT 10,0;"T
T   T   T   T   T   "
1170 PRINT  INK 6; OVER 1; AT 10
,25;"(7*ig8:26*sp:ig5:4*sp:g5:26
*sp:ig5:4*sp:g5:26*sp:ig5:4*sp:g
5:26*sp:ig5:4*sp:g5:26*sp:ig5:4*
sp:g5:26*sp:ig5:4*sp:g5:26*sp:ig
5:4*sp:g5:26*sp:ig5:4*sp:g5:26*s
p:ig5:4*sp:g5:26*sp:ig5:4*sp:g5:
24*sp)"
1180 PRINT  INK 6; AT 12,24; OVE
R 1;"(ig8:31*sp:ig8:31*sp:ig8:31
*sp:ig8:31*sp:ig8:31*sp:ig8:31*s
p:ig8:31*sp:ig8:sp)"
1190 POKE  USR "e",255
1195 PRINT  INK 5; AT 19,0;"T
```






```
T  T  T  T  T"
1200 POKE  USR "e"+1,129
1210 POKE  USR "e"+2,1
1220 POKE  USR "e"+3,1
1230 POKE  USR "e"+4,1
1240 POKE  USR "e"+5,1
1250 POKE  USR "e"+6,129
1260 POKE  USR "e"+7,255
1270 POKE  USR "f",255: POKE  US
R "f"+7,255
1280 FOR n=1 TO 6
1290 POKE  USR "f"+n,129
1300 NEXT n
1301 LET q=20: LET z=25
1310 PRINT  AT q,z;"F"
1320 LET w=30
1335 PRINT  AT x,y;"A"
1350 LET p= INT ( RND *12)+1
1352 IF p=1 THEN  LET g=9: LET h
=0
1353 GO SUB 2000
1354 IF p=2 THEN  LET g=9: LET h
=4
1355 GO SUB 2000
1356 IF p=3 THEN  LET g=9: LET h
=8
1357 IF p=4 THEN  LET g=9: LET h
=12
1358 GO SUB 2000
1359 IF p=5 THEN  LET g=9: LET h
=16
1360 GO SUB 2000
1361 IF p=6 THEN  LET g=9: LET h
=20
1362 GO SUB 2000
1363 IF p=7 THEN  LET g=18: LET
h=0
1364 GO SUB 2000
1365 IF p=8 THEN  LET g=18: LET
h=4
1366 GO SUB 2000
1367 IF p=9 THEN  LET g=18: LET
h=8
1368 GO SUB 2000
1369 IF p=10 THEN  LET g=18: LET
 h=12
1370 GO SUB 2000
1371 IF p=11 THEN  LET g=18: LET
 h=16
1372 GO SUB 2000
1373 IF p=12 THEN  LET g=18: LET
 h=20
1374 GO SUB 2000
1380 PRINT  AT g,h; INK 2; FLASH
 1;"!": LET w=w-1
1400 GO SUB 2000
1405 IF w=0 THEN  LET l=l-1: BEE
P .5,0: GO SUB 7000
1410 IF l=0 THEN  GO TO 9000
1420 GO TO 1380
2000 IF  INKEY$ ="5" THEN  GO SU
B 3000
2010 IF  INKEY$ ="8" THEN  GO SU
B 4000
2020 IF  INKEY$ ="1" THEN  GO SU
B 5000
2030 RETURN
3000 LET y=y-1
3001 IF y=-1 THEN  LET y=0
3002 PRINT  AT x,y;"A"; AT x,y;"
B"
3003 PRINT  AT x,y+1;" ": IF x-2
=g AND y=h THEN  LET sc=sc+5: PR
INT  AT x,y;" ": BEEP .1,20: GO
SUB 7000
3004 PRINT  AT x,y+1;" "
3005 RETURN
4000 LET y=y+1
4001 IF y=25 THEN  PRINT  AT x,y
;" ": GO SUB 6000
4002 PRINT  AT x,y;"C"; AT x,y;"
D"
4003 IF x-2=g AND y=h THEN  PRIN
T  AT x,y-1;" ": LET sc=sc+5: BE
EP .1,20: GO SUB 7000
4005 PRINT  AT x,y-1;" "
4006 RETURN
5000 PRINT  AT q,z;"E"
5001 RETURN
6000 REM
6001 IF x=20 THEN  PRINT  AT 20,
24;" ": FOR n=20 TO 11 STEP -1:
PRINT  AT n,25;"B": PRINT  OVER
1; AT n,25;"E": PAUSE 5: PRINT
AT n,25;" ": NEXT n: LET x=11: P
RINT  AT 11,25;"E": PRINT  AT 11
,24;"A": LET y=24: GO TO 6003
6002 IF x=11 THEN  PRINT  AT 11,
24;" ": FOR n=11 TO 20: PRINT  A
T n,25;"E": PRINT  OVER 1; AT n,
25;"B": PAUSE 5: PRINT  AT n,25;
" ": NEXT n: LET x=20: PRINT  AT
 20,25;"E": PRINT  AT 20,24;"A":
 LET y=24
6003 LET y=24
6004 RETURN
7000 PRINT  AT 0,0;"SCORE-";sc;"
 HI-";hs;" LIVES-";l
7001 LET w=120
7002 IF sc>100 THEN  LET w=w-10

7003 IF sc>200 THEN  LET w=w-10

7004 IF sc>300 THEN  LET w=w-10

7005 IF sc>400 THEN  LET w=w-10

7006 IF sc>500 THEN  LET w=w-10

7007 IF sc>1000 THEN  LET w=w-15

7008 IF sc>2000 THEN  LET w=w-10

7009 IF sc>3000 THEN  LET w=w-10

7010 IF sc>10000 THEN  LET w=w-2
0
7050 PRINT  AT g,h;" "
7100 GO TO 1320
9000 FOR n=30 TO -20 STEP -2.5
9001 BEEP .1,n: NEXT n
9002 CLS
9003 IF sc>hs THEN  PRINT "You H
ave The High score": BEEP .5,32:
 LET hs=sc: INPUT "NAME";a$
9004 CLS : PRINT "THE HIGH SCORE
-";hs: PRINT : PRINT "THE HIGH S
CORER - ";a$: PRINT : PRINT "YOU
R SCORE WAS ";sc
9005 PRINT "PRESS A KEY FOR ANOT
HER GAME"
9006 IF  INKEY$ ="c" THEN  GO TO
 9999
9007 PAUSE 0
9999 LET sc=0: LET w=120: GO TO
770
```

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EMS



MUTANT ARACHNID

CLEAR the maze of the spiders' eggs. You will be pursued by a mutant arachnid determined to protect the eggs. There are eight mazes to complete and each is more difficult than the previous one.

Mutant Arachnid was written for the 16K Spectrum by Kristian Derry, aged 15, of Ilford, Essex.

```
  10 BORDER 3: PAPER 3: INK 1: C
LS : GO SUB 9000
  20 LET st=1: LET lv=3
  30 LET a$=".........": GO SUB
 st*100+1900
  35 RESTORE 8900: FOR n=1 TO st
: READ lm: NEXT n
  40 LET y=19: LET x=15: LET a=2
: LET b=15
  50 LET g$= SCREEN$ (a,b)
  60 PRINT  AT a,b;"B"
  70 LET a$= INKEY$
  75 PRINT  AT y,x;" "
  80 LET x=x+(a$="8" AND  ATTR (
y,x+1)=41)-(a$="5" AND  ATTR (y,
x-1)=41)
  85 LET y=y+(a$="6" AND  ATTR (
y+1,x)=41)-(a$="7" AND  ATTR (y-
1,x)=41)
  90 IF  SCREEN$ (y,x)="." THEN
 LET lm=lm-1: BEEP .01,0
  91 IF y=a AND x=b THEN  GO TO
300
  94 PRINT  AT y,x;"A"
  96 IF lm=0 THEN  GO TO 700
  97 PRINT  AT a,b;g$
  98 IF  RND >.6 THEN  GO TO 50

  99 LET aa=a
 100 LET a=a+(a<y AND  ATTR (a+1
,b)=41)-(a>y AND  ATTR (a-1,b)=4
1)
 101 IF a <> aa THEN  GO TO 105

 103 LET b=b+(b<x AND  ATTR (a,b
+1)=41)-(b>x AND  ATTR (a,b-1)=4
1)
 105 IF y=a AND x=b THEN  GO TO
300
 110 GO TO 50
 300 BEEP .2,-2: BEEP .3,-10: BE
EP .4,-18
 304 LET lv=lv-1
 305 PAPER 3: CLS : IF lv=0 THEN
  PRINT  AT 10,10; FLASH 1;"Game
 Over": GO TU 1030
 306 PRINT  AT 10,10;"Lives:";lv
: PAUSE 0: CLS : GO TO 30
 700 DATA 10,6,1,-6
 710 DATA 8,5,1,-6
 720 DATA 6,3,-1,-6
 730 DATA 8,5,1,-6
 735 FOR j=1 TO 2: RESTORE 700

 740 FOR m=1 TO 4: FOR n=1 TO 4:
 READ a: BEEP .1,a: NEXT n: NEXT
 m
 750 NEXT j
 755 IF st=8 THEN  GO TO 1000
 756 LET st=st+1
 760 PAPER 3: CLS : PRINT  AT 10
,10; FLASH 1;"Well Done"; AT 12,
10;"Sheet No.";st; AT 14,10;"Liv
es:";lv
 770 PAUSE 0
 780 CLS : GO TO 30
1000 DATA 4,-5,0,4,2,-5,-1,2,0,-
8,-3,0,-1,-8,-5,-1,-3,-12,-7,-3,
-5,-12,-8,-5,-3,-12,-7,-3,-1,-10
,-5,-1
1010 PAPER 3: CLS : PRINT  AT 10
,10; FLASH 1;"Well Done!"
1020 FOR n=1 TO 32: READ a: BEEP
 .4,a: NEXT n
1030 PAUSE 0: RUN
2000 PAPER 5: PRINT  AT 2,10;a$;
 AT 7,10;a$; AT 14,10;a$; AT 19,
10;a$: FOR n=2 TO 7: PRINT  AT n
,10;"."; AT n,20;"."; AT 12+n,10
;"."; AT 12+n,20;"."; AT 6+n,15;
".": NEXT n: RETURN
2100 PAPER 5: PRINT  AT 2,5;a$;
AT 7,5;a$; AT 14,5;a$; AT 19,5;a
$; AT 7,15;a$; AT 14,15;a$: FOR
n=2 TO 7: PRINT  AT 0+n,5;"."; A
T 12+n,5;"."; AT 0+n,15;"."; AT
12+n,15;"."; AT 6+n,15;"."; AT 6
+n,24;".": NEXT n
2101 RETURN
2200 PAPER 5: FOR n=2 TO 5: PRIN
T  AT n,15;"."; AT n,10;"."; AT
n+3,20;"."; AT n+10,20;"."; AT n
+7,10;"."; AT n+14,10;"."; AT n+
3,15;"."; AT n+7,15;"."; AT n+11
,15;"."; AT n+14,15;".": NEXT n

2201 PRINT  AT 2,10;a$( TO 5); A
T 5,10;a$; AT 9,10;a$;"."; AT 12
,10;a$; AT 16,10;a$;"."; AT 19,1
0;a$( TO 5)
2202 RETURN
2300 PAPER 5: PRINT  AT 2,8;a$;
AT 12,8;a$; AT 19,15;a$; AT 10,1
5;a$: FOR n=3 TO 11: PRINT  AT n
,8;"."; AT n,17;"."; AT n+8,15;"
."; AT n+8,24;"."; AT n-1,20;"."
; AT n+8,12;("." AND n>3): NEXT
n
2301 RETURN
2400 PAPER 5: PRINT  AT 2,10;a$;
 AT 7,10;a$; AT 14,10;a$; AT 19,
10;a$; AT 5,4;a$; AT 16,4;a$; AT
 5,17;a$; AT 16,17;a$: FOR n=2 T
O 7: PRINT  AT n,10;"."; AT n,20
;"."; AT 12+n,10;"."; AT 12+n,20
;".": NEXT n
2401 FOR n=6 TO 15: PRINT  AT n,
4;"."; AT n,13;"."; AT n,17;".";
 AT n,26;".": NEXT n: RETURN
2500 LET a$=a$( TO 5): PAPER 5:
PRINT  AT 2,13;a$; AT 6,13;a$: P
RINT  AT 19,13;a$; AT 15,13;a$;
AT 9,4;a$; AT 13,4;a$; AT 9,22;a
$; AT 13,22;a$
2501 FOR n=3 TO 5: PRINT  AT n,1
3;"."; AT n,17;"."; AT 13+n,13;"
."; AT 13+n,17;"."; AT 7+n,4;"."
; AT 7+n,8;"."; AT 7+n,22;"."; A
T 7+n,26;".": NEXT n: PRINT  AT
11,8;a$;a$;a$: FOR n=7 TO 14: PR
INT  AT n,15;".": NEXT n
2502 RETURN
2600 PAPER 5: FOR n=5 TO 16: PRI
NT  AT n,13;"."; AT n,17;".": NE
XT n: PRINT  AT 10,4;a$; AT 10,1
7;a$; AT 5,13;a$( TO 5); AT 16,1
3;a$( TO 5): FOR n=2 TO 5: PRINT
  AT n,15;"."; AT 14+n,15;".": N
EXT n
2601 RETURN
2700 PAPER 5: PRINT  AT 6,10;a$;
 AT 14,10;a$; AT 10,7;a$; AT 10,
10;a$; AT 10,14;a$: FOR n=1 TO 1
9: PRINT  AT n,15;".": NEXT n: F
OR n=6 TO 14: PRINT  AT n,10;"."
; AT n,20;".": NEXT n
2701 RETURN
8900 DATA 65,89,79,86,131,83,53,
66
9000 DATA 56,56,16,124,16,40,68,
0
9005 DATA 73,42,28,127,28,42,73,
0
9010 RESTORE 9000: FOR n= USR "a
" TO  USR "b"+7: READ a: POKE n,
a: NEXT n: RETURN
```



TENNIS ANIMATION

BEGINNER

AS THE NAME suggests, this is an animation program which depicts two figures playing tennis. Although the perspective of the court is slightly wobbly the idea is interesting and it is a good example of animation.

Tennis Animation was written for the 16K Spectrum by Calvin Reid of Kirkwall, Orkney.

```
 10 GO SUB 9000: LET h1=57: LET
hr=70: LET sl=12: LET sr=8
 15 LET v=0: LET t=0: LET a=13:
LET b=4: LET c=11: LET d=24
 20 LET g=110: FOR f=103 TO 53
STEP -5: PLOT g,f: DRAW 0,-15: L
ET g=g+2: NEXT f
 30 FOR f=0 TO 15 STEP 5: PLOT
110,103-f: DRAW 20,-50: NEXT f

 40 PLOT 12,88: DRAW 190,0: DRA
W 24,-50: DRAW -190,0: DRAW -24,
50
 41 PLOT 22,67: DRAW 70,0: DRAW
-10,20: DRAW 24,-49
 42 PLOT 212,67: DRAW -70,0: DR
AW -10,20: DRAW 24,-49
 44 PRINT AT a,b;"A"; AT a+1,b
;"B"
 45 PRINT AT c,d;"C"; AT c+1,d
;"D": PAUSE 5
 47 PRINT AT a,b;"E"; AT a+1,b
;"F"
 48 PAUSE 5: BEEP .01,0: PRINT
AT a,b;"A"; AT a+1,b;"B"
 50 FOR n=36 TO 190 STEP sl: PL
OT n,50+h1* SIN (n/235* PI )
 52 PLOT OVER 1;n,50+h1* SIN (
n/235* PI )
 55 IF n>170 THEN PRINT AT c,
d;"G"; AT c+1,d;"H"
 56 IF t=1 THEN GO TO 58
 57 IF h1<65 AND n>160 AND t=0
THEN LET d=d-1: PRINT AT c,d;"
C "; AT c+1,d;"D ": LET t=1
 58 IF t=0 THEN GO TO 60
 59 IF h1>72 AND n>160 AND t=1
THEN LET d=d+1: PRINT AT c,d-1
;" C"; AT c+1,d-1;" D": LET t=0

 60 NEXT n
 62 PAUSE 5: PRINT AT c,d;"C";
AT c+1,d;"D": BEEP .01,0
 65 LET h1= RND *26+57: LET sl=
RND *16+4
 70 FOR n=190 TO 44 STEP -sr: P
LOT n,40+hr* SIN (n/255* PI )
 72 PLOT OVER 1;n,40+hr* SIN (
n/255* PI )
 74 IF n<64 THEN PRINT AT a,b
;"E"; AT a+1,b;"F"
 76 IF v=1 THEN GO TO 78
 77 IF hr<73 AND n<60 AND v=0 T
HEN LET b=b+1: PRINT AT a,b-1;
" A"; AT a+1,b-1;" B": LET v=1

 78 IF v=0 THEN GO TO 80
 79 IF hr>85 AND n<60 AND v=1 T
HEN LET b=b-1: PRINT AT a,b;"A
"; AT a+1,b;"B ": LET v=0
 80 NEXT n
 82 PAUSE 5: PRINT AT a,b;"A";
AT a+1,b;"B": BEEP .01,0
 83 PLOT 22,67: DRAW 70,0
 85 LET hr= RND *30+65: LET sr=
RND *16+4
 87 PLOT 12,88: DRAW 190,0
 90 GO TO 50
9000 FOR f=1 TO 8: FOR g=0 TO 7:
 READ a: POKE USR CHR$ (143+f)
+g,a: NEXT g: NEXT f: RETURN
9010 DATA 0,0,24,24,255,56,92,92
,92,154,153,148,212,210,18,27
9020 DATA 0,0,24,24,8,28,58,58,5
8,89,153,41,43,75,72,216
9030 DATA 3,3,25,25,255,62,92,92
,92,152,152,148,20,18,18,27
9040 DATA 192,192,152,152,72,60,
58,58,58,25,25,40,40,72,72,216
```

MANIC AXE was written for the issue one or two 16K Spectrum by Carl Thompson, aged 13, of Hessle, N Humberside. Avoid the axe which homes-in on you and try to survive for as long as possible. The keys to use are Q and A for up and down and O and P to move left and right. You can also move diagonally because the program uses the 'IN' function.

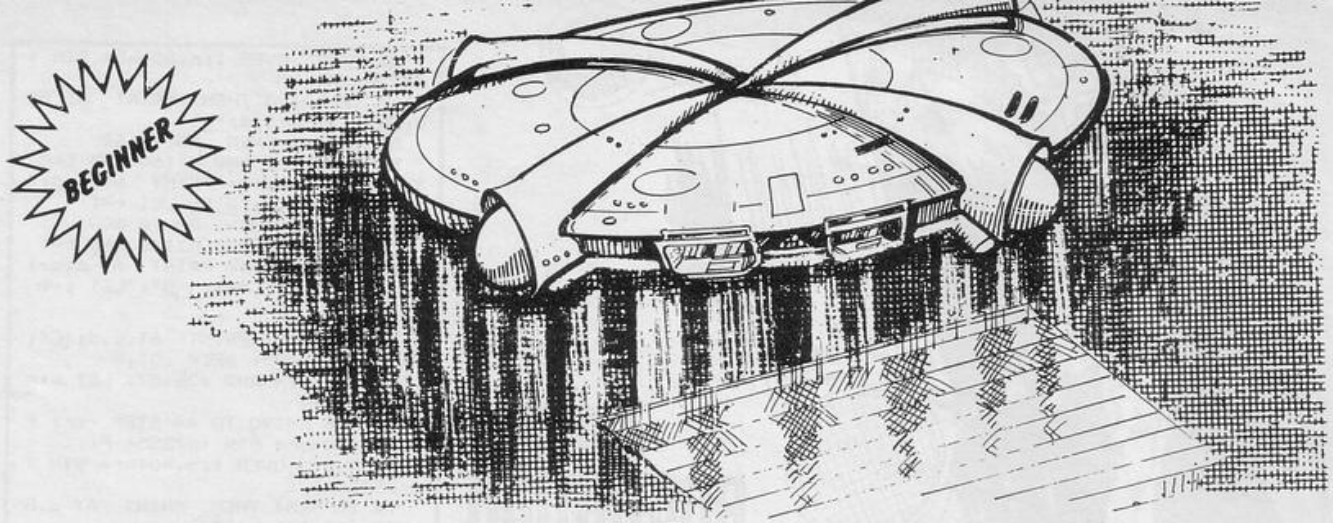


MANIC AXE

BEGINNER

```
 10 REM MANIC AXE
 20 FOR n= USR "a" TO USR "c"+
7: READ a: POKE n,a: NEXT n
 30 DATA 171,106,255,90,255,102
,90,126,1,1,3,7,12,24,48,96,192,
224,240,240,224,192,0,0
 40 BORDER 0: PAPER 0: INK 7: B
RIGHT 1: CLS
 43 PRINT FLASH 1; AT 10,10;"M
ANIAC AXE!": PAUSE 100: CLS : PR
INT FLASH 1; AT 10,0;"AVOID THE
 AXE FOR AS LONG AS": PRINT AT
11,8; FLASH 1;"POSSIBLE": PAUSE
200: CLS
 50 LET hi=0
 60 LET sc=0: LET a=10: LET b=1
5: LET c=21: LET d=0
 70 LET a=a+2*( IN 65022=254 AN
D a<20)-2*( IN 64510=254 AND a>0
)
 80 LET b=b+2*( IN 57342=254 AN
D b<31)-2*( IN 57342=253 AND b>1
)
 90 PRINT AT a,b;"A"
 100 BEEP .004,0
 105 PRINT AT 0,0;"SCORE ";sc;
AT 0,17;"HI-SCORE ";hi
 110 LET c=c+(a>c AND c<21)-(a<c
AND c>0)
 120 LET d=d+(b>d AND d<31)-(b<d
AND d>0)
 130 PRINT INK 6; AT c,d;"B"; I
NK 2; AT c,d+1;"C"
 140 BEEP .004,2
 150 LET sc=sc+1
 160 IF a=c AND b=d OR a=c AND b
=d+1 THEN GO TO 300
 170 PRINT AT a,b;" "; AT c,d;"
 "
 180 GO TO 70
 300 CLS : BEEP 1,-30: FOR n=0 T
O 7: BORDER n: PAUSE n+1: BEEP .
004,n: NEXT n: BORDER 0
 310 IF sc >= hi THEN PRINT "IN
PUT YOUR NAME": INPUT n$: LET hi
=sc
 320 CLS : PRINT : PRINT : PRINT
 n$;" HOLDS THE HIGH SCORE": PRI
NT "YOU SCORED ";sc;" THAT TIME"
: PRINT : PRINT "ANOTHER GO? (Y/
N)"
 330 POKE 23658,0: IF INKEY$ ="
" THEN GO TO 330
 340 IF INKEY$ ="y" THEN CLS :
GO TO 60
 350 IF INKEY$ ="n" THEN STOP

 360 GO TO 330
```



PLUTONIUM

SPACECRAFT carrying deadly plutonium waste attempt to land on a moving platform which you control. As the craft can travel in only one direction you must guide the platform so that a safe landing occurs. If the ship misses the platform it will crash and the wreckage of the spacecraft will build up. Should the wreckage reach the platform the game will end. Enter a skill level from 1-4, 1 being easy, and then you will be ready to play.

Plutonium was written for the 1K ZX-81 by S Huggins of Northampton.

```
  5 INPUT L
 10 LET H=L*VAL "3"
 30 DIM A(VAL "4")
 40 LET P=VAL "INT (RND*4)+1"
 45 PRINT AT VAL "15",H;"      "
 60 LET J=L*P
 70 FOR I=8 TO 20-A(P)
 80 LET A$=INKEY$
 90 LET H=H+(A$="8")-(A$="5")
110 PRINT AT I,J;"■";AT I+1,J;"
V";AT I-1,J;" ";AT 15,H;"▀▀▀"
120 IF I=15 AND ABS (H+2-J)<=1
THEN GOTO 40
125 NEXT I
126 PRINT AT I-1,J;"▒"
130 LET A(P)=A(P)+1
135 IF A(P)=7 THEN GOTO 150
140 GOTO 40
150 PRINT "SCORE:";VAL "40-(A(1
)+A(2)+A(3)+A(4))"
```



EQUATIONS OF MOTION is a short program which can be used by physics students to solve problems using the four equations. Choose the unknown you wish to find and then enter three known values. The computer selects the appropriate equation and the form the equation must take and gives the unknown answer. Values must be entered in SI units, i.e., velocity in M/S, acceleration in M/S², time in seconds and distance in metres.

Written for the 1K ZX-81 by T Lewis of Pembroke, Dyfed.

```
 10 DIM A(3)
 20 PRINT "1)INITIAL VELOCITY,U
"
 30 PRINT "2)FINAL VELOCITY,V"
 40 PRINT "3)DISTANCE,S"
 50 PRINT "4)TIME,T"
 60 PRINT "5)ACCELERATION,A"
 70 PRINT
 80 PRINT "WHAT DO YOU WISH TO
FIND(1-5)"
 90 INPUT L
100 IF L>5 OR L<1 THEN GOTO 100
110 CLS
120 LET X$="UVSTA"
130 LET B$="245145124312124"
140 FOR F=1 TO 3
150 PRINT "ENTER ";X$(VAL (B$((
(L-1)*3)+F)))
160 INPUT A(F)
170 NEXT F
180 IF L=VAL "1" THEN LET C=A(1
)-(A(2)*A(3))
190 IF L=VAL "2" THEN LET C=A(1
)+(A(3)*A(2))
200 IF L=VAL "3" THEN LET C=((A
(1)+A(2))/2)*A(3)
210 IF L=VAL "4" THEN LET C=A(1
)/((A(2)+A(3))/2)
220 IF L=VAL "5" THEN LET C=(A(
2)-A(1))/A(3)
230 PRINT X$(L);"=";C
```



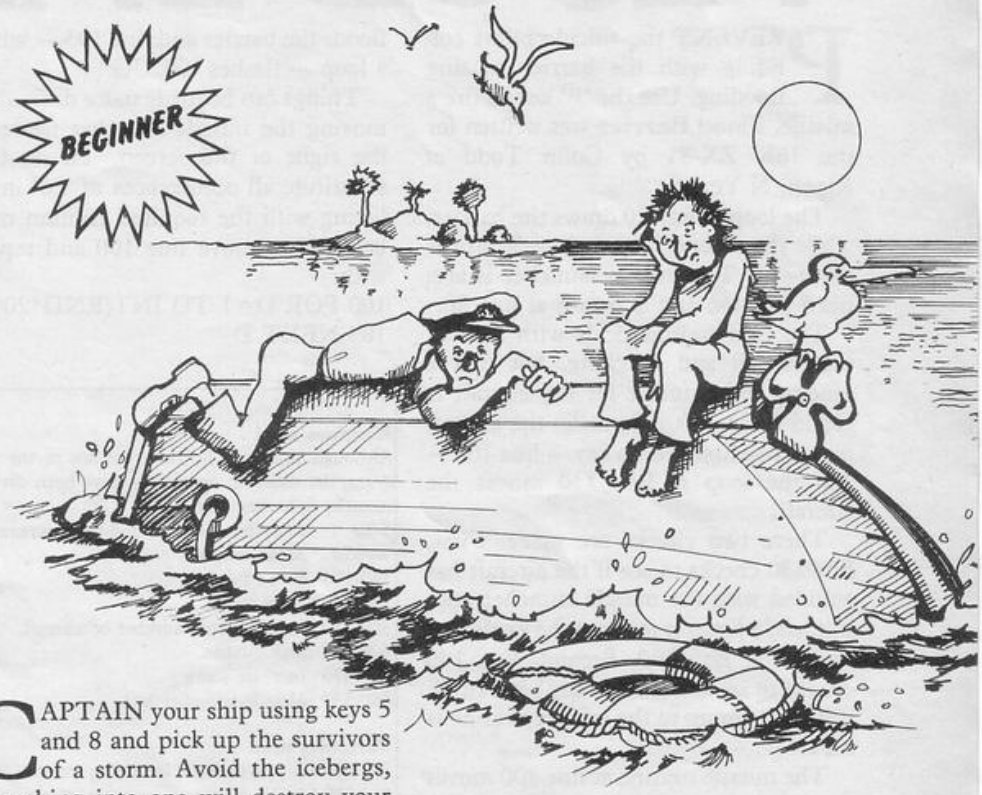
BEGINNER

FLY THROUGH one of two caverns to collect jam hidden in the tunnels. Use the cursor keys to steer through the caverns and try to maintain control of the helicopter as it is blown about. The score is recorded each time the jam is collected and, as one route is more difficult, the points are awarded accordingly.

Jam Search was written for the 16K Spectrum by M Bradford of Heywood, Lancs.

```
  1 RANDOMIZE
  2 GO SUB 9000
  3 BORDER 1
  4 CLS
  8 LET h=0
  9 LET s=0
 40 LET y=6: LET x=15
 50 GO SUB 500
 60 IF s>h THEN  LET h=s
100 PRINT  INK 1; AT y,x;"A"
110 BEEP .005,50
120 PRINT  INK 1; AT y,x;"B"
130 BEEP .005,51
140 PRINT  AT y,x;" "
170 LET b= INT ( RND *30-15)
180 IF b>10 THEN  LET x=x+1
190 IF b<-10 THEN  LET x=x-1
210 LET x=x+( INKEY$ ="8")-( IN
KEY$ ="5")
220 LET y=y+( INKEY$ ="6")-( IN
KEY$ ="7" AND y>6)
250 GO TO 350
340  PRINT  AT 5,11; INK 0; PAP
ER 2;"YOUR DEAD"; AT 7,5; PAPER
3;"PRESS ANY KEY TO PLAY": BEEP
2,.5: PAUSE 0: PAUSE 0: CLS : GO
 TO 9
350 PRINT  AT 0,2;"SCORE=";s; A
T 0,20;"HiSCORE=";h
400 IF  ATTR (y,x)=60 THEN  GO
TO 340
410 IF  ATTR (y,x)=16 THEN  LET
 s=s+50: BEEP .09,13: BEEP .09,1
4: BEEP .09,13: BEEP .05,10: BEE
P .05,10: GO TO 10
420 IF  ATTR (y,x)=24 THEN  LET
 s=s+500: BEEP .09,15: BEEP .09,
14: BEEP .09,15: BEEP .09,16: BE
EP .05,17: BEEP .05,17: BEEP .05
,17: GO TO 10
490 GO TO 100
500 FOR i=0 TO 7: PRINT ; INK 4
; AT i,0;"(ig1)"; AT i,31;"(ig2)
": NEXT i
510 PRINT  INK 4; AT 8,0;"(2*ig
8:ig1)"; AT 8,28;"(ig2:3*ig8)";
AT 9,0;"(6*ig8:ig1)"; AT 9,25;"(
ig2:7*ig8)"; AT 10,0;"(12*ig8:ig
1)"; AT 10,18;"(ig2:13*ig8)"
520 PRINT  INK 4; AT 11,0;"(13*
ig8:ig1)"; AT 11,17;"(ig2:15*ig8
)"; AT 12,0;"(13*ig8:ig4)"; AT 1
2,17;"(ig2:14*ig8)"; AT 13,0;"(1
1*ig8:ig4)"; AT 13,17;"(15*ig8)"
; AT 14,0;"(9*ig8:ig4)"; AT 14,1
7;"(10*ig8)"; AT 14,30;"(2*ig8)"
530 PRINT  INK 4; AT 15,0;"(4*i
g8)"; AT 15,12;"(ig2:ig8)"; AT 1
5,17;"(10*ig8)"; AT 15,30;"(2*ig
8)"; AT 16,0;"(4*ig8)"; AT 16,10
;"(ig2:3*ig8)"; AT 16,17;"(g7:8*
ig8:ig4)"; AT 16,30;"(2*ig8)"
540 FOR i=17 TO 20: PRINT  INK
4; AT i,0;"(14*ig8)": NEXT i: PR
INT  INK 4; AT 17,18;"(g7:6*ig8:
ig4)"; AT 17,29;"(ig2:3*ig8)"; A
T 18,14;"(ig1)"; AT 18,19;"(g7:3
*ig8:ig4)"; AT 18,28;"(ig2:3*ig8
)"; AT 19,27;"(ig2:4*ig8)"; AT 1
9,14;"(ig8:ig1)"; AT 20,14;"(2*i
g8:ig1)"; AT 20,25;"(ig2:6*ig8)"
; AT 21,0;"(32*ig8)"
550 PRINT  PAPER 6; AT 14,4;"
"; PAPER 2; AT 15,4;"JAM"; AT 1
6,4;"    "; PAPER 6; AT 13,27;"
"; PAPER 3; AT 14,27;"JAM"; AT
15,27;"    "
560 PRINT  INK 5; AT 0,10;"(ig2
:2*ig8:ig1)"; AT 1,7;"(ig2:7*ig8
:ig1)"; AT 1,24;"(ig2:ig8:ig1)";
 AT 2,7;"(9*ig8:ig1)"; AT 2,21;"
(ig2:5*ig8:ig1)"; AT 3,7;"(g7:9*
ig8)"; AT 3,21;"(7*ig8)"; AT 4,8
;"(g7:7*ig8:ig4)"; AT 4,21;"(g7:
5*ig8:ig4)"; AT 5,13;"(g7:ig4)";
 AT 5,24;"(g7:ig8:ig4)"
570 RETURN
9000 FOR i=0 TO 15
9010 READ x: POKE  USR "a"+i,x
9020 NEXT i
9030 DATA 0,255,8,156,250,57,29,
14,0,60,8,156,250,57,29,14
9040 PRINT ; INK 1; AT 0,7;"
JAM SEARCH "; AT 2,0; INK 0;"YOU
R JOB IS TO COLLECT JAM FROM THE
  JARS HIDDEN IN TWO CAVES . YOU
  SCORE POINTS FOR COLLECTING TH
E JAM AND BECAUSE ONE ROUTE  IS
   MORE DANGEROUS POINTS ARE
   AWARDED ACCORDINGLY "
9050 PRINT '';"  PRESS ANY KEY
TO PLAY": PAUSE 0
9090 RETURN
```

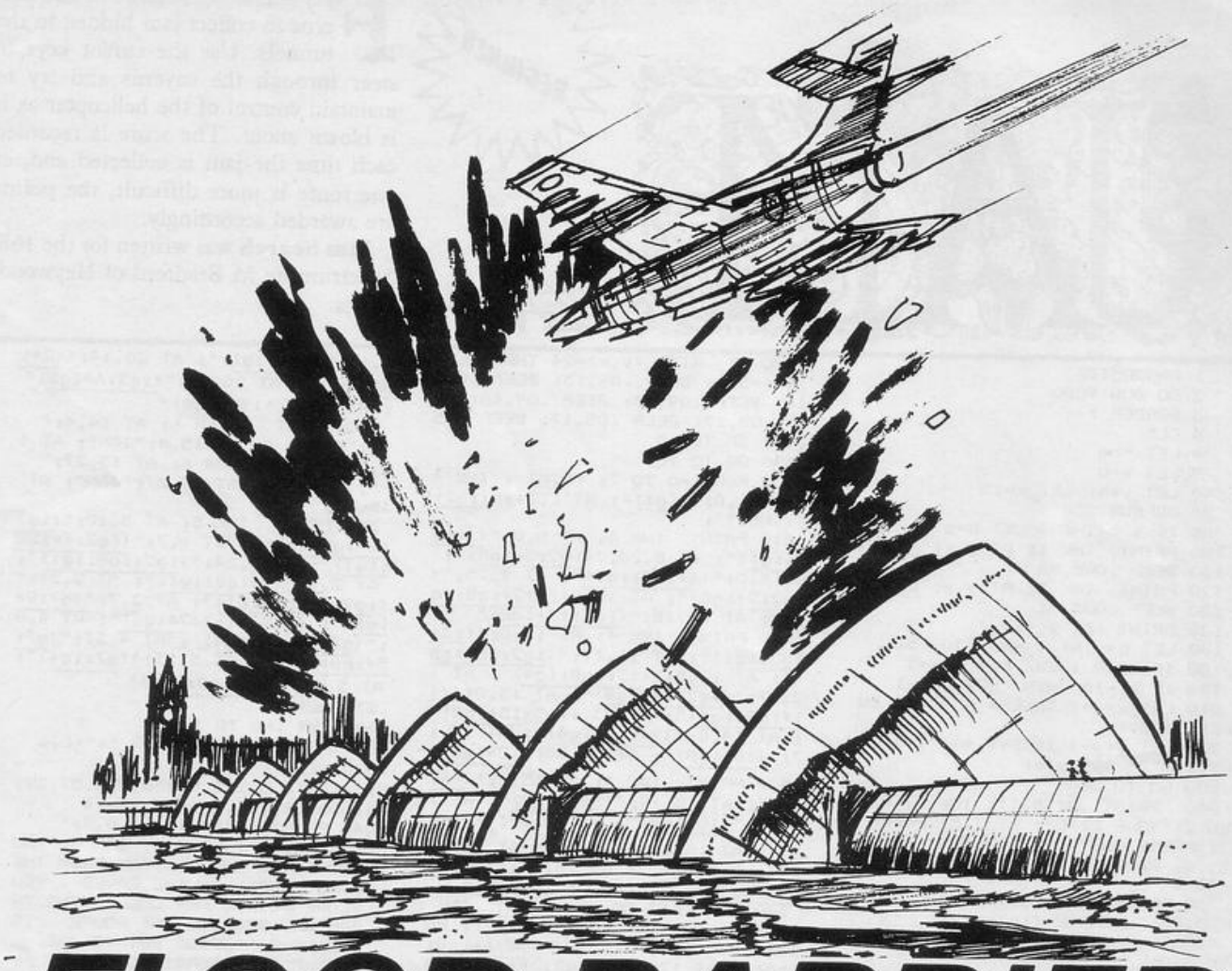
```
 10 LET hs=0: PAPER 5: BORDER 5
: INK 0: CLS
 20 FOR n= USR "a" TO  USR "c"+
7: READ a: POKE n,a: NEXT n
 30 DATA 60,126,126,66,90,90,90
,90,66,126,102,102,126,126,60,24
,184,185,146,124,56,56,0,91
 40 CLS : BEEP .05,20: BEEP .05
,30: LET s=0: LET y=16
 50 LET y=y+( INKEY$ ="8" AND y
<30)-( INKEY$ ="5" AND y>0)
 60 LET a= ATTR (1,y+1)
 70 IF a=41 THEN  LET s=s+1: BE
EP .005,20
 80 IF a=56 THEN  GO TO 110
 90 PRINT  AT 1,y+1;"B"; AT 0,y
;" A ": FOR n=1 TO 2: PRINT  AT
20, RND *30; PAPER 7;"  "; AT 21
, RND *30;"  ": NEXT n: PRINT  A
T 21, RND *31; PAPER 5; INK 1;"C
"
100 LET l= USR 3280: BEEP .005,
s/2: GO TO 50
110 PRINT  AT 0,y; FLASH 1; PAP
ER 2; INK 6;"    "; AT 1,y;"    ":
 FLASH 0: FOR n=20 TO -20 STEP -
.75: BEEP .01,n: NEXT n
120 PRINT  AT 0,0; PAPER 2; INK
 7;"YOU RESCUED ";s;" PEOPLE": I
F s>hs THEN  LET hs=s: PRINT  AT
 1,0; PAPER 1; INK 7;"A NEW HIGH
 SCORE !!!": FOR n=-20 TO 20: BE
EP .005,n: NEXT n
130 PRINT  AT 3,0; PAPER 6; INK
 0;"The current hi-score is ";hs
; AT 21,0;" PRESS ANY KEY FOR AN
OTHER GAME ": PAUSE 0: PAUSE 0:
GO TO 40
```



CAPTAIN your ship using keys 5 and 8 and pick up the survivors of a storm. Avoid the icebergs, as crashing into one will destroy your ship.

Shipwreck was written for the 16K Spectrum by G Creasey, of Ashford, Kent.

SHIPWRECK



FLOOD BARRIER

PREVENT the suicide pilots colliding with the barrier causing flooding. Use the 'F' key to fire a missile. **Flood Barrier** was written for the 16K ZX-81 by Colin Todd of Ripon, N Yorks.

The loop at line 20 draws the barrier, while the second loop at line 50 draws the water. The missile launcher is at a fixed position and is drawn at line 80.

The next routine deals with moving the aircraft and checking, but first a random line number for the aircraft is found at line 300. To make the aircraft move, you first press a key — line 100 — and the loop at line 110 moves the aircraft.

There two checks are made. First, line 130 checks to see if the aircraft has collided with the missile launcher and, if it has, a jump is made to the explosion routine at line 500. Second, line 140 checks to see if a missile has been fired; if it has, a jump to the missile routine is made.

The missile routine at line 400 moves the missile and if there is a hit — line 430 — the explosion routine at line 500 is called. Notice that the explosion routine is used from two points in the program. Last, the routine at line 160 floods the barrier and line 195 — within a loop — flashes 'GLUG'.

Things can be made more difficult by moving the missile launcher nearer to the right of the screen. To do that, substitute all occurrences of '20' in the listing with the required column number. Also remove line 100 and replace with:

```
100 FOR D=1 TO INT(RND*200)
105 NEXT D
```

Routines used

Although there are no real routines in the program, the different operations have been divided into the following sections:

5-80	Initialise variables and draw screen.
90-150	Move aircraft.
160-196	Flood barrier.
200-230	Print score.
300-310	Initialise row number of aircraft.
400-456	Fire missile.
460-470	Increase score.
500-530	Missile launcher hit.

Variables used

C	Holds row number for rising water.
N	Holds random row number along which aircraft travels.
P	Holds number of aircraft shot down.
X	Holds column position of aircraft.
Y	Used to hold row position of missile.

```
  5 LET P=0
  9 CLS
 10 FAST
 15 PRINT AT 0,8;"FLOOD BARRIER
"
 20 FOR Y=8 TO 21
 30 PRINT AT Y,12;"■"
 40 NEXT Y
 50 FOR Y=12 TO 21
 60 PRINT AT Y,0;"■■■■■■■■■■■■■■■■■■■■"
 70 NEXT Y
 80 PRINT AT 21,20;"+"
 90 SLOW
 95 GOSUB 300
100 IF INKEY$="" THEN GOTO 100
110 FOR X=31 TO 12 STEP -1
120 PRINT AT N,X;"<";AT N,X;" "
130 IF N=21 AND X=20 THEN GOTO
500
140 IF INKEY$="F" THEN GOSUB 40
0
150 NEXT X
160 LET C=21
170 FOR X=12 TO N
180 PRINT AT X,0;"                "
;AT C,13;"■■■■■■■■■■■■■■■■■■■■"
185 LET C=C-1
190 NEXT X
194 FOR X=1 TO 30
195 PRINT AT 21,20;"GLUG";AT 21
,20;"■■■■";AT 21,20;"■■■■"
196 NEXT X
200 PRINT AT 5,6;"YOU SHOT ";P;
" PLANES"
210 PRINT AT 8,6;"PRESS ANY KEY
TO CONTINUE"
220 IF INKEY$="" THEN GOTO 220
230 GOTO 5
300 LET N=INT (RND*10)+12
310 RETURN
400 PRINT AT N,X;"<"
410 FOR Y=20 TO N STEP -1
420 PRINT AT Y,20;"*";AT Y,20;'
"
430 IF Y=N AND X=20 THEN GOTO 4
50
440 NEXT Y
455 PRINT AT N,X;" "
456 RETURN
460 LET P=P+1
470 GOTO 95
500 FOR X=1 TO 30
510 PRINT AT 21,20;"■";AT 21,20
;"+";AT 21,20;" "
520 NEXT X
530 GOTO 200
```

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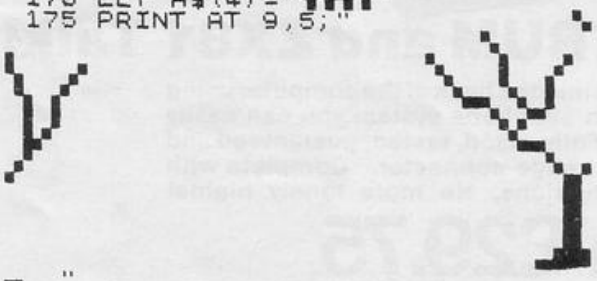
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Locust attack



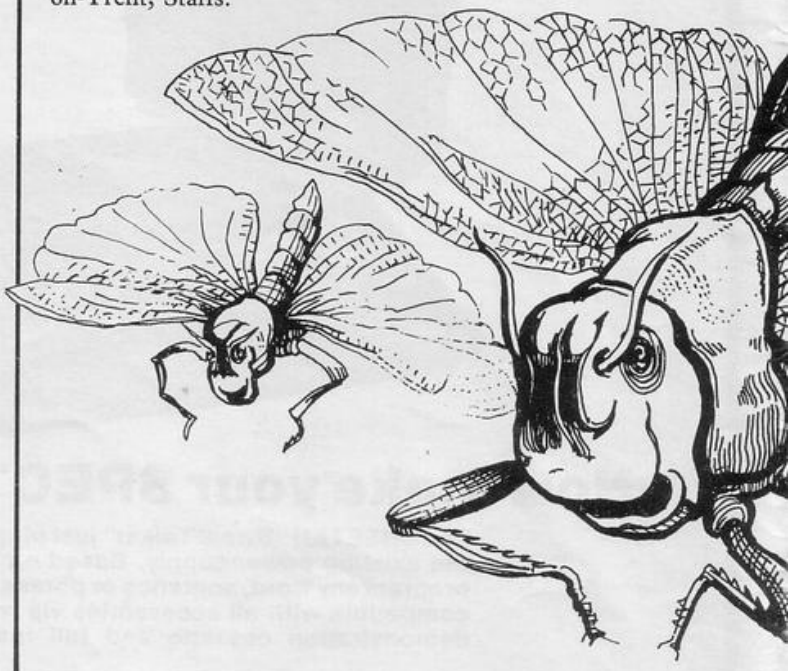
```
   4 LET HI=0
   5 CLS
  10 PRINT "
 ST LOCL
          "
  20 PRINT
  30 PRINT "
 K  ATA
          "
  50 PRINT AT 15,1;"DO YOU WANT
INSTRUCTIONS ?(Y/N)"
  60 PAUSE 1000
  65 LET I=0
  70 IF INKEY$="Y" THEN GOSUB 10
00
  90 CLS
 100 LET N=1
 105 LET E=10
 110 LET A=0
 115 LET C=1
 120 LET B=0
 125 LET D=1
 130 DIM A$(4,4)
 140 LET A$(1)="
 150 LET A$(2)="
 160 LET A$(3)="
 170 LET A$(4)="
 175 PRINT AT 9,5;"
```



```
"
 176 PRINT AT 21,E;"   "
 180 PRINT AT A,B;A$(N,1);AT A+2
,B;A$(N,2);AT A,B+2;A$(N,3);AT A
+2,B+2;A$(N,4)
 181 IF A<2 OR A>18 OR B>28 OR B
<1 THEN GOSUB 500
 185 IF INKEY$<>"" THEN GOTO 290
 187 IF I<>0 THEN GOSUB 650
 190 PRINT AT A,B;"  ";AT A+2,B;"
  ";AT A,B+2;"  ";AT A+2,B+2;"  "
 200 LET A=A+C
 210 LET B=B+D
 230 IF I<>0 THEN GOSUB 650
 250 IF INKEY$="" THEN GOTO 180
 260 LET E=E+(INKEY$="8" AND E<2
7)-(INKEY$="5" AND E>0)
 263 LET F=INT (RND*3)
 265 IF F=1 THEN LET D=D-(D*2)
 267 IF SGN D=-1 THEN LET N=2
 269 IF SGN D=1 THEN LET N=1
 270 PRINT AT 21,E;"   "
 280 GOTO 180
 290 LET E=E+(INKEY$="8" AND E<2
7)-(INKEY$="5" AND E>0)
 293 IF INKEY$="F" THEN GOSUB 60
0
 295 LET C=C-(C*2)
 300 PRINT AT 21,E;"   "
 310 GOTO 190
 500 IF A<2 THEN LET C=1
 510 IF A>18 THEN LET C=-1
 520 IF B<1 THEN LET D=1
 530 IF B>28 THEN LET D=-1
 540 RETURN
 600 IF I<>0 THEN GOSUB 800
 603 IF I<>0 THEN RETURN
 605 LET G=18
 610 LET H=E+1
 620 LET I=-2
 630 LET B$="
 640 RETURN
 650 PRINT AT G,H;B$;AT G+2,H;"
```

PROTECT the tree from the locust attack by spraying the locusts with insecticide. Press F once to fire the insecticide and again to spray the locusts. Your score varies according to the amount of tree remaining at the end of the game.

Locust Attack was written for the 16K ZX-81 by Andrew Bates, of Stoke-on-Trent, Staffs.





```
"
  650 LET G=G+I
  670 IF G<=4 THEN GOSUB 800
  680 RETURN
  800 PRINT AT G,H-1;"...";AT G-1
,H-2;"....."
  810 PRINT AT G-2,H-3;".......";
AT G-3,H-4;"........."
  811 PRINT AT A+2,B;
  812 IF CHR$ PEEK (PEEK 16398+25
6*PEEK 16399)="." THEN GOSUB 200
0
  813 PRINT AT A,B+2;
  814 IF CHR$ PEEK (PEEK 16398+25
6*PEEK 16399)="." THEN GOSUB 205
0
  815 PRINT AT A+2,B+2;
  816 IF CHR$ PEEK (PEEK 16398+25
6*PEEK 16399)="." THEN GOSUB 210
0
  817 PRINT AT A,B;
  818 IF CHR$ PEEK (PEEK 16398+25
6*PEEK 16399)="." THEN GOSUB 215
0
  820 PRINT AT G,H-1;"   ";AT G-1
,H-2;"
  830 PRINT AT G-2,H-3;"         "
;AT G-3,H-4;"           "
  840 PRINT AT G+2,H;" "
  850 LET I=0
  860 RETURN
1000 CLS
1010 PRINT "          LOCUST ATTA
CK"
1020 PRINT ,,"USE KEYS ""5"" AND
 ""8"" TO MOVE    LEFT AND RIGHT
.PRESS ""F"" TO FIREAN INSECTISI
DE CAN.PRESS ""F""     AGAIN TO S
PRAY THE LOCUSTS."
1030 PRINT
1040 PRINT "YOU SCORE BY THE AMO
UNT OF TREE LEFT AT THE END OF T
HE GAME."
1050 PRINT ,,"   PRESS ANY KEY T
O CONTINUE"
1060 IF INKEY$="" THEN GOTO 1060
1100 RETURN
2000 LET A$(1,4)=""
2010 LET A$(2,4)=""
2020 IF A$(1)="    " THEN GOSUB
4000
2030 IF A$(2)="    " THEN GOSUB
4000
2040 RETURN
2050 LET A$(1,3)=""
2060 LET A$(2,3)=""
2070 IF A$(1)="    " THEN GOSUB
4000
2080 IF A$(2)="    " THEN GOSUB
4000
2090 RETURN
2100 LET A$(1,2)=""
2110 LET A$(2,2)=""
2120 IF A$(1)="    " THEN GOSUB
4000
2130 IF A$(2)="    " THEN GOSUB
4000
2140 RETURN
2150 LET A$(1,1)=""
2160 LET A$(2,1)=""
2170 IF A$(1)="    " THEN GOSUB
4000
2180 IF A$(2)="    " THEN GOSUB
4000
2190 RETURN
3000 REM PRINT AT A,B;A$(N,1);AT
 A+2,B;A$(N,2);AT A,B+2;A$(N,3);
AT A+2,B+2;A$(N,4)
4000 LET O=0
4005 PRINT AT 5,10;"GAME OVER"
4010 FOR M=9 TO 20
4020 FOR N=5 TO 25
4030 PRINT AT M,N;
4040 IF CHR$ PEEK (PEEK 16398+25
6*PEEK 16399)<>" " THEN LET O=O+
1
4045 IF CHR$ PEEK (PEEK 16398+25
6*PEEK 16399)="." THEN LET O=O-1
4060 NEXT N
4065 FAST
4070 NEXT M
4075 SLOW
4080 PRINT AT 5,7;"YOUR SCORE IS
 ";O
4090 IF O>HI THEN LET HI=O
4095 PRINT AT 7,8;"HI SCORE IS "
;HI
4097 PRINT AT 9,7;"ANOTHER GO (Y
/N)?"
4100 IF INKEY$="Y" THEN GOTO 5
4110 IF INKEY$="N" THEN STOP
4120 GOTO 4100
9000 SAVE "LOCUST"
9010 RUN
9020 REM "LOCUST"
```

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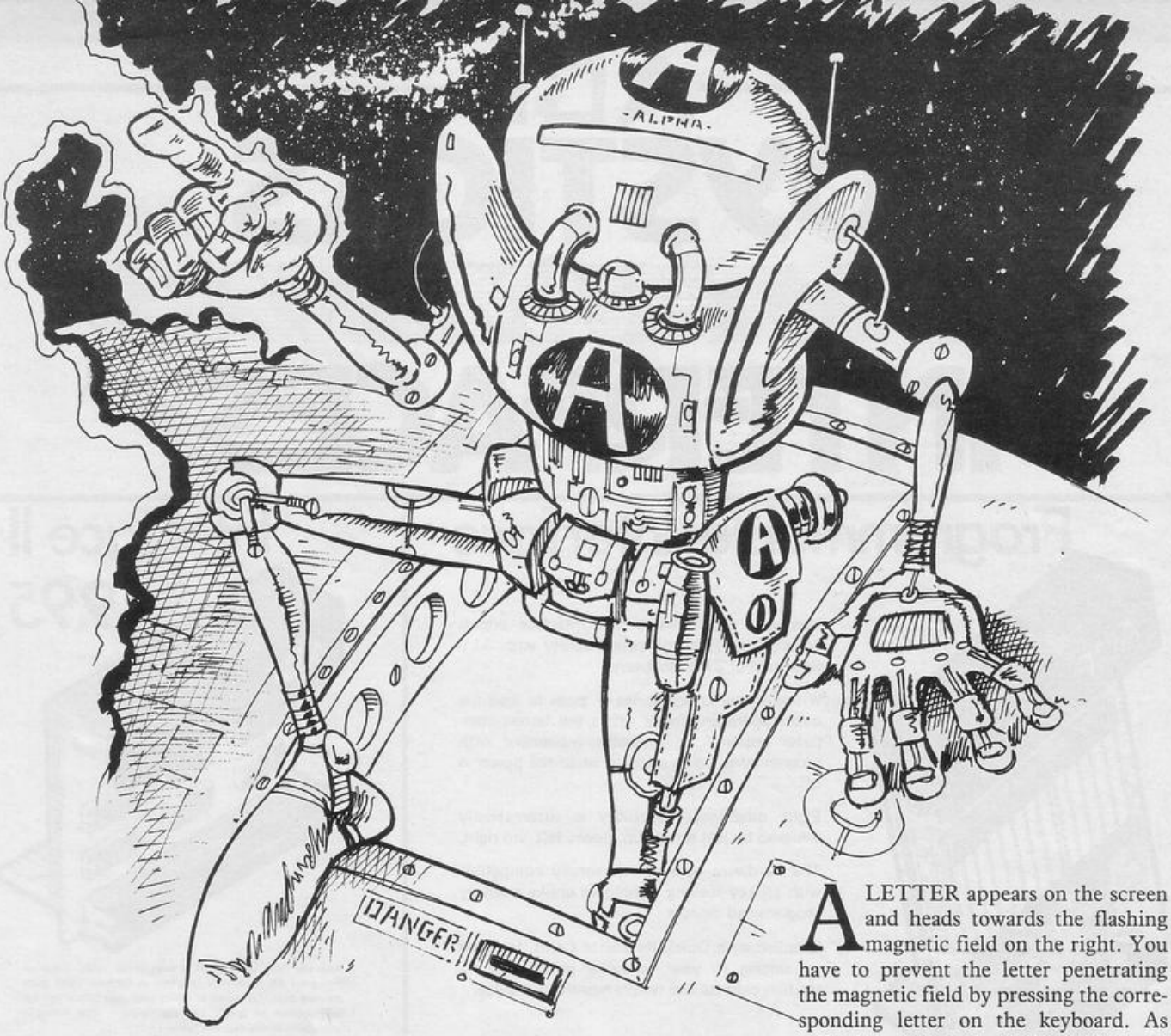
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ALPHA ATTACK

A LETTER appears on the screen and heads towards the flashing magnetic field on the right. You have to prevent the letter penetrating the magnetic field by pressing the corresponding letter on the keyboard. As each phase is completed the field moves nearer, giving you less time in which to press the letter.

Alpha Attack was written for the 16K Spectrum by Paul Stuhlfelder of Gwynedd, N Wales.

```
   1 LET PHASE=1: LET SCORE=0: L
ET D=28: GO SUB 8000
   2 PAPER 0: INK 7: BORDER 0: C
LS : LET TIME=.2
   3 BORDER 0: PAPER 0: INK 7: P
RINT  AT 2,1;"SCORE ";SCORE: PRI
NT  AT 4,1;"PHASE ";PHASE
   8 FOR H=1 TO 70: BEEP .005, R
ND *50: PLOT  RND *250, RND *100
+60: NEXT H
   9 INK 5
  10 PLOT 0,0: DRAW 97,50
  20 PLOT 255,0: DRAW -97,50
  30 PLOT 137,50: DRAW 50,-50
  40 PLOT 117,50: DRAW -50,-50
  50 PLOT 70,50: DRAW -70,-15
  60 PLOT 185,50: DRAW 70,-15
  70 PLOT 0,50: DRAW 255,0
  80 PLOT 127,50: DRAW 0,-50
  90 PLOT 0,40: DRAW 255,0
 100 PLOT 0,15: DRAW 255,0
 110 PLOT 0,14: DRAW 255,0
 120 INK 5: PLOT 0,0: DRAW 0,175
: DRAW 255,0: DRAW 0,-175: DRAW
-255,0
 125 FOR L=1 TO 14: FLASH 1: PRI
NT  INK  RND *6+1; AT L,D;"*": N
EXT L: FLASH 0
 200 POKE 23658,8
 210 LET A=65+ RND *25
 211 INK 6: PAPER 0
 220 FOR X=1 TO 29
 221 LET A$= CHR$ A
 222 IF X=D THEN  GO SUB 1000
 230 PRINT  AT 10,X;" ";A$
 240 LET I$= INKEY$ : IF I$="" T
HEN  GO TO 249
 242 IF I$=A$ THEN  LET SCORE=SC
ORE+25-X: PRINT  INK 7; AT 2,7;S
CORE: FOR G=1 TO 20: BEEP .01,G:
 NEXT G: LET TIME=TIME-.01: PRIN
T  AT 10,X;"   ": GO TO 210
 243 IF I$ <> A$ THEN  GO SUB 20
00
 249 BEEP TIME,X: IF TIME <= 0 T
HEN  GO SUB 3000
 250 NEXT X
 251 PRINT  AT 10,29;"  "
 300 GO TO 201
1000 CLS : FOR V=50 TO 1 STEP -1
: BEEP .004,V: NEXT V: PAPER 4:
INK 7: BORDER 4: CLS : PRINT  IN
K 0; AT 13,6;"YOUR SCORE WAS ";S
CORE: FLASH 1: PAPER 1: PRINT  A
T 10,6;"GAME OVER TOO SLOW": PAP
ER 2: PRINT  AT 18,4;"PRESS ANY
KEY TO RE-RUN": PAUSE 4E4: FLASH
0: CLS : GO TO 1
1001 PRINT "SCORE=";SCORE
2000 CLS : FOR Y=22 TO 1 STEP -1
: BEEP .1,Y: BORDER  RND *7: PRI
NT  INK  RND *6+1;"GAME OVER WRO
NG LETTER PRESSED": NEXT Y: PAUS
E 200: CLS : PRINT : PRINT "  Y
OU SHOULD HAVE PRESSED ";A$: PRI
NT : PRINT  AT 4,9;"YOU PRESSED
";I$: PRINT  AT 10,8;"YOUR SCORE
WAS ";SCORE: PRINT  AT 20,5;"PR
ESS ANY KEY TO RE-RUN": PAUSE 4E
4: GO TO 1
3000 CLS : PAPER 2: INK 7: BORDE
R 2: CLS : PRINT  AT 1,7;"NOW IT
 GETS HARDER!": PRINT  AT 3,7;"Y
OU HAVE LESS TIME": PRINT : PRIN
T " THE MAGNETIC FIELD GETS CLOS
ER": FLASH 1: PRINT  AT 10,10;"P
RESS ANY KEY": PAUSE 4E4: LET D=
D-1: LET PHASE=PHASE+1: FLASH 0:
GO TO 2
8000 PAPER 1: INK 6: BORDER 1: C
LS : PRINT "  WELCOME  TO  ALFA(
BET)ATTACK": PRINT
8010 PRINT "YOUR MISSION IS TO L
OOK OUT FOR": PRINT
8020 PRINT " ALIEN  SPACE CRAFT
WHICH LOOK": PRINT
8030 PRINT " JUST  LIKE  LETTERS
  OF THE ": PRINT
8040 PRINT "ALPHABET. THE ONLY W
AY TO SAVE": PRINT
8050 PRINT " YOURSELF IS TO PRES
S THE RIGHT": PRINT
8060 PRINT "KEY,BEFORE IT PENETR
ATES THE": PRINT
8070 PRINT "FLASHING MAGNETIC FI
ELD ON THE"
8071 PRINT : PRINT "RIGHT HAND S
IDE OF THE SCREEN !!"
8080 FLASH 1: PRINT  INK 7; PAPE
R 3; AT 20,4;"PRESS ANY KEY TO P
LAY": FLASH 0: PAUSE 4E4: GO TO
2
```

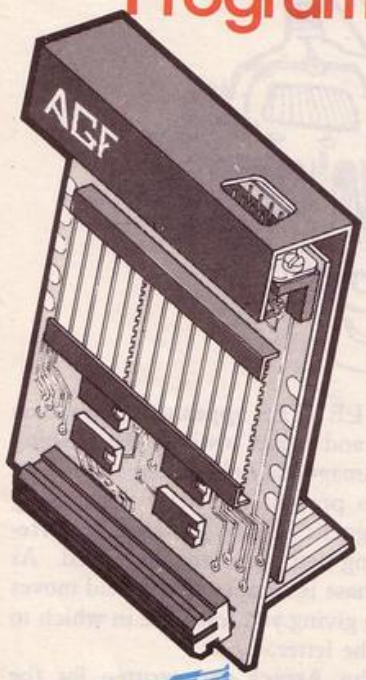
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SPECTRUM ZX81

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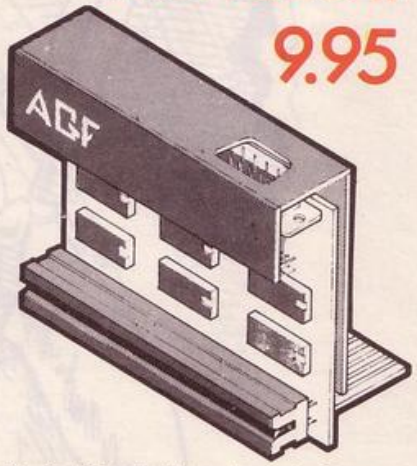
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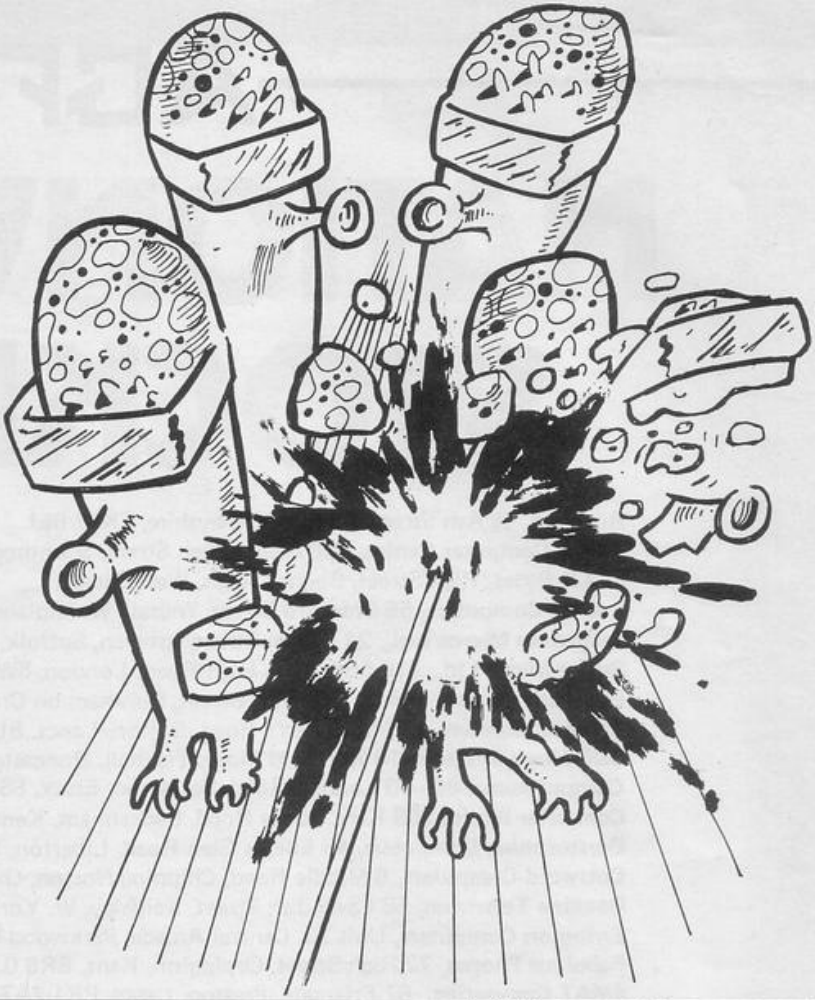
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RUNWAY



THERE ARE six horizontal runways and the android can go along any of them. When you can see which runway is being used you must go to it and fire at the android before it reaches the end. If the android reaches the end of the runway before being shot it will destroy you. As the game progresses the runway becomes shorter, thus giving you less time to fire.

Runway was written for the 16K ZX-81 by James Hutchinson, aged 13, of Kings Lynn, Norfolk.

```
    2 GOSUB 400
    3 RAND
    4 LET HI=0
    5 LET W=15
    6 LET L=2
    7 CLS
   10 LET S=0
   15 LET I=0
   20 CLS
   21 FOR C=1 TO 12 STEP 2
   30 PRINT AT C,0;"
"
   47 NEXT C
   50 LET A=6
   60 LET N$="
"
   70 LET X=0
   80 LET Q=INT (RND*6)*2
   85 PRINT AT Q,X;N$
   90 PRINT AT A,W+2;"<"
  100 IF X+4=W+1 THEN GOTO 300
  110 LET X=X+1
  120 IF INKEY$="6" AND A<10 THEN
 GOSUB 150
  130 IF INKEY$="7" AND A>0 THEN
GOSUB 180
  135 IF INKEY$="0" THEN GOTO 210
  140 GOTO 85
  150 LET A=A+2
  160 PRINT AT A-2,W+2;" "
  170 RETURN
  180 LET A=A-2
  190 PRINT AT A+2,W+2;" "
  200 RETURN
  210 PRINT AT A,W+2;"<"
  211 FOR B=W+1 TO (W+X+4)/2 STEP
 -2
  220 PRINT AT A,B;"-";AT A,B;" "
  221 PRINT AT Q,X;N$
  222 LET X=X+1
  225 IF X+4>=W+1 THEN GOTO 300
  230 NEXT B
  235 LET I=I+1
  240 IF A<>Q THEN GOTO 85
  245 PRINT AT Q,X;"    "
  250 LET S=S+(W+1-X)
  251 IF I>40 AND W=15 THEN GOTO
270
  252 IF I>130 AND W=13 THEN GOTO
270
  260 GOTO 70
  270 LET W=W-2
  271 PRINT AT A,W+4;" "
  272 FOR D=1 TO 12
  273 PRINT AT D,W;"  "
  275 NEXT D
  280 GOTO 50
  300 CLS
  305 PRINT "THE ANDROIDS HAVE DE
STROYED YOU."
  310 IF S<=HI THEN GOTO 340
  320 LET HI=S
  330 PRINT AT 7,0;"        *CONGR
ATULATIONS*      YOU HAVE OBTA
INED THE HI-SCORE."
  340 PRINT AT 16,0;"SCORE=";S;"
       HI-SCORE=";HI
  350 PRINT "
"
  360 PRINT AT 21,0;"PRESS ANY KE
Y FOR ANOTHER GAME."
  370 IF INKEY$="" THEN GOTO 370
  380 GOTO 5
  400 PRINT AT 0,12;" RUNWAY"
  410 PRINT AT 1,8;"
"
  420 PRINT "IN THIS GAME, YOU HA
VE TO SHOOT"
  430 PRINT "AS MANY ENEMY SHIPS
AS YOU CAN."
  440 PRINT "IF THE ENEMY SHIP RE
ACHES THE "
  450 PRINT "END OF THE RUNWAY, Y
OU WILL BE"
  460 PRINT "DEAD.YOU ONLY HAVE O
NE SHIP."
  470 PRINT "AFTER A WHILE THE EN
EMYS RUNWAY"
  480 PRINT "WILL GET SHORTER.YOU
R CONTROLS"
  490 PRINT "ARE:6=DOWN,7=UP,0=FI
RE."
  500 PRINT "YOUR SCORE DEPENDS O
N HOW FAST"
  510 PRINT "YOU CAN SHOOT EACH S
HIP."
  520 PRINT AT 13,11;"GOOD LUCK"
  530 PRINT AT 21,5;"PRESS ANY KE
Y TO START"
  540 IF INKEY$="" THEN GOTO 540
  550 RETURN
  600 SAVE "RUNWAY"
  610 RUN
```

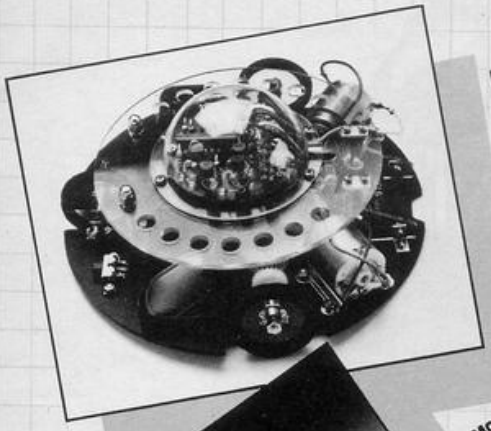


PASTA BLASTA

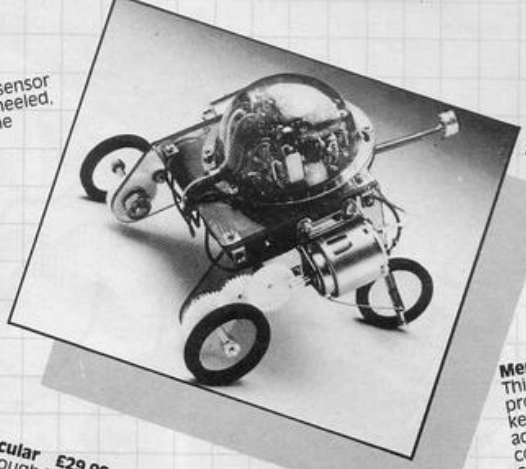
WHILE in an Italian restaurant you are attacked by the dreaded pasta pinchers. You have to save the pasta by blasting the intruders, using 0. Use keys 1 and 2 for left and right.

Pasta Blasta was written for the 16K ZX-81 by Karl Gibson and Adrian Wilson of Tarporley, Cheshire.

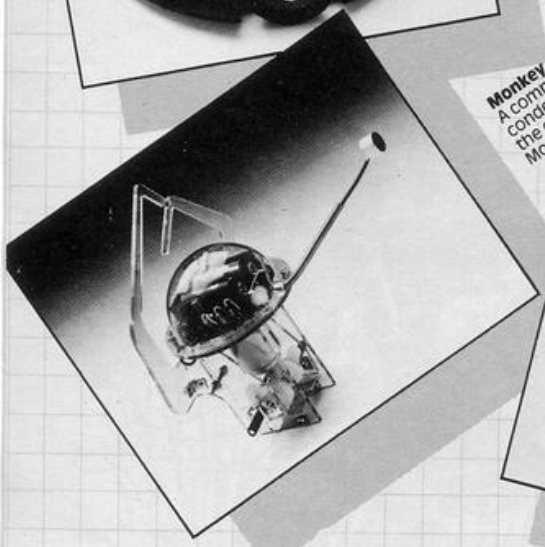
```
  1 SAVE "PASTA"
  2 GOTO 300
  5 LET S=0
  6 LET L=10
 10 LET A=19
 20 LET B=14
 21 LET C=2
 22 LET D=INT (RND*31)
 30 LET A$=" <*> "
 40 LET B$="$"
 50 PRINT AT 20,0;"
                   "
 60 PRINT AT A,B;A$
 70 PRINT AT C,D;B$
 80 LET B=B+(INKEY$="2")-(INKEY
$="1")
 91 IF C=21 THEN LET L=L-1
 92 PRINT AT 21,0;L;" LIVES "
 93 IF C=21 THEN LET C=2
 94 IF L=0 THEN GOTO 170
 99 PRINT AT C,D;" "
100 IF RND>.5 THEN LET D=D+2
101 IF D>31 THEN LET D=D-2
107 IF INKEY$="0" THEN GOTO 120
108 LET D=D-1
109 LET C=C+1
110 GOTO 60
120 PRINT AT C,D;B$
121 FOR G=18 TO 2 STEP -1
122 PRINT AT G,B+2;""""
123 IF G=C AND B+2=D THEN GOTO
127
124 PRINT AT G,B+2;" "
125 NEXT G
126 GOTO 60
127 LET S=S+50
128 GOTO 21
170 PRINT AT 3,0;"YOUR SCORE IS
 ";S
180 PRINT AT 10,0;"ANOTHER GAME
 Y/N"
190 IF INKEY$="Y" THEN GOTO 2
200 IF INKEY$="N" THEN STOP
210 GOTO 180
300 CLS
305 PRINT
307 PRINT AT 10,7;">**PASTA BLA
STA**<"
308 PRINT TAB 5;"<<<<<---------
--->>>>>"
309 PRINT AT 15,7;"PRESS ANY KE
Y"
310 PAUSE 4E4
320 CLS
321 PRINT "LONG,LONG AGO IN AN
ITALIAN "
322 PRINT
323 PRINT "RESTAURANT FAR,FAR A
WAY"
324 PRINT
325 PRINT "YOU ARE ATTACKED BY
PASTA "
326 PRINT
327 PRINT "PINCHERS."
328 PRINT
329 PRINT "YOUR AIM IS TO BLAST
"
330 PRINT
331 PRINT "THE PASTA PINCHERS.
"
332 PRINT
333 PRINT "PASTA PINCHERS=$ "
334 PRINT
335 PRINT "YOU=<*>"
336 PRINT
337 PRINT "PASTA="
338 PAUSE 4E4
339 CLS
340 GOTO 5
```



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Draw a line and the infra-red sensor picks it up and sends this 3 wheeled, twin motored robot along the course you plot.



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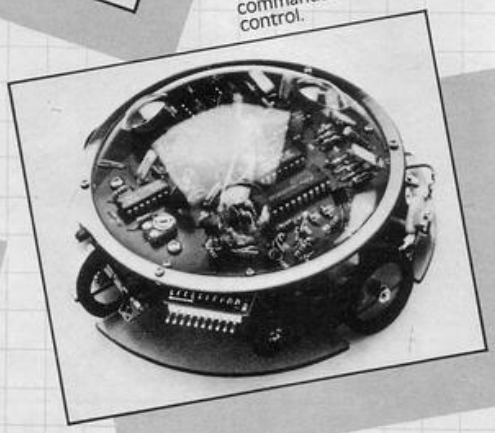


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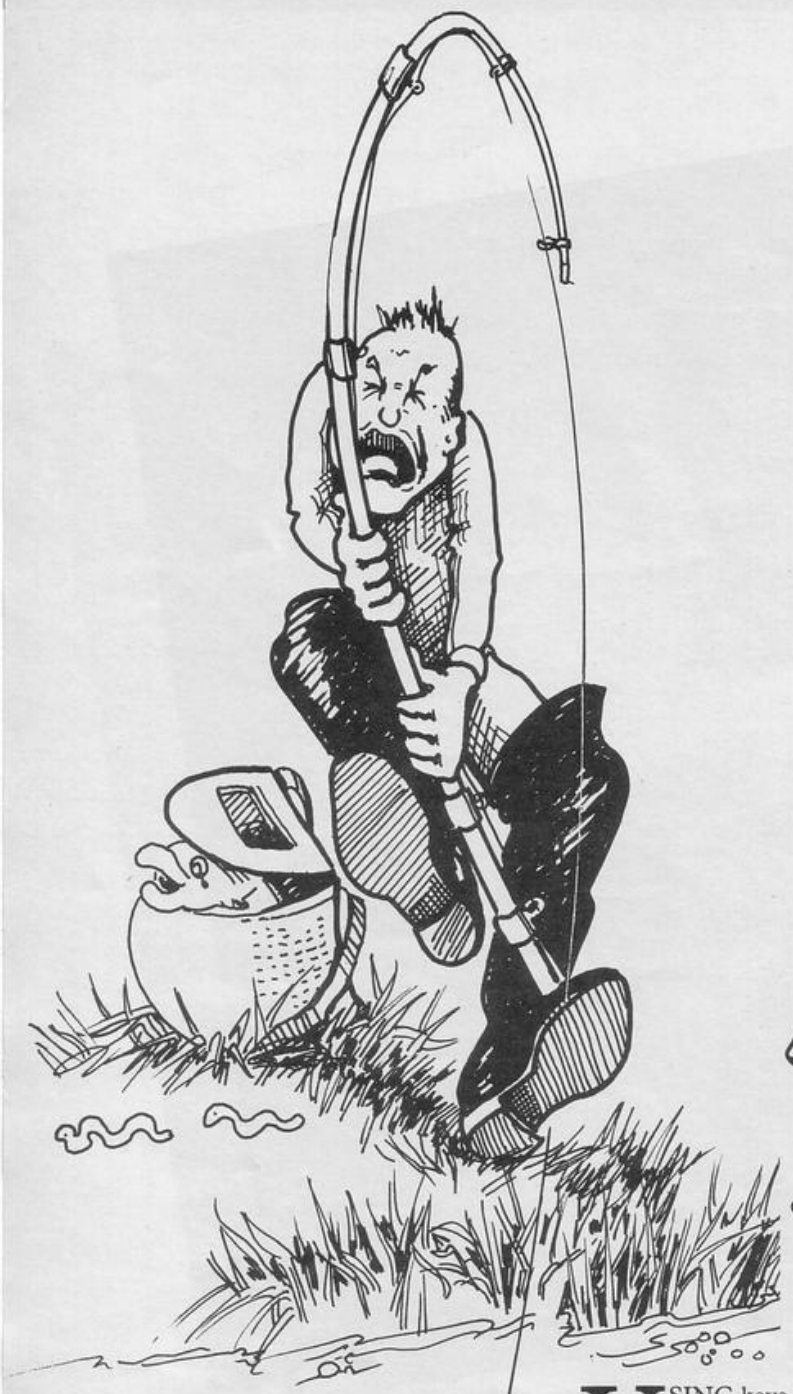
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FISHERMAN



USING keys 5 and 8 to move left and right, you play the part of a fisherman on a river bank. Judge the distance between yourself and the fish and then decide when to cast your line. You have 10 maggots, so be careful to waste none. If you move too near the edge of the river bank you will fall in and will then be seen slouching home.

Fisherman was written for the 16K ZX-81 by E J Mathews of Milton Keynes, Bucks.

```
  1 REM "FISHING"
 10 GOSUB 1120
 20 LET MC=0
 30 LET HC=0
 40 LET F=0
 50 LET H=0
 60 LET XS=0
 70 GOSUB 610
 80 LET X=1
 90 LET YS=INT (RND*5)+10
100 LET Y=0
110 GOSUB 230
115 GOSUB 230
120 PRINT AT 21,0;"FISH=";HC;TA
B (10);"WASTED MAGGOTS=";MC
130 IF F=0 THEN LET XD=2+X
140 IF F=0 THEN LET YD=29
150 IF INKEY$="C" THEN GOSUB 84
0
160 IF INKEY$="C" AND F=0 THEN
LET F=1
170 IF F=1 THEN GOSUB 340
180 IF MC+HC=10 THEN GOTO 910
190 GOSUB 440
200 IF H=0 THEN GOTO 230
210 GOSUB 490
220 GOTO 40
230 PRINT AT Y,X;"   -■- ";
240 PRINT AT Y+1,X;"    |  ";
250 PRINT AT Y+2,X;"    |\ ";
260 PRINT AT Y+3,X;" ---▟▙  ";
270 PRINT AT Y+4,X;"   ▟ ▙ ";
280 PRINT AT Y+5,X;"  ▘   ▝ ";
290 IF INKEY$="8" THEN LET X=X+
1
300 IF INKEY$="5" THEN LET X=X-
1
310 IF X<0 OR X>24 THEN GOTO 69
0
320 IF X=0 THEN PRINT AT Y,25;"
 ";
330 GOTO 120
340 UNPLOT XD,YD
350 LET YD=YD-1
360 PLOT XD,YD
370 IF YD=2 THEN LET MC=MC+1
380 IF YD=2 THEN LET F=0
390 IF F=0 THEN UNPLOT XD,YD
400 IF ABS (XD-2*XS-6)>6 THEN R
ETURN
410 IF YD<>43-2*YS THEN RETURN
420 LET H=1
430 RETURN
440 PRINT AT YS,XS;" >▬▪";
450 LET XS=XS+RND
460 IF XS>27 THEN LET XS=0
470 IF XS=0 THEN PRINT AT YS,27
;"  ";
480 RETURN
490 LET HC=HC+1
500 FOR I=1 TO 5
510 PRINT AT YS,XS;"▪▬<";
520 PRINT AT YS,XS;" >▬▪";
530 PRINT AT Y+3,X;"   /▟▙  "
540 PRINT AT Y+4,X;"  / ▟ ▙ "
550 PRINT AT Y+5,X;" /  ▘  ▝ "
560 PRINT AT Y+3,X;" /--▟▙  "
570 PRINT AT Y+4,X;"    ▟ ▙ "
580 PRINT AT Y+5,X;"    ▘   ▝ "
590 NEXT I
600 RETURN
610 CLS
620 FAST
630 FOR I=0 TO 31
640 PRINT AT 6,I;"■";
650 PRINT AT 21,I;"▬";
660 NEXT I
670 SLOW
680 RETURN
690 FOR U=0 TO 5
700 PRINT AT U,0;"
 "
710 NEXT U
720 PRINT AT 0,10;"YOUVE FALLEN
IN"
730 FOR Y=0 TO 15
740 PRINT AT Y,X;"    "
750 PRINT AT Y+1,X;"    |  ";
760 PRINT AT Y+2,X;"    |\ ";
770 PRINT AT Y+3,X;"   ▟▙  ";
780 PRINT AT Y+4,X;"  ▟ ▙ ";
790 PRINT AT Y+5,X;"  ▘   ▝ ";
800 NEXT Y
810 PAUSE 20
820 CLS
830 GOTO 910
840 PRINT AT Y+3,X;"   /▟▙  "
850 PRINT AT Y+4,X;"  / ▟ ▙ "
860 PRINT AT Y+5,X;" /  ▘  ▝ "
870 RETURN
880 FOR U=0 TO 5
890 PRINT AT U,0;"
 "
900 NEXT U
910 CLS
915 FAST
920 FOR I=0 TO 31
930 PRINT AT 21,I;"▬";
940 PRINT AT 6,I;"■";
950 NEXT I
960 SLOW
970 FOR X=0 TO 20
980 LET Y=0
990 PRINT AT Y,X;"   -■- ";
1000 PRINT AT Y+1,X;"    |  ";
1010 PRINT AT Y+2,X;"    |\ ";
1020 PRINT AT Y+3,X;"   ▟▙  ";
1030 PRINT AT Y+4,X;"  ▟ ▙ ";
1040 PRINT AT Y+5,X;"  ▘   ▝ ";
1050 NEXT X
1060 IF X=20 THEN GOTO 1070
1070 CLS
1080 PRINT AT 10,2;"ANOTHER TRY?
 (Y/N)"
1090 IF INKEY$="Y" THEN GOTO 1
1100 IF INKEY$="N" THEN PRINT "T
HE FISH ARN""T BITING ANYWAY"
1110 GOTO 1090
1120 PRINT AT 5,10;"FISHING"
1130 PRINT AT 7,7;"BY E.J.MATHEW
S"
1140 PRINT AT 9,0;"YOU HAVE 10 M
AGGOTS TO TRY AND"
1150 PRINT "CATCH AS MANY FISH A
S POSSIBLE"
1160 PRINT
1170 PRINT "MOVE THE FISHERMAN U
SING KEYS"
1180 PRINT "5 FOR LEFT AND 8 FOR
 RIGHT"
1190 PRINT "CAST WITH KEY C"
1200 PRINT "DONT GO TOO CLOSE TO
 THE EDGE"
1210 PRINT "OF THE SCREEN THE BA
NK IS LOOSE"
1220 PAUSE 600
1230 RETURN
```

Solve building problems by demolishing a wall

LIKE MYSELF, I am sure many readers have been waiting for an item concerning problems with running the Builder program printed in the January, 1984 edition. The game shows all the potential of a first-class, arcade-type game with the exception that I found it to be technically impossible to win, due to the fact that the final ladder, in the bottom right-hand corner of the screen, was completely encased by walls and therefore a player could not exit to the next sheet.

Since nothing has appeared in the Errors and Mishaps column, which is an excellent service, I have had to find a solution and have arrived at these conclusions.

The data statement on line 9996 should have the first subsequent 19,29 deleted from it. That is the screen position of the wall which blocks the ladder.

When the offending wall has been removed, you will be able to leave the first screen but the computer will report INTEGER OUT OF RANGE when you do so. To clear that, both of the PRINT statements can be deleted entirely from line 9810, which does not affect the running of the program noticeably.

To improve the smooth running of the game you can add to line 9800:
PRINT AT 9,7; FLASH 0; "PRESS ANY KEY"

That should be inserted immediately prior to the statement LET she=she+1, and has the effect of printing that message to remind players that another key should be pressed to continue, otherwise the computer just waits for a key-press before continuing with subsequent sheets.

A simple point which I am sure might have been missed by many people is the necessity to press "0" to pick up the picks and bonus. It took me a long time to spot that in the listing, since it is not specified in the magazine program heading.

There is still one flaw which I have been unable to solve and I would welcome a contribution from another reader. On the left side of the screen there is a short ladder going down to the first runaway pit-truck area, which can be descended from the level above, but for some reason the builder will not climb back to the higher level when necessary. It is a minor point but can be annoying when the monsters are close on your trail and grab you as a result.

I think Builder is an excellent program once debugged and would like to see more attention paid to this calibre of program which, to my way of thinking, is almost as good as commercially-produced material. The length of such programs does not have to be a problem as I will often enter a program of this or greater length in two or three sessions, SAVEing and MERGEing each section as I go until completed.

R J Moore,
North Walsham, Norfolk.

Character change

I WOULD be interested to hear from readers with cheap software to sell — originals only, including manufacturer's inserts. I have also written a short program to change character appearances on the 48K Spectrum:

```
10 FOR f=-255 TO 255
20 POKE 23606,f
30 PRINT "abcdefg"
40 IF INKEYS=""THEN
NEXT f
```

It is interesting to alter line 30.

Daniel Hicks,
Sutton Coldfield,
West Midlands.

Spectrum games

A NEWLY-FORMED software company, No 1, is compiling a games tape consisting of 100 to 500 games. At the moment the games tape is available only for the Spectrum but it is hoped later to cover most of the popular computers. We still require several games, so if readers wish to send games which have been rejected by magazines we will print the names on the tape and at the start of the program we will print the copyright. Copyright would remain yours. Cash is paid for the best games but your cassette will be returned only if you enclose a stamped-addressed envelope. The people who send a tape, whether accepted or not, will receive a discount of at least £2 on the price of the cassette.

We are hoping to market the cassette around August. The price will be £5-£7, or £3 for people who submit games. Send programs to the address below.

Matthew Brown,
22 Kings Hedges,
St Ives,
Huntingdon, Cambs.

Secure listing

I ENCLOSE a routine which will protect a program from unauthorised listing. Add it to the beginning of your program and if BREAK is attempted the rest of the program will be re-set:

```
110 POKE 23613,2
120 POKE 23614,91
130 POKE 23298,0
140 POKE 23299,0
150 REM PROGRAM
    STARTS HERE
```

Simon Cree,
Guisborough,
Cleveland.

Successful mine

DANIEL Popplewell asked in the June edition of *Sinclair Programs* about the game Forty Niner from Software Farm. He asked if anyone had beaten his brother's score of 46,469. I have achieved a personal best of 55,575.

S Perry,
Hemel Hempstead,
Hertfordshire.

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

To: Sinclair Programs, 196–200 Balls Pond Road, London N1 4AQ.
I enclose .....Program(s) for the .....computer.
I guarantee that each program submitted is my original work.
Signed .....
Name.....
Address.....
.....

Good micro: shame about the games

Manufacturers reproach ZX-81 owners for lack of interest in buying programs. We look at software for the ZX-81 and its value for money

ZX-81 OWNERS have reason to be annoyed with the software industry. A cursory glance at computer magazines each month reveals ample signs of the 150 or so companies producing software for the Spectrum. Spectrum software supports entire magazines devoted to its reviews. So few ZX-81 games are produced that the entire computer press could be read for a month, without producing more than two pages of reviews, most of them of old products.

Software Farm took high-resolution graphics to the ZX-81 earlier this year with its **Forty Niner.** Half the letters to *Sinclair Programs* from ZX-81 owners that month were written in praise of the new game. The success of Forty Niner has not led to production of high-resolution graphics programs by other software houses and the field has been left clear for Software Farm to follow its success with its new program, **Rocket Man,** to be reviewed in the next issue.

Other companies are also producing good software for the ZX-81, although they are few and far between. *Sinclair Programs* has looked at some of the products on the market to see where the best programs are to be found.

Bears in the Wood from Unicorn Micro Systems is a good example of an original game for the 16K ZX-81. The player begins with a mother bear and three cubs which head across the screen towards their cave, collecting honey as they go. Of course, the little bears have a tendency to lose their mother and, as soon as they do so, they become prey to the evil hunters in the forest. Hunters must be charged, bears guarded, and the time limit watched. Once inside the cave, honeypots must be filled and there is a chance to gain an extra cub. Then the player returns to the forest.

Bears in the Wood is a difficult game at which to succeed and consequently holds the attention. The opportunity to return to the forest more than once can be attained only with a sound knowledge of the scoring system and a variety of tactics which keep mother and cubs united with plenty to eat. One small bug is that the mother bear can become blocked in a corner by the cubs, unable to move until one of them is shot by a hunter.

Climber, also produced by Unicorn, is much less enjoyable. It is a version of **Kong** in which the player must climb from level to level on one screen, jumping the monsters and picking-up points on the way, and finally moving to the next screen by reaching the appropriate point on the top level.

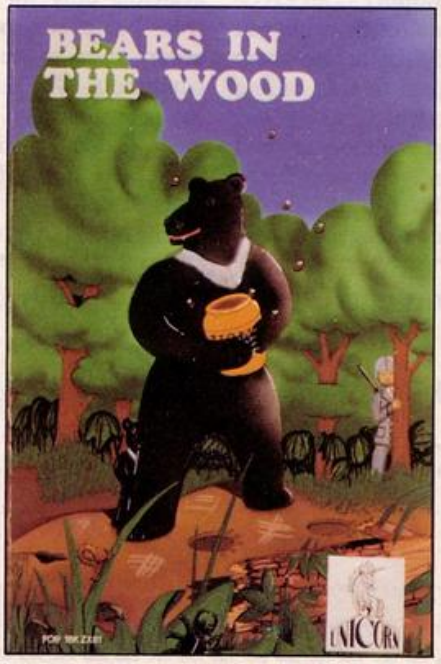
Does not adapt well

Kong is not a game which adapts from arcade to ZX-81 particularly well, as much of its interest relies on speed and good graphics.

This version is not particularly difficult, once the movement of the various obstacles has been understood, but it is very repetitive.

A style of game more suited to the ZX-81 is represented by **Ocean Trader** from Quicksilva. It is a form of simulation in which the player takes the part of a ship's commander, sailing from port to port round the coast of England.

Prices of commodities in the ports change from day to day and from place





to place and the aim is to profit by buying goods in one port and selling them for a profit at the next.

The game is rather slow-moving, taking some time to display options or to print details of prices. This type of game, though, is well-suited to the ZX-81 and this is a well-thought-out example.

Black Star from Quicksilva has an impressive storyline printed on its cover. The story tells of the Cosmic Guerillas and of your plan to bomb their Black Star base in your Svlegian Raider. Enemy ships must be dodged and the energy ducts in the tunnel leading to the Black Star must be destroyed. All very impressive.

On RUNning the program, however, the tunnel proves to be a black rectangle, or sometimes a rectangle of asterisks. Immediate acceleration means that no enemy ships appear and, when your ship travels slowly enough to see them, they appear as small Vs at the bottom of the screen.

Similarly uninteresting is **Croaka Crawla** from Quicksilva, a version of the arcade oldie **Frogger.** According to this version Frogger has gained nothing in its old age and has lost much. There is a huge variety of skill levels, ranging from the very low to the ultra-fast but, other than that, the program has little to commend it.

QS Scramble from Quicksilva is yet another arcade adaptation. The player flies above the surface of a planet, firing at approaching aircraft and bombing those still on the ground. The game loses less than others from its adaptation to the ZX-81, perhaps because its interest is almost totally in controlling your craft. As the screen display changes continually the square graphics are less glaringly apparent than in games where the screen display remains constant.

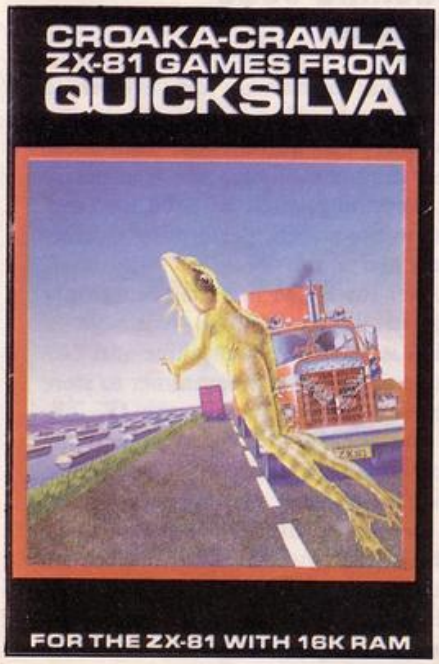
Arcade games can do little on the ZX-81 other than to demonstrate its weaknesses. The ZX-81 also has advantages which Psion has put to excellent use in its program **Vu-File.** Vu-File allows the user to store information on record cards, to re-arrange, sort, store and print that information. Unlike other filing systems it does not pre-define the index card but allows the user to design one. Information can then be entered into the computer and can be re-arranged according to any one of the headings on the record card.

A demonstration program on the B side of the cassette demonstrates one use to which the program can be put. A gazetteer has been recorded, including basic details about a number of countries. The program can be used for reference or taken as an example by those who want to test the efficacy of Vu-File before entrusting their records to it.

Inexpensive programs

Also reviewed by *Sinclair Programs* were programs from two small companies which produce inexpensive programs on a mail order basis. They give some idea of the quality of programs sold through magazine small advertisements, rather than those produced by large companies.

Swag is produced by Howard Software, 20 Pantycelyn, Fishguard, Dyfed and costs £3.45. In it the player takes the part of a burglar who wishes to rob a bank. The first section is a street chase, in which the player navigates a car through a maze, pursued by two police cars which move more slowly. Speed is slow and it is easy to avoid the police.



Section two takes place inside a building. The aim is to walk into each of three rooms, pick up treasure and return it to your lorry outside the building. The problem here is to avoid the forcefields on the doors. As they appear to flash in a completely arbitrary fashion it is difficult to use any skill in that section. Section three is combined with section two. The treasure in room two is inside a safe with a combination lock and the combination must be cracked quickly before the alarms ring.

Overall the pace of Swag is slow and the game unexciting. It would keep few players interested for as long as half an hour; most would lose interest more quickly.

Bank Raid is from Senior Software, 8 The Elms, Shaw, Swindon. Again the theme is bank robbery, this time with an emphasis on shoot-outs. A maze is printed on-screen and the player must escape the two gunmen who are out to kill. On the next screen the tables are turned and this time it is the player who must shoot the gunmen before they escape. The next screen returns the player to the beginning to escape again, and so it continues. Again, the game is deadly slow and lacks the excitement necessary to a maze game.

Also from Senior Software is **Allotment,** a utility program for gardeners planning how to allocate space in their vegetable gardens or allotments. The program works on a three- or four-year crop rotation system and divides the vegetables which it has stored in it accordingly. On a diagram of the allotment vegetables chosen by the gardener will be placed automatically at the correct distance from each other, so that the number to be planted is readily apparent.

Essential add-ons

Allotment is an easy way of planning a garden to advantage, of recording where vegetables are planted and when they are likely to appear. A large number of vegetables and information about them is stored in the data section and gardeners who prefer to plant exotic plants can include their own data.

Available by mail order also are essential add-ons for the user on a limited budget. Glaston Computers, Yallands Hill, Monkton Heathfield, Taunton, Somerset produces clear, self-adhesive plastic pads which can be stuck on to the keys of a ZX-81, or only on to those keys used for games playing. Forty pads cost £2.99 and they make the ZX-81 keyboard usable for games or for typing.



Explore your computer with a clear memory map

Understanding the memory map of your machine allows you to write much faster programs in Basic. David Janda explains how.

WHEN LEARNING about a computer, the words memory map, system variables and so on are bound to crop up. They are not exceptional to the Sinclair machines — all micros have them in one form or another.

So what is a memory map? In all the common micros, Basic normally is implemented and, as well as Basic, there are sections of the Basic ROM which perform other tasks. They include handling the keyboard and screen as well as printer and any other input and output to and from the machine. The Basic as well as the I/O handlers is operating all the time the micro is switched on, even when you are not running a program. So the Basic and I/O handlers are, in essence, a program which is running constantly.

All programs need data on which to operate, as well as areas of memory to store information which may or may not change. That area is called the memory map and is divided into sections which store different types of data.

Working and storage space

In the case of Sinclair machines there are areas to store the contents of the screen, the program you write, the data area for the Basic and I/O — system variables — and so on. If you own a Spectrum as well as a ZX-81, you will notice from the manuals that the memory map is similar in parts. Because of that, I will be discussing both machines, with a bias towards the Spectrum, which is a more complicated machine.

When programming in Basic at elementary or advanced level, it is always a good idea to understand how the memory map of the micro is set up. Learning about memory maps allows for a greater understanding of the machine and, at Basic level, you can by-pass many operations, thus allowing your programs to run faster.

There is a danger in doing that. PEEKing and POKEing about the memory map can easily crash the machine, as there is no error-checking. Also, memory maps differ from one machine to another and, depending on using them within your programs, may make the progression to other machines more difficult, so use them when necessary and not as a matter of course.

On the Spectrum, the start of RAM is at location 16384 and that is true of the ZX-81. Simple arithmetic tells us that there is 16K worth of addresses on the ZX-81 before the RAM starts, yet there is only 8K of ROM. PEEKing the locations above the 8K ROM area reveals that there is a 'shadow' copy of the ROM. That area cannot be used by the programmer but some add-ons can use the area effectively.



When the 16K ROM was written for the Spectrum, not all the code was original — the 16K ROM is a re-write of the 8K ROM on the ZX-81. That is evident as there are parts of the 16K ROM which are not used but were simply left there. Many of the routines in the ZX-81 ROM are also used on the Spectrum and if you have studied the ZX-81 ROM you will not find it too difficult to progress to the Spectrum ROM.

Basic and the I/O routines — or monitor — were mentioned as if they were both separate. In reality that is not so, as they are all mixed. On more advanced machines, the Basic and the operating system are physically different, with the advantage that other languages can be implemented without too much difficulty. The problem is that both the Basic and operating system will take more room than if they were combined. So when you hear references to the monitor or operating system, it usually means the routines are not directly part of the Basic interpreter.

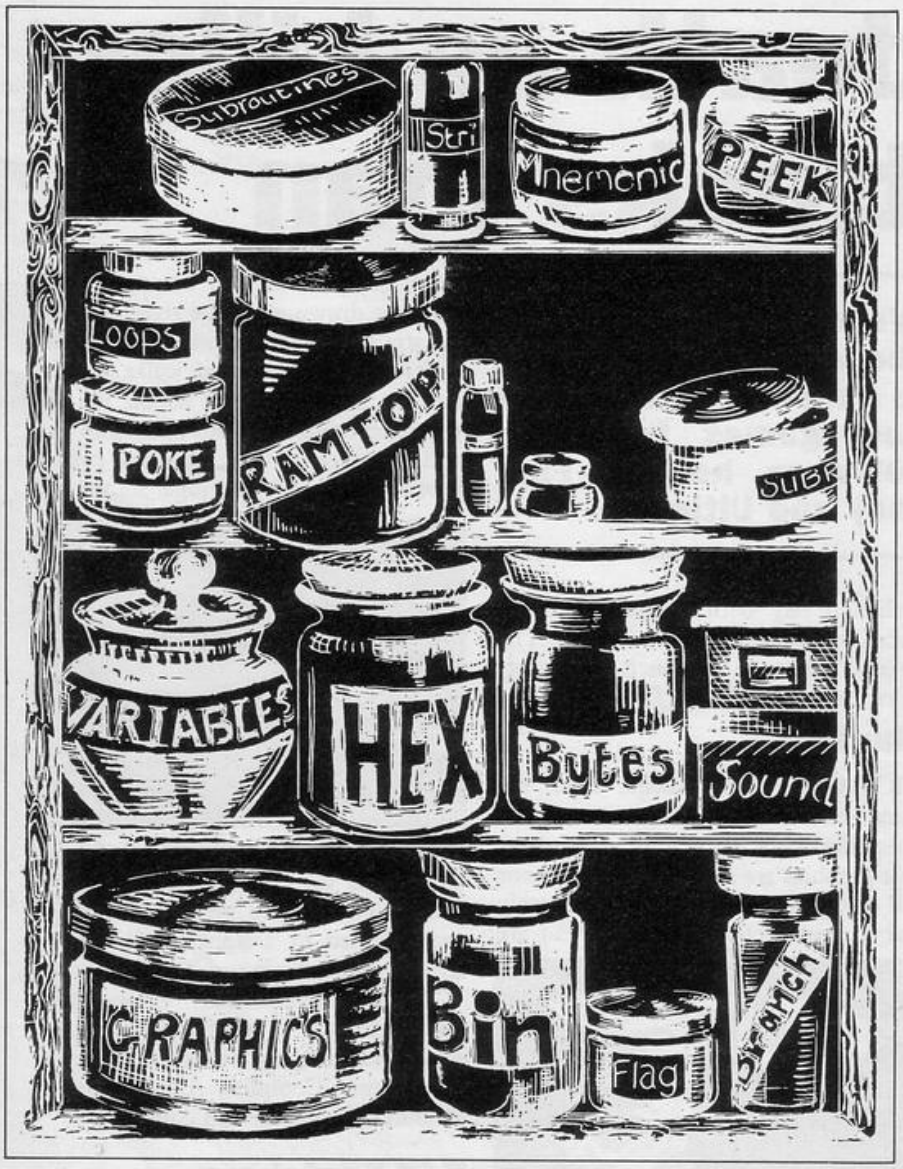
In the ROMs of the ZX-81 and Spectrum are hundreds of small machine code routines which perform individual tasks. Alone they may not do much but when some are combined they can do big jobs, such as adding two numbers. Many routines are used by different parts of the ROM and that is why the ZX-81 and Spectrum ROMs are sometimes referred to as threaded code interpreters. An example is how numbers are handled. Even when you specify a number as being an integer — a whole number — it is still processed by the floating point routines — there are no integer routines — and, at the end of the calculation, the number is converted back to an integer.

The fact that there are routines which handle several jobs, as well as the fact that all numbers are treated as floating point, contributes to why the ZX machines are not the fastest on the market.

Machine code routines

Because the routines to do everything are packed together, machine code programmers can utilise those routines in their programs. There are routines to do everything, such as printing numbers to the screen, performing calculations, and so on.

After the ROM there is the memory map in RAM, not that that area of RAM is used by the machine and cannot be used by the programmer to store programs. Unfortunately, the 1K ZX-81 and the 16/48K Spectrum do not allow you to use all the memory, because the memory map takes a portion. In the case of the ZX-81 it is a minimum of 125 bytes and for the Spectrum a minimum of 7.17K. I say minimum because there are areas which use no room until a program is running. They



are the machine stack, GOSUB stack, program variables and others.

To the newcomer, the need for memory to be reserved for the display is a little confusing; after all, it is the screen which is used for the display and not the computer. That is true but the screen displays all the previous data you send to it and not just one character. It is best to imagine the display file as a buffer which holds all the data for the screen. When it is filled, or when a PRINT/PLOT command is issued, the ZX-81 or Spectrum pushes that information to the television set.

The display files for the Spectrum and ZX-81 are radically different, with the ZX-81 display file the easiest to understand. To save memory, the ZX-81 display file will expand and contract as required. That saves room for machines with only 1K. Those with the 16K expansion have the display file fully expanded.

Poking to the screen is not impossible, even though the display file is not at a fixed position. To poke the letter 'H' on the fifth column of line zero means that the start address has to be found and five added to it. The system variable D_FILE — address 16396 — holds that start position so, POKE (PEEK 16396+256*PEEK 16397) +5,45 will do the trick. For unexpanded users, it is necessary first to ensure that the area to be poked is already expanded. That can be done with spaces.

The Spectrum also has a display file — addresses 16384-22528 — but there is also an area of memory directly associated with it. That is the attributes area, which is at addresses 22528-23296. Both the display file and the attributes area are at fixed addresses and thus cannot be moved about in memory.

The first thing to note about the display file on the Spectrum is that it is more than 8K long. The reason is that the display file not only holds characters but also high-resolution graphics. It is set up in such a way that each row — high resolution — is made up of 32 bytes. There are eight bytes to each character and 22 rows, plus two for the report lines.

Poking characters to the Spectrum display is very difficult. Each character is made up from eight bytes, not like the one-byte ZX-81 set-up. If characters are to be printed in machine code, it is best to use the RST 10 instruction, which will print a whole character.

Each bit of every byte in the display file corresponds to one pixel being plotted on the screen. Note that it has nothing to do with the colour or other attribute the character/pixel may have.

The information as to foreground/background colour and so on is held in the attribute area. That area is smaller than the display file and each byte corresponds to one character position on the screen. Depending on the bit pattern of the byte, certain attributes will be assigned to the corresponding character position.

As there is one attribute byte corresponding to a character and not a pixel, no individual pixel may have its own attribute. That is the reason each character may have only one foreground and background colour.

Characters and graphics

The program area is where your program is stored. On the ZX-81 it starts at a fixed location — 16509 — and that allows machine code to be stored in REM statements at the start of the program. For the Spectrum things are different — the Microdrive maps and channel information are flexible. That means that with an Interface 1 attached, the start of program area cannot be guaranteed. That is a little white lie — the start of the Basic program area can be determined by START=PEEK 23635+256*PEEK 23636. That is PEEKing the system variable PROG.

Readers who own computers other than the ZX-81 or Spectrum may have noticed that a program for one machine takes more room when put on a Sinclair machine. That is because all numbers in listings are followed by an invisible five-byte floating point representation.

Immediately above the program area on both machines is the variables area. The values of the variables in your programs are stored. As a program is run, variables are created and accessed and that makes the area one of the busiest. Programs can be made to run more efficiently if arrays to be used in a program are dimensioned before any other variables. After the arrays, declare the numeric variables, with the most-frequently-used declared first.

Duel to death as killer parrot attacks man

We look at the best and the worst new releases in a month which offers new games from top software houses Fantasy and Ultimate.

SABRE WULF sends the player rushing round a lusciously-flowered maze-like forest in search of the four portions of an amulet which will allow escape. On the way are superbly-animated creatures to be killed or avoided and an assortment of objects and treasure to be collected.

As with Atic Atac from the same company, a joystick is almost essential to any progress in the maze. Each location is packed with lethal creatures and as fast as one set is killed, another set appears. Stay in any place for any length of time and the lethal, indestructible voodoo flame will get you.

There is a choice of objectives. A percentage at the end of each game indicate how much of the maze you have covered; a score at the top of the screen registers most events, including monsters killed and, of course, there is the ultimate goal-escape.

Apart from the obvious problems posed by an intricate maze and deadly creatures, there are tactics to be learned which can help the player to success. Each object collected has a use, although they are difficult to deduce, and even working-out which of the several objects collected has provided an extra life can be difficult.

There are the orchids which bloom occasionally. One sends your movements haywire, another moves you super-fast, a third transforms you into a



zombie. Some are essential to progress, others should be avoided completely.

Then there are the pieces of amulet. They move round, so have to be rediscovered in each game. Next there are the knights in armour, and the fruit bats, and the wart hogs, the tarantulas, the killer parrots—and so it goes on.

If you like Atic Atac, you will love **Sabre Wulf.** If you missed Atic Atac, rush and buy both games now. Produced by Ultimate Play the Game, The Green, Ashby de la Zouch. Leicestershire, Sabre Wulf costs £9.95.

Mugsy

NICE GRAPHICS, shame about the game. Never has that been truer of a Spectrum game than it is of **Mugsy.** The graphics are superb—many screens full of cartoon pictures, drawn quickly and in great detail. Some of them are



animated and the large-scale animation is better than any produced for the Spectrum so far.

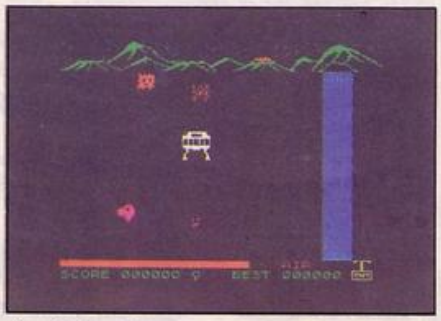
The game, however, is a straightforward simulation in which the aim is to run a mob of gangsters for as long as possible. Decisions to be made are concerned with allocation of budget and little else.

At first sight the game is astounding; within 10 minutes the graphics have become stale and the game is boring. What a shame. Produced by Melbourne House, Church Yard, Tring, Herts for the 48K Spectrum. Price, £6.95.

Tribble Trouble

TRIBBLE TROUBLE is a five-screen game and by the time you finish the fifth screen you will wish you had never heard of tribbles. It is not that they are not cute; it is just that they are dumb and it is difficult enough to finish an appointed task without having to prevent one drowning in the river or walking straight into the hands of a monster.

Start the game and one walks straight into the river. The next tribble follows you obediently into your spaceship but will it sit there quietly while you collect jewels and build a bridge across the



river? You bet it will not. When finally you escape the first screen, what happens? Your tribble gets caught on a cactus, eaten by a Spheroid, or walks straight into a Snapper. Typical.

Tribble Trouble is exasperating and great fun. It is produced for the 48K Spectrum by Software Projects, Bear Brand Complex, Allerton Road, Woolton, Liverpool and costs £5.95.

Egg Snatchers

RECENT software releases have indicated that shooting in straight lines is now passé. The new alterative is to spit missiles which hit their target on the ricochet. Not the cleanest of habits and certainly not the easiest.

That form of defence is employed in **Beaky and the Egg Snatchers.** The game includes many levels, all different. The gist is that the player is transformed into a large bird trying to rear chicks. Eggs must be collected and hatched and chicks must then be fed.

As usual, the difficulties are manifold. You are not just a bird, you are an Andromedan Condor. The instructions suggest that life is made easier if you imagine you really are an Andromedan Condor. That is no mean feat but they are correct; movement is even more difficult than that stretch of the imagination.

It might be thought that trying to incubate eggs would be difficult if you are a male bird but the problem goes



unnoticed in the face of the Egg-snatchers which do their best at every stage of the game to prevent any new condor reaching maturity. Not only do they carry away the eggs, they also drop snowflakes on the eggs while they are incubating and fire missiles at the small chicks.

Beaky and the Egg Snatchers is far more inventive and far more challenging than it is possible to imagine without playing it for several hours. Definitely one of the best games of 1984, produced for the 48K Spectrum by Fantasy Software, Fauconberg Lodge, 27a St George's Road, Cheltenham, Gloucestershire. Price, £6.50.

Eric and the Floaters

ERIC and the Floaters is a very addictive game, involving moving round a maze, exploding sections of wall to collect treasure and finding the exit to another screen. Points can be gained slowly by collecting treasure, or quickly by bursting the deadly floating balloons as soon as possible and moving to the next more difficult level. Enjoyable though it is, the fact remains that it is a monsters-in-the-maze-type game. Sinclair software used to be state of the art, so why is the company now endorsing products which could have been produced early last year?

Produced for the 48K Spectrum by Sinclair Research Ltd, 23 Willis Road, Cambridge Price, £5.95.

Carpet Capers

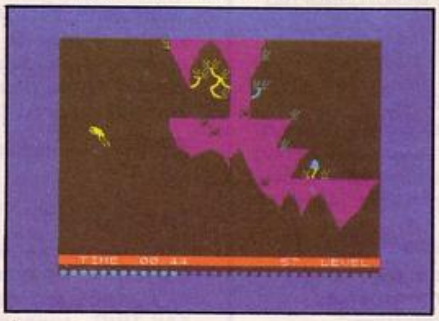
IN THE sophisticated Spectrum software market it is not often a game populated by unanimated user-defined graphics retains the user's attention for more than a few minutes. **Carpet Capers,** billed as a game 'about deranged carpet fitters', does just that. The player rushes round the screen—a joystick is almost essential—lays as much carpet as possible, picks up the key and any tools lying around, and finds the door to the next room which the key unlocks.

To make matters more difficult, your apprentice undoes all the good work, if you let him; other carpet fitters are laying carpet over yours and you cannot tread on your own carpet. There are nine rooms to complete and each one is a challenge.

Produced by Terminal Software, 28 Church Lane, Prestwich, Manchester. Price £5.95.

Bugaboo

IN BUGABOO—48K Spectrum, £6.95—the player takes on the persona of **Bugaboo** the flea, which must leap out of a pit, from pit to pit and from mushroom to mushroom while avoiding the horrific monster which wishes to eat Bugaboo. The novel movement of short and long jumps disguises for some time



the point that it is a clever development of the monster-in-the-maze game.

Produced by Quicksilva, 13, Palmerston Road, Southampton SO1 1LL.

Dragonsbane

DRAGONSBANE—48K Spectrum, £6.95—is one of those awful amalgamations of adventure and strategy game which become disenchanting within a few minutes of loading. The aim is to make your way through the castle, past the deadly monster, to rescue the princess. Only one room is displayed at a time and, even with careful use of a map, it is difficult to do anything other than trust to luck, as fleeing from monsters can transport you magically over some distance.

Dragonsbane should be re-named Userbane and is definitely not recommended. Produced by Quicksilva, 13 Palmerston Road, Southampton SO1 1LL.

Computer Cook Book

THE COMPUTER Cook Book by Bug Byte would merit an entry in the computer press pseuds corner if there were such a thing. To use it properly you must search your cupboards to see what ingredients you have available, carry the television set cassette recorder and computer into the kitchen, set them up, load the database program, select your chosen recipe, load the recipe program and then cook.

Cook, that is, if you have room among the electrical equipment then cluttering your work surfaces. Most of it is also irrelevant if you follow any kind of special diet. Bug Byte seems to be implying that it is easier to go to all that trouble than to flick through your favourite recipe book but it is not.

Produced for the 48K Spectrum by Bug-Byte Ltd, Mulberry House, Canning Place, Liverpool, price £9.50.

The inferno

THE INFERNO is an adventure game with an ambitious theme, a screen layout similar to that employed in The Hobbit, and a character with whom conversations can be held in much the same way as they can be with Gandalf in The Hobbit. The scenario is the 13th century European image of hell, through which the player must travel to escape. Unfortunately the adventure is too easy. The first seven rings can be crossed quickly with the aid of the help facility and there is little difficulty in visiting every location and collecting all necessary objects.

Produced for the 48K Spectrum by Richard Shepherd Software, Elm House, 23–25 Elmshott Lane, Chippenham, Slough, Berkshire, **The Inferno** costs £6.50.

Zipper Flipper

IN YOUR local toyshop, in the novelty section, is a pile of little plastic gadgets which simulate the working of a fruit machine. **Zipper Flipper** does the same thing on a 48K Spectrum. The bouncing pinball is very well represented and is obviously the work of skilful programming. When all is said and done, though, the plastic gadget in



the toyshop does the same job more cheaply.

Published by Sinclair Research Ltd, 25 Willis Road, Cambridge Price, £5.95.

48K SPECTRUM

TASWORD TWO THE WORD PROCESSOR

64 CHARACTERS PER LINE ON THE SCREEN AND TO PRINTERS!
MICRODRIVE COMPATIBLE — instructions supplied

"The number of on-screen prompts, together with the excellent manual, make it ideal – even for an absolute beginner."

PERSONAL COMPUTER WORLD September 1983

"What makes a word processor more or less versatile is its control features. Tasword Two offers an impressive selection and the tutor program succeeds in demonstrating them admirably."

ELECTRONICS AND COMPUTING November 1983

"Tasword is showing a degree of sophistication that business computers took many years to develop."

WHAT MICRO? October 1983

TASWORD TWO The Word Processor*

Your Spectrum becomes a **professional** word processor with TASWORD TWO. TASWORD TWO gives you an amazing **64 characters per line** on your screen. This is ideal for standard A4 paper and TASWORD TWO prints your text just as it appears on your screen.

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Cobra RS232 I/O Port	*ADS Interface*
Euroelectronics Interface	*Kempston Interface*
Hilderbay Interface	*Morex Interface*
Sinclair ZX Interface 1	*Tasman Interface*

The same program drives these interfaces. A short easy to follow set of instructions takes you through setting up your Tasword Two to drive the interface you have or choose to buy.
Tasword Two also drives the ZX printer.

Tasword Two is readily adapted for the microdrives to give super-fast saving and loading of both program and text. The microdrive instructions are supplied with the Tasword Two manual.

£13·90 fully inclusive mail order price.

TASWORD TWO TUTOR

TASWORD TWO comes complete with a manual and a cassette. The cassette contains your TASWORD TWO **and** TASWORD TWO TUTOR. This teaches you word processing using TASWORD TWO. Whether you have serious applications or simply want to learn about word processing, TASWORD TWO and TASWORD TWO TUTOR make it easy and enjoyable.

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See for yourself the powerful features of TASWORD TWO. Send just £2 for the Tasword Two demonstration cassette. A voucher is included which gives you £1 off the price of TASWORD TWO.

All prices include VAT and post and packaging

* Available from larger branches of Boots

For further information on all these products send an s.a.e. with "Tasman Brochure" written on the flap.

Send cheque/P.O. or Access number with order.
Telephone Access orders: Leeds (0532) 438301

TASPRINT

A must for dot matrix printer owners! Print your program output and listings in a choice of five impressive print styles. Drives all the printer interfaces listed under Tasword Two and all dot matrix printers with bit image graphics capabilities. You can also use TASPRINT to print Tasword Two text files. TASPRINT gives your output originality and style! Send s.a.e. for brochure which includes TASPRINT output.

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TASWIDE – 64 characters per line!

A machine code utility program, TASWIDE **doubles** the information that your own programs can display. Make a simple change to your print statements and your output appears on the screen at 64 characters per line instead of the normal 32. Both print sizes can be mixed on the screen. 16K and 48K versions supplied on the same cassette.

£5·50 fully inclusive mail order price

TASMATH 1

Mathematics education. Three programs on one cassette:
TASIMEQ – simultaneous equations
TASQUAD – quadratic equations
TAS-TRIG – trigonometry of right angled triangles.
Available for the 16K and 48K Spectrum and for the BBC model B.

£5.95 fully inclusive mail order price

TASMAN PARALLEL PRINTER INTERFACE

Plug into your Spectrum and drive any printer fitted with the Centronics standard parallel interface. Supplied complete with ribbon cable and driving software. The cassette includes LLIST, LPRINT, and **text** screen copy software for **all** centronics printers. The user changeable interface software makes it easy to send control codes to your printer using the method so successfully pioneered with Tasword Two. The cassette **also** contains fast machine code high resolution screen copy software for Epson, Star, Seikosha, Shinwa, and Tandy Colour Graphic (in colour!) printers. Send s.a.e. for brochure which includes sample print-outs and a full list of printers supported by screen software. Compatible with microdrives/ZX Interface 1.

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TASMAN RS232 PRINTER INTERFACE

Specification and software as above but drives printers fitted with the RS232 standard interface. A low cost route to printing – especially suitable for use with the Tandy Colour Graphic printer and the Brother portable typewriter/printers. Supplied complete with cable – please specify whether 4 pin DIN or 25 way D plug required.

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TASMAN SOFTWARE

Dept SU
SPRINGFIELD HOUSE
HYDE TERRACE, LEEDS LS2 9LN



YOU PLAY the part of the hero, Vanhelsing, and must kill the bats attacking the victim. As the bats swoop you have to throw crucifixes at them using key "F".

Vanhelsing and the Vampires was written for the 16K ZX-81 by S Martin, Newcastle-upon-Tyne.

VANHELSING AND THE VAMPIRES

```
   1 PRINT AT 5,5;"DO YOU WANT I
NSTRUCTIONS?          (Y/N)"
   2 PAUSE 200
   3 IF INKEY$="N" THEN GOTO 9
   4 IF INKEY$="Y" THEN GOTO 155
   9 CLS
  10 LET P=1
  11 LET S=0
  12 LET B=2
  13 LET A=0
  15 LET B=16
  16 LET Q=2
  20 LET M=INT (RND*20+5)
  25 GOTO 65
  40 PRINT AT P,M;" ▝ ▖▖ ▘ ";AT
 P+1,M;"  ▄▄▄▄▄  ";AT P+2,M;"  ▘
▀▀▀  ";AT P+3,M;"   ▖▝  "
  45 LET P=P+1
  50 PRINT AT P-1,M;"         "
  55 IF P>16 THEN LET P=1
  60 IF P=1 THEN PRINT AT B,M;"
      ";AT B+1,M;"          ";AT
B+2,M;"          ";AT B+3,M;"
"
  61 IF P=1 THEN LET M=INT (RND*
20+3)
  65 PRINT AT 0,0;"SCORE=";S
  70 PRINT AT 19,M+2;"O▄█▄"
  75 PRINT AT 20,0;"████████████
████████████████████"
  80 PRINT AT 19,0;"█"
  81 IF A=10 THEN GOTO 500
  85 PRINT AT 15,0;"O";AT 16,0;"
▙";AT 17,0;"▌ ";AT 18,0;"▙"
  90 IF INKEY$="" THEN GOTO 40
  95 IF INKEY$="F" THEN GOTO 100
 100 FOR K=2 TO 28
 105 PRINT AT B,Q;" +"
 110 PRINT AT B,Q;"  "
 115 LET Q=Q+1
 120 IF P=B AND Q=M THEN LET S=S
+1
 130 IF Q>28 THEN LET Q=2
 135 NEXT K
 136 LET A=A+1
 145 GOTO 40
 150 SAVE "VAMP"
 155 CLS
 156 PRINT AT 1,5;"VAMPIRES ATTA
CK"
 160 PRINT AT 2,2;"IN THIS GAME
YOU ARE "
 165 PRINT AT 3,2;"VANHELSING. T
HE VAMPIRE"
 170 PRINT AT 4,2;"BATS ARE ATTA
CKING A MAIDEN"
 175 PRINT AT 5,2;"YOU MUST THRO
W YOUR CROSSES"
 180 PRINT AT 6,2;"AT THEM USING
 KEY ""F"""
 185 PRINT AT 7 ,2;"YOU ONLY HAV
E 10 CRUCIFIXES "
 186 PRINT AT 8,2;"TO FIGHT THE
BATS OFF."
 187 PRINT AT 9,2;"YOU MUST HIT
THE BAT IN THE          HEAD TO
KILL IT"
 190 PRINT AT 11,9;"*GOOD LUCK*"
 195 PAUSE 500
 200 GOTO 9
 500 CLS
 505 IF S=10 THEN PRINT AT 1,5;"
WELL DONE VAN HELSING      YOU W
IN... THIS TIME.........    BUT I
 WILL RETURN"
 510 IF S<10 THEN PRINT AT 3,5;"
THIS TIME VAN HELSING ......YOU
LOSE.."
 515 PRINT AT 5,5;"DO YOU WANT T
O TRY AGAIN?              (Y/N)"
 518 IF INKEY$="" THEN GOTO 518
 520 IF INKEY$="Y" THEN GOTO 9
 525 IF INKEY$="N" THEN GOTO 527
 527 IF S=10 THEN GOTO 540
 530 IF S<10 THEN PRINT AT 14,15
;"▛▀▀▜";AT 15,15;"▌O▐";AT 16,15;"
▐▌▐";AT 17,15;"▐▌▐";AT 18,15;"▙▄
▟"
 532 PAUSE 100
 534 PRINT AT 15,15;"▗█▖"
 535 PRINT AT 14,15;"█▄█";AT 15,
15;"▌ ▐";AT 16,15;"▌ ▐";AT 17,15
;"▌ ▚";AT 18,15;"▙▄▟"
 540 FOR H=1 TO 20
 545 LET A$="  ▗▄▖▗▄▖
 ▀█████▀
   ▝▀▘  "
 550 PRINT AT 10,12;A$
 555 LET B$="   ▗▄▖
▗▟███▙▖
▘ ▝▀▘ ▝ "
 560 PRINT AT 10,12;B$
 565 NEXT H
```

NOT JUST A PRETTY Inter FACE!

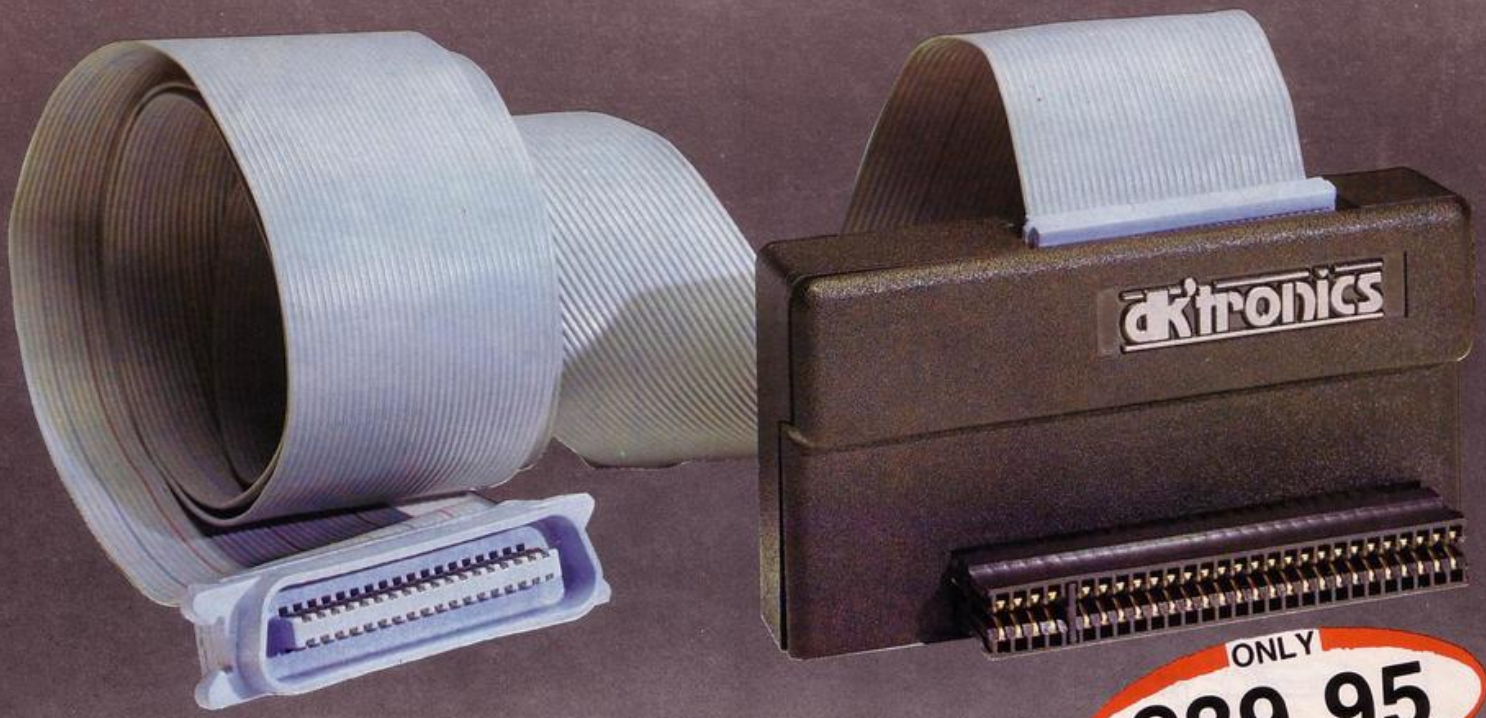
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SP/8/84

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The Spectrum Connection

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The Spectrum dual port joystick interface is a highly versatile and price competitive joystick interface offering two joystick ports. The first port simulates 6,7,8,9, & 0 keys. The second port simulates in (31) command.
The ports will accept any Atari style joystick.

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- Using in (31) (i.e. Kempston).



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The Spectrum Connection



GHOST MONSTER

THE LEADER of the ghost monsters has sent you on a secret mission to find the munchies' power forest. You have completed that task and must make your way back to headquarters. There are several patrols you have to pass to reach HQ. Wait for a convenient moment and slip into line in the patrol until you reach the next exit.

Ghost Monster was written for the 16K Spectrum by Martin Walker of Rugeley, Staffordshire.

```
 200 FOR a= USR "a" TO  USR "d"+
7
 210 READ udg: POKE a,udg
 220 NEXT a
 230 DATA 60,126,255,255,255,255
,126,60
 240 DATA 60,126,248,240,240,248
,126,60
 250 DATA 60,126,31,15,15,31,126
,60
 260 DATA 60,126,90,219,255,255,
219,137
 270 BORDER 6: PAPER 6: INK 9: C
LS
 280 PRINT  AT 0,10;"GHOST MONST
ER"
 290 PRINT  AT 6,13;"KEYS:-"
 300 PRINT  AT 9,12;"P = RIGHT";
 AT 11,12;"I = LEFT"; AT 13,12;"
O = UP"; AT 15,12;"Z = DOWN"
 310 PRINT  AT 18,5;"PRESS ANY K
EY TO PLAY"
 320 PLOT 35,20: DRAW 176,0: DRA
W 0,15: DRAW -176,0: DRAW 0,-15

 330 PAUSE 0: FOR n=1 TO 14: REA
D a: BEEP .1,a: NEXT n
 340 DATA 5,5,12,12,14,14,12,10,
10,9,9,7,7,5
 345 LET hi=0
 350 CLS
 380 LET sc=0: LET li=3
 390 LET a=19: LET b=16
 400 LET c= INT ( RND *30)+1
 410 LET d= INT ( RND *30)+1
 420 LET e= INT ( RND *30)+1
 430 PRINT  AT 1,1;"SCORE ";sc;
AT 1,13;"LIVES ";li; AT 1,24;"HI
 ";hi
 440 PLOT 0,175: DRAW 255,0: DRA
W 0,-20: DRAW -255,0: DRAW 0,20

 450 LET a$=" C  C  C     C  C
C  C  C  C C "
 460 LET b$=" B B B  B  B     B
  B B B B  B "

 470 PRINT  AT 3,0; INK 4;"AAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA"
 480 PRINT  AT 7,0; INK 4;"AAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA"
 490 PRINT  AT 11,0; INK 4;"AAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA"
 500 PRINT  AT 15,0; INK 4;"AAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA"
 510 PRINT  AT 3,15; FLASH 1;"H"
; AT 4,15; FLASH 0;" "
 520 PRINT  AT 7,c;" "; AT 8,c;"
 "
 530 PRINT  AT 11,d;" "; AT 12,d
;" "
 540 PRINT  AT 15,e;" "; AT 16,e
;" "
 550 PRINT  AT a,b;" "
 560 LET a=a+( INKEY$ ="z" AND a
<19)-( INKEY$ ="q" AND a>0)
 570 LET b=b+( INKEY$ ="p" AND b
<31)-( INKEY$ ="i" AND b>0)
 580 PRINT  AT 5,0; INK 1;a$; AT
 6,0; INK 2;b$
 590 PRINT  AT 9,0; INK 2;a$; AT
 10,0; INK 1;b$
 600 PRINT  AT 13,0; INK 3;a$; A
T 14,0; INK 2;b$
 610 IF  SCREEN$ (a,b)="" THEN
GO TO 670
 620 PRINT  AT a,b;"D": BEEP .05
,5
 630 LET a$=a$(2 TO )+a$(1)
 640 LET b$=b$(31)+b$( TO 31)
 650 IF a=3 AND b=15 THEN  GO TO
 700
 660 GO TO 550
 670 PRINT  AT a,b; FLASH 1;"D":
 FOR a=0 TO 30: BEEP 0.05,a+5: N
EXT a
 680 LET li=li-1: IF li=0 THEN
PRINT  AT 1,19;"0": GO TO 720
 690 GO TO 390
 700 FOR a=-40 TO 50 STEP 4: BEE
P .02,a+10: BEEP .02,a-5: NEXT a

 710 LET sc=sc+10: GO TO 390
 720 PRINT  AT 18,12; FLASH 1;"G
AME OVER": FOR a=0 TO 30: BEEP .
05,5: BEEP .05,2: BEEP .03,1: BE
EP .04,2: NEXT a
 730 CLS
 740 PRINT  AT 0,10;"GHOST MONST
ER"
 750 PRINT  AT 8,10;"YOU SCORED
";sc
 760 IF sc>hi THEN  LET hi=sc

 770 PRINT  AT 10,3;"HIGHEST SCO
RE SO FAR IS ";hi
 780 PRINT  AT 12,7;"ANOTHER GAM
E [Y/N]"
 790 IF  INKEY$ ="y" THEN  GO TO
 350
 800 IF  INKEY$ ="n" THEN  GO TO
 820
 810 GO TO 790
 820 CLS : PRINT  AT 0,0;"O.K..T
HANKS FOR PLAYING"
 830 STOP
```

SEA RESCUE

LOWER your helicopter to the sea and rescue the man bobbing in the water. If you go too low you will crash into the sea and lose a life. After hooking the man from the sea you lower him on to the ship's landing platform before attempting another rescue.

Sea Rescue written for the 16K ZX-81 by Steven Knight of Nailsea, Avon.



```
  1 LET B$="SEA RESCUE"
  2 GOSUB 3000
  3 LET HI=0
  4 CLS
  5 LET L=10
  6 LET FU=200
  7 LET C=20
  8 LET S=0
  9 LET LI=159
 10 LET A$=""
 20 LET B=15
 30 POKE 16418,0
 32 CLS
 33 GOSUB 300
 34 PRINT AT 23,0;"//////////
//////////////////"
 40 PRINT AT 21,0;"
 50 PRINT AT 20,0;"
 60 PRINT AT 19,0;"
 70 PRINT AT 18,0;"
 80 PRINT AT 17,0;"
 90 PRINT AT 16,0;"
100 PRINT AT 15,0;"
110 PRINT AT 14,0;"
120 PRINT AT 13,0;"----------"
125 PRINT AT 22,0;"
//////////////////"
140 LET D=INT (RND*2)+1
141 IF D=1 THEN LET B=B-1
142 IF D=2 THEN LET B=B+1
143 IF B<=16 THEN LET B=B+2
144 IF B>=25 THEN LET B=B-2
150 IF A$="" THEN PRINT AT 22,B
;"0"
160 PRINT AT L-1,C-1;"--+--";AT
 L,C;"
*";AT L+1,C+1;"J";AT L
+2,C+1;A$
166 IF A$="0" AND L=10 AND C=4
THEN GOSUB 1150
170 IF INKEY$="7" AND L=20 AND
C=B-1 THEN LET A$="0"
180 IF INKEY$="6" THEN GOTO 200
0
181 IF INKEY$="7" THEN GOTO 204
0
182 IF INKEY$="8" THEN GOTO 208
0
183 IF INKEY$="5" THEN GOTO 212
0
192 IF L>20 THEN GOTO 1000
200 LET FU=FU-1
201 PRINT AT 2,28;FU;"
"
202 IF FU=0 THEN GOTO 1250
210 GOTO 125
300 FOR F=0 TO 3
320 PRINT AT F,0;"
"
340 NEXT F
350 PRINT AT 1,1;"
";AT 2,2
;"
";CHR$ LI;AT 2,13;"SCO
RE=";S;AT 2,23;"FUEL=";FU
360 RETURN
1000 PRINT AT L,C;"SPLASH";AT L-
1,C;"      ";AT L+1,C;"
1010 LET LI=LI-1
1020 PRINT AT 2,10;CHR$ LI
1030 IF LI=156 THEN GOTO 1500
1040 FOR Z=1 TO 100
1050 NEXT Z
1060 PRINT AT L,C;"      "
1070 LET L=10
1080 LET C=20
1090 LET A$=""
1100 LET FU=200
1110 GOTO 32
1150 LET S=S+1
1155 PRINT AT 2,19;S
1160 LET A$=""
1170 LET FU=FU+20
1180 RETURN
1250 PRINT AT L,C;"CRASH";AT L-1
,C;"     ";AT L+1,C;"
1260 LET LI=LI-1
1270 PRINT AT 2,10;CHR$ LI
1280 PRINT AT 7,0;"YOU RAN OUT O
F FUEL"
1285 IF LI=156 THEN GOTO 1500
1290 FOR Z=1 TO 150
1300 NEXT Z
1305 PRINT AT 7,0;"
"
1310 PRINT AT L,C;"      ";AT L-
1,C;"     ";AT L+1,C;"
1320 LET L=10
1330 LET C=20
1340 LET A$=""
1345 LET FU=200
1350 GOTO 32
1500 FOR F=1 TO 50
1502 NEXT F
1505 CLS
1510 IF S>HI THEN LET HI=S
1520 FOR F=1 TO 10
1530 PRINT AT 5,10;"GAME OVER"
1540 PRINT AT 5,10;"GAME OVER"
1550 NEXT F
1560 PRINT AT 10,5;"YOU LIFTED "
;S;" MEN TO SAFTY"
1570 PRINT AT 15,5;"HIGHEST IS "
;HI
1580 PRINT AT 20,10;"HIT N/L",,"
TO PLAY AGAIN"
1590 IF INKEY$="" THEN GOTO 1590
1700 GOTO 4
2000 GOSUB 2160
2010 LET L=L+2
2020 GOTO 190
2040 GOSUB 2160
2050 LET L=L-2
2060 GOTO 190
2080 GOSUB 2160
2090 LET C=C+2
2100 GOTO 190
2120 GOSUB 2160
2130 LET C=C-2
2140 GOTO 190
2160 PRINT AT L-1,C-1;"     ";AT
 L,C;"  ";AT L+1,C+1;" ";AT L
+2,C+1;"
2170 RETURN
3000 PRINT AT 3,2;"
"
3010 PRINT AT 4,2;"
"
3020 PRINT AT 5,2;"
"
3040 PRINT AT 0,0;"--+--";AT 1,1
;"
*"
3045 PRINT AT 0,26;"--+--";AT 1,
27;"
*"
3050 PRINT AT 10,6;"HOOK THE MEN
 UP BY"
3055 PRINT AT 12,7;"USING THE CU
RSOR";AT 14,13;"KEYS"
3060 FOR F=1 TO 150
3070 NEXT F
3080 RETURN
4000 SAVE B$
4010 RUN
```

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The Spectrum Connection

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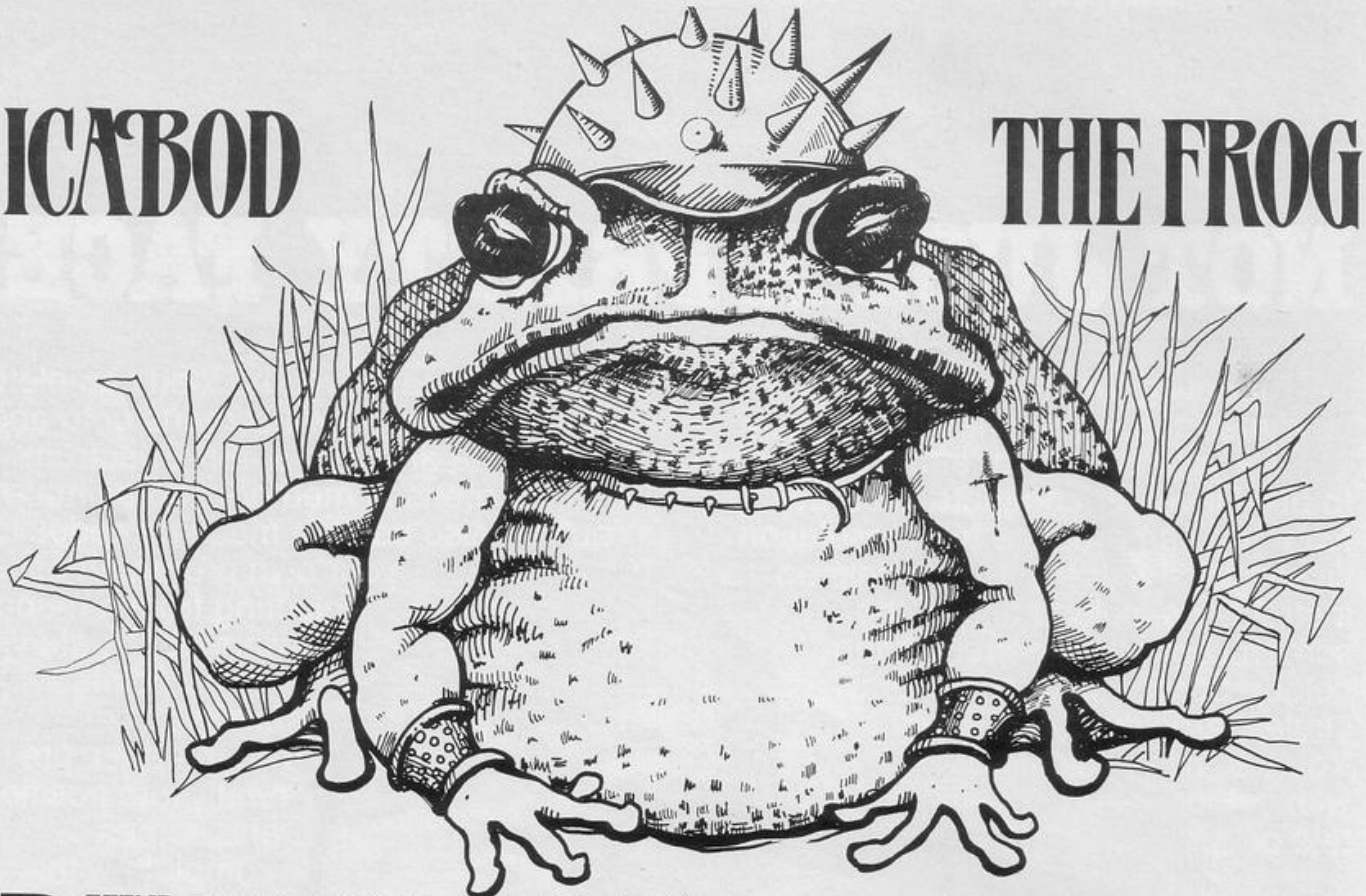
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The Spectrum Connection

ICABOD THE FROG



DEFEND your spaceship from **Icabod the Frog** by hitting it 10 times with your laser gun. Your spaceship follows a fixed path and at the beginning of the game you can choose the speed at which it travels. When Icabod turns red you have to hit it once more to proceed to the next level where you will have less time.

Written for the 16K Spectrum by D Mellor of Keyworth, Notts.

```
  1 CLEAR : RESTORE : LET hi=10
00: LET level=0
  3 LET tot=0: LET score=0
  5 GO SUB 9000
  7 GO SUB 5000
  8 LET speed=speed+3
  9 IF tot>hi THEN  LET hi=tot
 10 LET x= INT ( RND *27+1): LE
T f= INT ( RND *28+1)
 13 LET g=1: LET z=1
 14 LET c=4: LET t=750-(level*5
0): LET t1=t
 15 LET hit=0: LET a=1
 17 LET st=0
 30 INK 7: PAPER 0: BRIGHT 1: B
ORDER 0: CLS
 50 FOR n=0 TO 30 STEP 2: PRINT
 ; INK 4; BRIGHT 0; AT 18,n;"HI"
;: NEXT n
 55 PRINT  AT 0,10;"HIGHEST SCO
RE: ";hi
 60 PRINT  AT 20,2;"HITS: ";hit

100 PRINT  AT 20,20;"TIME: ";t;
"  "
101 IF t <= 0 THEN  BEEP 2,0: G
O TO 8000
102 PAUSE 1: PRINT  INK 2; AT 3
,x;" EFG ": PRINT  INK 6; AT 4,x
;" BCD "
104 IF  PEEK 23560=48 AND st >=
6 THEN  BEEP .05,20: GO SUB 100
0
106 POKE 23560,10
107 LET st=st+1: LET t=t-1
108 LET z=z+1: IF z=speed THEN
GO SUB 299
110 IF x=0 OR x=28 THEN  LET a=
-a
120 LET x=x+a
200 GO TO 100
299 LET f=f+g
300 PRINT  AT 17,f; INK c;" A "
: BEEP .0025,20
320 IF f=0 OR f=29 THEN  LET g=
-g
360 LET z=1
380 RETURN
1000 FOR n=20 TO 90 STEP 10
1005 PLOT ((x+2)*8+4),135-n
1010 DRAW  OVER 1;0,-13
1019 PAUSE 1
1020 IF  ATTR (17,f+1)=71 THEN
BEEP .5,-10: LET hit=hit+1
1030 PLOT  INK 0;((x+2)*8+4),135
-n
1040 DRAW  INK 0; OVER 1;0,-13
1045 NEXT n
1050 LET st=0
1070 IF hit=9 THEN  LET c=2
1080 IF hit=10 THEN  GO TO 2000

1085 PRINT  INK 7; AT 20,2;"HITS
: ";hit
1090 RETURN
2000 INK 1: PAPER 7: CLS
2100 PRINT  INK 2; FLASH 1; AT 9
,9;" CONGRATULATIONS "
2103 GO SUB 7000
2105 LET d=.0125: FOR n=1 TO 2:
FOR m=4 TO 16 STEP 2: BEEP d,m:
NEXT m: NEXT n
2107 PRINT  AT 0,0;"SPEED :";spe
ed-3; AT 0,20;"LEVEL: ";level+1

2108 PRINT  AT 3,8;"SCORE: ";tot

2110 PRINT  AT 13,12;"YOU KILLED
"
2111 PRINT  INK 4; INVERSE 1; AT
 15,11;"ICABOD  FROG"; INK 1; IN
VERSE 0; AT 17,9;"IN A TIME OF "
;t1-t
2112 PRINT  AT 20,6;"PRESS A KEY
 TO CONTINUE"
2115 PAUSE 0
2120 LET level=level+1: GO TO 9

5000 INK 0: BORDER 4: PAPER 7: B
RIGHT 1: CLS : PRINT  AT 5,8;" I
CABOD THE FROG "
5010 FOR n=1 TO 15 STEP 3: PRINT
  INK 4; AT 10,n;"  A": BEEP .1
,-15: PAUSE 5: NEXT n
5013 PAUSE 50
5015 FOR n=15 TO 30 STEP 3: PRIN
T  INK 4; AT 10,n;"  A": BEEP .
1,-15: PAUSE 5: NEXT n: PRINT  A
T 10,30;"  "
5020 PRINT  AT 12,2;"YOU MUST HI
T ICABOD 10 TIMES": PRINT  AT 13
,6;"WITHIN THE TIME LIMIT"
5030 PRINT  AT 14,7;"(PRESS ""0"
" TO FIRE)": PRINT  AT 17,8;"ENT
ER  SPEED (1-4)"
5032 INPUT speed: IF speed>4 OR
speed<1 THEN  GO TO 5032
5035 PRINT  INK 0; AT 19,8;"PRES
S ""s"" TO BEGIN"
5040 IF  INKEY$ ="s" THEN  RETUR
N
5050 GO TO 5040
7000 LET score= INT (level*100*(
12/speed)+(level+1)*t/2+hit*10):
 LET tot=tot+score
7001 RETURN
8000 PAPER 5: INK 0: BORDER 5: C
LS
8005 GO SUB 7000
8007 FOR n=-10 TO -20 STEP -1: B
EEP .25,n: NEXT n
8010 PRINT  AT 6,7;"YOU RAN OUT
OF TIME "; AT 8,11;" SCORE ";tot
; AT 15,4;"PRESS ""y"" TO PLAY A
GAIN"
8015 IF  INKEY$ ="y" THEN  GO TO
 7
8020 GO TO 8015
8900 STOP
9000 FOR a=0 TO 8: FOR b=0 TO 7:
 READ c: POKE  USR ( CHR$ (a+144
))+b,c: NEXT b: NEXT a
9080 DATA 54,93,127,34,28,107,28
,119
9100 DATA 63,64,255,255,127,49,2
7,15
9200 DATA 255,0,255,255,255,157,
247,255
9300 DATA 252,2,255,255,255,140,
216,240
9320 DATA 0,0,0,0,3,4,8,16
9340 DATA 0,0,60,255,0,0,0,0
9360 DATA 0,0,0,0,192,32,16,8
9380 DATA 130,162,182,182,183,24
7,255,255,66,74,75,107,251,255,2
55,255
9400 RETURN
```

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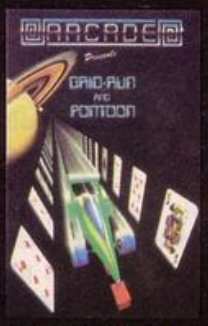
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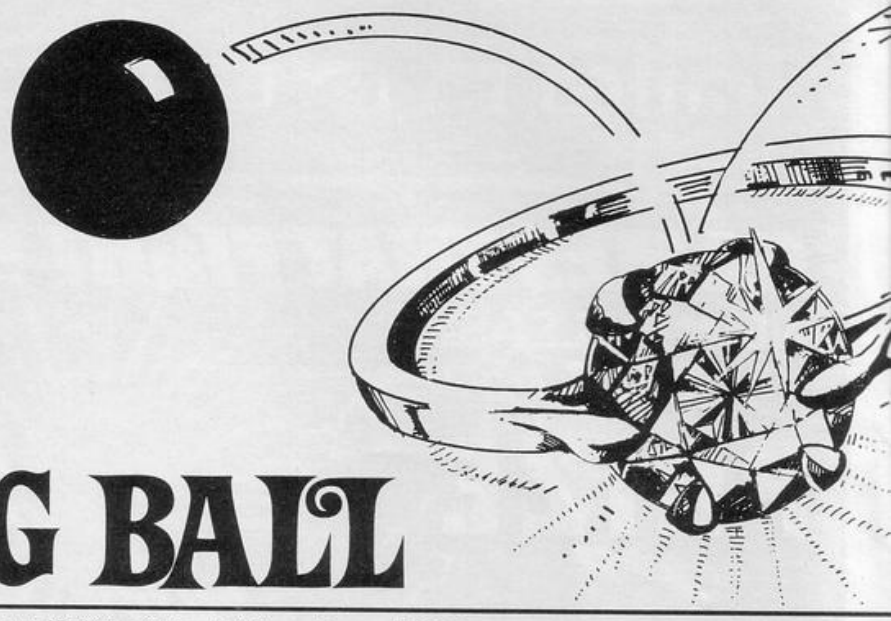
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MOVE ROUND the maze collecting diamonds and swords. It is not so easy as it sounds, as you will be pursued by a bouncing ball. When you have collected all the objects in the maze you have to go to one of the secret passages.

Bouncing Ball was written for the 48K Spectrum by David Creighton, aged 14, of East Didsbury, Manchester.

BOUNCING BALL

```
 SGosub 9000
 10 OVER 0: BORDER 0: PAPER 0:
INK 9: CLS
 15 GO SUB 8000
 20 DIM a$(10,64)
 21 LET sc=0: LET li=3
 24 LET items=3
 25 LET t=0: LET x=17: LET y=2:
 LET ax=3: LET ay=28
 26 LET items=items+1
 30 RESTORE 9100: FOR a=1 TO 10
: READ a$(a): NEXT a
 40 GO SUB 600: REM Print maze

 100 GO SUB 500: REM Print man

 105 GO SUB 550: REM Print bounc
y ball
 110 IF  INKEY$ ="8" THEN  GO SU
B 500: LET y=y+(2 AND a$(((x+1)/
2),y+3) <> "A"): BEEP .001,y+20:
 GO SUB 500
 115 IF  INKEY$ ="5" THEN  GO SU
B 500: LET y=y-(2 AND a$((x+1)/2
,y) <> "B"): BEEP .001,50-y: GO
SUB 500
 120 IF  INKEY$ ="6" THEN  GO SU
B 500: LET x=x+(2 AND a$((x/2)+1
,y+1) <> "A"): BEEP .001,40-y: G
O SUB 500
 125 IF  INKEY$ ="7" THEN  GO SU
B 500: LET x=x-(2 AND a$(((x+1)/
2)-1,y+1) <> "A"): BEEP .001,45-
y: GO SUB 500:
 130  IF a$(((x+1)/2),y+1)="E" T
HEN  LET t=t+1: LET sc=sc+100: F
OR z=10 TO 40 STEP 5: BEEP .005,
z: NEXT z: LET a$((x+1)/2,y+1)="
 ": LET a$(((x+1)/2)+1,y+33)=" "
: PRINT  OVER 1; AT x,y;"E"; AT
x+1,y;"F"
 135 IF a$(((x+1)/2),y+1)="G" TH
EN  LET t=t+1: LET sc=sc+200: FO
R z=20 TO 60 STEP 5: BEEP .005,z
: NEXT z: LET a$((x+1)/2,y+1)="
 ": LET a$(((x+1)/2)+1,y+33)="
": PRINT  OVER 1; AT x,y;"GH"; A
T x+1,y;"IJ"
 140 IF t >= items AND (x <= 2 O
R x >= 19) AND y=14 THEN  GO TO
700
 145 IF x >= 19 AND y=14 THEN  G
O SUB 500: LET x=3: LET y=14: GO
 SUB 500
 150 IF x <= 2 AND y=14 THEN  GO
 SUB 500: LET x=17: LET y=14: GO
 SUB 500
 155 PRINT  AT 21,7; PAPER 2; BR
IGHT 1;sc; BRIGHT 0;" "; BRIGHT
1; AT 21,27;li; BRIGHT 0;" "
 160 IF x=ax AND y=ay THEN  GO S
UB 800
 161 LET o=ax: LET p=ay
 165 IF ay>y THEN  GO SUB 550: L
ET ay=ay-(2 AND a$((ax+1)/2,ay)
<> "B"): GO SUB 550
 170 IF ay<y THEN  GO SUB 550: L
ET ay=ay+(2 AND a$((ax+1)/2,ay+3
) <> "A"): GO SUB 550
 175 IF ax<19 THEN  IF ax>x THEN
  GO SUB 550: LET ax=ax-(2 AND a
$(((ax+1)/2)-1,ay+1) <> "A"): GO
 SUB 550
 180 IF ax>2 THEN  IF ax<x THEN
 GO SUB 550: LET ax=ax+(2 AND a$
((ax+1)/2+1,ay+1) <> "A"): GO SU
B 550
 190 IF ax=o AND ay=p THEN  GO S
UB 550: LET ay=ay+(2 AND a$(((ax
+1)/2),ay+3) <> "A")-(2 AND a$((
(ax+1)/2),ay) <> "B"): GO SUB 55
0
 200 GO TO 110
 500 PRINT  AT x,y; OVER 1; BRIG
HT 1; INK 6;"KL"
 505 PRINT  AT x+1,y; OVER 1; BR
IGHT 1; INK 6;"MN"
 510 RETURN
 550 PRINT  AT ax,ay; OVER 1; BR
IGHT 1; INK 4;"OP"
 555 PRINT  AT ax+1,ay; OVER 1;
BRIGHT 1; INK 4;"QR"
 560 RETURN
 600 FOR a=1 TO 10: BEEP .001,40
+a: PRINT  AT (a*2)-1,0; INK 4;;
a$(a): NEXT a
 601 PRINT  AT 21,0; PAPER 2;"SC
ORE   ";sc; AT 21,21;"LIVES  ";l
i
 605 LET z$="E F ": FOR z=1 TO i
tems
 610 LET rx=( INT ( RND *8)+1)*2
: LET ry=( INT ( RND *14)+1)*2

 615 IF a$((rx+2)/2,ry+1) <> " "
 THEN  GO TO 610
 620 PRINT  INK  INT ( RND *6)+2
; AT rx+1,ry;z$( TO 2); AT rx+2,
ry;z$(3 TO )
 621 LET a$((rx+2)/2,ry+1)=z$(1)
: LET a$((rx+2)/2,ry+2)=z$(2)
 622 LET a$((rx+1)/2,ry+32)=z$(3
): LET a$((rx+1)/2,ry+32)=z$(4)

 625 LET z$=("GHIJ" AND z >= 2)+
("E F " AND z <= 1): NEXT z
 630 RETURN
 700 FOR a=1 TO 50
 701 OUT 254,7
 702 OUT 254,130
 703 OUT 254,30
 704 OUT 254,16
 705 OUT 254,255
 706 OUT 254,201
 707 OUT 254,150
 708 NEXT a
 710 BEEP .002,a
 715 FOR a=0 TO 10: FOR b=1 TO 7
: BEEP .02,(a+b)+ RND *10: PRINT
  AT 10,11; PAPER b; INK 9; FLAS
H 1;"BONUS": NEXT b: NEXT a
 720 CLS : LET sc=sc+500
 730 GO TO 25
 800 FOR b=1 TO 5: FOR a=0 TO 7:
 BORDER a: BEEP .005,a*b: NEXT a
: NEXT b: BORDER 0
 801 CLS
 805 LET li=li-1
 810 PRINT  AT 10,8; FLASH 1; PA
PER 2;"YOU LOST A LIFE"
 815 FOR a=1 TO 100: PAUSE 1: NE
XT a
 816 IF li <= 0 THEN  GO TO 830

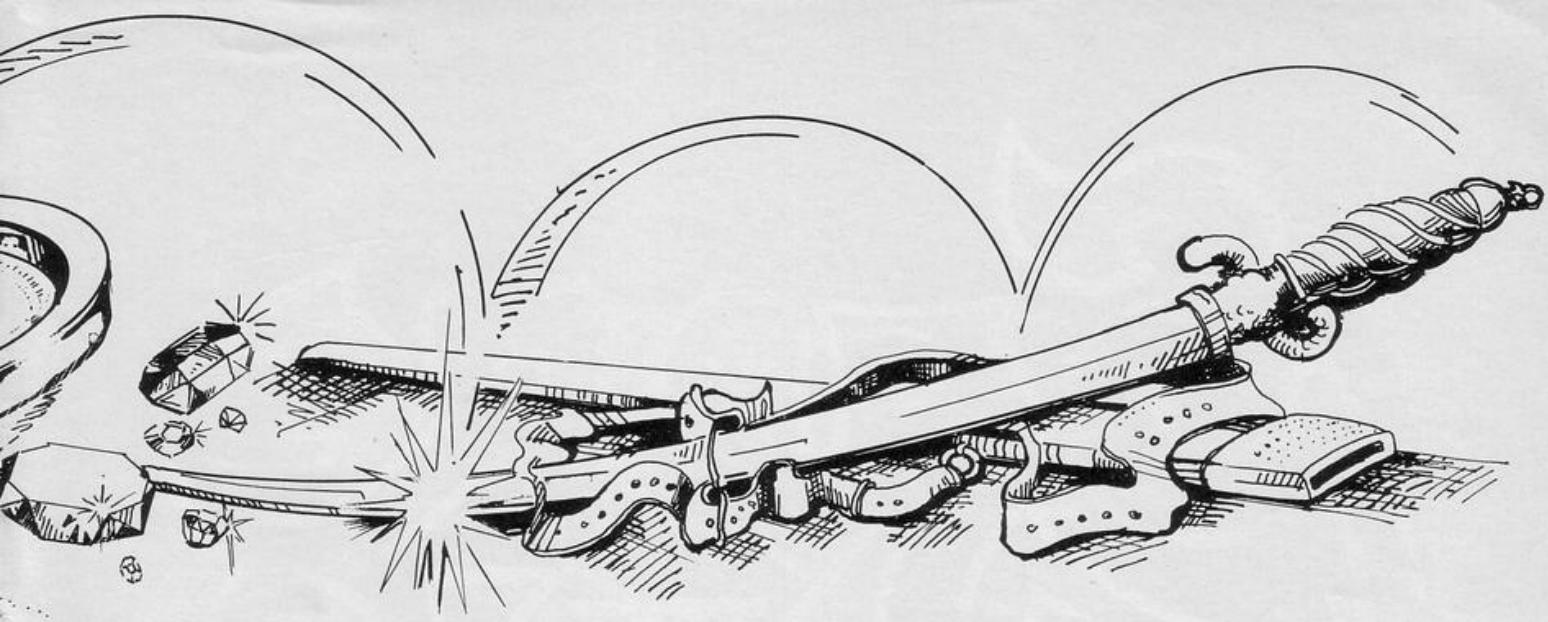
 820 CLS : GO TO 25
 830 CLS : PRINT  INK 9; AT 10,9
; PAPER 3; FLASH 1;" GAME OVER "

 840 PRINT  AT 21,0;"      Anothe
r game (y/n)?": PAUSE 0
 850 IF  INKEY$ ="y" OR  INKEY$
="Y" THEN  RUN
 860 GO TO 850
8000 REM Instructions
8005 PRINT  AT 0,0; PAPER 2; INK
 9; BRIGHT 1;"         BOUNCING B
ALL           "
8015 PRINT  AT 3,0;
8020 PRINT "  The object in ESCA
PE is to    escape the grips of
                    BOUNCY THE BA
LL          if bouncy bouncies o
n top of youthen you will lose a
 life"
8025 PRINT "  When you are wonde
ring around the maze you have to
 pick up theswords and diamonds.
When all theswords and diamonds
have been   collected then you p
roceed to   one of the secert pa
ssages."
8030 PRINT '" ~E~ - A SWORD    ~K
L~ - YOU        F                M
N               ~GH~- A DIAMOND ~O
P~ - BOUNCY     IJ               Q
R"
8035 PRINT '"KEYS :-  5,6,7 & 8"

8100 FOR a=0 TO 7: BEEP .002,a+
ND *10+a
8105 PRINT  AT 21,0; INK 9; PAPE
R A;"      PRESS ANY KEY TO PLAY
     "
8110 IF  INKEY$ <> "" THEN  CLS
 : RETURN
8115 NEXT a: GO TO 8100
9005 REM Data for Graphics
9010 DATA 255,128,192,224,255,24
0,240,240
9020 DATA 254,2,6,14,254,30,30,3
0
9030 DATA 240,240,240,255,224,19
2,128,255
9040 DATA 30,30,30,254,14,6,2,25
4
9045 DATA 0,0,0,8,8,28,28,28
9050 DATA 28,28,62,29,29,30,0,0

9055 DATA 0,0,0,15,16,32,64,63

9060 DATA 0,0,0,240,16,8,4,252
```



```
9065 DATA 64,64,32,16,8,4,2,1
9070 DATA 2,4,8,16,32,64,128,0
9075 DATA 63,63,32,255,127,99,99
,103
9080 DATA 248,248,8,254,248,16,2
52,252
9085 DATA 79,79,64,63,7,31,24,16

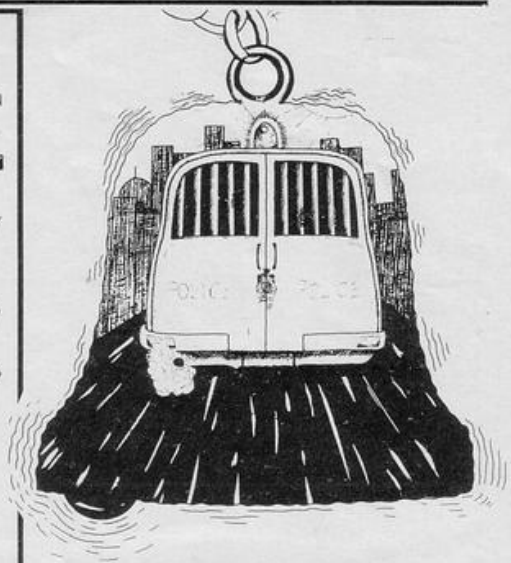
9090 DATA 120,56,128,240,224,224
,24,12
9095 DATA 0,0,0,15,31,63,63,63

9096 DATA 0,0,0,240,248,252,252,
252
9097 DATA 63,63,63,63,31,15,0,0

9098 DATA 252,252,252,252,248,24
0,0,0
9100 REM Data for Mazes
9101 REM Maze 1
9105 DATA "ABABABABABABAB  ABABA
BABABABABABCDCDCDCDCDCDCD  CDCDC
DCDCDCDCDCD"
9110 DATA "AB
          ABCD
          CD"
9115 DATA "AB  ABABABABABABAB
 ABABAB  ABCD  CDCDCDCDCDCDCDCD
 CDCDCD  CD"
9120 DATA "AB  AB  AB  AB
 AB  AB  ABCD  CD  CD  CD
 CD  CD  CD"
9125 DATA "AB  AB  AB  ABAB  AB
 AB  ABCD  CD  CD  CDCD  CD
 CD  CD"
9130 DATA "AB  AB
      AB  ABCD  CD
      CD  CD"
9135 DATA "AB  AB  ABABAB  AB  A
BAB  ABCD  CD  CDCDCD  CD  C
DCD  CD"
9140 DATA "AB  AB  AB  AB  A
BABAB  ABABCD  CD  CD  CD  C
DCDCD  CDCD"
9145 DATA "AB  AB
          ABCD  CD
          CD"
9150 DATA "ABABABABABABAB  ABABA
BABABABABABCDCDCDCDCDCDCD  CDCDC
DCDCDCDCDCD"
9990 STOP
9991 SAVE "Bouncing Ball" LINE 9
995
9992 VERIFY ""
9993 STOP
9995 CLS
9996 PRINT  AT 10,8; FLASH 1; PA
PER 5; INK 9;" STOP THE TAPE "

9999 FOR a=1 TO 3: FOR b=1 TO 20
: BEEP .02,(a+b)*2: NEXT b: NEXT
 a: RUN
```

```
  10 LET HI=0
  11 DIM C(4)
  12 LET F=0
  13 LET S=0
  14 LET C(1)=7
  15 LET C(2)=11
  16 LET C(3)=15
  17 LET C(4)=19
  20 CLS
  30 LET A$="..RING..RING"
  40 PRINT AT 0,0;"SCORE:0","HI:
";HI
  50 PRINT AT 10,0;"▗▄▄▄▄▄▄▄▄▄▄▄▄▖";TAB 0
;"▌▐▀▀▀▀▀▀▀▀▀▀▀▀▌";TAB 0;"▌▐▀▀▀▀▀▀▀▀▀▀▀▀▌
";TAB 0;"▝▀▀▀▀▀▀▀▀▀▀▀▀▘"
  60 PRINT AT 12,6;"▗▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▖
";TAB 6;"▌▐▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▌
";TAB 6;"▌▐      BANK      ▌";TAB 6
;"▌▐▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▌
";TAB 6;"▝▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▘"
  65 PRINT AT 7,7;"▣  ▣  ▣  ▣
"
 100 PRINT AT 11,7;"▙  ▟  ▙  ▟
"
1000 LET P=7
1020 IF F=0 THEN GOSUB 5000
1030 IF F=1 THEN GOSUB 5100
1040 LET P=P+(4 AND INKEY$="X" A
ND P<14)-(4 AND INKEY$="Z" AND P
>4)
1045 PRINT AT 15,P;"  ▟▙  "
1050 IF C(T)=P+4 THEN GOTO 7000
1110 IF R=7 THEN GOTO 6000
1150 IF S=500 THEN GOSUB 5200
1200 GOTO 1010
5000 REM SET BANKER
5010 LET T=INT (RND*4)+1
5015 IF C(T)=P+4 THEN GOTO 5000
5020 LET R=10
5030 LET F=1
5040 RETURN
5100 REM MOVE BANKER
5110 PRINT AT R,C(T);"▙";TAB C(T
);" "
5120 LET R=R-1
5130 RETURN
5200 REM BONUS
5210 FOR N=0 TO 20
5220 PRINT AT 2,12;"BONUS";AT 2,
12;"BONUS"
5230 NEXT N
5240 LET S=S+1000
5250 PRINT AT 0,6;S
5260 PRINT AT 2,12;"      "
5270 RETURN
6000 REM ALARM
6010 FOR N=0 TO 20
6020 PRINT AT R,C(T);"O";AT R,C(
T);"▙"
6025 PRINT AT 3,7;A$
6026 LET A$=A$(2 TO )+A$(1)
6030 NEXT N
6040 FOR N=26 TO P+6 STEP -1
6050 PRINT AT 15,N;"▗▄▄▄▄▄▄▄▄▄▄▄▄▖
";TAB N;"▙▄▄▄▄▄▄▄▄▄▄▄▄▟ ";TAB N;"O-O-O  "
6060 NEXT N
6070 FOR N=P+4 TO P+5
6080 PRINT AT 16,N;" ▙"
6090 NEXT N
6100 FOR N=P+6 TO 25
6110 PRINT AT 15,N;" ▗▄▄▄▄▄▄▄▄▄▄▄▄▖";TAB N
;" ▙▄▄▄▄▄▄▄▄▄▄▄▄▟";TAB N;" O-O-O  "
6120 NEXT N
6130 FOR N=0 TO 10
6140 PRINT AT 20,2;"TOUGH LUCK Y
OUVE BEEN NICKED"
6145 FOR D=1 TO 5
6146 NEXT D
6150 PRINT AT 20,2;"TOUGH LUCK Y
OUVE BEEN NICKED"
6155 FOR D=1 TO 5
6156 NEXT D
6160 NEXT N
6170 IF S>HI THEN PRINT AT 18,1;
"YOU HAVE BEATEN THE HIGH SCORE"
6180 IF S>HI THEN LET HI=S
6190 PRINT AT 20,0;"
                    "
6195 PRINT AT 20,0;"     PRESS P
 TO PLAY AGAIN"
6200 IF INKEY$="P" THEN GOTO 11
6210 GOTO 6190
7000 REM CAUGHT ONE
7010 PRINT AT R+1,C(T);" "
7020 LET R=11
7030 PRINT AT R,C(T);"▙"
7040 LET S=S+1
7050 PRINT AT 0,6;S
7060 LET F=0
7070 GOTO 1010
8000 CLS
8010 SAVE "HOLD UP"
8020 PRINT AT 0,11;"HOLD UP";TAB
 11;"▀▀▀▀▀▀▀"
8060 PRINT "YOU ARE PART OF A TE
AM OF BANK  ROBBERS.YOU MUST MAK
E SURE THE  BANKERS DONT REACH T
HE ALARMS.  YOU DO THIS BY STAND
ING IN FRONTOF THEM (YOU ARE CAR
RYING A GUN YOU SEE)."
8070 PRINT
8080 PRINT "USE ""Z"" TO MOVE LE
FT"
8090 PRINT "USE ""X"" TO MOVE RI
GHT"
8095 PRINT
8100 PRINT "IF YOU MANAGE TO GET
 500 POINTS THEN YOU WILL RECEIV
E A BONUS OF1000 POINTS."
8110 PRINT
8120 PRINT "IF A BANKER REACHES
THE ALARM,  A POLICE VAN WILL CO
ME IN AND  TAKE YOU OFF TO JAIL
."
8130 PRINT TAB 7;"PRESS ""P"" TO
 PLAY"
8140 IF INKEY$="P" THEN RUN
8150 GOTO 8140
```



HOLD-UP

THERE ARE four tellers in the bank, each with an alarm button. As the tellers attempt to ring the alarms you must run in front of them to prevent them doing so. If an alarm is rung a police van will appear and you will be taken to prison.

Hold-up was written for the 16K ZX-81 by Simon Cooke of Clarkston, Glasgow.



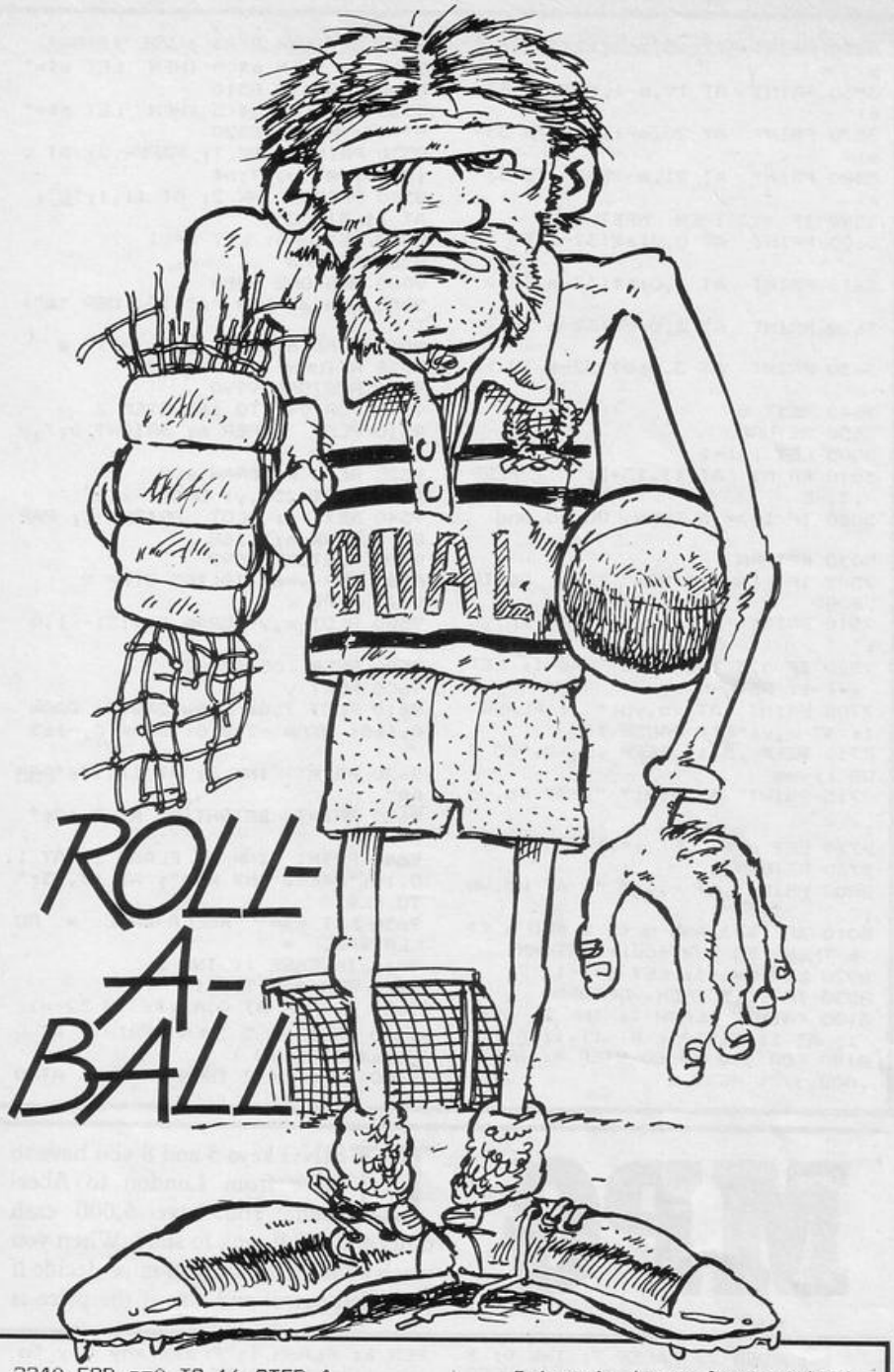
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48K SINCLAIR ZX SPECTRUM
£9.95

SLOT THE BALL into the goal at either end of the rink, using keys M and Z. Key Z will move the ball towards the centre of the rink and M will move out the ball towards the goal. As the ball nears the goal you must avoid the keepers, as running into the goals will cause a life to be lost.

Roll-a-Ball was written for the 48K Spectrum by J Kelly of Denny, Stirlingshire.




```
  20 BRIGHT 1: PAPER 7:
     BORDER 6: INK 1: CLS
  30 LET def=1600:
     LET end=2000
  40 LET inst=3000:
     LET scroll=3500
  50 LET lives=5000:
     LET scheck=7500
  60 LET foul=7700:
     LET score=8500
  70 LET udg=9000:
     LET oval=9500
  80 LET s$="": LET h$=""
  90 LET o=6: LET i=11:
     LET d=9: LET e=13
 100 GO SUB udg
 110 GO SUB inst
 120 GO SUB oval
 130 GO SUB score
 140 LET l=0
1030 FOR n=1 TO 8
1040 LET x=11+o* COS (n/4* PI ):
       LET xo=11+o* COS ((n-1)/
4* PI )
1050 LET y=16+i* SIN (n/4* PI ):
       LET yo=16+i* SIN ((n-1)/
4* PI )
1060 PRINT  AT x,y;"A"; AT xo,yo
;" "
1070 GO SUB def
1080 IF  ATTR (x,y) <> 121 THEN
 GO SUB foul: NEXT n: GO TO 1030

1090 IF  INKEY$ <> "" THEN  BEE
P .002,30: GO SUB scheck
1110 NEXT n
1120 GO TO 1030
1620 IF d=13 THEN  GO TO 1700
1630 PRINT  AT 22-d,2;" "; AT d,
4;" "
1640 PRINT  AT d,28;" "; AT 22-d
,30;" "
1650 LET d=d+1
1660 PRINT  INK 2; AT d,4;"D"; A
T 22-d,2;"D"
1670 PRINT  INK 2; AT d,28;"D";
AT 22-d,30;"D"
1680 RETURN
1700 PRINT  AT 22-e,2;" "; AT e,
4;" "
1710 PRINT  AT e,28;" "; AT 22-e
,30;" "
1720 LET e=e-2
1730 PRINT  INK 2; AT e,28;"D";
AT 22-e,30;"D"
1740 PRINT  INK 2; AT e,4;"D"; A
T 22-e,2;"D"
1750 IF e=9 THEN  LET d=9: LET e
=13
1760 RETURN
2010 IF  VAL h$< VAL s$    THEN
 LET h$=s$: LET s$="": GO TO 220
0
2020 FLASH 1: CLS : PRINT  AT 9,
10;"GAME OVER !"; AT 10,10;"SCOR
E: "; VAL s$
2030 LET s$=""
2040 GO TO 2210
2200 FLASH 1: CLS : PRINT  AT 9,
4;"A NEW HIGH SCORE !*!";" "; VA
L h$
2210 PAUSE 50: FOR b=0 TO 50  ST
EP 5: BEEP .07,b: NEXT b: PRINT
 INVERSE 1; AT 12,7;"ANOTHER GAM
E ?(Y/N)": PAUSE 0
2220 IF  INKEY$ <> "n" THEN  FL
ASH 0: CLS : GO TO 120
2230 FLASH 0: CLS
2240 FOR c=0 TO 16 STEP 4
2250 PRINT  AT c,0; INK 6;a$; IN
K 5;b$; INK 1;c$; INK 0;d$
2260 BEEP .04,-c
2270 NEXT c: STOP
3000 LET a$="(10*sp:ig5:g5:7*sp:
g5:6*sp:ig5:g5)    "
3010 LET b$="(4*sp:g5:g7:ig5:ig4
:g7:sp:ig5:g5:sp:ig4:g6:4*sp:g5:
g3:ig5:g5:g3:ig7:sp:ig5:g5:4*sp)
"
3020 LET c$="(2*ig8:2*sp:ig8:sp:
g5:ig5:ig8:g5:ig5:ig8:g5:ig5:ig8
:sp:2*ig8:sp:ig8:g5:ig5:ig8:g5:i
g5:g5:ig5:ig8:2*sp:2*ig8)"
3030 LET d$="(4*sp:ig8:sp:g5:ig1
:ig8:g5:ig5:ig8:g5:ig1:ig8:ig5:3
*sp:ig8:ig2:ig5:ig8:ig2:ig8:g5:i
g5:ig8:4*sp)"
3040 GO SUB scroll
3050 PRINT  PAPER 5; INK 7; AT 1
6,3;"PRESS ""I"" FOR INSTRUCTION
S"; AT 18,3;"  ANY OTHER KEY TO
 PLAY  "
3060 PAUSE 0: IF  INKEY$ <> "i"
 THEN  CLS : RETURN
3070 CLS : GO SUB scroll
3100 PRINT  INK 2; AT 5,3;
   "  The aim of the game is
    to slot the ball into the
    goal at either end of the
    rink.
      You have two directions
    of movement-
      Outwards.(away from centre)
      Inwards....(towards centre)
      these use keys ""m"" and ""z
""              respectively."
3110 PRINT  PAPER 5; AT 16,3;"PR
ESS ANY KEY TO CONTINUE"
3120 PAUSE 0: CLS : GO SUB scrol
l
3130 PRINT  INK 2; AT 5,3;
    "You have 5 lives , number
     remaining shown at centre
     screen.   You  will  lose
     a life if  you  try to go
     over either  edge  of the
     rink and also if you land
     on a  position  which the
     defence are occupying.You
     score 50 points per goal"

3140 PRINT  PAPER 5; AT 15,3;"PR
ESS ANY KEY TO CONTINUE"
3150 PAUSE 0: CLS : GO SUB scrol
l
3160 PRINT  INK 2; AT 6,5;
    "PRESS ""I"" FOR A REPEAT
        OF  THE INSTRUCTIONS
       ANY OTHER KEY  TO PLAY"

3170 PAUSE 0
3180 IF  INKEY$ <> "i" THEN  CL
S : RETURN
3190 CLS : GO TO 3070
3490 RETURN
3540 FOR m=1 TO 31 STEP 2
```

```
3550 PRINT  AT 18,m-1;a$( TO 33-
m)
3560 PRINT  AT 19,m-1;b$( TO 33-
m)
3570 PRINT  AT 20,m-1;c$( TO 33-
m)
3580 PRINT  AT 21,m-1;d$( TO 33-
m)
3590 IF m<2 THEN  NEXT m
3600 PRINT  AT 0,0;a$(32-m TO )

3610 PRINT  AT 1,0;b$(32-m TO )

3620 PRINT  AT 2,0;c$(32-m TO )

3630 PRINT  AT 3,0;d$(32-m TO )

3640 NEXT m
3650 RETURN
5005 LET l=l+1
5010 PRINT  AT 11,13+l;" ": BEEP
 .3,-5
5020 IF l >= 5 THEN  GO TO end

5030 RETURN
7505 IF  INKEY$ ="m" THEN  GO TO
 8000
7510 PRINT  AT x,y;" "; AT xo,yo
;" "
7520 IF o>3 THEN  LET o=o-1: LET
 i=i-1: RETURN
7705 PRINT  AT xo,yo;" "; FLASH
1; AT x,y;"E": PAUSE 100
7710 BEEP .5,1: BEEP .5,-2: GO S
UB lives
7715 PRINT  AT x,y;" "; AT xo,yo
;" "
7720 LET o=6: LET i=11
7730 RETURN
8000 PRINT  AT x,y;" "; AT xo,yo
;" "
8010 IF i>13 AND n <> 2 AND n <>
 6 THEN  GO SUB foul: RETURN
8020 LET o=o+1: LET i=i+1
8030 IF i<15 THEN  RETURN
8130 PRINT  FLASH 1; INK 2; OVER
 1; AT 11,31;"A"; AT 11,1;"A"
8140 FOR j=0 TO 60 STEP 4: BEEP
.008,j/2: NEXT j
8160 LET s$= STR$ ( VAL s$+50)
8510 IF  LEN s$<5 THEN  LET s$="
0"+s$: GO TO 8510
8520 IF  LEN h$<5 THEN  LET h$="
0"+h$: GO TO 8520
8530 PRINT  INK 7; PAPER 2; AT 0
,7;s$; AT 0,27;h$
8540 PRINT  INK 2; AT 11,1;"B";
AT 11,31;"C"
8550 LET o=6: LET i=11
8560 RETURN
9000 RESTORE 9980
9005 FOR a= USR "a" TO  USR "e"+
7
9010 READ b: POKE a,b: NEXT a
9020 RETURN
9500 RESTORE 9990
9505 FOR y=0 TO 164 STEP 2
9510 PLOT  PAPER 6; BRIGHT 0;7,y

9520 READ x: DRAW x,0
9530 PLOT 255,y: DRAW -x,0
9540 NEXT y: PLOT  BRIGHT 0; PAP
ER 6; INK 6;7,168
9550 RESTORE 9992
9560 FOR y=65 TO 103 STEP 2
9570 READ x
9580 PLOT x,y: DRAW 2*(131-x),0

9590 BEEP .05,y/2-20
9600 NEXT y
9610 PLOT 7,0: DRAW 248,0: DRAW
0,165: DRAW -248,0: DRAW 0,-165

9620 PRINT  INK 2; AT 11,14;"AAA
AA"
9630 PRINT  BRIGHT 0; AT 0,12;"
          "
9640 PRINT  INK 0; FLASH 1; AT 1
8,10;"PRESS ANY KEY"; AT 19,13;"
TO PLAY"
9650 LET x$="  ROLLA-BALL  *  RO
LLA-BALL  * "
9660 INVERSE 1: INK 2
9670 FOR n=1 TO 31
9680 PRINT  AT 0,n;x$( TO 32-n)
9690 IF n >= 2 THEN  PRINT  AT 0
,1;x$(33-n TO )
9700 IF n >= 2 THEN  PRINT  AT 0
,1;x$(33-n TO )
9710 PAUSE 5
9720 IF  INKEY$  <> "" THEN  GO
TO 9740
9730 NEXT n: GO TO 9670
9740 INVERSE 0: INK 1
9750 FOR b=0 TO 10: BEEP .01, RN
D *40: NEXT b
9760 PRINT  AT 15,10;"
   "; AT 16,13;"        "
9770 PRINT  INK 7; PAPER 2; AT 0
,1;"Score:      "; AT 0,22;"High:
    "
9900 PRINT  INK 2; AT 11,1;"B";
AT 11,31;"C"
9910 PRINT  BRIGHT 0; PAPER 6; A
T 0,12;"          "
9920 PRINT  AT 18,10;"
   "; AT 19,13;"        "
9930 RETURN


9980 DATA 0,0, BIN 11000,
     BIN 111100, BIN 111100,
     BIN 11000,0,0,255,255,
     BIN 11100000, BIN 11000000,
     BIN 11000000, BIN 11100000,
     255,255,255,255,7,3,3,7,255
     ,255, BIN 11000, BIN 11000,
     BIN 1111110, BIN 10111101,
     BIN 10011001, BIN 10100101,
     BIN 100100, BIN 1100110,
     BIN 1000010, BIN 10100010,
     BIN 1110100, BIN 111100,255,
     BIN 1011100, BIN 10010010,
     BIN 10001
9990 DATA 124,124,124,124,95,88,
     77,71,65,60,56,52,50,46,42,
     39,36,34,31,29,27,25,23,21,
     19,18,16,15,14,13,12,11,7,
     7,7,7,7,7,7,7,7,7,7,7,7,
     7,7,7,7,7,7,7,11,12,13,14,
     15,16,18,19,21,23,25,27,29,
     31,34,37,39,42,46,50,53,57,
     62,65,71,77,86,96,124,124,
9992 DATA 108,100,97,93,91,88,
     86,85,84,84,84,84,85,86,88,
     91,93,95,100,108
9999 SAVE "roll-a-ball" LINE 10
```

MPG

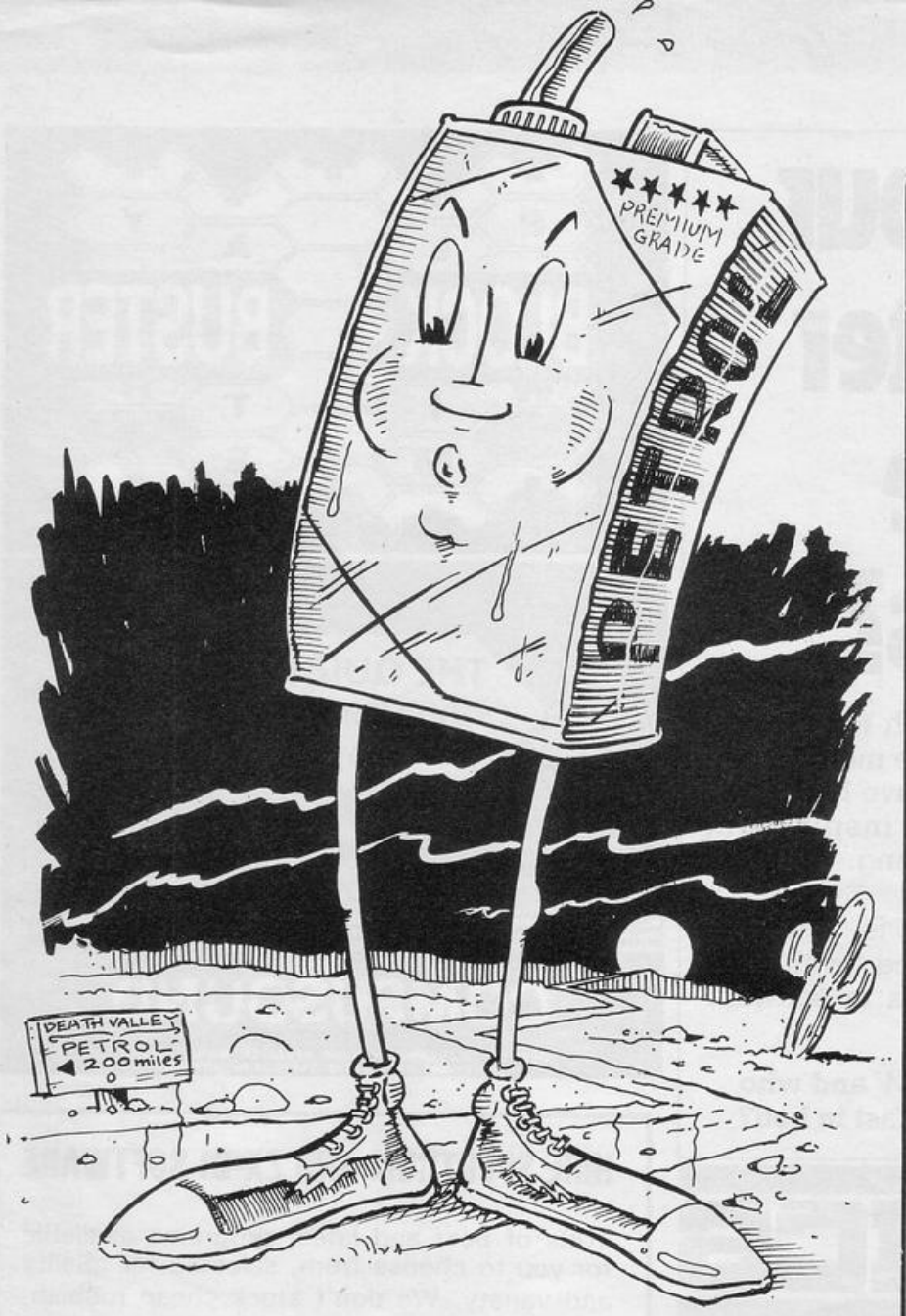
USING keys 5 and 8 you have to drive from London to Aberdeen. You have 6,000 cash units and a full tank to start. When you reach a filling station you must decide if you need petrol and also if the price is reasonable. If you reach Aberdeen without running out of fuel or cash you will be booked into the Aberdeen Hilton as a reward. **MPG** was written for the 16K Spectrum by Douglas Killen of London NW11.

```
   1 BORDER 7: PAPER 7: INK 0: B
RIGHT 0: OVER 0: FLASH 0: INVERS
E 0: GO SUB 99
   2 POKE 23658,255
  11 CLS : LET a=18
  12 LET b=11
  13 LET f=10
  14 LET m=0
  15 LET p= INT ( RND *100)+120

  16 LET cash=6000
  20 PRINT "The object of the ga
me is to getto Aberdeen from Lon
don without running out of fuel
or money.Youstart off with a ful
l tank i.e. 10 gallons.Every so
often you  pass a petrol statio
n.Each one  has a different pric
e per gallonand you choose wheth
er to acceptthe offer or not,bea
ring in mindthat you will not re
ach one if  you stay still,so if
 your fuel  is very low,you may
have to buy at a high price in o
rder to stayin the game."
  21 PRINT " Use ~5~ for left an
d ~8~ for  right,although which
ever way youmove,you still move
towards  Aberdeen."
  22 PRINT " A record of your ca
sh,miles to go,miles already tra
velled and  fuel are kept and di
splayed on  the screen constantl
y."
  24 PRINT #0; AT 1,3; INK 1; PA
PER 6; FLASH 1;"Press any key to
 continue": PAUSE 0
  25 CLS
  30 PRINT "AB..... You
          (2*ig8).....
Road          CC.....
Petrol pump"
  35 PRINT  AT 8,4; FLASH 1; INK
 1; PAPER 6;"Press any key to st
art"
  40 PAUSE 0: CLS
  70 PRINT  AT a,b; INK 1;"  AB
 "
  71 PRINT  AT 19,0;"(2*sp:28*ig
8:2*sp)": LET i=0
  72 IF  INKEY$ ="5" AND b>0 THE
N  LET b=b-1: LET f=f-.1: LET m=
m+1: LET i=1
  74 IF  INKEY$ ="8" AND b<26 TH
EN  LET b=b+1: LET f=f-.1: LET m
=m+1: LET i=1
  75 LET p= INT ( RND *100)+120

  98 GO TO 331
  99 REM AB
100 POKE USR "a"+0, BIN 00000000
110 POKE USR "a"+1, BIN 00000000
120 POKE USR "a"+2, BIN 00000000
130 POKE USR "a"+3, BIN 00000111
140 POKE USR "a"+4, BIN 00001001
150 POKE USR "a"+5, BIN 00011111
160 POKE USR "a"+6, BIN 00011011
165 POKE USR "a"+7, BIN 00000100
168 POKE USR "b"+0, BIN 0
170 POKE USR "b"+1, BIN 0
180 POKE USR "b"+2, BIN 0
190 POKE USR "b"+3, BIN 11000000
200 POKE USR "b"+4, BIN 00100000
210 POKE USR "b"+5, BIN 11111100
220 POKE USR "b"+6, BIN 11101100
230 POKE USR "b"+7, BIN 00010000
240 REM C
250 POKE USR "c"+0, BIN 0
260 POKE USR "c"+1, BIN 01111110
270 POKE USR "c"+2, BIN 01111110
280 POKE USR "c"+3, BIN 00110000
290 POKE USR "c"+4, BIN 01111110
300 POKE USR "c"+5, BIN 01111110
310 POKE USR "c"+6, BIN 01111110
320 POKE USR "c"+7, BIN 01111110
321 REM D
322 POKE USR "d"+0, BIN 00100100
323 POKE USR "d"+1, BIN 00100100
324 POKE USR "d"+2, BIN 11111111
325 POKE USR "d"+3, BIN 00100100
326 POKE USR "d"+4, BIN 00100100
327 POKE USR "d"+5, BIN 11111111
328 POKE USR "d"+6, BIN 00100100
329 POKE USR "d"+7, BIN 00100100
330 RETURN
 331 PRINT  AT 1,20;( INT (f*10+
.5)/10);"  "; AT 0,20;"Gallons"

 340 PRINT  AT 5,20;"Miles"; AT
6,20;m
 350 PRINT  AT 0,0;"Cash"; AT 1,
0;cash
 370 IF m=500 THEN  PRINT "You h
ave reached Aberdeen.We  have
booked a room for you at  the A
```




```
berdeen Hilton;enjoy        yours
elf!     "
 371 IF m=500 THEN  POKE 23658,0
: PRINT  AT 7,2;"(13*ig8:19*sp:3
*ig8:iH:iI:iL:iT:iO:iN:4*i8:19*s
p:13*ig8:19*sp:2*ig8:sp:ig8:sp:i
8:sp:ig8:sp:ig8:sp:2*ig8:19*sp:1
3*ig8:19*sp:ig8:sp:ig8:sp:ig8:sp
:ig8:sp:ig8:sp:ig8:sp:ig8:19*sp:
13*ig8:19*sp:2*ig8:sp:ig8:sp:ig8
:sp:ig8:sp:ig8:sp:2*ig8:19*sp:13
*ig8::19*sp:2*ig8:2*sp:2*ig8:sp:
ig8:sp:ig8:sp:2*ig8:19*sp:2*ig8:
2*sp:2*ig8:sp:ig8:sp:i8:sp:2*ig8
:19*sp:2*ig8:2*sp:9*ig8:": STOP

 375 LET t=500-m
 380 IF t>99 THEN  PRINT  AT 2,5
;"(9*ig8)"; AT 3,5;
          "(ig8:iA:ib:ie:ir:id:e
:ie:in)"; AT 4,5;
          "(3*ig8)";t;"(3*ig8)"; A
T 5,5;                    "(2
*ig8:im:ii:il:ie:is:2*ig8)"
 390 IF t>96 AND t<100 THEN  PRI
NT  AT 2,4;"(9*ig8)"; AT 3,4;
                "iA:ib:ie:i
r:id:ie:ie:in:2*ig8)"; AT 4,4;
                "(4*ig8)";
t;"(3*ig8)"; AT 5,4;
          "(3*ig8:im:ii:il:ie:
is:ig8)"
 391 IF t>9.9 AND t<97 THEN  PRI
NT  AT 2,4;"(9*ig8)"; AT 3,3;
                "(sp:iA:ib:
ie:ir:id:ie:ie:in:ig8:sp)"; AT
4,4;                "(4*
ig8)";t;"(3*ig8)"; AT 5,4;
                "(3*ig8:in:ii:
il:ie:is:ig8)"
 400 IF t<10 AND t >= 0 THEN  PR
INT  AT 2,4;"(9*ig8)"; AT 3,4;
                "(ig8:iA:ib
:ie:ir:id:ie:ie:in)"; AT 4,4;
                "(4*ig8)";t;
"(4*ig8)"; AT 5,4;
          "(2*ig8:im:ii:il:ie:is:
2*ig8)"
 404 IF cash <= 0 OR f <= 0 THEN
   PRINT  AT 2,0;"Game over LOST!
": POKE 23658,0: STOP
 405 IF m >= 400 AND m <= 403 OR
 m <= 223 AND m >= 220 THEN  PRI
NT  AT 6,0; INK 2;"(34*sp:ig8:sp
:ig8:sp:ig8:sp:ig8:sp:ig8:sp:ig8
:21*sp:ig8:sp:i8:sp:ig8:sp:ig8:s
p:ig8:sp:ig8:21*sp:12*ig8:21*sp:
12*ig8:21*sp:2*ig8:D:D:2*ig8:D:2
:D:2*ig8:21*sp:11*ig8:21*sp:11*i
*ig8:21*sp:2*ig8:D:2*ig8:D:2*ig8
g8:21*sp:11*ig8:21*sp:5*ig8:sp:5
*ig8:21*sp:4*ig8:DDD:4*ig8:21*sp
:4*ig8:DDD:4*ig8)"
 406 IF m=403 OR m=223 THEN  CLS
 410 IF m=20 THEN  LET c$="(iS:i
t:i.:iA:il:ib:ia:in:is)"
 411 IF m=23 THEN  LET c$="
     "
 413 IF m=104 THEN  LET c$="
     "
 414 IF m=120 THEN  LET c$="(iN:
io:it:it:ii:in:ig:ih:ia:im)"
 415 IF m=123 THEN  LET c$="
     "
 416 IF m=160 THEN  LET c$="(iS:
ih:ie:if:if:ii:ie:il:id)"
 417 IF m=163 THEN  LET c$="
     "
 418 IF m=190 THEN  LET c$="(iL:
ie:ie:id:is)"
 419 IF m=193 THEN  LET c$="
 "
 420 IF m=220 THEN  LET c$="(iY:
io:ir:ik)"
 421 IF m=223 THEN  LET c$="
"
 422 IF m=300 THEN  LET c$="(iN:
ie:iw:ic:ia:is:it:il:ie)"
 423 IF m=303 THEN  LET c$="
     "
 424 IF m=400 THEN  LET c$="(iE:
id:ii:in:ib:iu:ir:ig:ih)"
 425 IF m=403 THEN  LET c$="
     "
 426 IF m=450 THEN  LET c$="(iD:
iu:in:id:ie:ie)"
 427 IF m=453 THEN  LET c$="
  "
 430 IF m=20 OR m=23 OR m=100 OR
 m=104 OR m=120 OR m=123 OR m=16
0 OR m=163 OR m=190 OR m=193 OR
m=220 OR m=223 OR m=300 OR m=303
 OR m=400 OR m=403 OR m=450 OR m
=453 THEN  PRINT  AT 4,15;c$
 500 LET c= INT ( RND *30)
 502 IF t>96 AND t<101 OR t <= 2
83 AND t >= 280 THEN  LET c=10
 505 IF c <> 1 OR i=0 THEN  GO T
O 8888

 510 IF c=1 THEN  PRINT  AT 7,0;
"(iT:ie:ix:ia:ic:io:27*sp:ig8:2*
sp:ig8:28*sp:ig8:CC:ig8)"
 511 BEEP .15,23: BEEP .15,23: B
EEP .15,23
 513 IF c=1 THEN  PRINT  AT a,b+
1;"(ig8:AB:ig8)"
 514 PRINT  AT a-1,b+1;"(ig8:2*s
p:ig8)"; AT a-2,b;"(iT:ie:ix:ia:
ic:io)"
 515 PRINT  AT 10,0;"Pence per g
allon: ";p

 520 PRINT "Do you want to fill
up?": PAUSE 4e4
 540 PAUSE 0
 541 IF  INKEY$ ="N" THEN  CLS :
 GO TO 8888
 542 PRINT "Do you want to fill
up to the   top ?": PAUSE 0: IF
 INKEY$ ="Y" THEN  GO TO 550
 544 IF  INKEY$ ="N" THEN  PRINT
 "How many gallons do you want ?
  minimum:0.1 gallons
  maximum:";10-f;" gallons": INP
UT i
 545 IF i>10-f OR i<0.1 THEN  IN
PUT i: GO TO 545
 546 PRINT i;" gallons costs ";i
*p;" pence": LET cash=cash-i*p:
PRINT "Cash: ";cash;" pence": LE
T f=f+i: GO TO 570
 550 PRINT "To fill up you will
need ";10-f;" Gallons"
 555 PRINT 10-f;" gallons costs
";(10-f)*p
 557 LET cash=cash-(10-f)*p: LET
 f=10
 560 PRINT "Cash: ";cash;" pence
"
 570 PAUSE 4e4: CLS
8888 GO TO 70
9999 BORDER 7: PAPER 7: INK 0: C
LS : POKE 23692,255: LIST
```

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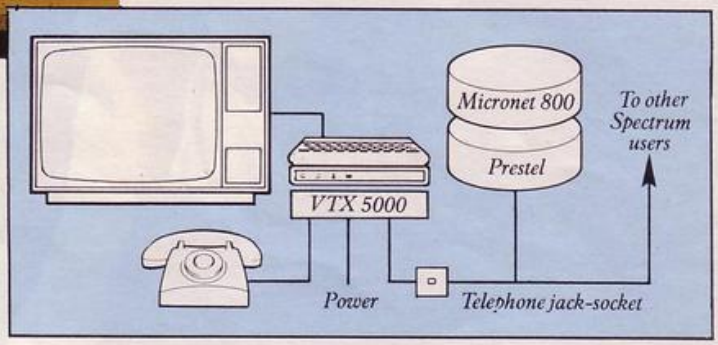




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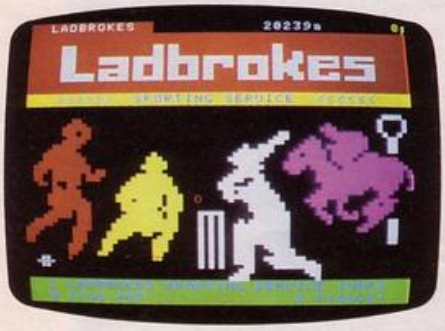
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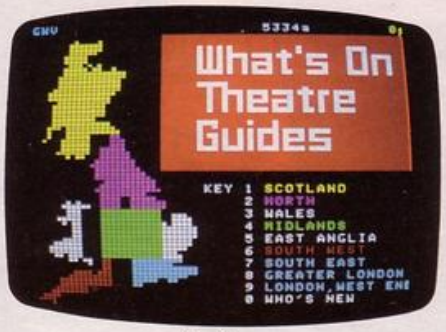
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MOLE ATTACK

DESTROY the castle by releasing bombs and directing them to the turrets. Each time you drop a bomb the mole moves one step nearer the base of the hill on which you are standing. If the mole eats its way through the base of the hill it will collapse and you will fall to your doom.

Mole Attack was written for the 16K Spectrum by Mark Rowland of Hillingdon, Middlesex.

```
  6 GO SUB 1000:
 10 GO SUB 4000
 15 GO SUB 8000: BORDER 5: PAPE
R 7: CLS
 20 LET v1=10: LET co=0: LET o1
=v1+D1
 25: INK 2: REM setup"
 30 PRINT  AT 3,0;"(ig8)"; AT 2
,0;"(2*ig8)"
 40 FOR a=4 TO 5: PRINT  AT a,0
;"(2*ig8)": NEXT a
 50 FOR b=6 TO 9: PRINT  AT b,0
;"(3*ig8)": NEXT b
 60 FOR c=10 TO 15: PRINT  AT c
,0;"(4*ig8)": NEXT c: REM 4 bloc
ks
 70 FOR d=16 TO 20: PRINT  AT d
,0;"(5*ig8)": NEXT d: REM 5 bloc
ks
 80 INK 4: FOR e=0 TO 31: PRINT
 BRIGHT 1; AT 21,e;"(ig8)": NEX
T e: FOR g=5 TO 17: PRINT  BRIGH
T 0; AT 20,g;"(ig8)": NEXT g: PR
INT  AT 20,27;"(5*ig8)"
 82 PRINT  INK 0; AT 21,o1+1;"H
"
 85 INK 0: PRINT  AT 20,5;"(ig8
)"; AT 15,4;"(ig8)"; AT 9,3;"(ig
8)"; AT 5,2;"(ig8)"
 90: REM castle
 100 FOR f=18 TO 26: PRINT  INK
1; AT 20,f;"(ig8)"; INK 2; AT 19
,f;"(ig8)"; AT 18,f;"(ig8)": NEX
T f
 110 PRINT  INK 2; AT 17,18;"A A
 A A A"; AT 20,22;"B"
 120 INK 1: REM man+gun
 130 PRINT  AT 0,0;"C"; AT 1,0;"
D"; AT 1,1;"E"
 200 PAUSE 0
 205 IF  INKEY$ ="1" THEN  GO TO
 220
 206 GO TO 204
 210 GO TO 200
 220 FOR y=2 TO 30
 225 PRINT  AT 1,y;" E"
 230 IF  INKEY$ ="0" THEN  GO SU
B 2000
 240 NEXT y
 243 PRINT  AT 1,y;" "
 250 BEEP .2,20: GO TO 205
1000 FOR w=0 TO 9
1010 READ s$
1020 FOR u=0 TO 7
1030 READ r: POKE  USR s$+u,r
1040 NEXT u
1050 NEXT w
1060 DATA "A",219,219,255,255,12
6,255,255,255,"B",24,126,213,42,
213,42,213,42,"C",56,127,60,62,6
0,60,24,60,"D",60,60,60,56,16,16
,16,60,"E",0,64,253,127,14,62,25
5,255
1070 DATA "F",192,252,127,63,63,
127,252,192,"G",195,231,126,126,
126,126,60,24,"H",0,32,126,254,2
55,38,99,193,"I",66,36,24,129,66
,165,90,255,"J",129,65,66,34,20,
28,157,24
1080 RETURN
2000: FOR i=1 TO 20:
2005 LET q=y
2008 PRINT  AT 1,q+1;" "
2010 PRINT  INK 0; AT i-1,q;" ";
 AT i,q;"G"
2012 IF  ATTR (20,q)=TI THEN  LE
T co=co+1
2022 NEXT i
2025 GO SUB 5000
2029 IF co<152 THEN  GO TO 245

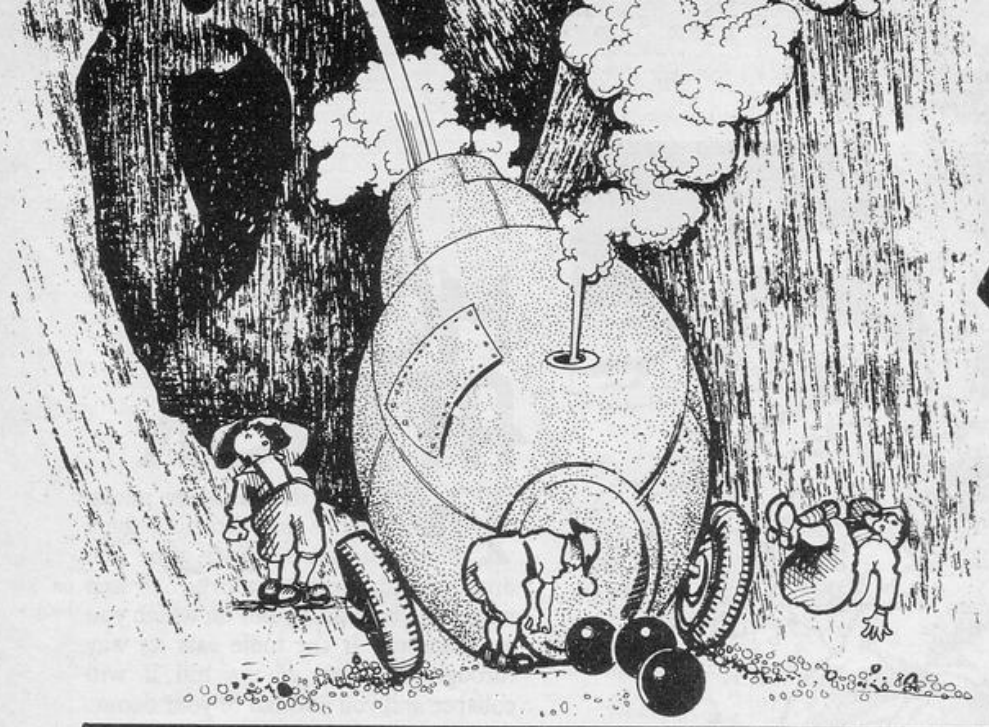
2030 FLASH 1: BRIGHT 1: FOR t=0
TO 30: BEEP .1,t: NEXT t: PRINT
 AT 11,5;"YOU DESTROYED THE CAST
LE"; AT 12,4;"AND YOU WERE ";o1;
" SPACES FROM"; AT 14,14;"DEATH"

2040 INPUT "ANOTHER GO (y/n)";b$

2045 FLASH 0: BRIGHT 0
2050 IF b$ <> "y" THEN  STOP
2060 GO SUB 4000: GO TO 15
3000 FOR l=30 TO -30 STEP -1: BE
EP .08,l: NEXT l: PRINT  FLASH 1
; AT 11,12;"BAD LUCK!!!!"
3010 GO SUB 8040
3020 IF A$ <> "y" THEN  STOP
3030 CLS : RETURN
4000 BRIGHT 0: BORDER 0: PAPER 5
: CLS : BEEP .1,0: BEEP .1,4: BE
EP .1,7: BEEP .3,12: BEEP .1,7:
BEEP .6,12
4005 PAUSE 3
4010 BEEP .1,12: BEEP .1,7: BEEP
 .1,4: BEEP .3,0: BEEP .1,7: BEE
P .6,4
4050 PRINT  FLASH 1; INK 0; AT 5
,11;"PRESENTING"
4053 INK 1: PRINT  AT 10,3;"(3*i
g3:3*sp:ig1:ig3:ig2:3*sp:3*ig3:3
*sp:3*ig3:3*sp:3*ig3:2*sp)"
4054 PRINT  AT 11,3;"(ig1:2*ig3:
4*sp:ig8:4*sp:ig5:2*ig3:3*sp:ig5
:sp:ig3:3*sp:ig5:2*ig3)"
4055 PRINT  AT 12,3;"(2*ig3:ig2:
3*sp:ig1:ig8:ig2:3*sp:ig5:2*ig3:
3*sp:ig1:ig3:ig2:3*sp:ig5:2*ig3:
3*sp)"
4060 INPUT "INSTRUCTIONS: (y/n)";
r$
4070 IF r$="n" THEN  GO TO 7020:

4080 GO SUB 7000:
4090 RETURN
5000 LET o1=v1+D1: PRINT  INK 0;
 AT 21,o1;"H"; AT 21,o1+1;" ": L
ET v1=v1-1
5020 IF o1=0 THEN  GO SUB 6000:
GO TO 5040
5030 RETURN
5040 PRINT  AT 11,3;"THE MOLE AT
E THRU THE HILL"
5050 GO SUB 8040
5060 IF A$ <> "y" THEN  STOP
5070 CLS : GO SUB 4000: GO TO 15

6000 FOR t=20 TO 2 STEP -1
6010 PRINT  AT t,0;"      "
6020 NEXT t
6030 PRINT  AT 0,0;" "; AT 1,0;"
  ";
6040 FOR s=1 TO 20: PRINT  AT s,
3;"C"; AT s+1,3;"D"; AT s-1,3;"
": BEEP .04, INT (18/s)
6050 NEXT s
6060 PRINT  INK 2; AT 21,3;"I";
AT 20,3;"J": BEEP .6,-30:
6070 RETURN
7000 CLS : INK 0: PRINT "You mus
t destroy the castle     before
the mole (H) eats his way throug
h the base of the hill,  and sen
ds you plunging to your
     DEATH"
7010 PRINT '"Begin by pressing k
ey '1' to    start the firing of
 the bombs   and the '0' key to
drop the bomb"
7015 PRINT '" Each time the 0 ke
y is pressed the mole moves 1 st
ep nearer to   your    DOWN FALL
"
7020 PRINT '''"DIFFICULTY (1 TO
5) :- 1=HARD
   :- 5=EASY"
7021 INPUT D1
7025 IF D1<1 OR D1>5 OR D1 <>  I
NT D1 THEN  GO TO 7020
7030 CLS : RETURN
8000 INPUT "DAY LIGHT(1),DUSK(0)
";E1
8005 IF E1 <>  INT E1 OR E1<0 OR
 E1>1 THEN  GO TO 8000
8010 BRIGHT E1
8020 IF E1=1 THEN  LET TI=121: R
ETURN
8030 LET TI=57: RETURN
8040 INPUT "ANOTHER FEEBLE ATTEM
PT?-(y/n)";A$
8050 RETURN
```



CAVERN BLAST

YOU COMMAND a cannon which protects a fortress hidden in a deep cave. The enemy has discovered the hideout and is sending fighters to attack. Move your cannon using Q and Z, and P to fire. If the enemy hits your shield, you lose one of three lives. You can hold the game by pressing H. **Cavern Blast** was written for the 16K Spectrum by P Masterson, aged 14, of Preston, Lancs.

```
  3 LET hi=0: POKE 23658,8
  5 BORDER 0: PAPER 0: INK 7: C
LS
 10 FOR f=0 TO 7: FOR g=0 TO 7:
 READ a: POKE  USR  CHR$ (144+f)
+g,a: NEXT g: NEXT f
 20 DATA 192,240,80,127,127,80,
240,192
 30 DATA 0,0,0,255,255,0,0,0
 40 DATA 0,1,31,99,127,31,1,0

 50 DATA 48,248,24,238,238,24,2
48,48
 60 DATA 24,73,214,143,47,216,3
4,24
 70 DATA 0,12,62,199,255,62,120

 80 DATA 15,62,124,216,216,124,
52,15
 90 DATA 255,1,1,1,1,1,1,1,255

 100 FOR f=5 TO 16
 510 PRINT  AT 5,0; INK 6;" UP="
"Q""  DOWN=""Z""  FIRE=""P"""
 515 PRINT  AT 7,0; INK 6;"
    HOLD=""H"" "
 520 PRINT  AT 9,0; INK 3;"   25
POINTS    55 POINTS"
 530 PRINT  AT 9,0; INK 6;"FG"

 540 PRINT  AT 9,13; INK 2;"CD"
 550 PRINT  AT 12,3; PAPER 1;" P
RESS ANY KEY TO START"
 570 FOR F=2 TO 6
 580 PRINT  AT 0,0; INK f;"
   CAVERN BLAST          "
 590 IF  INKEY$ <> "" THEN  CLS
 : GO TO 1000
 595 PAUSE 14
 600 NEXT f
 610 GO TO 570
1000 FOR f=5 TO 16
1005 BEEP .005,20
1010 PRINT  AT f,0; INK 6; PAPER
 1;"H"
1020 NEXT f
1030 FOR f=0 TO 255
1040 PLOT  INK 4;f,175
1050 DRAW  INK 4;0, RND *-30+-9

1051 PLOT  INK 4;f,0
1055 DRAW  INK 4;0, RND *36+3
1060 NEXT f
1200 LET ax=12
1210 LET bx=1
1220 LET cx= INT ( RND *10)+6
1230 LET dx=28
1232 LET ex= INT ( RND *10)+6
1235 LET fx=28
1240 LET sc=0
1250 LET li=4
1260 POKE 23672,0: POKE 23673,0

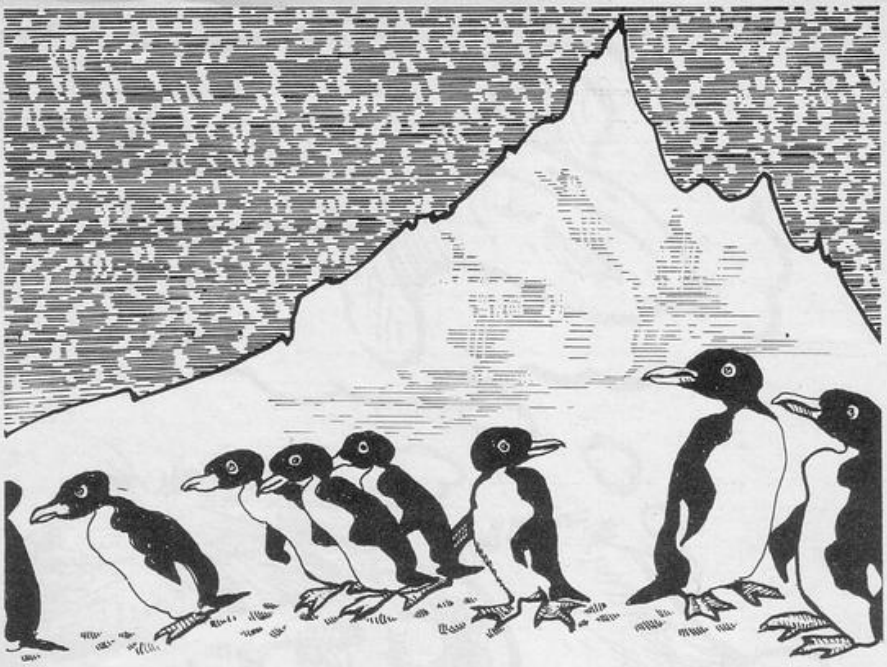
1290 FOR g=0 TO 20 STEP 5
1300 FOR f=-10 TO 0 STEP 3: BEEP
 .01,f+g: NEXT f
1310 PAUSE 3: NEXT g
1500 PRINT  AT ax,bx; BRIGHT 1;
INK 5;"A"
1510 IF  INKEY$ ="Q" AND ax>5 TH
EN  LET ax=ax-1: BEEP .001,60: P
RINT  AT ax+1,bx;" "
1520 IF  INKEY$ ="Z" AND ax<16 T
HEN  LET ax=ax+1: BEEP .001,66:
PRINT  AT ax-1,bx;" "
1530 IF  INKEY$ ="P" THEN  GO SU
B 3000
1540 IF  INKEY$ ="H" THEN  PAUSE
 0
1600 PRINT  AT cx,dx; BRIGHT 1;
INK 2;"CD  "
1605 PRINT  AT ex,fx; BRIGHT 0;
INK 6;"FG "
1610 LET dx=dx-2
1620 LET fx=fx-1
1630 IF dx=0 THEN  GO SUB 3500
1634 IF fx=0 THEN  GO SUB 3500

1700 IF sc>1000 AND sc<1100 THEN
  GO SUB 3700
1710 IF sc>3000 AND sc<3100 THEN
  GO SUB 3700
1720 IF sc>5000 AND sc<5100 THEN
  GO SUB 3700
1730 IF sc>7000 AND sc<7100 THEN
  GO SUB 3700
1990 PRINT  INK 0; AT 0,0; PAPER
 4;"SCORE ";sc; AT 0,25;"LIVES "
;li; AT 0,11;"HI: ";hi
2000 GO TO 1500
2550 NEXT g: NEXT f
3000 FOR f=1 TO 29 STEP 3
3010 PRINT  AT ax,bx+f; INK 1;"B
BB"
3020 NEXT f
3025 BEEP .004,20: BEEP .004,40

3030 PRINT  AT ax,bx+1;"
                       "
3040 IF ax=cx THEN  PRINT  AT cx
,dx; INK 6; PAPER 2;"EE": FOR f=
0 TO 4: BEEP .001,55: NEXT f: LE
T sc=sc+55: PRINT  AT cx,dx;"  "
: LET cx= INT ( RND *10)+6: LET
dx=28
3050 IF ax=ex THEN  PRINT  AT ex
,fx; INK 6; PAPER 2;"EE": FOR f=
0 TO 4: BEEP .001,55: NEXT f: LE
T sc=sc+25: PRINT  AT ex,fx;"  "
: LET ex= INT ( RND *10)+6: LET
fx=28
3100 RETURN
3500 LET li=li-1
3510 PRINT  AT 0,31; PAPER 4; IN
K 0; FLASH 1;li
3520 FOR f=0 TO 4
3530 FOR g=7 TO 1 STEP -1
3540 PRINT  AT ax,bx; INK g;"A"
3545 BEEP .001,g+55
3550 NEXT g: NEXT f
3555 PRINT  AT cx,dx+1;"   "
3556 PRINT  AT ex,fx+1;"  "
3560 IF li=0 THEN  GO TO 4000
3580 LET dx=28
3584 LET fx=28
3600 RETURN
3700 PRINT  AT 11,5; INK 4;"BONU
S GUN"; INK 5; BRIGHT 1;" + "; B
RIGHT 0; INK 6;"200 POINTS"
3705 FOR n=0 TO 1
3710 FOR g=0 TO 40 STEP 4
3720 FOR f=0 TO 15 STEP 4
3730 BEEP .02,f+g: NEXT f: NEXT
g
3740 NEXT n
3750 LET li=li+1
3760 FOR f=1 TO 40: LET sc=sc+5:
 BEEP .001,45: PRINT  AT 0,6; PA
PER 2; INK 7;sc: NEXT f
3770 FOR f=5 TO 27
3780 PRINT  AT 11,f;" ": NEXT f

3790 PRINT  AT cx,dx;"   "; AT
ex,fx;"   "
3800 LET dx=28: LET fx=28
3810 RETURN
4000 PRINT  AT 10,7; FLASH 1; IN
K 5;"G A M E  O V E R"
4001 FOR f=0 TO 100: BORDER 7: O
UT 34300,20: BORDER 0: NEXT f
4002 FOR f=0 TO 100: BORDER 7: O
UT 34350,100: OUT 34300,20: BORD
ER 0: NEXT f
4005 FOR f=0 TO 1
4010 BEEP .1,-30: BEEP .1,-20: B
EEP .1,-17: BEEP .1,-23
4015 NEXT f
4020 PRINT  AT 12,3;"CAVERN FORT
RESS DESTROYED!"
4030 FOR f=-15 TO -35 STEP -5
4040 BEEP .13,f
4050 NEXT f
4060 PRINT  AT 14,7;"YOU HAVE FA
ILED!"
4070 FOR f=0 TO 55
4080 BEEP .005,10: BEEP .005,20:
 BEEP .005,0


4090 NEXT f
4100 IF sc>hi THEN  LET hi=sc
4200 IF li=0 THEN  GO TO 4300
4300 LET t= PEEK 23672+256* PEEK
 23673
4400 IF li=0 THEN  PRINT  AT 18,
3; INK 5;"YOU LASTED ";t/50;" SE
CONDS"
4450 IF  INKEY$ <> "" THEN  GO
TO 4450
4500 IF  INKEY$ ="" THEN  GO TO
4500
4600 CLS : GO TO 500
9000 SAVE "CAVERN" LINE 1
```



COLLECT FOOD supplies for the penguins from a remote area of the South Atlantic. When you leave the boat you discover that the food is stored on an iceberg which is melting slowly. You have the ability to jump out of deep holes and also to dig and fill in the smaller holes.

Iceberg was written for the 16K Spectrum by Kim and Kerry Tomlinson of Parkside, Stafford.

ICEBERG

```
  1 LET hi=0
  8 FOR n=0 TO 47: READ r: POKE
 USR "a"+n,r: NEXT n
 10 DATA 0,51,204,0,51,204,0,0,
24,24,0,126,24,24,24,60
 11 DATA 255,127,63,31,15,7,3,1
,255,254,252,248,240,224,192,128

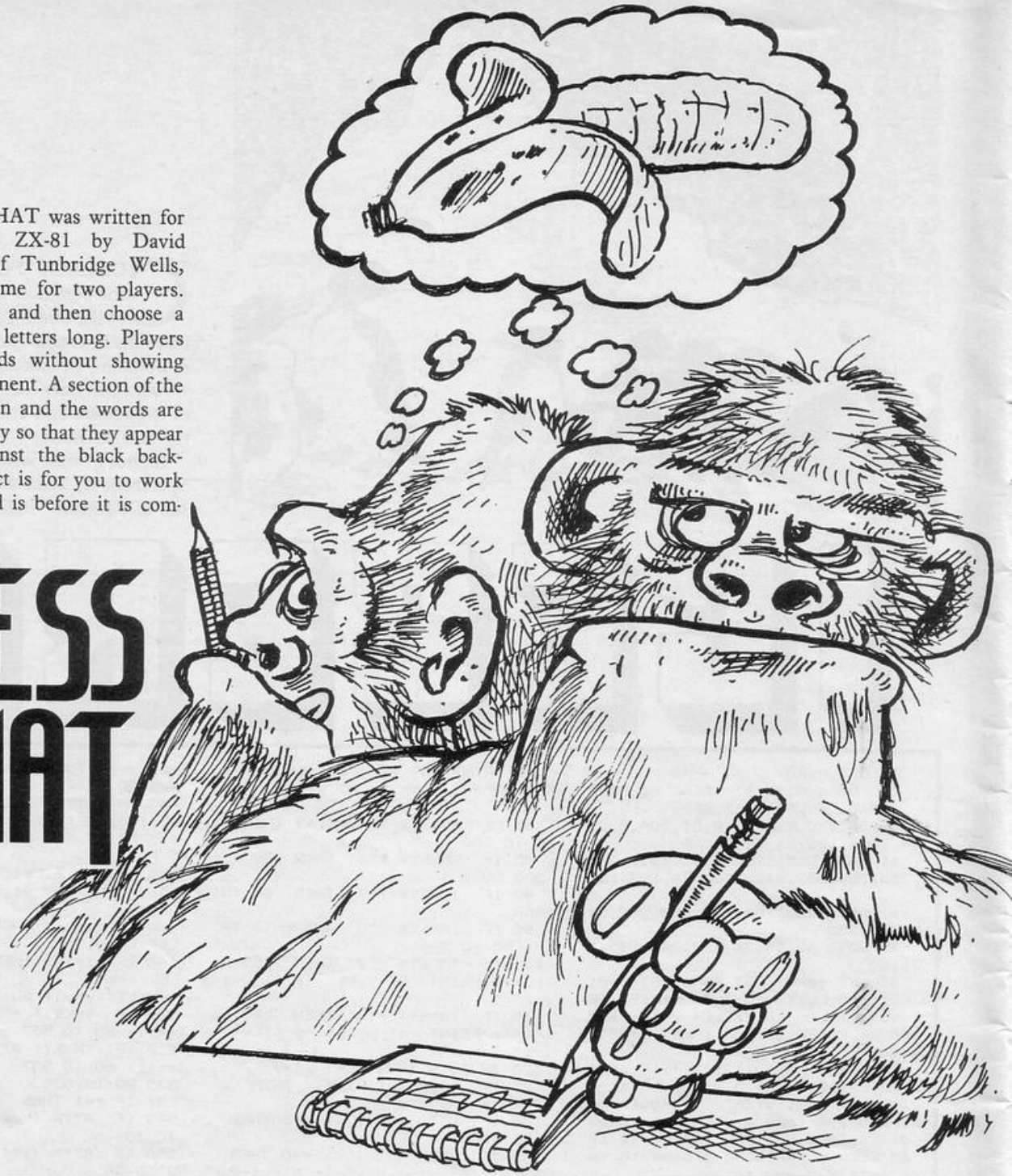
 12 DATA 255,102,102,255,255,25
5,255,255
 15 DATA 60,24,24,102,243,245,1
26,60
 37 LET sc=0: LET b=0: LET z=0:
 LET f=0: LET m=0: LET x1=19: LE
T y1=19: LET x=19: LET y=19: BOR
DER 1: PAPER 5: CLS : LET i$="(2
8*ig8)"
 40 PRINT  AT 0,12;"(iI:iC:iE:i
B:iE:iR:iG)"; AT 3,2;"You must f
ill your boat with    penguin me
at supplys from a     remote area
 of iceland.But you    find it is
 an iceberg melting    beneath yo
ur feet!Can you get           t
he supplys?"
 43 PRINT  AT 10,10;"5=left 8=r
ight          7(then 8 or 5)=jum
p"
 44 PRINT  AT 12,2;"6(then 8 or
 5)=fill in/dig out   (alternate
) - ONLY ON A LEVEL   ((2*ig8) n
ot (ig8:ig3) or (ig3:ig8))"; AT
15,2;"0=get out of deep hole"
 45 INPUT "DIFFICULTY 2 TO 9 ";
di: CLS
 46 LET ch=di
 49 LET m=0: LET ba=0
 50 PRINT  BRIGHT 1; PAPER 1; I
NK 7; AT 21,0;"AAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAA"
 51 PRINT  AT 20,20;"CEEEEEEEEE
ED"
 57 PRINT  PAPER 3; AT 0,0;"CHA
NCES=";ch;" DIFFICULTY=";di;" SC
ORE=";sc;" "
 60 FOR n=20 TO 14 STEP -1: PRI
NT  AT n,0; INK 7;i$( TO n): NEX
T n
 62 PRINT  INK 6; AT 3,25;"(2*i
g8)"; AT 4,25;"(2*ig8)"
 65 FOR n=7 TO 12: CIRCLE  INK
6;207,144,n: NEXT n
 66 INK 0
 69 PRINT  AT 13,0;"F"
 70 PRINT  AT y,x;"B": IF b=1 T
HEN  PRINT  INK 2; AT y-1,x;"F"

 80 LET m=m+1: IF m=di*9 THEN
GO TO 300
 85 IF  INKEY$ ="6" THEN  GO TO
 500
 90 IF  INKEY$ ="7" THEN  GO TO
 400
 95 IF  INKEY$ ="0" AND ch>0 TH
EN  GO TO 200
 100 IF  INKEY$ ="8" THEN  LET x
1=x+1: PRINT  AT y,x;" "; AT y-1
,x;" "
 110 IF  INKEY$ ="5" THEN  LET x
1=x-1: PRINT  AT y,x;" "; AT y-1
,x;" "
 120 IF x1<0 THEN  LET x1=x
 125 IF  ATTR (y1,x1)=47 THEN  L
ET x1=x
 130 IF  ATTR (y1+1,x1)=40 THEN
 LET y1=y+1: LET f=0
 135 IF  ATTR (y1-1,x1)=40 THEN
 PRINT  AT y1-1,x1;" "; AT y1-2,
x1;" "
 140 IF y+1=21 THEN  GO TO 1000

 145 IF y=19 AND x1=19 AND b=1 T
HEN  GO TO 700
 150 LET x=x1: LET y=y1
 155 IF x=0 AND b=0 THEN  BEEP .
1,.5: LET b=1
 160 GO TO 70
 200 PRINT  AT y,x;" "; AT y-1,x
;" ": LET y=y-10: LET x=x+1: LET
 y1=y1-10: LET x1=x1+1
 210 LET ch=ch-1: PRINT  PAPER 3
; AT 0,8;ch: FOR l=0 TO 50: NEXT
 l: GO TO 70
 300 LET x2= INT ( RND *12)+1
 305 LET t=14+ INT ( RND *(y-11.
7))
 307 FOR g=14 TO t: PRINT  AT g,
x2;" ": IF  ATTR (g+1,x2)=47 THE
N  GO TO 308+ RND *2
 309 NEXT g: GO TO 312
 310 PRINT  AT g+1,x2;" "
 312 LET m=0
 320 PRINT  AT y,x;" "; AT y-1,x
;" ": GO TO 100
 400 LET y1=y-1
 410 IF  INKEY$ ="8" THEN  LET x
1=x+1: GO TO 430
 420 IF  INKEY$ ="5" THEN  LET x
1=x-1: GO TO 430
 425 GO TO 410
 430 IF  ATTR (y1,x1)=47 THEN  L
ET y1=y: LET x1=x: GO TO 70
 435 PRINT  AT y,x;" "; AT y-1,x
;" "
 440 PRINT  AT y1,x1;"B": PAUSE
500: PRINT  AT y1,x1;" "; AT y1-
1,x1;" "
 450 IF x1=x+1 THEN  LET x1=x+2:
 LET x=x+1
 460 IF x1=x-1 THEN  LET x1=x-2:
 LET x=x-1
 470 LET y=y1: GO TO 120
 520 IF  INKEY$ ="5" THEN  LET x
3=x-1: GO TO 537
 530 IF  INKEY$ ="8" THEN  LET x
3=x+1: GO TO 537
 535 GO TO 520
 537 IF z=1 THEN  GO TO 600
 540 IF  ATTR (y,x3)=47 THEN  GO
 TO 70
 550 IF  ATTR (y+1,x3)=40 THEN
GO TO 70
 560 PRINT  AT y+1,x3;" "; AT y,
x3;" ": LET z=z+1
 565 PAUSE 500
 570 GO TO 70
 600 IF  ATTR (y+1,x3)=47 THEN
GO TO 70
 610 FOR h=y+1 TO 20
 620 IF  ATTR (h+1,x3)=47 THEN
GO TO 650
 630 NEXT h
 640 GO TO 70
 650 LET y3=h: PRINT  AT y3,x3;
INK 7;"(ig8)"; AT y3-1,x3;"(ig8)
": LET z=0: GO TO 70
 700 PRINT  INK 2; AT 19,21+ba;"
F"; AT 13,0;"F": LET ba=ba+1: LE
T b=0: LET sc=sc+1: IF ba=10 THE
N  GO TO 800
 705 BEEP .3,ba/2
 710 PRINT  PAPER 3; AT 0,29;sc:
 GO TO 70
 800 PRINT  AT 6,3;"WELL DONE!. N
EXT SHIPMENT!": FOR l=0 TO 60: N
EXT l: PAUSE 0: CLS : LET di=di-
1: GO TO 49
1000 IF sc>hi THEN  LET hi=sc
1001 PRINT  AT 6,6;"You Have Dro
wned!"; AT 8,13;"hi=";hi
1002 FOR l=0 TO 60: NEXT l
1003 PAUSE 0: GO TO 10
```

GUESS WHAT was written for the 16K ZX-81 by David Hughes of Tunbridge Wells, Kent and is a game for two players. Choose a subject and then choose a word up to eight letters long. Players then type-in words without showing them to their opponent. A section of the screen is blacked-in and the words are then built gradually so that they appear in silhouette against the black background. The object is for you to work out what the word is before it is completed.

GUESS WHAT



```
   1 PRINT AT 8,11;"GUESS WHAT"
   2 PRINT AT 18,5;"PRESS ANY KE
Y TO START"
   3 PAUSE 4E4
   4 CLS
  10 LET U=0
  20 LET V=0
  30 LET F=1
  40 PRINT "THIS IS A GAME FOR T
WO PEOPLE";AT 2,0;"TYPE IN THE F
IRST PERSONS NAME"
  50 INPUT A$
  60 PRINT AT 5,0;"TYPE IN THE S
ECOND PERSONS NAME"
  70 INPUT B$
  80 CLS
  90 PRINT "HELLO ";A$;" AND ";B
$
 100 PRINT AT 3,0;"DECIDE ON A S
UBJECT AND CHOOSE";AT 5,0;"A WOR
D UP TO 8 LETTERS LONG"
 110 PRINT AT 11,0;A$;" TYPE IN
YOUR WORD";AT 13,0;"DO NOT LET Y
OUR PARTNER SEE"
 120 INPUT C$
 122 IF LEN C$>8 THEN GOTO 120
 125 CLS
 130 PRINT B$;" IT IS YOUR TURN
NOW"
 140 INPUT D$
 150 IF LEN D$>8 THEN GOTO 140
 160 LET E$=C$
 165 LET F$=B$
 170 CLS
 180 FAST
 190 DIM G(64,8)
 250 LET I=LEN E$
 260 DIM J$(1,I)
 270 FOR K=1 TO I
 280 LET J$(1)=E$
 290 LET C=CODE J$(1,K)
 300 FOR L=0 TO 7
 310 LET P=PEEK (7680+C*8+L)
 320 LET M=128
 330 FOR N=0 TO 7
 340 IF P<M THEN GOTO 370
 350 LET G(8*K+25-4*I+N,8-L)=1
 360 LET P=P-M
 370 LET M=M/2
 380 NEXT N
 390 NEXT L
 400 NEXT K
 410 SLOW
 420 PRINT "PRESS ANY KEY TO STA
RT"
 430 PRINT AT 2,0;"IT IS YOUR TU
RN ";F$
 450 PAUSE 4E4
 460 PRINT AT 11,0;"HOLD ANY KEY
 TO STOP AND HAVE";AT 12,0;"A GU
ESS,A WRONG ANSWER WILL COST YOU
";AT 13,0;"5 POINTS"
 470 LET S=0
 472 DIM A(64)
 474 FOR N=1 TO 64
 475 LET A(N)=N
 476 NEXT N
 478 FOR M=63 TO 1 STEP -1
 480 LET M=INT (RND*M)+1
 482 LET Y=INT (A(M)/8)
 484 LET X=(A(M)-Y*8)*8
 486 LET A(M)=A(M)
 488 FOR R=0 TO 7
 490 IF G(X+R+1,Y+1)<>1 THEN PLO
T X+R,Y+27
 494 NEXT R
 495 LET S=S+1
 498 PRINT AT 16,0;"SCORE=";S
 500 IF INKEY$<>"" THEN GOTO 550
 510 NEXT M
 520 PRINT AT 18,0;"YOU HAVE FAI
LED TO GUESS";AT 19,0;"YOUR SCOR
E IS ";S
 530 PAUSE 300
 540 GOTO 600
 550 INPUT Q$
 560 IF Q$=E$ THEN PRINT AT 18,0
;"YOU HAVE GUESSED THE CORRECT";
AT 19,0;"WORD AND YOUR SCORE IS
";S
 565 PAUSE 300

 570 IF Q$=E$ THEN GOTO 600
 580 LET S=S+5
 590 GOTO 480
 600 IF F$=A$ THEN GOTO 640
 610 LET U=U+S
 620 LET F$=A$
 625 LET E$=D$
 630 GOTO 170
 640 LET V=V+S
 650 CLS
 660 PRINT "SCORE AT THE END OF
ROUND ";F;" IS";AT 2,10;A$;"=";U
;AT 3,10;B$;"=";U
 670 PAUSE 300

 680 PRINT AT 8,8;"DECIDE WHAT T
O DO"
 690 PRINT AT 10,0;"1-ANOTHER GA
ME WITH YOUR PARTNER";AT 12,0;"2
-CHANGE PARTNERS";AT 14,0;"3-DO
NOT WANT TO PLAY ANY MORE"
 700 PRINT AT 18,0;"TYPE IN YOUR
 SELECTED NUMBER";AT 19,0;"AND P
RESS NEWLINE"
 710 INPUT Z
 720 IF Z<0 OR Z>3 THEN GOTO 710
 730 CLS
 740 IF Z=3 THEN NEW
 750 IF Z=2 THEN GOTO 1
 760 LET F=F+1
 770 GOTO 90
1000 SAVE "GUESS WHA"
1100 GOTO 1
```

ZX81 ANIMATION

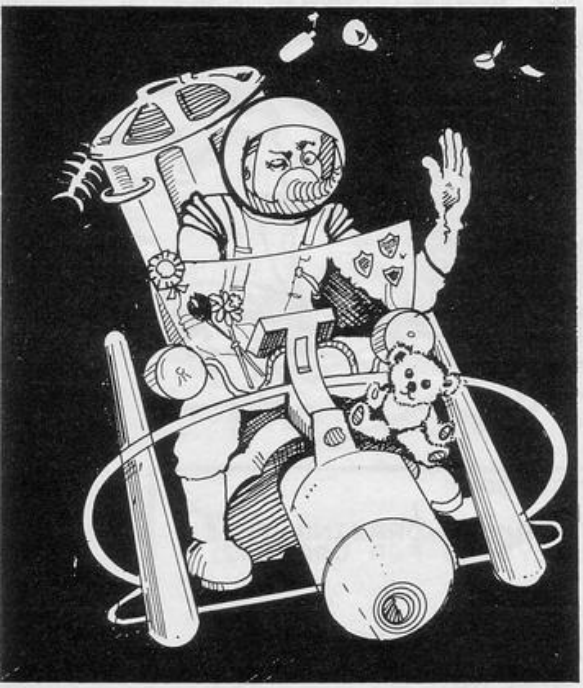
USING the facilities in **ZX-81 Animation** produces an animated picture. There are five pictures used to create the animation but that number can be changed when creating your own scenes to allow more pictures to be used. To enable more pictures to be drawn, change line 10 to DIM A$ (10,704) and line 3070 to FOR N=1 TO 10.

Written for the 16K ZX-81 by Gareth Poxon, aged 11, of Kirkhouse, Cumbria.




```
    1 REM DRAW/STORE IN STRING
   10 DIM A$(5,704)
   40 PRINT "HELLO"
   50 PRINT AT 4,0;"THIS PROGRAM
 WILL STORE UP TO   FIVE DRAWINGS
  AND ENABLE YOU TO VEIW,AMEND OR
  COPY THEM"
   52 PRINT
   54 PRINT "DRAWINGS STORED WITH
  PREVIOUSLY USED NUMBERS ERASE T
HE EARLIER  DRAWING"
   56 PRINT AT 21,0;"TO CONTINUE
PRESS NEWLINE"
   58 IF INKEY$="" THEN GOTO 60
  100 CLS
  110 PRINT "MENU"
  120 PRINT AT 4,0;"D:TO DRAW"
  130 PRINT
  140 PRINT "V:VEIW OR COPY"
  150 PRINT
  160 PRINT "R:RECORD DRAWINGS ON
  TAPE"
  162 PRINT
  163 PRINT "N:ANIMATE"
  165 PRINT AT 20,0;"PRESS KEY CO
RRESPONDING TO THE  FUNCTION YOU
  REQUIRE"
  170 IF INKEY$="D" THEN GOTO 300
  180 IF INKEY$="V" THEN GOTO 400
  190 IF INKEY$="R" THEN GOTO 500
0
  195 IF INKEY$="N" THEN GOTO 300
0
  200 GOTO 170
  300 CLS
  310 PRINT "DRAW"
  320 PRINT AT 4,0;"D:DRAW"
  330 PRINT
  340 PRINT "E:ERASE"
  350 PRINT
  360 PRINT "T:TRANSPORT"
  365 PRINT
  370 PRINT "M:RETURN TO MENU"
  375 PRINT
  380 PRINT "KEYS 3 TO 0:CONTROL
DIRECTION"
  381 PRINT
  382 PRINT
  385 PRINT "WHEN DRAWING IS FINI
SHED PRESS S TO STORE/COPY THEN
ENTER DRAWING NUMBER AND PRESS N
EWLINE"
  390 PRINT AT 21,0;"NOW PRESS NE
WLINE TO START"
  395 IF INKEY$="" THEN GOTO 395
  398 GOTO 1000
  400 CLS
  410 PRINT "VEIW OR VEIW AND COP
Y"
  420 PRINT AT 4,0;"M:TO RETURN M
ENU AT ANY TIME"
  425 PRINT
  430 PRINT "C:COPY"
  435 PRINT
  440 PRINT "A:AMEND DRAWING (USI
NG THE SAME KEYS AS FOR DRAWING)
"
  445 PRINT
  450 PRINT
  460 PRINT "WHICH NUMBER DRAWING
  DO YOU WISH TO VEIW?     (ENTER
NUMBER THEN NEWLINE)"
  470 INPUT Z
  480 CLS
  485 PRINT A$(Z)
  490 IF INKEY$="M" THEN GOTO 100
  495 IF INKEY$="A" THEN GOTO 102
0
  500 IF INKEY$="C" THEN COPY
  505 GOTO 490
  510 GOTO 100
 1010 CLS
 1020 LET X=32
```

```
1030 LET Y=22
1040 GOSUB 1500
1050 UNPLOT X,Y
1060 PLOT X,Y
1070 GOTO 1040
1080 GOSUB 1500
1090 GOTO 1080
1100 GOSUB 1500
1110 PLOT X,Y
1120 UNPLOT X,Y
1130 GOTO 1100
1500 IF INKEY$="D" THEN GOTO 104
0
1510 IF INKEY$="T" THEN GOTO 108
0
1520 IF INKEY$="S" THEN GOTO 200
0
1530 IF INKEY$="E" THEN GOTO 110
0
1535 IF INKEY$="M" THEN GOTO 100
1540 IF INKEY$="5" THEN LET X=X-
1
1550 IF INKEY$="6" THEN LET Y=Y-
1
1555 IF Y=43 THEN GOTO 1590
1560 IF INKEY$="7" THEN LET Y=Y+
1
1565 IF X=63 THEN GOTO 1590
1570 IF INKEY$="8" THEN LET X=X+
1
1572 IF INKEY$="9" THEN LET Y=Y+
1
1574 IF INKEY$="9" THEN LET X=X+
1
1576 IF INKEY$="0" THEN LET X=X+
1
1578 IF INKEY$="0" THEN LET Y=Y-
1
1580 IF INKEY$="4" THEN LET X=X-
1
1582 IF INKEY$="4" THEN LET Y=Y+
1
1584 IF INKEY$="3" THEN LET X=X-
1
1586 IF INKEY$="3" THEN LET Y=Y-
1
1588 IF Y=43 THEN GOTO 1590
1590 RETURN
2000 INPUT A
2005 PRINT AT 21,0;A;"  "
2007 FAST
2010 FOR I=0 TO 21
2020 FOR J=1 TO 31
2030 LET A$(A,J+32*I)=CHR$ PEEK
(PEEK 16396+256*PEEK 16397+J+33*
I)
2040 NEXT J
2050 NEXT I
2060 SLOW
2070 GOTO 100
3000 CLS
3010 PRINT "ANIMATE"
3020 PRINT
3030 PRINT "M:RETURN TO MENU"
3040 PRINT AT 21,0;"PRESS NEWLIN
E TO START"
3050 IF INKEY$="" THEN GOTO 3050
3055 IF INKEY$="M" THEN GOTO 100
3060 CLS
3070 FOR N=1 TO 5
3080 PRINT A$(N)
3085 PRINT AT 0,0;
3090 NEXT N
3100 IF INKEY$="M" THEN GOTO 100
3110 GOTO 3070
5000 CLS
5010 PRINT "SAVE ON TAPE"
5020 PRINT AT 4,0;"WHAT FILE NAM
E DO YOU WISH TO   USE? "
5030 PRINT
5040 PRINT "ENTER FILENAME AND P
RESS NEWLINE"
5050 INPUT F$
5060 CLS
5070 PRINT "START TAPE RECORDER
IN RECORD MODE THEN PRESS NEWLIN
E"
5080 IF INKEY$="" THEN GOTO 5080
5090 SAVE F$
5100 GOTO 100
```



COSMIC DUSTMAN

YOU ARE the **Cosmic Dustman** and it is your job to pick up all the rubbish. Watch for the stars and black holes which must be avoided but collect the mystery dustbins to score points. Beware, as the bins may conceal a black hole.

Written for the 16K ZX-81 by Andrew Pitcher of Dursley, Glos.

```
  1 GOSUB 4000
  5 LET REM=20
 10 LET INK=PEEK 16396+256*PEEK
16397+1
 20 LET SCORE=0
 30 LET HI SCORE=0
 40 LET BORDER=16418
 50 LET MEN=3
 60 POKE BORDER,0
 70 FOR I=0 TO 23
 80 PRINT "[redacted]"
 90 NEXT I
100 LET FUEL=150
110 PRINT AT 23,1;"FUEL [redacted]"
120 FOR I=1 TO 40
130 LET PAPER=INT (RND*660)+INK
+66
140 IF PEEK PAPER<>128 THEN GOT
O 130
150 POKE PAPER,155
160 NEXT I
170 FOR I=1 TO 20
180 LET PAPER=INT (RND*660)+INK
+66
190 IF PEEK PAPER<>128 THEN GOT
O 180
200 POKE PAPER,143
210 NEXT I
220 LET MODE=INK=35
230 LET MAN=INK+45
240 LET CHAR=141
250 LET DD=0
260 POKE MAN,CHAR
265 IF MEN=0 THEN GOTO 1000
268 IF REM=0 THEN GOTO 2000
```



```
  270 POKE MODE,128
  280 LET D=(INKEY$="8")-(INKEY$=
"5")+33*((INKEY$="6")-(INKEY$="7
"))
  290 POKE MODE,141
  300 IF PEEK (MAN+D)=128 THEN LE
T DD=D
  310 IF PEEK (MAN+D)=128 THEN GO
TO 400
  320 IF PEEK (MAN+D)=155 THEN GO
TO 500
  330 IF PEEK (MAN+D)=143 THEN GO
TO 600
  340 IF PEEK (MAN+D)=8 THEN POKE
 MAN,8
  350 IF PEEK (MAN+D)<>128 THEN G
OTO 250
  400 LET MAN=MAN+D
  410 LET CHAR=141
  420 POKE MAN,CHAR
  430 POKE MAN-D,128
  440 LET FUEL=FUEL-1
  450 IF FUEL=0 THEN GOTO 900
  460 GOTO 250
  500 FOR I=1 TO 50
  510 POKE MAN,8
  520 POKE MAN,128
  530 POKE MAN,8
  540 POKE MAN,128
  550 NEXT I
  560 LET MEN=MEN-1
  570 IF MEN=0 THEN GOTO 1000
  580 GOTO 250
  600 LET FOU=INT (RND*5)+1
  610 IF FOU=1 THEN POKE MAN,147
  620 IF FOU=1 THEN PRINT AT 0,0;
"ABANDONED SHUTTLE 1000 POINTS
"
  630 IF FOU=1 THEN LET SCORE=SCO
RE+1000
  640 IF FOU=2 THEN POKE MAN,151
  650 IF FOU=2 THEN PRINT AT 0,0;
"RUSSIA SATELLITE 2000 POINTS
"
  660 IF FOU=2 THEN LET SCORE=SCO
RE+2000
  670 IF FOU=3 THEN POKE MAN,180
  680 IF FOU=3 THEN PRINT AT 0,0;
"A BLACK HOLE 1 LIFE LOST
"
  690 IF FOU=3 THEN LET MEN=MEN-1
  700 IF FOU=4 THEN POKE MAN,140
  710 IF FOU=4 THEN PRINT AT 0,0;
"COSMIC WASTE 0000 POINTS
"
  720 IF FOU=5 THEN GOTO 770
  730 LET REM=REM-1
  740 IF REM=0 THEN GOTO 2000
  750 POKE MAN+D,128
  760 GOTO 260
  770 DIM A$(6,31)
  780 LET A$(1)="A ASTRONAUTS HEL
MET
"
  790 LET A$(2)="A LASER GUN
"
  800 LET A$(3)="ONE ASTRONAUTS B
OOT ?
"
  810 LET A$(4)="A TIN OF BEANS
"
  820 LET A$(5)="A DEAD ASTRONAUT
"
  830 LET A$(6)=" A SCRAP OF A SH
UTTLE
"
  840 LET MQN=INT (RND*6)+1
  850 PRINT AT 0,0;A$(MQN)
  851 LET REM=REM-1
  852 IF REM=0 THEN GOTO 2000
  860 POKE MAN+D,128
  870 GOTO 260
  900 PRINT AT 23,0;" FULE
"
  910 POKE MAN,128
  930 GOTO 1000
 1000 PRINT AT 10,7;"G A M E  O V
 E R";AT 0,0;"
"
 1030 PRINT AT 1,0;"SCORE  ";SCOR
E;"  ";AT 2,0;"HIGH SCORE  ";
 1040 IF SCORE>HI SCORE THEN PRIN
T   SCORE;"  "
 1050 IF SCORE>HI SCORE THEN LET
HI SCORE=SCORE
 1055 IF SCORE<HI SCORE THEN PRIN
T HI SCORE;"  "
 1060 PRINT AT 3,0;"ANOTHER GAME
?"
 1070 IF INKEY$<>"Y" THEN GOTO 10
70
 1080 CLS
 1090 LET SCORE=0
 1100 LET REM=20
 1110 LET MEN=3
 1120 GOSUB 4000
 1130 GOTO 40
 2000 PRINT AT 0,0;"STAGE COMPLET
E READY TO TELEPORT"
 2010 POKE MAN,128
 2020 POKE MAN-D,128
 2030 LET REM=20
 2031 FOR I=1 TO 50
 2032 NEXT I
 2033 CLS
 2040 GOTO 70
 3000 SAVE "COSMIC DUSTMAN"
 3030 GOTO 0
 4000 POKE 16418,0
 4010 FOR I=0 TO 23
 4020 PRINT "
"
 4030 NEXT I
 4040 PRINT AT 0,8;"COSMIC DUSTMA
N"
 4060 PRINT AT 4,0;"YOU ARE THE C
OSMIC DUSTMAN AND  ITS YOUR TASK
 TO PICK UP ALL THECOSMIC RUBBIS
H"
 4070 PRINT "WATCH OUT FOR THE ST
ARS . AND   THE BLACK HOLE O"
 4080 PRINT "HIT THESE ? TO FIND
WHATS BEEN  PICKET UP YOU MAY HA
VE FALLING  INTO A BLACK HOLE"
 4090 PRINT "USE KEYS 8 LEFT 6 RI
GHT 5 DOWN  7 UP AFTER COMPLETEI
NG ONE LEVELYOU WILL GO TO ANOTH
ER SCREEN"
 4095 PRINT "WATCH IT YOU COULD R
UN OUT OF   FULE "
 4100 PRINT AT 19,5;"PRESS A KEY
TO PLAY"
 4110 FOR I=1 TO 5
 4120 NEXT I
 4130 PRINT AT 19,5;"PRESS A KEY
TO PLAY"
 4140 FOR I=1 TO 5
 4150 NEXT I
 4160 IF INKEY$="" THEN GOTO 4100
 4170 CLS
 4180 RETURN
```



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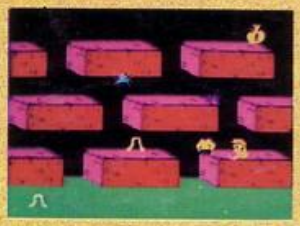
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