30 PROGRAMS FOR THE SPECTRUM AND ZX-81

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Sinclair Programs

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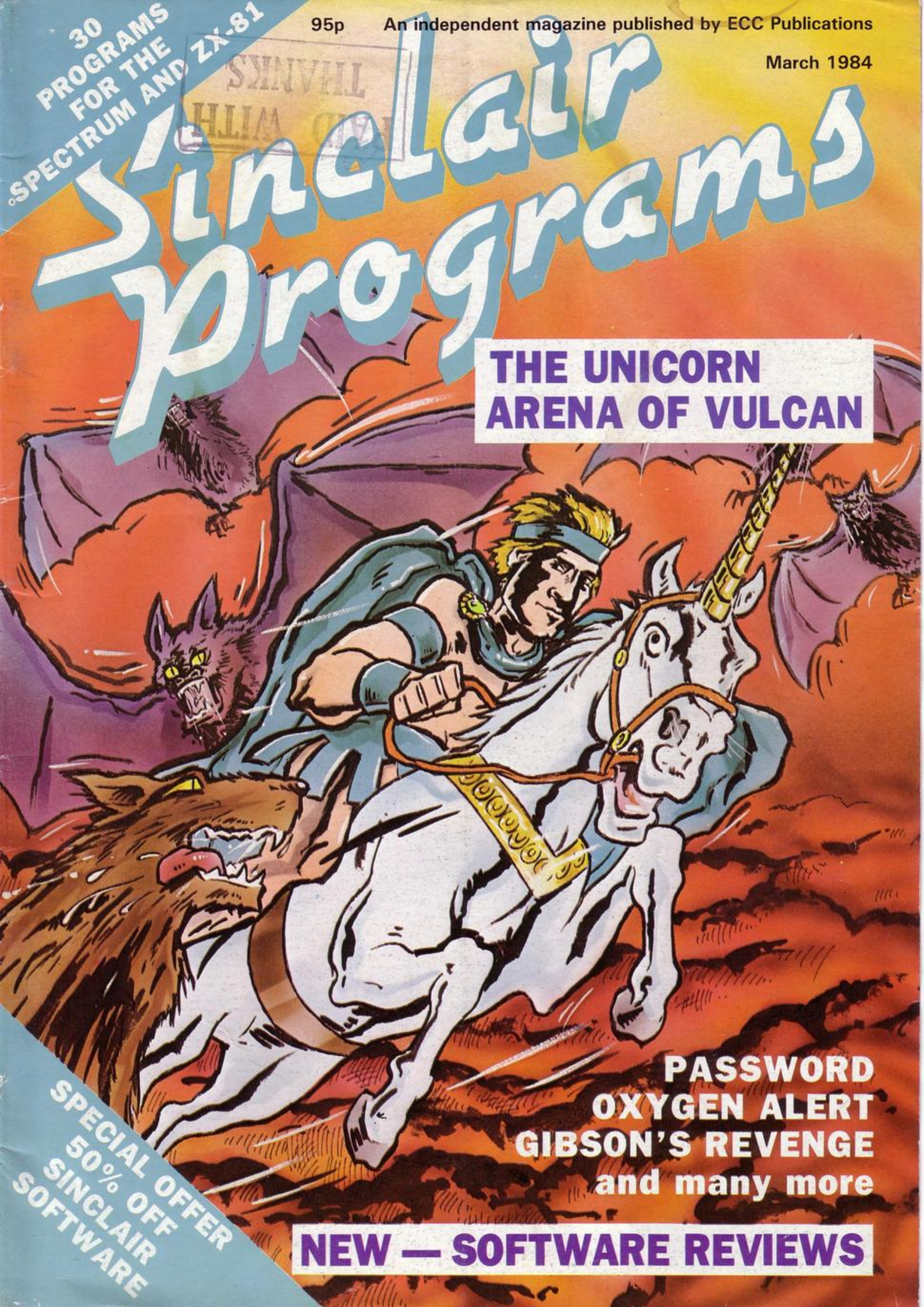

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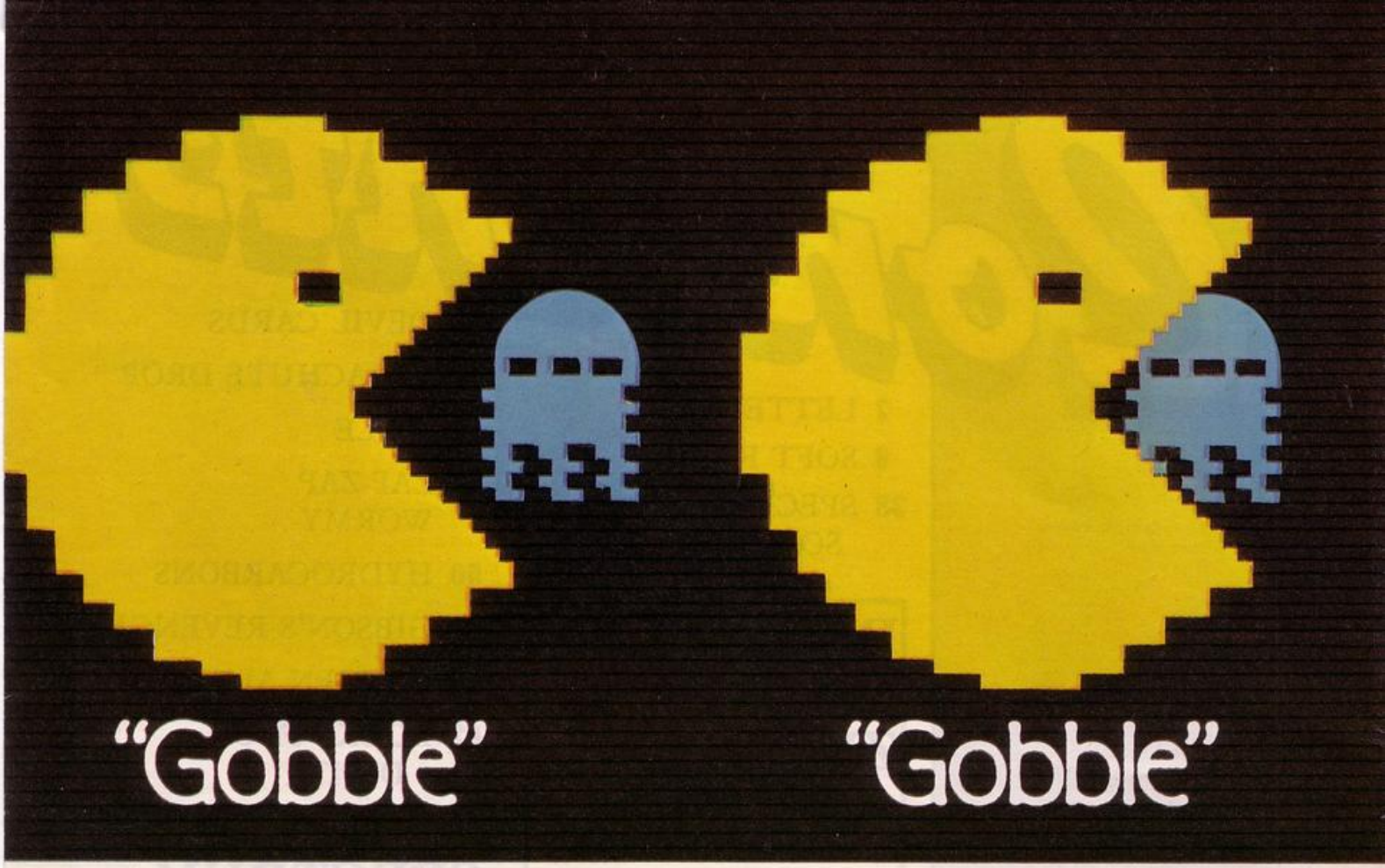
Instructions for graphics characters are printed in lower-case letters in our listings. They are enclosed by brackets and separated by colons to distinguish them and the brackets and colons should not be entered.

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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LETTERS

Depth Charge

I AM WRITING in connection with the Depth Charge program listed in the October edition. I found that the number of depth charges remaining decreases only when the target is hit which, with respect to the authors, does not seem right. With the alteration and addition of two lines it can be remedied. Add:
421/LET/CH/=/CH-1/422/
PRINT/AT/2,9;CH/Change/
lines/425/and/5016/to/read:/
425/IF/FEET/=/W/THEN/
GOTO/5000/5016/PRINT/
AT/3,9;H/

I might add that I found the game very entertaining and novel in its format. In the four weeks since I started computing I have not had much experience of the various magazines available but of those I have seen *Sinclair User* and *Sinclair Programs* are far and away the best. If that standard is normal I can look forward to a full and entertaining hobby.

Keith Trim,
Bridlington,
E. Yorks.

ZX-81 Pokes

I HAVE compiled a list of POKEs and calls to the ROM which all ZX-81 users should find helpful when they are programming. They are:
RAND USR 963. Clears the program area.
RAND USR 3086. Scrolls the screen up one line.
RAND USR 681. In FAST mode, prevents the report code from being displayed at the end of a program.
RAND USR 0. Clears the program area and RAMTOP.
RAND USR 836. In FAST mode, loads a program and stops if it is self-starting.
RAND USR 3292. Equivalent to STOP.
Poke 16510,0. Makes the first program line uneditable.
Poke 16389,68. Sets up a minimal display file for 16K users.
RAND USR 3875. Equivalent to FAST.
RAND USR 1476. Equivalent to EDIT.
RAND USR 930. Equivalent to BREAK.
RAND USR 757. In FAST mode, saves a program without a name.
RAND USR 2955. Equivalent to the ',' in a PRINT statement.

I have also discovered that, by pressing the 'SHIFT', 'V', and 'B' keys together, you achieve a result equivalent to 'BREAK'. By POKEing 16509,99 you achieve an effect similar to the NEW command on the BBC microcomputer. Your program will cease to function but can be returned to normal by POKEing 16509,0.

For 16K users, you can speed the SLOW mode considerably by POKEing 16389,76. Be warned, however, that will result in you losing a great deal of your memory.

For almost all of the POKEs and calls listed, the size of your ZX-81 memory does not matter; in the two calls where it does, I have stated that it is for 16K users.

Gary Slinger, aged 13,
Lincoln.

Better Slalom

I AM WRITING to say, first, about Richard Denton's program Scrambler, that I beat his score by 2,570. I scored 4,248 and would like to know if anyone can beat that. Second, about Steve Richards' program Slalom, I achieved a score of 6,231 but anyone can improve that by going to the far right-hand side in which no markers travel. The way to solve this is to change line 20 from:
20 PRINT AT 10, RND*30;'T' to
20 PRINT AT 10, RND*31;'T'

That would then prevent anyone cheating. Another point is that, if you go too far left, the cursor keys will operate backwards while, if you go too far right, report error 'B' will appear. To solve this the following may be typed-in:
81 IF A>31 THEN LET A=A-1
91 IF A<0 THEN LET A=A+1

Another point is if reactions are not very fast, you can change line 20 from:
20 PRINT AT 10, RND*31;'T' to
20 PRINT AT your number between 10 and 20, RND*31;'T'

That will give you an advance warning. I would also like to suggest how to make your soundless ZX-81 bleep. All you do is type 'FAST' new line 'RAND USR 823' new line.

Gerald Shield,
Chester-le-Street.

Inverse Spaces

I HAVE *Sinclair Programs* delivered monthly and have tried a number of the simpler programs and they have all worked well. In the last few months I have tried the bigger programs such as Quasimodo, Slalom and Chopper Squad and I have discovered a problem concerning inverse spaces.

Although you mention those at the front of the magazine you do not mention how to get an inverse space. Your magazine is brilliant at the moment but I can program only about half of the Spectrum programs correctly because the rest contain inverse spaces.

Could you enlighten me on this point, so that your magazine would become the highlight of the month in our household?

Michael Heaton,
Egerton,
Bolton.

● *As explained in the graphics instructions at the front of the magazine each month, inverse characters are produced on the Spectrum by pressing CAPS SHIFT and INVERSE VIDEO, followed by the required character; and on the ZX-81 by going into graphics mode and pressing the required character. On both machines, when printing is black on a white background, an inverse space (isp) is a black square.*

Werewolf's Lair

IN THE OCTOBER edition in the game Werewolf Lair a few mistakes were made. The peeks which make sure that you or the monster do not go through the walls of the maze are set up for the wrong graphics. To solve this you can either change all the graphic Hs in the maze plot to graphic As or change the 8 in lines 370, 570 and 630 to 136. With the second method you must also change the graphic As in lines 90 and 290 to graphics Hs.

I managed a high score of 753.

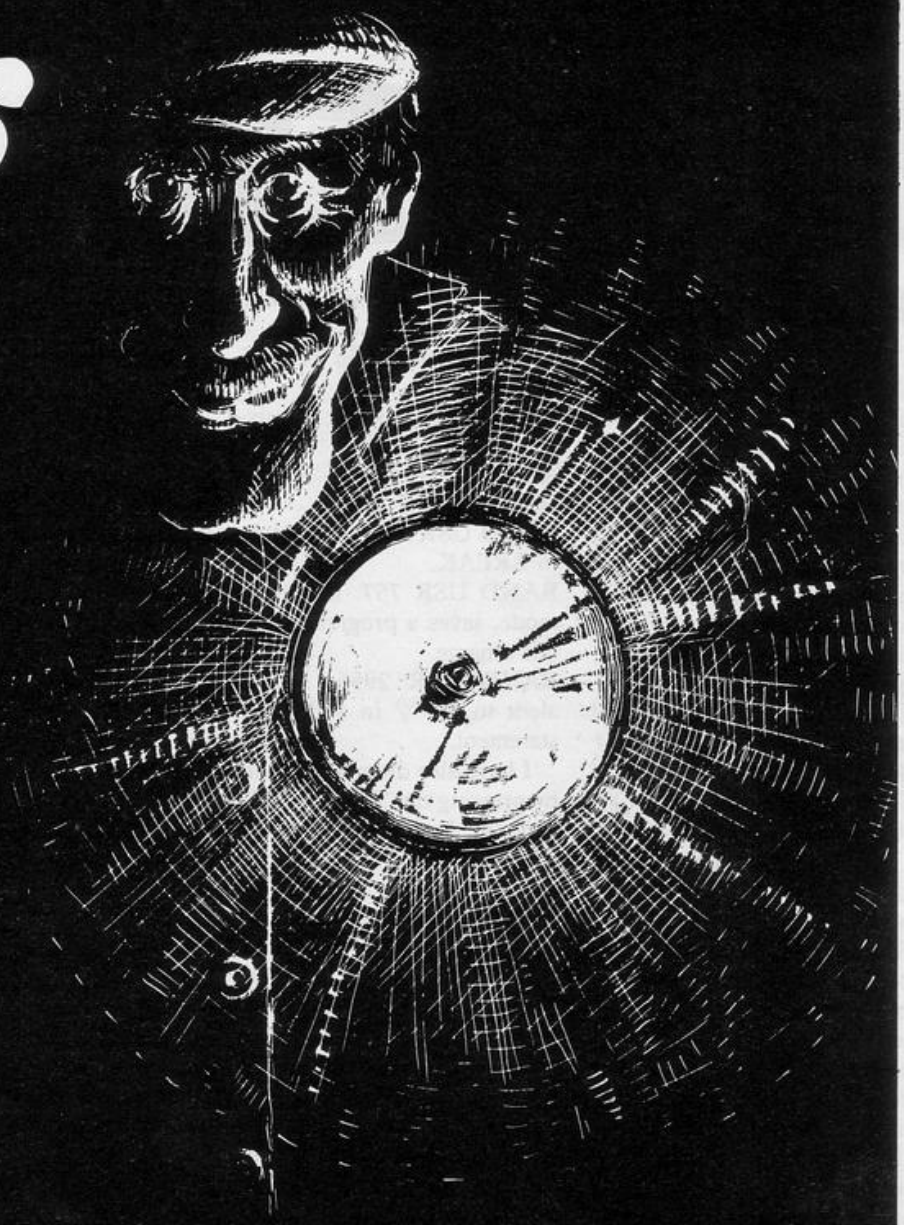
Tom Liptrot,
Burscough,
Lancashire.

Worm Record

IN *Sinclair Programs,* October, 1983, Stephen Harris said he had scored a new record 151,105 on the Worm game. Recently I scored 176,400, which is a new record. I completed stage seven successfully and reached it a second time.

Peter Clarke,
Solihull,
W. Midlands.

LIGHTS OUT



IT IS YOUR job as night porter of a block of flats to switch off any lights still on. Moving too near to the edge when the flats are in darkness will result in your falling out of the flats. Your wage is based on the time it takes you to put out the lights.

Lights Out, an original game for the 16K Spectrum, was written by B M Ware of Southwick, Sussex.

```
  5 BORDER 5: PAPER 5: CLS
  10 GO SUB 500
  15 RESTORE
  20 FOR n=0 TO 7: READ r: POKE
USR "A"+n,r: NEXT n
  30 DATA BIN 10011001: DATA BIN
 01011010: DATA BIN 00111100: DA
TA BIN 00011000: DATA BIN 100110
01: DATA BIN 11111111: DATA BIN
00000000: DATA BIN 00000000
  40 FOR n=0 TO 7: READ r: POKE
USR "B"+n,r: NEXT n
  50 DATA BIN 00000000: DATA BIN
 00010000: DATA BIN 00111000: DA
TA BIN 01111100: DATA BIN 111111
11: DATA BIN 11111111: DATA BIN
11111111: DATA BIN 11111111
  60 LET t=0: LET l=0: LET ti=0
  70 LET z=19: LET y=15
  75 PRINT AT 20,0; INK 4;"(32*
b:32*98)"
  80 FOR n=20 TO 5 STEP -1: PRIN
T AT n,9; INK 1;"(24*i")": NEXT
n: PRINT AT 4,10; INK 1;"(10*193
)"
  90 IF SCREEN$ (z,y)="""" THEN
 LET t=t+1: LET l=l+1: BEEP .007
,20
  95 IF l=192 THEN  GO TO 300
 100 PRINT AT z,y; INK 1;"(98)":
 LET z=z+(INKEY$="6" AND z<20)-(
INKEY$="7" AND z>5): LET y=y+(IN
KEY$="8")-(INKEY$="5")
 110 PRINT AT 0,0; INK 1;"WAGE:"
;t;AT 0,10; INK 1;"TIME:";INT ti
;AT 0,21; INK 1;"LIGHTS:";l: LET
 ti=ti+.2
 115 IF y=8 OR y=21 THEN  GO TO
200
 120 BEEP 0.007,30
 130 GO TO 90
 200 FOR n=z TO 20: PRINT AT n,y
; INK 1;"a";AT n-1,y;" ": BEEP 0
.01,10: NEXT n
 205 LET t=t-ti
 210 PRINT AT 0,0;"          TOTA
L WAGE:              ";AT 0,20;INT
 t
 220 PRINT AT 4,8;"ANOTHER GO (y
/n)?"
 230 IF INKEY$="y" THEN  CLS : G
O TO 15
 240 IF INKEY$="n" THEN  CLS : S
TOP
 250 GO TO 230
 300 FOR m=1 TO 2: FOR n=-10 TO
10: BEEP .01,n: NEXT n: FOR n=10
 TO -10 STEP -1: BEEP .01,n: NEX
T n: NEXT m
 310 LET t=t+50: LET l=0: CLS :
GO TO 70
 500 PRINT AT 0,9;"LIGHTS OUT !"
;AT 0,9; OVER 1;"------------"
 510 PRINT '" Your job as a nigh
t porter is  to run around the b
lock of flatsswichting any light
s out that   are still on. Move
around the   flats with keys 5,6
,7 and 8.
             But watch out you m
ay fall out  of the flats if you
 move to far to the edge. Your w
age  is      deducted by the tim
e you take   putting all lights
out.
             PRESS ANY KEY."
 520 IF INKEY$="" THEN  GO TO 52
0
 530 CLS : RETURN
 540 SAVE "lights out" LINE 5
```

SOFTFOCUS

New this month. Softfocus will be a regular feature, providing short reviews of the newest software for the Sinclair computers. This month the focus is on the way ahead for software.

LATE last year, programs produced for the Spectrum Christmas market pointed the way for software in 1984. **Ant Attack** by Quicksilva and **Android 2** by Vortex both included stunning animated graphics routines, setting a new standard for other programmers.

Artic Computing has now produced **Bear Bovver** for the 48K Spectrum, a shining example of animated graphics, which are used in an arcade-style game. **Satan's Pendulum** by Minatron Com-

puting (48K) also includes animated sequences and, for keen programmers, gives a guide to how they were produced in the accompanying booklet.

While such excellent original software is being produced, software houses which cling to versions of **Space Invaders** and **Pac-man** are looking more and more outdated. The Romik **Galactic Trooper** and **3D Monster Chase** are competent and bug-free games but do not have sufficient new ideas to make them attractive in 1984.

Realistic screen displays are becoming more and more common. **Wheelie,** from Microsphere for the 48K Spectrum, sends the player hurtling past obstacles and through caverns in search of the ghost rider. In the program, crash sequences are very graphic and tend towards the tasteless, while in **Deathchase** from Micromega—16K Spectrum—the view from a motorcycle is shown in realistic detail but the death of another rider is not depicted at all.

Problems as to how players should be made to suffer for the misdeeds of their on-screen persona, whether they should watch deaths in graphic detail or miss them completely, are resolved in the new Automata game for the 48K Spectrum, **Pi-Eyed.** The hero, the Pi-man, wanders from pub to pub, drinking beer and avoiding obstacles. Wandering into other buildings for safety results in the telling of very bad jokes, a fate far worse for the player than any graphics representation could be.

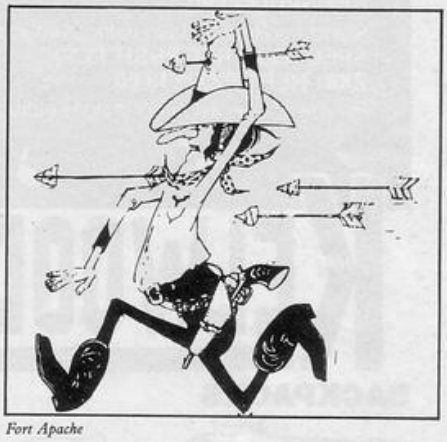
With programs such as the Legend **Valhalla** (48K) and Melbourne House **Hobbit** (48K) on sale, other adventures fade into insignificance. **The Island,** produced by Virgin Games for the 48K Spectrum, is an enjoyable adventure, with added sound effects and short games contained in it. **Demon Lord** by Javlin Software is an enormous adventure, made up of four 48K adventures on two separate cassettes. Pictures are given, in painstaking detail, of each location, but the vocabulary is small, making it extremely difficult and very frustrating to play.

Computer magazines receive a constant stream of letters enquiring about software other than games for computers. **Mansfield Park** and **Nineteenth Century England,** both by Sussex

Software for the 48K Spectrum, act as secondary-school-level revision aids. Their subjects are those suggested by the titles and each subject is divided into different areas, for which questions and detailed answers are given on which the user can be tested.

New ZX-81 games, so plentiful a year ago, are becoming rarer and rarer. Contrast Software has produced **Fort Apache,** a 16K strategy game, in which the player takes the part of a general with 300 men to command, laying seige to an Apache fort. It is a game involving thought and forward planning rather than fast reactions.

Cyborg Wars, by Stratagem Cybernetics, is a more complex 16K strategy game involving up to four players in an imaginary galactic conflict between four nations of androids. The game relies



Fort Apache

more strongly on the instruction booklet than could be expected from a computer program but it is a carefully-thought-out and exciting game.

Three games for the ZX-81 are included on the cassette accompanying the book *ZX-81/TS-1000 Programming for Young Programmers,* published by McGraw Hill. **Bomb Run,** written in machine code for the 1K ZX-81, is a version of the popular **City Lander** type of program in which the player must bomb buildings from an aircraft to avoid running into them.

Mazer, also for the 1K ZX-81, is a simple maze game in which the aim is to avoid the ghost for as long as possible. More complicated is **Golems,** on the same cassette, for the 16K ZX-81, a strategy and fantasy adventure in which the aim is to outwit the Lord of the Black Tower.

More detailed reviews of all these games, together with their respective Gilbert Factors, can be found in *Sinclair User.*

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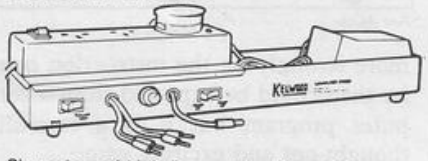

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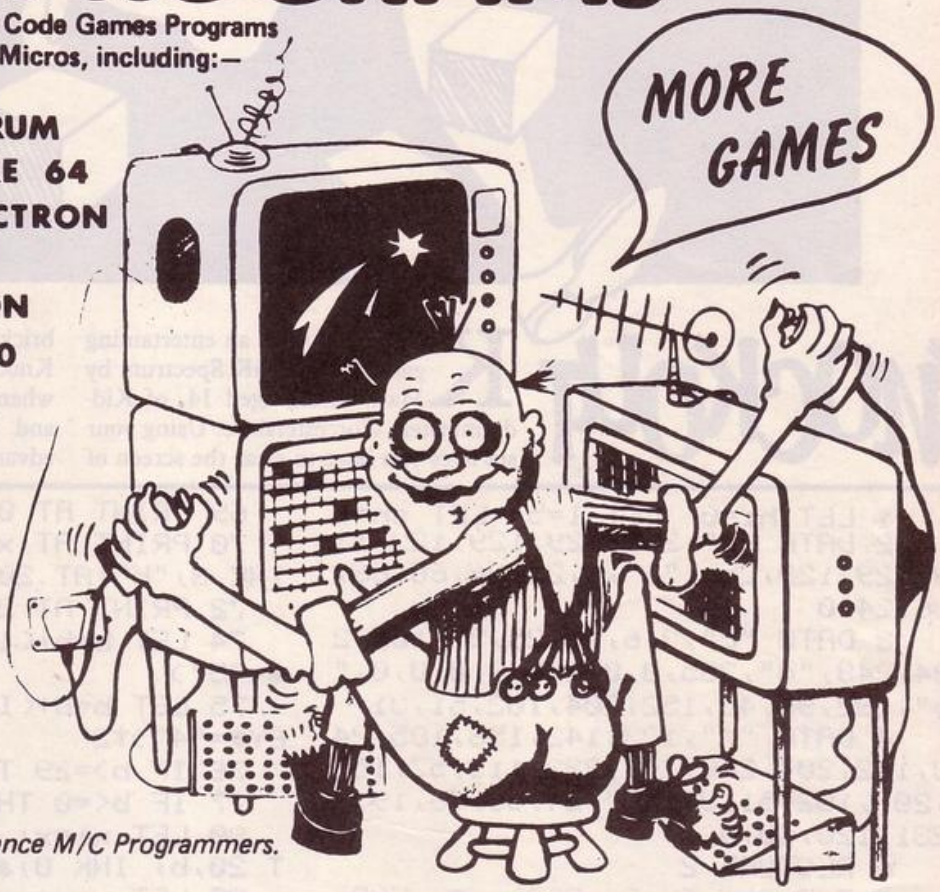

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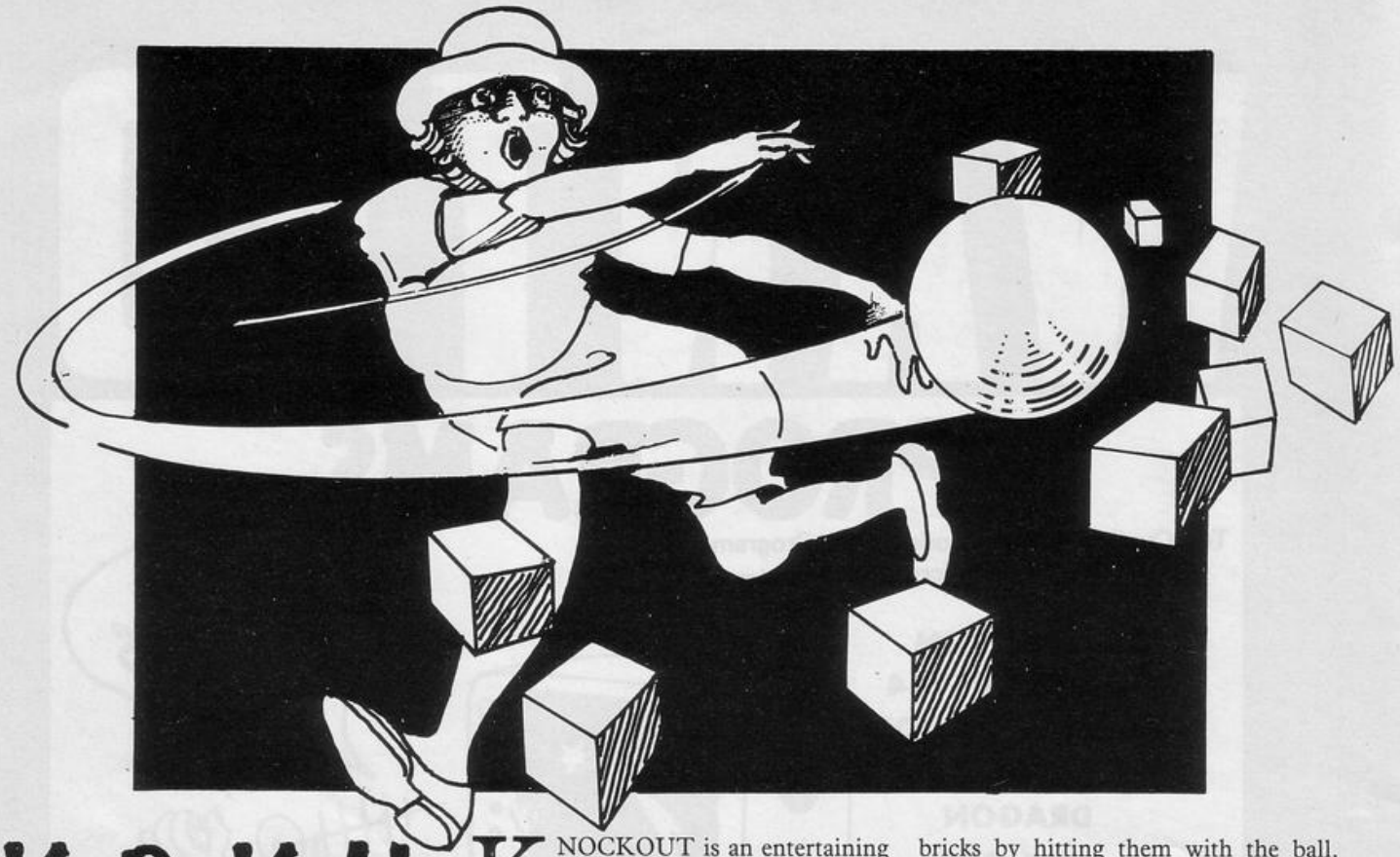

KNOCKOUT

KNOCKOUT is an entertaining game for the 16K Spectrum by Mark Birch, aged 14, of Kidderminster, Worcestershire. Using your six lives you have to clear the screen of bricks by hitting them with the ball. Knock the ball to the top of the screen when you have cleared a sheet of bricks and you will receive a bonus before advancing to another sheet.

```
   1 LET h1=0: LET l=5: LET sh=1
   2 DATA "a",255,129,129,129,12
9,129,129,255,"b",0,24,36,66,66,
36,24,0
   3 DATA "c",3,6,12,25,51,102,2
04,248,"d",255,0,0,255,0,0,0,0,"
e",192,96,40,152,204,102,51,31
   4 DATA "f",123,142,156,105,24
3,102,204,248,"g",222,113,57,157
,207,102,51,31,"h",24,36,66,195,
231,126,60,0
   6 RESTORE 2
   9 FOR f=1 TO 8: READ a$: FOR
g=0 TO 7: READ a: POKE USR a$+g,
a: NEXT g: NEXT f
   9 GO SUB 9000
  10 LET s=0
  20 LET b=INT ((RND*10)*2)+1: L
ET x=20: LET y=b: LET ud=-1: LET
 lr=1
  21 LET x1=x: LET y1=y
  30 LET a$="cde"
  40 LET b$="aaaaaaaaaaaaaaaaaaaaaa
aaaaaaaaaaaaaaa"
  50 PLOT 2,2: DRAW 0,171: DRAW
251,0: DRAW 0,-171: DRAW -251,0:
 PLOT 4,4: DRAW 0,167: DRAW 247,
0: DRAW 0,-167: DRAW -247,0
  60 FOR f=2 TO 3: PRINT AT f,1;
 INK 2;b$: NEXT f: FOR f=6 TO 0:
 PRINT AT f,1; INK 1;b$: NEXT f:
 FOR f=10 TO 12: PRINT AT f,1; I
NK INT (RND*2)+1;b$: NEXT f
  68 PRINT AT 0,25;"lives";l
  69 PRINT AT 0,10;"SCORE"
  70 PRINT AT x1,y1;" ";AT x,y;
INK 3;"b";AT 20,b; INK 0;a$
  72 PRINT AT 20,b;"   "
  74 LET b=b+(INKEY$="8")-(INKEY
$="5")
  75 LET b=b+(INKEY$="9")*2-(INK
EY$="4")*2
  76 IF b>=29 THEN  LET b=28
  77 IF b<=0 THEN  LET b=1
  80 LET x1=x: LET y1=y: PRINT A
T 20,b; INK 0;a$
  90 LET x=x+ud: LET y=y+lr
  91 IF s=(sh*2400) AND x<=1 THE
N  GO TO 7000
  95 IF y<=0 THEN  LET lr=1: LET
 y=2
  96 IF y>=31 THEN  LET lr=-1: L
ET y=29
  97 IF x<=0 THEN  LET ud=1: LET
 x=2
  98 IF x=21 THEN  GO TO 5000
 100 IF ATTR (x,y)=59 THEN  GO T
O 110
 102 IF ATTR (x,y)<>56 THEN  LET
 s=s+10: PRINT AT 0,16;s;AT x1,y
1;" ";AT x,y; INK 3;"b": BEEP .1
,20: LET ud=ud*-1
 103 IF x=20 AND y=b THEN  LET u
d=-1: LET lr=-1: PRINT AT x1,y1;
" ";AT x,y;"f": BEEP .1,10: IF R
ND>.85 THEN  LET x=x-1
 104 IF x=20 AND y=b+1 THEN  LET
 ud=-1: PRINT AT x1,y1;" ";AT x,
```

```
y;"h": BEEP .1,10: IF RND>.85 TH
EN  LET x=x-1
 105 IF x=20 AND y=b+2 THEN  LET
 ud=-1: LET lr=1: PRINT AT x1,y1
;" ";AT x,y;"9": BEEP .1,10: IF
RND>.85 THEN  LET x=x-1
1000 GO TO 70
5000 REM DROP !!!
5010 PRINT AT 17,7; FLASH 1;"dro
PPed one !!!"
5020 FOR f=1 TO 5: BEEP .5,10: B
EEP .2,0: NEXT f
5030 LET l=l-1: PRINT AT 0,30; F
LASH 1;l+1: PAUSE 100: PRINT AT
0,30; FLASH 1;l: PAUSE 100: IF l
>=0 THEN  PRINT AT 0,30;l
5040 IF l<0 THEN  GO TO 6000
5050 PRINT AT 17,7;"
   "
5051 LET x=19: LET y=b: LET ud=-
1
5052 GO TO 5060
5055 GO TO 9000
5060 GO TO 68
6000 REM end
6010 PRINT AT 10,1; FLASH 1; BRI
GHT 1; INK 1; PAPER 7;"        t
h e   e n d          "
6020 IF s<=h1 THEN  GO TO 6100
6030 INPUT "what is your name ?"
;n$
6040 LET h1=s
6100 CLS
6110 PRINT AT 10,0;"atoday's hig
hest score is ";h1'' INK 2;"ait
was scored by ";n$'' INK 1;"Pres
s any key to restart game"
6120 IF INKEY$<>"" THEN  GO TO 6
120
6130 IF INKEY$="" THEN  GO TO 61
30
6140 IF INKEY$<>"" THEN  GO TO 6
140
6150 CLS : LET l=5: LET s=0: GO
TO 10
7000 DATA 0,12,10,7,7,7,5,3,0,0
7001 LET sh=sh+1
7010 DATA .4,.4,.65,.4,.4,.2,.1,
.1,.2,.4
7020 DIM a(10): DIM b(10)
7021 PRINT AT 6,10; FLASH 1;"You
 did it !";AT 9,12; INK 1; FLASH
 1;"W  O  W";AT 15,8; INK 2; FLA
SH 1;"G  A  S  P  !  !"
7030 RESTORE 7000: FOR f=1 TO 10
: READ a: LET a(f)=a: NEXT f
7040 RESTORE 7010: FOR f=1 TO 10
: READ a: LET b(f)=a: NEXT f
7050 FOR f=1 TO 3: FOR g=1 TO 10
: BEEP b(g),a(g): NEXT g: NEXT f
7060 BEEP 1,0
7070 FOR f=1 TO 2: FOR g=1 TO 10
: BEEP b(g),(a(g))+3: NEXT g: NE
XT f
7075 FOR g=1 TO 10: BEEP b(g),a(
g): NEXT g
7076 BEEP 2,0
7077 CLS : PRINT AT 10,10; FLASH
 1;"GET READY ..."
7080 FOR f=1 TO 250: NEXT f
7090 CLS
7091 GO TO 20
8888 STOP
9000 CLS : REM instructions
9002 BEEP .1,10
9010 PRINT AT 2,0;"     4 5  8 9
"'"    << <  > >>"
9011 BEEP .1,10
9020 INK 2: PRINT AT 5,0;"4 = fa
st left"'"5 = slow left";AT 5,15
;"8 = slow right";AT 6,15;"9 = f
ast right"
9021 BEEP .1,10
9023 PRINT  INK 1;'"cde"; INK 0;
" = your base"' INK 3;" b"; INK
0;"  = the ball"' INK 2;"a,a,a"; I
NK 0;" = the walls"
9024 BEEP .1,10
9025 PRINT  INK 0;'"Each a = 10
points."
9026 BEEP .1,10
9030 INK 0: PRINT AT 14,0;" The
object of the game is to  hit a
ll of the bricks out of thewalls
.when all out,knock the    ball
to the top of the screen."
9031 BEEP .1,10
9040 PRINT AT 20,0;"Press enter
to start": INPUT i$
9041 BEEP .1,10
9050 DATA 10,22,10,8,6,3,6,8,10
9060 DATA .1,.1,.3,.3,.3,.3,.3,.
3,.3
9061 DIM a(100): DIM b(100)
9062 RESTORE 9050: FOR f=1 TO 9:
 READ a: LET a(f)=a: NEXT f
9063 RESTORE 9060: FOR f=1 TO 9:
 READ a: LET b(f)=a: NEXT f
9070 DATA 11,11,11,11,11,11,13,1
1
9071 RESTORE 9070: FOR f=10 TO 1
7: READ a: LET a(f)=a: NEXT f: F
OR f=10 TO 17: LET b(f)=.2: NEXT
 f
9090 FOR g=1 TO 2: FOR f=1 TO 9:
 BEEP b(f),a(f): NEXT f: NEXT g
9091 FOR f=10 TO 18: BEEP b(f),a
(f): NEXT f
9092 FOR f=1 TO 9: BEEP b(f),a(f
): NEXT f
9093 FOR f=1 TO 4: BEEP .3,0: NE
XT f: FOR f=1 TO 2: BEEP .3,10:
NEXT f: BEEP .1,8: BEEP .1,10: B
EEP .1,8: BEEP .1,6: BEEP .1,2:
BEEP .1,1: BEEP 1,3
9098 FOR f=1 TO 200: NEXT f
9099 CLS
9100 RETURN
```

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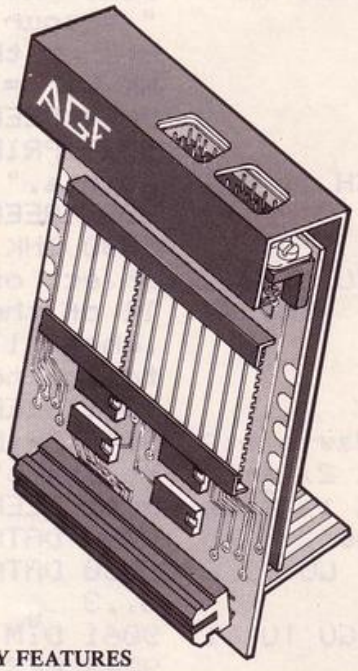

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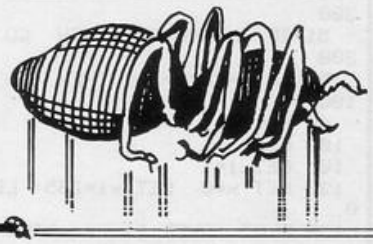
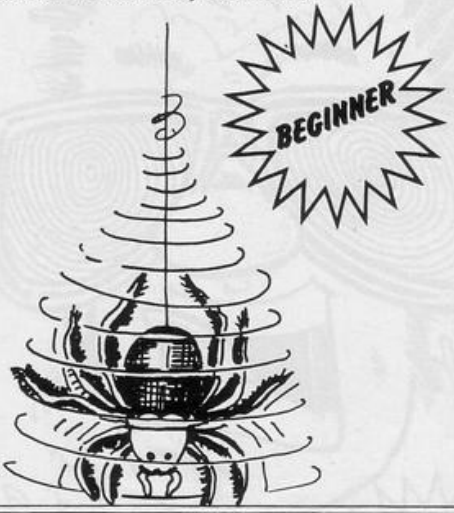
```
  1 CLS
  5 LET pos=INT (RND*5): LET x=
0: LET score=0: LET shots=20: LE
T h=0: FOR n=USR "a" TO USR "c"+
7: POKE n,RND*255: NEXT n
 10 FOR a=0 TO 31-4
 20 PRINT AT pos,a;" (194:193:9
7)"
 30 PRINT AT 21,x;" (193:198:19
3) "
 40 LET x=x+(INKEY$="8" AND x<2
5)-(INKEY$="5" AND x>0)
 50 IF INKEY$="0" THEN  GO SUB
100
 55 PRINT AT 14,27;"score";AT 1
5,29;score;AT 17,27;"shots";AT 1
8,30;shots;" "
 60 NEXT a
 70 PRINT AT pos,31-4;"      ":
LET pos=INT (RND*5): GO TO 10:
 100 FOR z=20 TO pos+1 STEP -1:
PRINT AT z,x+2;"!";AT z+1,x+2;"
": LET a=a+.5: IF a>=28 THEN  LE
T a=0: PRINT AT pos,28;"    "
 105 PRINT AT pos,a;" (194:193:9
7)": NEXT z
 110 IF SCREEN$ (pos,x+2)<>" " T
HEN  PRINT AT pos,x-1;"aaaaaa":
LET score=score+(5-pos)*10: FOR
v=0 TO 10: BEEP .001,30: NEXT v:
 LET h=1
 120 LET shots=shots-1: IF shots
=0 THEN  GO TO 150
 130 IF h=1 THEN  LET h=0: PRINT
 AT pos,0;"

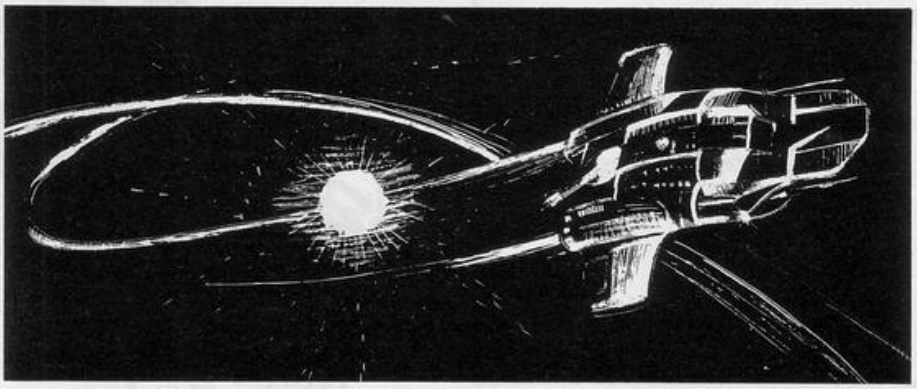
          ": LET a=RND*20: GO T
O 20
 135 PRINT AT pos+1,0;"
                      "
 140 RETURN
 150 PRINT AT 10,12;"GAME OVER"
 160 PRINT AT 15,29;score;AT 18,
30;"00": BEEP 1,10: RUN
```

SPIDER SHOOT





SPIDER SHOOT is a simple but fast beginners' program for the 16K Spectrum. Shoot at the spiders as they scurry across the screen. You have 20 shots to eliminate as many spiders as possible. Use keys 5 and 8 to move left and right and 0 to shoot. Submitted by Darren McSweeney of Barrow-in-Furness, Cumbria.



STAR BLAST, submitted by Neil Smith of Bromley, Kent, is a beginners' program for the 16K Spectrum. Guide your spaceship round the screen, avoiding your trail and the exploding stars. Use key Z to move left, X to move right, J to move down and I to move up.

STAR BLAST

```
 10 POKE 23658,8: LET H=0
 20 LET S=0
 30 BORDER 0: PAPER 0: INK 7: C
LS
 40 PLOT 0,0: DRAW 255,0: DRAW
0,175: DRAW -255,0: DRAW 0,-175
 50 LET X=128: LET Y=86
 60 PLOT X,Y
 70 LET A=INT (RND*253)+2
 80 LET B=INT (RND*173)+2
 90 PLOT A,B
100 LET A$=INKEY$
110 IF A$<>"Z" AND A$<>"X" AND
A$<>"J" AND A$<>"I" THEN  GO TO
170
120 IF A$="Z" THEN  LET X=X-1:
IF POINT (X-1,Y)=1 THEN  GO TO 1
90
130 IF A$="X" THEN  LET X=X+1:
IF POINT (X+1,Y)=1 THEN  GO TO 1
90
140 IF A$="J" THEN  LET Y=Y-1:
IF POINT (X,Y-1)=1 THEN  GO TO 1
90
150 IF A$="I" THEN  LET Y=Y+1:
IF POINT (X,Y+1)=1 THEN  GO TO 1
90
160 LET S=S+1
170 IF S>H THEN  LET H=S: BEEP
.005,10
175 BEEP .005,45
180 GO TO 60
190 CLS : PRINT "Bad luck you h
it one of the","exploding stars.
"
200 PRINT AT 4,4;"But you did s
core ";s
210 PRINT AT 10,4;"The high sco
re is ";h
220 PRINT AT 21,0;"Press any ke
y to play again."
230 PAUSE 0: PAUSE 0
240 CLS : GO TO 20
```

PATTERN DRAWER

JOHN LITTLE of Dumfriesshire, Scotland submitted **Pattern Drawer** for the 16K Spectrum. The program demonstrates the power of the Spectrum graphics commands in three colourful routines, including one which draws a moire pattern.

```
  1 INK 0: BORDER 7: PAPER 7: C
LS
 10 PRINT AT 0,0;"Press the app
ropriate letter.   After any rou
tine,Pressing r    will return y
ou to this menu."
 30 PRINT AT 5,0;"(a)receeding
rectangle          ",,"(b)moire
patterns                ",,"(c)tw
ist"
 40 IF INKEY$="" THEN  GO TO 40
 50 IF INKEY$="a" THEN  GO SUB
300
 51 IF INKEY$="b" THEN  GO SUB
200
 52 IF INKEY$="c" THEN  GO SUB
100
 60 GO TO 1
100 CLS
101 LET i=1
120 LET x=0: LET x1=255: LET y=
0
130 PLOT  OVER 1;x,y: DRAW  OVE
R 1; INK i;x1,y: LET y=y+1: LET
x1=x1-6: LET x=x+3: IF y<=175 AN
D x1>-255 THEN  GO TO 130
140 LET i=i+1: IF i<7 THEN  GO
TO 120
150 CLS
160 PRINT  FLASH 1;AT 11,2;" PR
ESS R TO RETURN"
190 IF INKEY$<>"r" THEN  GO TO
190
199 RETURN
200 CLS
201 LET i=1
205 LET x=0: LET x1=175
210 PLOT x,0: DRAW  INK i;x1,17
5: PLOT 0,x: DRAW  INK i;175,x1
220 LET x1=x1-8: LET x=x+4: IF
x<=175 THEN  GO TO 210
225 FOR r=0 TO 87 STEP 8: INK 7
-i: CIRCLE  OVER 1;87,87,r: NEXT
r
230 IF i<=6 THEN  LET i=i+1: GO
TO 205
260 PRINT  FLASH 1;AT 11,0;"
PRESS R TO RETURN"
290 IF INKEY$<>"r" THEN  GO TO
290
299 RETURN
300 LET i=1: PAPER 7-i: CLS
310 LET x=0: LET y=0: LET x1=25
5: LET x2=0: LET x3=-255: LET x4
=0: LET y1=0: LET y2=175: LET y3
=0: LET y4=-175
320 PLOT x,y: INK i: DRAW  OVER
1;x1,y1: DRAW  OVER 1;x2,y2: DR
AW  OVER 1;x3,y3: DRAW  OVER 1;x
4,y4
330 LET x=x+2: LET y=y+2: LET x
1=x1-4: LET x3=x3+4: LET y2=y2-4
: LET y4=y4+4: IF y<=175 THEN  G
O TO 320
335 LET i=i+1: IF i=6 THEN  GO
TO 340
336 GO TO 310
340 CLS
345 INK 0
360 PRINT  FLASH 1;AT 11,0;"
PRESS R TO RETURN          "
390 IF INKEY$<>"r" THEN  GO TO
390
399 RETURN
```

```
1 REM  Programme: FRE-BYTE
       For:   48k Spectrum

3 REM This Programme Provides
      an estimate of the
      amount of spare RAM
      available for
      Programming.

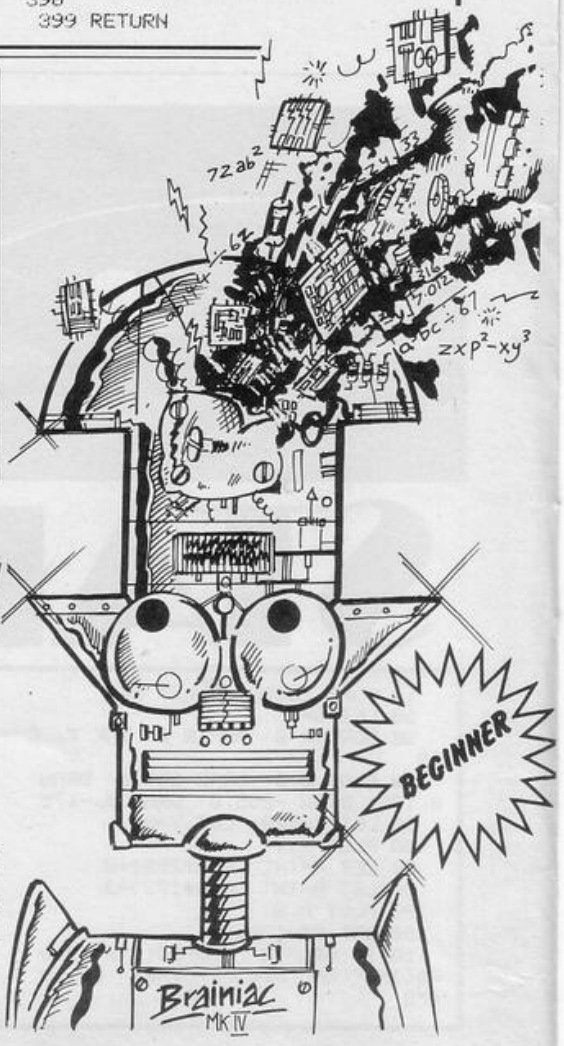
4 REM The 'REM' statements
      should be omitted, and
      the data statements
      may be combined on one
       line.

5 REM The data elements are
            set out as machine code
             instructions.

6 REM To use it enter:
                "PRINT USR 65356"

10 CLEAR 65355
20 FOR n=65356 TO 65366
30 READ a: POKE n,a
40 NEXT n
50 DATA 205,26,31
60 DATA 42,178,92
70 DATA 237,66
80 DATA 68
90 DATA 77
100 DATA 201
```

FREE BYTE



FREE BYTE, written by Mrs F J Tew of Ipswich, Suffolk, provides an estimate of the amount of spare RAM available for programming. Load the program and then RUN and ENTER. Type NEW to remove the Basic program and then put in your own program. To find how much memory is left, type PRINT USR 65356.

The program may be altered to run on the 16K machine by replacing the first two lines with:

10 CLEAR 32568
20 FOR n = 32569 TO 32579

THE UNICORN

BEGINNER

COLIN LINK of Rickmansworth, Herts wrote a simple program for the 1K ZX-81. You, the hunter, have to shoot **The Unicorn** as it rides past using "F" to fire.

When typing-in line 1, type THEN before typing CLS and then go back and delete it. The line should then enter without any difficulty.

```
  1 REM Y.NOT / CLS
  2 POKE 16418,0
 10 LET A=INT (RND*15)
 20 LET M=20
 30 LET M=M
 40 LET B=M-M
 50 PRINT AT 22,15;"■";TAB 14;"
■"
 60 PRINT AT A,B;"(i<;i>)"
 70 PRINT AT M,15;"A";TAB 15;"*"
 80   IF INKEY$="F" THEN LET M=0
 90   IF A=M THEN GOTO 150
100 IF M=0 THEN LET M=M-1
110 LET B=B+1
120 IF B=30 THEN LET B=0
130 GOTO 60
150 IF B=13 OR B=14 THEN RAND U
SR 16514
160 PAUSE 4E4
170 CLS
180 RUN
```

```
  1 CLS
  2 LET C=CODE "■"
  3 LET A=CODE "■"
  4 LET S=PI-PI
  5 LET C$="PEEK (PEEK 16398+PE
EK 16399*256)"
  6 PRINT "■■■■■■■■■■■■■■■■■■■■"
  7 FOR I=PI-PI TO CODE "■"
  8 PRINT "■                  ■"
  9 NEXT I
 10 PRINT "■■■■■■■TRON■■■■■■■■"
 11 LET B=A
 12 PRINT AT A,B;"■"
 13 LET S=S+PI/PI
 14 IF INKEY$="5" THEN LET C=PI
-PI
 15 IF INKEY$="8" THEN LET C=PI
/PI
 16 IF INKEY$="6" THEN LET C=CO
DE " "
 17 IF INKEY$="7" THEN LET C=CO
DE "■"
 18 IF C=PI-PI THEN LET B=B-PI/
PI
 19 IF C=PI/PI THEN LET B=B+PI/
PI
 20 IF C=CODE " " THEN LET A=A+
PI/PI
 21 IF C=CODE "■" THEN LET A=A-
PI/PI
 22 PRINT AT A,B;
 23 IF NOT VAL C$ THEN GOTO COD
E "£"
 24 PRINT AT PI-PI,PI;"CRASHED
";S
 25 PAUSE 4E4
 26 RUN
```

MINI ADVENTURE

BEGINNER

DRIFTING through space, you see an apparently deserted space station and decide to investigate. Once aboard, your only escape is to find your ship in the shuttle bay. You will have opportunities to fight monsters, jump gaps and find money en route. Make decisions by pressing 1 for first choice, or yes, and by pressing 2 for second choice, or no.

After entering the program listing, enter the following as direct commands:

DIM A$ (3,6)
LET A$ (1)="ROBOT"
LET A$ (2)="ALIEN"
LET A$ (3)="DALEK"
LET J=20
LET S=20
LET T=0

The game must then be started by entering GOTO 1. To re-start the game enter the last three commands again and start with GOTO 1.

Mini Adventure was written for the 1K ZX-81 by Russell Wooberry of Farnham, Surrey.

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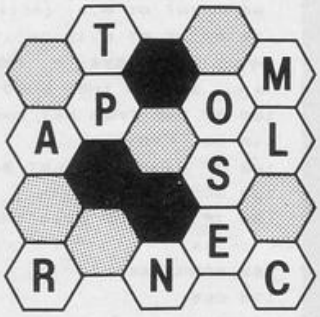

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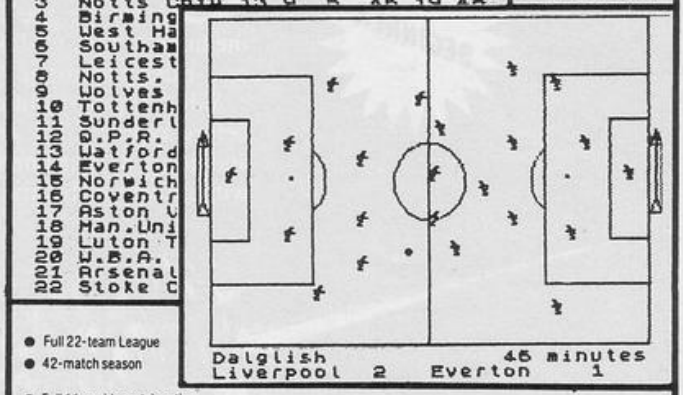

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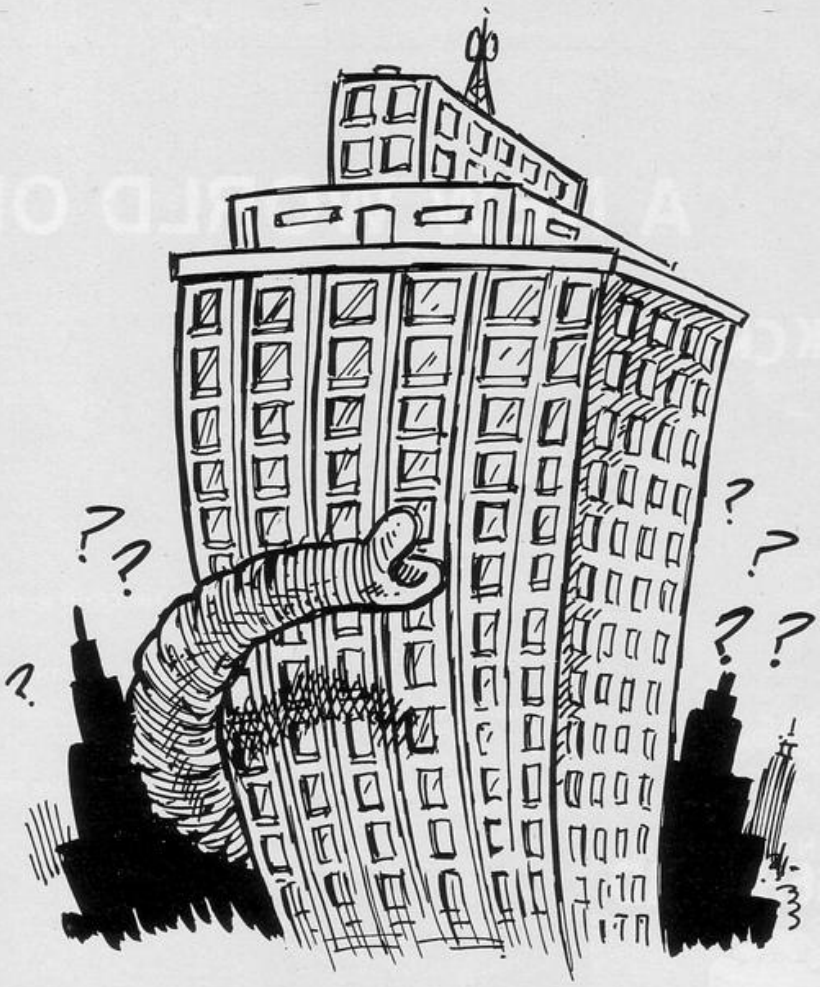
SP3/84

YOU HAVE five guesses to find the elephant roaming the streets of New York — represented by a grid. You can choose either easy or difficult clues. The easy clues tell you the direction to move, whereas the difficult ones tell you the number of spaces but not the direction.

Find the Elephant was written for the 16K ZX-81 by Piers Pettman, aged 12, of Amersham, Bucks.

```
  1 LET GUESS=1
  2 GOSUB 2000
  3 PRINT AT 0,0;
  5 LET A=INT (RND*10)+1
  7 LET B=INT (RND*10)
  8 CLS
 10 PRINT "■■■■■■■■FIND THE ELE
PHANT■■■■■■■■"
 30 PRINT
 40 PRINT "■■■■■■■■■■■■■■■■"
 50 FOR F=1 TO 10
 60 PRINT CHR$ (F+165);"+++++++
+++■"
 70 NEXT F
 80 PRINT "■■■■■■■■■■■■■■■■"
 91 PRINT AT 16,15;"■■■■■■■■"
```



FIND THE ELEPHANT

```
 92 PRINT AT 17,15;"■      ■"
 93 PRINT AT 18,15;"■      ■"
 94 PRINT AT 19,15;"■■■■■■■■"
 95 FOR G=1 TO 5
 98 PRINT AT 17,0;"GUESS :";G
 99 PRINT AT 6,15;"ENTER THE"
100 PRINT AT 8,15;"LETTER OF"
110 PRINT AT 10,15;"YOUR GUESS"
120 INPUT L$
130 IF LEN L$<>1 THEN GOTO 120
140 IF CODE L$>47 OR CODE L$<38
THEN GOTO 120
144 PRINT AT 19,0;"LETTER:";L$
150 PRINT AT 8,15;"NUMBER OF"
160 INPUT N$
170 IF LEN N$<>1 THEN GOTO 160
180 IF CODE N$>37 OR CODE N$<28
THEN GOTO 160
190 LET N=VAL N$
191 PRINT AT 21,0;"NUMBER:";N$
194 PRINT AT 6,15;"
    "
195 PRINT AT 8,15;"
    "
196 PRINT AT 10,15;"
     "
197 PRINT AT 17,16;"      "
198 PRINT AT 18,16;"      "
200 LET N1=CODE L$-37
202 PRINT AT N1+4,N+1;"■"
210 IF N1=A AND N=B THEN GOTO 1
000
211 PRINT AT 17,16;
212 IF C=2 THEN GOTO 3000
220 IF N1>A THEN PRINT "UP"
230 IF N1<A THEN PRINT TAB 16;"
DOWN"
240 IF N>B THEN PRINT TAB 16;"L
EFT"
250 IF N<B THEN PRINT TAB 16;"R
IGHT"
260 NEXT G
300 PRINT AT 6,15;"YOU DIDNT FI
ND";AT 8,15;"THE ELEPHANT";AT 10
,15;"IN 5 GOES"
301 LET N1=A
302 LET N=B
309 PRINT AT 12,15;"IT WAS AT "
;CHR$ (A+37);",";N
340 GOTO 1003
400 STOP
1000 PRINT AT 6,15;"CORRECT,IT";
AT 8,15;"WAS ";CHR$ (N1+37);",";
N
1001 PRINT AT 10,15;"YOU FOUND T
HE"
1002 PRINT AT 12,15;"ELEPHANT IN
";AT 14,15;G;" GOES"
1003 PRINT AT 17,16;"PRESS";AT 1
8,16;" A/K "
1010 PRINT AT N1+4,N+1;"+"
1015 IF INKEY$<>"" THEN GOTO 103
0
1020 PRINT AT N1+4,N+1;"■"
1021 GOTO 1010
1030 CLS
1040 RUN
2000 PRINT "■■■■■■■■FIND THE ELE
PHANT■■■■■■■■"
2010 PRINT
2030 PRINT
2040 PRINT "DO YOU WANT:"
2060 PRINT
2070 PRINT TAB 5;"1 EASY CLUES"
2080 PRINT
2090 PRINT TAB 5;"2 DIFFICULT CL
UES"
2100 PRINT
2110 PRINT "PRESS THE APPROPIATE
 KEY"
2111 PRINT
2130 IF INKEY$="1" THEN GOTO 217
0
2140 IF INKEY$="2" THEN GOTO 215
0
2145 GOTO 2120
2150 PRINT "DIFFICULT CLUES"
2160 LET C=2
2161 FOR F=1 TO 8
2163 NEXT F
2165 RETURN
2170 PRINT "EASY CLUES"
2180 LET C=1
2190 RETURN
3000 PRINT ABS (N1-A);" ";ABS (N
-B)
3010 GOTO 251
4000 SAVE "ELEPHAN■"
4010 RUN
```

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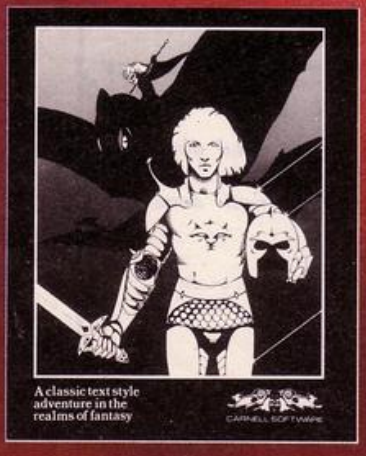

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THE DEVIL RIDES IN

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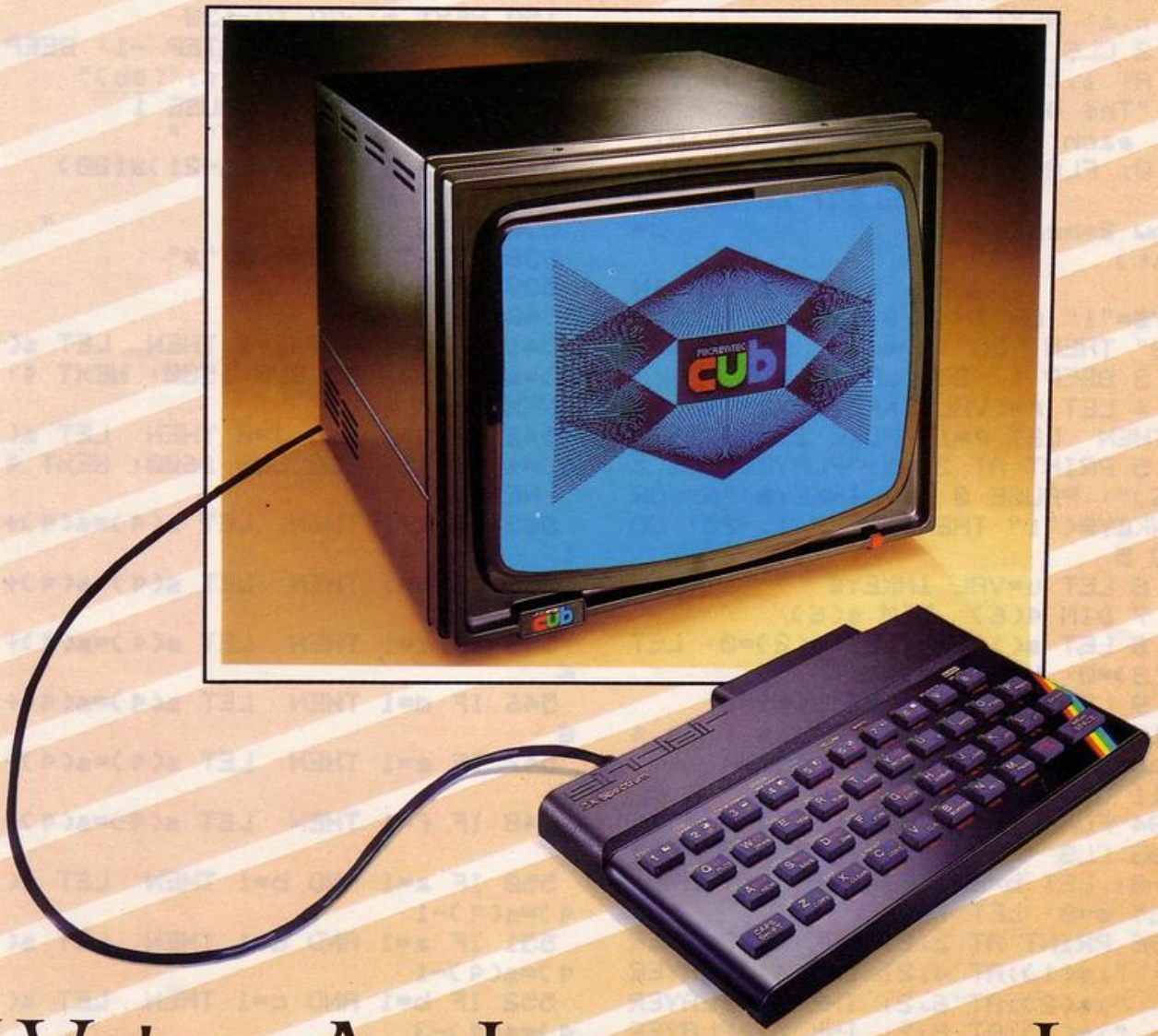

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BOWLING ALLEY

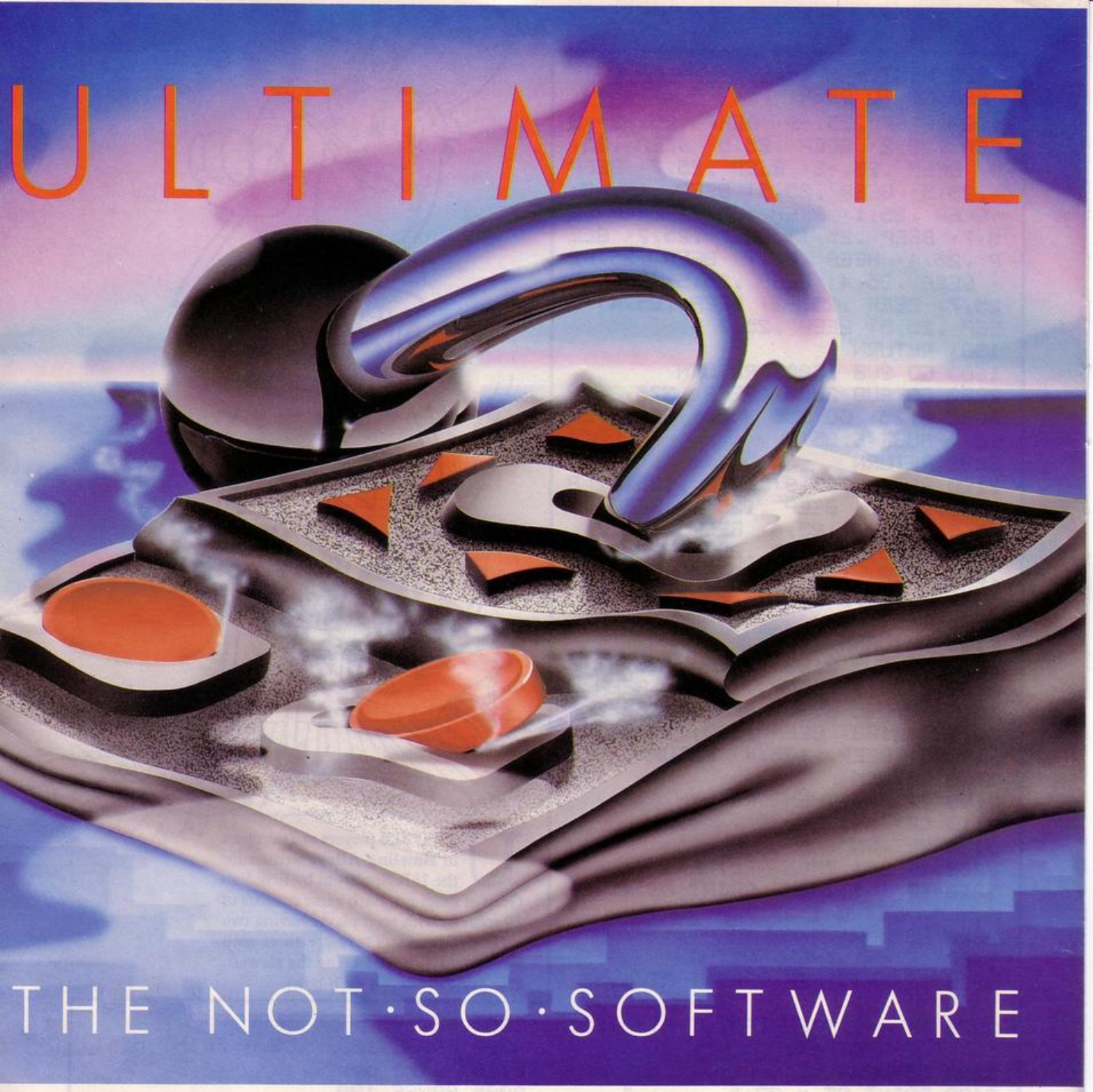
```
  1 LET n$="": LET hs=0: PAPER
0: BORDER 0: INK 6: CLS : FOR n=
USR "a" TO USR "b"+7: READ a: PO
KE n,a: NEXT n
  2 CLS : PRINT AT 0,10;"BOWLIN
G";AT 1,10;"(7*ig3)";AT 2,5; INK
 4;"The game has 10 rounds
   each containing 2 balls";AT
10,0; FLASH 1;"
                SELECT LEVEL (1=
slow 2=medium                3=
fast)
                ": PAUSE 0: IF IN
KEY$="1" OR INKEY$="2" OR INKEY$
="3" THEN  GO TO 4
  3 BEEP 1,-20: GO TO 2
  4 LET p=(VAL INKEY$)*2: IF p=
2 THEN  LET p=1: POKE 23560,13
  5 PRINT AT 20,5;"PLAYERS (1 t
o 6)": PAUSE 0: IF INKEY$>"6" OR
 INKEY$<"1" THEN  BEEP 1,-20: GO
 TO 5
  6 LET u=VAL INKEY$
  7 DIM q(6): DIM s(6)
  8 LET s(1)=0: LET s(2)=0: LET
 s(3)=0: LET s(4)=0
  9 LET s(5)=0: LET s(6)=0
 10 PRINT AT 15,3;"Press f to s
hoot the ball": PAUSE 50
 11 GO SUB 2000
 94 FOR r=1 TO 10: FOR q=1 TO u
 95 CLS : LET j=0: LET g=0: LET
 a=0: LET b=0: LET c=0: LET d=0:
 LET e=0: LET f=0
 96 PRINT AT 2,2; INK 2;"PLAYER
 1: ";s(1);AT 4,2; INK 4;"PLAYER
 2: ";s(2);AT 6,2; INK 6;"PLAYER
 3: ";s(3);AT 8,2; INK 5;"PLAYER
 4: ";s(4);AT 10,2; INK 7;"PLAYE
R 5: ";s(5);AT 12,2; INK 3;"PLAY
ER 6: ";s(6)
 97 PRINT AT 17,2; INK 2; BRIGH
T 1;"ROUND: ";r
 99 PRINT AT 0,0;"BOWLING";AT 1
,0;"(7*ig3)"
100 PLOT 159,0: DRAW 0,175
110 PLOT 248,0: DRAW 0,175
111 PRINT AT 15,0;"HIGH: ";hs;"
by:";AT 16,0;n$
112 PRINT AT 2*q,1;"*"
115 INK 6: LET y=0: LET x=0
120 PRINT AT 1,22;"(9a:sP:9a:sP
:9a:sP:9a)";AT 3,23;"(9a:sP:9a:s
P:9a)";AT 5,24;"(9a:sP:9a)";AT 7
,25;"(9a)"
125 FOR w=1 TO 2: PAUSE 25
130 FOR n=21 TO 29: PRINT AT 21
,n;"(9b)": PRINT AT 21,n-1;" ":
IF PEEK 23560=102 THEN  GO TO 50
0
135 IF p=1 THEN  PAUSE 1
140 NEXT n: FOR n=28 TO 21 STEP
 -1: PRINT AT 21,n;"(9b)": PRINT
 AT 21,n+1;" ": IF PEEK 23560=10
2 THEN  GO TO 500
145 IF p=1 THEN  PAUSE 1
150 NEXT n: GO TO 130
500 FOR m=20 TO 0 STEP -1: BEEP
 .01,20: PRINT AT m,n;"(9b)"
505 IF p=1 THEN  PAUSE 1
510 PRINT AT m+1,n;" "
515 GO SUB (3000+(n-21)*100)
520 NEXT m
530 PRINT AT 0,21;"           "
538 PRINT AT 2*q,0;"*"
539 POKE 23560,13
540 NEXT w
541 IF g=1 AND j=1 THEN  LET s(
q)=s(q)+30: GO SUB 1500: NEXT q:
 NEXT r
542 IF g=1 AND j=0 THEN  LET s(
q)=s(q)+15:  GO SUB 1600: NEXT q
  NEXT r
543 IF a=1 THEN  LET s(q)=s(q)+
1
544 IF b=1 THEN  LET s(q)=s(q)+
3
545 IF c=1 THEN  LET s(q)=s(q)+
6
546 IF d=1 THEN  LET s(q)=s(q)+
6
547 IF e=1 THEN  LET s(q)=s(q)+
3
548 IF f=1 THEN  LET s(q)=s(q)+
1
550 IF a=1 AND b=1 THEN  LET s(
q)=s(q)-1
551 IF a=1 AND c=1 THEN  LET s(
q)=s(q)-1
552 IF b=1 AND c=1 THEN  LET s(
q)=s(q)-3
553 IF b=1 AND d=1 THEN  LET s(
q)=s(q)-1
554 IF c=1 AND e=1 THEN  LET s(
q)=s(q)-1
555 IF c=1 AND d=1 THEN  LET s(
q)=s(q)-3
556 IF d=1 AND e=1 THEN  LET s(
q)=s(q)-3
557 IF d=1 AND f=1 THEN  LET s(
q)=s(q)-1
558 IF e=1 AND f=1 THEN  LET s(
q)=s(q)-1
659 LET j=0
660 BEEP .25,0: BEEP .25,1: BEE
P .5,2: NEXT q
```

```
 670 NEXT r
 680 GO TO 9000
1500 BEEP .25,-9: BEEP .25,-2: B
EEP .25,2: BEEP .25,5: BEEP .25,
9: BEEP .25,-2: BEEP .25,7: BEEP
 .25,5: BEEP .25,9: BEEP .25,-2:
 BEEP .25,1: BEEP .25,7: BEEP .2
5,7: BEEP .25,1: BEEP .25,7: BEE
P .25,4: BEEP .25,7: BEEP .25,-2
: BEEP .25,4: BEEP .25,5: BEEP .
25,7: BEEP .25,-2: BEEP .25,4: B
EEP .25,5: BEEP .25,2
1501 RETURN
1600 GO SUB 1500: RETURN
2000 GO SUB 2300: BEEP .375,2: P
AUSE 6.25: GO SUB 2300: BEEP .25
,2: PAUSE 6.25:
2099 RETURN
2100 BEEP .125,9: BEEP .125,8: B
EEP .125,9: BEEP .125,8: BEEP .1
25,9: BEEP .125,4: BEEP .125,7:
BEEP .125,5: BEEP .25,2: PAUSE 6
.25: BEEP .125,-6: BEEP .125,-2:
 BEEP .125,2: BEEP .25,4: PAUSE
6.25
2101 RETURN
2300 GO SUB 2100: BEEP .125,-2:
BEEP .125,1: BEEP .125,4: BEEP .
25,5: PAUSE 6.25: BEEP .125,-2:
GO SUB 2100: BEEP .125,-4: BEEP
.125,5: BEEP .125,4: RETURN
3000 RETURN
3100 IF a=1 THEN  RETURN
3110 LET a=1
3120 RETURN
3200 IF b=1 THEN  RETURN
3210 IF m=1 THEN  PRINT AT m,22;
"   ": LET b=1
3220 RETURN
3300 IF c=1 THEN  RETURN
3310 IF m=3 THEN  PRINT AT m,23;
"  "
3320 IF m=1 THEN  PRINT AT m,22;
"     ": LET c=1
3330 RETURN
3400 PRINT AT m,22;"        "
3401 IF m=1 AND w=1 THEN  LET j=
1
3405 IF m=1 THEN  LET w=2: LET g
=1
3410 RETURN
3500 IF d=1 THEN  RETURN
3510 IF m=3 THEN  PRINT AT m,24;
"   "
3520 IF m=1 THEN  PRINT AT m,24;
"     ": LET d=1
3530 RETURN
3600 IF e=1 THEN  RETURN
3610 IF m=1 THEN  PRINT AT m,26;
"   ": LET e=1
3620 RETURN
3700 IF f=1 THEN  RETURN
3710 LET f=1
```

UP TO SIX players can take part in **Bowling Alley,** written for the 16K Spectrum by Erik Van Gorp of Belgium. Each game consists of 10 rounds, with each player having two shots per round. There are three skill levels, 1 to 3, level 1 being the slowest. Use key "F" to roll each bowl.

```
3800 RETURN
9000 PAUSE 100: CLS : PRINT AT 1
0,10;"Game over"
9005 PAUSE 100
9010 FOR n=1 TO 6: IF s(n)>hs TH
EN  LET hs=s(n): GO SUB 9500
9011 NEXT n
9100 GO TO 2
9500 IF s(n)>=s(1) AND s(n)>=s(2
) AND s(n)>=s(3) AND s(n)>=s(4)
AND s(n)>=s(5) AND s(n)>=s(6) TH
EN  LET n$="": PRINT AT 20,0;"Yo
ur name(max.12 tokens)Player ";n
: INPUT n$: IF LEN n$>12 THEN  G
O TO 9500
9501 RETURN
9990 DATA 24,24,24,60,126,126,12
6,126,60,126,255,255,255,255,126
,60
9999 SAVE "bowling" LINE 1: GO T
O 9999
```

ULTIMATE



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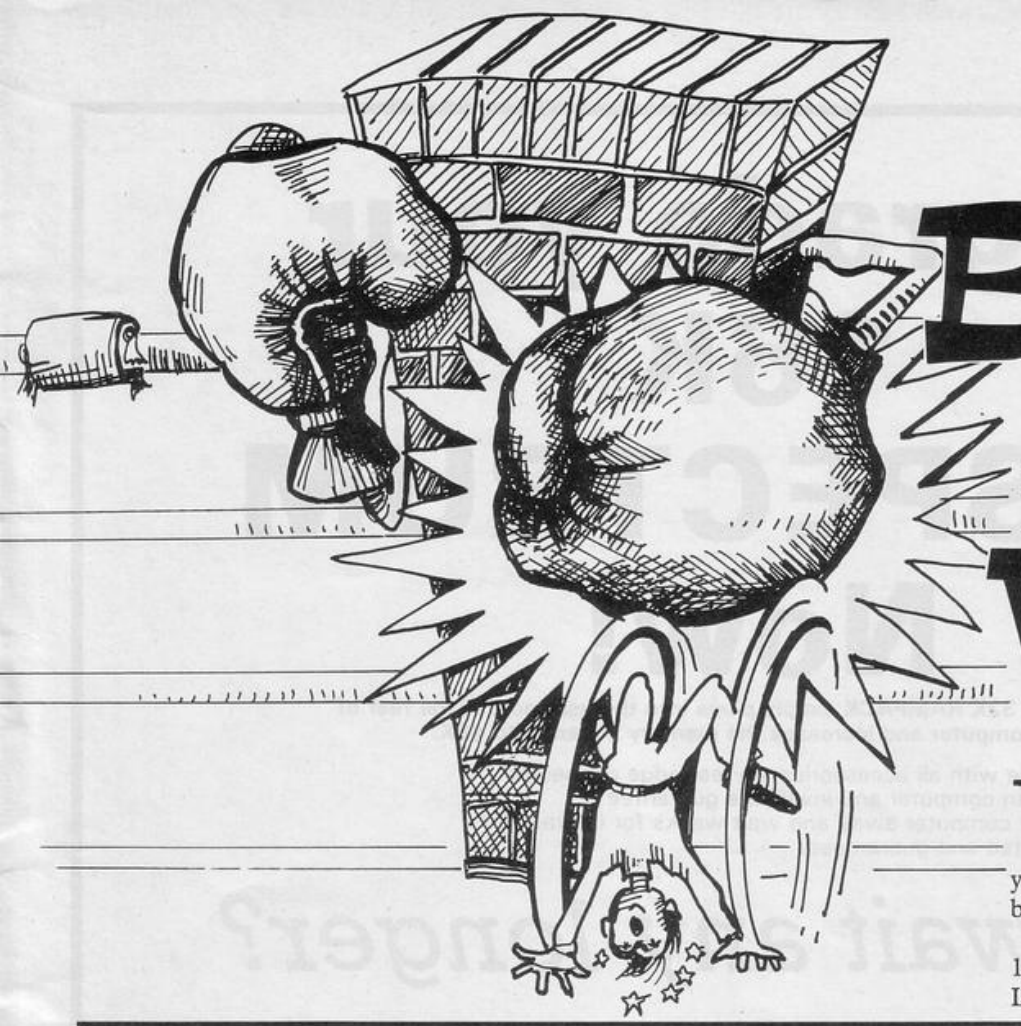

Break The Wall

USING keys 5 and 8 you have to hit the ball at the wall to get rid of the bricks. You lose one of your three lives each time you let the ball hit the floor.

Break the Wall was written for the 16K ZX-81 by Mark Cumberlidge of Longport, Stoke-on-Trent.

```
 4 FOR A=1 TO 100
 5 NEXT A
 6 CLS
 7 FAST
 8 LET M=3
 9 LET S=0
10 FOR A=0 TO 20
20 PRINT AT A,0;"■";AT A,31;"■"
30 NEXT A
31 FOR J=0 TO 6 STEP 2
32 FOR K=0 TO 31
33 PRINT AT J,K;"■"
34 NEXT K
35 NEXT J
36 FOR G=1 TO 5 STEP 2
37 FOR H=1 TO 30
38 PRINT AT G,H;"▒"
39 NEXT H
40 NEXT G
50 SLOW
55 LET A=INT (RND*30)+2
56 LET B=1
57 LET C=1
58 LET D=-1
59 LET E=20
60 LET F=15
70 PRINT AT B,A;"O";AT B,A;" "
80  PRINT AT E,F;" ▬ "
85 LET F=F+(INKEY$="8" AND F<2
9)-(INKEY$="5" AND F>1)
 90 LET A=A+D
100 LET B=B+C
110 IF B=20 AND F+1=A THEN LET
C=-1
115 IF B=20 AND F+2=A THEN LET
C=-1
116 IF B=1 THEN LET C=1
117 IF A=30 THEN LET D=-1
118 IF A=1 THEN LET D=1
119 IF B=21 THEN LET M=M-1
120 IF B=21 THEN PRINT AT E,F;"
  "
121 IF B=21 THEN GOTO 55
130 IF B=20 AND F+1<>A THEN GOTO
70
131 IF B=20 AND F+2<>A THE
N GOTO 70
175 IF B=6 THEN LET S=S+1
178 IF M=0 THEN GOTO 200
180 GOTO 70
200 PRINT "SCORE=";S
210 PRINT AT 11,1;"DO YOU WANT
ANOTHER GO (Y/N) ?"
220 INPUT A$
225 CLS
230 IF A$="Y" THEN GOTO 1
240 IF A$="N" THEN LIST
```

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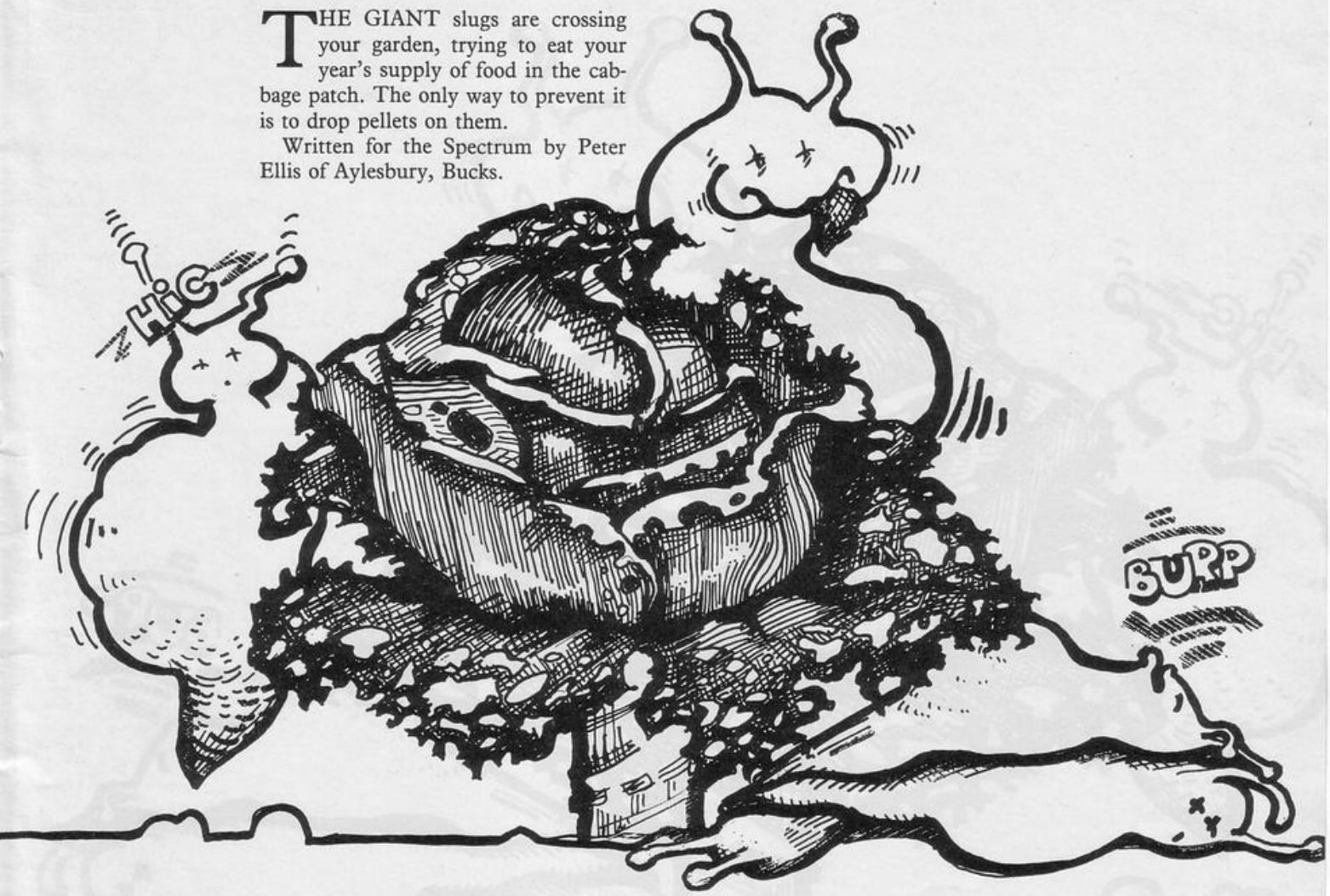
John Menzies Boots WH SMITH

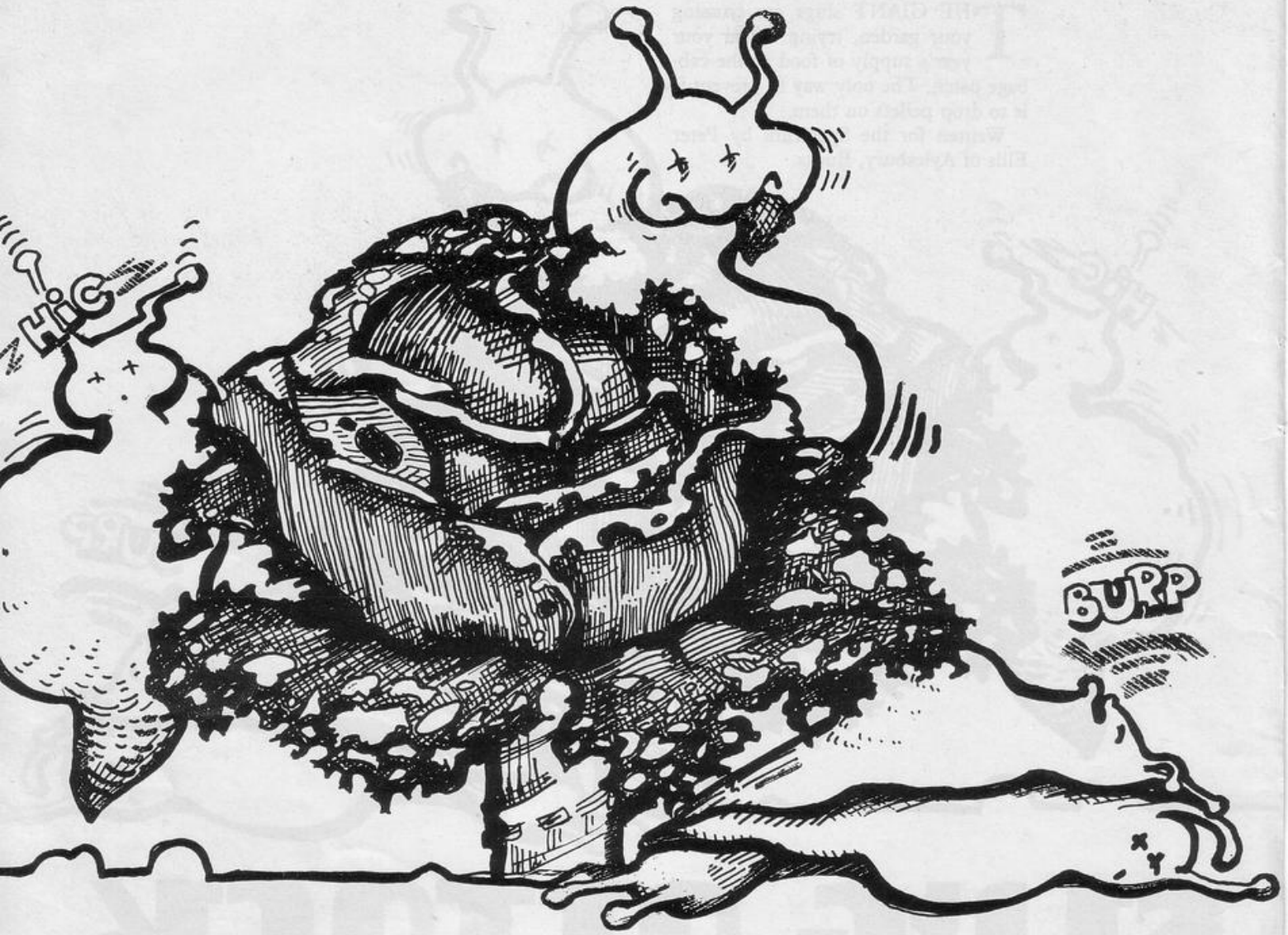
THE GIANT slugs are crossing your garden, trying to eat your year's supply of food in the cabbage patch. The only way to prevent it is to drop pellets on them.

Written for the Spectrum by Peter Ellis of Aylesbury, Bucks.



SLUG ATTACK

```
  5 LET p$="SPECTRUM": INK 7: P
APER 0: BRIGHT 1: BORDER 1: CLS
  10 GO SUB 8000
  20 CLS : GO SUB 7000
  30 GO TO 9000
  40 PRINT #1;"Press any key to
continue"
  50 PAUSE 0
  60 LET hs=0
  70 INK 2: PAPER 6: BORDER 4: C
LS : BORDER 6: REM set up
  80 PRINT AT 0,0;   INK 3;"(9k:9l
:9m:9n)"
  90 PRINT AT 1,0; INK 3;"SHED"
 100 PRINT AT 2,0; INK 3;"(4*98)
"
 110 FOR n=0 TO 31
 120 PRINT AT 3,n; INK 1; PAPER
5;"(9e)"
 130 NEXT n
 131 PRINT AT 0,18;"Slugs alive=
"
 132 PRINT AT 0,7;"Score= "
 140 FOR n=0 TO 31
 150 PRINT AT 21,n; INK 4;"(9j)"
 160 NEXT n
 170 LET v=0: LET lp=0: LET z=1:
LET p=1: LET m=16
 180 FOR s=26 TO 0 STEP -1
 190 LET a$=INKEY$
 200 IF a$="m" AND p=1 THEN  LET
s=s+1: GO SUB 9500
 210 IF a$="P" THEN  LET z=1
 220 IF a$="9" THEN  LET z=-1
 230 IF p=1 AND z=1 THEN  LET m$
=" (9d) "
 240 IF p=1 AND z=-1 THEN  LET m
$=" (9c) "
 250 IF p=0 AND z=1 THEN  LET m$
=" (9b) "
 260 IF p=0 AND z=-1 THEN  LET m
$=" (9a) "
 270 LET m=m+z+(m=4)-(m=29)
 280 IF m=4 THEN  LET p=1
 285 PRINT AT 2,5;" ";AT 2,30;"
"
 290 PRINT AT 2,m; INK 1;m$
 300 PRINT AT 20,s; INK 2;"(9f:9
9:9h:9i) "
 310 LET a$=INKEY$
 320 IF a$="m" AND p=1 THEN  GO
SUB 9500
 330 IF a$="P" THEN  LET z=1
 340 IF a$="9" THEN  LET z=-1
 350 IF p=1 AND z=1 THEN  LET m$
=" (9d) "
 360 IF p=1 AND z=-1 THEN  LET m
$=" (9c) "
 370 IF p=0 AND z=1 THEN  LET m$
=" (9b) "
 380 IF p=0 AND z=-1 THEN  LET m
$=" (9a) "
 390 LET m=m+z+(m=4)-(m=29)
 400 IF m=5 THEN  LET p=1
 410 PRINT AT 2,m; INK 1;m$
 420 NEXT s
 430 LET lp=lp+1: PRINT AT 0,31;
lp
 440 IF lp=3 THEN  GO TO 8500
 450 GO TO 180
6998 PAUSE 0
6999 STOP
7000 PRINT TAB 5; INK 4; PAPER 2
;" SLUG ATTACK "
7010 PRINT
7020 PRINT " You must kill the s
lugs before"'"they cross the cab
bage patch"
7030 PRINT '"  use:-"'"      <9
>=left"'"      <P>=right"'"
 <m>=drop Pellets"
7040 PRINT '" Once you have drop
ed a Pellet"'"you must run back
 to the SHED "'"to get another
slug Pellet"
7050 PRINT '" But you are very e
nergetic and"'"keep running at
twice the slugs"'"speed "
7060 RETURN
8000 REM title
8010 FOR n=1 TO 5
8020 PLOT 37,160+n: DRAW -5,-(20
+(2*n)),PI
8030 PLOT 32,135+n: DRAW -5,-(20
+(2*n)),-PI
8040 NEXT n
8050 FOR n=1 TO 5
8060 PLOT 50+n,160: DRAW 0,-65
8070 PLOT 50,95+n: DRAW 20,0
8080 NEXT n
8090 FOR n=1 TO 5
8100 PLOT 80+n,150: DRAW 0,-55:
```




```
DRAW 30-(2*n),-2,PI: DRAW 0,50
8110 NEXT n
8120 FOR n=1 TO 5
8130 CIRCLE 142,120,11+n
8150 PLOT 153+n,120: DRAW 0,-25:
 DRAW -22-(2*n),0,-PI
8160 NEXT n
8170 PRINT AT 16,16;"ATTACK"
8200 FOR n=1 TO 5
8210 CIRCLE 230,10,n
8220 PLOT 230,20: DRAW -n,50: DR
AW 2*n,0,-PI
8230 PLOT 230,20: DRAW n,50
8240 NEXT n
8280 PRINT #1;"Press any key to
continue"
8290 PAUSE 0
8300 FOR n=0 TO 23
8310 RANDOMIZE USR 3280
8320 PRINT AT 21,n;"* SLUGS *"
8325 PAUSE 10
8330 NEXT n
8335 PAUSE 50
8340 RETURN
8500 CLS
8510 IF v>hs THEN  LET hs=v: INP
UT "Your name";P$
8520 PRINT '" You starved becaus
e the slugs "''"have eaten all y
our food"''"But you did score ";
v;" Points"'"        The highest
score is"'"   ";hs;" by ";P$
8530 PRINT #1;"Press any key to
play again"
8535 FOR n=0 TO 50: NEXT n
8540 PAUSE 0
8542 INK 7: PAPER 0: BRIGHT 1: B
ORDER 1: CLS
8545 CLS
8550 GO SUB 8000
8555 CLS
8560 GO SUB 7000
8570 PRINT #1;"Press any key to
continue"
8580 PAUSE 0
8590 GO TO 70
9000 RESTORE 9070: FOR n=1 TO 15
9010 READ a$
9020 FOR f=0 TO 7
9030 READ a
9040 POKE USR a$+f,a
9050 NEXT f
9060 NEXT n
9062 GO TO 40
9065 REM man <
9070 DATA "a",14,14,6,62,14,14,1
8,54
9075 REM man >
9080 DATA "b",112,112,96,124,112
,112,72,108
9085 REM man carry <
9090 DATA "c",14,14,6,126,110,14
,18,54
9095 REM man carry >
9100 DATA "d",112,112,96,126,118
,112,72,108
9105 REM floor
9110 DATA "e",239,239,239,15,240
,247,247,247
9115 REM  slug
9120 DATA "f",0,64,32,31,31,55,6
3,127
9130 DATA "g",0,0,0,255,255,255,
255,255
9140 DATA "h",0,0,0,240,248,255,
255,255
9150 DATA "i",0,0,0,0,0,0,224,25
4
9155 REM  cabbage
9160 DATA "j",0,16,56,124,254,25
5,126,60
9165 REM shed
9170 DATA "k",0,0,0,0,3,15,63,25
5
9180 DATA "l",3,15,63,255,255,25
5,255,255
9190 DATA "m",192,240,252,255,25
5,255,255,255
9200 DATA "n",0,0,0,0,192,240,25
2,255
9205 REM Pellet
9210 DATA "o",0,0,0,24,24,0,0,0
9500 REM kill slug
9510 FOR w=4 TO 20
9520 PRINT AT w,m+1; INK 2;" "
9530 BEEP .005,w
9540 PRINT AT w,m+1;" "
9550 NEXT w
9560 IF m+1=s OR m+1=s+1 OR m+1=
s+2 OR m+1=s+3 THEN  PRINT AT 20
,s; FLASH 1; INK 2; PAPER 4;"(gf
gg:gh:gi)": BEEP 1,50: PRINT AT
 20,s;"    ": LET v=v+s: PRINT A
T 0,13;v: LET p=0: GO TO 180
9570 LET p=0
9780 RETURN
```

PASSWORD

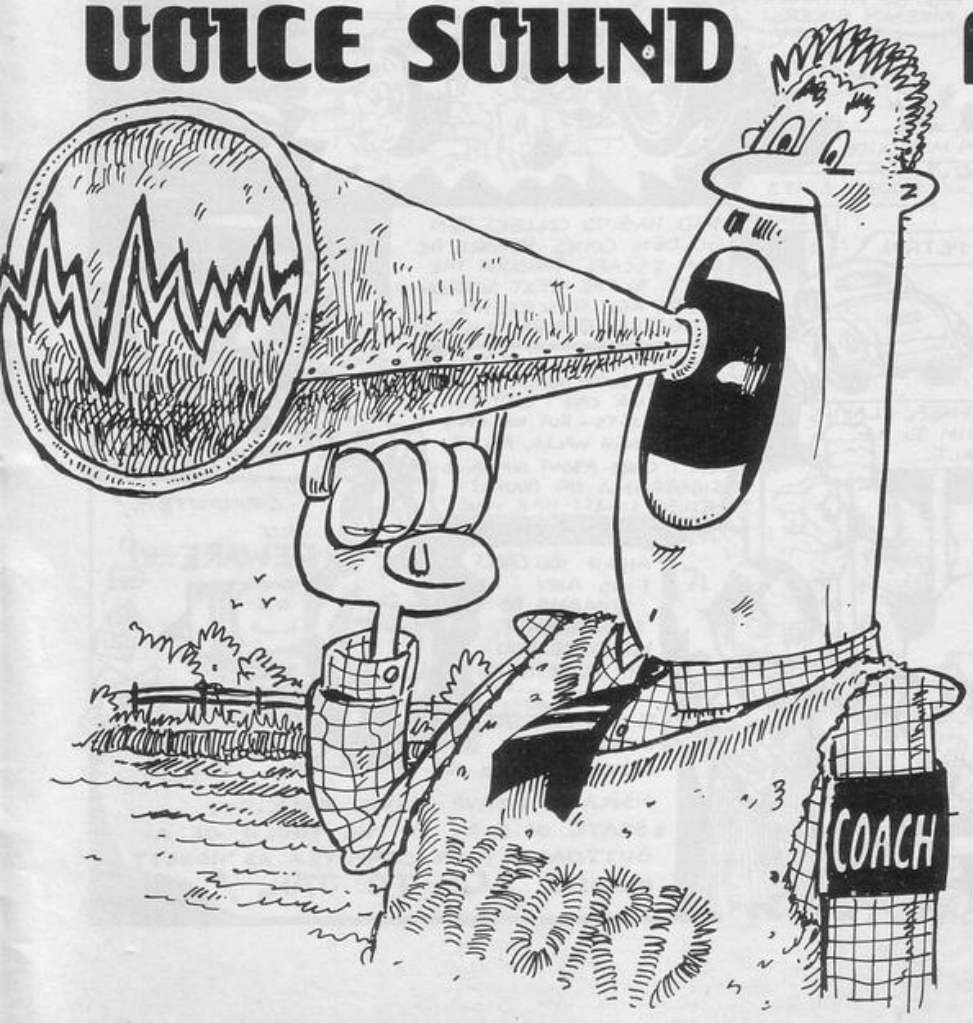
```
  10 CLS : PRINT "Password?"
  20 INPUT  LINE p$
  30 IF p$<>"something" THEN  RA
NDOMIZE USR 1000
  40 BORDER 0: PAPER 0: INK 0: L
OAD ""
  50 STOP
  60 SAVE "Password?" LINE 10
```

WITH computer pirates being mentioned frequently, a growing number of simple program protection devices are being submitted to *Sinclair Programs*.

Password is a short routine to be entered at the beginning of a program. Those who enter CAPS SHIFT and 6 when the password is requested will be able to continue with the program. Other entries will mean that the program has to be re-loaded.

Written for the Spectrum by B Poulton of Stonehouse, Gloucestershire.

VOICE SOUND ANALYSER



USE YOUR Spectrum and cassette recorder to produce patterns of your voice or any other sound on a television screen. Enter the program, connect your cassette recorder and Spectrum via the EAR sockets, and a visual representation of the sounds played on the cassette recorder will appear on the screen.

Voice Sound Analyser was written by Michael Fiernan of Loanhead, Midlothian.

```
   1 REM xxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxx
   2 IF PEEK 23760<>5 THEN  GO S
UB 9000
   9 CLS
  10 FOR n=0 TO 255
  20 LET l=USR 23760
  21 LET a=PEEK 23608
  23 IF a>=175 THEN  LET a=174
  24 IF INKEY$="c" THEN  GO TO 9
  25 IF a=0 THEN  GO TO 20
  30 PLOT n,87
  40 DRAW 0,a/2: DRAW 0,-a
  50 NEXT n: GO TO 9
9000 FOR f=23760 TO 23784
9005 READ a: POKE f,a: NEXT f
9010 DATA 33,56,92,62,0,119,6,25
5,219,250,254,255,40,1,52,16,247
,201,0,0,0,0,0,0,0
9020 RETURN
```

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CORKS!
I'VE GOT A SNIP OUTSIDE YOU JUST WON'T BE ABLE TO RESIST!
HOW MUCH?
WELL, 'OW MUCH 'AVE YOU GOT?
A POGO-STICK, A SAXOPHONE AND A CAN OF WORMS
WELL THAT'S 'OW MUCH IT IS! SIGN HERE, HERE AN' HERE!
TATTAH, MUGGINS!
OY! I THOUGHT I'D JUST BOUGHT THAT!
LOOK AT THE LOG-BOOK! IT IS I YOU'VE PAID YOUR HARD-EARNED WORMS FOR! BEEP!
EH, WOT?
WHAT DO YOU KEEP STOPPING FOR?
BEEP! CAR-SICKNESS!
CAR PARK
SKEEE
LEMME OUTTA HERE, YA BUM!
TELEPORT BEAM
NOW TO RETRIEVE MORRIS SO THAT I CAN SELL HIM TO SOME OTHER MUG! GO, MY PHANTOM PHREAKY BIKERS!
I'M FREE! TAKEEEE!!
TOO LATE! THE MAD BIKERS BLAZE IN, LIKE GHOSTS THROUGH THE BRICK WALL...
THIS IS IT!
MORRIS meets the Bikers
WATCH OUT FOR.....
...TREACHEROUS TIN-TACKS THAT SLOW HIM DOWN...
HSSSS
YOW!
CREEPY CARBON MONOXIDE...
LOONY LIFTS
ELEVATOR
PRECIOUS PETROL
GRRR!
AND CLINGING WHEEL CLAMPS THAT BRING HIM TO A GRINDING HALT...
AND HAS TO COLLECT TEN GOLDEN COINS BEFORE HE CAN ESCAPE THROUGH THE EXIT TO THE NEXT SCREEN. THERE ARE 9 SCREENS ALTOGETHER, BEFORE HE IS FREE!
MAYBE WE DON'T LIKE THE NOISE HIS HORN MAKES, AN' MAYBE WE CAN'T GET HIM IN THE LIFTS - BUT WE CAN FLY THROUGH WALLS, AN WE DON'T CARE ABOUT NO HAND-SIGGERNALS OR DOUBLE-HELLER LINES! HAR HAR!!
SO WHAT'S AUTOMATA GOT IN THE WAY OF CLASSIC ENTERTAIN-MENT? HOW ABOUT THE DIFINITIVE VERSION OF THAT BOARD GAME!
HEH HEH...
GO TO JAIL
AND IF YOU CAN'T FIND ANY HUMANS TO PLAY AGAINST, WE DARE YOU TO PLAY YOUR..
..COMPUTER!
BUT BEWARE...
IT MAY WELL WIN!!
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SP

MAP OF GREAT BRITAIN

THE PROGRAM of the month is an educational program written for the 16K ZX-81 by William Turner, aged 12, of Staunton, Gloucester. He produced the maps with the aid of the Print 'n' Plotter film which he has had for some months.

The program starts with a map of Great Britain and its surrounding countries.

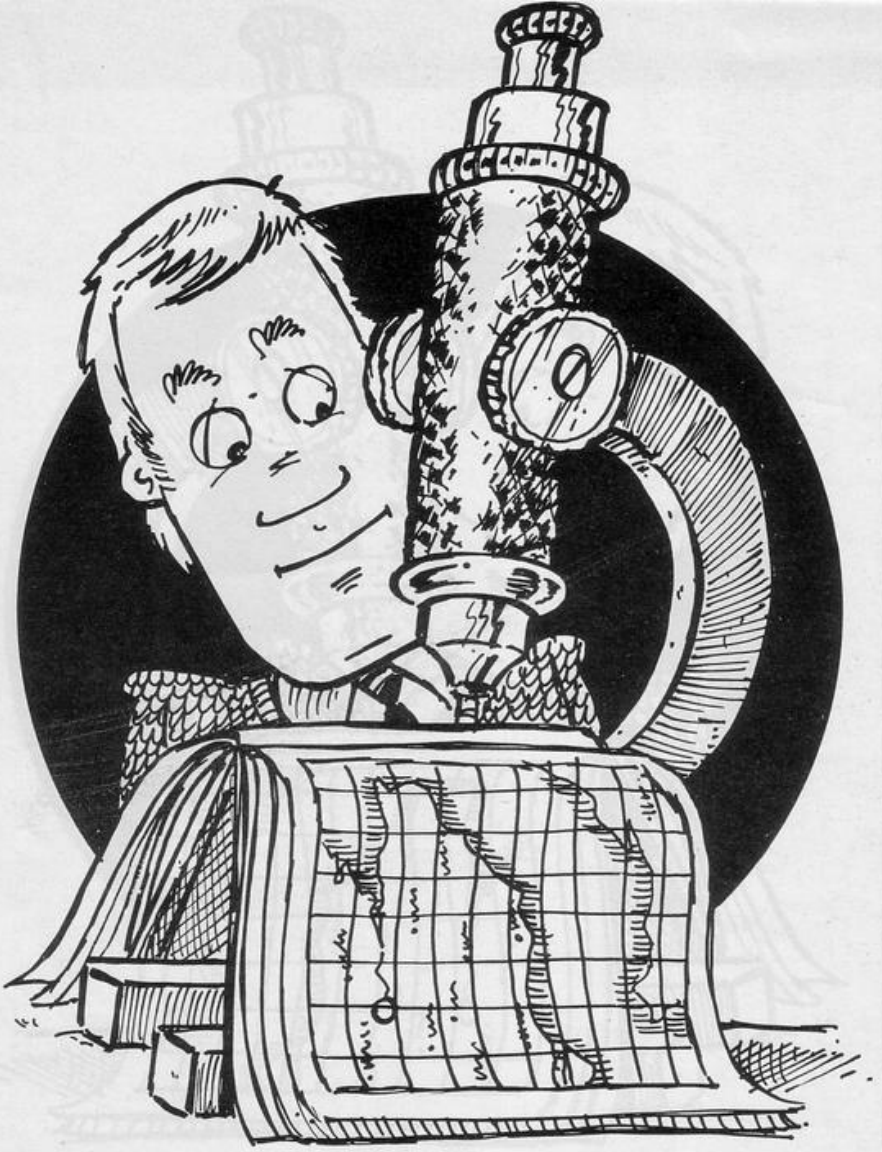
By pressing "L" a dot will flash to pinpoint London, "E" will show Edinburgh, "B" Belfast and "C" Cardiff. "2" will give a map of London, "3" of Cardiff, "4" Belfast and "5" a map of Edinburgh. Press "1" to return to the original map and "0" to end the program.

```
   2 PRINT AT 10,11;"[graphics]";
AT 11,12;"G.B.MAP";AT 12,11;"[graphics]
[graphics]"
   3 PAUSE 4E4
   4 CLS
   5 GOTO 310
   8 CLS
  10 PRINT AT 0,20;"[graphics]";AT 0, 028
;"[graphics]"
  20 PRINT AT 1,28;"[graphics]"
  30 PRINT AT 2,28;"[graphics]"
  40 PRINT AT 3,28;"[graphics]"
  50 PRINT AT 4,14;"[graphics]";AT 4,
28;"[graphics]"
. 60 PRINT AT 5,14;"[graphics]";AT 5,
28;"[graphics]"
  70 PRINT AT 6,13;"[graphics]";AT
6,26;"[graphics]"
  80 PRINT AT 7,15;"[graphics]";AT 7,
29;"[graphics]"
  90 PRINT AT 8,15;"[graphics]"
 100 PRINT AT 9,14;"[graphics]";AT 9,
31;"[graphics]"
 110 PRINT AT 10,11;"[graphics]";AT
 10,30;"[graphics]"
 120 PRINT AT 11,9;"[graphics]";
AT 11,30;"[graphics]"
 130 PRINT AT 12,9;"[graphics]"
;AT 12,30;"[graphics]"
 140 PRINT AT 13,8;"[graphics]
[graphics]";AT 13,31;"[graphics]"
 150 PRINT AT 14,9;"[graphics]
[graphics]";AT 14,31;"[graphics]"
 160 PRINT AT 15,8;"[graphics]
[graphics]";AT 15,31;"[graphics]"
 170 PRINT AT 16,7;"[graphics]
[graphics]";AT 16,29;"[graphics]"
 180 PRINT AT 17,8;"[graphics]
[graphics]"
 190 PRINT AT 18,14;"[graphics]";A
T 18,26;"[graphics]"
 200 PRINT AT 19,14;"[graphics]
[graphics]"
 210 PRINT AT 20,13;"[graphics]
[graphics]"
 220 PRINT AT 21,12;"[graphics]";AT 21,
22;"[graphics]"
 230 PRINT AT 0,0;"THIS IS A MAP
 OF";AT 1,0;"ENGLAND,WALES,";AT
2,0;"SCOTLAND,IRELAND,";AT 4,0;"
FRANCE,SWEDEN,";AT 3,0;"BELGIUM,H
OLLAND,";AT 5,0;"DENMARK AND";AT
 6,0;"GERMANY."
 250 IF INKEY$="L" THEN PRINT AT
 19,20;"[graphics]";AT 19,20;"[graphics]";AT 9,0;"
LONDON";AT 9,0;"          "
 260 IF INKEY$="E" THEN PRINT AT
 11,18;"[graphics]";AT 11,18;"[graphics]";AT 9,0;"
EDINBURGH";AT 9,0;"          "
 270 IF INKEY$="B" THEN PRINT AT
 11,13;"[graphics]";AT 11,13;"[graphics]";AT 9,0;"
BELFAST";AT 9,0;"          "
 280 IF INKEY$="C" THEN PRINT AT
 16,16;"[graphics]";AT 16,16;"[graphics]";AT 9,0;"
CARDIFF";AT 9,0;"          "
 290 IF INKEY$="1" THEN GOTO 480

 291 IF INKEY$="2" THEN GOTO 709

 292 IF INKEY$="3" THEN GOTO 989
 293 IF INKEY$="4" THEN GOTO 125
9
 294 IF INKEY$="5" THEN GOTO 157
9
 300 GOTO 250
 310 PRINT AT 10,11;"[graphics]"
 320 PRINT AT 11,11;"  HELLO  "
 330 PRINT AT 12,11;"[graphics]"
 340 PRINT AT 14,11;"  I AM  "
 350 PRINT AT 15,11;"  YOUR  "
 360 PRINT AT 16,11;"FRIENDLY"

 370 PRINT AT 17,11;"  [graphics]  "
 380 PRINT AT 20,6;"WHAT IS YOUR
 NAME ?"
 390 INPUT A$
 400 PRINT AT 20,6;"  YOUR NAME
IS        ";AT 21,11;A$
 410 PAUSE 4E4
 420 CLS
 430 PRINT AT 0,5;"IN THE FOLLOW
ING MAP";AT 1,5;"YOU CAN PRESS L
,E,C AND B";AT 2,5;"TO MAKE SOME
THING HAPPEN"
 435 PRINT AT 5,5;"YOU CAN ALSO
PRESS";AT 6,9;"2,3,4 AND 5."
 436 PRINT AT 8,9;"0=THE G.B MAP
"
 440 PRINT AT 11,5;"IF YOU GET B
ORED THEN";AT 12,10;"PRESS 1."
 445 PRINT AT 21,4;"PRESS ANY KE
Y TO START"
 450 PAUSE 4E4
 460 CLS
 470 GOTO 10
```



```
 480 PRINT AT 9,0;"ARE YOU";AT 1
0,0;"BORED";AT 11,0;A$;"?"
 490 PRINT AT 12,0;"Y OR N ?"
 495 INPUT B$
 500 IF B$="N" THEN GOTO 8
 510 IF B$="Y" THEN GOTO 530
 520 GOTO 495
 530 CLS
 540 PRINT AT 11,5;"HAVE YOU HAD
 ENOUGH ";A$;" ?"
 550 PRINT AT 12,15;"Y OR N ?"
 560 IF INKEY$="N" THEN GOTO 551

 570 IF INKEY$="Y" THEN GOTO 584

 580 GOTO 560
 581 PRINT AT 9,0;"          ";AT 1
0,0;"      ";AT 11,0;"          "
 582 CLS
 583 GOTO 480
 584 CLS
 590 PRINT AT 11,12;"[illegible]"
 600 PRINT AT 12,15;"[illegible]"
 610 IF INKEY$="N" THEN GOTO 640

 620 IF INKEY$="Y" THEN GOTO 640

 630 GOTO 610
 640 CLS
 650 PRINT AT 11,11;"[illegible]";AT
 12,11;A$
 660 PAUSE 4E4
 670 CLS
 680 PRINT "PRESS ANY KEY TO STO
P"
 690 PAUSE 4E4
 700 CLS
 701 STOP
 709 CLS
 710 PRINT AT 1,9;"▗ LUTON AIRPO
RT";AT 1,29;"▗▌";AT 0,25;"LAKE"
 720 PRINT AT 2,29;"▄▟"
 730 PRINT AT 3,28;"▟▀▀▙"
 740 PRINT AT 4,26;"▛▀ ▀▜"
 750 PRINT AT 5,9;"▛▀ ▀▀▀▀ L
AKE"
 760 PRINT AT 5,30;"▀▜";AT 6,9;"
▙▌ ▛▀▀▙▟";AT 6,23;"▀";AT 6,27;
"▀▀▟▀▀"
 770 PRINT AT 7,9;"▌▛▀▀ ";AT 7,1
8;"▟▄▄ ";AT 7,25;"▟▀▀"
 780 PRINT AT 8,9;"▟";AT 8,21;"▌"
 ;AT 8,25;"▀▀ ▟▀▀▀"
 790 PRINT AT 9,3;"▀▀▀▀ ▌";AT 9
,14;"C▗";AT 9,20;"▛▀ ";AT 9,24;"▀
▀▀▀▀▀▀"
 800 PRINT AT 10,3;"▀ ▀▗W";AT 1
0,9;"▌▗H";AT 10,14;"▀▀▀▀▀▀▀▀ ▀▀
▀▀▀▀▀▀"
 810 PRINT AT 11,0;"▀▀▀▀ ▀▀▀▌
▀▀▀▀▀ ▟▀▀▀▀ ▟▄▄ ▀▀▀▀"
 820 PRINT AT 12,5;"▀▀▀▀▀▀▀▀";AT
12,18;"▛▀";AT 12,25;"▀▀▀▀▀▀"
 830 PRINT AT 13,5;"▀▀▀▀▀▀ ▀▀▀▀";
AT 13,30;"▀"
 840 PRINT AT 14,9;"▀▀▀▀▀ ▜▀▀"
 850 PRINT AT 15,13;"▀▀▀▀"
 860 PRINT AT 19,1;"▀=R.THAMES"
 870 PRINT AT 20,1;"C=CENTRE OF
LONDON"
 880 PRINT AT 16,1;"H=HEATHROW"
 890 PRINT AT 17,1;"W=WINDSOR"
 900 PRINT AT 0,0;"******";AT 1,
0;"LONDON";AT 2,0;"******"
 910 IF INKEY$="1" THEN GOTO 920

 915 GOTO 970
 920 PRINT AT 15,25;"ARE YOU";AT
 15,25;"BORED ?"
 930 IF INKEY$="Y" THEN GOTO 640

 940 IF INKEY$="N" THEN GOTO 950

 945 GOTO 930
 950 CLS
 960 GOTO 710
 970 IF INKEY$="0" THEN GOTO 8
 971 IF INKEY$="3" THEN GOTO 989

 972 IF INKEY$="4" THEN GOTO 128
0
 973 IF INKEY$="5" THEN GOTO 158
0
 980 GOTO 910
 989 CLS
 990 PRINT AT 0,14;"▀=R.SEVERN";
AT 0,31;"▄"
1000 PRINT AT 1,30;"▄▀"
1010 PRINT AT 2,20;"GLOUCESTER▀▄
"
1020 PRINT AT 3,11;"WALES";AT 3,
29;"▄▀▀ "
1030 PRINT AT 4,28;"▀▀"
1040 PRINT AT 5,28;"▀"
1050 PRINT AT 6,28;"▀"
1060 PRINT AT 7,3;"▀";AT 7,25;"▀
▀▀▀"
1070 PRINT AT 8,0;"▀▀▄▄▟ SWANSEA
";AT 8,25;"▀▀"
1080 PRINT AT 9,0;"▀▀▀ ▜▄▄";AT 9
,15;"NEWPORT  ▀▀▀"
1090 PRINT AT 10,5;"▀▀▀▀";AT 10,1
9;"▀  ▄▄▀▀";AT 10,0;"▀▀"
1100 PRINT AT 11,0;"▀▀▀▀▀▀▀▀▀▀▀▀";AT
 11,16;"▗ ▀▄▄▄▀▀BRISTOL"
1110 PRINT AT 12,0;"▀▀▀▀▀▀▀▀▀▀ CAR
DIFF▀▄▄▄▀▀▀▀ ▄▄▄ "
1120 PRINT AT 13,0;"▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀
";AT 13,16;"▀▀▀▀▀▀▀  ▄▄▀▀ "
1130 PRINT AT 14,0;"▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀
";AT 14,17;"▀▀▀▀▀▀"
1140 PRINT AT 15,0;"▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀
▀▄▄▄▄▄▄▄▄▄▄▄";AT 15,25;"BATH▀ "
1150 PRINT AT 16,0;"▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀
RISTOL▀▀"
1160 PRINT AT 17,0;"▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀C
HANNEL▀▀"
1170 PRINT AT 18,0;"▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀
▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀
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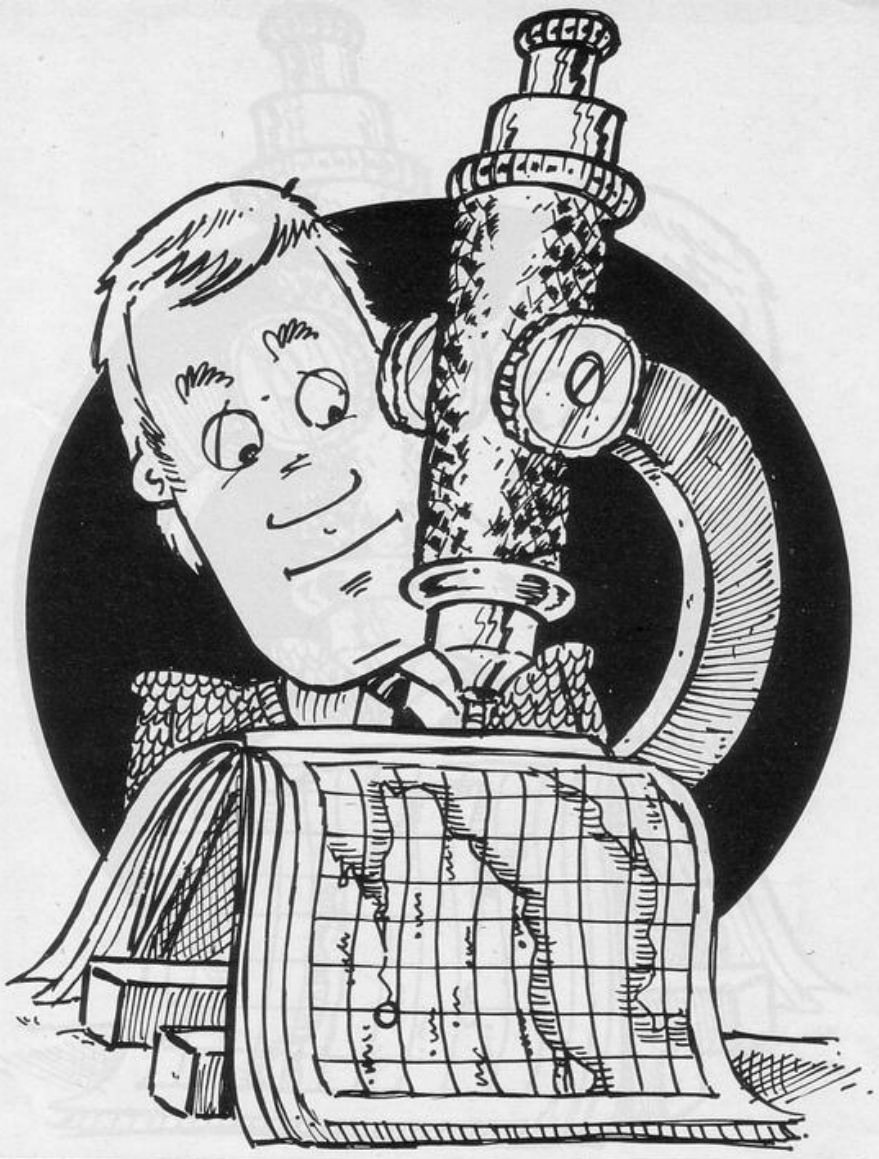


```
1210 PRINT AT 0,0;"*******";AT 1
,0;"CARDIFF";AT 2,0;"*******"
1220 IF INKEY$="1" THEN GOTO 123
0
1225 GOTO 1270
1230 PRINT AT 20,3;"ARE YOU";AT
21,3;"BORED ?"
1240 IF INKEY$="N" THEN GOTO 989

1250 IF INKEY$="Y" THEN GOTO 640

1260 GOTO 1240
1270 IF INKEY$="0" THEN GOTO 8
1271 IF INKEY$="2" THEN GOTO 709

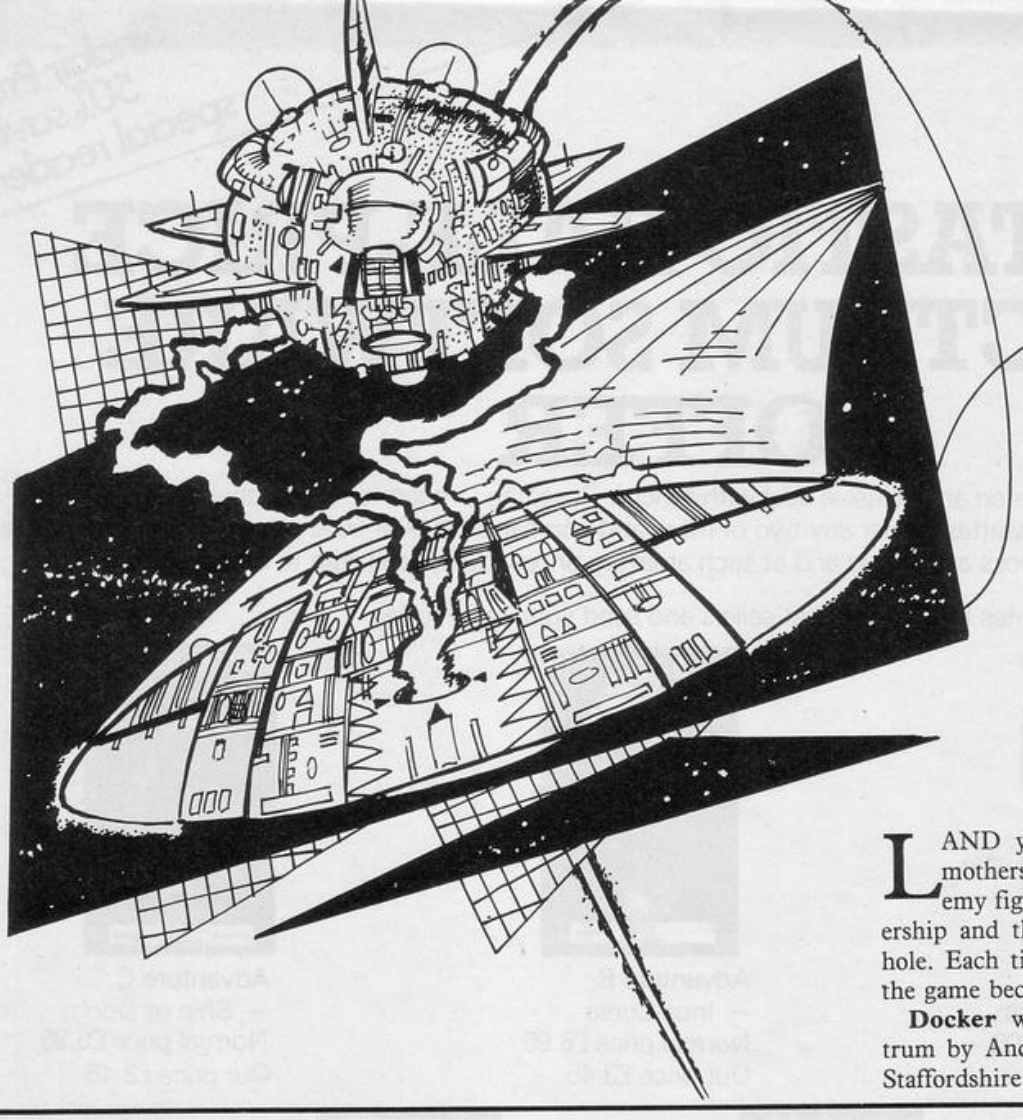
1272 IF INKEY$="4" THEN GOTO 128
9
1273 IF INKEY$="5" THEN GOTO 158
9
1280 GOTO 1220
1289 CLS
1290 PRINT AT 0,2;"▀▄";AT 0,18;
"▀▀▀▀▀▀▀▀▀▀▀▀▀▀"
1300 PRINT AT 1,19;"▀▀▀▀▀▀▀▀▀▀▀
▀"
1310 PRINT AT 2,0;"▀LONDONDARY";
AT 2,19;"▀▀▀▀▀▀▀▀▀▀▀▀▀"
1320 PRINT AT 3,19;"▀▀▀ENGLAND▀
▀"
1330 PRINT AT 4,7;"N.IRELAND";AT
 4,20;"▀▀▀▀▀▀▀▀▀▀▀▀▀"
1340 PRINT AT 5,20;"▀▀▀▀▀▀▀▀▀▀▀
"
1350 PRINT AT 6,21;"▀ ▀▀▀▀▀▀▀▀"

1360 PRINT AT 7,21;"▀ ▀▀▀▀▀▀▀▀"

1370 PRINT AT 8,11;"▄";AT 8,22;"
▄▄▄▄▄▄▄▄▄▄▄"
1380 PRINT AT 9,11;"▀▄ ▄▀";AT 9,
20;"▄▀▀▀▀▀▀▀▀▀▀▀"
1390 PRINT AT 10,11;"▀▀▀▀";AT 10,
20;"▀▄▀▀▀▀▀▀▀▀▀▀"
1400 PRINT AT 11,11;"▀▀▀▀";AT 11,
18;"▄▀";AT 11,25;"▀▀▀▀▀▀"
1410 PRINT AT 12,10;"▀▀▀▀▀";AT 1
2,18;"▀▄ ▄ ▀▀▀▀▀▀▀"
1420 PRINT AT 13,0;"▀▄";AT 13,10
;"▀▀▀▀ BELFAST";AT 13,22;"▀▄ ▀▀▀▀
▀▀▀▀"
1430 PRINT AT 14,1;"▀▄";AT 14,12
;"▀▀";AT 14,23;"▀▄ ▀▀▀▀▀▀▀▀"
1440 PRINT AT 15,2;"▀▄";AT 15,23
;"▀ ▀▀▀▀▀▀▀▀"
1450 PRINT AT 16,3;"▀▄▄";AT 16,2
3;"▀▄ ▀▀▀▀▀▀▀▀"
1460 PRINT AT 17,5;"▄ ";AT 17,22
;"▄▀▀▀▀▀▀▀▀▀▀"
1470 PRINT AT 18,6;"▌ ";AT 18,22;
"▀▀ ▀▀▀▀▀▀▀▀▀"
1480 PRINT AT 19,6;"▀BOUNDARY";A
T 19,24;"▀▀▀▀▀▀▀▀▀"
1490 PRINT AT 20,6;"▌";AT 20,20;
"▀▀▀▀▀▀▀▀▀▀▀▀"
1500 PRINT AT 21,1;"EIRE▀▄";AT
21,19;"▄▀▀▀▀▀▀▀▀▀▀▀▀"
1501 PRINT AT 5,0;"*******";AT 6
,0;"BELFAST"
1502 PRINT AT 7,0;"*******"
1510 IF INKEY$="1" THEN GOTO 152
0
1515 GOTO 1560
1520 PRINT AT 8,0;"ARE YOU";AT 9
,0;"BORED ?"
1530 IF INKEY$="Y" THEN GOTO 640
1540 IF INKEY$="N" THEN GOTO 128
9
1550 GOTO 1530
1560 IF INKEY$="0" THEN GOTO 8
1561 IF INKEY$="2" THEN GOTO 709

1562 IF INKEY$="3" THEN GOTO 989

1563 IF INKEY$="5" THEN GOTO 158
9
1570 GOTO 1510
1589 CLS
1591 PRINT AT 1,12;"▀LOCH";AT 1
,23;"DUNDEE"
1592 PRINT AT 2,11;"▄▀ TAY";AT 2
,27;"▄";AT 2,31;"▄"
1600 PRINT AT 3,10;"▀▀";AT 3,27;
"▄▄▄▀"
1610 PRINT AT 4,18;"PERTH ▄▄▀"
▀▀"
1620 PRINT AT 5,0;"▀LOCH";AT 5,9
;"SCOTLAND";AT 5,21;"▀▄▄ ▀ ▄▄▀▀
"
1630 PRINT AT 6,1;"AWE";AT 6,23;
"▀▀▀▀";AT 6,30;"▀▄"
1640 PRINT AT 7,6;"LOCH"
1650 PRINT AT 8,1;"▄";AT 8,5;"▀▄
▄";AT 8,20;"LOCH"
1660 PRINT AT 9,0;"▀▀";AT 9,6;"K
ARINE";AT 9,22;"▄ BREN▄ ▄"
1670 PRINT AT 10,22;"▀▀▀ ▀▀▀▀▀"
1680 PRINT AT 11,3;"▀ ▀ LOCH";A
T 11,16;"DUNFERMINE▄▀▀▀▀";AT 13
,16;"F"
1690 PRINT AT 12,3;"▀ ▀▀ LOMOND
▀▀▄";AT 12,26;"▀N.SEA"
1700 PRINT AT 13,3;"▀ ▀▀";AT 1
3,18;"▀▄▄ ▀ ▄▀▀▀▀▀▀▀"
1710 PRINT AT 14,3;"▀▄ ▀ ▀▀";AT 14
,17;"O▀▀▄▀▀▀▀▀▀▀▀"
1720 PRINT AT 15,3;"▀▀▀▀";AT 15,1
8;"ATH ▀▀▀▀▀▀"
1730 PRINT AT 16,23;"▄▀▀";AT 17,
0;"▀ ▀";AT 17,9;"▀▀▀▀ ";AT 17,24;
"▀▀ "
1740 PRINT AT 18,0;"▀▀▀▀";AT 18,8
;"▄▀▀▀▀▀ ";AT 18,23;"EDINBURGH"
1750 PRINT AT 0,0;"*********";AT
 1,0;"EDINBURGH";AT 2,0;"*******
**"
1755 PRINT AT 19,1;"▀▀";AT 19,9;
" ▀▀▀ ▀OCKER-";AT 20,1;"▀▀▀";AT
20,7;"GLASGOW  WELL";AT 21,0;"▄▄
▀▀"
1760 IF INKEY$="1" THEN GOTO 177
0
1765 GOTO 1810
1770 PRINT AT 20,25;"ARE YOU";AT
 21,25;"BORED ?"
1780 IF INKEY$="Y" THEN GOTO 640
1790 IF INKEY$="N" THEN GOTO 158
9
1800 GOTO 1780
1810 IF INKEY$="0" THEN GOTO 8
1811 IF INKEY$="2" THEN GOTO 709
1812 IF INKEY$="3" THEN GOTO 989
1813 IF INKEY$="4" THEN GOTO 128
9
1820 GOTO 1760
```



DOCKER

LAND your ship on the moving mothership. Avoid hitting the enemy fighters or missing the mothership and thus crashing into a black hole. Each time you dock successfully the game becomes faster.

Docker was written for the Spectrum by Andrew Heath of Newcastle, Staffordshire.

```
 10 BORDER 0: PAPER 0
 100 FOR f=USR "a" TO USR "h"+7
 110 READ a: POKE f,a: NEXT f
 111 DATA 255,129,129,129,129,12
9,129,255
 112 DATA 7,8,17,32,68,65,144,12
8
 113 DATA 224,16,136,4,34,130,9,
1
 114 DATA 0,0,1,3,7,63,127,255
 115 DATA 0,0,128,192,224,252,25
4,255
 116 DATA 3,3,7,15,31,63,127,255
 117 DATA 192,192,224,240,248,25
2,254,255
 118 DATA 195,195,219,255,219,21
9,195,195
 119 LET t=50: LET sc=0
 120 INK 7: PRINT AT 0,0;"OBJECT
 to land docking ship on  mother
 ship.You have 50 counts  to  cl
ear each Phase.6 Phases to clear
.The quicker you do it,the more
 Points.Keys: q-left: p-right: 2 or
 0-thrust: If you thrust in emerge
ncy you get 5 counts added to yo
ur time."
 122 PRINT AT 13,5; FLASH 1;"PRE
SS ANY KEY": PAUSE 0
 123 INPUT "Do you want to Play,
(Y/N)";q$
 124 IF q$="Y" OR q$="y" THEN  C
LS : GO TO 250
 125 IF q$="N" OR q$="n" THEN  S
TOP
 126 IF q$<>"y" OR q$<>"Y" OR q$
<>"n" OR q$<>"N" OR q$<>"yes" OR
 q$<>"YES" OR q$<>"no" OR q$<>"N
O" THEN  GO TO 123
 200 LET t=50: LET sc=0
 250 LET m=.5
 260 LET p=1
 280 IF p>6 THEN  GO TO 303
 300 PRINT AT 10,1;"Get ready fo
r  Phase ";p;AT 12,5;" Press any
 key": PAUSE 0: CLS : LET a=21:
LET s=INT (RND*25): IF s<3 THEN
 LET s=5
 301 FOR f=0 TO 21: PRINT AT f,0
; INK 2;"aaa": PRINT AT f,29; IN
K 2;"aaa": NEXT f
 303 IF p>6 THEN  CLS : PRINT AT
 10,1;"Well done,you have beaten
 the   computer at its own game
with a score of ";sc: GO TO 118
 305 LET z=0: LET x=INT (RND*25)
: IF x<3 THEN  LET x=5
 310 PRINT AT a,s; INK 7;"d(2*98
)3"
 315 BEEP m,10
 320 LET s=s+1
 330 PRINT AT a,s-1;"   "
 340 PRINT AT a,s; INK 7;"d(2*98
)e"
 350 IF s>24 THEN  LET s=3: PRIN
T AT 21,24;"     "
 400 IF t<10 THEN  PRINT AT 0,9;
" "
 510 PRINT AT z,x; INK 7;"fg"
 520 LET z=z+1
 530 PRINT AT z-1,x;"  "
 540 PRINT AT z,x; INK 7;"fg"
 560 PRINT AT 0,15;"SCORE=";sc
 600 IF x<3 OR x>26 THEN  CLS :
BEEP .10,6: PRINT AT 11,10;"UNSU
CCESSFUL";AT 12,5;"YOU SMASHED I
NTO A WALL";AT 15,6;"SCORE=";sc:
 GO TO 9900
1000 IF INKEY$="q" THEN  LET x=x
-1: PRINT AT z,x+1;"  ";AT z,x;
INK 7;"fg"
1100 IF INKEY$="p" THEN  LET x=x
+1: PRINT AT z,x-1;"  ";AT z,x;
INK 7;"fg"
1200 IF INKEY$="0" OR INKEY$="2"
 THEN  LET z=z-1: PRINT AT z+1,x
; INK 6;"bc";AT z,x; INK 7;"fg":
 LET t=t-5
1500 LET t=t-1: PRINT AT 0,3;"TI
ME=";t
1600 IF t<0 THEN  CLS : PRINT AT
 10,10;"OUT OF TIME";AT 11,10;"S
CORE=";sc: PAUSE 0: GO TO 9900
2000 IF z>20 THEN  CLS : PRINT A
T 10,5;"MISSION UNSUCCESSFUL";AT
 12,5;"YOU WENT TO THE BLACK HOL
E";AT 13,5;"SCORE=";sc: GO TO 99
00
2010 PRINT AT 7,7;"h": IF z=7 AN
D x=7 OR z=7 AND x=6 THEN  GO TO
 9990
2020 PRINT AT 15,6;"h": IF z=15
AND x=6 OR z=15 AND x=5 THEN  GO
 TO 9990
2030 PRINT AT 10,15;"h": IF z=10
 AND x=15 OR z=10 AND x=14 THEN
 GO TO 9990
2040 PRINT AT 4,18;"h": IF z=4 A
ND x=18 OR z=4 AND x=17 THEN  GO
 TO 9990
2050 PRINT AT 7,24;"h": IF z=7 A
ND x=24 OR z=7 AND x=23 THEN  GO
 TO 9990
2060 PRINT AT 12,23;"h": IF z=12
 AND x=23 OR z=12 AND x=22 THEN
 GO TO 9990
2070 PRINT AT 16,18;"h": IF z=16
 AND x=18 OR z=16 AND x=17 THEN
 GO TO 9990
3000 IF x=s+1 AND z=20 OR x=s AN
D z=20 OR x=s+2 AND z=20 OR x+1=
s AND z=20 THEN  BEEP .1,10: PRI
NT AT 10,10;"SUCCESSFUL": LET m=
m-.1: LET p=p+1: LET sc=sc+t: LE
T t=50: CLS : GO TO 300
9000 GO TO 310
9900 PAUSE 0: PAUSE 0: GO TO 119
9990 CLS : BEEP .1,5: PRINT AT 1
0,2;"YOU SMASHED IN TO AN ENEMY"
;AT 11,15;" FIGHTER";AT 15,15;"S
CORE=";sc: PAUSE 0: PAUSE 0: GO
TO 119
```

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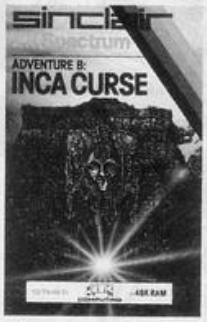

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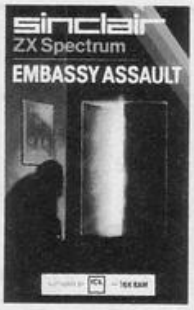

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DESTROY VADER

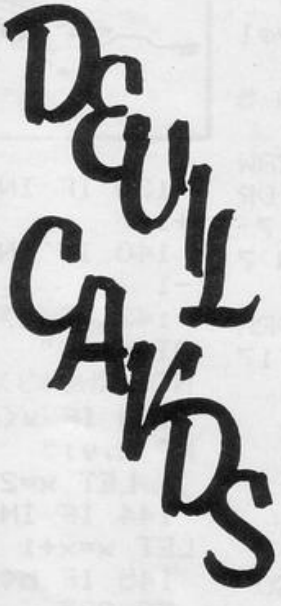
DESTROY VADER ships as you hurtle through space in pursuit of them. Move with the normal cursor keys and fire using 9. Written for the Spectrum by Lloyd Maddock of north London.

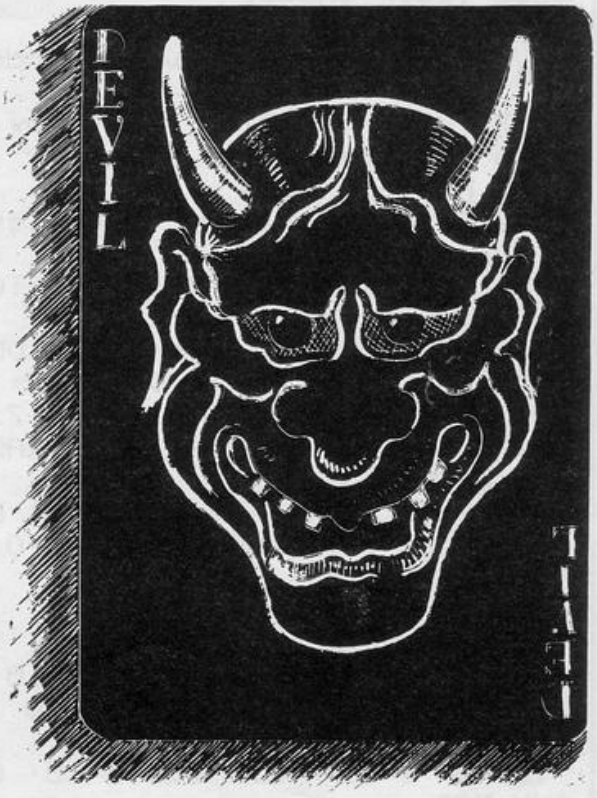
```
  10 LET x=10: LET y=10: LET i=0
  LET j=0
  15 LET t=0
  20 LET g=25
  25 LET a$="PHANTOM": LET p=10
  26 BORDER 7: PAPER 0: INK 7
  30 LET score=0
  40 FOR c=0 TO 7: READ b: POKE
USR "b"+c,b: NEXT c: DATA 226,50
,250,254,30,26,242,226
  41 FOR d=0 TO 7: READ c: POKE
USR "c"+d,c: NEXT d: DATA 32,23,
15,95,31,15,39,136
  42 FOR e=0 TO 7: READ d: POKE
USR "d"+e,d: NEXT e: DATA 4,232,
240,250,240,240,228,17
  43 FOR c=0 TO 7: READ a: POKE
USR "a"+c,a: NEXT c: DATA 71,76,
95,127,120,80,79,71
  45 LET b=0
  46 PRINT AT 0,1;"DESTROY VADER
.....use normal key
s for moveing      and 9 to fire.
                   destrory vader
s ships as you     hurtle through
 space in          pursuit .
                   you start with
 255 laser shots.

                   level1=hardest
"
  47 PRINT AT 20,0;"Press any ke
y to continue"
  49 PAUSE 0: CLS
  50 PRINT AT 10,10;"enter level
 (1-3)": INPUT c: CLS
  55 IF c<1 OR c>3 THEN  GO TO 5
0
  60 PLOT 0,175: DRAW 7,-7: DRAW
 241,0: DRAW 7,7: DRAW -7,-7: DR
AW 0,-161: DRAW 7,-7: DRAW -7,7:
 DRAW -241,0: DRAW -7,-7: DRAW 7
,7: DRAW 0,161
  70 PLOT 0,175: DRAW 255,0: DRA
W 0,-175: DRAW -255,0: DRAW 0,17
5
  80 INK 7
 100 PRINT AT x,y;"  "
 103 IF t=10 THEN  GO SUB 510
 104 IF t=10 THEN  GO TO 110
 105 LET e=INT (RND*25)
 106 IF e=19 THEN  LET t=10: GO
SUB 500
 110 IF INKEY$="5" THEN  LET y=y
-1
 120 IF INKEY$="8" THEN  LET y=y
+1
 130 IF INKEY$="6" THEN  LET x=x
+1
 140 IF INKEY$="7" THEN  LET x=x
-1
 142 IF x>19 OR x<2 THEN  PRINT
AT x,y;"  ": LET x=2: LET y=16+I
NT (RND*3)
 143 IF y<2 OR y>28 THEN  PRINT
AT x,y;"  ": LET y=16+INT (RND*3
): LET x=2
 144 IF INKEY$="" AND x<2 THEN
LET x=x+1
 145 IF b<>c THEN  LET b=b+1: GO
 TO 205
 150 LET a=INT (RND*4)
 160 IF a=1 THEN  LET y=y-1: GO
TO 200
 170 IF a=2 THEN  LET y=y+1: GO
```

```
TO 200
 180 IF a=3 THEN  LET x=x+1: GO
TO 200
 190 IF a=4 THEN  LET x=x-1: GO
TO 200
 200 LET b=1
 205 PRINT AT x,y;"ab"
 210 OVER 1: PRINT AT 11,16;"+":
 OVER 0
 220 IF x<2 OR x>19 THEN  PRINT
AT x,y;"  ": LET x=2: LET y=16-I
NT (RND*3)
 230 IF y<2 OR y>28 THEN  PRINT
AT x,y;"  ": LET y=16-INT (RND*3
): LET x=2
 235 PRINT AT 21,8;"  "
 240 IF INKEY$="9" THEN  LET g=g
-1: PLOT 48,0: DRAW 84,84: DRAW
84,-84: BEEP .01,2: INVERSE 1: D
RAW -84,84: DRAW -84,-84: INVERS
E 0: GO SUB 600: IF x=11 AND y=1
6 OR x=11 AND y=15 THEN  PRINT A
T x,y;"cd": LET score=score+10:
LET g=g+2: BEEP .05,1: BEEEP .05,
2: BEEP .05,3: PRINT AT x,y;"  "
: LET x=2: LET y=INT (RND*19)+1
 245 PRINT AT 21,1;"lasers=";g
 246 PRINT AT 21,11;"score=";sco
re
 247 IF g<=0 THEN  GO TO 1000
 250 GO TO 100
 500 LET i=x: LET j=y
 510 PRINT AT i,j;" "
 512 LET j=y
 520 IF i<20 THEN  LET i=i+1
 530 IF i=20 THEN  LET g=g-2: LE
T t=0: BEEP .01,3: BEEP .01,2: B
EEP .01,1: RETURN
 540 PRINT AT i,j;"!"
 550 RETURN
 600 IF i=11 AND j=16 THEN  LET
score=score+5: LET t=0: PRINT AT
 i,j;" ": BEEP .01,5: LET i=0: L
ET j=0
 610 RETURN
1010 CLS : PRINT AT 0,0;"your sc
ore was";score
1015 BEEP .5,5: BEEP .5,4: BEEP
.5,3: BEEP .5,2: BEEP .5,1: BEEP
 1,-1
1020 IF score>p THEN  CLS : PRIN
T AT 0,1;"enter your name for hi
gh score": LET p=score: INPUT a$
1030 CLS : PRINT AT 10,1;a$;" HA
S THE HIGH SCORE=";p
1040 PRINT AT 21,0;"do you want
to play again? y/n": INPUT l$
1050 IF l$="y" THEN  CLS : LET s
core=0: LET g=25: GO TO 60
1060 IF l$="n" THEN  STOP
```

```
   5 LET X=2
  10 LET A$="
  90 DIM B(5)
 100 FOR A=1 TO 5
 110 LET B(A)=INT (RND*13)+1
 120 NEXT A
 200 FOR Z=1 TO 6
 210 PRINT "
 220 NEXT Z
 300 FOR Q=1 TO 3
 330 PRINT AT 2,X;A$(B(Q))
 340 LET X=X+5
 350 PRINT AT 7,0;"HIGH/LOW (H/L
)"
 360 INPUT B$
 370 IF B$="H" AND B(Q+1)>B(Q) O
R B$="L" AND B(Q+1)<B(Q) THEN NE
XT Q
 380 PRINT AT 2,X;A$(B(Q+1))
 390 IF B$="H" AND B(Q+1)>B(Q) O
R B$="L" AND B(Q+1)<B(Q) THEN GO
TO 500
 400 PRINT AT 7,0;"YOU LOST
 "
 450 STOP
 500 PRINT AT 7,0;"YOU WON
 "
```





FOUR CARDS are displayed on the screen. As each one is turned over, the player must guess whether it will be of a higher or lower value than the card preceding it. Aces are high and a pair of cards results in a loss for the player. One or two turns are easy to guess but it is devilishly difficult to predict all three turns of the card correctly.

Devil Cards, for the 1K ZX-81, is by Andrew Guilfoyle of Liverpool.

OHM'S LAW

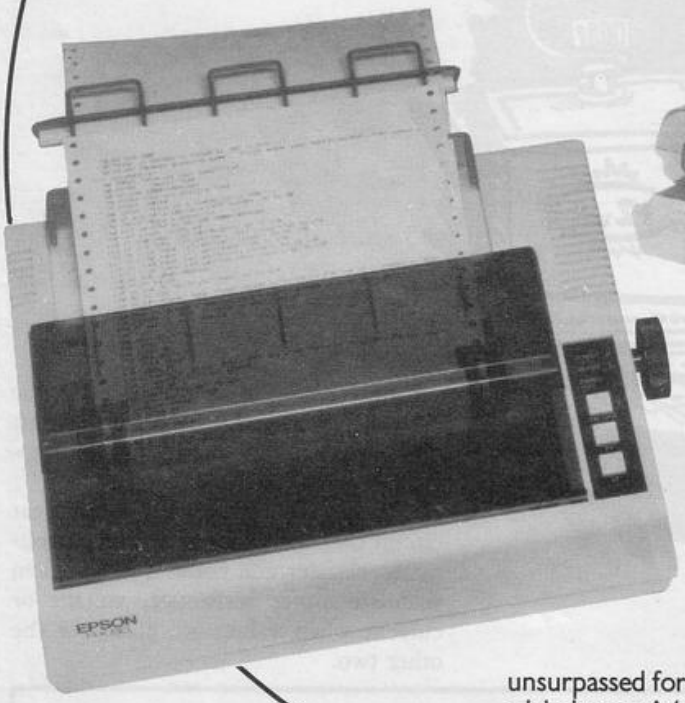
OHM'S LAW, written for the Spectrum by Stephen Dowsett of Yeovil, is an educational program.

When RUN, it will display a clear circuit diagram showing ammeter, voltmeter, resistor and battery. It will then calculate either resistance, voltage or current when values are given for the other two.

```
  2 BORDER 6
 10 PLOT 200,150
 20 DRAW -150,0
 30 DRAW 0,-50
 40 DRAW -10,0
 50 DRAW 0,-20
 60 DRAW 20,0
 70 DRAW 0,20
 80 DRAW -20,0
 90 PLOT 50,80
100 DRAW 0,-50
110 DRAW 75,0
120 DRAW 5,10
130 DRAW 5,-20
140 DRAW 5,20
150 DRAW 5,-20
160 DRAW 5,20
170 DRAW 5,-20
180 DRAW 5,20
190 DRAW 5,-10
200 DRAW 35,0
210 DRAW 0,50
220 DRAW 10,0
230 DRAW -20,0
240 PLOT 200,90
250 DRAW -5,0
260 DRAW 10,0
270 PLOT 200,90
280 DRAW 0,60
290 PLOT 200,89
300 DRAW 5,0
310 DRAW -10,0
320 PLOT 115,30
330 DRAW 0,35
340 DRAW 20,0
350 DRAW 0,10
360 DRAW 20,0
370 DRAW 0,-20
380 DRAW -20,0
390 DRAW 0,10
400 PLOT 155,65
410 DRAW 20,0
420 DRAW 0,-35
430 PRINT AT 8,3;"AMMETER"
440 PRINT AT 11,14;"VOLTMETER"
450 PRINT AT 7,22;"BATTERY"
460 PRINT AT 20,15;"RESISTOR"
470 PRINT AT 9,26;"+"
480 PRINT AT 12,26;"-"
481 PRINT AT 0,10;"OHM'S LAW"
490 PAUSE 500
500 LET g$=INKEY$
505 CLS
510 PRINT AT 10,0;"WHAT DO YOU
WANT TO FIND:          (a)RESISTANC
E                      (b)VOLTAGE
                       (c)CURRENT";
 INPUT g$
 520 IF g$="A" OR g$="a" THEN  G
O TO 1000
 530 IF g$="B" OR g$="b" THEN  G
O TO 1040
 540 IF g$="C" OR g$="c" THEN  G
O TO 1080
 550 IF g$<>"" THEN  GO TO 500
1000 CLS : INPUT ;"PLEASE ENTER
VOLTAGE IN VOLTS    ";A
1010 INNNPUT ;"PLEASE ENTER CURREN
T IN AMPS     ";B
1020 PAUSE 50: LET C=A/B: CLS :
PRINT AT 10,2;"USING OHM'S LAW T
HE RESULT IS
                        ";C;" OHM'S"
1030 PAUSE 500: GO TO 500
1040 CLS : INPUT ;"PLEASE ENTER
RESISTANCE IN OHM'S";A
1050 INPUT ;"PLEASE ENTER CURREN
T IN AMP'S    ";B
1060 PAUSE 50: LET C=A*B: CLS :
PRINT AT 10,2;"USING OHM'S LAW T
HE RESULT IS
                        ";C;" VOLT'S"
1070 PAUSE 500: GO TO 500
1080 CLS : INPUT ;"PLEASE ENTER
VOLTAGE IN VOLT'S   ";A
1090 INPUT ;"PLEASE ENTER RESIST
ANCE IN OHM'S";B
2000 PAUSE 50: LET C=A/B: CLS :
PRINT AT 10,2;"USING OHM'S LAW T
HE RESULT IS
                        ";C;" AMP'S"
2010 PAUSE 500: GO TO 500
```

Learning Box

Competition
Over £450 prizes to be won



Here's your opportunity to enhance your Sinclair ZX Spectrum by winning these valuable peripherals, worth over £350.

1 The Sinclair ZX Spectrum Interface 1 and an Epson RS232 interface for connection with computer peripherals.

2 The Epson RX 80T printer, unsurpassed for reliability, takes everything from a label to an A4 letter size sheet. Prints at 100 characters per second and has a 3 million character memory.

There are also 10 runners-up prizes. Each will receive a LEARNING BOX computer software package, designed specifically for children up to 8, and for use on the Sinclair ZX Spectrum.

Answer the questions below, by ticking the appropriate box. Then complete the tie breaker sentence to the best of your ability.

All entries must be received by 31 July 1984. The judges will be Bob Osborne, Educational Director of Hutchinson Publishing, and Bart Ullstein, Marketing Controller, Learning Box.

The overall winner will receive the Sinclair peripherals, the 10 runners-up a LEARNING BOX of their choice.

Competition Rules

1. The competition is open to UK residents only.
2. Employees of those companies involved in the promotion, their agents and families are excluded from entry.
3. Each entry must be on an official entry form.
4. Entries should be sent to Learning Box Competition, BW House, 11 West Street, London WC2H 9NF.
5. The organisers take no responsibility for any loss or damage whatever arising out of the competition. Proof of posting of entries will not be accepted as proof of delivery.
6. There is no alternative to the prizes which must be taken as specified on the entry form.
7. Competitors may make as many entries as they wish providing each one is on a separate entry form.
8. Entries which do not comply with these rules will be disqualified.
9. No correspondence may be entered into and the judge's decision on all matters relating to the competition will be final.
10. Entries will not be returned. Copyright on all entries shall rest in and belong to Arrow Publishing absolutely.

How many Learning Box programs are there?	2☐	4☐	6☐	8☐
How may items in each Learning Box?	1☐	4☐	8☐	20☐
How many keys on a Sinclair ZX Spectrum?	27☐	41☐	68☐	95☐
How many Learning Box programs are for kids up to 6?	4☐	8☐	10☐	12☐

Now complete this sentence in no more than 10 words (IN BLOCK CAPITALS)

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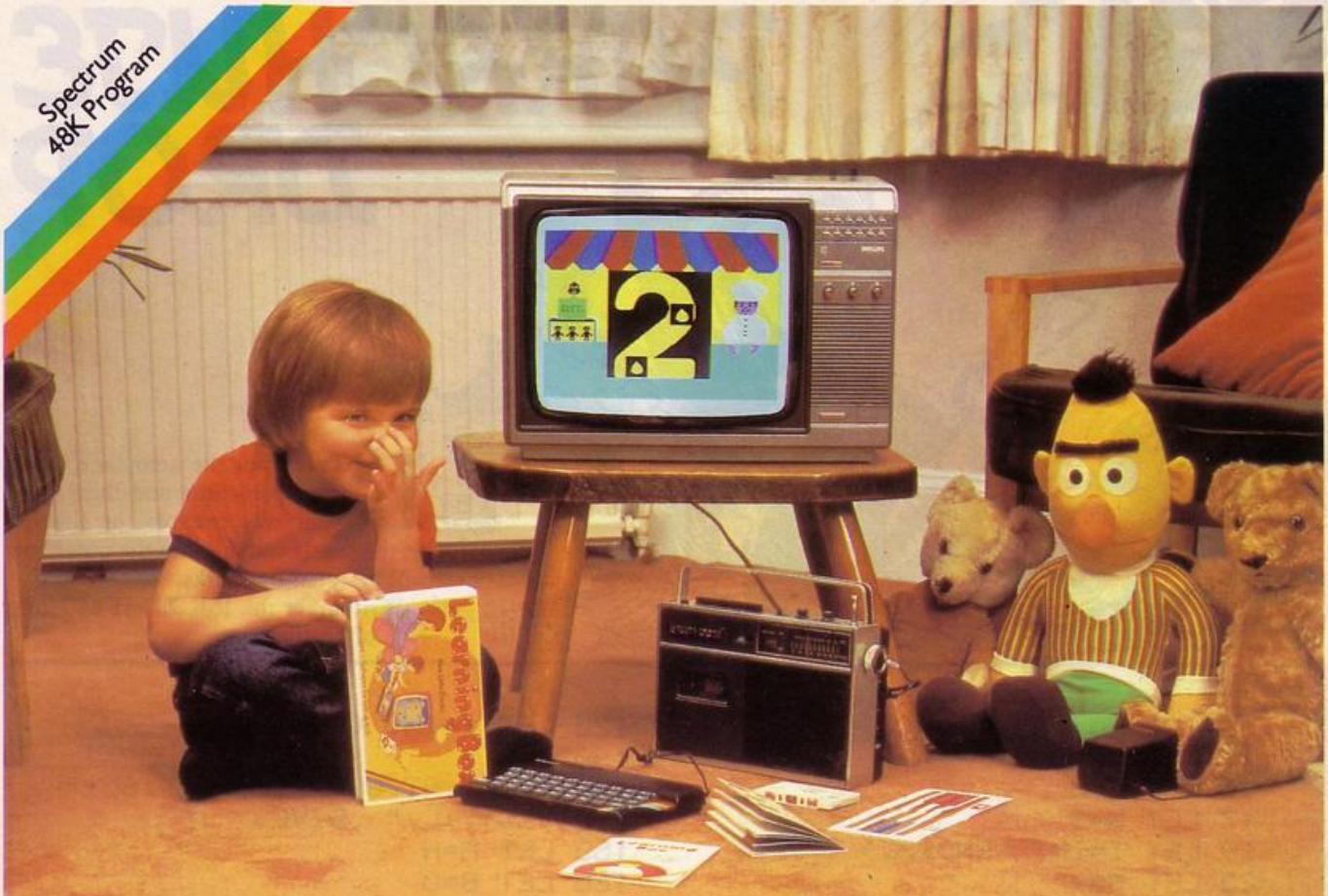
TO: Learning Box Competition, c/o BW House, 11 West Street, London WC2H 9NF.

Name_____

Address_____



Is your child ready for school?

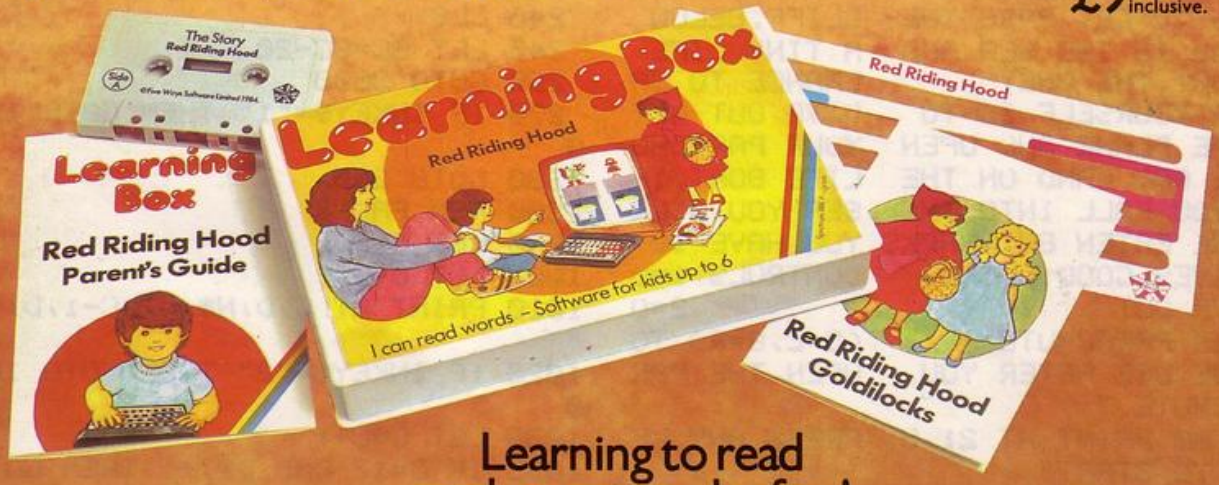
Going to school can be a worrying experience but it can be fun if your child has already started to read and count.

LEARNING BOX is a series of 8 computer programs based on traditional stories. Designed for 3 to 8 year olds, the computer activity is enormously simplified by an overlay for the keyboard. A beautifully illustrated storybook and a recording of the story provide back-up for the computer activities.

With the very clear Parent's Guide we can help your child get on at school.

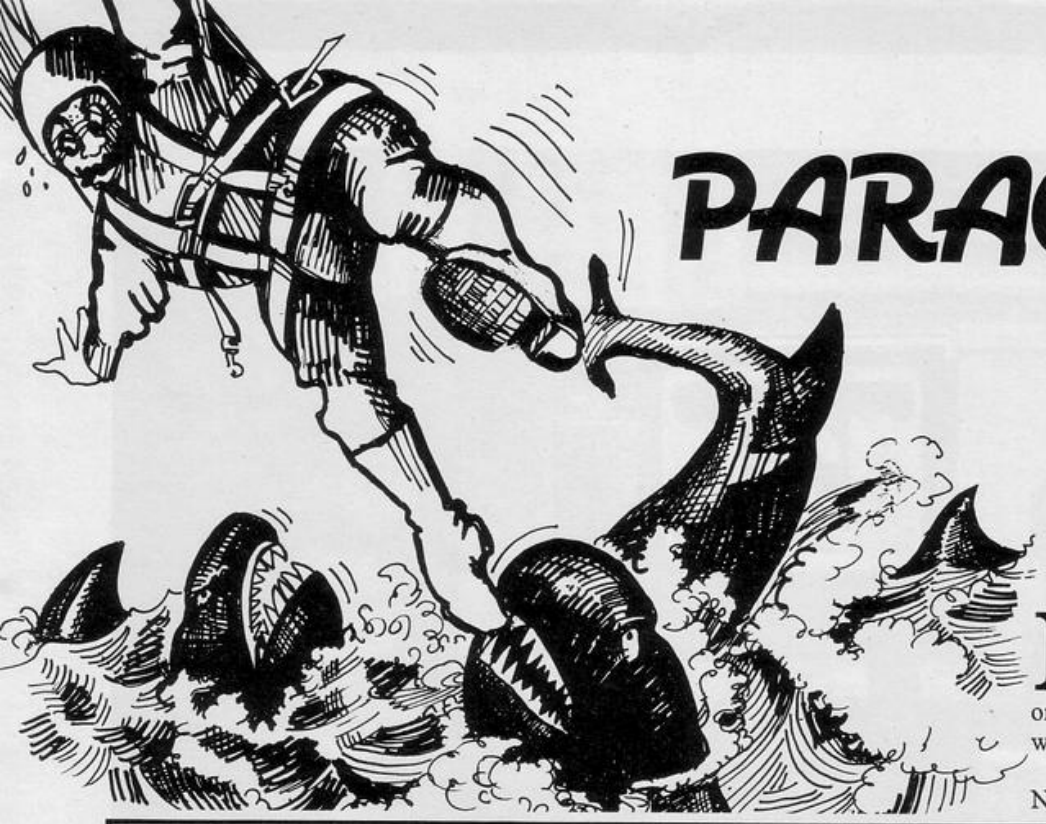
Available from selected branches of Boots, W.H. Smith, leading computer stores and bookshops.

£9.95 inclusive.



Learning to read and count can be fun!

Arrow Publications 17-21 Conway Street London W1P 6JD · Created by Five Ways Software©



PARACHUTE DROP

DIVE from the aeroplane, open your parachute and then make your way towards the lifeboat on the sea. If you fall into the water you will be eaten by sharks.

Written for the 16K ZX-81 by Hung Ngo of Northampton.

```
  5 LET H$="0"
 10 LET SC=0
 16 LET L=3
 17 LET N=3
 19 LET I=INT (RND*28)
 20 LET S$="
                    1984 zx81 parac
hute dive
                "
 25 LET N$="(9w)"
 30 LET M$="(9r)"
 40 LET P$="(i":2*96)"
 50 PRINT "(32*isP)"
 60 PRINT AT 19,0;S$
 65 PRINT AT 1,9;"PARACHUTE DIV
E                    (14*9s)"
 70 PRINT AT 3,0;"   INFRONT OF
 YOU IS A HIGH       CLIFF WHICH
YOUR PLANE IS        GOING TO CRA
SH INTO,THERE IS     NO WAY FOR Y
OU TO GET PASS THE   CLIFF.BELOW
YOU IS THE SEA AND   A TINY LIFE
BOAT.THE ONLY        CHANCE TO SA
VE YOURSELF IS TO    DIVE OUT OF
THE PLANE AND OPEN   YOUR PARACHU
TE AND LAND ON THE   LIFE BOAT.IF
 YOU FALL INTO THE   SEA YOU WILL
 BE EATEN BY SHARKS  YOU HAVE 10
DIVES.GOOD LUCK      CONTROLS:1=D
IVE OUT                      2=O
PEN PARACHUTE        (5=L,8=R) TO
 BE USE AFTER YOU    OPEN THE PAR
ACHUTE."
 80 PRINT AT 21,5;"PRESS ANY KE
Y TO START"
 90 IF INKEY$="" THEN GOTO 90
100 CLS
110 FOR F=10 TO 1 STEP -1
120 LET I=INT (RND*28)
130 CLS
140 PRINT AT 0,0;"SCORE:";SC;"
  LIVES:";L;"  DIVES:";F
150 LET A=N
160 LET B=0
170 PRINT AT 19,0;S$
175 FOR K=1 TO 18
177 PRINT AT K,31;"(isP)"
180 NEXT K
190 PRINT AT 18,I;"(9y:96:9t)"
200 PRINT AT A,B;P$
210 LET B=B+1
215 PRINT AT A,B-1;" "
220 IF B>28 THEN PRINT AT 10,2;
"OUT OF TIME YOU HAVE CRASHED
YOU ARE DEAD..HA..HA..HA....
PRESS ANY KEY TO CONTINUE..."
230 IF B<29 THEN GOTO 270
235 IF INKEY$="" THEN GOTO 235
240 CLS
245 LET SC=SC-20
260 GOTO 3000
270 IF INKEY$="1" THEN GOTO 100
0
280 GOTO 200
300 REM FALL
1000 LET C=A
1001 LET D=B
1010 PRINT AT C,D;N$;AT C-1,D;"
"
1020 IF INKEY$="2" THEN GOTO 100
0
1030 LET C=C+1
1035 IF C=17 AND D=I+1 THEN GOTO
 3000
1040 IF C=18 THEN GOTO 1200
1070 GOTO 1010
```

```
1080 LET Z=C
1090 PRINT AT C,D;H$;TAB D;M$;AT
 C-1,D;" ";AT C-1,D-1;" ";AT C-1
,D+1;" "
1100 PRINT AT C,D-1;" ";AT C,D+1
;" "
1130 LET C=C+1
1140 IF C=17 AND D=I+1 THEN GOTO
 2000
1150 LET D=D+(INKEY$="8")-(INKEY
$="5")
1160 IF C=18 THEN GOTO 1200
1170 GOTO 1090
1200 LET X=0
1210 PRINT AT 18,X;"(9t:9u)"
1220 LET X=X+1
1230 PRINT AT 18,X-1;" "
1240 IF X=D THEN GOTO 1250
1245 GOTO 1210
1250 PRINT AT 10,0;"YOU GOT EATE
N BY SHARK BAD LUCK"
1255 PAUSE 200
1260 CLS
1265 LET L=L-1
1266 IF L=0 THEN GOTO 4000
1270 NEXT F
2000 PRINT AT 17,I+1;M$
2010 LET SC=SC+Z+7
2900 NEXT F
2999 REM LIVES
```

```
3000 LET L=L-1
3005 IF L=0 THEN GOTO 4000
3010 NEXT F
4000 CLS
4005 PRINT AT 14,10;"SCORE:";SC
4010 PRINT AT 15,10;"9ame]over"
4030 PRINT AT 16,3;"PRESS ANY KE
Y TO PLAY AGAIN"
4040 IF INKEY$="" THEN GOTO 4040
4050 CLS
4060 LET SC=0
4070 LET L=3
4080 GOTO 100
4090 STOP
4100 SAVE "PARACHUTE DIVe"
4110 RUN
```

MOLE

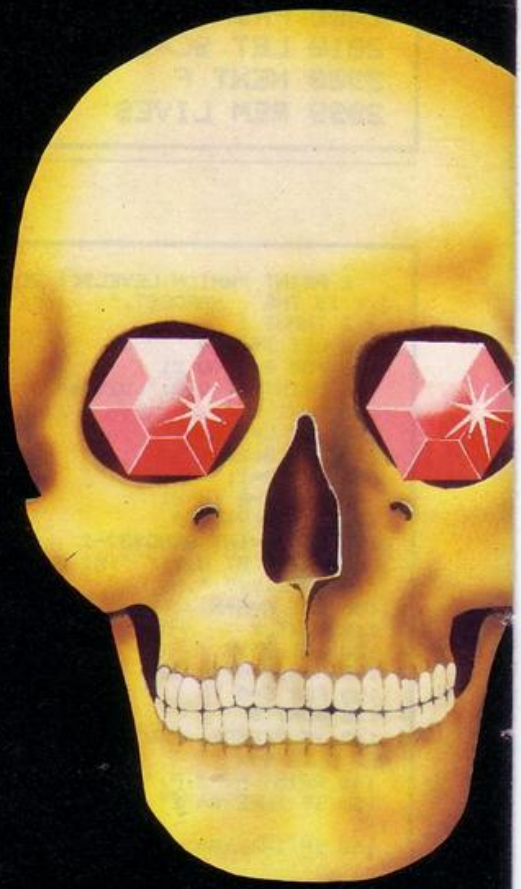
A NARROW tunnel appears on the screen. Move through it using key 6 to move down and key 7 to move up.

Mole was written for the 16K ZX-81 by Nicholas Austin of Leamington Spa, Warwickshire.

```
  1 PRINT "WHICH LEVEL?(1 TO 10
) 1 IS THE   HARDEST."
  2 INPUT I
  3 LET T=I*10
 10 FOR Q=0 TO 21
 20 PRINT AT Q,0;"(32*isP)"
 30 NEXT Q
 35 LET L=0
 40 DIM B(32)
 50 LET A=11
 60 FOR Y=0 TO 31
 70 LET B(Y+1)=A
 80 LET X=INT (RND*3)-1
 90 PRINT AT A,Y;" ";AT A+1,Y;"
";AT A+2,Y;" ";
100 LET A=A+X
110 NEXT Y
120 LET Z=12
130 FOR P=0 TO 31
135 FOR S=0 TO I
136 NEXT S
137 IF Z<B(P+1) OR Z>B(P+1)+2 T
HEN GOTO 999
140 PRINT AT Z,P;"(9a)"
150 IF INKEY$="7" THEN LET Z=Z-
1
160 IF INKEY$="6" THEN LET Z=Z+
1
180 NEXT P
200 PRINT "EXCELLENT"
210 PAUSE 500
215 CLS
220 GOTO 1
999 PRINT "HARD LUCK"
1000 PRINT "YOU WENT";P;"PLACES
OUT OF 32"
1005 PAUSE 500
1008 CLS
1010 GOTO 1
```

SKULL

It's a monster...



...and it's waiting for you

ENTER THE CATACOMBS...
HUNT THE TREASURE...
AVOID THE TRAPS...
WATCH OUT FOR SKULL!

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GAMES MACHINE

ZAP

```
  1 CLS
  2 LET X=PI-PI
  3 LET Y=PI-PI
  4 LET T=PI-PI
  5 LET S=PI-PI
  6 LET A=INT (RND*CODE "=")
  7 LET B=RND*CODE "0"+PI/PI
  8 PRINT AT A,B;"▄▀▄"
  9 PRINT AT X,Y;" "
 10 LET X=X+(INKEY$="5")-(INKEY
$="8")
 11 LET X=X+(X<PI-PI)-(X>CODE "
<")
 12 LET T=T+PI/PI
 13 PRINT AT X,Y;">"
 14 IF INKEY$="0" THEN GOTO COD
E "("
 15 GOTO CODE "▄"
 16 PRINT AT X,Y;">============
==================";AT X,Y;">
                            "
 17 IF X=A THEN LET S=S+PI/PI
 18 IF S=CODE "▌" THEN GOTO COD
E "+"
 19 IF X=A THEN GOTO CODE "▞"
 20 GOTO CODE "▄"
 21 PRINT "TIME=";T
 22 PAUSE 4E4
 23 RUN
```

SHOOT DOWN the alien ships from the left of the screen with your super-zapper laser. Move up with 8, down with 5 and fire with 0. Once you have hit five ships your time in units is displayed.

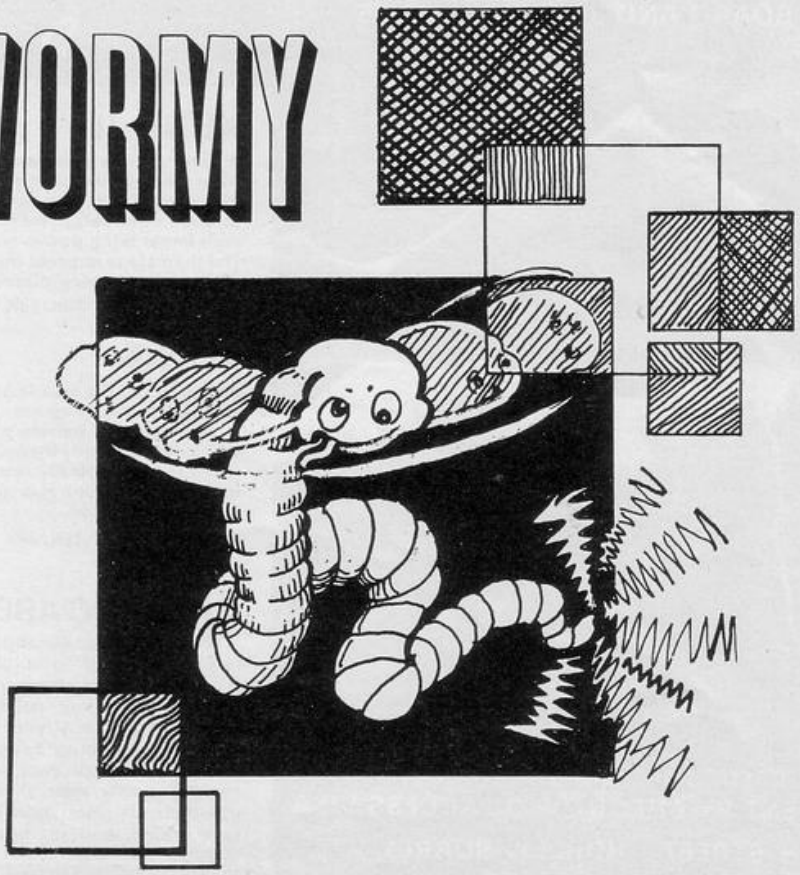
Zap Zap was written for the 1K ZX-81 by Russell Wooberry of Farnham, Surrey. The best time so far is 36, set by Andrea Wooberry.

WORMY

YOU CONTROL a hyperactive worm trapped in an electrified box. Hitting the walls of your box or your tail results in death. Move using cursor keys 5 to 8 and survive for as long as possible.

Wormy was written for the 16K ZX-81 by John Taylor of Stafford.

```
  1 FOR A=VAL "0" TO VAL "15"
  2 PRINT AT A,VAL "0";"(1sP)";
AT A,VAL "15";"(1sP)";AT VAL "0"
,A;"(1sP)";AT VAL "15",A;"(1sP)"
  3 NEXT A
  4 LET C=VAL "1"
 20 LET B=VAL "5"
 21 LET D=VAL "0"
 22 LET P=VAL "-1"
 30 LET A=VAL "5"
 36 PRINT AT A,B;
 37 IF PEEK (PEEK 16398+256*PEE
K 16399)<>0 THEN GOTO 100
 38 PRINT "(9h)"
 39 IF INKEY$="7" THEN LET P=-1
 40 IF INKEY$="6" THEN LET P=1
 41 IF P<>0 THEN LET D=0
 43 IF INKEY$="5" THEN LET D=-1
 44 IF INKEY$="8" THEN LET D=1
 45 IF D<>0 THEN LET P=0
 49 LET A=A+P
 50 LET B=B+D
 51 LET S=S+1
 60 GOTO 36
110 PRINT S
```



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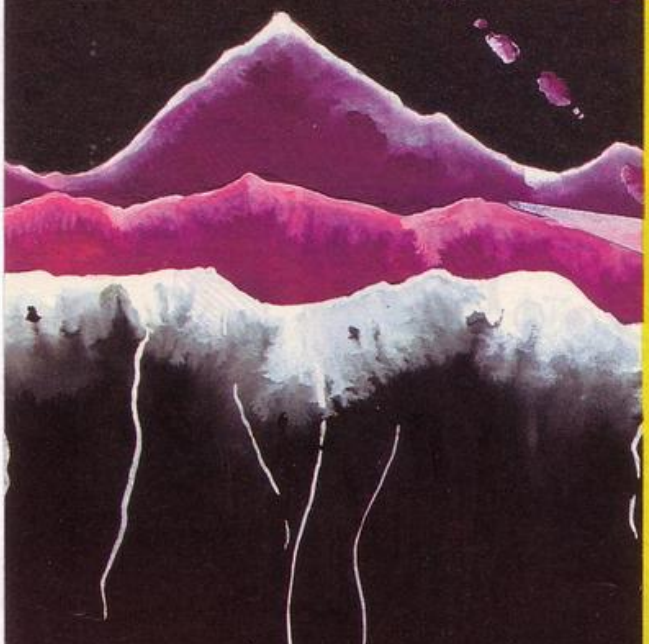
48K KEYBOARD AND JOYSTICK £5.95



XENO II

A game for the arcadians with four screens. After landing your craft on Xeno and avoiding the asteroid belt, you have to fight your way through three sets of maze manned by robots with lethal firing power and hunter instincts. The third stage requires the destruction of the alien craft dropping plasma bombs.

KB/JS 16K/48K £5.95

KONG

All the fun of the arcade game brought to life with animated graphics. Fireballs, ladders, lifts and rolling barrels provide fun for the whole family. Enjoy the collapse of Kong's lair when you have finally rescued the damsel in the fourth screen. Hall of fame and demo mode are included.

KB/JS 16K/48K £5.95

GALACTIC ABDUCTORS

A stunning action packed game with superb large animated graphics. Giant Space Hawks whirl and weave in intricate patterns as they drop their deadly homing mines which will destroy your base on contact. While you are busy defending yourself the Hawks will feed on your helpless population returning only their skulls. All M/C game complete with high score table that will blow your mind with its graphics and sound effects.

KB/JS 16K/48K £5.95

MISSILE DEFENCE

Brings the well known arcade game to life on the Spectrum screen in glorious colours. Defend your cities from the missile attack and smart bombs. 10 skill levels.

KB/JS 16K/48K £5.95

SLAP DAB

An exciting game based on the arcade game Painter which combines fast action with strategy. Giant insects hiding under the old paint surface are released by your paint brush. You require fast action and quick thinking to outwit them and finish the panel. The game is 100 percent machine code and HI-RES. Graphics also includes Hi-score and running score.

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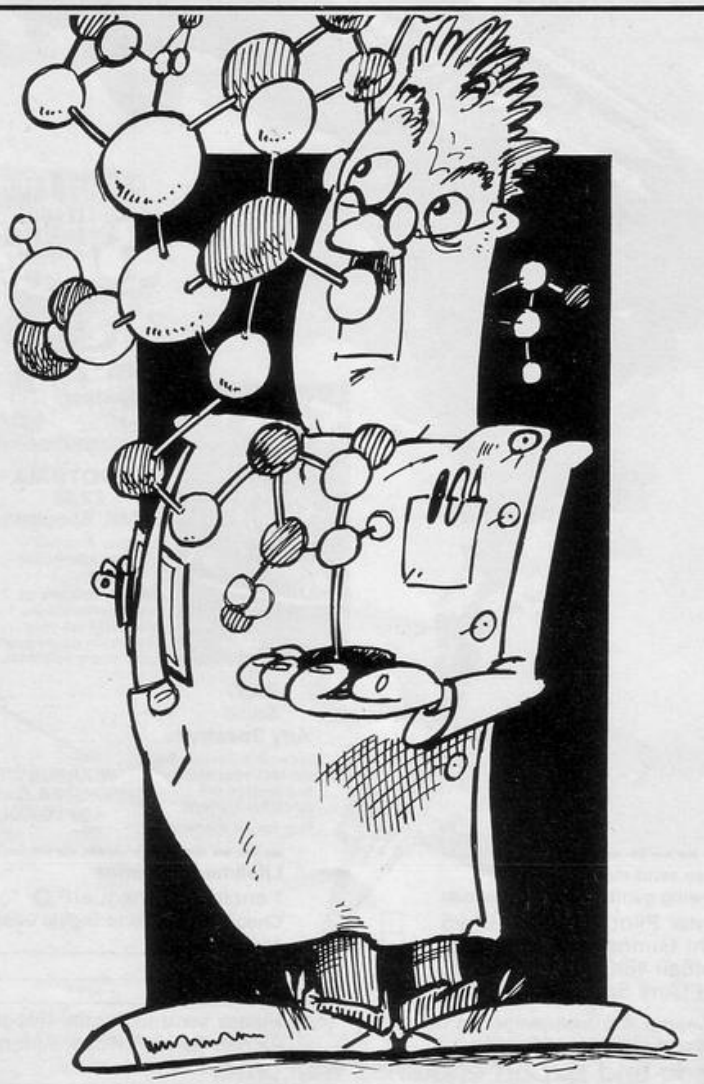
HYDROCARB

HYDROCARBONS is an educational program designed to test your knowledge of the hydrocarbons C_1H_4 to C_8H_{16}. It can be used either as a test program or it will draw the hydrocarbons and give their chemical formulae.

Written for the 16K ZX-81 by James Prince of Haddington, East Lothian.

```
  5 GOSUB 9000
 10 PRINT TAB 5;"HYDROCARBONS"
 20 PRINT TAB 5;"-------------"
 30 PRINT AT 4,0;"DO YOU WANT I
NSTRUCTION ?
(Y/N)"
 40 IF INKEY$="Y" THEN GOTO 400

 50 IF INKEY$<>"N" THEN GOTO 40
 0"  LET T=0
 65 CLS
 70 PRINT AT 19,0;"[redacted]
[redacted]
[redacted]"
```



```
 80 LET A=INT (RND*15)+1
 85 PRINT AT 21,12;H$(A)
 90 FOR F=0 TO 50
 92 NEXT F
 95 FOR F=0 TO 17
100 PRINT AT F,0;"
                  "
110 NEXT F
120 INPUT U$
130 PRINT AT 1,0;U$
150 IF U$="S" THEN PRINT AT 1,0
;"YOUR SCORE IS ";T
160 IF U$="Q" THEN STOP
170 IF U$="D" THEN GOTO 600
180 IF U$="N" THEN PRINT B$(A)
185 IF U$="N" THEN GOTO 80
190 IF U$="S" THEN GOTO 90
192 LET I=LEN U$
193 LET Y=7-I
195 LET D$=C$( TO Y)
197 LET U$=U$+D$
200 IF U$=B$(A) THEN GOTO 230
210 PRINT "NO . THAT IS WRONG T
RY AGAIN"
220 GOTO 90
230 PRINT "GOOD WORK THAT IS RI
GHT BUT TRY THIS ONE"
240 LET T=T+1
250 GOTO 80
400 CLS
405 PRINT TAB 5;"HYDROCARBONS"
410 PRINT TAB 5;"-------------"
420 PRINT AT 3,0;"THIS PROGRAM
WILL TEST YOU ON   HYDROCARBONS
UP TO OCTANE AND   OCTENE
        "
430 PRINT "YOU WILL BE GIVEN A
NAME AND YOUWILL HAVE TO GIVE TH
E FORMULA OF"
440 PRINT "IT. ALSO ""S""WILL D
ISPLAY HOW    MANY YOU HAVE GOT
RIGHT ""Q""WILL"
450 PRINT "GET RID OF THE PROGR
AM ""D"" WILL DRAW THE STRUCTURE
 AND ""N"" WILL NAME THE STRUCTU
RE FOR YOU."
460 PRINT
470 PRINT "HIT ANY KEY TO START
"
480 IF INKEY$="" THEN GOTO 480
490 GOTO 60
600 IF A=1 THEN PRINT AT 5,13;"
H";AT 6,13;"I";AT 7,11;"H-C-H";A
T 8,13;"I";AT 9,13;"H"
610 IF A=2 THEN PRINT AT 5,12;"
H H";AT 6,12;"I I";AT 7,10;"H-C-
C-H";AT 8,12;"I I";AT 9,12;"H H"

620 IF A=3 THEN PRINT AT 5,7;"H
H H";AT 6,7;"I I I";AT 7,5;"H-C
=C-C-H";AT 8,7;"I I I";AT 9,7;"H
H H"
630 IF A=4 THEN PRINT AT 5,7;"H
H H H";AT 6,7;"I I I I";AT 7,5;
"H-C-C-C-C-H";AT 8,7;"I I I I";A
T 9,7;"H H H H"
640 IF A=5 THEN PRINT AT 5,7;"H
H H H H";AT 6,7;"I I I I I";AT
7,5;"H-C-C-C-C-C-H";AT 8,7;"I I
I I I";AT 9,7;"H H H H H"
650 IF A=6 THEN PRINT AT 5,7;"H
H H H H H";AT 6,7;"I I I I I I"
;AT 7,5;"H-C-C-C-C-C-C-H";AT 8,7
;"I I I I I I";AT 9,7;"H H H H H
H "
660 IF A=7 THEN PRINT AT 5,7;"H
H H H H H H";AT 6,7;"I I I I I
I I";AT 7,5;"H-C-C-C-C-C-C-C-H";
AT 8,7;"I I I I I I I";AT 9,7;"H
H H H H H H"
670 IF A=8 THEN PRINT AT 5,7;"H
H H H H H H H";AT 6,7;"I I I I
I I I I";AT 7,5;"H-C-C-C-C-C-C-C
-C-H";AT 8,7;"I I I I I I I I";AT
9,7; "H H H H H H H H"
680 IF A=9 THEN PRINT AT 7,10;"
H-C=C-H";AT 8,12;"I I";AT 9,12;"
H H"
690 IF A=10 THEN PRINT AT 5,11;
"H";AT 6,11;"I";AT 7,5;"H-C=C-C-
```

BONS

```
H";AT 8,7;"I I I";AT 9,7;"H H H"

 700 IF A=11 THEN PRINT AT 5,11;
"H H";AT 6,11;"I I";AT 7,5;"H-C=
C-C-C-H";AT 8,7;"I I I I";AT 9,7
;"H H H H"

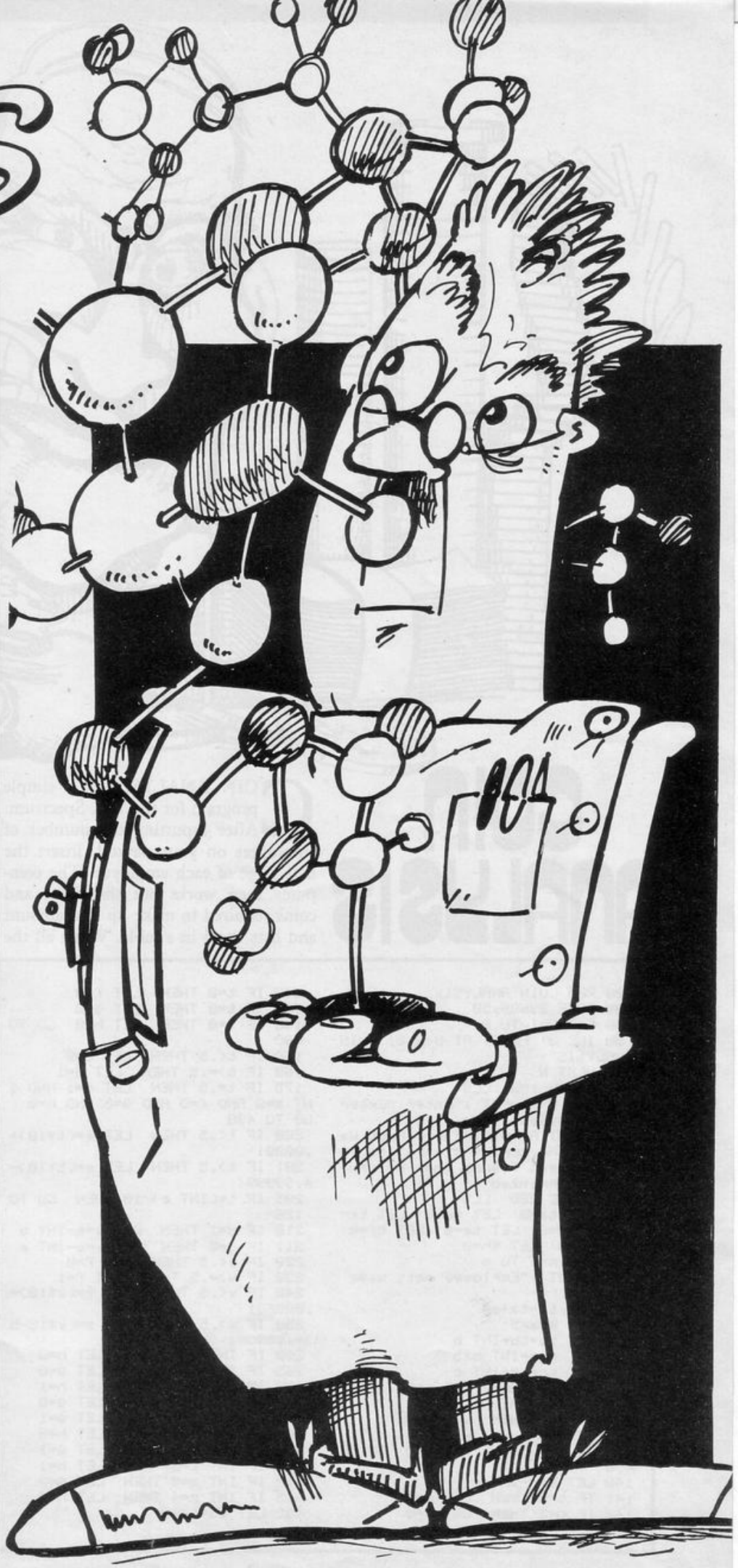
 710 IF A=12 THEN PRINT AT 5,11;
"H H H";AT 6,11;"I I I";AT 7,5;"
H-C=C-C-C-C-H";AT 8,7;"I I I I I
";AT 9,7;"H H H H H"

 720 IF A=13 THEN PRINT AT 5,11;
"H H H H";AT 6,11;"I I I I";AT 7
,5;"H-C=C-C-C-C-C-H";AT 8,7;"I I
 I I I I";AT 9,7;"H H H H H H"

 730 IF A=14 THEN PRINT AT 5,11;
"H H H H H";AT 6,11;"I I I I I";
AT 7,5;"H-C=C-C-C-C-C-C-H";AT 8,
7;"I I I I I I I";AT 9,7;"H H H
H H H H H"

 740 IF A=15 THEN PRINT AT 5,11;
"H H H H H H";AT 6,11;"I I I I I
 I";AT 7,5;"H-C=C-C-C-C-C-C-C-H"
;AT 8,7;"I I I I I I I";AT 9,7;"
H H H H H H H H"
 750 GOTO 90
 760 SAVE "HYDROCARBON"
 770 RUN

9000 DIM H$(15,7)
9010 LET H$(1)="ETHANE"
9020 LET H$(2)="METHANE"
9030 LET H$(3)="PROPANE"
9040 LET H$(4)="BUTANE"
9050 LET H$(5)="PENTANE"
9060 LET H$(6)="HEXANE"
9070 LET H$(7)="HEPTANE"
9080 LET H$(8)="OCTANE"
9090 LET H$(9)="ETHENE"
9100 LET H$(10)="PROPENE"
9110 LET H$(11)="BUTENE"
9120 LET H$(12)="PENTENE"
9130 LET H$(13)="HEXENE"
9140 LET H$(14)="HEPTENE"
9150 LET H$(15)="OCTENE"
9200 DIM B$(15,7)
9210 LET B$(1)="C1H4"
9220 LET B$(2)="C2H6"
9230 LET B$(3)="C3H8"
9240 LET B$(4)="C4H10"
9250 LET B$(5)="C5H12"
9260 LET B$(6)="C6H14"
9270 LET B$(7)="C7H16"
9280 LET B$(8)="C8H18"
9290 LET B$(9)="C2H4"
9300 LET B$(10)="C3H6"
9310 LET B$(11)="C4H8"
9320 LET B$(12)="C5H10"
9330 LET B$(13)="C6H12"
9340 LET B$(14)="C7H14"
9350 LET B$(15)="C8H16"
9370 LET C$="          "
9360 RETURN
```

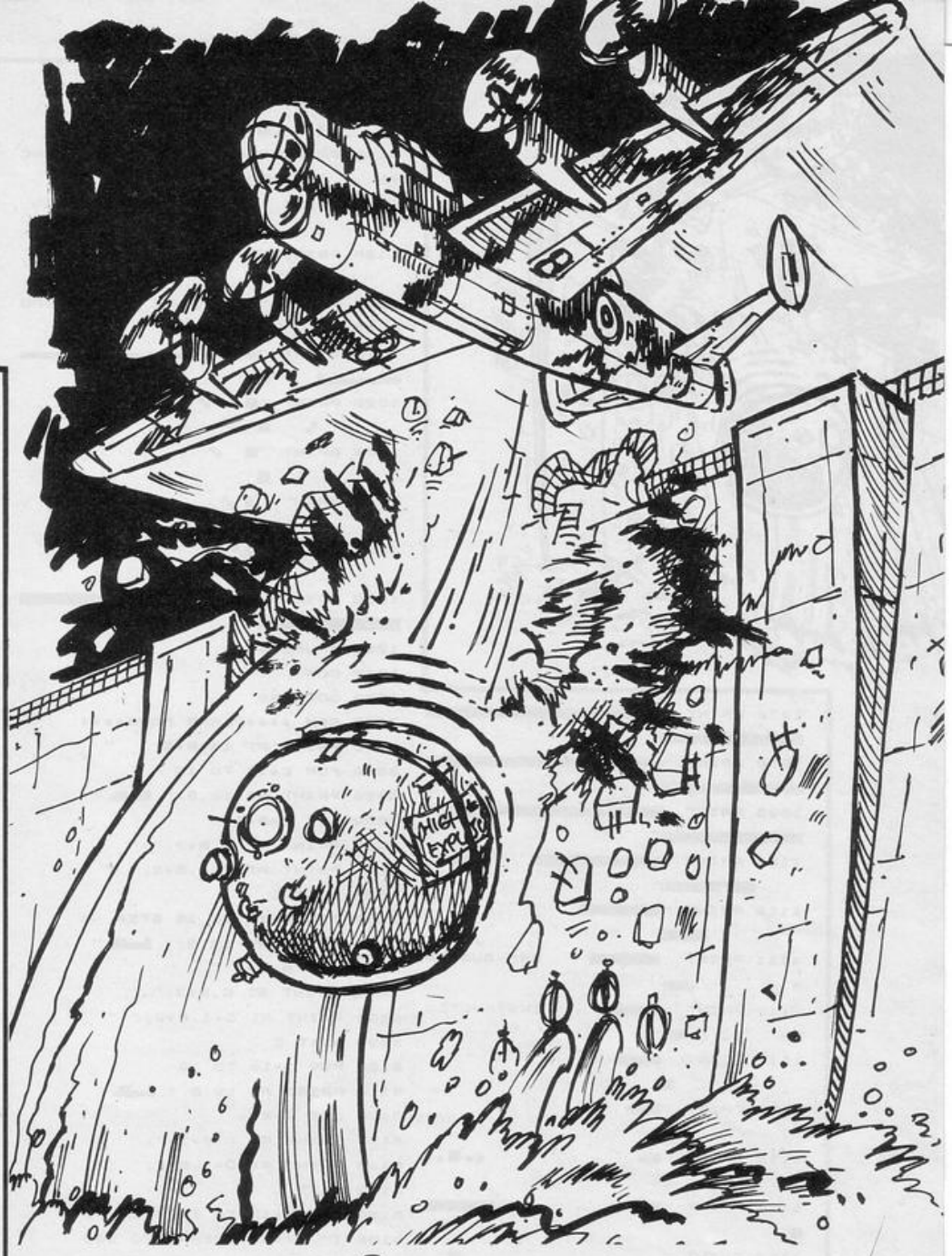


COIN ANALYSIS

COIN ANALYSIS is a simple program for the 16K Spectrum. After inputting the number of employees on your payroll, insert the nett wage of each employee. The computer then works out the notes and coins required to make up that amount and lists them in a table. When all the nett amounts have been entered, the total number of each note and coin to be issued is listed.

Written by M J Cooper of Aldershot, Hampshire, it is a program which may be of particular interest to anyone responsible for the payroll of a small business.

```
 20 REM COIN ANALYSIS
 30 POKE 23609,50
 40 FOR N=1 TO 8
 50 INK 3: PRINT AT 8+N,8;"COIN
ANALYSIS"
 55 NEXT N
 60 PAUSE 100: CLS
 70 INK 0: INPUT ;"Enter number
of employees.. ";n
 100 PRINT AT 8,0;"Enter Nett Wa
ge when the screen clears and en
ter the next figure when column
has been Printed"
 110 PAUSE 200: CLS
 115 LET ta=0: LET tb=0: LET tc=
0: LET td=0: LET te=0: LET tf=0:
 LET tg=0: LET th=0
 125 FOR m=1 TO n
 126 INPUT ;"Employee nett wage
";a
 127 LET ta=ta+a
 128 LET b=a/5
 129 LET tb=tb+INT b
 130 LET c=a-INT b*5
 131 LET tc=tc+INT c
 132 IF c=0 THEN  LET e=0
 133 IF c=0 THEN  LET f=0
 134 IF c=0 THEN  LET g=0
 135 IF c=0 THEN  LET h=0
 136 IF c=0 THEN  LET d=0: GO TO
490
 140 LET t=c-INT c
 141 IF t=0 THEN  LET d=0
 142 IF t=0 THEN  LET e=0
 143 IF t=0 THEN  LET f=0
 144 IF t=0 THEN  LET g=0
 145 IF t=0 THEN  LET h=0: GO TO
490
 150 IF t<.5 THEN  LET d=0
 160 IF t>=.5 THEN  LET d=1
 175 IF t=.5 THEN  LET d=1 AND I
NT e=0 AND f=0 AND g=0 AND h=0:
GO TO 490
 200 IF t<.5 THEN  LET e=(t*10)+
.00001:
 201 IF t>.5 THEN  LET e=(t*10)-
4.99999:
 205 IF t=(INT e)/10 THEN  GO TO
 126
 210 IF d=1 THEN  LET y=e-INT e
 211 IF d=0 THEN  LET y=e-INT e
 220 IF y<.5 THEN  LET f=0
 230 IF y>=.5 THEN  LET f=1
 240 IF y<.5 THEN  LET z=(y*10)+
.000001
 250 IF y>.5 THEN  LET z=(y*10-5
)+.000001
 260 IF INT z=0 THEN  LET h=0
 265 IF INT z=0 THEN  LET g=0
 270 IF INT z=1 THEN  LET h=1
 275 IF INT z=1 THEN  LET g=0
 280 IF INT z=2 THEN  LET g=1
 285 IF INT z=2 THEN  LET h=0
 290 IF INT z=3 THEN  LET g=1
 300 IF INT z=3 THEN  LET h=1
 310 IF INT z=4 THEN  LET g=2
 315 IF INT z=4 THEN  LET h=0
 482 LET td=td+d
 484 LET te=te+INT e
 486 LET tf=tf+f
 488 LET tg=tg+g
 490 PRINT ; INK 4;"Wages   £5
£1  50P 10P 5P 2P 1P"
 491 IF LEN STR$ a<=1 THEN  PRIN
T "£";a;"          ";INT b;"   ";I
NT c;"   ";d;"   ";INT e;"  ";f;
"  ";g;"  ";h
 492 IF LEN STR$ a=2 THEN  PRINT
 "£";a;"       ";INT b;"   ";INT
c;"   ";d;"   ";INT e;"  ";f;"
";g;"  ";h
 493 IF LEN STR$ a=3 THEN  PRINT
 "£";a;"    ";INT b;"   ";INT c;
"   ";d;"   ";INT e;"   ";f;"  "
;g;"  ";h
 494 IF LEN STR$ a>=4 THEN  PRIN
T "£";a;"   ";INT b;"   ";INT c;
"   ";d;"   ";INT e;"  ";f;"  ";
g;"  ";h
 496 PRINT "_____________________
_____________"
 498 NEXT m
 500 PRINT "£";ta;"=total nett w
ages"
 510 PRINT TAB 8;tb;"=total £5"
 520 PRINT TAB 8;tc;"=total £1"
 530 PRINT TAB 8;td;"=total 50p"
 540 PRINT TAB 8;te;"=total 10p"
 550 PRINT TAB 8;tf;"=total 5p"
 560 PRINT TAB 8;tg;"=total 2p"
 570 PRINT TAB 8;th;"=total 1p"
 800 STOP
```



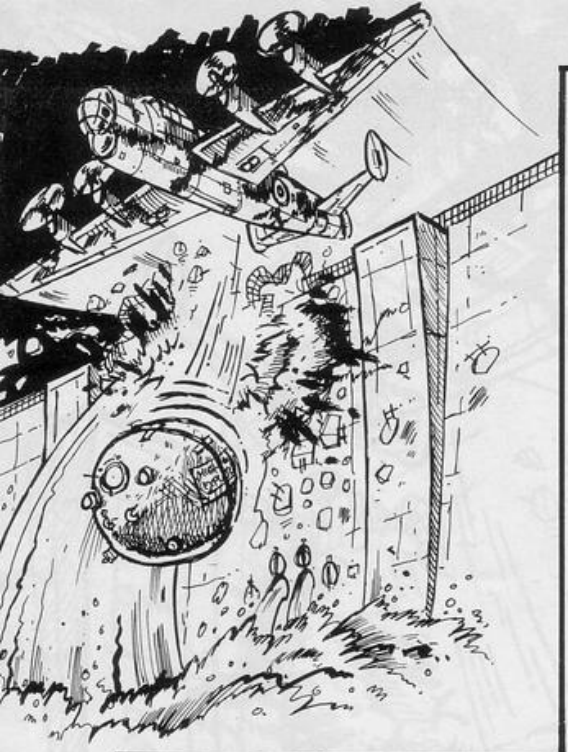
GIBSON'S REVENGE

YOU ARE in the Lancaster and have to blow up the dams using the "6" to release the bomb. Each bomb bounces three times before exploding, so make sure you release it in good time for it to hit the dam.

Gibson's Revenge was written for the 16K ZX-81 by J Burnett of Camelford, Cornwall.

```
  1 LET H=0
  2 LET G=1
  3 LET S=0
  4 LET B=0
  5 CLS
  6 PRINT AT 0,0;
  7 PRINT "                ■"
  8 PRINT "               ▙■"
  9 PRINT "               ▙■"
 10 PRINT "          ■    ■"
 11 PRINT "      ▗▄▄▄▄▄▄▄▄▄▄▄▖"
 12 PRINT "          ■    ■"
 13 PRINT "               ▀■"
 14 PRINT "               ▀■"
 15 PRINT "               ■"
 16 FOR I=3 TO 5
 17 PRINT AT I,30;"▒"
 18 NEXT I
 19 FOR J=15 TO 29
 20 PRINT AT 4,J;" ."
 21 NEXT J
 22 FOR J=1 TO 8
 23 PRINT AT 4,30;"▒"
 25 PRINT AT 4,30;"*"
 27 PRINT AT 4,30;"▒"
 29 NEXT J
 30 PRINT AT 4,26;"BANG"
 36 PRINT AT 10,6;"GUY GIBSONS
REVENGE"
 37 PRINT AT 21,5;"PRESS ""Y""
FOR INSTRUCTIONS"
 38 IF INKEY$="Y" THEN GOTO 100
0
 39 IF INKEY$="N" THEN GOTO 99
 40 GOTO 38
 99 LET B=0
100 LET A=INT (RND*4)+26
101 IF G=1 THEN LET D$="MOEHNE"

102 IF G=2 THEN LET D$="EDER"
103 IF G=3 THEN LET D$="SORPE"
105 CLS
110 PRINT AT 19,A;"▙▟";AT 20,0;
"▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒
▒";AT 20,A;"▒▒";AT 21,0;"▒▒▒▒▒
▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒";AT 21
,A;"▒▒"
115 PRINT AT 2,0;"▒▒▒▒▒▒▒▒▒▒▒▒▒▒
▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒
```



```
1070 PRINT "
"
1080 PRINT "
"
1090 PRINT "
"
1100 PRINT "
"
1110 PRINT "
"
1111 PRINT "          DAM-BUSTER
S
"
1112 PRINT "          INSTRUCTIO
NS
"
1113 PRINT "
"
1114 PRINT "
"
1115 PRINT "                    ..
"
1116 PRINT "
"
1117 PRINT "                    "
1118 PRINT "                    "
1119 PRINT "                    "
1120 PRINT "
1130 PRINT "PRESS ANY KEY"
1140 PAUSE 4E4
1145 CLS
1150 PRINT "
"
1151 PRINT "
"
1152 PRINT "          INSTRUCTIO
NS
"
1153 PRINT "
"
1154 PRINT "
"
1155 PRINT "
"
1160 PRINT "     YOU ARE IN THE
     "
1165 PRINT "     LANCASTER AND
YOU  "
1170 PRINT "     HAVE TO JUDGE
WHEN "
1175 PRINT "     TO DROP THE BO
MB   "
1180 PRINT "
     "
1185 PRINT "     THE BOMB BOUNC
ES   "
1190 PRINT "       THREE TIMES
     "
1195 PRINT "
     "
1200 PRINT "     USE""6""TO DRO
P BOMB
"
1210 PRINT "
"
1220 PRINT "
"
1230 PRINT "
"
1240 PRINT "
"
1250 PRINT "
"
1260 PRINT "
"
1265 PAUSE 4E4
1267 CLS
1270 GOTO 99
7999 REM ****PLANE MOVE****
8000 PRINT AT 13,B+2;"  "
8010 FOR C=14 TO 19
8020 PRINT AT 12,B;"
"
8030 LET B=B+1
8040 PRINT AT C,B+3;"."
8045 PRINT AT C-1,B+2;" "
8050 NEXT C
8060 FOR C=18 TO 15 STEP -1
8065 PRINT AT 12,B;"
"
8070 LET B=B+1
8080 PRINT AT C,B+3;"."
8090 PRINT AT C+1,B+2;" "
8099 NEXT C
8100 FOR C=16 TO 19
8110 PRINT AT 12,B;"
"
8120 LET B=B+1
8130 PRINT AT C,B+3;"."
8140 PRINT AT C-1,B+2;" "
8149 NEXT C
8150 FOR C=18 TO 17 STEP -1
8155 IF B>=27 THEN GOTO 900
3160 PRINT AT 12,B;"
"
8170 LET B=B+1
8180 PRINT AT C,B+3;"."
8190 PRINT AT C+1,B+2;" "
8199 NEXT C
8200 FOR C=15 TO 19
8205 IF B>=27 THEN GOTO 900
8210 PRINT AT 12,B;"
"
8220 LET B=B+1
8230 PRINT AT C,B+3;"."
8240 PRINT AT C-1,B+2;" "
8249 NEXT C
8250 IF B+3=A AND C=20 THEN GOTO
 8500
8260 IF B+3<>A AND C=20 THEN GOT
O
8270 STOP
8500 FOR C=0 TO 15
8510 PRINT AT C,0;"
                "
8520 NEXT C
8530 PRINT AT 0,0;
8550 PRINT "
"
8555 PRINT "
"
8560 PRINT "
"
8565 PRINT "
"
8570 PRINT "
"
8580 PRINT
8590 PRINT "
"
8595 PRINT "
"
8596 PRINT "
"
8597 PRINT "
"
8598 PRINT "
"
8599 PRINT
8600 PRINT "YOU HIT THE ";D$;" D
AM"
8610 FOR Q=1 TO 15
8620 PRINT AT 19,A;"";AT 20,A;"
";AT 21,A;"
"
8630 PRINT AT 19,A;"";AT 20,A;"
";AT 21,A;"
"
8635 NEXT Q
8640 LET G=G+1
8700 LET S=S+1
8710 GOTO 99
8720 GOTO 8595
8750 FOR C=0 TO 18
8760 PRINT AT C,0;"
                "
8770 NEXT C
8799 PRINT AT 0,0;
8800 PRINT "
"
8810 PRINT "
"
8820 PRINT "
"
8830 PRINT "
"
8840 PRINT "
"
8845 PRINT
8850 PRINT "
"
8855 PRINT "
"
8860 PRINT "
"
8865 PRINT "
"
8870 PRINT "
"
8880 PRINT
8888 PRINT "
"
8889 PRINT "
"
8890 PRINT "
"
8891 PRINT "
"
8892 PRINT "
"
8893 LET G=G+1
8894 GOTO 99
8900 PRINT AT 21,0;"ANOTHER GAME
 (Y/N)"
8910 INPUT G$
8919 IF G$="Y" THEN LET G=0
8920 IF G$="Y" THEN GOTO 2
8930 CLS
8940 PRINT AT 10,10;"SAVE PROGRA
M"
9900 REM ****SAVE****
9901 STOP
9905 SAVE "GIBSONS REVENGE"
9999 GOTO 1
```

SPECTRUM ORWIN SOFTWARE ZX-81

FOR 16K SPECTRUM
(will also run on 48K Spectrum)

CASSETTE A

GHOST GOBBLER Eat the ghosts before the ghosts eat you. Eat a star and you can chase the ghosts for a while.

ALIENKILL Control lasers, rockets and a force-field to stop the aliens from landing.
MOUSETRAP Trap the mouse in the corner but not anywhere else.
REVERSI A game of skill with simple rules but sophisticated tactics. Play against the computer.
LASER DEFENCE Control the laser sight to shoot down the alien ships. Machine code sound routines.

Ten programs for £6

TANK BATTLE For 2 players simultaneously or play against the computer. Each player has 2 rotate controls and move and fire controls. The tanks fire steerable missiles.
PHOEBUS A puzzle.
BLACKSPOT Gobble the stars and avoid running into black spots created by crossing your own path.
CUBE Manipulate a cube any size from 2×2×2 to 7×7×7.
MINEFIELD Collect the crowns while avoiding the mines and the electrified fence.

plus an extra . . .

GRAPHIC DEMO Did you know your Spectrum could do all this!?

EDUCATIONAL COMPENDIUM FOR 16K/48K SPECTRUM £6
All these programs on one cassette.

These programs were developed for use in a Junior School and have been in regular use there for some time. Older people also find them interesting and fun.

TORTOISE GRAPHICS: an educational graphics language.
16K version commands include: forward, left and right through a specified angle, wipe, pen up and down, paper and ink colour, macro, edit.
48K version has extra commands including: backward, quit, cancel, printer and tape commands, auto, home, variables, loops.

TORTRAIL & TORTMAZE: 16K games using the forward, left and right commands. These are good for learning a feeling for distances and angles and are fun to play.
REVEAL: an addictive 16K word game. A piece of writing has had its letters rubbed out and you have to find out what they are. You buy letters or try to predict them. Included are 20 textfiles to be solved and a textmaker which will let you input your own text and store it on tape for someone else to solve.
EQUATION INVADERS: a 16K game to make simple equations more interesting.

CENTIPOID PLUS THREE for 48K SPECTRUM. £6

CENTIPOID (machine code).
Centipoid is a full-feature arcade game with mushrooms, spiders, webs, scorpions, gobblers, indestructible dead segments of centipoids that drop down on you, and, of course, the centipoids themselves.
You can choose your own control keys. It is playable from the keyboard or using any joystick interface which, like AGF Interface II, makes the joystick behave like keys on the keyboard.

Plus these games in Basic for the 48K Spectrum on the same cassette.

PANIC

HOUND

3D TIC TAC TOE
A 3D game of skill played against the computer.

CASSETTE 1: eleven programs (including 7 in machine code): React, Invaders, Phantom Aliens, Maze of Death, Planet Lander, Bouncing Letters, Bug Splat, I Ching, Codebreak, Robots, Basic Hangman.

for 1K ZX-81 £3.80

CASSETTE 2: ten games in Basic: Reversi, Awari, Laser Bases, Wordmaster, Rectangles, Crash, Roulette, Pontoon, Penny Shoot, Gun Command.

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CASSETTE 3: eight programs (including 1 in machine code): Starship Trojan, Startrek, Princess of Kraal, Battle, Cube, Kalabriasz, Secret Messages, Martian Cricket.

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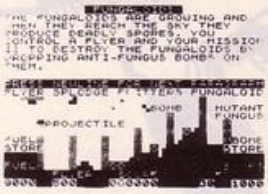
CASSETTE 4 8 games for 16K ZX-81 £6

ZX-SCRAMBLE with 3 stages. (machine code) Bomb and shoot your way through the fortified caves.

GUNFIGHT (machine code)

INVADERS (machine code)



GALAXY INVADERS (machine code)
Fleets of swooping and diving alien craft to fight off.

SNAKEBITE (machine code)
Eat the snake before it eats you. Variable speed (very fast at top speed).

LIFE (machine code)
A ZX-81 version of the well known game.

3D TIC-TAC-TOE (Basic)
Played on a 4×4×4 board, this is a game for the brain. It is very hard to beat the computer at it.

"quantity as well as quality"
Sinclair User, Oct '82

"if each game was on a separate tape and selling for £5 each I would still recommend them"
ZX Computing, Oct/Nov '82

"Easy to operate, graphically impressive and good value for money."
The Times, 11th Dec '82

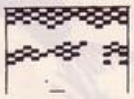
"Definitely good value for money at £6 . . . A smooth clear display and a relatively fast response from the keys. Graphics are as good as you will ever get on the 81."
What Micro? Nov '83

7 of the 8 games are in machine code, because this is much faster than Basic. (Some of these games were previously available form J. Steadman).

CASSETTE 5 8 games for 16K ZX-81 £6

BYTE-MAN (machine code) (previously available from Mindseye)

BREAKOUT (machine code)



PLANETOIDS (machine code)
Rotate, move, fire and hyperspace controls. Wide range of choice of speed and difficulty.

DODGEMS (machine code)
Dodge the computer's car while eating the dots.

SPACE RESCUE (machine code) (previously available from Mindseye)

BLITZ (machine code)

DRAUGHTS (machine code)
Three skill levels.

MERCHANT (Basic)
Make your fortune on trading voyages in the Mediterranean and beyond.

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Sinclair User, Sept '83

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What Micro? Games supplement, Nov '83

7 of the 8 games are in machine code because it is much faster than Basic.

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ARENA 0

```
  1 INK 0: PAPER 7: BORDER 7: R
ESTORE : CLS
  2 DIM m(30)
  3 DIM n(30)
  4 DIM o(30)
  5 DIM p(30)
  6 DIM q(30)
  7 DIM r(30)
  9 LET j=0
 10 DIM a$(30,15)
 11 DIM c$(30,15): DIM d$(30,15
)
 20 DIM b$(30,16)
 30 DIM x(30)
 40 DIM y(30)
 43 PRINT : PRINT "INSTRUCTIONS
:": PRINT "You are the leader of
 a small    band of weird charact
ers, whose job is to eliminate a
 group of   evil creatures who ar
e killing  and destroying everyt
hing in    their path.You have f
ound them  in the arena of vulca
n and you  fight them one by one
.          The computer chooses
first and  then you enter in the
 number    corresponding to your
 choice.     You both start off wi
th 30       creatures and the fir
st Party to be killed off looses
"
 44 PRINT #0;AT 0,0; INK 4;"Pre
ss any key": IF INKEY$="" THEN
POKE 0,RND: GO TO 44
 45 INPUT "": PRINT "Your cleri
c and Priest can turn the undead
 (mummy,skeleton,ghouland the zo
mbie) if they are      lucky.
                       You start
off with 0 experience points but
 if you kill a strong creature w
ith a weaker creature yo gain po
ints (you loose pointsfor the re
verse)                 good luck
"
 50 FOR a=1 TO 30
 60 READ a$(a): READ c$(a): REA
D c: LET f=0
 72 READ m(a): LET o(a)=c: READ
 q(a): FOR b=1 TO c
 90 LET f=f+INT (RND*8)+1: NEXT
 b: LET x(a)=f: NEXT a
 110 DATA "Minotaur","gored",7,1
6,2,"Giant rat","bit",1,4,8
 120 DATA "Gremlin","speared",1,
8,5,"Ghoul","touched",3,6,2
 130 DATA "Hydra","bit",5,30,5,"
Manticore","clawed and bit",6,24
,6,"White dragon","froze",7,24,4
,"Acolyte","thumped",1,6,9
 140 DATA "Troll","bit and clawe
d",6,22,4,"Ogre","clubbed",5,8,8
,"Cyclops","thumped ",15,30,2
 150 DATA "salamander","scortche
d",8,16,2,"Goblin","wounded",1,8
,6
 160  DATA "Skeleton","maced",1,
6,8
 170  DATA "Zombie","hit",3,8,8,
"Giant scorpion","stung",4,24,2
 180 DATA "Orc","sliced",2,6,7,"
Mummy","Paralysed",4,24,6,"Hobgo
blin","hit",3,8,6,"Lizard man","
thumped",4,8,5
 190 DATA "Hell hound","burnt",4
,18,4,"Chimera","hit",9,30,4
 195 DATA "Wyvern","stung and bu
rnt",7,24,3,"Wood golem","Punche
d",2,8,7,"Bone golem","mutilated
",8,24,2
 200 DATA "Hill giant","squashed
```

F VULCAN

YOU ARE the leader of a small band of weird characters and it is your job to wipe out a group of murderous evil creatures. The enemy creatures are trapped in the arena of Vulcan and are ready to fight you one by one. Attack the enemy using your hill dog and kill the offending salamander using your unicorn.

Arena of Vulcan, a 48K Spectrum adventure game, was written by Jolyon Ralph of London SW19.

```
",8,16,4,"Bugbear","stabbed",3,8
,5,"Gargoyle","fanged",4,16,5,"H
arpy","charmed and bit",3,7,12
 210 DATA "Stirge","drunk",1,3,1
 221 FOR a=1 TO 30
 230 READ b$(a): READ d$(a)
 231 READ c,d
 233 LET f=0
 234 READ n(a): LET p(a)=c: READ
r(a)
 240 FOR b=1 TO c
 250 LET f=f+INT (RND*d)+1: NEXT
b
 270 LET y(a)=f
 280 NEXT a
 290 DATA "Warlord","slashed",5,
8,10,0,"Priest","maced",6,4,4,6
 310 DATA "Assassin","stabbed",4
,4,6,7,"Unicorn","horned",3,8,8,
5
 320 DATA "Mad dog","bit",5,8,6,
5,"Storm giant","electrocuted",1
5,8,48,2
 330 DATA "Gnome","hit",1,8,6,5,
"Elf","sliced",4,6,8,2,"Fighter"
,"chopped",2,10,8,3,"Theif","sta
bbed",1,4,8,7
 350 DATA "Owl bear","hugged",5,
8,24,5,"Werebear","hugged",6,8,2
4,2
 360 DATA "Roc","Pecked",6,8,22,
4,"Cleric","baptised",2,6,6,2
 370 DATA "Dwarf","cut",1,8,8,6,
"Halfling","sliced",6,6,8,-2
 380 DATA "Hobbit","slashed",1,6
,6,2,"Centaur","knocked",4,8,20,
5
 390 DATA "Hippogriff","Pecked",
3,8,22,5,"Dwarven hero","chopped
",7,8,8,0
 400 DATA "Super-hero","sliced",
8,8,10,-1,"Master theif","stabbe
d",9,4,4,2
 410 DATA "Brass dragon","breath
ed on",8,8,30,2,"Pegasus","bit",
2,8,16,6
 420 DATA "Giant hawk","Pecked",
3,9,6,6,"Blink dog","gnawled",4,
8,6,2
 430 DATA "Lawful goblin","struc
k",1,8,8,7
 440 DATA "Giant weasel","bit",4
,8,8,7,"Bard","sung to",3,4,6,6,
"Druid","sickeled",4,6,4,5
 500 LET v=INT (RND*30)+1
 501 IF x(v)<=0 THEN  GO TO 500
 502 PRINT : PRINT
 520 PRINT "The computer chooses
 his :       "; INVERSE 1;a$(v);"
LEVEL ";o(v)
 530 PRINT  BRIGHT 1;"YOU HAVE:"
 535 PRINT "NO NAME            LE
V  H.P.      "
 540 FOR a=1 TO 30
 545 LET n$=b$(a)
 550 IF y(a)>0 THEN  PRINT a;" "
;n$;" ";AT 21,18;p(a);"  ";AT 21
,23;y(a)
 560 NEXT a
 570 INPUT "Your Choice?";a
 576 IF a>30 OR a<1 OR INT a<>a
THEN  GO TO 570
 580 IF y(a)<=0 THEN  PRINT  PAP
ER 3; INK 9; FLASH 1;"He's dead(
Nice try!)": GO TO 570
 585 LET n$=b$(a): FOR q=16 TO 2
STEP -1: IF n$(q)=" " THEN  LET
n$=n$( TO q-1): NEXT q
 586 LET o$=a$(v): FOR q=15 TO 2
STEP -1: IF o$(q)=" " THEN  LET
o$=o$( TO q-1): NEXT q
 587 LET p$=c$(v): FOR q=15 TO 2
STEP -1: IF p$(q)=" " THEN  LET
p$=p$( TO q-1): NEXT q
 588 LET q$=d$(a): FOR q=15 TO 2
STEP -1: IF q$(q)=" " THEN  LET
q$=q$( TO q-1): NEXT q
 590 LET t=q(v): LET u=0-p(a): L
ET z=20-t+u
 600 IF v=4 OR v=14 OR v=15 OR v
=18 THEN  GO TO 9000
 610 LET w=INT (RND*20)+1
 620 LET ff=1: IF w>z THEN  PRIN
T  PAPER 6;"Your ";n$;" ";q$;" h
is ";o$: LET w=INT (RND*n(a))+1:
 PRINT "He's taken ";w;" points
of damage!": BEEP ff,6: PRINT :
LET x(v)=x(v)-w: IF x(v)<=0 THEN
  PRINT  FLASH 1;"THE ";o$;" IS
DEAD": LET k=5+((o(v)-p(a))*5):
PRINT "you ";("gain" AND k>=0);(
"loose" AND k<0);" ";ABS k;" Poi
nts": LET j=j+k: GO TO 690
 630 LET t=r(a): LET u=o(v): LET
u=0-u
 640 LET z=20-t+u
 660 LET w=INT (RND*20)+1
 670 IF w>z THEN  PRINT  PAPER 5
;"His ";o$;" ";p$;" your ";n$: L
ET w=INT (RND*m(v))+1: PRINT "yo
ur ";n$;" has taken ";w;" Points
 of damage!": BEEP ff,5: PRINT :
 LET y(a)=y(a)-w: IF y(a)<=0 THE
N  PRINT  FLASH 1;"YOUR ";n$;" I
S DEAD": GO TO 690
 680 GO TO 590
 690 LET c=0

 700 FOR a=1 TO 30: IF x(a)>0 TH
EN  LET c=1
 710 NEXT a
 720 IF c=0 THEN  GO TO 9500
 730 LET c=0: FOR a=1 TO 30: IF
y(a)>0 THEN  LET c=1
 735 NEXT a

 740 IF c=1 THEN  GO TO 500
 750 PRINT  INK 2; PAPER 6; FLAS
H 1;"I WON": PRINT "YOU GOT ";J;
" POINTS": DIM W$(1): INPUT "ano
ther game? ";w$: IF w$(1)="y" OR
 w$(1)="Y" THEN  GO TO 1

 760 STOP
9000 IF a<>14 AND a<>2 THEN  GO
TO 610

9010 PRINT  PAPER 4;"TURN CREATU
RE OF THE UNDERWORLD": LET o=INT
 (RND*12)

9020 IF o>8 THEN  LET x(v)=0: PR
INT  PAPER 6;"You have turned hi
s ";o$'"and you get 50 Points":
LET j=j+50: GO TO 690
9025 IF o<=8 THEN  PRINT  PAPER
5;"But he carries on"
9030 GO TO 610
9500 PRINT "                ";  INK 3
; PAPER 6; FLASH 1;"YOU WON"'"an
d you got ";J;" Points"

9510 IF J<=0 THEN  PRINT  INK 4;
 PAPER 2; FLASH 1;"YOU MINDLESS
MURDERER"

9515 IF J>0 AND J<100 THEN  PRIN
T  INK 3; PAPER 6; FLASH 1;"YOU
LUCKY PERSON"
9516 IF J>=100 THEN  PRINT  INK
1; PAPER 5; FLASH 1;"YOU CORAGEO
US HERO"

9520 DIM W$(1): INPUT "another g
ame? ";w$: IF w$(1)="y" OR w$(1)
="Y" THEN  GO TO 1
9730 LET c=0: FOR a=1 TO 30: IF
y(a)>0 THEN  LET c=1
```

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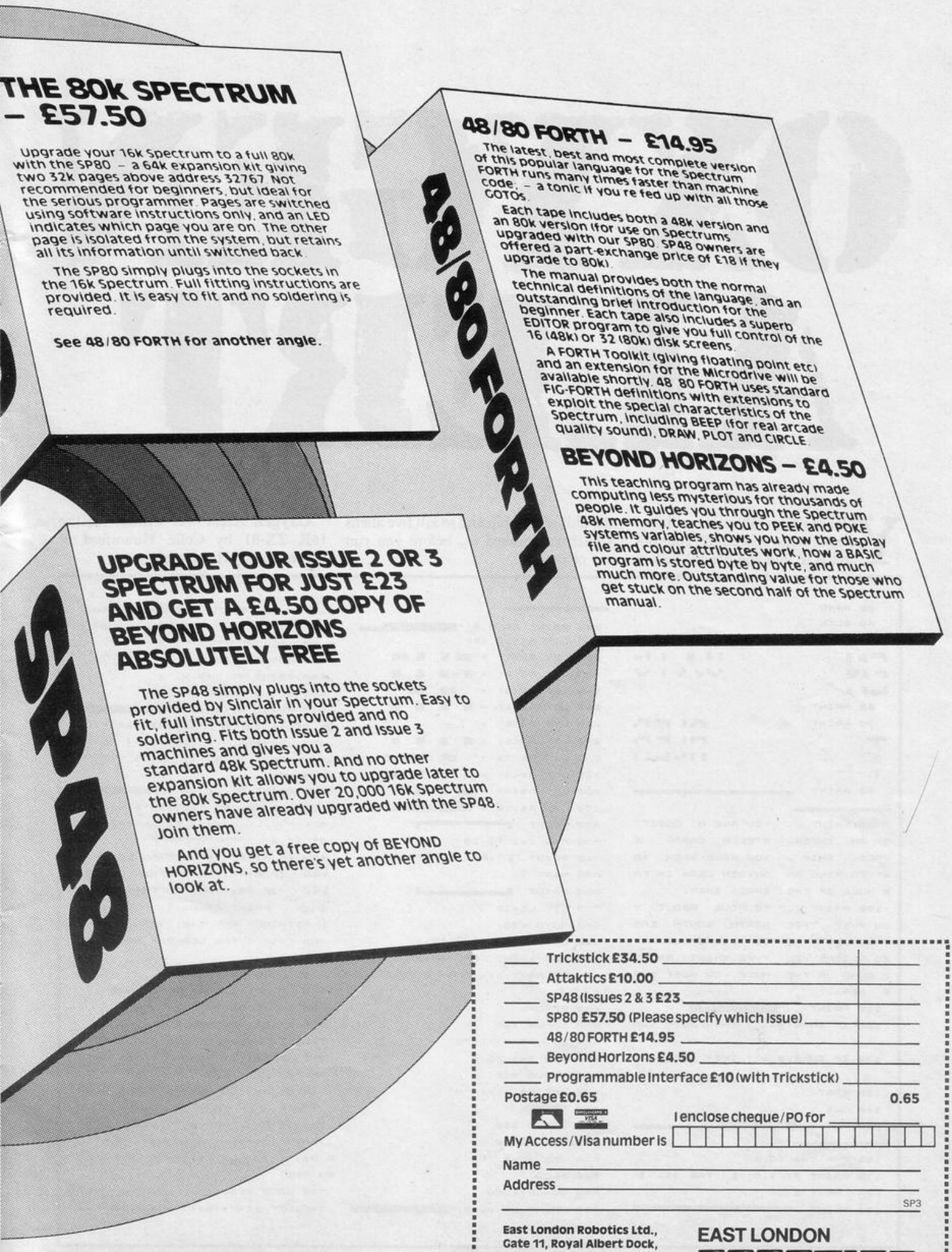

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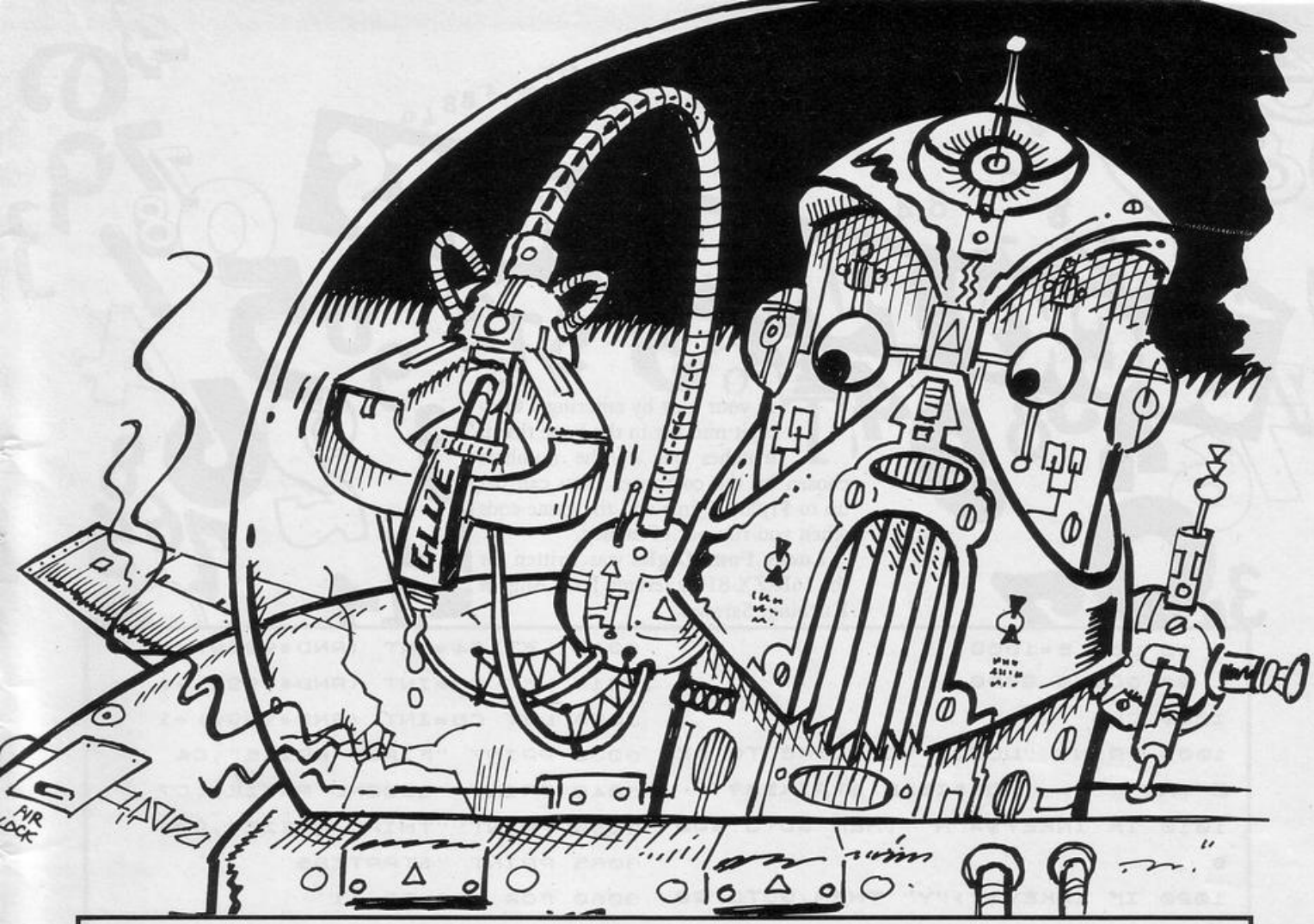
OXYGEN ALERT

YOU ARE a robot on an interstellar cargo spaceship. Your object is to find and patch a leak in the hull of the ship and to kill five aliens who have sneaked in, before you run out of power.

Oxygen Alert was written for the 16K ZX-81 by Colin Hunniford of Berkhamsted, Hertfordshire.

```
 30 RAND
 40 SLOW
 50 PRINT "
 60 PRINT
 70 PRINT "
 80 PRINT "
 90 PRINT ,," YOU ARE A  ROBOT
ON AN  INTER-  STELLA  CARGO   S
PACE   SHIP .  YOU HAVE BEEN  SE
NT TO FIND AN  OXYGEN LEAK IN TH
E HULL OF THE  SPACE SHIP."
 100 PRINT ,," TO MOVE  ABOUT  Y
OU MUST  TYPE  NORTH, SOUTH, EAS
T OR WEST. TO  GET RID OF UNWANT
ED ALIENS YOU  TYPE,SHOOT, AND T
O BUNG UP THE  HOLE YOU MUST TYP
E ,SEAL."
 110 PRINT ,,"PRESS A KEY"
 120 IF INKEY$<>"" THEN GOTO 120
 130 IF INKEY$ ="" THEN GOTO 130
 135 FAST
 140 CLS
 150 PRINT "VIEW UNIT
"
 160 FOR I=1 TO 6
 170 PRINT AT I,0;"▌";TAB 31;"▌"
 180  NEXT I
 190 PRINT "
"
 200 PRINT AT 8,0;"MAP  UNIT"
 210 DIM A$(10,10)
 220 LET A$(1) ="■ ■  ■ ■"
 230 LET A$(2) ="■  ■  ■  ■"
 240 LET A$(3) ="  ■■  ■■  "
 250 LET A$(4) ="■  ■  ■  ■"
 260 LET A$(5) ="          "
 270 LET A$(6) ="■  ■  ■  ■"
 280 LET A$(7) ="  ■■  ■■  "
 290 LET A$(8) ="■  ■  ■  ■"
 300 LET A$(9) ="■■ ■  ■ ■■"
 310 LET A$(10)="  DANGER  "
 320 PRINT "▛▀▀▀▀▀▀▀▀▀▀▀▜"
 330 FOR I=1 TO 10
 340 PRINT "▌"+A$(I)+"▌"
 350 NEXT I
 360 PRINT "▙▄▄▄▄▄▄▄▄▄▄▄▟"
 370 LET LB=10
 380 GOTO 430
 390 LET Y=INT (RND*10+1)
 400 LET X=INT (RND*10+1)
 410 IF A$(Y,X)<>CHR$ 0 THEN GOT
O 390
 420 RETURN
 430 GOSUB 390
 440 LET A$(Y,X)="O"
 450 FOR I=1 TO 5
 460 GOSUB 390
 470 LET A$(Y,X)="M"
 480 NEXT I
 490 GOSUB 390
 500 LET PP=90
 510 LET SP=0
 520 SLOW
 580 GOSUB 1300
 590 PRINT AT 8,16;"LASER  BOLTS
";AT 9,16;"▒";"123456789X"( TO L
B);"........."( TO 10-LB);"▒";A
T 10,16;"▀▀▀▀▀▀▀▀▀▀▀▀▀▀"
 595 GOSUB 1400
 600 PRINT AT Y+9,X;"*"
 605 GOSUB 1300
 610 PRINT AT 13,16;"POWER  UNI
T";AT 14,16;"▒";"123456789X"( TO
 INT (PP/9));"........."( TO 10
-INT (PP/9));"▒";AT 15,16;"▀▀▀▀▀
▀▀▀▀▀▀▀▀▀"
 620 PRINT AT 18,16;"SCORE  METE
R";AT 19,16;"▒";"123456789X"( TO
 SP);"........."( TO 10-SP);"▒"
;AT 20,16;"▀▀▀▀▀▀▀▀▀▀▀▀▀▀"
 630 IF A$(Y,X)=" " THEN LET T=0
 640  IF A$(Y,X)="M" THEN LET T=1
 650   IF A$(Y,X)="O" THEN LET T=2
 660    PRINT AT 21,0;"HERE IS ";
("NOTHING" AND T=0);("AN ALIEN"
 AND T=1);("THE LEAKAGE HOLE" AN
D T=2)
 670 GOSUB T*100+1000
 690 IF SP=10 THEN GOTO 2000
 700 INPUT B$
 710 IF B$="" THEN GOTO 700
 720 IF LEN B$=1 THEN GOTO 750
 730 IF B$( TO 2)="SH" THEN GOTO
 1500
 740 IF B$( TO 2)="SE" THEN GOTO
 2300
 750 IF T=1 THEN GOTO 2100
 760 IF B$(1)="N" OR B$(1)="E" O
R B$(1)="W" OR B$(1)="S" THEN GO
TO 780
 770 GOTO 2200
 780 LET Y1=Y+(B$(1)="S" AND Y<1
```




```
0)-(B$(1)="N" AND Y>1)
 790 LET X1=X+(B$(1)="E" AND X<1
0)-(B$(1)="W" AND X>1)
 800 IF A$(Y1,X1)>CHR$ 127 THEN
GOTO 950
 810 PRINT AT Y+9,X;CHR$ 0
 820 LET Y=Y1
 830 LET X=X1
 840 LET PP=PP-1
 850 IF NOT PP THEN GOTO 1800
 990 GOTO 590
1000 PRINT  AT 2,7;"▚▚▗▛▀▜▙▟▛
▚▚▗";      AT 3,7;"▜▙▟▌▐▌▐▌▗
▜▙▟▖";     AT 4,7;"▐▌▜▖▐▌▐▖▗▖
▐▌▜"
1010 RETURN
1100 GOSUB 1300
1105 PRINT AT 2,12;"▗▄▄▖";
           AT 3,12;"▗▄▄▖";
           AT 4,12;"▗▄▄▖";
           AT 5,12;"▗▄▄▖";
1110 FOR I=0 TO 5
1120 PRINT AT 5,12;"▗▄▄▖"
1130 IF VAL "16514"-VAL "9" THEN
1140 PRINT AT 5,12;"▗▄▄▖"
1150 NEXT I
1160 RETURN
1200 GOSUB 1300
1210 PRINT AT 1,12;"▝▀▘  ";
           AT 2,12;"▜▀▀▀▛";
           AT 3,12;"▜▀▀▀▛";
           AT 4,12;"▜▀▀▀▛";
           AT 5,12;"▜▀▀▀▛";
           AT 6,12;"▝▀▘  "
1220 RETURN
1300 FOR I=1 TO 6
1310 PRINT AT I,1;"                "
1320 NEXT I
1330 RETURN
1400 PRINT AT 21,0;"
                   "
1410 RETURN
1500 IF T<>1 THEN GOTO 1600
1510 IF LB<1 THEN GOTO 1700
1520 IF PP<2 THEN GOTO 1900
1530 PRINT AT 2,10;"▗▄▖▗▖▗▖▗▄▖";
           AT 3,10;"▐▌▝▜▛▘▐▌▐▛▀▘";
           AT 4,10;"▝▚▄▞▘▐▌▐▙▄▖";
           AT 5,10;"          "
1540 LET LB=LB-INT (RND*(3 AND L
B>2)+1)
1545 LET PP=PP-2
1550 LET T=0
1560 LET A$(Y,X)=CHR$ 0
1570 LET SP=SP+1
1580 GOSUB 1300
1590 GOTO 590
1600 GOSUB 1400
1610 PRINT AT 21,0;"NO MONSTERS
TO SHOOT HERE"
1620 RETURN
1700 GOSUB 1400
1710 PRINT AT 21,0;"NO MORE LASE
R BOLTS.ALIEN WINS."
1720 PAUSE 500
1730 GOTO 1900
1800 GOSUB 1400
1810 PRINT AT 21,0;"NOT ENOUGH P
OWER LEFT"
1820 PAUSE 500
1900 GOSUB 1300
1910 PRINT AT 2,10;"▗▄▖▗▄▖▗▄▖";
           AT 3,10;"▐▌▐▌▐▌▐▛▀▘";
           AT 4,10;"▝▚▞▘▐▌▐▙▄▖"
1920 GOSUB 1400
1930 PRINT AT 21,0;"YOU HAVE BEE
N DESTROYED"
1940 STOP
2000 PRINT  AT 2,5;"▛▀▜▌▐▗▖
▐▌▐▌▐▛▀▘";AT 3,5;"▛▀▜▌▐▗▘
▐▌▐▌▐▛▀▘";AT 4,5;"▐▌▐▌▐▛▀▖
▝▚▞▘▐▙▄▌";AT 5,5;"          "
"
2010 GOSUB 1400
2020 PRINT AT 21,0;"YOU HAVE SCO
RED 100 PER CENT"
2030 STOP
2100 GOSUB 1400
2110 PRINT AT 21,0;"WHAT ABOUT T
HE ALIEN ?"
2120 GOTO 700
2200 GOSUB 1400
2210 PRINT AT 21,0;"UNKNOWN ENTR
Y"
2220 GOTO 700
2300 GOSUB 1400
2310 IF PP<2 THEN GOTO 1800
2320 GOSUB 1300
2330 PRINT  AT 2,9;"▗▄▖▗▄▄▖▗▄▖
▐▌▐▌";      AT 3,9;"▐▌▐▌▐▛▀▘▐▛▀▚▖
▐▌▐▌";      AT 4,9;"▝▚▞▘▐▙▄▖▐▌▐▌
▝▀▘";       AT 5,9;"▀▀▀"
2340 PRINT AT 21,0;"YOU HAVE SEA
LED THE LEAK.WELDONE"
2350 LET A$(Y,X)=CHR$ 0
2360 LET SP=SP+5
2370 LET PP=PP-2
2380 PAUSE 500
2390 GOTO 590
2400 SAVE "ALER■"
2500 RUN
```

LUCKY FOUR DIGITS

Try your luck by entering a four-digit number in the hope that it matches one of the numbers chosen by the computer. You can bet up to $1,000 a time and the game ends when you run out of money.

Lucky Four Digits was written for the 16K ZX-81 by Jeremy Jerry Ang, of Kuching, Sarawak.

```
  10 LET E=1000
  20 GOSUB 9000
1000 CLS
1005 PRINT "WOULD YOU LIKE TO SE
E THE        POSSIBLE STRIKES?"
1010 IF INKEY$="N" THEN GOTO 200
0
1020 IF INKEY$<>"Y" THEN GOTO 20
0
1030 IF INKEY$="" THEN GOTO 1010
1500   PRINT "POSSIBLE FOUR DIGI
S STRIKE"
1510 FOR I=1 TO 28
1520 PRINT "*";
1525 NEXT I
1550 LET P=INT (RND*9999)+1
1555 LET P1=INT (RND*8000)+1
1560 PRINT ,P,P1
1570 PRINT AT 21,0;"PRESS A LETT
ER"
1580 IF INKEY$="" THEN GOTO 1580
2000     CLS
2010 PRINT "YOU BETS,PLEASE"
2020 INPUT B
2030 IF B<1 OR B<>INT B THEN GOT
O 2020
2035 PRINT "ALL BETS ARE CLOSED"
2040 PRINT "YOUR NUMBER IN FOUR
DIGITS ";
2050 INPUT A7
2060 PRINT A7
3000 PRINT "TODAY'S FOUR DIGITS R
ESULTS"
3010 LET C4=INT (RND*9999)+1
3015 LET C7=INT (RND*9999)+1
3020 LET C8=INT (RND*9999)+1
3030 PRINT "FIRST PRIZE",C4
3040 PRINT "SECOND PRIZE",C7
3050 PRINT "THIRD PRIZE",C8
3055 PRINT "STARTERS"
3060 FOR J=1 TO 11
3070 LET C5=INT (RND*7000)+1
3075 PRINT C5,
3080 IF A7=C5 THEN GOTO 6400
3085 NEXT J
3090 PRINT ,"CONSOLATION"
4000 FOR J=1 TO 10
4010 LET C6=INT (RND*9800)+1
4020 PRINT C6,
4200 IF A7=C6 THEN GOTO 6500
4300 NEXT J
4310 IF A7=C7 THEN GOTO 6000
4315 IF A7=C4 THEN GOTO 6030
4320 IF A7=C8 THEN GOTO 6600
5005 PAUSE 100
5010 LET E=E-B
5012 IF E<=0 THEN GOSUB 7000
5013 CLS
5015 PRINT "YOUR BANKROLL IS NOW
 ";E
5020 LET I$="                ANOTH
ER TRY???    "
5025 PRINT AT 21,0;I$
5030 LET I$=I$(2 TO )+I$(1)
5040 IF INKEY$="Y" THEN GOTO 200
0
```

```
5043 IF INKEY$="" THEN GOTO 5025
5045 IF INKEY$<>"Y" THEN GOSUB 7000
6000 CLS
6005 PRINT "YOU STRUCK SECOND PRIZE"
6007 LET E=E+B*500
6015 GOTO 5015
6030 CLS
6040 PRINT "YOU STRUCK FIRST PRIZE"
6045 LET E=E+(B*2000)
6050 GOTO 5015
6400 CLS
6405 PRINT "YOUR STRUCK A STARTER"
6410 LET E=E+(250*B)
6420 GOTO 5015
6500 CLS
6505 PRINT "YOU STRUCK A CONSOLATION"
6510 LET E=E+(B*60)
6520 GOTO 5015
6600 PRINT "YOU STRUCK THIRD PRIZE"
6605 CLS
6610 LET E=E+(B*500)
6620 GOTO 5015
7000 CLS
7007 PRINT AT 11,12;"GAME OVER"
7009 PRINT AT 21,0;"YOU END WITH $";E
7100 STOP
9000 PRINT AT 2,0;"[illegible] FOUR DIGIT BETS"
9010 PRINT AT 4,0;"PRIZES FOR $1.00 BET";AT 6,0;"FIRST PRIZE-$2000"
9020 PRINT AT 8,0;"SECOND PRIZE-$1,000";AT 10,0;"THIRD PRIZE-$500"
9040 PRINT AT 12,0;"STARTERS-$250"
9060 PRINT AT 14,0;"CONSOLATION-$60"
9060 PRINT AT 18,0;"PRESS NEWLINE WHEN READY"
9070 IF INKEY$="" THEN GOTO 9070
9080 RETURN
9900 SAVE "FOUR DIGIT■"
9999 RUN
```

```
  1 LET C=CODE "▪"
  2 LET T=CODE " "
  3 LET X=CODE "▌"
  4 LET Y=CODE " "
  5 FOR I=CODE " " TO CODE ";"
  6 PRINT AT RND*CODE "▬",RND*CODE "3";"■"
  7 NEXT I
  8 IF INKEY$="5" THEN LET C=CODE " "
  9 IF INKEY$="8" THEN LET C=CODE "▪"
 10 IF INKEY$="6" THEN LET C=CODE "▪"
 11 IF INKEY$="7" THEN LET C=CODE "■"
 12 IF INKEY$="0" THEN GOTO CODE "*"
 13 LET T=T+CODE "▪"
 14 PRINT AT X,Y;" "
 15 IF C=CODE " " THEN LET Y=Y-CODE "▪"
 16 IF C=CODE "▪" THEN LET Y=Y+CODE "▪"
 17 IF C=CODE "▪" THEN LET X=X+CODE "▪"
 18 IF C=CODE "■" THEN LET X=X-CODE "▪"
 19 LET X=X-(X>-CODE "▪")+(X<CODE "■")
 20 LET Y=Y-(Y>-CODE "▪")+(Y<CODE "4")
 21 PRINT AT X,Y;">"
 22 GOTO CODE "▒"
 23 PRINT AT CODE "▌",CODE "£";"TIME=";T
```

YOU ARE the universe refuse collection operative and it is your task to collect the universal garbage. Move with cursor keys 5 to 8 and press 0 to see your time once you have collected every speck of rubbish. Once you start moving in one direction you will keep moving until another key is pressed or you reach the outer limits of space.

Garbage Man was written for the 1K ZX-81 by Russell Woobery of Farnham, Surrey.

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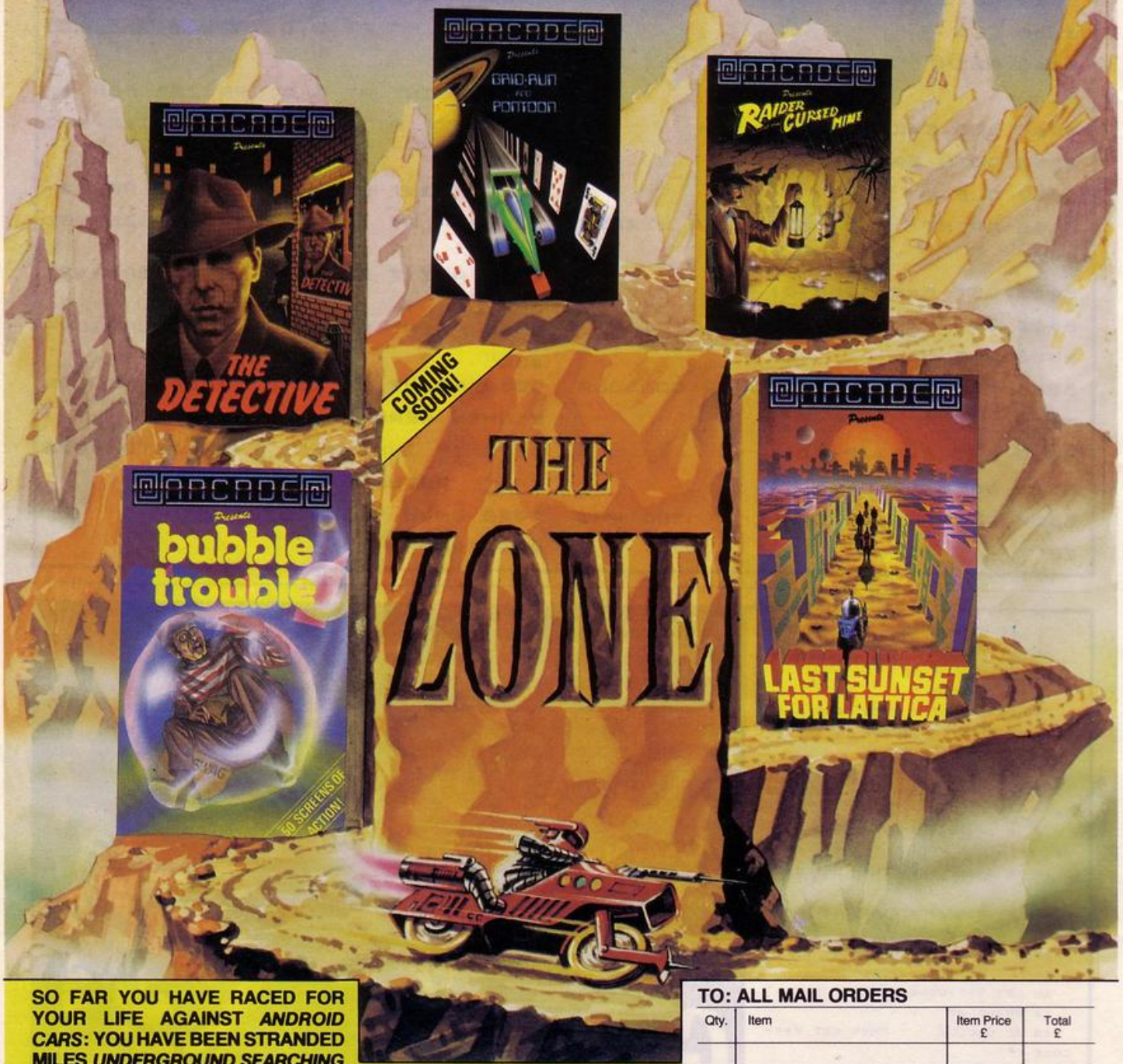

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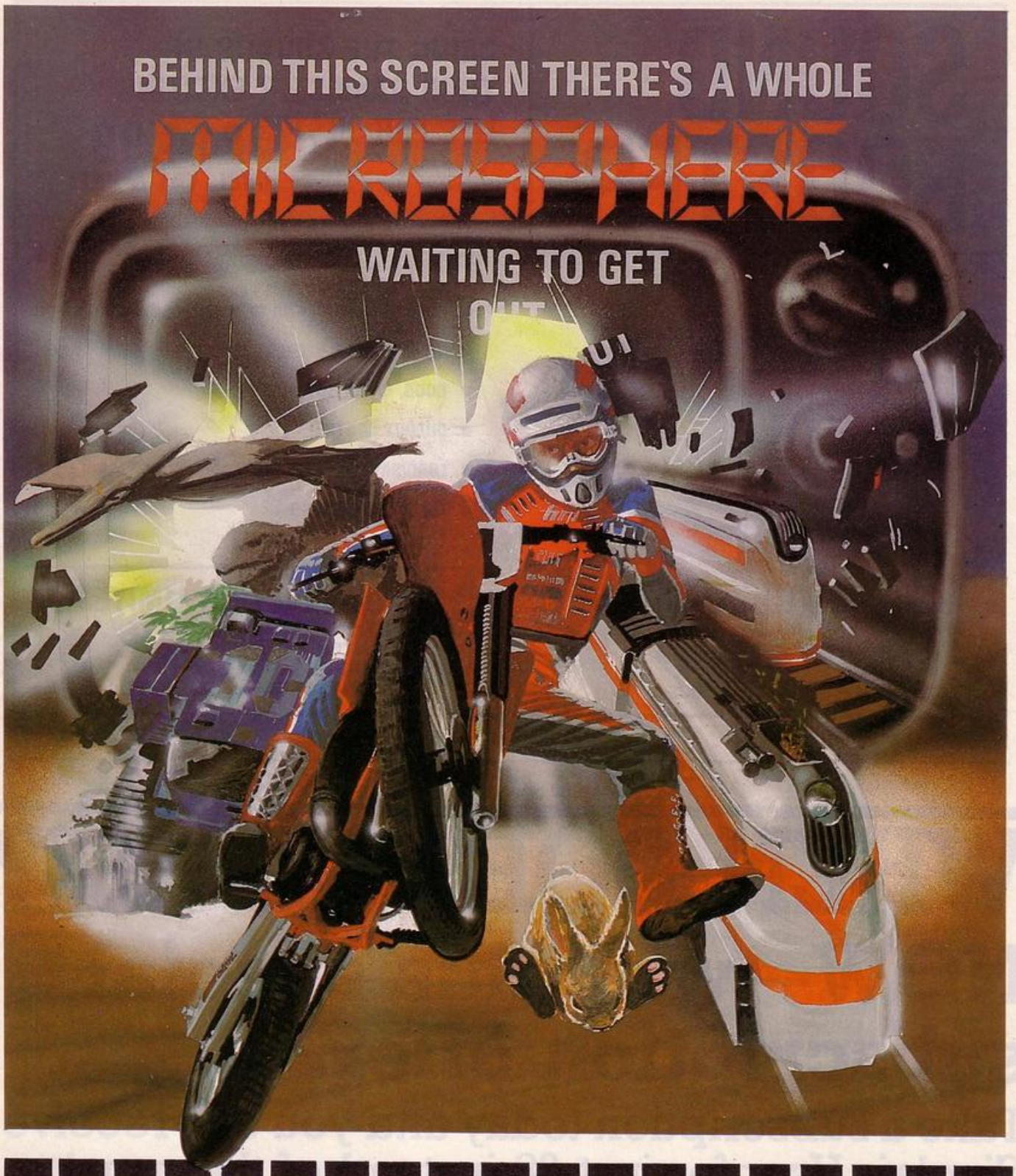

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fantasy SOFTWARE

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.....but it won't be easy!

This is 'ZIGGY', shown above, in his exploratory capsule and is a true representation of the on-screen graphics.

THE PYRAMID

THE PYRAMID is an arcade style game which has a very adventurous feel to it.

The Pyramid contains 120 chambers on 15 levels. In order to get from one chamber to another you must fight off the indigenous aliens to collect an energised crystal which will neutralize the force field guarding the two exits.

The Pyramid is inhabited by a total of 60 weird and exotic alien types, all of which are beautifully animated. You will meet a whole variety of demons, droids, insects and monsters, with a sprinkling of the more unusual, the extra-terrestrial tweezers, galactic strawberry, cosmic claw, mutant eye, plus a whole host of entities that defy rational description. You'll no doubt invent your own nicknames.

You proceed to explore the pyramid from top to bottom with the difficulty generally increasing with the depth of level. Depending on the choice of exit from each chamber you are likely to have a different game every time you play.

Apart from the challenge of trying to achieve the highest score possible the pyramid contains a number puzzle to solve. The more chambers you successfully visit the more information is gathered to enable you to discover the secret numbers of the pyramid. The puzzle won't take you days to solve, it will probably take you a few months.

DOOMSDAY CASTLE

DOOMSDAY CASTLE consists of a labyrinth of 74 complexly interconnected Halls and Passages where you will meet a whole host of adversaries serving the infinitely evil Scarthax, the Garthrogs, the Orphacs, the phenomenally nasty Googly Bird and the Urks which manifest themselves in over fifty unbelievably weird and wonderful guises.

Scarthax has scoured the Universe to bring together the six ancient stones of lifeforce. United in Doomsday Castle they are being used to wield an irresistable power over the cosmos, emanating waves of corruption through every galaxy.

To save the Universe, you must battle your way through the Castle to find and collect the six stones and use their force against Scarthax to destroy Doomsday Castle, hopefully escaping yourself before the final cataclysmic explosion.

The task is not easy (saving the Universe never is!) and it will take you many games to unfold the structure of Doomsday Castle and discover the locations of the ancient stones.

The addictive arcade style action will keep you coming back to play but the overall challenge should still keep you occupied for months.

FANTASY SOFTWARE is available from W.H.SMITHS, JOHN MENZIES, BOOTS, LASKYS, GREENS, RUMBELOWS, SPECTRUM GROUP, COMPUTERS FOR ALL and all other good software retailers.

The Pyramid at £5.50 and Doomsday Castle at £6.50 from

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