



# The Book of Games



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FEBRUARY 1983

**W**ondering just what to do with the micro you got for Christmas? At a loose end when it comes to game ideas? Never fear — the Book of Games is here!

The *Computer and Video Games* office is regularly deluged with programs from readers — more than enough to keep the magazine full for the next few centuries. So in order to bring you some of the best games that we've received — but which have not been published within the pages of *C&VG* — we decided to put them together in this bumper bundle of post-Christmas fun.

All the games have been tried and tested by our busy team of reviewers so any bugs should be few and far between. We also tried to keep the programs short and sweet with the exception of World Cup. We thought it was worth giving more space to. It's a version of the game first published for the Sharp in our June issue — converted for the BBC machine. It proved popular with Sharp owners — so now BBC fans will get a chance to have a crack at the big match.

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This one will send shivers down your spine. A haunting experience for owners of those sinister black ZX81's.

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Remember Hangman, that game you used to play on rainy afternoons? Well now it has been transferred to the Atari.

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No compendium of games would be complete without a version of this all time arcade favourite. Blast those little green men on your Spectrum.

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How quick are you? Can you beat your Vic-20 to the punch? Program this game in and stand by for action!

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Baffled, bothered and bewildered? You will be after trying out this little number on your Atom.

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There's an air-sea battle raging in the circuits of an Atari 400. Watch out for those armoured balloons — they are just as dangerous as the high-speed jet fighters . . .

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Return to those heady days of summer when the World Cup was still up for grabs. How would you have coped as manager of a top team. The big match awaits on your BBC micro.

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You are the pilot on a do or die mission. Your ancient fighter is running out of fuel. You are flying over a city full of skyscrapers. You need somewhere to land. What happens next? Take to the sky in your BBC powered plane to find out!

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Here they come again! You can't keep a good alien down. This time only Sharp owners can save the universe from bug-eyed monsters.

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**PACMAN.....42**  
This arcade funster has inspired pop-records, TV adverts t-shirts — and now this version for the Apple.

**VICTORIAN SEWERS.....45**  
Ace puzzler Stephen Shaw strikes again with this surprise package for the Texas TI 99/4A.

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# DRACULA

BY STUART EARL

RUNS ON A ZX81 IN 16K

Listen to the children of the night . . . how sweet they sound. Ahh, there you are my dearrrrs. We must return to our resting place in Castle Dracula.

But look! There's the priest again. He thinks he'll finish us this time. But we'll defeat him yet!

In this charming resurrection of the Dracula story you play the evil count who is returning to his castle after a night out. You must evade the priest and avoid the garlic to reach your castle before sunrise which will spell your doom.

The program includes full instructions and has a high score feature which allows players to enter their names.

```

1000  LET Q=0
1001  LET N$=""
1002  FOR X=0 TO 21
1003  PRINT "X=";X
1004  NEXT X
1005  PRINT AT 0,0
1006  LET D$=""
1007  FOR X=0 TO 5
1008  PRINT "D=";X
1009  NEXT X
1010  PRINT AT 0,27;"F"
1011  LET T=0
1012  LET C=0
1013  LET Z=0
1014  LET D=1
1015  LET B=INT (RND*10)+1
1016  LET H=INT (RND*26)-1
1017  LET G=25
1018  LET X=INT (RND*20)+1
1019  LET Y=INT (RND*20)+1
1020  LET E=INT (RND*20)+1
1021  LET F=INT (RND*20)+1
1022  LET I=INT (RND*20)+1
1023  LET J=INT (RND*20)+1
1024  LET K=INT (RND*20)+1
1025  LET L=INT (RND*20)+1
1026  LET M=INT (RND*20)+1
1027  LET N=INT (RND*20)+1
1028  PRINT AT C,D;" "
1029  PRINT AT D,B;" "
1030  PRINT AT E,F;" "
1031  PRINT AT H,I;" "
1032  PRINT AT J,K;" "
1033  PRINT AT L,M;" "
1034  SLOW
1035  IF INKEY$="1" THEN LET D$="
1036  IF INKEY$="0" THEN LET D$="
1037  IF D$=" " THEN LET Z=2
1038  IF D$="A" THEN LET Z=1
1039  LET C=C+(INKEY$="6")-(INKEY$="7")
1040  LET D=D+(INKEY$="8")-(INKEY$="5")
1041  PRINT AT C,D;" "
1042  IF A>C AND V=0 THEN LET A=A
1043  IF A<C AND V=0 THEN LET A=A
1044  IF B>D AND V=0 THEN LET B=B
1045  IF B<D AND V=0 THEN LET B=B
1046  PRINT AT A,B;" "
1047  IF C=A AND D=B THEN GOTO 10
1048  PRINT AT C-1,D+1;" "
1049  PRINT AT C+1,D+1;" "
1050  IF A<0 THEN LET A=2
1051  IF A>20 THEN LET A=20
1052  IF B<0 THEN LET B=24
1053  IF B>24 THEN LET B=24
1054  IF C<0 THEN LET C=2
1055  IF C>20 THEN LET C=20
1056  IF D<0 THEN LET D=2
1057  IF D>30 THEN LET D=30
1058  IF Z=1 THEN GOTO 520
1059  IF (C=X AND D+1=Y) OR (C=E

```

```

AND D+1=F) OR (C=I AND D+1=J) OR
(C=K AND D+1=L) OR (C=M AND D+1
=N) THEN GOTO 1000
520 IF (A=X AND B+1=Y) OR (A=E
AND B+1=F) OR (A=I AND B+1=J) OR
(A=K AND B+1=L) OR (A=M AND B+1=N
) THEN LET V=1
530 LET G=INT (RND*7)+24
540 PRINT AT H,G;" "
550 IF C=H AND D+1=G+1 AND Z=2
THEN GOTO 1000
560 PRINT AT 0,0;"T";AT 0,10;"HIG
H=";G;"N$
565 PRINT AT H,G;" "
570 IF Z=2 THEN LET T=T-1
580 IF Z=1 THEN LET T=T-2
590 IF S=0 THEN GOTO 1000
600 IF C=4 AND D=27 THEN GOTO 2
610 GOTO 260
1000 PRINT "YOU ARE DEAD.SCORE="
1001 IF 100-T>0 THEN PRINT "NAME
1 TO 6 LETTERS"
1002 IF 100-T>0 THEN INPUT N$
1003 IF LEN N$>6 THEN GOTO 1001
1004 IF 100-T>0 THEN LET G=100-T
1005 PRINT "ANOTHER GO:"
1006 IF INKEY$="" THEN GOTO 1200
1007 IF INKEY$<>"Y" THEN GOTO 12
1205 CLS
1210 GOTO 3
2000 PRINT "WELL DONE YOU XAVE A
REACHED THE CASTLE; SCORE=";T*2
2001 IF T*2>0 THEN PRINT "NAME 1
TO 6 LETTERS"
2002 IF T*2>0 THEN INPUT N$
2003 IF LEN N$>6 THEN GOTO 2050
2004 IF T*2>0 THEN LET G=T*2
2005 GOTO 1100
7000 PRINT "
DRACULA BY S.
7010 PRINT "
7020 PRINT "S=LEFT 8=RIGHT 6=D
OWN 7=UP"
7030 PRINT "YOU TAKE THE ROLE O
F DRACULA. YOU HAVE GOT 100 SEC
ONDS TO GET TO YOUR CASTLE.YOU A
RE THE VIPLAGERS HAVE D
UG PITS WHICH IS OUT TO GET
LY CROSS YOU MUST LURE THE HO
YOU INTO ONE IF YOU ARE SUCCESSFU
L HE WILL STOP IF NOT YOY ARE
DEAD. IF YOU EALL IN A PIT
YOU ARE DEAD.
7050 PRINT "IF YOU PRESS 0 YOU
TURN INTO A BAT AND CANT FALL
IN A PIT WHIPE YOU ARE A BAT
THE TIME BEFORE DAYLIGHT GOE
S TWICE AS QUICK.PRESSING 1 TU
ANS YOU BACK IF DAYLIGHT BREAKS
YOU ARE DEAD"
7060 PRINT "IF YOU GET TO THE D
00R WATCH OUT FOR THE SWINGING
"
7070 PRINT "PRESS N/L"
7080 INPUT A$
7090 CLS
8000 RUN
9000 SAVE "DRACULA"
9100 GOTO 7000

```



# WORDFIND

```

5 OPEN #1,4,0,"K:"
10 DIM ANSWER$(20),GUESS$(1),ALPHABET$(26),USER$(20),CLUE$(15)
20 GOTO 500
30 GRAPHICS 7
35 COLOR 3
40 IF X>=1 THEN PLOT 20,79:DRAWTO 20,20
42 IF X>=2 THEN PLOT 10,79:DRAWTO 20,59:
DRAWTO 30,79
44 IF X>=3 THEN PLOT 20,30:DRAWTO 30,20
46 IF X>=4 THEN PLOT 20,20:DRAWTO 80,20
50 IF X>=5 THEN PLOT 65,20:DRAWTO 65,25:
FOR I=1 TO 35:COLOR 1:READ A,B:PLOT A,B:
NEXT I:RESTORE
60 DATA 63,26,64,26,65,26,66,26,67,26,62,
27,63,27,64,27,65,27,66,27,67,27,68,27,
62,28,63,28,65,28,67,28,68,28
70 DATA 62,29,63,29,64,29,66,29,67,29,68,
29,62,30,63,30,64,30,65,30,66,30,67,30,
68,30,63,31,67,31,64,32,65,32
80 DATA 66,32
90 IF X>=6 THEN COLOR 2:FOR I=61 TO 69:F
OR J=34 TO 44:PLOT I,J:NEXT J:NEXT I
100 IF X>=7 THEN COLOR 1:PLOT 60,34:DRAW
TO 57,39:DRAWTO 57,46:PLOT 60,35:DRAWTO
58,39:DRAWTO 58,46
110 IF X>=8 THEN COLOR 1:PLOT 70,34:DRAW
TO 73,39:DRAWTO 73,46:PLOT 70,35:DRAWTO
72,39:DRAWTO 72,46
120 IF X>=9 THEN COLOR 3:PLOT 61,45:DRAW
TO 69,45:FOR I=61 TO 64:COLOR 2:PLOT I,4
6:DRAWTO I,57:NEXT I
125 IF X>=9 THEN COLOR 3:PLOT 62,58:DRAW
TO 63,58:PLOT 61,59:DRAWTO 64,59
130 IF X=10 THEN COLOR 2:PLOT 65,46:DRAW
TO 65,50:FOR I=66 TO 69:PLOT I,46:DRAWTO
I,57:NEXT I
135 IF X=10 THEN COLOR 3:PLOT 67,58:PLOT
68,58:PLOT 66,59:DRAWTO 69,59
140 IF X<10 THEN 490
145 FOR T=1 TO 750:NEXT T
150 GRAPHICS 1+16:COLOR 1:SETCOLOR 0,0,0
:SETCOLOR 4,0,8:? #6;"THE ANSWER WAS "?:
#6:? #6:? #6;ANSWER$
160 FOR I=1 TO 5:FOR J=1 TO 200:SOUND 0,
J,8,10:NEXT J:SOUND 0,0,0,0:NEXT I
180 RUN
490 FOR T=1 TO 500+50*X:NEXT T:SOUND 0,0
,0,0:GOTO 600
500 ? ">WORDFIND":? :POKE 752,1:? "Do yo
u want instructions (Y or N) ?":GET #1,K
510 IF CHR$(K)="Y" THEN GOSUB 1000
515 ANSWER$=""
520 POKE 752,1:? ">INPUT YOUR WORDS":? "
(not more than 20 letters).":? "?"
522 FOR I=1 TO 20:GET #1,K:ANSWER$(I,I)=
CHR$(K):IF CHR$(K)="*" THEN ANSWER$(I,I)
="":GOTO 527

```

The object of Word Find is to guess the hidden word entered into the computer's memory by your opponent. You simply have to type in your choice of letters which will gradually reveal the secret word.

There is a catch however. Just like the pen and paper game Hangman an unfortunate character is gradually progressing toward his doom each time you make a wrong guess.

Will you be able to beat your opponent - and the Hangman - before the poor little chap starts to dangle?

The 's' character is a clear screen command and it appears in lines 500, 520 and 530. The 'c' in line 1035 should be typed in inverse video.

```

524 NEXT I
525 IF LEN(ANSWER$)>20 THEN 515
527 CLUE$=""
530 ? :? ">INPUT YOUR CLUE":? "(not more
than 15 letters)":INPUT CLUE$
535 IF LEN(CLUE$)>15 THEN CLUE$="":GOTO
527
540 USER$="":FOR I=1 TO LEN(ANSWER$):USE
R$(I,I)="-":IF ANSWER$(I,I)=CHR$(32) THE
N USER$(I,I)=CHR$(32)
545 IF ASC(ANSWER$(I,I))<65 OR ASC(ANSWE
R$(I,I))>90 THEN USER$(I,I)=ANSWER$(I,I)
550 NEXT I
590 X=0:Y=1
600 GRAPHICS 2:COLOR 1
610 POSITION 0,3:? #6;USER$
620 POSITION 0,9:COLOR 2:? #6;"CLUE:";CL
UE$
630 ? :? "LETTERS USED:-";ALPHABET$:? "I
NPUT YOUR GUESS":GET #1,K:GUESS$=CHR$(K)
:ALPHABET$(Y,Y)=GUESS$:Y=Y+1
635 IF Y>26 THEN Y=26
640 FOR I=1 TO LEN(ANSWER$):IF GUESS$=AN
SWER$(I,I) THEN USER$(I,I)=GUESS$:Z=Z+1:
POSITION I-1,3:? #6;GUESS$:F=1
650 IF F=1 THEN GOTO 665
660 NEXT I:GOTO 670
665 FOR J=1 TO 20:SOUND 0,50,10,14:NEXT
J:SOUND 0,0,0,0:F=0:GOTO 660
670 IF USER$=ANSWER$ THEN GOTO 900
680 IF Z=0 THEN X=X+1:SOUND 0,200,4,12:G
OTO 30
690 Z=0
700 GOTO 630
900 ? "CORRECT"
910 GRAPHICS 2+16:FOR T=1 TO 4:FOR S=1 T
O 15:SETCOLOR 0,S,12/T:POSITION 0,3:? #6
;"CORRECT":SOUND 0,200/S,10,10
915 SETCOLOR 4,16-S,T:POSITION 0,6:? #6;
ANSWER$:SOUND 1,200/T,10,10
920 FOR TIME=1 TO 20:NEXT TIME
930 NEXT S:NEXT T
940 SOUND 0,0,0,0:SOUND 1,0,0,0:RUN
1000 ? :? "The object of WORDFIND is to
guess the";:? "hidden word entered by yo
ur opponent"
1010 ? :? "Your opponent must enter the
word(s) of his choice letter by letter
and . press '*' to end it."
1020 ? :? "You must guess letters in tur
n. To do this simply type the letter of
your"
1025 ? "choice."
1030 ? :? "The computer will do the rest
."
1035 ? :? "PRESS C TO CONTINUE":GET #1,K
:IF CHR$(K)="C" THEN RETURN
1040 GOTO 1035

```

BY A. J. DAVIS

RUNS ON AN ATARI 400

IN 16K



# INVADERS

BY ANDREW FILBY

## RUNS ON A SPECTRUM IN 16K

Those nasty aliens are back again. And they are as dangerous as ever.

You can defend yourself using your laser base. But you can only fire three times at any one alien. The good news is that you can blast their missiles with your laser. The bad news is that those missiles will home in on you.

You may also use the life saving hyperspace button — but only six times. And each time you press the panic button your score decreases.

The lower the alien is before you blast him the more you'll score — but you only have five lives to play with, so don't let them get too close! Use 'm' to move right, 'b' to go left, and 'n' to fire.

```

2 LET UY=0: LET LX=0: LET LC=
0: GO SUB 1000: PAPER 6: LET AS=
CLS: LET HS=0: INK 2: BORDE
R 1
3 DATA 0,0,BIN 00110110,BIN 0
0110110,BIN 000111100,BIN 0001110
0,BIN 00011100,BIN 00001000
4 DATA BIN 10001001,BIN 00100
010,0,BIN 01011001,BIN 00001100,
BIN 10100000,BIN 00001000,BIN 10
100001
5 DATA BIN 00011000,BIN 00111
100,BIN 00111100,BIN 11111111,BI
N 11111111,BIN 11111111,BIN 1100
0011,BIN 11000011
6 DATA BIN 00111001,BIN 00111
111,BIN 00000011,BIN 11110011,BI
N 00011111,BIN 00011111,BIN 1111
0110,BIN 00000010,BIN 11100000,B
IN 11100000,BIN 00000100,BIN 000
11111,BIN 11111111,BIN 11111000,
0,0
7 LET SC=0: LET LI=0: LET LI=
4
8 PRINT "SCORE:";SC
10 LET L=15
20 LET B=10
21 FOR N=144 TO 148
25 FOR F=0 TO 7: READ B: POKE
USR CHR$(N)+F,F: NEXT F
26 NEXT N
28 PRINT AT 0,15;"A";TAB 20;"
A";TAB 25;"A";TAB 30;"A"
29 FOR G=1 TO 90
34 LET K=(RND*10)+1
35 FOR U=0 TO 20
40 PRINT AT 21,L;"A"
50 PRINT AT K,U;"A"
51 IF SC<1 THEN LET SC=0
55 PRINT AT 0,5;SC
60 IF INKEY$="n" THEN GO TO 20
61 IF AND(.93) THEN GO TO 78
62 LET UY=0: LET LC=1
63 FOR I=INT (X+1,5) TO 21
64 PRINT AT C,UY;"V"
65 IF SCREEN$(C+1,UY)<>" " TH
EN GO TO 400
66 PRINT AT C,UY;" ": IF INKEY
$="n" THEN GO SUB 200
67 IF L<UY THEN LET UY=UY-1
68 IF L>UY THEN LET UY=UY+1
71 IF INKEY$="v" AND LI=5 THE
N GO TO 500
75 NEXT C: LET LC=0
79 PRINT AT K,U;" ":AT 21,L;
80 IF INKEY$="b" THEN LET L=L+
1.5
90 IF INKEY$="b" THEN LET L=L-
1.5
100 IF L=31 THEN LET L=31
110 IF L=5 THEN LET L=5
190 NEXT U
191 LET LX=0
195 NEXT G
199 STOP
200 PLOT 0*L+3,3
201 LET LX=LX+1
202 IF LX>3 AND LC=1 THEN RETUR
N
203 IF LX>3 THEN GO TO 61
205 BEEP .05,9
210 DRAW 0,ABS ((8.333333333*K)-
175)
230 PLOT 0*L+3,3
240 DRAW OVER 1,0,ABS ((8.33333
3333*K)-175)
255 IF SCREEN$(K,L)<>" " THEN
GO TO 300
256 IF L>UY AND LC=1 THEN RETU
RN
290 GO TO 61
300 PRINT AT K,L;"A"
310 FOR F=1 TO 9: BEEP .02,F: N
EXT F
315 LET SC=SC+INT (100*K)
320 PRINT AT K,L-1;" "
325 PRINT
330 GO TO 191
400 PRINT AT 0,LI+5+10;" "
410 INK 9
420 PRINT AT 20,L;"X";AT 21,L-1
430 FOR F=-10 TO 10
440 BEEP .05,F
445 BORDER AND*6+1
450 NEXT F
455 PRINT AT K,U;" "

```

```

460 PRINT AT 20,L;" ":AT 21,L-1
465 INK 2
470 LET LI=LI-1
480 IF LI=-1 THEN GO TO 500
490 GO TO 191
500 PRINT AT 10,9: INVERSE 1;"H
YPERSPACE"; INVERSE 0
501 FOR F=10 TO 0 STEP -1
502 PRINT AT 21,L;" ":AT K,U;"
510 BORDER AND*6+1: BEEP .02,F
520 NEXT F
530 BEEP 1,-10
535 LET L=RND*31
536 LET SC=SC-INT (100/K)*2
537 PRINT AT 10,9;" "
538 LET LI=LI+1
540 GO TO 191
500 PRINT AT 10,0: INVERSE 1;"
YOU SCORED ";SC;"
AND SURVIVED ";G;" ATTACK W
AVES "; INVERSE 0
801 IF SC>HS THEN PRINT "YOU HA
VE beaten ";AS;"'S HIGH SCORE OF
";HS: INPUT "please input name"
AS: LET HS=SC
802 PRINT AS;" has a high score
of ";HS
810 PRINT AT 21,0: INVERSE 1;"p
ress 'a' to play again"; INVERSE
0
811 RESTORE
812 PAPER 6: BORDER 1
815 IF SC>HS THEN LET HS=SC
820 LET L$=INKEY$
840 IF L$="a" THEN CLS: GO TO
7
850 GO TO 820
1000 PAPER 1: CLS: INK 7
1004 PRINT TAB 4: INVERSE 1;"SPA
CE ATTACK--@-- A.FILBY"; INVERSE
0
1010 PRINT "The object of the
game is to shoot down as many sp
ace ships (A) as possible from y
our laser base (A)."
1020 PRINT "At random the alien
s will fire at you, their bombs (
V) will home in on you. If one is
on target you can go into
HYPERSPACE to be safe, but it wil
l decrease your score. The lo
wer an alien is the more points
it is worth. You have 5 lives a
nd you can move from side to s
ide at 1.5 times as fast
as an alien."
1021 PRINT "You can use HYPERSPAC
E 6 times, but you can only fire
at any alien 3 times. your laser
can stop th bombs"
1040 PRINT "Use 'm' to move rig
ht, 'b' to move left and 'n' to fir
e."
1050 PRINT "'v' puts you into Hy
perspace"
1060 INPUT "press 'enter' to sta
rt";P$
1100 RETURN

```

# MASTERMIND

Can you crack the hidden code? If you can you'll be really worthy of the title of C&VG mastermind!

The program plays the part of the code-maker in the popular game of Mastermind. One of its strongest features is the use of graphics, both in the initial display and in the depiction of the Mastermind board.

The idea behind the game' for those unfamiliar with it, is that a code is set-up, which has to be discovered in as few attempts as possible. The difficulty factor may be altered in two ways.

Firstly the number letters in use may be varied. Secondly the number of positions in the code may be varied.

In this game the first option is the one used to provide different levels of play.

On RUNning the program there is an initial graphic title frame (10-90, 2390-2410). Then there is a brief set of instructions (100-160).

Then the level of play can be entered by the user typing 1, 2 or 3.

```

10      REM* GRAPHIC DISPLAY *
20 CLS
30 FORX=1TO100:Z=RND(1023):PRINT@Z,".":NEXTX
40 FORX=0TO127:Y=0:SET(X,Y):Y=47:SET(X,Y):NEXTX
50 FORY=0TO47:X=0:SET(X,Y):X=127:SET(X,Y):NEXTY
60 FORZ=1TO266:READX:READY:SET(X,Y):NEXTZ
70 PRINT@904,"MASTER MIND   by Daniel Bishop, Copyright, 1982. ";
80 FORX=1TO1500:NEXTX
90 CLS
100     REM* INSTRUCTIONS *
110 PRINT"Master Mind - a game of logic... . ."
120 PRINT"The computer sets up randomly a four letter code. The object of the game is to deduce, by trial and error, the letters and their positions in the fewest possible goes. You may choose to play with 6, 8 or 10 letters."
130 PRINT"Level I   : A,B,C,D,E,F                               Level
II  : A,B,C,D,E,F,G,H                                       Level III : A,B,C,D,E,
F,G,H,I,J"
140 PRINT"Your score is shown thus: ";CHR$(143);"correct letter, correct position."
150 PRINT"                                     ";CHR$(137);"correct letter, wrong position."
160 PRINT"Note: the positions of the scoring pegs bear no relation to the positions of the letters in the code. To resign during the game type R."
170     REM* SET UP CODE *
180 DEFSTRK,T
190 PRINT:PRINT"Do you wish to play at Level I (1), Level II (2), Level III (3)? ";
200 L$=INKEY$:IF L$<>"1" AND L$<>"2" AND L$<>"3" THEN 200
210 IF L$="1" THEN L=6
220 IF L$="2" THEN L=8
230 IF L$="3" THEN L=10
240 FOR Z=1 TO 4
250 R=RND(L):IFR=1THENK(Z)="A"
260 IFR=2THENK(Z)="B"
270 IFR=3THENK(Z)="C"
280 IFR=4THENK(Z)="D"
290 IFR=5THENK(Z)="E"
300 IFR=6THENK(Z)="F"
310 IFR=7THENK(Z)="G"
320 IFR=8THENK(Z)="H"
330 IFR=9THENK(Z)="I"
340 IFR=10THENK(Z)="J"
350 NEXTZ
360     REM* DRAW BOARD *
370 CLS
380 FOR X=4TO39
390 SET(X,1):SET(X,46):SET(X,9):SET(X,10):SET
(X,16):SET(X,22):SET(X,28):SET(X,34)
):SET(X,40)
400 NEXTX
410 FOR X=21 TO39
420 SET(X,2):SET(X,3):SET(X,4)
430 NEXTX
440 FOR Y=1 TO 46
450 SET(4,Y):SET(39,Y)
460 NEXTY
470 FOR Y=1 TO 8: SET(21,Y):NEXTY
480 FOR Y=8 TO 41 STEP 3
490 Y=Y+1:SET(21,Y):Y=Y+1:SET(21,Y):Y=Y+1:SET(21,Y)
500 NEXTY
510 SET(21,45)
520 PRINT@60,"MASTER";PRINT@132,"MIND";
530 FOR X=139TO146:PRINT@X,CHR$(143):NEXTX
540 PRINT@147,CHR$(175);
550 V=260
560 W=269
570 FOR Y=1 TO 6
580 FOR X=-1 TO 6 STEP 2
590 PRINT@V+X,"0";
600 PRINT@W+X,"0";
610 NEXT X
620 V=V+128:W=W+128
630 NEXT Y
640 FOR X=60 TO 69:SET(X,6):NEXTX
650 FOR X=106TO 123:SET(X,6):NEXTX
660 PRINT@94,"Go";
670 IFL=6THENLL$="I"
680 IFL=8THENLL$="II"
690 IFL=10THENLL$="III"
700 PRINT@117,"Level ";LL$;
710 G=0
720     REM* GO LOOP *
730 G=G+1
740 PRINT@286,"Please type in your four letters.";
750 PRINT@97,G;
760 PRINT@414," ";
770 FOR Z=1 TO 4
780 T$=INKEY$:IFT$=""THEN 780
790 IF T$="R" THEN PRINT@414,"Do you wish to resign (Y/N)?";ELSE 820
800 Z$=INKEY$:IF Z$=""ORZ$<>"Y"ANDZ$<>"N"THEN 800
810 IF Z$="Y" THEN 1980 ELSE PRINT@414," ";
820 IF L=6 THEN 860
830 IF L=8 THEN 850
840 IFT$<>"A"ANDT$<>"B"ANDT$<>"C"ANDT$<>"D"ANDT$<>"E"ANDT$<>"F"ANDT$<>"G"ANDT$<>"H"ANDT$<>"I"ANDT$<>"J"THEN 780 ELSE 870
850 IFT$<>"A"ANDT$<>"B"ANDT$<>"C"ANDT$<>"D"ANDT$<>"E"ANDT$<>"F"ANDT$<>"G"ANDT$<>"H"THEN 780 ELSE 870
860 IFT$<>"A"ANDT$<>"B"ANDT$<>"C"ANDT$<>"D"ANDT$<>"E"ANDT$<>"F"THEN 780
870 T(Z)=T$

```

BY DANIEL BISHOP

RUNS ON A TRS80 MODELS I AND III

IN 16K



```

880 IFG=1ANDZ=1THENPRINT@908,T$;
890 IFG=1ANDZ=2THENPRINT@910,T$;
900 IFG=1ANDZ=3THENPRINT@912,T$;
910 IFG=1ANDZ=4THENPRINT@914,T$;
920 IFG=2ANDZ=1THENPRINT@780,T$;
930 IFG=2ANDZ=2THENPRINT@782,T$;
940 IFG=2ANDZ=3THENPRINT@784,T$;
950 IFG=2ANDZ=4THENPRINT@786,T$;
960 IFG=3ANDZ=1THENPRINT@652,T$;
970 IFG=3ANDZ=2THENPRINT@654,T$;
980 IFG=3ANDZ=3THENPRINT@656,T$;
990 IFG=3ANDZ=4THENPRINT@658,T$;
1000 IFG=4ANDZ=1THENPRINT@524,T$;
1010 IFG=4ANDZ=2THENPRINT@526,T$;
1020 IFG=4ANDZ=3THENPRINT@528,T$;
1030 IFG=4ANDZ=4THENPRINT@530,T$;
1040 IFG=5ANDZ=1THENPRINT@396,T$;
1050 IFG=5ANDZ=2THENPRINT@398,T$;
1060 IFG=5ANDZ=3THENPRINT@400,T$;
1070 IFG=5ANDZ=4THENPRINT@402,T$;
1080 IFG=6ANDZ=1THENPRINT@268,T$;
1090 IFG=6ANDZ=2THENPRINT@270,T$;
1100 IFG=6ANDZ=3THENPRINT@272,T$;
1110 IFG=6ANDZ=4THENPRINT@274,T$;
1120 NEXT Z

```

```

1130 PRINT@414,"Do you wish to change them (Y/N)?";
1140 Z$=INKEY$;IF Z$="ORZ$<>"Y"ANDZ$<>"N"THEN 1140
1150 IFZ$="Y"THEN 760

```

```

1160 REM* FIND SCORE *
1170 FOR Z=1 TO 4
1180 IF K(Z)="A"THENAK=AK+1
1190 IF K(Z)="B"THENBK=BK+1
1200 IFK(Z)="C"THENC=CK+1
1210 IFK(Z)="D"THENDK=DK+1
1220 IFK(Z)="E"THENEK=EK+1
1230 IFK(Z)="F"THENFK=FK+1
1240 IFK(Z)="G"THENGK=GK+1
1250 IFK(Z)="H"THENHK=HK+1
1260 IFK(Z)="I"THENIK=IK+1
1270 IFK(Z)="J"THENJK=JK+1
1280 IFT(Z)="A"THENAT=AT+1
1290 IFT(Z)="B"THENBT=BT+1
1300 IFT(Z)="C"THENC=CT+1
1310 IFT(Z)="D"THENDT=DT+1
1320 IFT(Z)="E"THENET=ET+1
1330 IFT(Z)="F"THENFT=FT+1
1340 IFT(Z)="G"THENG=GT+1
1350 IFT(Z)="H"THENHT=HT+1
1360 IFT(Z)="I"THENIT=IT+1
1370 IFT(Z)="J"THENJT=JT+1
1380 NEXTZ

```

```

1390 FORZ=1TO4
1400 IFK(Z)<>T(Z)THEN 1510
1410 IF K(Z)="A"THENAK=AK-1:AT=AT-1:CC=CC+1
1420 IF K(Z)="B"THENBK=BK-1:BT=BT-1:CC=CC+1
1430 IF K(Z)="C"THENC=CK-1:CT=CT-1:CC=CC+1
1440 IF K(Z)="D"THENDK=DK-1:DT=DT-1:CC=CC+1
1450 IF K(Z)="E"THENEK=EK-1:ET=ET-1:CC=CC+1
1460 IF K(Z)="F"THENFK=FK-1:FT=FT-1:CC=CC+1
1470 IF K(Z)="G"THENGK=GK-1:GT=GT-1:CC=CC+1
1480 IF K(Z)="H"THENHK=HK-1:HT=HT-1:CC=CC+1
1490 IF K(Z)="I"THENIK=IK-1:IT=IT-1:CC=CC+1
1500 IF K(Z)="J"THENJK=JK-1:JT=JT-1:CC=CC+1
1510 NEXT Z

```

```

1520 IFAK>0ANDAT>0THEN 1530 ELSE 1540
1530 IFAK<=ATTHENCW=CW+AKELSECW=AT
1540 IFBK>0ANDBT>0THEN 1550 ELSE 1560
1550 IFBK<=BTTHENCW=CW+BKELSECW=BT
1560 IFCK>0ANDCT>0THEN 1570 ELSE 1580
1570 IFCK<=CTTHENCW=CW+CKELSECW=CT
1580 IFDK>0ANDDT>0THEN 1590 ELSE 1600
1590 IFDK<=DTTHENCW=CW+DKELSECW=DT
1600 IFEK>0ANDET>0THEN 1610 ELSE 1620
1610 IFEK<=ETTHENCW=CW+EKELSECW=ET
1620 IFFK>0ANDFT>0THEN 1630 ELSE 1640
1630 IFFK<=FTTHENCW=CW+FKELSECW=FT
1640 IFGK>0ANDGT>0THEN 1650 ELSE 1660
1650 IFGK<=GTTHENCW=CW+GKELSECW=GT
1660 IFHK>0ANDHT>0THEN 1670 ELSE 1680
1670 IFHK<=HTTHENCW=CW+HKELSECW=HT
1680 IFIK>0ANDIT>0THEN 1690 ELSE 1700
1690 IFIK<=ITTHENCW=CW+IKELSECW=IT
1700 IFJK>0ANDJT>0THEN 1710 ELSE 1720
1710 IFJK<=JTTHENCW=CW+JKELSECW=JT

```

```

1720 REM* PRESENT SCORE *
1730 IF CC=0 AND CW=0 AND G<>6 THEN GOSUB 1950 :GOTO 720
1740 IF CC=0 AND CW=0 AND G=6 THEN 2190
1750 IF G=1 THEN S(1)=899:S(2)=901:S(3)=903:S(4)=905
1760 IF G=2 THEN S(1)=771:S(2)=773:S(3)=775:S(4)=777
1770 IF G=3 THEN S(1)=643:S(2)=645:S(3)=647:S(4)=649
1780 IF G=4 THEN S(1)=515:S(2)=517:S(3)=519:S(4)=521
1790 IF G=5 THEN S(1)=387:S(2)=389:S(3)=391:S(4)=393
1800 IF G=6 THEN S(1)=259:S(2)=261:S(3)=263:S(4)=265
1810 W=CC

```

```

1820 IF CC=0 THEN 1870
1830 FOR Z=1 TO 4
1840 PRINT@S(Z),CHR$(143);:CC=CC-1
1850 IF CC=0 THEN 1870
1860 NEXTZ
1870 IF CW=0 THEN 1920
1880 FOR Z=4 TO 1 STEP -1
1890 PRINT@S(Z),CHR$(137);:CW=CW-1
1900 IF CW<=0 THEN 1920
1910 NEXT Z
1920 IF W=4 THEN 2030
1930 IF G=6 THEN 2190
1940 GOSUB 1950 : GOTO 1970
1950 W=0:CC=0:CW=0:AT=0:BT=0:CT=0:DT=0:ET=0:
FT=0:GT=0:HT=0:IT=0:JT=0:AK=0:BK=0:C
K=0:DK=0:EK=0:FK=0:GK=0:HK=0:IK=0:JK=0
1960 RETURN
1970 GOTO 720
1980 REM* RESIGNING *
1990 PRINT@286,"You have resigned.
2000 PRINT@414,"
2010 GOTO 2240
2020 REM* WINNING *
2030 PRINT@286,"You have won! Congratulations.
2040 Z=414

```

```

2050 IFG=1THENPRINT@Z,"That's incredible. The odds of
2060 IF L=6 THEN O=1296
2070 IF L=8 THEN O=4096
2080 IF L=10 THENO=10000
2090 IF G=1THENPRINT@Z+64,"getting that correct were
2100 IF G=1THENPRINT@Z+127,0;" to one. Go and see an ESP
2110 IF G=1THENPRINT@Z+192,"specialist.
2120 IF G=2THENPRINT@Z,"Wow! That's really amazing.
2130 IF G=3THENPRINT@Z,"You should go professional.
2140 IF G=4THENPRINT@Z,"You're very good.
2150 IF G=5THENPRINT@Z,"You're good.
2160 IF G=6THENPRINT@Z,"Phew! By the skin of your teeth.
2170 IFG<>1THENPRINT@Z+128,"
2180 GOTO 2240
2190 REM* LOSING *
2200 PRINT@286,"You have lost! Maybe better luck
2210 PRINT@350,"next time."
2220 PRINT@414,"
2230 REM* GAME OVER *
2240 FOR X=60 TO 77:SET(X,6):NEXT X
2250 PRINT@94,"Game over";
2260 FOR X=139 TO 146:PRINT@X,CHR$(128);:NEXTX
2270 PRINT@147,CHR$(170);
2280 PRINT@140,K(1);:PRINT@142,K(2);:PRINT@144,K(3);:PRINT@146,K(4);
2290 FOR Z=0 TO 2000:NEXTZ

```

```

2300 PRINT@926,"Do you wish to play again (Y/N)?";
2310 Z$=INKEY$;IFZ$="ORZ$<>"Y"ANDZ$<>"N"THEN 2310
2320 IF Z$="N"THENCLS:END
2330 G=0:GOSUB 1950 : CLS:GOTO 190

```

```

2340 REM* DATA FOR GRAPHICS DISPLAY *
2350 DATA4,21,5,21,6,20,6,21,6,22,6,23,6,24,6,25,6,26,5,27,4,27,3,28,2,28,1,28,0
,28,7,24,7,23,8,22,9,21,10,20,11,19,12,19,13,18,14,18,15,18,16,18,16,19,16,20,15
,21,15,22,14,23,14,24,13,25,16,21,17,20,18,19,19,18,20,17,21,17,22,16,23,16,24,1
5,25
2360 DATA15,26,15,27,16,26,17,25,18,24,19,24,20,23,21,23,22,23,23,24,23,25,22,26
,21,27,21,28,20,29,20,30,19,31,18,32,18,33,18,29,21,30,21,31,21,32,20,33,20,34,2
0,34,19,34,18,35,20,36,20,37,19,38,18,39,17,40,16,41,16,41,17,42,18,41,19,40,19,
39,19
2370 DATA3,17,44,16,45,15,46,14,46,13,47,12,47,11,48,10,45,17,46,17,47,17,48,16
,49,16,50,16,51,15,52,15,53,15,54,14,55,13,54,13,53,13,52,13,51,14,50,15,49,15,4
9,17,50,17,51,17,52,17,53,17,54,17,55,16,56,15,57,14,58,13,59,12,59,13,59,14,58,
15,58
2380 DATA16,60,13,61,12,62,12,63,12,64,11,65,11,66,11,67,11,68,11,69,10,45,13,47
,13,48,12,49,12,50,12,51,11,52,11,58,23,59,22,60,21,61,21,61,22,61,23,61,24,61,2
5,61,26,60,27,59,28,58,29,57,29,56,29,55,30,54,30,53,30,52,30,51,30,50,31,49,31,
48,31,47
2390 DATA31,62,24,63,23,64,22,65,21,66,21,67,20,68,20,69,20,69,21,69,22,69,23,69
,24,68,25,67,26,67,27,66,28,70,23,71,22,72,21,73,20,74,19,75,19,76,19,77,19,77,2
0,77,21,76,22,75,23,75,24,74,25,74,26,75,26,76,26,77,26,78,25,79,25,80,24,81,23,
82,22
2400 DATA82,23,82,24,82,25,83,25,84,24,85,23,86,23,87,22,88,22,89,21,90,21,90,22
,89,23,88,24,91,21,92,20,93,20,94,20,95,20,96,20,96,21,96,22,97,22,98,21,99,21,1
00,20,101,20,102,19,103,18,104,18,105,18,106,18,107,18,108,18,102,21,103,21,104,
21
2410 DATA105,20,106,19,107,19,108,17,109,16,109,15,110,14,108,19,109,19,110,19,1
11,19,112,18,113,18,114,18,115,18,116,17,117,17,118,17,119,17,120,16,121,16,122,
16,123,16,124,15,125,15,126,15,127,15,84,20

```

# REACTION

BY J. STANTON

& J. WILKINSON

**RUNS ON AN UNEXPANDED VIC-20**

Want to hone your reactions for those games of Defender, Frogger — and of course, Pengo — down at your local arcade? Well here's the game that will test your mind to eye powers to the full.

The rules are simple. All you have to do is wait for a dot to appear on the screen, a noise

from your computer and the screen colour to change. As soon as this happens you must the space bar.

Your reaction time is flashed up, and there is also a high score feature which you set with your first attempt.

Further attempts receive com-

ments from your computer and a suitable jingle. Instructions are included in the program which uses the Vic's sound, visual, and colour facilities to the full and should provide a good test to skill for any arcade fan willing to take a break from blasting multi-coloured aliens!

```

1 V=25:POKE36876,6:PRINTCHR$(14):POKE36879,27
2 GOTO5000
3 O=0
4 GOTO4000
5 PRINT"J"
6 R=INT(RND(TI)*800)
7 G=INT(RND(TI)*400)+100
8 PRINT"HERE \T -OMES...":FORA=1TO1300:NEXTA:POKE36879,250
9 FORL=1TO400:IFPEEK(197)=32THENGOTO6000:NEXTL:PRINT"J"
20 POKE7680+G,160
22 POKE36876,200
30 POKE38400+G,0
32 FORA=1TO50:NEXTA:POKE36876,0
35 F=TI
40 PRINT"J"
50 IFPEEK(197)=32THENGOTO105
60 GOTO50
105 PRINT"REACTION TIME:"
106 X=(TI-F)/60
110 PRINT"X:" #EC."
120 IFO=1ANDXC=VTHENGOSUB1000
125 IFO=1ANDXC>VTHENGOSUB2000
126 IFXC<VTHENV=X
130 PRINT"TEST TIME:"
135 PRINT"V:" #EC."
140 FORI=1TO2000:POKE36879,27:NEXTI

```



```

150 W=0:0=1:GOTO5
1000 POKE36876,225
1005 PRINT"O OELL",
1006 FORA=1TO100:NEXTA
1010 POKE36876,210
1015 FORA=1TO75:NEXTA
1016 POKE36876,0
1020 POKE36876,210
1022 PRINT" ONE",
1025 FORA=1TO100:NEXTA
1030 POKE36876,215
1033 PRINT" Y",
1035 FORA=1TO100:NEXTA
1040 POKE36876,210
1043 PRINT" LD";

```

# REACTION

```

1045 FORA=1TO200:NEXTA
1050 POKE36876,220
1053 PRINT" ON,";
1055 FORA=1TO125:NEXTA
1056 POKE36876,0
1060 POKE36876,222
1063 PRINT" OELL",
1065 FORA=1TO200:NEXTA
1073 PRINT" ONE!"
1120 POKE36876,0
1130 RETURN
2000 POKE36875,128
2005 PRINT"ARD";
2010 FORA=1TO400:NEXTA
2020 POKE36875,0
2100 POKE36874,128

```

# REACTION

```

2105 PRINT"LUCK",
2110 FORA=1TO400:NEXTA
2111 PRINT" HUM"
2115 POKE36875,128
2116 FORA=1TO400:NEXTA
2220 POKE36875,0:POKE36874,0:RETURN
4000 POKE36879,249:PRINT"REACTION!"
4010 PRINT"-----"
4020 PRINT" A CIRCLE WILL APPEAR"
4030 PRINT" ON THE SCREEN AND "
4040 PRINT" NOISE WILL SOUND..."
4050 PRINT" YOU MUST HIT THE "
4060 PRINT" SPACEBAR"
4070 PRINT" AS FAST "
4080 PRINT" AS YOU CAN.... "
4200 PRINT"GOOD LUCK!"
4500 FORR=1TO7000:NEXTR
4600 GOTO5
5000 PRINT"INSTRUCTIONS?"
5100 PRINT" (Y/N)"
5200 GETA$
5300 IFA$="Y" THEN GOTO4
5310 IFA$="N" THEN 5
5350 GOTO5200
6000 PRINT"YOU CHEATED!! TRY AGAIN"
6050 FORA=1TO2000:NEXTA:PRINT" "
6100 GOTO5

```

# PYRAMID OF SECRETS

BY STEVE HOLLOWAY

RUNS ON A TRS-80 IN 16K



The builders of those ancient pyramids were crafty people. They used every devious means available to them to protect the treasures of the Pharaoh buried deep with the vaults of their awesome creation.

Trap doors, dead ends, false passageways — these ancient architects employed all the tricks of their trade to make sure no-one could rob the tombs lined with gold and glittering jewels.

Will you dare to enter the pyramid of secrets and search for the treasures which are hidden there? Will you manage to escape once you have found the glittering prize? Or will you gradually starve to death — trapped within the stone corridors of this ancient maze . . .

This is a game for one player. You will be presented with a 3D representation of a maze in which you must move around in.

There are six levels to explore in search of the treasure. But beware of trap doors — and walls that may look solid, but which may slide open if you move forward into them. The trap doors will drop you back to a lower level — and the entrance to the pyramid is one of those moving blocks of stone and may be difficult to find again. There is also a time limit on the game — after it has run out you are presumed dead.

Program notes:

10-80: Input routine and timer advance

100-200: Help routine: gives player's direction, level, treasure and indicates if a moveable wall is nearby

500-530: Solid wall message and open wall routine.

1020-1050: Move player forward.

3000-3020: Routine for finding walls present and whether stairs, trapdoor, treasure.

```

5 GOTO 6000
10 GOSUB3030:PRINT@0,"WHICH WAY? (F,L,R,H) :-";PRINT@48,"TIME LEFT -";
20 I$=INKEY$:PRINT@25,I$;T=T+1:IFT>10000THENCLS:PRINT@520,"SORRY - BUT YOU RAN
OUT OF TIME AND STARVED TO DEATH."END
30 IFI$="F"GOTO500
40 IFI$="L"THENEND=D-1:IFD<1THENEND=4:GOTO10ELSE10
50 IFI$="R"THENEND=D+1:IFD>4THENEND=1:GOTO10ELSE10
60 IFI$="H"THENGOSUB100:GOTO10
70 PRINT@59,100-INT(T/100);
80 GOTO20
100 REM HELP ROUTINE
110 CLS:PRINTTAB(10)"YOU ARE ON LEVEL -";LV:PRINTTAB(10)"(THE EXIT IS ON LEVEL 3
)":PRINT"YOU HAVE ";SC;" POUNDS OF TREASURE"
120 PRINTTAB(10)"YOU ARE FACING ";:OND GOTO130,140,150,160
130 PRINT"North":GOTO170
140 PRINT"East":GOTO170
150 PRINT"South":GOTO170
160 PRINT"West":GOTO170
170 PRINT"(THE EXIT IS ON THE EAST SIDE OF THE PYRAMID)"
180 IF A(X,Y,LV)>511PRINT"THERE IS A MOVEABLE WALL NEXT TO YOUR PRESENT POSITION
"
190 PRINT:PRINT:PRINT"PRESS ANY KEY TO CONTINUE PLAY (NOTE TIME IS SLIPPING BY)"
200 PRINT@48,"TIME LEFT -";100-INT(T/100);T=T+5:I$=INKEY$:IFI$=""THEN 200 ELSE
RETURN
500 A=X:B=Y:GOSUB3000:IFFW=0THEN1020
510 IFFW>0ANDF=0THENPRINT@530,"THIS IS A SOLID WALL !!!";FORI=1TO1000:NEXTI:PRI
NT@530,"";:GOTO20
520 PRINT@530,"THE WALL OPENS -";FORI=179TO160STEP-1:PRINT@I,V0$;:FORJ=1TO50:NE
XTJ:NEXTI
530 CLS:PRINT@530,"AND CLOSES BEHIND YOU....":FORI=1TO1000:NEXT
1020 IFD=1THENY=Y-1:GOTO10
1030 IFD=2THENX=X+1:GOTO10
1040 IFD=3THENY=Y+1:GOTO10
1050 X=X-1:GOTO10
1060 IFD=1THENB=B-1:RETURN
1070 IFD=2THENA=A+1:RETURN
1080 IFD=3THENB=B+1:RETURN

```



```

1090 A=A-1:RETURN
3000 NW=A(A,B,LV)AND2:WW=A(A,B,LV)AND1:EW=A(A,B,LV)AND4:SW=A(A,B,LV)AND8:FW=NW:R
W=EW:LW=WW:BW=SW:ST=A(A,B,LV)AND96:TR=A(A,B,LV)AND16:PI=A(A,B,LV)AND128:IFD=1THE
N3020
3010 FORI=1TOD-1:Z=FW:FW=RW:RW=BW:BW=LW:LW=Z:NEXTI
3020 F=A(X,Y,LV)AND(FW*512):RETURN
3030 IFA(X,Y,LV)=769THEN5500ELSEA=X:B=Y:GOSUB3000:IFPI>0ANDRND(9)=4THENGOSUB5600
:GOTO10
3040 IFST=64THENCLS:LV=LV-1:PRINT@520,"GOING UP STAIRS":GOSUB7050:GOTO1020ELSEIF
ST=32THENCLS:LV=LV+1:PRINT@520,"GOING DOWNSTAIRS":GOSUB7050:GOTO1020
3050 IFTR>0THENSC=SC+RND(10)*10:CLS:PRINT@520,"YOU HAVE COLLECTED MORE RARE TREA
SURES,
YOU NOW HAVE";SC;"POUNDS":A(X,Y,LV)=A(X,Y,LV)-16:GOSUB7050:GOTO10
3060 CLS:PRINT@141,V0$;:PRINT@179,V0$;:IFLW>0PRINT@74,XA$;:PRINT@970,XB$;ELSEPRI
NT@129,W3$;:PRINT@897,W4$;
3070 IFRW>0PRINT@116,XB$;:PRINT@1012,XA$;ELSEPRINT@180,W3$;:PRINT@948,W4$;
3080 IFFW>0PRINT@142,W1$;:PRINT@910,W2$;:RETURN
3090 GOSUB1060:GOSUB3000
3100 IFST=32PRINT@540,S1$;:RETURNELSEIFST=64PRINT@540,S2$;:RETURN
3110 IFLW>0PRINT@142,XC$;:PRINT@910,XE$;ELSEPRINT@334,W7$;:PRINT@718,W8$;
3120 IFRW>0PRINT@299,XD$;:PRINT@811,XF$;ELSEPRINT@363,W7$;:PRINT@747,W8$;
3130 IFTR>0PRINT@861,TR$;
3150 PRINT@342,V1$;:PRINT@362,V1$;:IFFW>0THENPRINT@343,W5$;:PRINT@727,W6$;:RETUR
N
3160 GOSUB1060:GOSUB3000:
3170 IFST=32THENPRINT@540,S1$;:RETURNELSEIFST=64PRINT@540,S2$;:RETURN
3180 IFLW>0PRINT@343,XG$;:PRINT@727,XH$;ELSEPRINT@407,WA$;:PRINT@663,WA$;
3190 IFRW>0PRINT@423,XI$;:PRINT@679,XJ$;ELSEPRINT@423,WA$;:PRINT@679,WA$;
3200 PRINT@410,V3$;:PRINT@422,V3$;:IFTR>0PRINT@733,TR$;
3210 IFFW>0PRINT@411,W9$;:PRINT@667,W9$;:RETURN
3220 GOSUB1060:GOSUB3000:IFST=32PRINT@540,S1$;:RETURNELSEIFST=64PRINT@540,S2$;:R
ETURN
3230 IFLW>0PRINT@411,CHR$(176);CHR$(26);CHR$(131);:PRINT@667,CHR$(131);CHR$(27);
CHR$(176);ELSEPRINT@475,CHR$(140);CHR$(140);:PRINT@603,CHR$(140);CHR$(140);
3240 IFRW>0PRINT@484,CHR$(131);CHR$(27);CHR$(176);:PRINT@612,CHR$(176);CHR$(26);
CHR$(131);ELSEPRINT@484,CHR$(140);CHR$(140);:PRINT@612,CHR$(140);CHR$(140);
3260 PRINT@477,CHR$(188);CHR$(24);CHR$(26);V$;CHR$(143);:PRINT@483,CHR$(188);CHR
$(24);CHR$(26);V$;CHR$(143);
3270 IFFW>0PRINT@478,STRING$(5,140);:PRINT@606,STRING$(5,140);:RETURNELSEPRINT@4
78,CHR$(176);CHR$(26);CHR$(179);CHR$(32);CHR$(179);CHR$(27);CHR$(176);:PRINT@606
,CHR$(131);:PRINT@610,CHR$(131);:RETURN
4000 RETURN
5500 CLS:PRINT@520,"YOU ARE OUT !":PRINT:PRINT"          TIME LEFT";32-INT(T/1000):
PRINT:PRINT"          TREASURE COLLECTED -";SC;"POUNDS":IF SC>200 PRINT"          TRULY
EXCELLENT !":ENDELSE PRINT"YOU DID WELL TO ESCAPE.":END
5600 CLS:PRINT"  YOU HAVE STEPPED ON A MOVEABLE TRAPDOOR AND ARE":FORI=154T01020
STEP64:PRINT@I,"FALLING";:FORJ=1T030:NEXTJ:PRINT@I,"          ":NEXTI:LV=LV+1:RETU
RN
6000 CLEAR 900:DEFINT A-Z:DIMA(11,11,6):CLS:PRINT@282,"T H E":PRINT@406,"P Y R A
M I D":PRINT@532,"O F S E C R E T S"
6010 PRINT@588,"";:FORI=1T08:PRINT"/ ";CHR$(27);:NEXTI:PRINT"/ ";CHR$(92);" ";CHR
$(26);:FORI=1T08:PRINTCHR$(92);CHR$(32);CHR$(26);:NEXTI:PRINT@640,STRING$(64,"-")
)
6020 PRINT@780,"WRITTEN BY STEVE HOLLOWAY,  FEB  1982":LV=5:A(6,5,1)=23:A(9,6,3)
=769
6030 N1=7-LV:N2=12-N1:FORX=N1TON2:FORY=N1TON2:READA:A(X,Y,LV)=A:NEXTY:NEXTX:LV=L
V-1:IFLV>0THEN6030
6040 W1$=STRING$(37,131):W2$=STRING$(37,176):W3$=STRING$(12,131):W4$=STRING$(12,
176):XA$=CHR$(131)+CHR$(140)+CHR$(176):XB$=CHR$(176)+CHR$(140)+CHR$(131):PRINT"P
RESS 'I' FOR INSTRUCTIONS OR ANY OTHER KEY TO CONTINUE"
6050 I$=INKEY$:IFI$=""THEN6050ELSEPRINT"JUST A MOMENT":IFI$="I"GOSUB8000
6060 V$=CHR$(191)+CHR$(26)+CHR$(24):FORI=1T013:V0$=V0$+V$:NEXTI:XC$=CHR$(140)+CH
R$(176)+CHR$(26)+XA$+CHR$(26)+XA$:XD$=XB$+CHR$(27)+XB$+CHR$(27)+CHR$(176)+CHR$(1
40)
6070 XE$=CHR$(140)+CHR$(131)+CHR$(27)+XB$+CHR$(27)+XB$:XF$=XA$+CHR$(26)+XA$+CHR$
(26)+CHR$(131)+CHR$(140):FORI=1T07:V1$=V1$+V$:NEXTI:W7$=STRING$(8,131):W8$=STRIN
G$(8,176):W5$=STRING$(19,131):W6$=STRING$(19,176)
6080 S1$="STAIRS"+CHR$(26)+STRING$(5,24)+"DOWN":S2$="STAIRS"+CHR$(26)+STRING$(4,
24)+"UP":TR$="TREASURE"
6090 W9$=STRING$(11,140):WA$=STRING$(3,140):V3$=CHR$(188)+CHR$(26)+CHR$(24)+V$+V
$+V$+CHR$(143):XG$=CHR$(140)+CHR$(176)+CHR$(26)+CHR$(131):XH$=CHR$(140)+CHR$(131
)+CHR$(27)+CHR$(176):XI$=CHR$(131)+CHR$(27)+CHR$(176)+CHR$(140)

```

```

6100 XJ$=CHR$(176)+CHR$(26)+CHR$(131)+CHR$(140)
6110 FORI=1TO11:FORJ=1TO11:READA:A(I,J,6)=A:NEXTJ:NEXTI
6120 PRINTTAB(8)"PRESS (F) TO OPEN ENTRANCE AND START EXPLORING"
6980 D=4:X=9:Y=6:LV=3:SC=0:T=0
6990 I$=INKEY$:IFI$="F"THENCLS:GOTO520ELSE6990
7000 DATA3,5,1,5,5,5,9,3,9,2,13,2,5,5,9,14,64,10,14,64,10,3,13,2,9,3,8,3,12,2,12
,7,8,10,10,10,2,5,8,3,29,10,6,12,14,10,11,14,2,5,12,3,1,9,10,6,1,8,3,1,12,10,10,
2,29,14,10,32,10,2063,10,10,6,5,13,6,5,12,519,12,32
7010 DATA19,133,5,5,2053,13,32,32,3,5,9,515,5,12,3,8,7,12,10,64,9,10,6,5,5,4,5,8
,6,1,5,13,7,5,8,11,2062,64,1,13,11,10,6,517,5,4,5,140,14
7020 DATA3,1,5,133,13,10,6,9,64,32,6,137,2,133,9,3,12,2,141,10,6,32,2062,6,12,3,
5,32,10,64,9,6,5,140,32
7030 DATA7,9,23,5,5,5,1,1,5,5,9,27,6,9,7,5,9,14,10,11,7,8,10,11,6,5,9,2,5,8,2,29
,10,10,2,1,4109,1034,10,27,10,6,5,8,10,10,10,3,12,10,6,12,3,5,12,6,12,10,10,7,0,
5,9,14,3,9
7040 DATA3,5,8,6,5,12,11,6,5,12,10,10,7,4,5,1,13,6,1,5,5,12,6,5,9,3,12,64,7,4,1,
5,9,3,29,10,2,5,12,3,29,10,64,10,6,5,12,6,5,13,6,5,12,6,12
7050 FORI=1TO1000:NEXTI:CLS:RETURN
8000 CLS:PRINTTAB(10)"P Y R A M I D   O F   S E C R E T S":PRINT:PRINT"YOU ARE O
UTSIDE THE ENTRANCE OF THE PYRAMID. IN A MOMENT YOU
CAN ENTER AND FIND YOUR WAY AROUND."
8010 PRINT"THERE ARE TEN TREASURES TO FIND AND MINOR HAZARDS TO AVOID
THERE ARE SOME TRAPS IN THE FLOOR WHICH WILL DROP YOU TO THE      LEVEL BELOW SOME
TIMES AND THERE ARE WALLS WHICH LOOK SOLID BUT"
8020 PRINT"WHICH WILL ALLOW YOU THROUGH IF YOU MOVE FORWARD INTO THEM. YOU CONT
ROL YOUR WAY THROUGH THE PYRAMID USING -
      (F) FOR FORWARD, (R) TO TURN RIGHT, (L) TO TURN LEFT
      (H) WILL TELL YOU THE LEVEL YOU ARE ON AND
8030 PRINT"THE DIRECTION YOU ARE FACING BUT REDUCE YOUR TIME.
YOUR TIME IS LIMITED SO DON'T TAKE TOO LONG PONDERING !":RETURN

```

# SSSNAKES

BY STEVEN JERATH

**RUNS ON AN ATARI 400 IN 16K**

Are you a slippery customer? Then here's your chance to prove it. The aim of this two player game is to trap your opponent in the coils of your snake while at the same time avoiding getting trapped yourself.

You cannot go back on yourself or touch your own line. You must not touch your opponent's line. Also you have to stay away from the stars which dot the screen - and of course you must stay away from the walls.

```

5 GOSUB 2000
10 GRAPHICS 7+16:V1=0:V2=0:H1=1:H2=-1
11 SETCOLOR 2,7,8
13 FOR AAA=1 TO 20:COLOR 3:PLOT INT(RND(
0)*160),INT(RND(0)*96):NEXT AAA
20 X1=10:Y1=40:X2=140:Y2=40
29 COLOR 3:PLOT 0,0:DRAWTO 159,0:DRAWTO
159,95:DRAWTO 0,95:DRAWTO 0,0
30 A=STICK(0)
31 B=STICK(1)
50 IF A=14 THEN V1=-1:H1=0
51 IF A=13 THEN V1=1:H1=0
52 IF A=11 THEN V1=0:H1=-1
53 IF A=7 THEN V1=0:H1=1
60 IF B=14 THEN V2=-1:H2=0
61 IF B=13 THEN V2=1:H2=0
62 IF B=11 THEN V2=0:H2=-1
63 IF B=7 THEN V2=0:H2=1
70 X1=X1+H1:Y1=Y1+V1
80 X2=X2+H2:Y2=Y2+V2
81 IF X1=X2 AND Y1=Y2 THEN 300
85 LOCATE X1,Y1,ZZ:IF ZZ<>0 THEN 100
86 LOCATE X2,Y2,ZZ:IF ZZ<>0 THEN 200
90 COLOR 1:PLOT X1,Y1
91 COLOR 2:PLOT X2,Y2
92 POKE 53279,0
95 GOTO 30
100 GRAPHICS 1+16
101 POKE (PEEK(560)+256*PEEK(561))+3,64+
7:SETCOLOR 2,7,10

```

```

102 ? #6;"   PLAYER 1 LOSES"
103 R2=R2+1:IF R2>9 THEN 500
104 ? #6:"   SCORES"
105 ? #6;"   player 1-";R1:" #6;"
106 ? #6;"   player 2-";R2
150 FOR S=0 TO 250:SOUND 0,S,10,10:NEXT
S:SOUND 0,0,0,0
190 ? #6:"   hit any key "
199 GET #1,K:GOTO 10
200 GRAPHICS 1+16
201 POKE (PEEK(560)+256*PEEK(561))+3,64+
7:SETCOLOR 2,7,10
202 ? #6;"   PLAYER 2 LOSES"
203 R1=R1+1:IF R1>9 THEN 600
204 ? #6:"   SCORES"
205 ? #6;"   player 1-";R1:" #6;"
206 ? #6;"   player 2-";R2
250 FOR S=0 TO 250:SOUND 0,S,10,10:NEXT
S:SOUND 0,0,0,0
290 ? #6:"   hit any key "
299 GET #1,K:GOTO 10
300 GRAPHICS 1+16
301 POKE (PEEK(560)+256*PEEK(561))+3,64+
7:SETCOLOR 2,7,10
302 ? #6;"   you both lost!!!"
303 ? #6:"   unlucky!!!"
304 FOR S=0 TO 20:FOR W=0 TO 10:SOUND 0,
S*10,10,4:SOUND 0,0,0,0:NEXT W:NEXT S
310 GOTO 190
500 GRAPHICS 1+16
501 POKE (PEEK(560)+256*PEEK(561))+3,64+

```



```

7:SETCOLOR 2,7,10
502 ? #6;" PLAYER NO.2 WINS"
503 FOR ZZZ=0 TO 100:FOR W=0 TO 20:NEXT
W:SOUND 0,ZZZ,10,4:NEXT ZZZ
504 SOUND 0,0,0,0
510 GOTO 610
600 GRAPHICS 1+16
601 POKE (PEEK(560)+256*PEEK(561))+3,64+
7:SETCOLOR 2,7,10
602 ? #6;" PLAYER NO.1 WINS"
603 FOR ZZZ=0 TO 100:FOR W=0 TO 20:NEXT
W:SOUND 0,ZZZ,10,4:NEXT ZZZ
604 SOUND 0,0,0,0
610 ? #6:? #6:? #6:? #6:? #6
620 ? #6;" hit any key for"
630 ? #6;" another game"
640 GET #1,K:RUN
1000 FOR W=0 TO 500:NEXT W

```

```

1001 RETURN
2000 OPEN #1,4,0,"K"
2001 GRAPHICS 1+16
2002 POKE (PEEK(560)+256*PEEK(561))+3,64
+7
2003 ? #6;" snakes"
2004 SETCOLOR 2,0,14
2010 ? #6:? #6:? #6
2020 ? #6;" IN THIS 2 PLAYER"
2021 ? #6;" GAME EACH PLAYER"
2022 ? #6;" TRIES TO AVOID THE"
2023 ? #6;" OTHERS TRAIL"
2024 ? #6;" USING THE JOYSTICK"
2025 ? #6:? #6:? #6;"hit any key to begi
n"
2026 GET #1,K
2030 RETURN
9999 GOTO 9999

```

# RED ALERT

BY SIMON PARKER

**RUNS ON A VIC-20**

**IN 16K**

Got tunnel vision? Then this game is the one for you! Zapping through narrow tunnels is a task some arcade video freaks just love. And here's a program that will save a few of those precious 10p's.

It's based on arcade Scramble — the game that you either love or hate. For those of you who have yet to come across the game — and you must be few and far between here's a rundown on what you have to do. The idea is to pilot a spacecraft over the ever changing landscape of an alien cavern, dotted with fuel dumps. You must avoid the walls of the cavern and the spaceships which advance against you. You bomb the fuel dumps and shot down the ships — it's as simple as that!

The program is written mainly in basic apart from a small machine code routine in subroutine 5000. This is used to pull the screen from right to left. The game can be controlled using either the keyboard or a joystick.

```

0 REM**RED ALERT**
1 REM**BY SIMON PARKER**
2 REM**27/6/1982
5 P=7904
6 J=5:G=5:CC=.5:DD=.9
7 GOSUB1000:GOSUB5000
8 TI$="000000"
10 PRINT"3"
20 POKE36879,143:POKE36878,15
30 B=RND(1)
31 IFTI$="000200"THENPOKE36879,8:CC=.65:DD=.8
32 IFTI$="000330"THENPOKE36879,57:CC=.75:DD=.7
35 C=RND(1)
36 IFB<CCTHENJ=J+1:GOTO40
37 J=J-1
40 IFC<CCTHENG=G+1:GOTO46
45 G=G-1
46 IFJ>10ANDG>10THENG=G-1:J=J-1
47 IFJ+G>17THENJ=J-1:G=G-1
48 IFJ<1THENJ=1
49 IFG<1THENG=1
50 FORK=1TOJ
60 POKE8185-22*K,20
61 NEXTK:IFB<.20RB>.8THENPOKE8185-22*K,22:POKE81
85+30720-22*K,2
62 FORK=1TOG
65 POKE7701+22*K,20
66 NEXTK
70 IFC>DDTHENPOKE7701+22*K+44,24:POKE38421+22*K+44,2
91 POKEP,32
100 SYS(829)
125 POKEP,21:POKEP-1,32
126 PRINT"SCORE"SC
130 POKEP,32
135 L2=PEEK(197):P2=PEEK(653)
140 L=PEEK(37137):POKE37154,127:P1=PEEK(37152):POKE37154,255
143 IFL=30ANDP1=119ORP2=1ANDL2=14THENGOSUB4000:GOTO181
145 IFL=30ORP2=1THENSC=SC-50:GOSUB3000:GOTO181
150 IFL=54ORL2=22THENP=P+22
160 IFL=46ORL2=13THENP=P-1
170 IFL=58ORL2=53THENP=P-22
180 IFP1=119ORL2=14THENP=P+1
181 IFPEEK(P+1)<>32THENGOTO2000
190 POKEP,21:POKEP-1,32:POKE36877,120+INT((P-7680)/4)
200 GOTO30
1000 POKE52,28:POKE56,28

```

```

1010 FORI=7168T07679:POKEI,PEEK(I+25600):NEXT
1030 FORC=7328T07367:READA:POKEC,A:NEXT
1035 POKE36869,255:RETURN
1040 DATA170,85,170,85,170,85,170,85
1050 DATA0,128,192,224,254,255,255,0
1060 DATA60,60,126,126,255,60,66,129
1070 DATA160,80,168,75,168,80,160,0
1080 DATA0,1,3,7,127,255,255,0
2000 FORI=1T010
2010 POKE36879,I*10
2011 POKE36878,10-I
2012 POKE36877,220
2020 FORK=1T0200:NEXTK
2030 NEXTI
2040 FORL=1T01000:NEXTL
2045 POKE36869,240:PRINT"J"
2050 PRINT"#####GAME OVER####"
2060 PRINT"#####YOU SCORED"SC
2070 PRINT"#####ANOTHER GAME (Y/N)"
2080 GETA$:IFA$=""THEN2080
2081 IFA$="Y"THENJ=8:G=8:P=7904:SC=0:TI$="000000":POKE36869,255:GOTO10
2082 IFA$="N"THENPRINT"J":POKE36869,240:END
2090 GOTO2080
3000 FORM=1T010
3005 POKEN,32
3010 N=P+M*22:POKE36876,150+M*10
3020 IFPEEK(N)=22THENSC=SC+250:POKEN,42:POKE36876,0:RETURN
3030 IFPEEK(N)=20THENPOKEN,42:POKE36876,0:RETURN
3040 POKEN,90:NEXTM:POKEN,32:POKE36876,0:RETURN
4000 SC=SC-100:FORB=1T010:POKEM1,32:M1=P+B:POKE36876,240:POKE36876,0
4010 IFPEEK(M1)=20THENPOKEM1,20:RETURN
4011 IFPEEK(M1)=22THENSC=SC+200:POKEM1,32:RETURN
4012 IFPEEK(M1)=24THENSC=SC+150:POKEM1,32:RETURN
4020 POKEM1,42:POKEM1+30720,1
4030 NEXTB:POKEM1,32:RETURN
5000 FORK=829T0874:READS:POKEK,S:NEXTK:RETURN
5010 DATA169,19,32,210,255,169,29,32,210,255,169,13,32,210,255,169,0,141,60,3
5020 DATA169,29,32,210,255,169,20,32,210,255,169,13,32,210,255,238,60,3,173,60,3
5030 DATA201,21,208,231,96
5040 RETURN

```

**BY M. LEVIN**

**RUNS ON AN**

**ATOM IN 16K**

**Warning.** This game can impair your sanity.

Written in machine code for an Atom with at least 3K of RAM this program seems designed to either increase your reasoning power or destroy what little sanity you may have left.

You are given a nine square grid with a random number of these squares illuminated. By pressing any of the numeric keys within the range of 1-9, different combination of these squares may be obtained.

The final object being to light up all the squares except the centre one. Should you manage this task you are rewarded by a dizzying display of sight and sound, small consolation for shattered nerves.

```

10DIMKK0,WW2
20P.#12"WAIT"#21
30GOS.#;GOS.#;GOS.#
40!#300=#BF00BFBF;|#304=#000000BF;?#308=#00
50!#310=#00BFBFBF;|#314=#00000000;?#318=#00
60!#320=#00BFBF00;|#324=#0000BFBF;?#328=#00
70!#330=#BF0000BF;|#334=#00BF0000;?#338=#00
80!#340=#BF00BF00;|#344=#BF00BFBF;?#348=#00
90!#350=#00BF0000;|#354=#0000BF00;?#358=#BF
100!#360=#BF000000;|#364=#BFBF00BF;?#368=#00
110!#370=#00000000;|#374=#BFBF0000;?#378=#BF
120!#380=#00000000;|#384=#BF00BFBF;?#388=#BF;CLEAR0
130IFR.%2=0;?#80A7=FFF;IFR.%2=0;?#80AB=FFF;IFR.%2=0;?#80AF=FFF
140IFR.%2=0;?#8107=FFF;IFR.%2=0;?#810B=FFF;IFR.%2=0;?#810F=FFF
150IFR.%2=0;?#8167=FFF;IFR.%2=0;?#816B=FFF;IFR.%2=0;?#816F=FFF
160!#DE=#8025;P."magic"#128"square"
170MOVE10,9;DRAW10,35;MOVE27,9;DRAW27,35;MOVE10,18;DRAW35,18
180MOVE10,26;DRAW35,26

```

# MAGIC SQUARE

```

190 LINK #3300
195 RUN
200 END
210a P=#3300
220C:KK0 JSR#FFE3 \ GET KEY
230 CMPQ#31;BMI KK0
240 CMPQ#40;BPL KK0
250 ANDQ#0F

```





```

260 ROL A:ROL A
270 ROL A:ROL A
280 STA#80
290 SEC:SBC#10
300 TAX
310 LDY#9
320 LDA#80A7
\ COMPLIMENT
330 EOR#300,X
340 STA#80A7
350 INX
360 LDA#80AB
370 EOR#300,X
380 STA#80AB
390 INX
400 LDA#80AF
410 EOR#300,X
420 STA#80AF
430 INX
440 LDA#8107
450 EOR#300,X
460 STA#8107
470 INX
480 LDA#810B
490 EOR#300,X
500 STA#810B
510 INX
520 LDA#810F
530 EOR#300,X
540 STA#810F
550 INX
560 LDA#8167
570 EOR#300,X
580 STA#8167
590 INX
600 LDA#816B
610 EOR#300,X
620 STA#816B
630 INX
640 LDA#816F
650 EOR#300,X
660 STA#816F
670 BCS KK2
680 KK1 JMP KK0
690 KK2 LDY#AA
\ BLEEP
700 LDA#B002
710 KK3 LDX#80
720 KK4 DEX:BNE KK4
730 EOR#4
740 STA#B002
750 DEY
760 BNE KK3
770 LDA#80A7
\ WIN CHECK
780 CMP#FF
790 BNE KK1
800 LDA#80AB
810 CMP#FF
820 BNE KK1
830 LDA#80AF
840 CMP#FF
850 BNE KK1
860 LDA#8107
870 CMP#FF
880 BNE KK1
890 LDA#810B
900 CMP#40
910 BNE KK1
920 LDA#810F
930 CMP#FF
940 BNE KK1
950 LDA#8167
960 CMP#FF
970 BNE KK1
980 LDA#816B
990 CMP#FF
1000 BNE KK1
1010 LDA#816F
1020 CMP#FF
1030 BNE KK1
1050 LDA#8:STA#40
:BCSKK5
1051:WW0 LDX#90
\BLEEP
1052:WW1 TXA:TAY
1053 LDA#B002
1054 EOR#4
1055 STA#B002
1056:WW2 DEY:BNE WW2
1057 DEX:BNE WW1
1058 RTS
1060:KK5 LDA#80A7
\ DISPLAY WIN
1070 EOR#BF
1080 STA#80A7
1090 JSR WW0
1100 LDA#80AB
1110 EOR#BF
1120 STA#80AB
1130 JSR WW0
1140 LDA#80AF
1150 EOR#BF
1160 STA#80AF
1170 JSR WW0
1180 LDA#810F
1190 EOR#BF
1200 STA#810F
1210 JSR WW0
1220 LDA#816F
1230 EOR#BF
1240 STA#816F
1250 JSR WW0
1260 LDA#816B
1270 EOR#BF
1280 STA#816B
1290 JSR WW0
1300 LDA#8167
1310 EOR#BF
1320 STA#8167
1330 JSR WW0
1340 LDA#8107
1350 EOR#BF
1360 STA#8107
1370 JSR WW0
1380 DEC#40:BNE KK5
1390 RTS
1400]
1490 RETURN

```

# BREAK<sup>0</sup>UT!

Ever feel like you're just banging your head up against a brick wall? Do you want to break out? Well, here's your chance. Simply program in this little number and you'll be able to knock down walls as quick as your computer can build them. '8' moves it right.

BY DAVID HOUNSLOW

RUNS ON A SPECTRUM IN 16K

```

1 LET hs=0: LET ss="0000"
5 LET ss=0: PAPER 0: BORDER 0
INK 7: FLASH 0: BRIGHT 0: CLS
PRINT AT 10,2: FLASH 1: "Do you
want instructions?"
6 LET a$=INKEY$: IF a$="" THEN
N GO TO 6
8 IF a$="Y" OR a$="y" THEN GO
SUB 600
10 LET s=0: LET ballsleft=1: L
ET b=5: FOR x=0 TO 7: READ row:
POKE USR "P"+x,row: NEXT x
15 LET b$=CHR$ 16+CHR$ 4+" "
20 DATA BIN 00111100,BIN 01111
110,255,255,255,255,BIN 0111110
BIN 00111100
30 RESTORE
40 PAPER 0: INK 6: LET xmove=1
LET ymove=-1
50 BORDER 3
52 REM page 1

54 IF ss>=280 THEN CLS: LET b
allsleft=ballsleft-1: LET ss=0:
PRINT AT 10,10: FLASH 1: INK 6:
EXTRA BALL: BEEP .25,20: FOR p=
1 TO 100: NEXT p: IF ballsleft=0
THEN LET ballsleft=1
55 CLS
56 LET bn=0: IF hs<s THEN LET
hs=s
57 PRINT AT 2,0: PAPER 2: " "
PRINT AT 1,2: PAPER 0: INK 7: "SCO
RE: "
INK 7: s$( TO 4-LEN (STR$ (
s)))
s: INK 7: AT 1,14: "HIGH: "
s$
( TO 4-LEN (STR$ (hs)))
hs: INK
7: AT 1,31-7: "BALL: "
INK 6: balls
left
60 PRINT AT 3,0:
70 FOR y=4 TO 8: FOR x=2 TO 29
STEP 2: PRINT AT y,x: PAPER b+(
y/2=INT (y/2)): " "
LET b=b+1:
IF b=7 THEN LET b=5
80 NEXT x: NEXT y
88 FOR y=0 TO 21: PRINT AT y,0
PAPER 2: " "
AT y,30: " "
NEX
T y: PRINT AT 21,0: PAPER 2: " "
AT 0,0: " "

89 PRINT AT 18,0: " "
AT 18,30
" "
AT 17,0: " "
AT 17,30: " "
90 LET x=15
91 BEEP .5,10: FOR q=1 TO 2: B
EEP .125,11: BEEP .125,12: BEEP
.125,13: BEEP .5,10: NEXT q
95 LET by=20: LET bx=INT (RND*
20)+5: IF bx/2=INT (bx/2) THEN G
O TO 95
100 PRINT AT 18,x: b$
110 GO SUB 300
115 IF INKEY$="" THEN GO TO 100
117 PRINT AT 18,x:
120 LET x=x+2*(INKEY$="8")-2*(I

```

```

NKEY$="5"): IF X<0 THEN LET X=0
121 IF X>29 THEN LET X=29
130 GO TO 100
300 PRINT AT BY,BX;" "
310 LET BY=BY+YMOVE: LET BX=BX+
XMOVE
315 IF BY<=3 THEN LET YMOVE=1:
BEEP .01,25
320 IF BX>28 OR BX<3 THEN LET X
MOVE=-XMOVE: BEEP .01,25
325 IF BY>=20 THEN LET BALLSLEF
T=BALLSLEFT+1: BEEP .2,-30: BEEP
.5,-35: IF NOT BALLSLEFT=4 THEN
PRINT AT 1,29;BALLSLEFT: LET YM
OVE=-1: LET XMOVE=1: GO TO 95
326 IF BALLSLEFT=4 THEN GO TO 5
00
330 LET ATTR=ATTR (BY,BX)
335 IF ATTR=6 THEN GO TO 410
336 IF ATTR=4 AND YMOVE=-1 THEN
GO TO 410
340 IF (X<=BX<=X+3 OR ATTR=4) A
ND BY=18 AND YMOVE=1 THEN LET YM
OVE=-1: BEEP .01,30: GO TO 310
350 IF ATTR=46 OR ATTR=54 OR A
T=55 THEN LET YMOVE=1: PRINT AT
BY,BX;" " IF BX+1<=29 THEN IF
ATTR (BY,BX+1)=ATTR THEN PRINT A
T BY,BX+1;" " GO TO 370
360 IF BX+1>=3 THEN IF ATTR (BY
BX-1)=ATTR THEN PRINT AT BY,BX-
1;" "
370 LET BN=BN+1: LET SS=SS+1: L
ET S=S+5: PRINT AT 1,8;S$( TO 4-
LEN (STR$ (S))) : S: BEEP .01,35:
IF BN=70 THEN GO TO 40

```

```

375 IF S>=9995 THEN LET S=0
380 IF S>HS THEN LET HS=S: PRIN
T AT 1,19;S$( TO 4-LEN (STR$ (HS
))) : HS
381 GO TO 400
410 PRINT AT BY,BX: INK 6;"O"
420 RETURN
500 PRINT AT 10,12: FLASH 1: IN
K 6:"GAMEOVER": FOR X=1 TO 300:
NEXT X: CLS : IF S>HS THEN LET H
S=S
501 GO TO 5
600 PAPER 7: INK 0: CLS
610 PRINT
KOUT": FOR B=1 TO 8: PRINT CHR$
8: NEXT B: PRINT OVER 1: INK 2
BRIGHT 1: " This is a game f
620 PRINT " or 1 player. The object is to kn
ock as many bricks out of the m
ulticoloured wall as you can; YO
u do this by stopping the ball f
rom going off the bottom of the s
creen by hitting it with you
r bat. You have 3 balls in whi
ch to score as many points as y
ou can. Key 5 Moves your
bat left. Key 8 Moves your
bat right. INK 2;TAB 4: BR
IGHT 1: (PRESS ANY KEY TO START)
630 PAUSE 0: LET A$=INKEY$: IF
A$="" THEN GO TO 630
640 RETURN

```

# AIR ATTACK

BY IAN STRINGER

RUNS ON AN ATARI 400 IN 16K

You are in command of a giant battleship armed with all the latest weapons. And you are under attack.

Jet fighters, helicopters and armoured balloons are out to do your ship damage.

Your task is to use your supply of missiles - 20 in all - to the best advantage. Shoot down as many of the enemy as possible with the limited supply of weaponry. When your armament is used up the computer shows the high score.

```

1 REM . *** AIR ATTACK ***
2 REM . By Ian Stringer
3 REM . 1982
4 REM
5 DIM Y(4):Y(0)=91:Y(1)=20:Y(2)=30:Y(3)=
40:Y(4)=88:REM Controls vertical positio
n of 4 players
6 X1=100:X2=150:X3=55:X0=100:Q1=-3:Q2=4:
Q3=-2:Q0=2:REM X controls horz. position
of players. Q controls speed
7 B=75:B1=B:XA=60
10 PMBASE=54279:RAMTOP=106:SDMCTL=559:GR
ACTL=53277:HPOSP0=53248:HPOSP1=53249:HPO
SP2=53250:HPOSP3=53251
20 PCOLR0=704:PCOLR1=705:PCOLR2=706:PCOL
R3=707
30 SIZEP0=53256:SIZEP2=53258:REM Used to
alter width of players 0 & 2
50 P1PF=53253:P2PF=53254:P3PF=53255:REM
Used to detect collisions between playfi
eld(missile) & players
90 POKE SIZEP0,1:POKE SIZEP2,1:REM Playe
rs 0 & 2 set to double width
99 REM
100 GRAPHICS 7
110 A=PEEK(RAMTOP)-24:POKE PMBASE,A:MYPM
BASE=256*A:POKE SDMCTL,46:POKE GRCTL,3
120 POKE HPOSP0,X0:POKE HPOSP1,X1:POKE H
POSP2,X2:POKE HPOSP3,X3
125 REM
130 FOR I=MYPMBASE+384 TO MYPMBASE+1024:
POKE I,0:NEXT I:REM Clears P-M RAM

```

```

140 FOR I=MYPMBASE+512+Y(0) TO MYPMBASE+
516+Y(0):READ A:POKE I,A:NEXT I
150 FOR I=MYPMBASE+640+Y(1) TO MYPMBASE+
644+Y(1):READ A:POKE I,A:NEXT I
160 FOR I=MYPMBASE+768+Y(2) TO MYPMBASE+
773+Y(2):READ A:POKE I,A:NEXT I
170 FOR I=MYPMBASE+896+Y(3) TO MYPMBASE+
905+Y(3):READ A:POKE I,A:NEXT I
180 REM Lines 140-170 read player data i
nto P-M RAM
190 POKE PCOLR0,88:POKE PCOLR1,26:POKE P
COLR2,138:POKE PCOLR3,186
191 POKE 752,1:SH=20:REM 752,1 removes c
ursor
192 GOSUB 1600
196 GOSUB 1500
199 REM
200 GOSUB 1000:REM MOVE TARGET
210 IF STRIG(0)=0 THEN ST=1
220 IF ST=1 THEN GOSUB 1200:REM BULLET
230 GOSUB 1100:REM MOVE SHIP
240 GOSUB 1300:REM CHECK HITS
250 IF SH=0 THEN GOSUB 1410
300 GOTO 200
1000 X1=X1+Q1:POKE HPOSP1,X1:IF X1<35 TH
EN X1=220
1010 X2=X2+Q2:POKE HPOSP2,X2:IF X2>220 T
HEN X2=35
1020 X3=X3+Q3:POKE HPOSP3,X3:IF X3>215 O
R X3<35 THEN Q3=-Q3
1090 RETURN
1100 F=230:IF STICK(0)=11 THEN X0=X0-Q0:

```



```

F=170
1110 IF STICK(0)=7 THEN X0=X0+Q0:F=180
1115 IF X0>199 THEN X0=199
1116 IF X0<40 THEN X0=40
1120 POKE HPOSP0,X0:SOUND 3,F,6,10
1130 RETURN
1200 COLOR 0:PLOT XA,B
1210 B=B-2:COLOR 1:PLOT X0-40,B:XA=X0-40
1220 SOUND 0,B,10,14
1250 IF B<2 THEN COLOR 0:PLOT XA,B:B=75:
ST=0:SH=SH-1
1290 RETURN
1300 IF PEEK(P1PF)<>0 THEN HIT=1:GOTO 13
40
1310 IF PEEK(P2PF)<>0 THEN HIT=2:GOTO 13
40
1320 IF PEEK(P3PF)<>0 THEN HIT=3:GOTO 13
40
1340 IF HIT=0 THEN 1390
1345 FOR S=20 TO -20 STEP -1:SOUND 0,ABS
(S),8,12:NEXT S
1350 IF HIT=1 THEN SC=SC+30:X1=30
1355 IF HIT=2 THEN SC=SC+15:X2=225
1360 IF HIT=3 THEN SC=SC+5:X3=43:Q=1
1385 COLOR 0:PLOT XA,B
1389 SOUND 0,0,0,0:ST=0:B=75:HIT=0:POKE
53278,1:SH=SH-1
1390 POKE 656,1:POKE 657,9:? SC
1395 POKE 656,1:POKE 657,30:? SH;" "
1400 RETURN
1410 OPEN #1,4,0,"K":SOUND 3,0,0,0
1415 ? ">"
1420 POKE 656,1:POKE 657,2:? " YOU SCOR
ED ";SC;" IN 20 SHOTS. PL

AY AGAIN (Y/N)";:GET #1,K
1425 IF K=255 THEN 1420
1430 IF K<>89 THEN END
1435 IF SC>HSC THEN HSC=SC
1440 SC=0:SH=20
1480 ? ">"
1486 GOSUB 1500
1488 POKE 656,2:POKE 657,14:? HSC
1489 CLOSE #1
1490 RETURN
1500 POKE 656,1:POKE 657,3:? "SCORE"
1510 POKE 656,1:POKE 657,24:? "SHOTS"
1520 POKE 656,2:POKE 657,3:? "HIGH SCORE
"
1550 RETURN
1600 XX=0:POKE 656,0:POKE 657,10:? "****
AIR ATTACK ***":SOUND 0,255,10,8:SOUND 1
,254,10,8
1619 XX=XX+1:IF XX>10 THEN 1630
1620 POKE 656,2:POKE 657,13:? "Press STA
RT"
1630 IF PEEK(53279)=6 THEN 1690
1640 GOSUB 1000
1649 IF XX<10 THEN 1680
1650 POKE 656,2:POKE 657,19:? "
"
1651 IF XX>20 THEN XX=0
1680 GOTO 1619
1690 SOUND 0,0,0,0:SOUND 1,0,0,0:? ">":R
ETURN
2999 REM
3000 DATA 8,8,30,63,255,253,51,94,120,12
0,128,192,254,255,12,56,60,126,255,255,2
55,189,66,36,60,60

```

# WORLD CUP

BY G. R. JOHNSON

RUNS ON A BBC MODEL B IN 32K

Remember the World Cup? Those heady summer days when England still had it all to play for and everyone was saying that this time the lads could pull it off . . .

Well they didn't quite make it did they? And now there's another four years to wait until the next one. Still, you can fill in the time by programming in our version of the World Cup conflict.

By special request we're reprinting one of C&VG's most popular program listings — first published in June last year. But this time we've adapted it so all you BBC owners out there can become soccer supremos.

World Cup Manager sets out to give you all the frustrations of sitting on the bench when the national side you manage go a goal down 20 minutes from time in a crucial match.

Hopefully, with some careful attention to tactics and good substitutions in critical games, it should give you all the elation of guiding your coun-

try's team through to the championships of the World Cup Finals.

It will let you manage any of the 24 countries involved in the 1982 World Cup but expect to have a more difficult time if you pick El Salvador than if you choose Brazil.

It invites you to enter your team and then publishes the draw for the competition with initially six groups of four. Set out the countries you think will be stumbling blocks to your continuation in the competition and send off your scouts to watch them.

Remember you can get through by finishing second in your group so it may not be necessary to watch all three teams in your group. The first game comes up and a dossier on the opposition is printed out. Pay careful attention because you will have to find good tactical answers to the opposition's ploys.

There are other considerations too, choose your formation carefully and if you need to boost your goal differ-

ence to quality, try to manufacture an open game.

Then it's out of your hands and the two teams are up against one another with a running commentary of events. Keep a close check on which of your players seem to lose possession and play badly, these are the one's you will want to substitute.

Also watch for which team is gaining the most possession in midfield — you may need to change tactics.

Check on how the goals are scored — it could be important to tighten up your defence to certain situations or to find out which of your own attacking ploys is paying dividends.

Half-time comes around and this is your chance to change your tactics if you have noticed things going wrong.

At the end of the day, win, lose or draw, you will have to sit back and watch the other results of the day being typed out and see if your predictions are coming true.

```

10 *TV 255.1
20 MODE 7
30 DIM K$(12)
40 J$=STRING$(150,"?"):J$=""
50 E1=0:E2=0:X3=0:X5=0
60 DIM D(4),W(4),D9(4),F9(4),A9(4),H$(4,3),D8(4),T9(4),P9(4),R$(24),S8(4),N1
(2),G$(24),O$(6,4),A$(3,3),B$(3,3),C$(3,3),D$(3,3),T4$(20),A$(24),F$(24),I$(3,3)
,J$(3,3),M$(24,21),N$(24),T$(24),U$(24),V$(24),W$(24),X$(24),Y$(24)
70 DIM Z$(24),Z9$(12),A1$(9),A2$(9),E$(11):V=0:B4=0
80 DEF FNA(X)=INT(RND(1)*X)+1
90 DATA BRAZIL,ARGENTINA,W.GERMANY,YUGOSLAVIA,HUNGARY,BELGIUM,ITALY,POLAND,F
RANCE,CZECHOSLOVAKIA,SPAIN,ENGLAND,SCOTLAND,N.IRELAND,PERU,AUSTRIA,CHILE,EL SALV
ADOR,HONDURAS,ALGERIA,N.ZEALAND,CAMEROON,KUWAIT,RUSSIA
100 DATA 1,1,0,1,2,1,1,0,0,0,0,1,1,2,1,0,2,2
110 DATA " HITS THE BALL TOO FAR AHEAD OF ","'S PASS IS MISCONTROLLED BY ","
LOSES THE BALL IN A MISUNDERSTANDING WITH "," HITS A LONG BALL TO "," PASSES WID
E TO "," CROSSES TO "," PLAYS A HIGH BALL TO "," COLLECTS A PASS FROM "
120 DATA " PLAYS A ONE-TWO WITH "," IS SENT AWAY BY "," WINS A FREE KICK FROM
"," MOVES INSIDE "," SWERVES PAST "," DUMMIES "," RUNS ROUND "," RACES PAST ","
SHRUGS OFF A CHALLENGE FROM "," IS TACKLED BY ","'S PASS IS CUT OUT BY "
130 DATA "'S CROSS IS HEADED AWAY BY ",5,15,30,30,5,15,15,30,5,5,30,15,15,5,3
0,30,15,5,5,30,15,15,5,30,30,15,5,"'S CHIP FOR GOAL IS HEADED AWAY BY"," LOSES T
HE BALL TO"," IS TACKLED BY","'S VOLLEY IS PUNCHED CLEAR BY"
140 DATA "'S FIERCE DRIVE IS WELL SAVED BY"," BLASTS THE BALL WIDE "," ROUNDS
THE KEEPER AND MISKICKS "," BEATS TWO DEFENDERS AND SHOOTS WIDE "," STUMBLES AN
D LOSES THE BALL ","'S CHIP FOR GOAL FINDS THE BACK OF THE NET"
150 DATA " BLASTS THE BALL HOME"," VOLLEYS INTO THE ROOF OF THE NET"," TAPS T
HE BALL IN FROM 5 YARDS"," HITS A LOW SHOT INTO THE NET","'S SHOT BOUNCES UNDER
THE KEEPER","'S SOFT SHOT IS DROPPED BY THE KEEPER"," LETS FLY WITH A LONG SHOT"
160 DATA " STEPS INSIDE THE FULLBACK, ROUNDS THE KEEPER AND SLOTS HOME"
170 PROC SORT:CLS:PRINT"CHOOSE YOUR TEAM-ENTER A NO. FROM LIST"
180 X=1:PROC CHOOSE:PROCTEAM
190 CLS:PRINT"NOW KEY IN THE NAMES OF YOUR PLAYERS":PRINT CHR$(136);"--MAXIMU
M OF 15 LETTERS--"

```

```

200 FOR I=1 TO 12
210 IF I=1 THEN PRINT"GOALKEEPER "
220 IF I>1 AND I<6 THEN PRINT"DEFENDER "+STR$(I-1)
230 IF I>5 AND I<9 THEN PRINT"MIDFIELD "+STR$(I-5)
240 IF I>8 AND I<12 THEN PRINT"STRIKER "+STR$(I-8)
250 IF I=12 THEN PRINT"SUBSTITUTE "
260 INPUT K$(I)
270 IF LEN(K$(I))>15 THEN PRINT"NAME IS TOO LONG.RE-ENTER.":GOTO 260
280 NEXT I
290 CLS:PRINT "YOU ARE MANAGER OF ";CHR$(136);A$(T)
300 PRINT "YOUR AIM IS TO WIN THE 1982 WORLD CUP"
310 PROC WAIT
320 FOR I=1 TO 6
330 S=0
340 Y=FNA(24)
350 IF G$(Y)(<>) THEN GOTO 340
360 S=S+1
370 G$(Y)=I:D$(I,S)=Y
380 IF S=4 THEN GOTO 400
390 GOTO 340
400 NEXT I
410 CLS:PRINT"THE DRAW IS:--"
420 FOR I=1 TO 3
430 PRINT:PRINT "GP. "STR$(I);TAB(20);"GP. ";STR$(I+3):PRINT
440 FOR J=1 TO 4
450 PRINTA$(D$(I,J));TAB(20);A$(D$(I+3,J))
460 NEXT J:NEXT I
470 PRINT

```

```

480 PROC CONTINUE:PROC SCOUT:PROC FIXTURE:PROC SECSTAGE:PROC CONTINUE:PROC SEC FIXT:
PROC SEMI:PROC SEMIPLAY:PROC FINAL
490 PROC CONTINUE
500 IF E2>E1 THEN B2=X2:B3=X1
510 IF E1>E2 THEN B2=X1:B3=X2
520 CLS:PRINTTAB(0,6)"CONGRATULATIONS TO:--":PRINTTAB(10,10);CHR$(136);A$(B2)

```



```

530 PRINTTAB(0,15);"1982 WORLD CUP WINNERS"
540 PRINTTAB(0,21)"DO YOU WISH TO PLAY AGAIN?"
550 INPUT "TYPE 'Y' OR 'N' " S$
560 IF ASC(S$)=89 THEN CLS:RUN
570 IF ASC(S$)=78 THEN CLS
580 IF ASC(S$)(>89 AND ASC(S$)(<78 THEN GOTO 550

```

```

590 END
600 DEFPROC SORT
610 FOR I=1 TO 24
620 F%(I)=INT(RND(1)*3)+1
630 READ A$(I)
640 X%(I)=FNA(3)
650 Y%(I)=FNA(3)
660 Z%(I)=FNA(3)
670 T%(I)=FNA(3)
680 U%(I)=FNA(3)
690 V%(I)=FNA(3)
700 W%(I)=FNA(3)
710 NEXT I
720 FOR I=1 TO 3
730 FOR J=1 TO 3
740 D%(I,J)=10
750 READ I%(I,J):READ J%(I,J)
760 NEXT J:NEXT I
770 FOR I=1 TO 20
780 READ T4$(I)
790 NEXT I
800 FOR I=1 TO 3
810 FOR J=1 TO 3
820 READ A%(I,J)
830 READ B%(I,J)
840 READ C%(I,J)
850 NEXT J:NEXT I
860 FOR I=1 TO 3
870 R%(I)=INT(RND(1)*10)+21
880 NEXT I
890 FOR I=4 TO 11
900 R%(I)=INT(RND(1)*10)+16
910 NEXT I
920 FOR I=12 TO 14

```

```

930 R%(I)=20
940 NEXT I
950 FOR I=15 TO 17
960 R%(I)=INT(RND(1)*5)+16
970 NEXT I
980 FOR I=18 TO 23
990 R%(I)=INT(RND(1)*5)+11
1000 NEXT I
1010 R%(24)=INT(RND(1)*22)+11
1020 D%(1,1)=5
1030 D%(3,3)=15
1040 FOR I=1 TO 12
1050 Z9$(I)=" NO. "+STR$(I)
1060 NEXT I
1070 Z9$(1)="THEIR GOALKEEPER "
1080 FOR I=1 TO 9
1090 READ A1$(I)
1100 NEXT I
1110 FOR I=1 TO 9
1120 READ A2$(I)
1130 NEXT I
1140 ENDPROC
1150 DEF PROC CHOOSE
1160 FOR I=1 TO 12
1170 IF X=1 THEN GOTO 1240
1180 IF (T-I)*(T-12-I)(>0 THEN GOTO 1240
1190 IF T=I+12 THEN GOTO 1220
1200 PRINTTAB(20);STR$(I+12);". ";A$(I+12)
1210 GOTO 1250
1220 PRINTSTR$(I);". ";A$(I)
1230 GOTO 1250
1240 PRINT STR$(I);". ";A$(I);TAB(20);STR$

```

```

(I+12);". ";A$(I+12)
1250 NEXT I
1260 PRINT:PRINT
1270 ENDPROC
1280 DEF PROC TEAM
1290 INPUT "WHICH TEAM?" T$
1300 T=VAL(T$)
1310 IF T<1 THEN GOTO 1340
1320 IF T>24 THEN GOTO 1340
1330 GOTO 1360
1340 PRINT "ENTER A NO. BETWEEN 1 & 24"
1350 GOTO 1290
1360 ENDPROC
1370 DEF PROC WAIT
1380 TIME=0:REPEAT:UNTIL TIME=400
1390 ENDPROC
1400 DEF PROC CONTINUE
1410 PRINT "PRESS ANY KEY TO CONTINUE"
1420 Z$=GET$
1430 IF Z$="" THEN 1420
1440 ENDPROC
1450 DEF PROC SCOUT
1460 CLS
1470 PRINT "SCOUTS CAN COMPILE DOSSIERS ON 4 TEAMS"
1480 PRINT "ENTER 4 NOS. FROM THE FOLLOWING:"
1490 PRINT "SEPARATED BY COMMAS":PRINT "===== == =====":PRINT
1500 X=2
1510 PROC CHOOSE
1520 INPUT S1,S2,S3,S4
1530 IF (S1-T)*(S2-T)*(S3-T)*(S4-T)=0 THEN GOTO 1570
1540 IF (S1-S2)*(S1-S3)*(S1-S4)*(S2-S3)*(S2-S4)*(S3-S4)=0 THEN 1570
1550 IF S1<1 OR S1>24 OR S2<1 OR S2>24 OR S3<1 OR S3>24 OR S4<1 OR S4>24 THEN

```



```

1930 IF W6=4 THEN PROCX
1940 IF W6=4 THEN GOTO 1960
1950 K1=1:K2=3:J1=4
1960 FOR I=1TO6
1970 PROCPOS
1980 PROCPOSPRINT
1990 NEXT I
2000 ENDPROC
2010 DEF PROCPOS
2020 FOR J=1TOJ1
2030 Q(J)=0:F9(J)=0:A9(J)=0:P9(J)=0:W(J)=0:DB
(J)=0:D9(J)=0
2040 NEXT J
2050 FOR J=1TOJ1
2060 T9(J)=0%(I,J)
2070 FOR K = K1 TO K2
2080 IF MX(T9(J),K)=0 THEN GOTO 2190
2090 F9(J)=MX(T9(J),K+7)+F9(J)
2100 A9(J)=MX(T9(J),K+14)+A9(J)
2110 Z7=MX(T9(J),K+7)
2120 Z6=MX(T9(J),K+14)
2130 D8(J)=Z7-Z6+D8(J)
2140 Q(J)=Q(J)+1
2150 IF Z7=Z6 THEN D9(J)=D9(J)+1
2160 IF Z6<Z7 THEN W(J)=W(J)+1
2170 IF Z6<Z7 THEN P9(J)=P9(J)+2
2180 IF Z6=Z7 THEN P9(J)=P9(J)+1
2190 NEXT K
2200 NEXT J
2210 F2=0
2220 FOR J=1TOJ1-1
2230 IF P9(J)<P9(J+1) THEN PROCXSWAP
2240 IF P9(J)=P9(J+1) THEN PROCXGOALDIFF
2250 NEXT J
2260 IF F2=1 THEN GOTO 2210
2270 ENDPROC
2280 DEF PROCXGOALDIFF
2290 IF D8(J)<D8(J+1) THEN PROCXSWAP
2300 IF D8(J)=D8(J+1) THEN ENDPROC
2310 IF F9(J)<F9(J+1) THEN PROCXSWAP
2320 IF F9(J)=F9(J+1) THEN ENDPROC
2330 IF FNA(2)=1 THEN PROCXSWAP
2340 ENDPROC
2350 DEF PROCXSWAP
2360 F3=T9(J):T9(J)=T9(J+1):T9(J+1)=F3
2370 F3=F9(J):F9(J)=F9(J+1):F9(J+1)=F3
2380 F3=A9(J):A9(J)=A9(J+1):A9(J+1)=F3
2390 F3=D8(J):D8(J)=D8(J+1):D8(J+1)=F3
2400 F3=D9(J):D9(J)=D9(J+1):D9(J+1)=F3
2410 F3=P9(J):P9(J)=P9(J+1):P9(J+1)=F3
2420 F3=W(J):W(J)=W(J+1):W(J+1)=F3
2430 F3=Q(J):Q(J)=Q(J+1):Q(J+1)=F3
2440 F2=1
2450 ENDPROC
2460 DEF PROCXPOSPRINT
2470 PRINT
2480 F$="F ":A4$="A "
2490 IF W6=6 THEN B$=CHR$(I+48)
2500 IF W6=4 THEN B$=CHR$(I+64)
2510 PRINT"GP. ";B$;" LEAGUE TABLE"
2520 FOR J=1TOJ1
2530 IF F9(J)>9 THEN F$=" F "
2540 IF A9(J)>9 THEN A4$=" A "
2550 NEXT J
2560 PRINTTAB(20);" P W D L ";F$;A4$;"Pts. "
2570 FOR J=1TOJ1
2580 P4$=" ":P5$=" "
2590 L9=Q(J)-W(J)-D9(J)
2600 IF F$=" F " THEN GOTO 2770
2610 IF A4$=" A " THEN GOTO 2790
2620 Y1$=STR$(J)+". "+A$(T9(J))
2630 PRINTY1$;TAB(21);Q(J);" ";W(J);" ";D9(J);" "
;L9;P4$;F9(J);P5$;A9(J);" ";

```



```

GOTO 1570
1560 ENDPROC
1570 PRINT"RE-ENTER 4 NOS.
FROM ABOVE LIST"
1580 GOTO1520
1590 ENDPROC
1600 DEF PROCXFIXTURE
1610 W6=6
1620 D1=12
1630 H2=1:A2=2:PROCRESULT
1640 H2=3:A2=4:PROCRESULT
1650 H2=1:A2=3:PROCRESULT
1660 H2=2:A2=4:PROCRESULT
1670 H2=1:A2=4:PROCRESULT
1680 H2=2:A2=3:PROCRESULT
1690 ENDPROC
1700 DEF PROCRESULT
1710 D1=D1+1
1720 PROCPLAYCHECK
1730 CLS
1740 PRINT"RESULTS FOR ";D1;" JUNE '82"
1750 PRINT
1760 FOR I=1TO6
1770 H=0%(I,H2):A=0%(I,A2)
1780 IF H=T THEN B=P2:C=P3:GOTO 1810
1790 IF T=A THEN B=P3:C=P2:GOTO 1810
1800 GOSUB 2820
1810 PRINT"GP. ";I;" ";A$(H);" ";B;
" ";A$(A);" ";C

```

```

1820 NEXT I
1830 IF D1=18 THEN PROCXCONTINUE:PROCTABLE
1840 PRINT
1850 IF D1=18 THEN ENDPROC
1860 PRINT"PRESS 'L' FOR LEAGUE TABLES"
1870 PRINT" ANY OTHER KEY TO CONTINUE"
1880 Z$=GET$
1890 IF Z$="" THEN GOTO 1880
1900 IF Z$="L" THEN PROCTABLE
1910 ENDPROC
1920 DEF PROCTABLE

```

```

2640 IF W6+J-5=0 THEN PROCXSEMITTEAM
2650 IF W6=4 THEN 2670
2660 IF J<3 THEN PROCY
2670 NEXT J
2680 IF W6=6 THEN 2710
2690 IF I<4 THEN 2760
2700 GOTO 2730

```



```

3320 IF J=2 THEN HX(3,2)=T9(J)
3330 GOTO 3240
3340 IF J=1 THEN HX(3,3)=T9(J)
3350 IF J=2 THEN HX(1,3)=T9(J)
3360 GOTO 3240
3370 IF J=1 THEN HX(4,2)=T9(J)
3380 IF J=2 THEN HX(2,2)=T9(J)
3390 GOTO 3240
3400 IF J=1 THEN HX(2,3)=T9(J)
3410 IF J=2 THEN HX(4,3)=T9(J)
3420 GOTO 3240
3430 DEF PROCCOPPVAL
3440 IF OX(I,H2) < T THEN Z=OX(I,H2)
3450 IF OX(I,H2)=T THEN Z=OX(I,A2)
3460 PROCGAMEPLAY
3470 ENDPROC
3480 DEF PROCGAMEPLAY
3490 CLS:PRINTA$(T); " V. "; A$(Z):PRINT
3500 B=0:C=0:B4=0:B5=0:B6=0
3510 PROCSCOUTREP:PROCTACTSEL:
PROCCOPTTEAM
3520 Z3=0:Z4=0:W1=0
3530 K4=D*(ZX(T),ZX(Z))+30:
W3=RX(T):W4=RX(Z)
3540 W3=W3+2*I*(FX(T),
FX(Z)):W4=W4+2*I*(FX(Z),FX(T))
3550 FOR I=1TO11:EX(I)=0:NEXT I
3560 U1=0
3570 CLS:PRINT"THE REF BLOWS HIS
WHISTLE TO START GAME"
3580 FOR I=1TOK4
3590 Z1=T
3600 IF FNA(W3+W4)>RX(T) THEN Z1=Z
3610 IF Z1=T THEN Z8=Z
3620 IF Z1=Z THEN Z8=T
3630 PROCDETPOSS
3640 Z8$=" HAVE "
3650 PROCPOSSREG
3660 PRINTA$(Z1);Z8$;"POSSESSION":PRINT
3670 IF Z1=T THEN PROCPLAYRAN
3680 IF Z1=Z THEN PROCANPLAY
3690 J#=Z5$+T4$(G1)+Z6$:PROCMOVEPRI
3700 PRINT:PROCWAIT
3710 Z4=Z2:Z3=Z1
3720 IF Z2=1 THEN U1=U1+1:EX(A3)=EX(A3)+1
3730 IF Z2=2 THEN PROCSCORCHAN
3740 IF I=22 THEN PROCHALTIM
3750 NEXT I
3760 H=T:A=Z
3770 PRINT"NOTHING ELSE OF SIGNIFICANCE
HAPPENS DURING THE GAME"
3780 PRINT:PRINT"FINAL SCORE"
3790 PRINTA$(T); " ";B;" ";A$(Z); " ";C
3800 P2=B:P3=C:PROCCONTINUE
3810 IF X3=0 THEN GOSUB 2990:ENDPROC
3820 IF B=C THEN 3850
3830 IF V=0 THEN ENDPROC
3840 GOSUB 2990:ENDPROC
3850 IF X5=1 THEN 3900
3860 Z3=0:Z4=0:K4=15
3870 X5=1
3880 CLS:PRINT"EXTRA TIME BEING PLAYED"
3890 GOTO 3580
3900 X5=0
3910 CLS:PRINT"PENALTIES WILL DECIDE THE RESULT"
3920 J$=" SHOOT'S WIDE"
3930 IF RND(1)>.5 THEN B=B+1:J$=" SCORES FROM THE SPOT"
3940 J#=K$(1+FNA(10))+J$:PROCMOVEPRI
3950 J$=" SHOOT'S WIDE"
3960 IF RND(1)>.5 THEN C=C+1:J$=" SCORES FROM THE SPOT"
3970 J#=Z9$(1+FNA(10))+J$:PROCMOVEPRI
3980 IF B=C THEN 3920
3990 PRINT"FINAL SCORE ";PRINTA$(T); " ";B;" ";A$(Z); " ";C

```

```

2710 IF I<3 THEN 2760
2720 IF (I-4)*(I-5)=0 THEN 2760
2730 PRINT"PRESS ANY KEY TO CONTINUE"
2740 Z$=GET$
2750 IF Z$="" THEN GOTO 2740
2760 ENDPROC
2770 IF F9(J)<10 THEN P4$=" "
2780 GOTO 2610
2790 IF A9(J)<10 THEN P5$=" "
2800 GOTO 2620
2810 ENDPROC
2820 B=0:C=0
2830 IF FNA(100)<60 THEN GOTO 2850
2840 B=I*(FX(H),FX(A)):C=J*(FX(H),FX(A))
2850 B1=FNA(8):C1=FNA(8)
2860 B1=B1+RX(H):C1=C1+RX(A)
2870 D=INT((ABS(B1-C1))/5)
2880 IF D<0 THEN 2950
2890 B=B+FNA(2)-1
2900 C=C+FNA(2)-1
2910 IF FNA(2)=2 THEN GOTO 2990
2920 IF RX(H)>RX(A) THEN B=B+FNA(2)-1
2930 IF RX(A)>RX(H) THEN C=C+FNA(2)-1
2940 GOTO 2990
2950 IF B1>C1 THEN B=B+D
2960 IF C1>B1 THEN C=C+D
2970 IF FNA(500)>498 THEN B=B+FNA(3)
2980 IF FNA(500)>498 THEN C=C+FNA(3)
2990 NX(H)=NX(H)+1:NX(A)=NX(A)+1
3000 MX(H,NX(H))=A
3010 MX(A,NX(A))=H
3020 MX(H,NX(H)+7)=B
3030 MX(A,NX(A)+7)=C
3040 MX(H,NX(H)+14)=C
3050 MX(A,NX(A)+14)=B
3060 RETURN
3070 DEF PROCPLAYCHECK
3080 FOR I=1TOW6
3090 IF (OX(I,H2)-T)*(OX(I,A2)-T)=0
THEN PROCCOPPVAL
3100 NEXT I
3110 ENDPROC
3120 DEF PROCX
3130 K1=4:K2=5:J1=3
3140 FOR I=1TO4
3150 FOR J=1TO3
3160 OX(I,J)=HX(I,J)
3170 NEXT J:NEXT I
3180 ENDPROC
3190 DEF PROCSEMITEAM
3200 S8(I)=T9(J)
3210 ENDPROC
3220 DEF PROCY
3230 ON I GOTO 3250,3280,3310,3340,
3370,3400
3240 ENDPROC
3250 IF J=1 THEN HX(1,1)=T9(J)
3260 IF J=2 THEN HX(3,1)=T9(J)
3270 GOTO 3240
3280 IF J=1 THEN HX(2,1)=T9(J)
3290 IF J=2 THEN HX(4,1)=T9(J)
3300 GOTO 3240
3310 IF J=1 THEN HX(1,2)=T9(J)

```



```

4000 P2=B:P3=C
4010 ENDPROC
4020 DEF PROCSCOUTREP
4030 D4=0
4040 IF (Z-S1)*(Z-S2)*
(Z-S3)*(Z-S4)=0 THEN D4=1
4050 IF D4=1
THEN J$="YOUR SCOUTS
REPORT ON "+A$(Z):PROCMOVEPRI
4060 E=Z
4070 IF D4=1 THEN PROCCONTINUE
4080 PROCREP:ENDPROC
4090 DEF PROCTACTSEL
4100 CLS:PRINT"WHAT FORMATION
SHALL WE PLAY BOSS?"

```

```

4420 PROCFREEDEF
4430 PRINTF1;" ";C$
4440 NEXT F1
4450 PROCZ:U$(T)=E9:PRINT
4460 PRINT"WHAT SHALL WE DO WITH
OUR CORNERS?"
4470 FOR F1=1TO3
4480 PROCCORNTACT
4490 PRINTF1;" ";C$
4500 NEXT F1
4510 PROCZ:V$(T)=E9:PRINT
4520 PRINT"WHAT ABOUT THEIR CORNERS?"
4530 FOR F1=1TO3
4540 PROCCORNDEF
4550 PRINTF1;" ";C$
4560 NEXT F1
4570 PROCZ:W$(T)=E9
4580 ENDPROC
4590 DEF PROCOPPTTEAM
4600 CLS:PRINT"DO YOU WISH TO TYPE
IN THE OPPOSITION PLAYERS' NAMES?"
4610 INPUT"TYPE Y OR N "D3$
4620 IF ASC(LEFT$(D3$,1))=78 THEN
PROCDPNAME:ENDPROC
4630 IF ASC(LEFT$(D3$,1))(>89 THEN 4610
4640 FOR I=1TO12
4650 PRINT"ENTER NAME OF PLAYER ";I:
IF I=1 THEN
PRINT CHR$(136);"--MAXIMUM OF 5 LETTERS--"
4660 INPUT Z9$(I)
4670 IF LEN(Z9$(I))>15 THEN PRINT"NAME
IS TOO LONG. RE-ENTER.":GOTO 4660

```

```

5030 NEXT J
5040 GOTO 4980
5050 ENDPROC
5060 DEF PROCSCORCHAN
5070 Z4=1:G3=FNA(7)
5080 IF G1<8 THEN Z1$=Z6$
5090 IF G1>7 THEN Z1$=Z5$
5100 ON G3 GOSUB 5120,5120,5120,5120,5160,5160,5250
5110 ENDPROC
5120 G3=FNA(100)
5130 IF C$(Y$(Z3),X$(Z8))>100-G3+B4 THEN PROCgoal:RETURN
5140 PROCA

```

```

4110 FOR F1=1TO3
4120 PROCFORM
4130 PRINTF1;" ";C$
4140 NEXT F1
4150 PROCZ:F$(T)=E9:PRINT
4160 PRINT"WHAT ARE THE DEFENCE PLANS BOSS?"
4170 FOR F1=1TO3
4180 PROCDEFTACT
4190 PRINTF1;" ";C$
4200 NEXT F1
4210 PROCZ:X$(T)=E9:PRINT
4220 PRINT"WHAT ATTACK PLANS GUV?"
4230 FOR F1=1TO3
4240 PROCATTACT
4250 PRINTF1;" ";C$
4260 NEXT F1
4270 PROCZ:Y$(T)=E9:PRINT
4280 PRINT"WHAT ABOUT MIDFIELD BOSS?"
4290 FOR F1=1TO3
4300 PROCMIDTACT
4310 PRINTF1;" ";C$
4320 NEXT F1
4330 PROCZ:Z$(T)=E9:PRINT
4340 PRINT"WHAT IF WE GET A FREEKICK UPFIELD BOSS?"
4350 FOR F1=1TO3
4360 PROCFREETACT
4370 PRINTF1;" ";C$
4380 NEXT F1
4390 PROCZ:T$(T)=E9:PRINT
4400 PRINT"HOW DO WE DEFEND AGAINST A FREEKICK?"
4410 FOR F1=1TO3

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```

4680 NEXT I
4690 ENDPROC
4700 DEF PROCDETPOSS
4710 G1=FNA(20)
4720 IF G1<4 THEN Z2=1
4730 IF G1<4 THEN ENDPROC
4740 IF G1>17 THEN Z2=1
4750 IF G1>17 THEN ENDPROC
4760 Z2=2:ENDPROC
4770 DEF PROCPOSSREG
4780 IF Z4(>1 THEN ENDPROC
4790 IF Z3(>1 THEN ENDPROC
4800 Z8$=" REGAIN "
4810 ENDPROC
4820 DEF PROCPLAYRAN
4830 A3=FNA(10)+1:Z5$=K$(A3)
4840 IF G1>10 THEN Z6$=Z9$(FNA(10)+1)
4850 IF G1>10 THEN ENDPROC
4860 A4=FNA(10)+1
4870 IF A4=A3 THEN 4860
4880 Z6$=K$(A4)
4890 ENDPROC
4900 DEF PROCNPLAY
4910 A3=FNA(10)+1:Z5$=Z9$(A3)
4920 IF G1>10 THEN Z6$=K$(FNA(10)+1)
4930 IF G1>10 THEN ENDPROC
4940 A4=FNA(10)+1
4950 IF A4=A3 THEN 4940
4960 Z6$=Z9$(A4):ENDPROC
4970 DEF PROCMOVEPRI
4980 IF LEN(J$)<=39 THEN PRINTJ$
4990 IF LEN(J$)<39 THEN PRINT
5000 IF LEN(J$)<=39 THEN ENDPROC
5010 FOR J=39TO1 STEP-1
5020 IF ASC(MID$(J$,J,1))=32 THEN PRINT
LEFT$(J$,J):J$=RIGHT$(J$,LEN(J$)-J):J=0

```



```

5150 RETURN
5160 PRINT:PRINTA$(Z1);" WIN A CORNER"
5170 IF Z1=T THEN Z1$=K$(5+FNA(6))
5180 IF Z1=Z THEN Z1$=Z9$(5+FNA(6))
5190 J$="FROM THE KICK THE BALL REACHES"+" "+Z1$
5200 PROCMOVEPRI
5210 G3=FNA(100)
5220 IF B$(Y$(Z3),X$(Z8))>100-G3+B6 THEN B6=B6+2:PROCGOAL:RETURN
5230 PROCA
5240 RETURN
5250 PRINT
5260 IF Z1=T THEN Z5$=Z9$(1+FNA(4))
5270 IF Z1=Z THEN Z5$=K$(1+FNA(4))
5280 J$=Z1$+" IS BROUGHT DOWN BY "+Z5$+".THE REF AWARDS "+A$(Z1)
5290 J$=J$+" A FREEKICK JUST OUTSIDE THE BOX":PROCMOVEPRI
5300 PRINT:PRINT"FROM THE FREEKICK "
5310 G3=FNA(100)
5320 IF C$(Y$(Z3),X$(Z8))>100-G3+B5 THEN B5=B5+2:PROCGOAL:RETURN
5330 PROCA
5340 RETURN
5350 DEF PROCHALTIM
5360 PRINT:PRINT"HALFTIME SCORE:"
5370 PRINTA$(T);" ";B;" ";A$(Z);" ";C
5380 PRINT"DO YOU WISH TO CHANGE TACTICS?"
5390 INPUT "TYPE 'Y' OR 'N' " Z$
5400 IF ASC(LEFT$(Z$,1))<>78 AND ASC(LEFT$(Z$,1))<>89 THEN 5390
5410 IF ASC(LEFT$(Z$,1))=89 THEN PROCTACTSEL
5420 PROCSUB:ENDPROC
5430 DEF PROCREP
5440 PRINT"PROFILE ON ";A$(E):PRINT
5450 PROCFASTRES
5460 PRINT:F1=X$(E)
5470 PROCDEFTACT
5480 PRINT
5490 PRINT"IN DEFENCE THEY";C$:PRINT
5500 F1=Y$(E):PROCATTACT
5510 PRINT"IN ATTACK THEY USE THE";C$:PRINT
5520 F1=Z$(E):PROCMTDTACT
5530 PRINT"IN MIDFIELD THEY";C$:PRINT
5540 IF D4=0 THEN PROCCONTINUE:ENDPROC
5550 F1=T$(E):PROCFREETACT
5560 PRINT"IN FREEKICKS AROUND THE BOX THEY USE A":PRINTC$
5570 F1=U$(E):PROCFREEDEF
5580 PRINT"AND DEFENDING AGAINST FREEKICKS THEY":PRINTC$:PRINT
5590 F1=V$(E):PROCCORNTACT
5600 PRINT"FROM A CORNER THEY";C$
5610 F1=W$(E):PROCCORNDEF
5620 PRINT"WHEN FACED WITH A CORNER THEY":PRINTC$:PRINT
5630 F1=F$(E):PROCFORM
5640 PRINT"THEY NORMALLY PLAY";C$;"FORMATION":PRINT

```

```

5650 PROCCONTINUE
5660 ENDPROC
5670 DEF PROCFORM
5680 IF F1=1 THEN C$=" A 4-3-3 "
5690 IF F1=2 THEN C$=" A 4-4-2 "
5700 IF F1=3 THEN C$=" A 4-2-4 "
5710 ENDPROC
5720 DEF PROCDEFTACT
5730 IF F1=1 THEN C$=" USE A SWEEPER "
5740 IF F1=2 THEN C$=" INTERCEPT PASSES "
5750 IF F1=3 THEN C$=" SHADOW ATTACKERS "
5760 ENDPROC
5770 DEF PROCATTACT
5780 IF F1=1 THEN C$=" FAST BREAK "
5790 IF F1=2 THEN C$=" EARLY CROSS "
5800 IF F1=3 THEN C$=" SLOW BUILD-UP "
5810 ENDPROC
5820 DEF PROCMTDTACT
5830 IF F1=1 THEN C$=" TACKLE HARD "
5840 IF F1=2 THEN C$=" MARK TIGHTLY "
5850 IF F1=3 THEN C$=" FIND SPACE "
5860 ENDPROC
5870 DEF PROCFREETACT
5880 IF F1=1 THEN C$=" DIRECT SHOT "
5890 IF F1=2 THEN C$=" CHIP TO THE FAR POST "
5900 IF F1=3 THEN C$=" TEE-UP FOR SHOT "

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```
5910 ENDPROC
5920 DEF PROCFREEDEF
```



```
5930 IF F1=1 THEN C$=" MAKE A WALL "
5940 IF F1=2 THEN C$=" MARK MAN-TO-MAN "
5950 IF F1=3 THEN C$=" RUSH THE KICKER "
5960 ENDPROC
5970 DEF PROCCORNTACT
5980 IF F1=1 THEN C$=" PLAY IT SHORT "
5990 IF F1=2 THEN C$=" AIM FOR THE FAR POST "
6000 IF F1=3 THEN C$=" AIM FOR THE NEAR POST "
6010 ENDPROC
6020 DEF PROCCORNDEF
6030 IF F1=1 THEN C$=" MOVE OUT FAST "
6040 IF F1=2 THEN C$=" RELY ON THE GOALKEEPER "
6050 IF F1=3 THEN C$=" USE CLOSE MARKING "
6060 ENDPROC
6070 DEF PROCZ
6080 INPUT "ENTER A NO. BETWEEN 1 & 3:"E$
6090 IF LEN(E$)<1 THEN 6140
6100 IF ASC(E$)<49 THEN 6140
6110 IF ASC(E$)>51 THEN 6140
6120 E9=VAL(E$)
6130 ENDPROC
6140 PRINT"PLEASE RE-ENTER"
6150 GOTO 6080
6160 ENDPROC
```

```
6170 DEF PROCOPNAME
6180 FOR I=1TO12
6190 Z9$(I)="NO."+STR$(I)
6200 NEXT I
6210 Z9$(1)="THEIR GOALKEEPER "
6220 ENDPROC
6230 DEF PROCgoal
6240 PRINT
6250 B4=B4+2.5:J$=Z1$+A2$(FNA(9)):PROCMOVEPRI
6260 PROCSCORE:PROCSUB
6270 IF I=K4 THEN ENDPROC
6280 PRINT"FROM THE KICK-OFF"
6290 ENDPROC
6300 DEF PROCSCORE
6310 J$="IT'S A GOAL! "+A$(Z1)+" HAVE SCORED":PROCMOVEPRI
6320 IF Z1=T THEN B=B+1
6330 IF Z1=Z THEN C=C+1
6340 D2=I*2
6350 IF RND(1)>.5 THEN D2=D2-1
6360 PRINT
6370 Z$=" MINUTES"
6380 IF D2=1 THEN Z$=" MINUTE"
6390 PRINT"SCORE AFTER ";D2;Z$
6400 PRINT:PRINT A$(T);" ";B;" ";A$(Z);" ";C
6410 Z2=1:ENDPROC
6420 DEF PROCA
6430 G3=FNA(9):Z1$=Z1$+A1$(G3)
6440 IF Z8=T THEN H$=" "+K$(1+FNA(4))
6450 IF Z8=Z THEN H$=" "+Z9$(1+FNA(4))
6460 IF G3<4 THEN Z1$=Z1$+H$
6470 IF G3<4 THEN J$=Z1$:PROCMOVEPRI:Z2=1:ENDPROC
6480 IF Z8=T THEN H$=" "+K$(1)
6490 IF Z8=Z THEN H$=" "+Z9$(1)
6500 IF G3<6 THEN J$=Z1$+H$:PROCMOVEPRI:ENDPROC
6510 J$=Z1$:PROCMOVEPRI:ENDPROC
6520 DEF PROCSUB
6530 IF W1=1 THEN PROCCONTINUE:ENDPROC
6540 PRINT"PRESS 'S' TO BRING ON SUBSTITUTE":PRINT" ANY OTHER KEY TO CONT
INUE"
6550 Z$=GET$
6560 IF Z$="" THEN 6550
6570 IF ASC(Z$)<83 THEN ENDPROC
6580 CLS:W1=1
6590 W1=1
6600 FOR J=2TO11:PRINTJ;" ";K$(J):NEXT J
6610 PRINT"ENTER A NO. FROM 2 TO 11":PRINT"TO SHOW THE PLAYER TO BE SUBSTITUTE
D"
6620 INPUT K
6630 IF K>11 THEN 6620
6640 IF K<2 THEN 6620
6650 PRINT:J$=K$(K)+" TRUDGES OFF TO BE REPLACED BY "+K$(12):PROCMOVEPRI
6660 Z$=K$(K):K$(K)=K$(12):K$(12)=Z$
6670 W3=W3+(-(U1/10)+E%(K))*2
```



```

6680 ENDPROC
6690 DEF PROCPASTRES
6700 IF N%(E)=0 THEN ENDPROC
6710 PRINT:PRINT"RESULTS SO FAR":PRINT
6720 FOR I=1TON%(E)
6730 PRINTA$(E); " ";M%(E, I+7); " ";A$(M%(E, I)); " ";M%(E, I+14)
6740 NEXT I
6750 PRINT:PROCCONTINUE
6760 ENDPROC
6770 DEF PROCSECTAGE
6780 CLS:PRINT"GROUPS FOR THE 2ND. STAGE ARE :-":PRINT
6790 FOR I=1TO2
6800 PRINT"GP. ";CHR$(64+I);TAB(20);"GP. ";CHR$(66+I)
6810 PRINT
6820 FOR J=1TO3
6830 PRINTA$(H%(I, J));TAB(20);A$(H%(I+2, J))
6840 NEXT J
6850 PRINT
6860 NEXT I
6870 ENDPROC
6880 DEF PROCSECFIXT
6890 W6=4:D1=27
6900 H2=1:A2=2:PROCSECREC
6910 H2=3:A2=1:PROCSECREC
6920 H2=2:A2=3:PROCSECREC
6930 ENDPROC
6940 DEF PROCSECREC
6950 PROCJ:PROCPPLAYCHECK
6960 CLS:PRINT"RESULTS FOR ";D1;" JUNE '82"
6970 PRINT
6980 FOR I=1TO4
6990 H=H%(I, H2):A=H%(I, A2)
7000 IF H=T THEN B=P2:C=P3:GOTO 7030
7010 IF T=A THEN B=P3:C=P2:GOTO 7030
7020 GOSUB 2820
7030 PRINT"GP. ";CHR$(I+64); " ";A$(H); " ";B; " ";A$(A); " ";C
7040 NEXT I
7050 IF D1=29 THEN PROCCONTINUE:PROCTABLE
7060 PRINT
7070 IF D1=29 THEN ENDPROC
7080 PRINT"PRESS 'L' TO SHOW LEAGUE TABLES":PRINT

```

ANY OTHER KEY TO CONT

NUE"

```

7090 Z$=GET$
7100 IF Z$="" THEN GOTO 7090
7110 IF Z$="L" THEN PROCTABLE
7120 D1=D1+1:ENDPROC
7130 DEFPROCJ
7140 FOR I=1TO4
7150 FOR J=1TO3
7160 O%(I, J)=H%(I, J)
7170 NEXT J:NEXT I
7180 ENDPROC
7190 DEF PROCSEMI
7200 CLS:PRINT"SEMI-FINALS":PRINT"==== ====="
7210 FOR I=1TO4
7220 PRINT
7230 NEXT I
7240 PRINTA$(S8(1));TAB(16);"V. ";A$(S8(3))
7250 FOR I=1TO4
7260 PRINT
7270 NEXT I
7280 PRINTA$(S8(2));TAB(16);"V. ";A$(S8(4))
7290 FOR I=1TO6
7300 PRINT
7310 NEXT I
7320 PROCCONTINUE
7330 ENDPROC
7340 DEF PROCSEMIPLAY
7350 CLS:PRINT"BARCELONA 8th JULY 1982":PRINT
7360 PRINT"SEMI-FINAL":PRINT
7370 PRINTA$(S8(1)); " V. ";A$(S8(3))
7380 X3=1
7390 PROCWAIT
7400 X1=S8(1):X2=S8(3)

```



```

7410 PROC R
7420 CLS:PRINT"SEVILLE 8th JULY 1982":PRINT
7430 PRINT"SEMI-FINAL":PRINT
7440 E2=0:E1=0
7450 PRINTA$(S8(2));" V. ";A$(S8(4))
7460 PROC WAIT
7470 X1=S8(2):X2=S8(4)
7480 PROC R
7490 ENDPROC
7500 DEF PROC B
7510 FOR I=1 TO 90
7520 IF RND(1)>86/90 THEN PROC D
7530 IF I=45 THEN PROC E
7540 IF I/10=INT(I/10) THEN PROC F
7550 NEXT I
7560 IF E1=E2 THEN PROC G
7570 PRINT"FINAL SCORE"
7580 PRINTA$(X1);" ";E1;" ";A$(X2);" ";E2
7590 ENDPROC
7600 DEF PROC C
7610 W5=W5+1
7620 IF V=1 THEN ENDPROC
7630 IF E1>E2 THEN N1(W5)=X1
7640 IF E2>E1 THEN N1(W5)=X2
7650 ENDPROC
7660 DEF PROC D
7670 R7=RND(1)
7680 CLS:R9=R*(X1)/(R*(X1)+R*(X2))
7690 IF R7=R9 THEN 7670
7700 IF R7<R9 THEN J$=A$(X1)+" HAVE SCORED AFTER "+STR$(I)+" MINUTES"
7710 IF I=1 THEN J$=LEFT$(J$,LEN(J$)-1)
7720 IF R7<R9 THEN PROC MOVEPRI
7730 IF R7<R9 THEN E1=E1+1
7740 IF R7>R9 THEN J$=A$(X2)+" HAVE SCORED AFTER "+STR$(I)+" MINUTES"
7750 IF R7>R9 THEN PROC MOVEPRI
7760 IF R7>R9 THEN E2=E2+1
7770 PROC WAIT:ENDPROC
7780 DEF PROC E
7790 PRINT:PRINT"HALF TIME SCORE:"
7800 PRINT:PRINTA$(X1);" ";E1;" ";A$(X2);" ";E2:PRINT
7810 PROC WAIT:ENDPROC
7820 DEF PROC F
7830 CLS:PRINT"SCORE AFTER ";I;" MINUTES ":";"
7840 PRINTA$(X1);" ";E1;" ";A$(X2);" ";E2
7850 PROC WAIT:ENDPROC
7860 DEF PROC G
7870 CLS:PRINT"AFTER EXTRA TIME"
7880 R4=FNA(2)
7890 IF R4=1 THEN E1=E1+FNA(3)
7900 IF R4=2 THEN E2=E2+FNA(3)
7910 PROC WAIT:ENDPROC
7920 DEF PROC FINAL
7930 V=1:CLS:PRINT"MADRID 11th JULY 1982"
7940 FOR I=1 TO 6
7950 PRINT
7960 NEXT I
7970 PRINT"CUP FINAL":PRINT"==== ====="
7980 PRINTA$(N1(1));" V. ";A$(N1(2))
7990 PROC WAIT:PROC WAIT
8000 CLS:E1=0:E2=0:X1=N1(1):X2=N1(2)
8010 IF X1=T THEN Z=X2:PROCGAMEPLAY:E1=B:E2=C:GOTO 8040
8020 IF X2=T THEN Z=X1:PROCGAMEPLAY:E1=C:E2=B:GOTO 8040
8030 PROC B:PROC C:
8040 ENDPROC
8050 DEF PROC R
8060 IF X1=T THEN Z=X2:PROCGAMEPLAY:E1=B:E2=C:PROC C:GOTO 8090
8070 IF X2=T THEN Z=X1:PROCGAMEPLAY:E1=C:E2=B:PROC C:GOTO 8090
8080 PROC B:PROC C
8090 N$(X1)=N$(X1)+1
8100 M$(X1,6)=X2:M$(X1,13)=E1:M$(X1,20)=E2
8110 N$(X2)=N$(X2)+1
8120 M$(X2,6)=X1:M$(X2,13)=E2:M$(X2,20)=E1
8130 IF (X1-T)*(X2-T)<>0 THEN PROC CONTINUE
8140 ENDPROC

```



# BOMBER

BY JANEK SIRRS

**RUNS ON A BBC MODEL A IN 16K**

Ace pilots only need apply for this little excursion into the wild blue yonder. Well, it's not really the flying you have to worry about. It's getting your undercarriage planted firmly back on the ground that's the problem.

You must try to land your ancient fighter plane in the middle of a city. To do this you must create a makeshift runway by bombing the skyscrapers. But you are running out of fuel — so your time is very limited.

```

10 REM *** BOMBER by J.Sirrs, 1982 ***
20 HISCORE%=0
30 MODE5:PROCinit:PROCtitle:MODE4:PROCinst: !&FE00=&10200A
40 PROCscreen
50 PX%=PX%+1: IF ?FNS(PX%+2,PY%,N%)=126 THEN PROCcrash: GOTO370
60 IF PX%=40 AND PY%<>29 THEN PRINTTAB(PX%-1,PY%); " "; PX%=0: PY%=PY%+1
70 IF PX%=37 AND PY%=29 THEN PROCland: GOTO40
80 IF PX%=0 GOTO90 ELSE PRINTTAB(PX%-1,PY%) " "; PLANE%;
90 I%=INKEY(0): IF I%>0 AND BOMB%=0 PROCcreatebomb
100 IF BOMB%=1 THEN PROCmovebomb
110 PRINTTAB(11,1); SCORE%; FOR L%=1 TO 400: NEXT L%: GOTO50
120 DEF PROCcreatebomb
130 BOMB%=1: BX%=PX%: BY%=PY%
140 ENDPROC
150 DEF PROCmovebomb
160 FOR L%=1 TO 2: IF BY%=PY% AND BX%=PX% GOTO170 ELSE PRINTTAB(BX%,BY%); " "
170 BY%=BY%+1: IF ?FNS(BX%,BY%,N%)=126 THEN PROCexplosion: SCORE%=SCORE%+1: GOTO210

180 IF BY%>29 THEN L%=3: BOMB%=0: GOTO210
190 IF BOMB%=0 THEN L%=3: GOTO210
200 PRINTTAB(BX%,BY%); CHR$(227): SOUND1,-15,BY%*2,1
210 NEXT L%: ENDPROC
220 DEF PROCexplosion
230 FOR E%=0 TO RND(4): SOUND0,-15,4,1: IF BY%+E%>29 THEN E%=5: NEXT E%: L%=3: BOMB%=0: END
PROC
240 PRINTTAB(BX%,BY%+E%); " "; NEXT E%
250 BOMB%=0: L%=3: ENDPROC
260 DEF PROCland
270 FOR L%=1 TO 50: SOUND1,-15,L%,.05: NEXT L%
280 FOR L%=1 TO 20: IF L%/2=INT(L%/2) THEN CH% = 228 ELSE CH% = 229
290 PRINTTAB(35,29); CHR$(CH%): FOR D%=1 TO 750: NEXT D%: NEXT L%
300 PRINTTAB(12,12); "100 BONUS POINTS": FOR L%=1 TO 5000: NEXT L%: PRINTTAB(12,12) "
"; SCORE%=SCORE%+100
310 PRINTTAB(35,29); " "; CHR$(30)
320 PY%=29: FOR PX%=8 TO 36: PRINTTAB(PX%-1,PY%); " "; PY%=PY%-.2: PRINTTAB(PX%,PY%)
; PLANE%: FOR D%=1 TO 500: NEXT D%: NEXT PX%
330 SK%=SK%+1: PX%=1: PY%=3: ENDPROC
340 DEF PROCcrash
350 FOR L%=1 TO 20: VDU19,0,RND(15),0,0,0,19,1,RND(15),0,0,0: SOUND0,-15,RND(3)+3,1
; NEXT L%
360 VDU19,0,6,0,0,0,19,1,0,0,0,0: ENDPROC
370 CLS: VDU19,0,0,0,0,0,19,1,4,0,0,0
380 PRINT"" "Oh dear you appear to have crashed your"
390 PRINT"" "plane!!!!"
400 PRINT"" "Your final score was :- "; SCORE%; " points."
410 IF SCORE%>HISCORE% THEN HISCORE%=SCORE%: PRINT"" "Wow! You've just got the best
score yet."
420 PRINT"" "Today's high score is :- "; HISCORE%: SCORE%=0: PX%=1: PY%=3: BOMB%=0
430 PRINT"" TAB(8) "ANOTHER GAME (Y/N) ?"
440 A$=GET$: IF A$="Y" GOTO30 ELSE GOTO450
450 MODE7: END
460 DEF PROCscreen
470 CLS: VDU17,0,4,0,0,0,19,1,7,0,0,0
480 PRINTTAB(5,1); "SCORE: "; SCORE%; TAB(20,1); "HI-SCORE: "; HISCORE%
490 PRINTTAB(0,30); STRING$(40,CHR$(233)); CHR$(30)
500 FOR L%=3 TO 36: BH%=RND(3*SK%): PRINTTAB(L%,29); : FOR B%=1 TO BH%: PRINTCHR$(231); CH
R$(11); CHR$(8); : SOUND1,-15,B%*3,1: NEXT B%: PRINTCHR$(230): NEXT L%
510 PRINTTAB(PX%,PY%); PLANE%
520 ENDPROC
530 DEF PROCinit

```

```

540 VDU23,224,24,28,31,0,0,0,0,0
550 VDU23,225,63,5,255,255,15,2,7,7
560 VDU23,226,228,4,244,252,244,4,4,0
570 VDU23,227,126,60,24,60,60,60,60,24
580 VDU23,228,60,60,24,126,153,36,66,129
590 VDU23,229,189,189,153,126,24,36,66,129
600 VDU23,230,0,24,60,126,126,90,90,126
610 VDU23,231,126,90,90,126,126,90,90,126
620 VDU23,232,0,0,50,126,126,90,90,126
630 VDU23,233,255,255,255,255,255,255,255
640 PLANE$=CHR$(224)+CHR$(225)+CHR$(226)
650 SCORE%=0:PX%=1:PY%=3:BX%=0:BY%=0:BOMB%=0:N%=4
660 DEF FNS(X,Y,N)=HIMEM+(Y*40+X)*B+N
670 ENDPROC
680 DEFPROCinst
690 CLS:VDU19,3,9,0,0,0:PRINTTAB(5,14);"Do you need instructions (Y/N) ?"
700 A$=GET$:IFA$="Y"GOTO710 ELSEIFA$="N"GOTO 790 ELSEGOTO700
710 CLS:VDU19,1,3,0,0,0:COLOUR1:PRINTTAB(13,1);"B O M B E R"
720 PRINT"" Try to land your ancient fighter plane"
730 PRINT"" by destroying all the city skyscrapers"
740 PRINT"" to create a makeshift runway!"
750 PRINT"" Bombs are dropped by pressing any key."
760PRINT"" WARNING - your fuel is limited!!"
770 PRINT"" PRESS ANY KEY TO START YOUR FLIGHT"
780 A$=GET$
790 CLS:PRINTTAB(5,12);"What is your skill level (1-3)?"
800 A$=GET$:SK%=VAL(A$):IFSK%>3ORSK%<1GOTO790 ELSEENDPROC
810 DEFPROCtitle
820 CLS:VDU19,0,0,0,0,0,19,3,2,0,0,0
830 TL$="B O M B E R":FORL%=1TOLEN(TL$):COLOUR3:PRINTTAB(L%+3,10);" ":PLANE$:F
ORB%=1TO4
840 COLOUR2:PRINTTAB(L%+5,11+B%);" ":CHR$(10);CHR$(8);CHR$(227):SOUND1,-15,B%*
2,1:NEXTB%:COLOUR1:PRINTTAB(L%+5,16);MID$(TL$,L%,1):SOUND0,-15,5,1:FORD%=1TO100
:NEXTD%:NEXTL%
850 FORL%=1TO12000:NEXTL%:ENDPROC

```

# ALIEN ATTACK

BY R. PHELPS

RUNS ON A SHARP MZ80K

IN 16K

A vast fleet of alien craft is sweeping majestically toward your tiny space fighter — the only surviving defender of a race doomed to destruction. Doomed unless you can stop the attackers.

You have to knock out the alien battleships one by one while their mother ship dodges up and down the screen attempting to wipe you off the face of the universe.

Unfortunately for you this mothership is invulnerable. But the following fleet can be destroyed. You simply need to be a good marksman.

```

1 REM
2 REM
3 REM
4 REM
5 REM
6 REM
7 REM
8 REM
9 REM
10 REM
11 REM
12 REM
13 REM
14 REM
15 REM
16 REM
17 REM
18 REM
19 REM
20 REM
21 REM
22 REM
23 REM
24 REM
25 REM
26 REM
27 REM
28 REM
29 REM
30 REM
31 REM
32 REM
33 REM
34 REM
35 REM
36 REM
37 REM
38 REM
39 REM
40 REM
41 REM
42 REM
43 REM
44 REM
45 REM
46 REM
47 REM
48 REM
49 REM
50 REM
51 REM
52 REM
53 REM
54 REM
55 REM
56 REM
57 REM
58 REM

```

Program for C & U Games.  
"Alien Attack"-By R. Phelps  
(C)Copyright - 17/10/1982.

PRINT "\*\*\*\*\* INSTRUCTIONS \*\*\*\*\*"  
PRINT "\*\*\*\*\*ALIEN ATTACK\*\*\*\*\*"  
PRINT "\*\*\*\*\*"  
PRINT "UP - DOWN - FIRE"  
PRINT "Try to destroy the alien space craft."  
PRINT "Without getting destroyed yourself by."  
PRINT "the mother craft. BEWARE! The mother ship."  
PRINT "is indistructable! Now input the skill!"  
GET\$:IF VAL(A\$)<1+(VAL(A\$)>6) THEN GOTO19  
PRINT "FOR A=1 TO 150  
R=(999\*AND(10))+53248  
POKE R,46:NEXT R  
FOR A=0 TO 24:POKE53275+(A\*40),206:NEXT  
IF D=0 THEN FOR G=1 TO 3:DG=1  
V=81:D=65:M=90:P=42:S=200:E=161:X=53740:POKE10167,1:1=17828:F=46:N=206  
POKE X,S:POKE X-1,E  
IF PEEK(X)=V THEN IF X=53260 THEN POKE X,0:POKE X-1,0:X=X-40:POKE X,S:POKE X-1,E  
IF Q=0 THEN IF PEEK(X)=54288 THEN POKE X,0:POKE X-1,0:X=X-40:POKE X,S:POKE X-1,E  
IF J=V+13 THEN POKE(J)=V THEN POKE(J-1,0:W=U+1:J=TEMP0:MUSIC"BB"  
IF Q=1 THEN POKE J-1,0  
IF W=23 THEN SC=SC+W:W=0:GOTO21  
IF U=0 THEN R=0  
IF R=0 THEN INT(J\*AND(1))-1:U=X+(Q\*40)+CHR R:1:C=U:POKE C+1,199  
IF U=C-10 THEN R=0:POKE U,0:U=0:POKE C+1,0  
GOTO 30  
REM \*\*\* YOU LOST A SHIP \*\*\*  
TEMP0:MUSIC"FOOT"POKE X,S:POKE X-1,E  
POKE X-1,208:POKE X,208:NEXT  
PRINT "\*\*\*\*\*YOUR SCORE=150  
GET\$:IFA\$="N" THEN PRINT "\*\*\*\*\*BIG HEAD !!! GOTO55  
IF A\$="N" THEN PRINT "\*\*\*\*\*SHOULD THINK NOT !! IT'S DISGUSTING !!! GOTO55  
GOTO52  
FOR A=1 TO 500:NEXT:PRINT "\*\*\*\*\*WOULD YOU LIKE ANOTHER 60 (Y/N) ?"  
GET\$:IFA\$="N" THEN PRINT "\*\*\*\*\*B Y E !!! END  
IF A\$="Y" THEN RUN  
GOTO56



# S.O.S MISSION

BY NIGEL STUART

RUNS ON A 4000 SERIES PET

"Welcome captain. You are now in charge of the space fleet's newest most advanced battlecruiser. Your mission, should you accept it, is to pilot this craft into a tunnel on the enemy planet and destroy as many of their underground bases, ammunition and fuel dumps as possible . . ."

This is a version of arcade Scramble and all the rules of the video version apply. You gain extra fuel for your craft by bombing the fuel and ammunition dumps. Full instructions are included in the program.

To alter the program to run on a 3000 or 2000 series Pet the peek of find which key is being pressed must be changed. This is peek 151 and the value is held in variable Q. The movement of the tunnels is held in B\$, C\$, D\$, E\$, F\$, and G\$.

IN 16K

```
1 PRINT"Q"
10 POKE59467,16:POKE59466,7
:P=59464:POKEP,0
11 DIMS$(10):DIMS(10)
15 FOR X=1 TO 10:S(X)=0:NEXTX
20 DIME(10)
30 E(1)=33230
31 E(2)=33189
32 E(3)=33145
34 E(4)=33150
35 E(5)=33179
36 E(7)=33303
37 E(6)=33262
38 E(8)=33197
39 E(9)=33233
40 E(10)=33151
90 A$="":B$="":C$="":D$="":E$="":
F$="":G$="":FORF=1TO200:NEXTF
91 K=0
95 GOSUB 6000
```

```
100 PRINT"#####S.O.S. MISSION"
```

```
110 PRINT"#####"
```

```
120 SH=33218:S3=33244:S5=0:S6=33204
```

```
130 PRINT"#####"
```

```
140 PRINT"##### FUEL | SCORE | AMO |"
```

```
150 PRINT"#####"
```

```
160 PRINT"#####"
```

```
170 PRINT"#####"
```

```
300 FU=999:SC=0:AM=30
```

```
800 A$="#####"
```

```
805 AA$="#####"
```

```
810 B$=B$+"#####"
```

```
815 B$=B$+"#####"
```

```
816 B$=B$+"#####"
```

```
820 C$=C$+"#####"
```

```
825 C$=C$+"#####"
```

```
827 C$=C$+"#####"
```

```
830 D$=D$+"#####"
```

```
835 D$=D$+"#####"
```

```
837 D$=D$+"#####"
```

```
840 E$=E$+"#####"
```

```
845 E$=E$+"#####"
```

```
847 E$=E$+"#####"
```

```
850 F$=F$+"#####"
```

```
855 F$=F$+"#####"
```

```
857 F$=F$+"#####"
```

```
860 G$=G$+"#####"
```

```
865 G$=G$+"#####"
```

```
867 G$=G$+"#####"
```

```
970 B$=A$+B$
971 C$=AA$+C$
972 D$=AA$+D$
973 E$=AA$+E$
974 F$=AA$+F$
975 G$=A$+G$
```

```
980 PRINT"#####"
```

```
981 PRINT"#####"
```

```
982 PRINT"#####"
```

```
983 PRINT"#####"
```

```

990 FOR ZX=1 TO LEN(B$)-42
991 IF S5=38 THEN GOSUB 2700
992 S9=S7:S7=S6-S8:IF S8=38 THEN GOSUB 2751
993 S4=S3-S5:S5=S5+2:S8=S8+2
994 LL=INT(RND(0)*3)-1:S7=S7+(LL*40)
995 POKE$4,115:POKE$4+1,246:POKE$4+3,
32:POKE$4+2,32
996 IF K>0 THEN POKE$7,60:POKE$7+1,92:
POKE$7+2,32:POKE$7+3,32
999 IF K>0 THEN POKE$7,60:POKE$7+1,92:
POKE$7+2,32:POKE$7+3,32

```

```

1000 B$=MID$(B$,2,LEN(B$))
1010 C$=MID$(C$,2,LEN(C$))
1020 D$=MID$(D$,2,LEN(D$))
1030 E$=MID$(E$,2,LEN(E$))
1040 F$=MID$(F$,2,LEN(F$))
1050 G$=MID$(G$,2,LEN(G$))
1110 PRINT"*****"
1120 PRINTMID$(B$,1,39)
1130 PRINTMID$(C$,1,39)
1140 PRINTMID$(D$,1,39)
1145 PRINT"***"
1150 PRINTMID$(E$,1,39)
1160 PRINTMID$(F$,1,39)
1170 PRINTMID$(G$,1,39)

```

```

1180 A1=PEEK(SH):A2=PEEK(SH+1):A3=PEEK(SH+2)
1300 POKESH,108:POKESH+1,111:POKESH+2,100:POKESH+3,32
1310 POKEP,210:POKEP,180:POKEP,230:POKEP,240:POKEP,0:S2=SH
1320 IF B>1 THEN SH=SH-1:B=B-1
1350 IF A1=102 OR A1=83 OR A1=65 OR A1=115 OR A1=246 THEN 3000
1360 IF A2=102 OR A2=83 OR A2=65 OR A2=115 OR A2=246 THEN 3000
1370 IF A3=102 OR A3=83 OR A3=65 OR A3=115 OR A3=246 THEN 3000
1380 IF A1=86 OR A2=86 OR A3=86 THEN 3000
1390 IF A1=60 OR A2=60 OR A3=60 THEN 3000
1400 PRINT"*****"
1410 PRINT"*****"FU
1420 PRINT"*****"AM
1430 PRINT"*****"SC

```

```

1600 FU=FU-5
1610 IF FUC<-5 THEN 3000
1999 SC=SC+1
2000 NEXTZX
2005 A$="" :AA$=""
2006 K=K+1
2010 GOTO810

```

```

1440 POKEE(INT(RND(0)*10)+1),86
1450 POKEE(INT(RND(0)*10)+1),32
1460 POKE$9,32:POKE$9+1,32
1500 Q=PEEK(151)
1510 IF Q=50 THEN SH=SH-40:GOSUB2100
1520 IF Q=18 THEN SH=SH+40:GOSUB2100
1530 IF Q=41 THEN SH=SH+2:GOSUB2100:B=B+2
1540 IF B>22 THEN B=B-1:SH=SH-1
1550 IF Q=48 THEN PP=0:GOSUB2300
1560 IF Q=32 THEN PP=0:GOSUB2400

```

```

2100 POKE$2,32:POKE$2+1,32:POKE$2+2,32:POKE$2+3,32
2110 A1=PEEK(SH):A2=PEEK(SH+1):A3=PEEK(SH+2)
2210 POKESH,108:POKESH+1,111:POKESH+2,100

```

```

2220 RETURN
2300 IF AM<1 THEN RETURN
2301 AM=AM-1
2305 FOR Z=S2+4 TO S2+10
2310 IF PEEK(Z)=102 THEN PP=1:GOTO2390
2311 IF PEEK(Z)=83 THEN 2800
2312 IF PEEK(Z)=65 THEN 2900
2313 IF PEEK(Z)=115 THEN 4000
2314 IF PEEK(Z)=129 THEN 3300
2315 IF PEEK(Z)=134 THEN 3400
2316 IF PP=1 THEN 2390
2320 POKEZ,46:POKEP,140:POKEP,142
2330 POKEP,46:POKEP,190:POKEP,200
2340 POKEP,0:POKEZ,32
2390 NEXTZ:RETURN
2400 AM=AM-1:IF AM<0 THEN RETURN

```

```

2410 Z=SH+3
2420 Z=Z+40
2421 IF PEEK(Z)=102 THEN 2500
2422 IF PEEK(Z)=83 THEN 2800
2423 IF PEEK(Z)=65 THEN 2900
2424 IF PEEK(Z)=115 THEN 4000
2425 IF PEEK(Z)=129 THEN 3300
2426 IF PEEK(Z)=134 THEN 3400
2430 POKEZ,81:POKEP,100
2435 FORZZ=1TO4:POKEP,200:POKEP,180:POKEP,110:NEXTZZ

```



```

2440 POKEP,0:FORZZ=1TO20:NEXTZZ:POKEZ,32
2490 GOTO 2420
2500 RETURN
2700 POKES4,32:POKES4+1,32:POKES4+2,32:POKES4+3,32:POKES4+4,32
2710 S5=0:L=INT(RND(0)*3)
2720 S3=33164+(L*40)
2750 RETURN
2751 S8=0:L=INT(RND(0)*3)
2752 S6=33164+(L*40)
2753 POKES9,32:POKES9+1,32:POKES9+2,32:POKES9+3,32:POKES9+4,32
2755 RETURN
2800 FOR F=1 TO 25
2810 J=INT(RND(0)*4)
2820 POKEP,J*25:IF J=1 THEN POKEZ,86
2830 IF J=2 THEN POKEZ,214
2840 IF J=3 THEN POKEZ,32
2850 POKEP,J+20
2860 NEXTF:POKEP,0:SC=SC+1000:RETURN
2900 FOR X=1 TO 25
2910 J=INT(RND(0)*4)+1
2920 POKEP,J*10:IF J=1 THEN POKEZ,87
2930 IF J=2 THEN POKEZ,215
2940 IF J=3 THEN POKEZ,32
2950 POKEP,J*20+50:NEXTX:POKEP,0:SC=SC+500:RETURN
3000 POKES2+3,32
3005 FOR Z=1 TO 10
3010 POKEP,210:POKES2,32:POKES2+1,32:POKES2+2,160:POKEP,0
3015 POKEP,170:POKES2,32:POKES2+1,32:POKES2+2,102:POKEP,0
3020 POKEP,180:POKES2,32:POKES2+1,160:POKES2+2,32:POKEP,0
3025 POKEP,250:POKES2,32:POKES2+1,102:POKES2+2,32:POKEP,0
3030 POKEP,240:POKES2,160:POKES2+1,32:POKES2+2,32:POKEP,0
3035 POKEP,125:POKES2,102:POKES2+1,32:POKES2+2,32:POKEP,0
3040 NEXTZ
3050 POKES2,32:POKES2+1,32:POKES2+2,32
3100 FOR X=32768TO33767STEP4
3110 Z=PEEK(X)
3120 IF Z<128 THENZ=Z+128:GOTO3140
3130 IF Z>128 THENZ=Z-128
3140 POKEP,Z:NEXTX
3250 FORF=1TO800:NEXTF:PRINT"J"
3260 GOTO 4500
3300 FOR X=1 TO 50
3310 J=INT(RND(0)*4)
3320 IF J=1 THEN POKEZ,1:POKEP,210:POKEP,180
3330 IF J=3 THEN POKEZ,129:POKEP,170:POKEP,240
3340 NEXTX
3350 AM=AM+10
3390 RETURN
3400 FOR X=1 TO 50
3410 J=INT(RND(0)*4)
3420 IF J=1 THEN POKEZ,134:POKEP,150:POKEP,110
3430 IF J=3 THEN POKEZ,6:POKEP,110:POKEP,190
3440 NEXTX
3450 FU=FU+100:RETURN
4000 FORX=1 TO 10
4005 POKEZ,INT(RND(0)*250):POKEZ+1,32
4010 J=INT(RND(0)*4)
4020 POKEP,J*20:IFJ=1THENPOKEZ-41,43
4030 IFJ=2THENPOKEZ-41,171
4040 IFJ=3THENPOKEZ-41,32
4060 POKEP,J*25:IFJ=1THENPOKEZ-39,43
4070 IFJ=2THENPOKEZ-39,171
4080 IFJ=3THENPOKEZ-39,32
4100 POKEP,J*15:IFJ=1THENPOKEZ+39,43

```

```

4730 FORX=1TO10
4740 PRINT"#####S(X)" "S$(X)
4750 POKEP,X*20
4760 FOR Z=1 TO 80:NEXTZ
4800 NEXTX
4805 POKEP,0
4810 PRINT"#####KPRESS RETURN>"
4820 IF PEEK(151)<>27 THEN 4820
4900 GOT090
5000 END
6000 REM ***** START *****
6001 GETN$
6005 GOT0 7010
6010 RESTORE:PRINT"J":POKE59458,100
6015 PRINT"#####
6020 READZ$:READZZ:POKEP,ZZ
6025 GETN$:IFN$<>" THEN 7500
6030 IF Z$="+" THEN 6980
6050 PRINTZ$
6060 PRINT
6100 FOR X=1 TO 20:POKEP,ZZ:POKEP,ZZ+10:NEXTX
6110 FOR X=1 TO 10:POKEP,ZZ+10:POKEP,ZZ-10:NEXTX
6120 POKEP,0:FORX=1TO500:NEXTX
6200 GOT0 6020
6980 POKEP,0:POKE59458,30
6990 POKE59458,30
7000 GOT06000
7010 PRINT"J":POKE59458,100:FORZ=1TO250:NEXTZ
7015 FOR X=1 TO 24
7017 GETN$:IFN$<>" THEN 7500
7020 PRINTTAB(10)"S.O.S. MISSION J"
7030 FOR Z=1 TO 100 STEP11:POKEP,Z:NEXTZ:POKEP,0
7040 FOR Z=1 TO 40:NEXTZ
7050 PRINTTAB(10)" S.O.S. MISSIONJ"
7060 FOR Z=100 TO 1 STEP-11:POKEP,Z:NEXTZ:POKEP,0

```



```

7070 FOR Z=1 TO 40:NEXTZ
7100 PRINTTAB(11)" S.O.S. MISSION 7"
7110 FOR Z=10 TO 200 STEP-14:POKEP,Z:NEXTZ:POKEP,0
7120 FOR Z=1 TO 60:NEXTZ
7125 GETN$:IFN$<>" " THEN 7500
7150 PRINTTAB(11)" S.O.S. MISSION 7"
7160 FOR Z=10 TO 200 STEP-14:POKEP,Z:NEXTZ:POKEP,0
7170 FOR Z=1 TO 40:NEXTZ
7180 PRINTTAB(10)" S.O.S. MISSION 7"
7190 FOR Z=100 TO 1 STEP-11:POKEP,Z:NEXTZ:POKEP,0
7200 FOR Z=1 TO 40:NEXTZ
7210 PRINTTAB(10)"S.O.S. MISSION 7"
7220 FOR Z=1 TO 100 STEP11:POKEP,Z:NEXTZ:POKEP,0
7230 FOR Z=1 TO 40:NEXTZ
7240 PRINTTAB(10)"
7300 NEXTX
7400 GOTO 6010
7500 POKE59458,30:PRINT"#####PRESS SPACE>" :POKEP,0
7510 GET N$:IF N$<>" " THEN 7510
7520 PRINT"7":RETURN
9000 DATA"          S.O.S. MISSION.",210
9010 DATA"          ",190
9015 DATA"      (C) BY NIGEL STUART 29:8:1982.",180
9020 DATA"      ",170
9030 DATA"      WELCOME CAPTAIN YOU ARE NOW PLACED",150
9040 DATA"      IN CHARGE OF OUR LATEST SPACE-CRAFT.",180
9050 DATA"      YOUR MISSION IS TO ENTER A TUNNEL",220
9060 DATA"      ON AN ALIEN PLANET AND DISTROY",150
9090 DATA"      AS MANY OF THERE UNDERGROUND",130
9100 DATA"      BASES, AMO DUMPS AND FUEL DUMPS ",240
9110 DATA"      AS YOU CAN BEFORE YOU RUN OUT OF FUEL.",240
9120 DATA"      ",100
9130 DATA"      YOU MAY GAIN EXTRA FUEL AND AMO BY",190
9140 DATA"      BOMBING OR SHOOTING AMO AND FUEL DUMPS.",210
9150 DATA"      THESE ARE SHOWN AS 3A AND 3F.",80
9160 DATA"      ",50
9170 DATA"      THE CONTROLS FOR THE SPACE-CRAFT",80
9180 DATA"      ARE AS FOLLOWS :-",170
9190 DATA"      ",200
9200 DATA"      8 TO MOVE UP.",230
9210 DATA"      2 TO MOVE DOWN.",210
9220 DATA"      6 TO MOVE FORWARD.",190
9230 DATA"      ",170
9240 DATA"      A TO FIRE FORWARD.",150
9250 DATA"      Z TO DROP A BOMB.",110
9260 DATA"      ",150
9270 DATA"      -----",180
9280 DATA"      POINTS AWARDED FOR HITTING ",200
9290 DATA"      ♣ = 500",90
9300 DATA"      ♥ = 1000",80
9310 DATA"      4♣ = 250",90
9320 DATA"      YOU CAN NOT HIT ♣",80
9330 DATA"      3A = 10 UNITS OF AMO",90
9340 DATA"      3F = 100 UNITS OF FUEL",80
9350 DATA"      -----",180
9360 DATA"      ",150
9370 DATA"      GOOD LUCK!! ",200
9380 DATA"      YOU WILLNOT BE ABLE TO RETURN BECAUSE",190
9390 DATA"      YOU WILL BE BLOWN UP.",210
9400 DATA"      BUT TRY TO GET AS FAR AS YOU CAN.",220
9410 DATA"      WE ARE COUNTING ON YOU.....",230
9420 DATA"      ",240
9430 DATA"      ",210
9440 DATA"      ",180
9450 DATA"      ",150
9460 DATA"      ",110
9470 DATA"      ",80
9480 DATA"      ",50
9490 DATA"      ",20
9500 DATA"      ",245
9510 DATA"      ",245
9520 DATA"      ",245
9530 DATA"      ",10
9999 DATA"      +",0

```

# COPY

```

1REM BY neil devlin SEPT1982
2P.#12;?#E1=0;?#000=32;P.*****
3P.                                     COPY***
4F.D=1T090;WAIT;N.                   NEIL DEVLIN"
5P.#12;?#000=32                       ** COPY **
6?#E1=0;P.                             "REPEAT WHAT THE COMPUTER FLASHES"
7?#E1=0;P.                             "BY PRESSING NUMBERS 1 TO 4."
8?#E1=0;P.                             "BY PRESSING NUMBERS 1 TO 4."
9IN.*****                            INPUT" 1-FAST SLOW-2 "0
10IF (O<1)!(O>2)G.3
11IF O=1 V=10;G.13
120=28
130IMB847
14J=0;M=#0002
15 P.#21;DIM RR1,P-1;L=#FFE3
16C;RR0 JSR L;STA#00;RTS;J.P.#6
17F=0;G=0;E=0;I=0
18F.D=0T047
19A=A.R.%;IFA=0 G.19
20BBD=A;N.
21CLEAR4
22GOS.C;COLOUR3
23GOS.50;F.D=1T020;WAIT;N.
24GOS.45
25E=E+1;B=0;C=0
26GOS.39
27IFF=G GOS.B;GOS.A;G=G+1;E=0;C=0;F=0;F.D=1T065;WAIT;N.;G.24
28F=F+1;C=0;G.24
29E.
30aLINK RR0
31IF(?#00>52)!(?#00<49) G.A
32IF?#00=49 I=I+1;J=1;X=10;COLOUR1
33IF?#00=50 I=I+1;J=2;X=40;COLOUR1
34IF?#00=51 I=I+1;J=3;X=70;COLOUR3
35IF?#00=52 I=I+1;J=4;X=100;COLOUR3
36B=0;C=0;GOS.39;IFBB(I-1)<J G.68
37IFE=I I=0;F=0;COLOUR0;GOS.58;P.
38G.A
39REM DRAW SQUARE
40F.D=1T03
41MOVE(X+B),75;WAIT;DRAW(X+B),80

```

```

42B=B+1;N.;IF C=1 GOS.55
43F.D=1T0 0;WAIT;N.
44IFC=0;COLOUR0;B=0;C=1;G.39;R.
45IF BBE=1 X=10;COLOUR1;R.
46IF BBE=2 X=40;COLOUR1;R.
47IF BBE=3 X=70;COLOUR3;R.
48IF BBE=4 X=100;COLOUR3;R.
49E.
50REM DRAW NUMBERS
51MOVE11,60;DRAW11,65
52MOVE42,60;DRAW39,60;DRAW39,62;DRAW42,62;DRAW42,64;DRAW39,64
53MOVE70,60;DRAW73,60;DRAW73,64;DRAW70,64;MOVE70,62;DRAW73,62
54MOVE103,62;DRAW100,62;DRAW100,64;MOVE102,63;DRAW102,60;R.
55P.#7;R.
56bREM DRAW 'YOUR GO'
57COLOUR1
58MOVE35,150;DRAW39,150;DRAW39,158;MOVE39,154;DRAW35,154
59DRAW35,158
60MOVE43,150;DRAW47,150;DRAW47,158;DRAW43,158;DRAW43,150
61MOVE51,158;DRAW51,150;DRAW55,150;DRAW55,158
62MOVE59,150;DRAW59,158;DRAW62,158;DRAW63,157;DRAW63,154
63MOVE63,154;DRAW59,154;MOVE61,154;DRAW63,158
64MOVE78,158;DRAW75,158;DRAW74,157;DRAW74,151;DRAW75,150
65DRAW77,150;DRAW78,151;DRAW78,153;DRAW77,153
66MOVE82,158;DRAW86,158;DRAW86,150;DRAW82,158;DRAW82,150
67R.
68P.#12;?#E1=0;?#000=32
69P.*****                            TUT-TUT" " "WRONG CHOICE"
70IN.*****                            ANOTHER GAME (1-NO YES-2)"2
71IF Z=2 G.74
72P.#12;?#E1=0;?#000=32;P.*****
73G.73
74P.#12;?#E1=0;P.***** "O.K I'LL GIVE YOU ANOTHER CHANCE"
75?#000=32;G.9
76cREM DRAW 'COPY'
77COLOUR3
78MOVE56,190;DRAW54,190;DRAW54,186;DRAW56,186
79MOVE58,190;DRAW58,186;DRAW60,186;DRAW60,190;DRAW58,190
80MOVE62,188;DRAW64,188;DRAW64,190;DRAW62,190;DRAW62,186
81MOVE66,190;DRAW66,188;DRAW68,188;MOVE68,190;DRAW68,186
82DRAW66,186;R.

```

## COPY BY NEIL DEVLIN RUNS ON AN ATOM IN 12K

```

10 GO SUB 620
15 REM MAIN LOOP
20 FOR g=1 TO 20
30 IF g>1 THEN PRINT AT 11,4:
PAPER 3; FLASH 1;" Made it! "g;
" ghosts now "; PAUSE 200; FOR J
=1 TO 5: BEEP .1,30; NEXT J: PAU
SE 200
40 LET m=0
50 GO SUB 520
55 REM SET UP ANYMATTER
60 FOR j=1 TO 10
70 PRINT AT INT (RND*20)+1,INT
(RND*30)+1; INK 5;"0"
80 NEXT j
85 REM SET UP PLAYER & GHOSTS
90 LET a=INT (RND*21)+1
100 LET b=INT (RND*31)+1
110 DIM a(g,2): DIM b(g,2)
120 FOR j=1 TO g
130 LET a(j,1)=INT (RND*21)+1
140 LET a(j,2)=INT (RND*31)+1
150 NEXT j
160 LET c=a: LET d=b
170 GO SUB 420
180 PRINT AT 0,0; PAPER 2;" "
190 PAUSE 0
195 REM MOVEMENT LOOP
200 FOR k=1 TO 3
210 LET c=a
220 LET d=b
225 REM PLAYER MOVEMENT
230 LET a=a+(INKEY$="6" AND a<2
1)-(INKEY$="7" AND a>1)
240 LET b=b+(INKEY$="6" AND b<3
1)-(INKEY$="5" AND b>0)
245 REM GHOST MOVEMENT

```

How good are your powers of concentration and memory?

Not very good, then let Copy hone them to razor sharpness as the Atom displays in hi-res graphics an ever increasing sequence

of numbers for you to remember. One wrong one and you have to start all over again from scratch.

For those of you thinking you are superior there is a fast mode designed to take the smirk off your face and bring you back to reality.

Based upon the Simon game, Copy is written for an expanded Atom.

# GHOSTS

How long can you evade the nasty little ghosts that pursue relentlessly around the screen? Your only chance is to force the ghosts to step onto anti-matter spots.

First there will be one ghost after you and when he has been disposed of two more will appear to carry on the evil job. When the two have gone three will appear, then four, five . . .

Watch out that you do not get caught by them or step onto an anti-matter spot or you will come to a nasty end!

This program uses all three of the Spectrum's best requisites — sound, colour, and user-defined graphics — to make up an exciting arcade type game.

When run the computer sets up the screen and waits for you to press a key before starting. Your little man is moved by the cursor keys.

BY IAN McATAMNEY

RUNS ON A SPECTRUM IN 16K



```

250 FOR J=1 TO 9
260 IF J>9 THEN GO TO 370
270 IF #=9 THEN NEXT J
280 IF a(j,1)=200 THEN GO TO 370
290 IF J>9 THEN GO TO 370
300 LET b(j,1)=a(j,1): LET b(j,2)=a(j,2)
310 IF k=3 THEN GO TO 340
320 LET a(j,1)=a(j,1)+(a(j,1)-a(j,2))
330 LET a(j,2)=a(j,2)+(a(j,2)-b(j,2))
340 IF ATTR(a(j,1),a(j,2))=13
350 THEN PRINT AT b(j,1),b(j,2):
360 BEEP .05,5: LET a(j,1)=200: LET
370 #=#+1
380 IF a(j,1)=a AND a(j,2)=b TH
390 EN GO TO 580
400 NEXT J
410 IF #>9 THEN NEXT J
420 IF ATTR(a,b)=13 THEN GO TO
430 GO SUB 420
440 NEXT k
450 GO TO 200
460 REM PRINT SCREEN
470 PRINT AT c,d: " "; AT a,b: "X"
480 PRINT AT c,d: " "
490 BEEP .02,20
500 PRINT AT 0,0: PAPER 2: "
510 Ghosts left: "g-m: "
520
530 FOR J=1 TO 9
540 IF a(j,1)=200 THEN NEXT J
550 IF J>9 THEN RETURN
560 IF ATTR(a(j,1),a(j,2))=13
570 THEN LET a(j,1)=b(j,1): LET
580 a(j,2)=b(j,2)
590 PRINT AT b(j,1),b(j,2): "X"
600 AT a(j,1),a(j,2): INK 6: "

```

```

500 NEXT J
510 RETURN
520 PAPER 1: INK 7: CLS: BORDE
530
540 RETURN
550 REM END GAME
560 PRINT AT c,d: " "; AT a,b: FL
570 ASH 1: INK 2: " "
580 PRINT AT 0,0: PAPER 4: INK
590 FLASH 1: "Fool, you went onto
600 antmatter "
610 BEEP 2, -45
620 PAUSE 0: PAUSE 0: RUN
630 PAUSE 0: PAUSE 0: RUN
640 PRINT AT b(j,1),b(j,2): "X"
650 AT c,d: INK 2: " "
660 PRINT AT 0,0: PAPER 4: INK
670 FLASH 1: "Got you this t
680
690 BEEP 2, -45
700 PAUSE 0: PAUSE 0: RUN
710 REM USER-DEFINED GRAPHICS
720 FOR J=0 TO 7: READ P: POKE
730 "a"+J,VAL("BIN"+STR$ P): N
740 EXT J
750 FOR J=0 TO 7: READ P: POKE
760 "b"+J,VAL("BIN"+STR$ P): N
770 EXT J
780 FOR J=0 TO 7: READ P: POKE
790 "c"+J,VAL("BIN"+STR$ P): N
800 EXT J
810 RETURN
820 DATA 10000,111000,10000,111
830 DATA 10000,10000,101000,1000100,
840 1100,10000,1010100,11010110,
850 111000,1111100,1010100,10010,
860 1111110,1111110,11011010,10010,
870 010,111100,1111110,1111111,1111
880 111,1111111,1111111,1111110,1
890 11100

```

```

1 PRINT "E":
2 S$=" "
3 DATA 53249,53413,53536,53618
4 DATA 53268,53424,53541,53619
5 DIM CL(2,4):FOR I=1 TO 2:FOR J=1 TO 4:READ CL(I,J):
6 NEXT J,I
7
8 DATA 20,12,6,2
9 FOR I=1 TO 200:TV=RND(1):NEXT
10 LI=6+INT(RND(1)*5):LJ=6+INT(RND(1)*5):DR
11 =INT(RND(1)*4)+1:CI=LI:CJ=LJ-1-LJ
12 DIM DW(4):FOR I=1 TO 4:READ DW(I):NEXT
13 DIM DL(2,2):DL(1,1)=119:DL(1,2)=118:DL(2,1)=
14 118:DL(2,2)=119
15 DIM VL(2):VL(1)=61:VL(2)=113
16 DIM DR(4):FOR I=1 TO 4:READ DR(I):NEXT
17 DATA 2,3,5,7
18 DATA 14,15,42,14,10,10,2,6,14,6
19 DATA 21,14,15,21,70,10,15,21,21,21
20 DATA 21,21,14,5,10,10,2,15,21,21
21 DATA 7,3,35,10,10,6,35,10,15,21
22 DATA 21,35,10,10,6,21,14,10,10,15
23 DATA 105,14,10,10,15,105,35,10,10,6
24 DATA 70,5,10,10,10,2,10,2,10,15
25 DATA 14,10,10,10,10,3,42,7,10,30
26 DATA 35,10,2,6,70,15,21,21,70,6
27 DATA 70,10,15,35,10,10,5,5,10,15
28 DATA 42,14,10,2,10,15,14,10,10,6
29 DATA 21,35,30,21,14,10,5,10,6,21
30 DATA 35,10,6,21,21,14,10,6,21,21
31 DATA 14,6,21,21,21,35,6,21,21,21
32 DATA 21,105,21,21,35,10,15,21,21,21
33 DATA 35,10,3,35,10,10,10,15,105,21
34 DATA 14,10,5,6,14,6,14,10,10,15
35 DATA 21,14,6,105,21,21,35,10,10,6
36 DATA 21,21,7,10,15,21,14,10,30,21
37 DATA 35,15,35,10,10,5,5,10,10,15
38 DATA 14,10,10,6,21,14,2,10,6,42
39 DATA 21,14,6,21,35,15,21,42,21,21
40 DATA 21,42,21,21,14,2,15,21,35,15
41 DATA 7,2,3,21,21,21,14,3,14,6
42 DATA 21,21,105,21,21,21,21,35,15,21
43 DATA 21,35,10,15,21,35,5,10,10,3
44 DATA 35,10,10,10,5,10,2,10,6,21
45 DATA 42,70,10,2,10,6,21,42,35,15
46 DATA 7,21,2,3,14,5,5,5,10,6
47 DATA 105,70,15,105,35,10,10,30,70,15
48 REM ** INSTRUCTIONS **
49 PRINT " "
50 PRINT " "
51 PRINT " 3 - D "
52 PRINT " "
53 PRINT " "

```

# 3D MAZE

BY MATTHEW BLAKSTAD

RUNS ON AN MZ80K IN 7K

Baffled, bothered and bewildered? No? Well you will be after trying to find your way out of 3D-Maze!

You'll find yourself in an impressive graphic representation of a mindbending maze once you've programmed in all the twists and turns. All you have to do is escape.

The program enables you to move left, right, and forwards, and even to execute a neat little 180 degree "flip" as you attempt to work out which way the exit is.

When the elusive exit is in sight a letter 'E' appears on the screen. A musical jingle greets your successful escape and the computer displays the time it took you to get out of its mysterious maze. See you soon - we

Variables/arrays  
CL(2,4): corner location on screen of walls. TV: temporary variable. LI, LJ: co-ordinates of player. TI, TJ: temporary co-ordinates for

printout. SI, SJ: co-ordinate for finding side location. DR: direction in which player is facing. CI, CJ: co-ordinates for printout at end of game. DW, (4): depth of wall for each distance. DL (2,2): codes of diagonal line graphics. VL (2): codes of vertical line graphics.

DR (4): prime number for testing the presence of a wall. S: horizontal space string. I&J: loop variables. (also X). AS: temporary string variable. MS (10,10): number of each cell for testing for the presence of a wall. MZ: choice of maze. TIS: MZ-80K time string. CA: advancement of cell from (TI,TJ). SD: side being tested for a wall.

OV: other temporary variable. TN: direction of turn/correct input test. PP: position of poke (location). CI: left hand corner for facing wall. C2: right hand corner for facing wall. WH: wall height for facing wall. DW: wall depths for walls in adjacent cells.

```

134 PRINT"
135 PRINT"
136 PRINT"
137 PRINT"
138 PRINT"
139 PRINT"
140 PRINT"
141 PRINT"
142 PRINT"
143 PRINT"
144 PRINT"
145 PRINT"
146 PRINT"
147 PRINT"
148 PRINT"
149 PRINT"
150 TEMP07:FORJ=1TO5:FORI=1TO5:MUSIC"_D0_E0"
:NEXT:FORI=1TO5:MUSIC"_D0_C0"
155 NEXTI,J
160 PRINT"□":PRINTS$:"Find your way"
161 PRINTS$:"through a"
162 PRINTS$:"perspective view"
163 PRINTS$:"of one of three"
164 PRINTS$:"mazes,using the"
165 PRINTS$:"commands listed."
166 PRINT:PRINT:PRINTS$:"N.B. The cell"
167 PRINTS$:"nearest to you"
168 PRINTS$:"is the one"
169 PRINTS$:"which you are"
170 PRINTS$:"in."
180 PRINT:PRINT:PRINT:PRINTS$:"PRESS ANY KEY"
190 GET A$:IFA$=""THEN190
250 PRINT"SELECT MAZE (1-3)"
260 GETA$:IF(VAL(A$)=0)+(VAL(A$)>3)THEN260
265 PRINT"0"
270 DIMMS(10,10):FORX=1TOVAL(A$):FORI=1TO10:
FORJ=1TO10:READMS(I,J):NEXTJ,I,X
280 MZ=VAL(A$)
290 POKE59555,0
295 TI$="000000"
299 REM == DISPLAY LOOP ==
300 TI=LI:TJ=LJ:FORCA=1TO4
309 REM == LEFT & RIGHT WALLS ==
310 FORSD=1TO2
320 OU=DR+(3-2*SD):IFOU=0THENOU=4
325 IFOU=5THENOU=1
330 TV=MS(TI,TJ)/DR(OU)
335 IFINT(TV)<>TVTHEN1050
340 FORI=CL(SD,CA)TOCL(SD,CA)+(43-2*SD)*(4-
CA)STEP(43-2*SD)
345 POKEI,DL(SD,1):NEXT
347 IFCA=4THENI=CL(SD,CA)+40:GOTO360
350 TV=I+(SD*2-3):FORI=TUTOTV+40*(DW(CA)-2*
(4-CA)-3)STEP40:POKEI,UL(SD):NEXT
360 TV=I:FORI=TUTOTV+(37+2*SD)*(4-CA)STEP
(37+2*SD):POKEI,DL(SD,2):NEXTI
370 FORI=CL(SD,CA)+(2*SD-3)TOCL(SD,CA)+
(2*SD-3)+40*(DW(CA)-40)STEP40
380 POKEI,UL(SD):NEXTI
381 NEXTSD
385 IFCA=4THEN450
390 TV=MS(TI,TJ)/DR(DR)
400 IFINT(TV)=TUTHEN1000
410 IFDR=1THENTI=TI-1:IFTI=0THENPOKECL
(1,4),5:GOTO700
420 IFDR=2THENTI=TI+1
430 IFDR=3THENTI=TI+1
440 IFDR=4THENTI=TI-1
450 NEXTCA
700 POKE59555,1:PRINT"□":S$:" Your move"
710 PRINTS$:"======"
720 PRINT:PRINT:PRINTS$:"L=Left R=Right"
730 PRINT:PRINTS$:"F=Flip M=Move"
740 PRINT:PRINT:PRINTS$:""
750 GETA$:IFA$=""THEN750
760 PRINT"□":S$:"":A$
770 IFA$="L"THENTN=1
780 IFA$="R"THENTN=-1
790 IFA$="F"THENTN=2
800 IFA$="M"THEN850
810 IFTN=0THEN750
820 DR=DR+TN:IFDR=0THENDR=4
830 IFDR>4THENDR=DR-4
840 TN=0:PRINT"0":POKE59555,0:GOTO300
850 IFMS(LI,LJ)/DR(DR)=INT(MS(LI,LJ)/DR(DR)
)THENMUSIC"C0":GOTO750
855 IFDR=1THENLI=LI-1:IFLI=0THEN900
860 IFDR=2THENLI=LI+1

```

```

870 IFDR=3THENLI=LI+1
880 IFDR=4THENLI=LJ-1
890 GOTO840
900 FORI=1TO200:POKE4514,INT(RND(1)*50):USR
(68):NEXT:USR(71)
910 PRINT"0":
920 ONMZGOSUB1180,1400,1620
930 PRINT"00000000":S$:"STARTING"
935 PRINTS$:"CO-ORDS :-"
940 PRINT:PRINTS$:"(":CI:" ",":CJ:" )"
945 PP=53207+80*CI+2*CJ
950 POKEPP,202
955 PRINT:PRINT:PRINTS$:"Time:-":VAL(MID$
(TI$,3,2)):mins."
960 PRINT:PRINT:PRINTS$:"SSANOTHER GAME?"
965 GET A$:IF A$=""THEN965
970 IFA$="Y"THENPRINT"YES":FORI=1TO500:NEXT:
RESTORE:GOTO1
980 PRINT"NO":END
999 REM == FACING WALL DISPLAY ==
1000 C1=CL(1,CA)+(5-CA)*41:C2=CL(2,CA)+(5-CA)
*39:WH=DW(CA)-2*(5-CA)-1
1005 FORI=C1TOC2:POKEI-40,60:NEXTI
1010 FORI=0TOWH:POKEC1+40*I,UL(2):POKEC2+40*
I,UL(1):NEXT
1020 FORI=C1+40*WHTOC2+40*WH:POKEI+40,112:NEXT
1030 GOTO700
1049 REM == SPACE TO SIDE ==
1050 SI=TI:SJ=TJ
1060 IFOU=1THENSJ=SI-1:IFSI=0THEN381
1070 IFOU=2THENSJ=SI+1
1080 IFOU=3THENSJ=SI+1
1090 IFOU=4THENSJ=SI-1
1100 TV=MS(SI,SJ)/DR(DR)
1110 IFINT(TV)<>TVTHENGOTO381
1370 PRINT"
1380 PRINT"
1390 RETURN
1400 PRINT"
1410 PRINT"
1420 PRINT"
1430 PRINT"
1440 PRINT"
1450 PRINT"
1460 PRINT"
1470 PRINT"
1480 PRINT"
1490 PRINT"
1500 PRINT"
1510 PRINT"
1520 PRINT"
1530 PRINT"
1540 PRINT"
1550 PRINT"
1560 PRINT"
1570 PRINT"
1580 PRINT"
1590 PRINT"
1600 PRINT"
1610 RETURN
1620 PRINT"
1630 PRINT"
1640 PRINT"
1650 PRINT"
1660 PRINT"
1670 PRINT"
1680 PRINT"
1690 PRINT"
1700 PRINT"
1710 PRINT"
1720 PRINT"
1730 PRINT"
1740 PRINT"
1750 PRINT"
1760 PRINT"
1770 PRINT"
1780 PRINT"
1790 PRINT"
1800 PRINT"
1810 PRINT"
1820 PRINT"
1830 RETURN

```



# GRAPHICAL

BY IAN TURTLE

RUNS ON A ZX81 IN 8K

# GOLF

So you think you're another Arnold Palmer do you? Well, this round of golf will sort the men out from the boys!

Graphical Golf is an 18-hole simulation of the real game. It has been made as realistic as possible, with many of the features of the real thing.

Initially, the computer asks you if you would like a random or a normal course. If you choose the normal course, you will get the lengths and pars of holes stored in the REM statement in line 10.

If you choose the random course, you have access to over 65 000 different courses by inputting a number between 1 and 65 000+ in reply to "COURSE NO?". If you want to play that course again sometime, simply input the same number in response to "COURSE NO?". Finally, you asked to input your handicap, else input 24. If you play well enough, your handicap will be

reduced at the end of the round. From now, you are on the course. If you have a ZX81, you will see the computer draw the hole, else, on the ZX80, the screen will simply go blank for 10 seconds or so. When the computer has finished, you will be presented with a graphical representation of a golf hole.

The computer will then ask you for your choice of club. You have 22 clubs, consisting of 1-4 woods, 1-9 irons and with their own percentage swing. Next you are asked to input an angle of shot. An input of '0' degrees means straight ahead, '90' straight up, etc.

You'll encounter all the hazards of a real course, bunkers, the rough, and even water traps.

The computer will print out a scorecard for each round you play - and maybe even reduce your handicap should your performance warrant it!

```

10 REM 36143894206350054084359
44244388419634004560513233574294
44755375418035505
20 LET U=VAL "1"
30 LET Y=VAL "0"
40 PRINT TAB VAL "9";"GRAPHICA
L GOLF"
50 PRINT
60 PRINT TAB VAL "7";"(C) IAN T
URTLE, 1981"
70 PRINT
80 PRINT "RANDOM OR NORMAL COU
RSE?-R/N"
90 PAUSE VAL "40000"
100 LET Z$=INKEY$
110 IF Z$<>"R" AND Z$<>"N" THEN
GOTO VAL "30"
120 DIM L(VAL "18")
130 DIM P(VAL "18")
140 DIM S(VAL "18")
150 IF Z$="R" THEN GOTO VAL "26"
0
160 LET ZZ=VAL "15513"
170 FOR H=U TO VAL "18"
180 FOR A=U TO VAL "3"
190 LET ZZ=ZZ+U
200 LET L(H)=L(H)*VAL "10"+PEEK
(ZZ)-VAL "28"
210 NEXT A
220 LET ZZ=ZZ+U
230 LET P(H)=PEEK (ZZ)-VAL "28"
240 NEXT H
250 GOTO VAL "330"
260 PRINT "COURSE NO?"
263 INPUT ZZ
266 RAND ZZ
267 LET ZZ=Y
270 FOR H=U TO VAL "18"
280 LET L(H)=INT (RND*VAL "420"
)+VAL "181"
290 LET P(H)=VAL "3"+(L(H)*VAL
"279")+(L(H)*VAL "499")
295 LET ZZ=ZZ+P(H)
300 NEXT H
305 PRINT "PAR=";ZZ
310 FOR A=U TO VAL "2"
320 NEXT A
330 LET A$=""
340 LET B$=""
350 FOR B=U TO VAL "32"
360 LET A$=A$+CHR$ VAL "8"
370 LET B$=B$+CHR$ Y
380 NEXT B
390 LET AS=Y
393 LET PB=Y
395 LET RC=U
400 LET CI=Y
410 LET PS=Y
420 LET HP=Y
430 LET UP=Y
440 LET TS=Y
450 LET PR=Y
460 LET ZZ=Y
470 LET YY=Y
480 LET XX=Y
490 LET SH=Y
500 LET DF=Y
510 LET HS=Y
520 LET VS=Y
530 LET BP=Y
540 LET MC=Y
550 LET TG=Y
570 PRINT "HANDICAP?"
580 INPUT HA
585 RAND
590 CLS
595 LET DF=PEEK VAL "16396"+VAL
"255":PEEK VAL "16397"
600 FOR H=U TO VAL "18"
610 LET PR=PR+P(H)
620 LET SH=Y
700 FOR A=U TO VAL "18"
710 PRINT A$
720 NEXT A
730 PRINT "HOLE ";H;" DIST ";L
(H);" PAR ";P(H)
740 LET UP=VAL "3"+INT (RND*VAL
"13")
745 LET TG=UP
750 FOR A=U TO L(H)/VAL "20"-U
760 FOR B=-V-(RND*.5) TO V+(RND
).5)

```

```

770 POKE (UP+B)*VAL "33"+A+DF,Y
780 NEXT B
790 LET UP=UP+(RND*.5)-(RND*.5)
800 LET UP=UP-(UP>VAL "15")+(UP
<VAL "2")
810 NEXT A
820 LET HP=INT (L(H)/VAL "20")-
U
830 FOR A=-V-(RND*.3) TO V+(RND
).3)
850 FOR B=-V-(RND*.3) TO V+(RND
).3)
860 POKE (UP+B)*VAL "33"+HP+A+D
F,VAL "128"
870 NEXT B
880 NEXT A
890 POKE UP*VAL "33"+HP+DF,VAL
"149"
900 POKE DF+TG*VAL "33"+U,VAL "
185"
910 LET ZZ=VAL "-3"+INT (RND*VA
L "7")
920 LET YY=DF+(UP+ZZ)*VAL "33"+
HP
930 IF PEEK (YY)<>VAL "8" AND P
EEK (YY)<>Y THEN GOTO VAL "910"
940 POKE YY,VAL "52"
950 FOR A=U TO VAL "4"+(RND*.4)
960 LET ZZ=VAL "-3"-INT (RND*VA
L "3")
970 LET XX=VAL "-3"+INT (RND*VA
L "7")
980 LET YY=DF+(UP+XX)*VAL "33"+
HP+ZZ
990 IF PEEK (YY)<>VAL "8" AND P
EEK (YY)<>Y THEN GOTO VAL "960"
1000 POKE YY,VAL "52"
1010 NEXT A
1020 IF P(H)<VAL "4" THEN GOTO V
AL "1240"
1030 LET HP=VAL "10"

```

```

1040 FOR A=U TO VAL "4"*(RND*.4)
1050 LET ZZ=HP+INT (RND*VAL "4")
1060 FOR B=Y TO VAL "17"
1070 LET YY=DF+B*VAL "33"+ZZ
1080 IF PEEK (YY)<>Y THEN GOTO U
AL "1110"
1090 POKE YY,VAL "52"
1100 GOTO VAL "1120"
1110 NEXT B
1120 NEXT A
1130 IF P(H)<VAL "5" THEN GOTO U
AL "1240"
1140 LET HP=VAL "17"
1150 FOR A=U TO VAL "4"*(RND*.4)
1160 LET ZZ=HP+INT (RND*VAL "4")
1170 FOR B=Y TO VAL "17"
1180 LET YY=DF+B*VAL "33"+ZZ
1190 IF PEEK (YY)<>Y THEN GOTO U
AL "1220"
1200 POKE YY,VAL "52"
1210 GOTO VAL "1230"
1220 NEXT B
1230 NEXT A
1240 IF RND>.25 THEN GOTO VAL "1
310"
1250 LET HP=INT (L(H)/VAL "40")
1260 FOR A=Y TO VAL "17"
1270 POKE A*VAL "33"+HP+DF,VAL "
152"
1280 LET HP=HP+(RND*.5)-(RND*.5)
1290 LET HP=HP+(HP<VAL "2")-(HP>
=L(H)/VAL "20")
1300 NEXT A
1310 LET HP=U
1320 LET UP=TG
1330 LET PB=Y
1350 PRINT AT VAL "21",Y;"CLUB?"
1360 INPUT CI
1370 IF CI<U OR CI>VAL "29" OR C
I>VAL "4" AND CI<VAL "11" OR CI=
VAL "20" OR CI<MC THEN GOTO VAL
"1360"
1375 LET MC=Y
1380 IF CI>VAL "19" THEN GOTO VA
L "1410"
1390 LET PS=VAL "100"
1400 GOTO VAL "1450"
1410 PRINT AT VAL "21",Y;"PERCEN
TAGE SWING?(50-100)"
1430 INPUT PS
1440 IF PS<VAL "50" OR PS>VAL "1
00" THEN GOTO VAL "1430"
1450 PRINT AT VAL "21",Y;"SHOT A
NGLE?(-180 TO +180)"
1470 INPUT AS
1480 IF AS<VAL "-180" OR AS>VAL
"180" THEN GOTO VAL "1470"
1483 PRINT AT VAL "21",Y;B$
1484 PRINT AT VAL "20",Y;B$
1485 IF PB = V THEN POKE BP,YY
1490 LET AS=INT (AS+RND*(VAL "22
"+HA)-RND*(VAL "22"+HA))
1500 LET AS=(AS*PI)/VAL "180"
1510 LET SH=SH+U
1520 LET PS=PS/VAL "100"
1530 IF CI>VAL "20" THEN LET CI=
CI-VAL "10"
1533 IF CI>VAL "10" THEN LET CI=
CI-VAL "6"
1536 LET CI=VAL "16"-CI
1537 POKE DF+U,VAL "28"+SH
1540 LET HS=INT (((CI*(VAL "14
"+INT (RND*VAL "3")))*PS*RC)*COS
(AS))/VAL "20")+.5)
1545 LET VS=INT (((CI*(VAL "14
"+INT (RND*VAL "3")))*PS*RC)*SIN
(AS))/VAL "20")+.5)
1547 LET RC=U
1550 LET BP=DF+HP+HS+(UP+VS)*VAL
"33"
1560 IF HP+HS>VAL "32" OR HP+HS<
U OR UP+VS<Y OR UP+VS>VAL "17" T
HEN GOTO VAL "1670"
1580 LET YY=PEEK (BP)
1590 IF YY=VAL "152" THEN GOTO U
AL "1720"
1595 LET BB=U
1600 FOR A=U TO VAL "3"
1602 POKE BP,YY
1603 PAUSE VAL "50"
1604 POKE BP,VAL "155"
1605 PAUSE VAL "50"
1606 NEXT A
1610 IF YY=VAL "126" OR YY=VAL "
149" THEN GOTO VAL "2000"
1620 IF YY=VAL "8" THEN GOTO VAL
"1750"

```

```

1630 IF YY=VAL "52" THEN GOTO VA
L "1830"
1640 PRINT AT VAL "20",Y;B$
1650 PRINT AT VAL "20",Y;"ON FAI
RWAY"
1660 GOTO VAL "1930"
1670 PRINT AT VAL "20",Y;B$
1680 PRINT AT VAL "20",Y;"OUT OF
BOUNDS-PENELTY 1 STROKE"
1690 LET SH=SH+U
1695 LET PB=Y
1700 PAUSE VAL "100"
1710 GOTO VAL "1340"
1720 PRINT AT VAL "20",Y;B$
1730 PRINT AT VAL "20",Y;"SPLASH
IN WATER-PEN. 1 STROKE"
1740 GOTO VAL "1690"
1750 PRINT AT VAL "20",Y;B$
1755 LET MC=VAL "11"
1760 IF RND>.4 THEN GOTO VAL "18
00"
1770 PRINT AT VAL "20",Y;"IN HEA
DY ROUGH"
1780 LET RC=.6+RND/VAL "5"
1790 GOTO VAL "1930"
1800 PRINT AT VAL "20",Y;"IN LIG
HT ROUGH"
1810 LET RC=.8+RND/VAL "5"
1820 GOTO VAL "1930"
1830 PRINT AT VAL "20",Y;B$
1840 PRINT AT VAL "20",Y;"BUNKER
ED-"
1850 LET ZZ=INT (RND*VAL "3")
1860 IF ZZ=U THEN PRINT "GOOD"
1870 IF ZZ=V THEN LET MC=VAL "24
"+INT (RND*VAL "2")
1880 IF ZZ=Y THEN PRINT "AV."
1890 IF ZZ=Y THEN LET MC=VAL "26
"+INT (RND*VAL "2")
1900 IF ZZ=VAL "2" THEN PRINT "B
AD"
1910 IF ZZ=VAL "2" THEN LET MC=U
AL "28"+INT (RND*VAL "2")
1915 LET RC=.7-ZZ/VAL "10"+RND/U
AL "5"
1920 PRINT "LIE,MAX.CLUB ";MC
1930 PAUSE VAL "100"
1940 LET HP=HP+HS
1950 LET UP=UP+VS
1960 GOTO VAL "1350"
2000 LET HP=HP+HS
2010 PRINT AT VAL "20",Y;B$
2020 PRINT AT VAL "20",Y;"ON THE
GREEN IN ";SH
2030 PAUSE VAL "150"
2040 CLS
2050 PRINT TAB VAL "17";"Q"
2060 PRINT TAB VAL "17";"
2070 PRINT TAB VAL "17";"
2080 FOR A=U TO VAL "6"
2090 PRINT TAB VAL "20";"I"
2130 NEXT A
2140 PRINT "
2150 POKE DF+VAL "52",VAL "128"+
VAL "29"*(INT (H/VAL "10"))=U)
2160 POKE DF+VAL "53",VAL "156"+
H-(INT (H/VAL "10"))*VAL "10")
2170 LET TG=VAL "2"+INT (RND*VAL
"3")
2180 IF TG=VAL "2" THEN PRINT "S
LOW"
2190 IF TG=VAL "3" THEN PRINT "M
EDIUM"
2200 IF TG=VAL "4" THEN PRINT "F
AST"
2210 PRINT "GREEN"
2220 PRINT AT VAL "12",VAL "3";"
FT.FROM PIN"
2230 LET YY=ABS (HP+U-INT (L(H)/
VAL "20"))
2240 LET BP=INT (YY*VAL "20"+RND
*VAL "20")+U
2250 PRINT AT VAL "12",Y;"
2260 PRINT AT VAL "12",Y;ABS BP
2270 IF ABS BP<VAL "2" THEN GOTO
VAL "2460"
2280 LET YY=VAL "20"-INT ((BP/VA
L "3")+U)
2290 IF YY>VAL "32" THEN LET YY=
VAL "32"
2300 IF YY<U THEN LET YY=U
2310 LET YY=YY-(YY=VAL "20")+(YY
=VAL "21")
2320 POKE DF+VAL "297"+YY,VAL "5
2"
2330 PRINT AT VAL "13",Y;"PUTTIN

```



```

G STRENGTH?(1-20) "
2340 INPUT ZZ
2350 IF ZZ<U OR ZZ>VAL "20" THEN
  GOTO VAL "2340"
2360 IF BP<Y THEN LET XX=U
2370 IF BP>Y THEN LET XX=-U
2380 POKE DF+VAL "297"+YY,VAL "9"
2400 PAUSE VAL "50"
2410 FOR A=U TO ZZ
2420 LET BP=BP+XX*(U+INT (RND*TG
))
2430 NEXT A
2440 LET SH=SH+U
2450 GOTO VAL "2250"
2460 POKE DF+VAL "317",VAL "52"
2470 PAUSE VAL "50"
2480 POKE DF+VAL "317",VAL "131"
2490 PAUSE VAL "100"
2500 CLS
2510 PRINT "YOU HOLED OUT IN ";S
H;" SHOTS"
2520 LET S(H)=SH
2530 LET ZZ=SH-P(H)
2540 IF ZZ=VAL "-3" THEN PRINT "
EXCELLANT-AN ALBERTROSS"
2550 IF ZZ=VAL "-2" AND P(H)=VAL
"3" THEN PRINT "UNBELIEVABLE-A
HOLE IN ONE"
2560 IF ZZ=VAL "-2" AND P(H)<>VA
L "3" THEN PRINT "GREAT-AN EAGLE
"
2570 IF ZZ=VAL "-1" THEN PRINT "
VERY GOOD-A BIRDIE"
2580 IF ZZ=Y THEN PRINT "WELL DO
NE-A PAR"
2590 IF ZZ=U THEN PRINT "HHHMM-
A BOGEY"
2600 IF ZZ>U THEN PRINT "KEEP YO
UR HEAD DOWN"
2610 PRINT
2620 LET TS=TS+SH
2630 LET ZZ=TS-PR
2640 PRINT "YOU ARE NOW ";
2650 IF ZZ<Y THEN PRINT ABS ZZ;"
UNDER"
2660 IF ZZ=Y THEN PRINT "LEVEL";
2670 IF ZZ>Y THEN PRINT ZZ;" OVE
R";
2680 PRINT " PAR(GROSS)"
2690 PRINT
2700 PRINT "PRESS ANY KEY"
2710 PAUSE VAL "40000"
2720 CLS
2730 NEXT H
2740 PRINT TAB VAL "12";"SCORE"
2750 PRINT TAB VAL "3";"HOLE";TA
B VAL "11";"DIST";TAB VAL "19";"
PAR";TAB VAL "26";"SHOTS"
2760 FOR H=U TO VAL "18"
2770 PRINT TAB VAL "4";H;TAB VAL
"12";L(H);TAB VAL "20";P(H);TAB
VAL "28";S(H)
2780 NEXT H
2790 PRINT "ANY KEY";TAB VAL "19
";PR;TAB VAL "27";TS
2800 PAUSE VAL "40000"
2810 CLS
2820 PRINT "YOU TOOK ";TS;" SHOT
S"
2830 PRINT "(NET ";TS-HA;" )"
2840 PRINT
2850 LET ZZ=TS-PR-HA
2860 PRINT "YOU FINISHED ";
2870 IF ZZ<Y THEN PRINT ABS ZZ;"
UNDER";
2880 IF ZZ=Y THEN PRINT "LEVEL";
2890 IF ZZ>Y THEN PRINT ZZ;" OVE
R";
2900 PRINT " PAR(NET)"
2910 IF HA=Y THEN STOP
2920 IF ZZ>VAL "-2" THEN LET PD=
Y
2930 IF ZZ<-U THEN LET PD=-U
2940 IF ZZ<VAL "-3" THEN LET PD=
VAL "-2"
2950 IF ABS PD>HA THEN LET PD=-H
A
2960 PRINT
2970 PRINT "AS A RESULT:"
2980 IF PD=Y THEN GOTO VAL "3020"
2990 PRINT "HANDICAP IS DOWN ";A
BS PD;" SHOTS," TO ";HA+PD
3000 STOP
3020 PRINT "YOUR HANDICAP STAYS A
T ";HA;" SHOTS"
3030 STOP

```

# DODGEMS

BY S. JAMES & R. NURSE

**RUNS ON A BBC MODEL B**

Vroom, vroom! Here they and one green. You are in come - it's the duelling control of the green car. dodgems! The computer controls the

But these are not really red one. like those old fairground The computer-car will favourites. There's more proceed to rush around than a touch of motorway the track into the opposite madness in this game. direction to your red car Your BBC micro will set - and it's aim is up a square-shaped race extremely unfriendly. It track for you - and two wants to knock you off the cars will appear. One red road as quickly as possible. You must avoid the computer car.

**IN 32K**

```

10high=0
20MODE7:PROCINSTRUCT
30MODE2:PROCSETUP:REM LAST PIECE OF PROGRAM
SETS UP VARIOUS COLOURS ETC.
40SC=0:ENVELOPE1,3,0,0,0,0,0,121,-10,-5,-2,
120,120
50M=0:ONERROR MODE7:END
60VDU23,1,0;0;0;0;
70GOSUB150:GOSUB150
80PROCDRAW:PROCFILLING
90PROCMOVE1
100IFYDX=0Y AND YAZ=0X THEN1040
110PROCMOVE2
120IFYDX=0Y AND YAZ=0X THEN1040
130GOTO90
140END
150VDU23,250,0,238,68,255,255,68,238,0
160VDU23,251,24,90,126,90,24,90,126,90
170VDU23,126,255,255,255,255,255,255,255,255
180YDZ=15:YAZ=7:CAR#=CHR#251
190OX=2:OY=2:CAR2#=CHR#251
200MX=1:MY=0:HM=0:VM=1
210RETURN
220DEFPROCDRAW
230COLOURbackcol:COLOURforecol
240CLS
250PRINT" SCORE:"
260PRINT"~~~~~"
270PRINT"~"
280PRINT"~"
290PRINT"~"
300PRINT"~"
310PRINT"~"
320PRINT"~"
330PRINT"~"
340PRINT"~"
350PRINT"~"
360PRINT"~"
370PRINT"~"
380PRINT"~"
390PRINT"~"
400PRINT"~"
410PRINT"~"
420PRINT"~"
430PRINT"~"
440PRINT"~"
450PRINT"~"
460PRINT"~"
470PRINT"~"
480PRINT"~"
490PRINT"~"
500PRINT"~"
510PRINT"~"
520PRINT"~"
530PRINT"~"
540ENDPROC
550DEFPROCMOVE1
560A=2236:M=0:FX15,0
570PRINTTAB(YAZ,YDZ)" ":IFA=0THEN610

```

```

580M=((SGN(HM)<>0)-(SGN(VM)<>0))*2*((A=178)-(A=193))
590IF FNREADCH(YA%+VM*SGN(M),YD%+HM*SGN(M))<>"~" AND FNREADCH(YA%+VM*M,YD%+HM*
M)<>"~" THEN YA%=YA%+VM*M:YD%=YD%+HM*M:IF FNREADCH(YA%-VM*M/2,YD%-HM*M/2)="." THEN
NPRINTTAB(YA%-VM*M/2,YD%-HM*M/2); " ":SC=SC+score:COLOUR$=COL:PRINTTAB(B,0);SC
600REM
610REM MOVE AROUND THE MAZE
620TY=YD%+VM:TX=YA%+HM:A$=FNREADCH(TX,TY)
630IFA$="." THEN SC=SC+score:COLOUR$=COL:PRINTTAB(B,0);SC
640IFA$<>" " AND A$<>"." PROCCHNG
650YD%=YD%+VM:YA%=YA%+HM:SOUND1,1,100,1
660COLOUR$=COL:PRINTTAB(YA%,YD%)CAR$
670ENDPROC
680DEFFPROCCHNG
690IFVM=1 AND HM=0 THENVM=0:HM=1:CAR$=CHR$250:ENDPROC
700IFVM=0 AND HM=1 THENVM=-1:HM=0:CAR$=CHR$251:ENDPROC
710IFVM=-1 AND HM=0 THENVM=0:HM=-1:CAR$=CHR$250:ENDPROC
720IFVM=0 AND HM=-1 THENVM=1:HM=0:CAR$=CHR$251:ENDPROC
730DEFFNREADCH(X,Y)
740LOCALA$,LASTX,LASTY,C
750LASTX=POS:LASTY=VPOS
760VDU31,X,Y
770A$=135:C=USR(&FFF4) AND &FFFF
780C=C DIV &100
790VDU31,LASTX,LASTY
800=CHR$(C)
810DEFFPROCMOVE2
820TX=MX+OX:TY=MY+OY
830A$=FNREADCH(TX,TY)
840IF A$="~" THEN PROCCHAN
850COLOUR$dotcol:PRINTTAB(OX,OY); " "
860COLOUR$mycol:PRINTTAB(TX,TY);CAR$=SOUND1,-8,50,1
870OX=TX:OY=TY:PROCCHNGLANE
880ENDPROC
890DEFFPROCCHAN
900IF MX=0 AND MY=1 THEN MX=-1:MY=0:CAR$=CHR$250:GOTO940
910IF MX=-1 AND MY=0 THEN MX=0:MY=-1:CAR$=CHR$251:GOTO940
920IF MX=0 AND MY=-1 THEN MX=1:MY=0:CAR$=CHR$250:GOTO940
930IF MX=1 AND MY=0 THEN MX=0:MY=1:CAR$=CHR$251:GOTO940
940TX=MX+OX:TY=MY+OY:ENDPROC
950DEFFPROCCHNGLANE
960DI=RND(3)-2:IFDI=0THEN960
970A$=FNREADCH(OX+MY*DI,OY+MX*DI)
980IFA$="~" THENENDPROC
990A$=FNREADCH(OX+MY*DI*2,OY+MX*DI*2)
1000IFA$="~" THENENDPROC
1010COLOUR$dotcol:PRINTTAB(OX,OY); " "
1020OX=OX+MY*DI*2:OY=OY+MX*DI*2
1030COLOUR$mycol:PRINTTAB(OX,OY);CAR$=ENDPROC
1040REMHIT
1050VDU23,240,0,0,0,24,24,0,0,0
1060VDU23,241,0,0,60,36,36,60,0,0
1070VDU23,242,0,126,66,66,66,66,126,0
1080VDU23,243,255,129,129,129,129,129,255
1090X=OX:Y=OY
1100FORT=1TO45
1110VDU5:GCOLOR,endcol
1120MOVEX*64,1020-Y*32
1130IF T AND 1<>0 THENPRINTCHR$240:MOVEX*64,1020-Y*32
1140IF T AND 2<>0 THENPRINTCHR$241:MOVEX*64,1020-Y*32
1150IF T AND 4<>0 THENPRINTCHR$242:MOVEX*64,1020-Y*32
1160IF T AND 8<>0 THENPRINTCHR$243:MOVEX*64,1020-Y*32
1170VDU4:PRINTTAB(OX,OY); " ":SOUND1,1,255-T*255/45,1:NEXT
1180CLS:FX15,0
1190MODE7:PRINTTAB(5,10); "You scored ":SC
1200IF high<SC THEN high=SC
1210PRINTTAB(5,11); "High Score:":high
1220PRINT " Do you want another go?"
1230A$=GET$
1240IFA$="Y" THEN30
1250IFA$="N" THENCLS:END
1260PRINTTAB(5,13); "Just a simple Y or N is sufficient.":GOTO1230
1270DEFFPROC FILLING
1280RESTORE1460:GCOLOR,dotcol:VDU5
1290MOVE0,up
1300FORT=1TO26:READA$:PRINT " ":A$:NEXT
1310VDU4:ENDPROC
1340DEFFPROCINSTRUCT
1350PRINTTAB(13);CHR$141;"DODGEMS"
1360PRINTTAB(13);CHR$141;"DODGEMS"
1370PRINTTAB(14); "===== "
1380PRINTTAB(3); "Welcome to the game of Dodgems."
1390PRINT "In this you have a picture of a square Race track. There are also two
cars The Red Car and The Green Car. The only control you have over yo
ur car (the green one) is that of either moving in to a smaller "
1400PRINT "track or out to a larger one. The red cargoes around the track in an o
pposite directions to you. To avoid it you must use these controls:"
1410PRINT " A-Move in."
1420PRINT " D-Move out."
1430PRINT " "Happy Dogeming!!"
1440PRINT "Press space to start."
1450REPEAT A$=GET$:UNTILA$=" ":ENDPROC

```

```

1460DATA.....
1470DATA.....
1480DATA.....
1490DATA.....
1500DATA.....
1510DATA.....
1520DATA.....
1530DATA.....
1531DATA.....
1532DATA.....
1533DATA.....
1540DATA.....
1550DATA.....
1560DATA.....
1570DATA.....
1571DATA.....
1580DATA.....
1590DATA.....
1600DATA.....
1610DATA.....
1620DATA.....
1630DATA.....
1640DATA.....
1650DATA.....
1660DATA.....
1670DATA.....

```

```

1000DEFFPROCSETUP
1001up=959:REM Start position of dots
1002backcol=132:REM Background colour
1003forecol=6:REM Foreground colour
1004yourcol=2:REM Colour of controlled car
1005dotcol=3:REM Colour of dots
1006mycol=1:REM Colour of random car
1007oscrcol=1:REM Colour of score
1008score=10:REM Increment of score
1009endcol=3:REM Colour of end graphics
1010ENDPROC

```



# ALPHA

```

100 GET01000
101 IF=0 THEN 100
102 C=INT(RND(1)*50)+50: C(1)=75: PRINT "C"
103 FOR W=1 TO 50: POKE 7680+(RND(1)*396), 46: NEXT W
104 FOR H=1 TO 10
105 PRINT "H"
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Your planet has been devastated by the marauding Astrol Fleet, the most warlike nation in the galaxy. Your defences are all but wiped out and the Astrol warrior-ships are closing in for the kill.

You are in control of the last Alpha defence base. But it is damaged and your laser is short of power.

But your turret does contain a multi-directional beam conveyor in working order — so you will be able to use your skill and judgement to destroy the descending Astrol Ships.

You can control the position of your Alfa base — but due to a computer malfunction you cannot move and fire your laser at the same time. The number of laser bolts which you have at your disposal is defined by a marksmanship rating which is input at the start of the game.

The future of your planet is in your hands. Can you stop the awful Astrols invading and laying waste to your home?

# ATTACK

BY ALEX KEIRNAN

RUNS ON AN UNEXPANDED VIC-20

```

1060 GET# IF#=" " THEN 1060
1070 IF#=" " THEN 1070
1080 PRINT "ALPHA ATTACK"
1090 PRINT "YOU ARE IN CONTROL OF THE SOLE REMAINING ALPHA BASE ON THE"
1100 PRINT "TERRAN PLANET. PREVENT THE MARAUDING ASTROL BATTLE FLEET"
1110 PRINT "IT IS YOUR JOB TO PLANET."
1120 PRINT "FROM INVADING THE"
1130 PRINT "BUT DUE TO PREVIOUS ATTACKS THE COMPUTER HAS MALFUNCTIONED."
1140 PRINT "PRESS ANY KEY"
1150 GET# IF#=" " THEN 1150
1160 PRINT "MALFUNCTION THE BASE AND GUN TURRET MAY NO"
1170 PRINT "DUE TO THIS"
1180 PRINT "BE MOVED TOGETHER"
1190 PRINT "WHILE MOVING THE"
1200 PRINT "CONTROL OF THE GUN"
1210 PRINT "PRESS ANY KEY"
1220 GET# IF#=" " THEN 1220
1230 PRINT "ALPHA ATTACK"
1240 PRINT "THE CONTROLS ARE NOW"
1250 PRINT "MOVES BASE LEFT"
1260 PRINT "MOVES BASE RIGHT"
1270 PRINT "MOVES TURRET LEFT"
1280 PRINT "MOVES TURRET RIGHT"
1290 PRINT "SPACE BAR FIRES"
1300 PRINT "PRESS ANY KEY"
1310 GET# IF#=" " THEN 1310
1320 PRINT "ALPHA ATTACK"
1330 PRINT "WHAT DIFFICULTY?"
1340 PRINT "1 DIFFICULT - 5 EASY"
1350 PRINT "LEVEL"
1360 INPUT "
1370 GET# IF#=" " THEN 1370
1380 PRINT "WHAT IS YOUR?"
1390 PRINT "EXCELLENT - 5 POOR"
1400 PRINT "MARKSMANSHIP RATING"
1410 GET# IF#=" " THEN 1410
1420 INPUT "
1430 GET# IF#=" " THEN 1430
1440 PRINT "PRESS ANY KEY TO PLAY"
1450 GET# IF#=" " THEN 1450
1460 PRINT "YOU'VE BEEN BLOWN UP!" SHIPS FIRST GET01530
1470 IF#=" " THEN 1470
1480 PRINT "AND YOU DIDN'T HIT A THING" TO PLAY AGAIN OR ANY
1490 PRINT "PRESS Y/N"
1500 PRINT "KEY TO END"
1510 GET# IF#=" " THEN 1510
1520 GET# IF#=" " THEN 1520
1530 PRINT "CONGRATULATIONS YOU SURVIVED"
1540 PRINT "AND YOU SHOT THEM ALL" GET01530
1550 END
1560 PRINT "
1570 IF#=" " THEN 1570
1580 IF#=" " THEN 1580
1590 IF#=" " THEN 1590
1600 IF#=" " THEN 1600
1610 IF#=" " THEN 1610
1620 IF#=" " THEN 1620
1630 IF#=" " THEN 1630
1640 IF#=" " THEN 1640
1650 IF#=" " THEN 1650
1660 IF#=" " THEN 1660
1670 IF#=" " THEN 1670
1680 IF#=" " THEN 1680
1690 IF#=" " THEN 1690
1700 IF#=" " THEN 1700
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1770 IF#=" " THEN 1770
1780 IF#=" " THEN 1780
1790 IF#=" " THEN 1790
1800 IF#=" " THEN 1800
1810 IF#=" " THEN 1810
1820 IF#=" " THEN 1820
1830 IF#=" " THEN 1830
1840 IF#=" " THEN 1840
1850 IF#=" " THEN 1850
1860 IF#=" " THEN 1860
1870 IF#=" " THEN 1870
1880 IF#=" " THEN 1880
1890 IF#=" " THEN 1890
1900 IF#=" " THEN 1900
1910 IF#=" " THEN 1910
1920 IF#=" " THEN 1920
1930 IF#=" " THEN 1930
1940 IF#=" " THEN 1940
1950 IF#=" " THEN 1950
1960 IF#=" " THEN 1960
1970 IF#=" " THEN 1970
1980 IF#=" " THEN 1980
1990 IF#=" " THEN 1990
2000 IF#=" " THEN 2000
2010 IF#=" " THEN 2010
2020 IF#=" " THEN 2020
2030 IF#=" " THEN 2030
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2070 IF#=" " THEN 2070
2080 IF#=" " THEN 2080
2090 IF#=" " THEN 2090
2100 IF#=" " THEN 2100
2110 IF#=" " THEN 2110
2120 IF#=" " THEN 2120
2130 IF#=" " THEN 2130
2140 IF#=" " THEN 2140
2150 IF#=" " THEN 2150
2160 IF#=" " THEN 2160
2170 IF#=" " THEN 2170
2180 IF#=" " THEN 2180
2190 IF#=" " THEN 2190
2200 IF#=" " THEN 2200
2210 IF#=" " THEN 2210
2220 IF#=" " THEN 2220
2230 IF#=" " THEN 2230
2240 IF#=" " THEN 2240
2250 IF#=" " THEN 2250
2260 IF#=" " THEN 2260
2270 IF#=" " THEN 2270
2280 IF#=" " THEN 2280
2290 IF#=" " THEN 2290
2300 IF#=" " THEN 2300
2310 IF#=" " THEN 2310
2320 IF#=" " THEN 2320
2330 IF#=" " THEN 2330
2340 IF#=" " THEN 2340
2350 IF#=" " THEN 2350
2360 IF#=" " THEN 2360
2370 IF#=" " THEN 2370
2380 IF#=" " THEN 2380
2390 IF#=" " THEN 2390
2400 IF#=" " THEN 2400
2410 IF#=" " THEN 2410
2420 IF#=" " THEN 2420
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2490 IF#=" " THEN 2490
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2510 IF#=" " THEN 2510
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2670 IF#=" " THEN 2670
2680 IF#=" " THEN 2680
2690 IF#=" " THEN 2690
2700 IF#=" " THEN 2700
2710 IF#=" " THEN 2710
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2770 IF#=" " THEN 2770
2780 IF#=" " THEN 2780
2790 IF#=" " THEN 2790
2800 IF#=" " THEN 2800
2810 IF#=" " THEN 2810
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2870 IF#=" " THEN 2870
2880 IF#=" " THEN 2880
2890 IF#=" " THEN 2890
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2970 IF#=" " THEN 2970
2980 IF#=" " THEN 2980
2990 IF#=" " THEN 2990
3000 IF#=" " THEN 3000
3010 IF#=" " THEN 3010
3020 IF#=" " THEN 3020
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3100 IF#=" " THEN 3100
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3120 IF#=" " THEN 3120
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3150 IF#=" " THEN 3150
3160 IF#=" " THEN 3160
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3180 IF#=" " THEN 3180
3190 IF#=" " THEN 3190
3200 IF#=" " THEN 3200
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3220 IF#=" " THEN 3220
3230 IF#=" " THEN 3230
3240 IF#=" " THEN 3240
3250 IF#=" " THEN 3250
3260 IF#=" " THEN 3260
3270 IF#=" " THEN 3270
3280 IF#=" " THEN 3280
3290 IF#=" " THEN 3290
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3370 IF#=" " THEN 3370
3380 IF#=" " THEN 3380
3390 IF#=" " THEN 3390
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3670 IF#=" " THEN 3670
3680 IF#=" " THEN 3680
3690 IF#=" " THEN 3690
3700 IF#=" " THEN 3700
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3780 IF#=" " THEN 3780
3790 IF#=" " THEN 3790
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3970 IF#=" " THEN 3970
3980 IF#=" " THEN 3980
3990 IF#=" " THEN 3990
4000 IF#=" " THEN 4000
4010 IF#=" " THEN 4010
4020 IF#=" " THEN 4020
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4050 IF#=" " THEN 4050
4060 IF#=" " THEN 4060
4070 IF#=" " THEN 4070
4080 IF#="
```

# PACMAN

BY NEIL FORSYTH

**RUNS ON AN APPLE IN 48K**

Munch your way around a maze in this adaptation of the game that has inspired pop-records, t-shirts, pinball machines, TV adverts and thousands of imitators. It's all here. The ghosts out to munch the greedy little pacman. The power pills which enable the Pacman to devour the ghosts. And all the devious twists and turns of the maze itself.

There's an indicator at the bottom of the screen which tells you when the ghosts are vulnerable to attack. To help the Pacman the maze has two sneaky escape exits at either side which could help you baffle those deadly ghosts.

To control your Pacman use keys 'I' for up, 'J' left, 'K' right, 'M' down. Just one warning - don't play this game between meals, it could ruin your appetite!

```

0 S = 0:L = 3: GOSUB 3000: DIM VA(14,11)
1 HOME : NORMAL
5 GOSUB 6000: GOSUB 10000
10 FOR Y = 0 TO 11
15 FOR X = 0 TO 14
20 READ A:VA(X,Y) = A
22 IF S > 2230 AND A / 13 = INT (A / 13) THEN A = (A / 13) * SGN
   (S - 4470):VA(X,Y) = A:NE = 1
25 NEXT X
27 NEXT Y
28 IF S > 0 THEN VA(0,5) = 0:VA(1,5) = 30:VA(14,5) = 0:VA(13,5) =
70:TB = 1
30 GOSUB 5000: ROT= 0: XDRAW 3 AT 129,145: XDRAW 2 AT 139,145: XDR
AW 3 AT 149,145
32 ROT= 0: SCALE= 1: FOR P = 1 TO L: XDRAW 2 AT P * 10 + 119,10: N
EXT P
35 V = 10:DI = 0:D = - 1:A = 139:OA = A:B = 64:OB = B: ROT= 0: XDR
AW 3 AT OA,OB
40 X = 139:Y = 114:R = 0
45 OX = X:OY = Y:RO = R: ROT= RO: XDRAW 2 AT OX,OY
47 HOME : IF NE = 1 THEN INVERSE : VTAB (21): PRINT " NO TUNN
EL AND NO ENERGIZERS " : NORMAL : GOTO 50
48 HOME : IF TB = 1 THEN INVERSE : VTAB (21): PRINT " THE TU
NNEL IS BLOCKED " : NORMAL
50 VTAB (22): FLASH : PRINT " HIT ANY KEY TO START
" : POKE - 16368,0: WAIT - 16384,128: NORMAL
60 HOME : VTAB (21): PRINT " SCORE="
100 FOR T = 1 TO 2 STEP 0
110 K = PEEK ( - 16384)
120 XA = (OX - 69) / 10:YA = (OY - 24) / 10:PA = VA(XA,YA)
125 IF K = 201 THEN R = 0: IF PA / 2 = INT (PA / 2) THEN Y = Y -
V
130 IF K = 205 THEN R = 32: IF PA / 5 = INT (PA / 5) THEN Y = Y +
V
135 IF K = 202 THEN R = 48: IF PA / 7 = INT (PA / 7) THEN X = X -
V: IF X < 69 THEN X = 209
140 IF K = 203 THEN R = 16: IF PA / 3 = INT (PA / 3) THEN X = X +
V: IF X > 209 THEN X = 69
142 XA = (X - 69) / 10:YA = (Y - 24) / 10:PA = VA(XA,YA)
145 ROT= RO: XDRAW 2 AT OX,OY: ROT= R: XDRAW 2 AT X,Y
146 OX = X:OY = Y:RO = R
147 IF (A = X) * (B = Y) * (SF = 0) THEN GOTO 1000
150 IF PA > 0 AND PA / 13 < > INT (PA / 13) THEN ROT= 0: XDRAW

```



```

1 AT X,Y: POKE 768,96: POKE 769,3: CALL 770:VA(XA,YA) = - PA:DT
= DT - 1:S = S + 10: VTAB (21): HTAB (20): PRINT S: IF DT = 0 THEN
GOTO 2000
152 IF SF = 1 THEN ROT= 0: RETURN
155 IF PA > 0 AND PA / 13 = INT (PA / 13) THEN ROT= 0: XDRAW 4 A
T X,Y: FOR P = 10 TO 1 STEP - 1: POKE 768,P: POKE 769,3: CALL 77
0: NEXT P:VA(XA,YA) = - PA: GOSUB 600
200 GH = VA(OA - 69) / 10,(OB - 24) / 10)
205 D = - D:DI = 0
207 IF (Y = B) THEN GOTO 215
210 IF D < 0 OR (X = A) THEN GOTO 255
215 IF (X > A) THEN GOTO 240
220 IF GH / 7 = INT (GH / 7) THEN A = A - V: GOTO 320
230 GOTO 250
240 IF GH / 3 = INT (GH / 3) THEN A = A + V: GOTO 320
250 DI = DI + 1:D = - 1: IF DI = 2 THEN GOTO 285
255 IF Y > B THEN GOTO 270
260 IF GH / 2 = INT (GH / 2) THEN B = B - V: GOTO 320
265 GOTO 275
270 IF GH / 5 = INT (GH / 5) THEN B = B + V: GOTO 320
275 DI = DI + 1:D = 1: IF DI = 2 THEN GOTO 285
280 GOTO 215
285 IF (X - A) * SGN (X - A) > (Y - B) * SGN (Y - B) THEN GOTO
300
290 IF GH / 7 = INT (GH / 7) THEN A = A - V:D = 1: GOTO 320
295 A = A + V:D = 1: GOTO 320
300 IF GH / 2 = INT (GH / 2) THEN B = B - V:D = - 1: GOTO 320
305 B = B + V:D = - 1
320 IF A > 209 THEN A = 69
323 IF A < 69 THEN A = 209
325 ROT= 0: XDRAW 3 AT OA,OB: XDRAW 3 AT A,B: IF (A = X) * (B = Y)
THEN GOTO 1000
330 OA = A:OB = B
400 NEXT T
600 SF = 1: ROT= 0: XDRAW 3 AT 129,145: XDRAW 2 AT 139,145: XDRAW 3
AT 149,145: XDRAW 2 AT 129,145: XDRAW 3 AT 139,145: XDRAW 2 AT 1
49,145
610 FOR Z = 1 TO 15
620 GOSUB 110: IF (X = A) * (Y = B) THEN GOSUB 800: GOTO 700
630 P = INT (RND (1) * 3)
635 GH = VA(OA - 69) / 10,(OB - 24) / 10)
640 IF P = 2 AND GH / 5 = INT (GH / 5) THEN B = B + V
650 IF P = 0 AND GH / 2 = INT (GH / 2) THEN B = B - V
660 IF P = 3 AND GH / 7 = INT (GH / 7) THEN A = A - V: IF A < 69
THEN A = 209
670 IF P = 1 AND GH / 3 = INT (GH / 3) THEN A = A + V: IF A > 209
THEN A = 69
680 ROT= 0: XDRAW 3 AT OA,OB: XDRAW 3 AT A,B:OA = A:OB = B
690 IF (X = A) * (Y = B) THEN GOSUB 800
700 NEXT Z
710 SF = 0: ROT= 0: XDRAW 2 AT 129,145: XDRAW 3 AT 139,145: XDRAW 2
AT 149,145: XDRAW 3 AT 129,145: XDRAW 2 AT 139,145: XDRAW 3 AT 1
49,145
715 FOR P = 1 TO 15:Z = PEEK ( - 16336): NEXT P
720 RETURN
800 XDRAW 3 AT A,B:A = 139:B = 64:OA = A:OB = B: FOR P = 1 TO 5: P
RINT CHR$ (7): NEXT P:Z = 15: XDRAW 3 AT OA,OB:S = S + 100: VTA
B (21): HTAB (20): PRINT S: RETURN
1000 ROT= R: XDRAW 2 AT X,Y: SCALE= 2: FOR R = 0 TO 128 STEP 8: RO
T= R: XDRAW 2 AT X,Y:D = PEEK ( - 16336): NEXT R: POKE - 16368,
0: HOME : VTAB (21): HTAB (15): PRINT "SCORE = ";S
1005 XDRAW 2 AT X,Y: ROT= 0: SCALE= 1: XDRAW 3 AT A,B: XDRAW 2 AT

```

```

L * 10 + 119,10:L = L - 1: IF L > 0 THEN 35
1010 PRINT "DO YOU WANT ANOTHER GAME? "; FOR P = 1 TO 500: NEXT P
: POKE - 16368,0: GET Q$: IF Q$ = "Y" THEN CLEAR : DIM VA(14,11
):L = 3: GOTO 1
1020 TEXT : HOME : END
1100 REM *****
2000 HOME : VTA(22): FLASH : PRINT "PERFECT SCORE. WELL DONE
      ": FOR P = 1 TO 15: POKE 768,16 - P: POKE 769,6: CALL
770: NEXT P: RESTORE : IF SF = 1 THEN POP
2005 SF = 0: GOTO 1
3000 TEXT : HOME
3010 PRINT "*****";
3020 PRINT "*"; FLASH : PRINT "
      ": NORMAL : PRINT "*";
3025 PRINT "*"; FLASH : PRINT "
      ": NORMAL : PRINT "*";
3030 PRINT "*****";
3040 PRINT : PRINT "SINCE THE GAME IS WELL KNOWN HERE ARE SIMPLE
INSTRUCTIONS"
3050 PRINT
3060 PRINT " KEY ACTION"
3070 PRINT " ---"
3080 PRINT " I UP"
3090 PRINT " J LEFT"
3100 PRINT " K RIGHT"
3110 PRINT " M DOWN"
3120 PRINT " OTHER KEYS STOP"
3130 PRINT : PRINT " LARGE DOTS ARE ENERGIZERS."
3140 PRINT : PRINT " GHOST VULNERABILITY IS INDICATED AT THE SCREE
N BOTTOM BY TWO PACMEN WITH GHOST IN THE MIDDLE."
3150 PRINT : PRINT : FLASH : PRINT "HIT ANY KEY FOR SCREEN SET UP
": NORMAL : GET ZZ$: RETURN
5000 HGR
5002 FOR Y = 0 TO 11
5005 FOR X = 0 TO 14
5010 A = VA(X,Y)
5015 K = 69 + X * 10:V = 24 + Y * 10
5020 HCOLOR= 7
5050 IF A / 2 < > INT (A / 2) THEN HPLLOT K - 5,V - 5 TO K + 5,V
- 5
5055 IF A / 3 < > INT (A / 3) THEN HPLLOT K + 5,V - 5 TO K + 5,V
+ 5
5060 IF A / 5 < > INT (A / 5) THEN HPLLOT K - 5,V + 5 TO K + 5,V
+ 5
5065 IF A / 7 < > INT (A / 7) THEN HPLLOT K - 5,V - 5 TO K - 5,V
+ 5
5067 IF A > 0 AND A / 13 = INT (A / 13) THEN XDRAW 4 AT K,V: GOT
0 5400
5070 IF A > 0 THEN XDRAW 1 AT K,V:DT = DT + 1
5400 NEXT X
5410 NEXT Y
5420 HPLLOT 0,0 TO 64,19: HPLLOT 279,0 TO 214,19: HPLLOT 0,159 TO 64,
139: HPLLOT 279,159 TO 214,139
5500 RETURN
6000 FOR X = 770 TO 792
6010 READ Y
6020 POKE X,Y
6030 NEXT X
6040 DATA 173,48,192,136,208,5,206,1,3,240,9,202,208,245,174,0,
3,76,2,3,96,0,0
6050 RETURN
10000 HGR2 : POKE 232,16: POKE 233,64

```



```

10005 TEXT
10010 SCALE= 1: ROT= 0
10020 FOR X = 16400 TO 16460
10030 READ Y
10040 POKE X,Y
10050 NEXT X
10055 RETURN
10060 DATA 4,0,10,0,16,0,31,0,51,0
10070 DATA 42,36,63,54,21,0
10080 DATA 18,27,39,36,44,44,9,49,53,54,62,62,63,39,0
10090 DATA 46,30,46,9,36,39,37,39,39,63,46,62,35,23,46,21,63,54,6,
0
10100 DATA 53,30,60,60,12,37,21,21,6,0
20000 DATA 15,21,105,21,105,21,35,0,15,21,105,21,105,21,35
20010 DATA 10,15,42,35,6,35,30,273,70,15,14,15,42,35,10
20030 DATA 30,910,0,30,21,210,70,0,30,210,21,70,0,390,70
20040 DATA 10,6,105,14,15,14,30,21,70,6,35,6,105,14,10
20050 DATA 6,35,30,21,210,21,-210,-21,-210,21,210,21,70,15,14
20060 DATA -21,210,210,21,210,21,-70,0,-30,21,210,21,210,210,-21
20070 DATA 15,14,30,35,6,35,-6,-105,-14,15,14,15,70,6,35
20080 DATA 30,105,14,30,21,210,105,42,105,210,21,70,6,105,70
20090 DATA 10,30,21,70,15,14,30,105,70,6,35,30,21,70,10
20100 DATA 30,70,0,30,14,195,14,-10,6,455,6,70,0,30,70
20110 DATA 10,6,105,14,15,14,15,42,35,6,35,6,105,14,10
20120 DATA 6,21,42,21,42,21,14,0,6,21,42,21,42,21,14

```

# VICTORIAN SEWERS

Chaos in the city as the ancient sewers start to collapse. Can you rebuild them before the city slips into a giant hole in the ground?

Your job is to keep the traffic flowing around the city's gradually eroding road system.

This program is in TI Basic for a 99/4A console with no additions. It will also run in Extended Basic, and if you have the 32K expansion memory, it will run faster in Extended Basic than in TI basic.

This program uses several tricks you may find useful: The play board is set up with PRINT statements - the fastest way of doing this. The characters (the UNDERLINE  $\_$  is used here) are defined.)

Note the use of POS in lines 1660 and 690 - the neatest way of reacting to a CALL KEY input. If the key pressed does not appear in the first string then the pro-

gram will goto/gosub the first line transfer, as the POS function will return nil.

Although TI Basic does not support AND and OR, these ARE used in this program, in lines 980 (\* used for AND) and in line 1270 (+ used for OR) - also several other lines. Note the expressions are placed in brackets in these lines.

For greater speed the routines you plan are stored in a two dimensional array RT(N,M) which is read back to delete a route which suffers from a road collapse.

Conversion: Pretty easy. The screen is composed of 24 rows of 32 characters. The PRINT lines start in column 3, and as they all start with a space, the first PRINTED is in column 4.

CALL HCHAR is in the format: CALL HCHAR (ROW, COLUMN, ASCII, No of times)

CALL GCHAR is in the for-

mat: CALL GCHAR (ROW, COLUMN, VARIABLE) in which the variable takes the ASCII code of the character at that position.

The characters take the codes given in lines 2290-2340 and are all coloured blocks except the player (PLY) who is an 'R'.

Owners of machines with memory mapped screen

should recognise the formula in lines 1870 (encryption) and 1400-1410 (decoding) - this program does not look at column 32 so a slight approximation has been used.

For machines without the POS function, you will need to test the key pressed and GOTO/GOSUB as appropriate.

```

30 REM
31 REM SETTING UP THE BOARD
32 REM USE UNDERLINE: _
33 REM -----
100 DEF V1=RND*10
110 DEF V2=RND*12
120 DEF F1=RND*290+110
130 DEF F2=RND*290+110
140 DEF TM=RND*500+300
150 DIM RT(2,70)
160 DEF FR=RND*100+400
170 S=30000
180 GOSUB 1930
190 CALL CLEAR
200 PRINT
210 PRINT " -----
"
220 PRINT " - - - - -
"
230 PRINT " - - - - -
"

```

**BY STEPHEN SHAW**

**RUNS ON A TEXAS TI 99/4a**

**IN 4K**

```

240 PRINT " - - - - -
250 PRINT " -----
260 PRINT " - - - - -
270 PRINT " - - - - -
280 PRINT " - -----
290 PRINT " - - - - -
300 PRINT " -----
310 PRINT " -----
320 PRINT " - - - - -
330 PRINT " - -----
340 PRINT " - - - - -
350 PRINT " - - - - -
360 PRINT " -----
370 PRINT " - - - - -
380 PRINT " - - -----
390 PRINT " - - - - -
400 PRINT " -----
410 PRINT
420 PRINT
430 CALL HCHAR(11,1,UTR,32)
440 CALL HCHAR(12,1,LTR,32)
450 REM ROAD MAP DRAWN
460 CALL COLOR(1,4,4)
470 CALL HCHAR(11,13,HOLE,6)
480 CALL HCHAR(12,13,HOLE,6)
490 CALL HCHAR(11,4,RD,9)
500 CALL HCHAR(12,4,RD,9)
510 CALL HCHAR(11,19,RD,9)
520 CALL HCHAR(12,19,RD,9)
530 A=1
540 ROW=11
550 COL=4
560 GOSUB 1520
570 A=2
580 ROW=12
590 COL=4
600 GOSUB 1520
610 CALL GCHAR(11,9,CDE)
620 REM CONTROL SECTION
630 CALL KEY(0,K,ST)
640 IF RND<.99 THEN 660
650 CALL SOUND(TM,F1,V1,F2,V2)

```

```

660 CALL HCHAR(RR,RC,PLY)
670 CALL HCHAR(RR,RC,CDE)
680 IF ST<1 THEN 630
690 ON POS("ESDXR",CHR$(K),1)+1
GOSUB 720,730,790,850,910,980
700 GOSUB 1190
710 GOTO 630
720 RETURN
730 CALL GCHAR(RR-1,RC,CD)
740 IF CD=32 THEN 780
750 RR=RR-1
760 CALL HCHAR(RR,RC,PLY)
770 CDE=CD
780 RETURN
790 CALL GCHAR(RR,RC-1,CD)
800 IF CD=32 THEN 780
810 RC=RC-1
820 CALL HCHAR(RR,RC,PLY)
830 CDE=CD
840 RETURN
850 CALL GCHAR(RR,RC+1,CD)
860 IF CD=32 THEN 840
870 RC=RC+1
880 CALL HCHAR(RR,RC,PLY)
890 CDE=CD
900 RETURN
910 CALL GCHAR(RR+1,RC,CD)
920 IF CD=32 THEN 900
930 RR=RR+1
940 CALL HCHAR(RR,RC,PLY)
950 CDE=CD
960 RETURN
970 REM REPAIR SECTION
980 IF (CDE<>HOLE)*(CDE<>REP) THEN
N 1040
990 IF CDE=HOLE THEN 1000 ELSE
1050
1000 CDE=REP
1010 FOR T=1 TO 10
1020 CALL SOUND(-199,S,30,S,30,F
R,30,-4,0)
1030 NEXT T
1040 RETURN
1050 IF CDE=REP THEN 1060 ELSE
1040
1060 CDE=RD
1070 IF (RR=11)+(RR=12) THEN 1080
ELSE 1040
1080 CALL HCHAR(RR,RC,CDE)
1090 FOR R=11 TO 12
1100 FOR C=3 TO 29
1110 CALL GCHAR(R,C,TEST)
1120 IF (TEST<>PLY)*(TEST<>RD)*(
TEST<>UTR)*(TEST<>LTR) THEN 1170
1130 NEXT C
1140 NEXT R
1150 REM WINNER***
1160 GOTO 2430
1170 RETURN
1180 REM DAMAGE

```



```

1190 C=INT(RND*22)+5
1200 R=INT(RND*20)+2
1210 CALL GCHAR(R,C,CD)
1220 IF (RR=R)*(RC=C) THEN 720
1230 IF (CD<>RD)*(CD<>UTR)*(CD<>
LTR) THEN 720
1240 IF RND>LEVEL THEN 720
1250 CALL HCHAR(R,C,HOLE)
1260 CALL SOUND(400,-8,0)
1270 IF (CD=UTR)+(CD=LTR) THEN 12
90
1280 RETURN
1290 FOR T2=1 TO 4
1300 FOR T=1 TO 5
1310 CALL SOUND(-99,500+T*20,T*4
)
1320 NEXT T
1330 CALL SOUND(-99,250,12,266,1
0)
1340 NEXT T2
1350 IF CD=LTR THEN 1380
1360 A=1
1370 GOTO 1390
1380 A=2
1390 FOR T=1 TO NUMB(A)
1400 ROW=INT(RT(A,T)/32)
1410 COL=(RT(A,T)/32-ROW)*32
1420 CALL GCHAR(ROW,COL,CD)
1430 IF (CD<>LTR)*(CD<>UTR) THEN
1450
1440 CALL HCHAR(ROW,COL,RD)
1450 NEXT T
1460 ROW=INT(RT(A,1)/32)
1470 COL=(RT(A,1)/32-ROW)*32
1480 CALL HCHAR(ROW,COL,PLY)
1490 GOSUB 1520
1500 RETURN
1510 REM ROUTE TRAFFIC
1520 NUMB(A)=0
1530 IF A=1 THEN 1570
1540 IF A<>2 THEN 1580
1550 TR=LTR
1560 GOTO 1580
1570 TR=UTR
1580 GOTO 1870
1590 CALL KEY(0,K,ST)
1600 CALL HCHAR(ROW,COL,PLY)
1610 CALL HCHAR(ROW,COL,TR)
1620 IF RND<.99 THEN 1640
1630 CALL SOUND(TM,F1,V1,F2,V2)
1640 IF ST<1 THEN 1590
1650 CALL SOUND(100,110,4)
1660 ON POS("ESDX",CHR$(K),1)+1
GOTO 1590,1670,1720,1820,1770
1670 CALL GCHAR(ROW-1,COL,CD)
1680 IF CD<>RD THEN 1590
1690 ROW=ROW-1
1700 CALL HCHAR(ROW,COL,TR)
1710 GOTO 1870
1720 CALL GCHAR(ROW,COL-1,CD)

```

```

1730 IF CD<>RD THEN 1590
1740 COL=COL-1
1750 CALL HCHAR(ROW,COL,TR)
1760 GOTO 1870
1770 CALL GCHAR(ROW+1,COL,CD)
1780 IF CD<>RD THEN 1590
1790 ROW=ROW+1
1800 CALL HCHAR(ROW,COL,TR)
1810 GOTO 1870
1820 CALL GCHAR(ROW,COL+1,CD)
1830 IF CD<>RD THEN 1590
1840 COL=COL+1
1850 CALL HCHAR(ROW,COL,TR)
1860 GOTO 1870
1870 TOT=ROW*32+COL
1880 NUMB(A)=NUMB(A)+1
1890 RT(A,NUMB(A))=TOT
1900 IF (ROW=10+A)*(COL=27) THEN
1920
1910 GOTO 1590
1920 RETURN
1930 CALL CLEAR
1940 PRINT "VICTORIAN SEWERS":
(C)1982 STEPHEN SHAW":
1950 PRINT "YOU MUST KEEP THE CI
TY": "TRAFFIC FLOWING.": "DESPITE
THE FREQUENT",
1960 PRINT "COLLAPSE OF SECTIONS
OF ROADS THE OLD SEWERS AT LAS
T GIVE IN TO TIME."
1970 PRINT :: "PRESS ENTER TO CO
NTINUE..."
1980 INPUT A$
1990 CALL CLEAR
2000 PRINT "A MAIN ROUTE RUNS AC
ROSS THE CENTRE OF THE SCREEN.":
"A LARGE COLLAPSE TAKES PLACE"
2010 PRINT "FIRST YOU MUST REROU
TE EACH OF TWO LANES OF TRAFFIC"
: "USING THE ARROW KEYS:": " E.S
.D.& X."
2020 PRINT "YOUR ROUTE MUST NOT
CROSS ANY OTHER ROUTE NOR ANY"
: "DAMAGED SECTIONS."
2030 PRINT "PLAN YOUR ROUTE BEFO
RE YOU BEGIN AS CORRECTIONS CAN
NOT BE MADE...":
2040 PRINT "PRESS ENTER TO CONTI
NUE..."
2050 INPUT A$
2060 CALL CLEAR
2070 PRINT "WHEN TWO LANES OF TR
AFFIC HAVE BEEN ROUTED YOU ENT
ER ANOTHER SECTION OF PLAY."
2080 PRINT "YOU MUST MOVE YOUR R
EPAIR GANG (R) USING THE CURSO
R KEYS AND WHEN OVER DAMAGED
"
2090 PRINT "ROAD, REPAIR IT BY PR
ESSING KEY 'R'."

```





# Victorian Sewers

```
2100 PRINT "IT TAKES TWO ENTRIES  
TO REPAIR EACH SECTION."  
2110 PRINT "WHILE YOU ARE DOING  
THIS ":"OTHER SECTIONS COLLAPSE."  
2120 PRINT "YOU MUST REROUTE THE  
TRAFFIC BEFORE CONTINUING THE RE  
PAIR"  
2130 PRINT "YOU WIN IF YOU CAN R  
ESTORE THE MAIN ROAD."  
2140 PRINT "YOU LOSE IF YOU CANN  
OT":"RESTORE THE TRAFFIC FLOW":"  
WHEN IT IS DISRUPTED.":  
2150 PRINT "PRESS ENTER TO CONTI  
NUE"  
2160 INPUT A$  
2170 CALL CLEAR  
2180 PRINT "ENTER DIFFICULTY LEV  
EL: ":"1.EASY":"2.MEDIOCRE":"3.AV  
ERAGE":"4.HARD":"5.VERY HARD":"6  
.INSANE"  
2190 PRINT ::  
2200 INPUT LEVEL  
2210 IF LEVEL<0 THEN 2180  
2220 IF LEVEL>6 THEN 2180  
2230 LEVEL=LEVEL/7  
2240 CALL CHAR(112,"FF8181818181  
81FF")  
2250 CALL COLOR(11,10,12)  
2260 CALL COLOR(8,15,15)  
2270 CALL COLOR(10,16,16)
```

```
2280 RANDOMIZE  
2290 HOLE=30  
2300 REP=112  
2310 RD=95  
2320 UTR=104  
2330 LTR=105  
2340 PLY=82  
2350 RR=11  
2360 ROW=11  
2370 COL=9  
2380 RC=9  
2390 CDE=RD  
2400 RT(1,1)=11*32+4  
2410 RT(2,1)=12*32+4  
2420 RETURN  
2430 REM *** WINNER ***  
2440 CALL SOUND(600,300,0)  
2450 PRINT "WELL DONE YOU MADE I  
T!"  
2460 CALL COLOR(8,2,1)  
2470 PRINT "TO PLAY AGAIN CLEAR  
AND RE- RUN PROGRAM"  
2480 GOTO 2480
```

