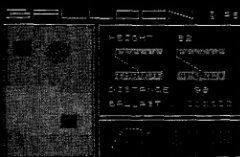


ADJUDICATOR



ADJUDICATOR

Keep the enemy out of your base, but let your allies in — beware, the game is played over a six-century timespan (from the 15th to the 21st centuries). The enemies' weapons change from cannons to aircraft and tanks: your base also changes form, transforming itself from a medieval castle to a nuclear reactor.

BALLOON FLIGHT SIMULATION

Fly your own balloon, using an altitude simulator. But you are unlikely to have enough fuel to make the trip which means that you will almost certainly have to land in the large white cross and take on more fuel.

HORSE RACE

Test your reactions and experience the thrills of the turf. You and your opponent play against a computer controlling the other horses in the race — and it can stop the reel whenever it likes. The computer, unlike you and your opponent, never makes mistakes.

TREASURE HUNT

Blackbeard, the fierce pirate captain, has hidden all his treasure on a desert island. All you have to do is find it. However, you may find it a little difficult to locate the treasure because the island is covered by the tide every eight hours!

LUNAR LANDING

You must land your spaceship on the moon before the life support system fails, or you will smash into the rocky surface below.

published by
ELLIS HORWOOD LIMITED
Cooper Street · Chichester · England

distributed by
JOHN WILEY & SONS
Baffins Lane · Chichester · England

Winning Games on the

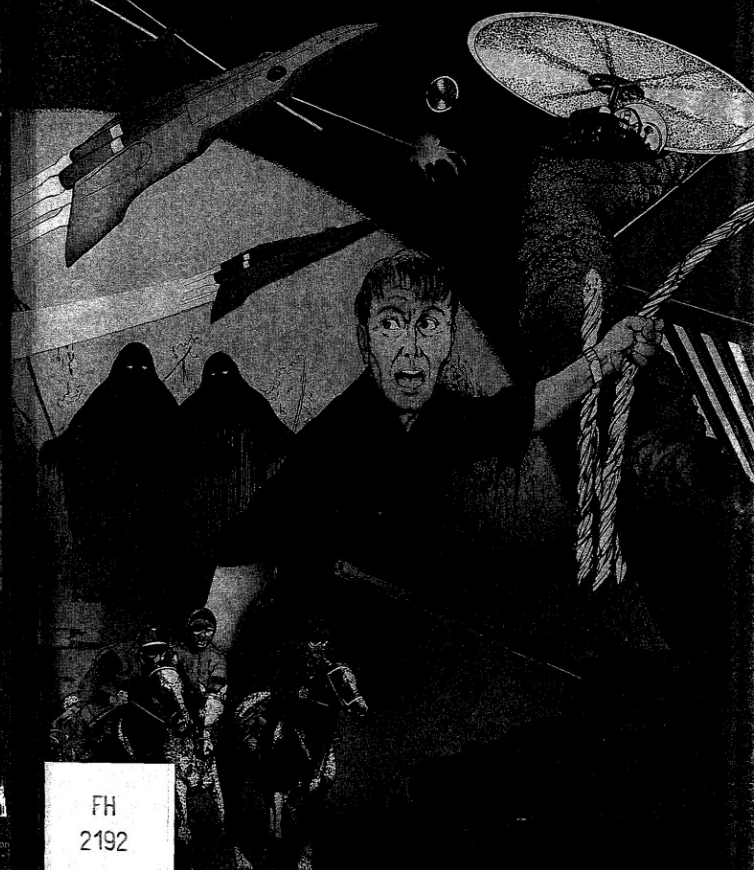
SPECTRUM

Winning Games on the

SPECTRUM



FH
2192



Ellis Horwood
Books in Computing

**WINNING GAMES ON THE
ZX SPECTRUM**

TOBY MATTHEWS and PAUL SMITH
with assistance from EDWARD PETERS

This book has been written to provide a range of exciting and addictive games for the ZX Spectrum owner. Most of the programs can be run on a 16K or 48K machine. The simple shorter programs offer more than usual in the way of themes, including some classic "shoot-em-up" games, but the majority require imagination and skill on the user's part. Some of the longer games can equal commercial software for speed and variety; many will be pleasantly surprised to find such a novel and stimulating selection in a book of this kind.

Beginners and old hands alike can use the book. Newcomers will find the games will help them learn good basic general programming for the Spectrum, whilst the experienced reader with a knowledge of BASIC will find the longer games (and those using machine code subroutines) helpful in expanding their existing skills. Whatever the level, there is something in this book for every reader.

Readership: Spectrum computer users, of all ages and at all levels.

**Winning Games
on the
ZX SPECTRUM**



Winning Games on the ZX SPECTRUM

ELLIS HORWOOD BOOKS IN COMPUTING

Series Editor: A. J. Jones, Brunel University

MASTERING THE COMMODORE 64

A. J. JONES, Brunel University, and G. CARPENTER, Valiant Designs Ltd.

STRUCTURED PROGRAMMING WITH BBC BASIC

ROY ATHERTON, Bulmershe College, Reading

MASTERING THE VIC-20

A. J. JONES, Brunel University, E. A. COLEY, Maystar Microcomputers Ltd. Wokingham, and D. G. J. COLE, British Aerospace, Bracknell

BEGINNING micro-PROLOG 2nd Revised Edition

RICHARD ENNALS, University of London

GETTING STARTED ON THE ORIC-1

D. G. J. COLE, British Aerospace, Bracknell

BEGINNING COMAL

BORGE CHRISTENSEN, Tønder College of Higher Education, Tønder, Denmark

WINNING GAMES ON THE COMMODORE 64

TERRY BARRETT, Freelance Programmer, and STEPHEN COLWILL, Sandhurst School, Surrey

LOGO: A GUIDE TO LEARNING THROUGH PROGRAMMING

PETER GOODYEAR, Avery Hill College, London

WINNING GAMES ON THE VIC-20

TERRY BARRETT, Freelance Programmer, and A.J. JONES, Brunel University

MASTERING THE ELECTRON

SIMON and JOHN MATTHEWS, University of Exeter

MASTERING THE ZX SPECTRUM

LAWRIE MOORE, Freelance Writer and Lecturer, formerly University of London

BEGINNING LISP

AJIT NARAYANAN, Exeter University

WINNING GAMES ON THE ZX SPECTRUM

TOBY MATTHEWS and PAUL SMITH

WINNING STRATEGY GAMES ON THE COMMODORE 64

TOBY MATTHEWS and PAUL SMITH

TOBY MATTHEWS

and

PAUL SMITH

with assistance from
EDWARD PETERS

UNIVERSITÄTSBIBLIOTHEK
HANNOVER
TECHNISCHE
INFORMATIONSBIBLIOTHEK



ELLIS HORWOOD LIMITED
Publishers · Chichester

JOHN WILEY & SONS INC.
New York · Brisbane · Chichester · Toronto · Singapore

FH 2192

First published in 1984 by
ELLIS HORWOOD LIMITED
Market Cross House, Cooper Street, Chichester,
West Sussex PO19 1EB, England

Distributors:

Australia, New Zealand, South-east Asia:
Jacaranda-Wiley Ltd., Jacaranda Press
JOHN WILEY & SONS INC.
GPO Box 859, Brisbane, Queensland 4001, Australia

Canada:
JOHN WILEY & SONS CANADA LIMITED
22 Worcester Road, Rexdale, Ontario, Canada

Europe, Africa:
JOHN WILEY & SONS LIMITED
Baffins Lane, Chichester, West Sussex, England

North and South America and the rest of the world:
JOHN WILEY & SONS INC.
605 Third Avenue, New York, NY 10158, USA

©1984 T. Matthews and P. Smith/Ellis Horwood Limited

British Library Cataloguing in Publication Data
Matthews, Toby
Winning games on the ZX Spectrum. —
(Ellis Horwood books in computing)
1. Computer games 2. Sinclair ZX Spectrum (Computer)
I. Title II. Smith, Paul, 19 --
794.8'028'5404 GV1469.2

ISBN 0-85312-734-4 (Ellis Horwood Limited)

Printed in Great Britain by R.J. Acford, Chichester.

All Rights Reserved

No part of this book may be reproduced or transmitted
by any means without the prior permission of the pub-
lisher. The only exceptions are for the purposes of review,
or as provided for by the Copyright (Photocopying) Act
or in order to enter the programs herein onto a computer
for the sole use of the purchaser of this book.

Contents

Introduction	7
Hints on troubleshooting	9
Games for the ZX Spectrum	
1 Break Through (16K)	13
2 Space Attack (16K)	17
3 Treasure Hunt (16K)	23
4 Living Dead (16K)	26
5 Helicopter Rescue (16K)	31
6 Skiing: Downhill Racer (16K)	36
7 Lunar Rover (16K)	41
8 Mission Impossible (16K)	46
9 Code Breaker (16K)	52
10 Duel (16K)	58
11 Lazars (16K)	63
12 Word Search (16K)	69
13 Horse Race (16K)	76
14 Minefield (48K)	82
15 Jackpot (48K)	89
16 Musical Memory (48K)	97
17 Space Merchant (48K)	105
18 Balloon Flight Simulation (48K)	117
19 Blackjack (48K)	126
20 Adjudicator (48K)	140
Sound effects on the ZX Spectrum	155
Quickscreen	157
Multi-key inputs	159
Hints on writing games and programs	161

Introduction

This book has been written to provide a range of exciting and addictive games for the ZX Spectrum owner, of either a 16K or 48K machine. The majority of programs will run on both machines, and even the shorter and simpler ones offer a bit more than the usual in the way of themes. We have included a couple of the classic 'shoot-em-up' types of games, but most require a little more imagination and skill. Some of the longer games, for example, are at least the equivalent of much more commercial software in their speed and variety. In fact, users will be pleasantly surprised to find that the majority of the games are novel, not being found in other books or software.

The book can be used by both beginners to games computing and those who are old hands on the ZX Spectrum. Newcomers will find the games teach a lot of basic skills which are helpful in general programming for the Spectrum, whilst experienced readers with a good knowledge of BASIC will find the longer games and those that use machine code subroutines useful in expanding their programming skills. But whatever your level of skill, we are sure that you will find there is something for you in the book.

The programs listed in the book increase in length from short programs which will run on both 16K and 48K Spectrums to longer ones which are suitable for the larger machine. However, if your fingers do get tired of typing in the listings, you can always cheat by buying the software on the cassettes which are available from John Wiley & Sons, Baffins Lane, Chichester, Sussex.

Hints on trouble shooting

All of the games in this book have been thoroughly tested, and will work as they should if they are properly listed. A few hints on entering and running games will probably be useful, however, to avoid making the sort of minor mistakes which lead to programs crashing or not working as they should.

It is a good idea to get someone to help with typing in programs, particularly the longer ones where it is easy to miss a line. We have found it helpful if one person types while the other reads the program out: this speeds things up a lot and reduces the error rate. It may seem obvious, but using a ruler to go through the program line by line works wonders to cut down the error rate. If you cannot get somebody to help you type in programs, then flatten the book (but try not to break the spine) and use a ruler.

It is *very* important to make sure that *all* spaces are included when typing in programs. Because the spaces tell the computer to carry out certain operations, leaving them out causes havoc! If in doubt, check each line carefully to make sure that you have typed it in exactly as listed. We have also included a 'Key to graphic characters' with each game, so that it is quite clear how the graphics are defined in each game. If you follow the key precisely, you will have no problems in getting the characters to work properly in the games.

When programs do not run as they should, it is usually due to the fact that a line, space, or character has not been inserted where it should be. One of the things that you must never do is try to 'read' a program as if it were written in English. Programs for Spectrums are written in BASIC, and it is the Sinclair 'dialect' form of that computer language which must be learned. Eventually, all programmers are able to 'read' a computer language in its own terms, but it takes a lot of practice and experience. All of the listings in this book appear in a layout very similar to what appears on the TV screen when the program is being typed in or listed, so if you do find that the program is not running properly try to check that the BASIC of what has been typed in is correct, rather than the English. All too often mistakes occur because people type in a line of BASIC having translated it into English first. It makes more sense as a sentence to you, but not, unfortunately as an instruction to the computer!

If a line is typed in incorrectly an ERROR message is likely to appear at the bottom of the screen when the program is RUN. On the Spectrum, error messages look like this example:

B Integer out of range, 2050 : 3

If this happens simply get out the ZX Spectrum Manual supplied with the computer. Appendix B on pages 189-192 of the Manual lists all the error messages and tells you what they mean.

Where a program contains machine code, it is a good idea to ensure that you SAVE it on tape immediately after it has been typed in. This is because even small mistakes in machine code can cause the program to crash when it is run, and if it has not been saved several hours tedious work can be lost. If you have saved the program on tape, the cause of the crash can be easily found by carefully inspecting the machine code entry after relisting the program.

If nothing happens on one of these programs when you press one of the operation keys, check the *mode* in which the computer has been set. All of the programs listed in this book must be run with the computer in *lower case mode*, i.e. so that the flashing L cursor appears on the screen rather than the flashing C cursor.

Never RUN any part of a program before you have finished typing the whole listing. This is important because an unfinished program often includes undefined lines, and if it is run incomplete, these will cause it to crash and for all your hard work to be lost. You may SAVE the unfinished program on tape, of course, so that it can be completed at a later date.

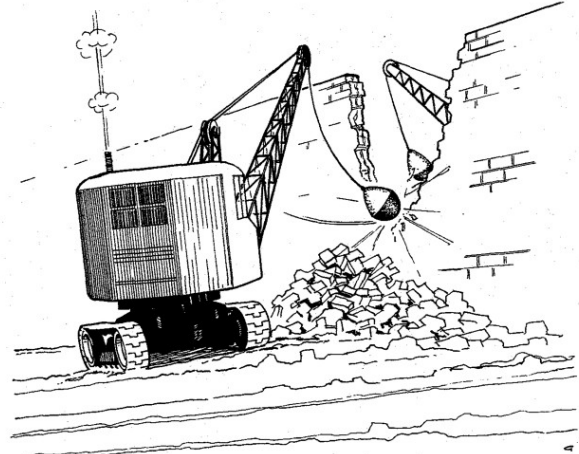
We have always found it best to make two copies of programs, especially of the longest games, so that any 'mistakes' in running or damage to the tape does not mean wasted effort.

The 'Key to graphics characters' sections in the program instructions are a helpful guide to how we have defined the graphics to be used in our games. You will often see graphics characters which do not normally exist in the Spectrum character set. This is because we have used the user-defined graphics capability of the machine. Where this occurs, you must use the computer in its *graphics mode*, i.e. press CAP SHIFT and 9 simultaneously. Upper case letters will appear in the screen; this is confusing, but do not worry because the computer will define the required characters automatically.

Take especial care when typing-in DATA, DRAW, PLOT and POKE statements that the numbers following them are correct. Some are in machine code in this book, and may cause the program to crash if entered incorrectly. Others, whilst not in machine code, may cause various parts of the program to malfunction — placing graphics characters in odd parts of the screen, for example.

Games for the ZX Spectrum

Break Through



(16K)

A version of the classic 'break out' game for two players. This game has a time limit, which can be set by the players, from a minimum of 100 seconds up to a maximum of 900 seconds. The object is of course to break down your opponent's wall before he breaks down yours.

Key to graphics characters

ABCDEFGHIJKLMNPOQRSTU
 ●BCDEFGHIJKLMNPOQRSTU

```

10 REM @ PAUL SMITH /
    ELLIS HORWOOD
20 FOR Z=USR "A" TO USR "A"+7
30 READ X: POKE Z,X: NEXT Z
40 DATA 24,126,126,255,255,126
50 POKE 23658,8
100 REM START
110 LET PL1=0: LET PL2=0
120 GO SUB 200
130 BEEP .005,60
140 GO TO 300
150 REM VARIABLES
210 LET A$=""
220 LET B$=""
230 LET C$=""
240 LET D$=""
250 LET E$=""
260 LET A=12: LET B=15
270 LET D=-1: LET C=1: IF RND>.
5 THEN LET C=-1: LET D=1
290 RETURN
300 REM SCREEN
310 PRINT AT 0,0;"
THROUGH BREAK
520 PLOT 0,146: DRAW 255,0
530 PLOT 0,12: DRAW 255,0
540 PRINT AT 21,0;"PLAYER 1:0
550 PRINT AT 5,0;"INVERSE 1;"@
560 PRINT AT 5,0; INK 4;A$;AT 1
570 PRINT AT 6,0;C$;AT 17,0;D$
580 PRINT AT 8,0; INK 3;"
590 PRINT AT 8,1;"PLAYER 1 - Z
600 PRINT AT 15,1;"PLAYER 2 -
610 LEFT N:RIGHT"
620 PRINT #0;"PRESS NUMBER FOR
630 OF SECONDS"
640 LET Z$=INKEY$: IF Z$>"9" OR
650 Z$<"1" THEN GO TO 810
660 BEEP .1,10: INPUT 0
670 LET MAX=VAL Z$*100
680 FOR Z=1 TO 15: BEEP .1,Z: N
690 EXT Z
710 PRINT AT 21,29;"
720 PRINT AT 6,0;AT 15,0;
730 POKE 23674,0: POKE 23673,0:
740 POKE 23672,0
1000 REM MAIN LOOP
1010 IF IN 65278=253 THEN LET C$
1020 =C$(2 TO )+C$(1)
1030 IF IN 65278=251 THEN LET C$
1040 =C$(32)+C$(1 TO 31)
1050 PRINT AT 6,0; INK 5;C$
1060 IF IN 32766=238 THEN LET D$
1070 =D$(2 TO )+D$(1)
1080 IF IN 32766=247 THEN LET D$
1090 =D$(32)+D$(1 TO 31)
1100 PRINT INK 4;AT 17,0;D$

```

```

1100 LET A1=A: LET B1=B
1110 LET A=A+C: LET B=B+D
1120 PRINT AT A,B; INK 3;"
1130 IF A1<>6 AND A1<>17 THEN PR
1140 INT AT A1,B1;"
1200 LET C1=C
1210 IF A=7 AND C$(B+1)="" THEN
1220 LET C=1: LET D=0
1230 IF A=16 AND D$(B+1)="" THEN
1240 LET C=-1: LET D=0
1250 IF A=7 AND C$(B+1)<> " " THE
1260 LET C=1: LET D=0
1270 IF A=16 AND D$(B+1)<> " " TH
1280 LET C=-1: LET D=-1
1290 IF B=1 THEN LET D=1
1300 IF B=0 THEN LET B=1
1310 IF B=31 THEN LET B=30
1320 IF A=7 AND C$(B+D+1)="" TH
1330 LET D=-1: LET C=1
1340 IF A=7 AND C$(B+D+1)="" TH
1350 LET D=1: LET C=-1
1360 IF A=16 AND D$(B+D+1)="" T
1370 LET D=-1: LET C=-1
1380 IF A=16 AND D$(B+D+1)="" T
1390 LET D=1: LET C=-1
1400 IF C1<>C THEN BEEP .01,20
1410 IF (A=6 OR A=5) AND A$(B+1)
1420 <> " " THEN BEEP .05,0: LET A$(IN
1430 T (B/4)*4+1 TO INT (B/4)*4+4)=
1440 " " LET C=1: PRINT AT 5,0; INK
1450 4;A$
1460 IF (A=17 OR A=16) AND B$(B+
1470 1)<> " " THEN BEEP .05,0: LET B$(
1480 INT (B/4)*4+1 TO INT (B/4)*4+4)=
1490 " " LET C=-1: PRINT AT 15,0;
1500 INK 5;B$
1510 IF A=4 OR A=19 THEN GO TO 2
1520 000
1530 LET TI=(65536+PEEK 23674+25
1540 6+PEEK 23673+PEEK 23672)/50
1550 PRINT AT 21,29;INT TI
1560 IF TI>MAX THEN GO TO 3000
1570 GO TO 1000
1580 REM SCORE
1590 IF A=4 THEN LET PL2=PL2+1
1600 IF A=19 THEN LET PL1=PL1+1
1610 PRINT AT 4,0;
1620 PRINT AT 17,0;,,,,,
1630 GO SUB 200
1640 PRINT AT 5,0; INK 4;A$;AT 1
1650 7,0;D$; INK 5;AT 6,0;C$;AT 15,0;
1660 B$
1670 PRINT AT 21,9;PL1;AT 21,21;
1680 PL2
1690 FOR Z=10 TO 0 STEP -1: BEEP
1700 .1,Z: NEXT Z
1710 PRINT AT A,B; INK 3;"
1720 FOR X=1 TO 100: NEXT X: BEE
1730 P .1,10: BEEP .1,10
1740 GO TO 1000
1750 REM THE END
1760 PRINT #0;" PRESS ANY KEY FO
1770 R ANOTHER GAME"

```

Listing continued next page

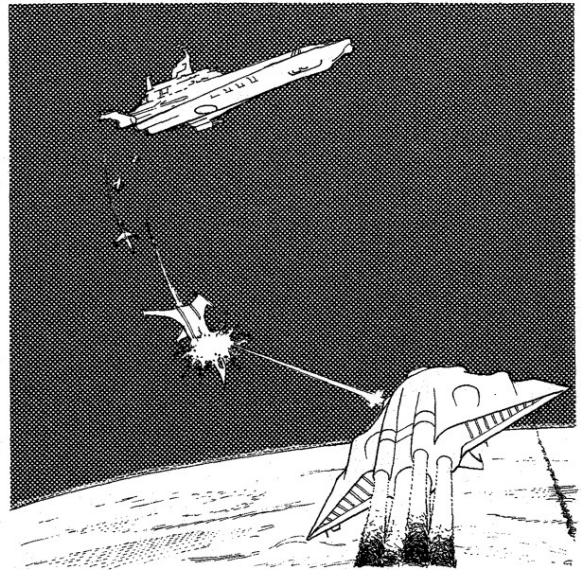
```

3005 FOR Z=0 TO 15: BEEP .1,Z: N
EXT Z
3010 FOR Z=0 TO 7
3020 PLOT OVER 1;0,Z: DRAW OVER
1,100,0
3030 IF INKEY$="" THEN NEXT Z: G
O TO 3010
3050 BEEP .1,0: INPUT 0: RUN
9999 RUN

```

2

Space Attack



(16K)

As the last spaceship on earth your task is to defend your home planet from marauding aliens. One of the classic 'shoot-em-up' types of games, this one is easy and simple to type in, being relatively short. However, although it is easy to run on the computer, it is good fun and challenging. There are twenty stages of play, in which the aliens attack at increasing speed, and eventually become invisible. Do remember to watch out for the aliens' mother ship which patrols the upper atmosphere. If you manage to shoot her down, you will receive a bonus of 200 points; unfortunately, she will be replaced by another, equally deadly mother ship!

Key operations are given below:

Z Steers your spaceship left
X Steers your spaceship right
<SPACE> Is used to fire your laser cannon

The game uses a multi-key input routine, which you will find explained later in the book. This routine is well worth investigating, as it is the way in which simultaneous key operation can be used to control two operations, such as in this case steering and laser cannon firing.

The program includes a 'high score' routine which will enable the player to keep a record of his scores in the game. In fact it lists the four best game scores in order alongside the player's name. Simply type in your name (you can only use five characters or fewer: If your name were Alexander you could only use Alex, for example), when the computer asks for your 'Name'.

Once the game is finished, it will ask you if you want another go. Simply type in Y for 'Yes' or N for 'No'.

Key to graphics characters

ABCDEFGHIJKLMNPOQRSTU
A-EFGHIJKLMNPOQRSTU

```

10 REM *****
20 REM * SPACE ATTACK *
30 REM * © TOBY MATTHEWS *
40 REM * & ELLIS HORWOOD *
50 REM *****
60 GO SUB 650
65 LET N$=""
70 BORDER 2: INK 7: PAPER 0: C
LS
72 DIM H$(5,12): FOR Z=1 TO 5:
LET H$(Z,6 TO )="--00000": NEXT
Z
75 PRINT #0: INVERSE 1: "© TOB
Y MATTHEWS/ELLIS HORWOOD,"
80 FOR N=17 TO 0 STEP -1
85 REM INTRODUCTION
90 PRINT AT N,9: "
100 PRINT AT N+3,0:,,
110 NEXT N
115 POKE 23658,8
120 BEEP 1,10
130 GO SUB 5000
140 DIM A$(32)
150 DIM B$(32)
160 LET S=0
165 REM CHANGE LEVEL
170 FOR U=1 TO 20
200 BORDER 2: IF U=1 OR U=8 OR
U=15 OR U=20 THEN LET P=0

```

SPACE ATTACK

```

210 IF U=3 OR U=10 OR U=17 THEN
LET P=2
220 IF U=4 OR U=11 OR U=18 THEN
LET P=3
230 IF U=5 OR U=12 THEN LET P=5
240 IF U=6 OR U=13 THEN LET P=6
250 IF U=7 OR U=14 OR U=19 THEN
LET P=7
260 IF U=2 OR U=9 OR U=16 THEN
LET P=1
270 IF P=4 THEN LET I=7
280 IF P=4 THEN LET I=0
290 IF U=20 THEN LET I=0
300 PAPER P: INK I: CLS
305 REM VARIABLES
310 LET X=16
320 LET U=29
330 LET Y=5
340 LET A$=""
350 LET B$=""
355 REM MAIN LOOP
360 CLS: PRINT AT 0,0: PAPER 0
: INK 7: "SCORE": AT 0,25: "UAVE"
365 PRINT #0: INVERSE 1: "© TOB
Y MATTHEWS/ELLIS HORWOOD,"
370 FOR N=1 TO 25-U
380 PRINT AT 0,6: PAPER 0: INK
7: AT 0,30: U
390 LET X=X+(IN 65278=251 AND X
<30)-(IN 65278=253 AND X>0)
400 LET G=I: IF U=20 THEN LET G
=7
410 PRINT AT 21,X: INK G: "A": AT
21,X-1: "": AT 21,X+1: "
420 PRINT AT E,U: "": AT E,U+2:
" ": LET K=INT (RAND*2): IF K=1 T
HEN PLOT (U*8)+7,151: LET H=INT
(RAND*32): DRAW 16-H,-148: OVER 1
: PLOT (U*8)+7,151: DRAW 16-H,-1
48: OVER 0: IF K=1 AND (U*8)+(16
-H)+7>X*8 AND (U*8)+(16-H)+7<(X+
1)*8 THEN GO TO 600
440 IF U=1 THEN PRINT AT E,U: "
": LET U=28
450 PRINT AT Y,0:A$( TO 32): AT
Y+2,0:A$( TO 32): AT Y+4,0:A$( TO
32): AT Y+6,0:A$( TO 32)
460 LET A$=A$(2 TO )A$(1)
470 BEEP .21-(U/100),-30
480 IF IN 32766=254 THEN INK G:
PLOT 8*X+4,6: DRAW 0,154: INK I
: BEEP 0.1,10: OVER 1: PLOT 8*X+
4,5: DRAW 0,154: OVER 0: IF A$(X
)=B$ THEN LET A$(X)="": LET S=
S+40
485 IF IN 32766=254 THEN IF U=X
OR X=U+1 THEN PRINT AT E,U: "
": BEEP 1,10: LET S=S+200: LET
U=28
490 IF A$=B$ THEN GO TO 530
495 LET U=U-1
500 NEXT N
510 LET Y=Y+1: PRINT AT Y-1,0:,,

```

Listing continued next page

```

,AT Y+1,0;,,AT Y+3,0;,,AT Y+5,0;
,,: IF Y=14 THEN GO TO S40
520 GO TO 370
530 NEXT W
535 REM ■ALIENS HAVE LANDED■
540 CLS: INK 6: FOR N=50 TO -1
0 STEP -1: BEEP .01 N: NEXT N
550 PRINT AT 12,7;"YOUR SCORE W
AS "S
555 IF W=20 AND A$="" THEN PRIN
T AT 10,2; INVERSE 1;"YOU MADE I
T SPACE CAPTAIN!!!": GO TO 565
560 PRINT AT 10,5; INK 7; PAPER
0; FLASH 1;"THE ALIENS HAVE LAN
DED!"
565 GO SUB 9900
570 PRINT AT 15,10;"ANOTHER GO?
": PAUSE 0: IF INKEY$="N" THEN S
TOP
580 IF INKEY$="Y" THEN GO TO 75
590 GO TO 570
595 REM ■DESTROY SHIP■
600 CLS: INK 6: FOR N=50 TO -1
0 STEP -1: BEEP .01 N: NEXT N
610 PRINT AT 12,7;"YOUR SCORE W
AS "S
620 PRINT AT 10,1; INK 7; PAPER
0; FLASH 1;"YOUR SHIP HAS BEEN
DESTROYED!"
625 GO SUB 9900
630 PRINT AT 15,10;"ANOTHER GO?
": PAUSE 0: IF INKEY$="N" THEN S
TOP
640 IF INKEY$="Y" THEN GO TO 75
650 GO TO 630
655 REM ■CHARACTER SET■
660 FOR N=0 TO 31: READ A: POKE
USR "A"+N,A: NEXT N
670 DATA 60,120,210,255,195,125
,65,125,0,24,24,24,36,60,90,195,
0,0,60,127,255,145,255,0,0,0,252
,254,255,73,255,0
680 RETURN
5000 REM ■KEYS■
5010 PRINT AT 6,2;"KEYS-"
5020 PRINT AT 8,2; INVERSE 1;"Z.
LEFT
5030 PRINT AT 10,2; INVERSE 1;"X
...RIGHT"
5040 PRINT AT 12,2; INVERSE 1;"<
SPACE>...FIRE"
5050 PRINT AT 17,10;"READY (Y/N)
?"
5060 IF INKEY$="Y" THEN RETURN
5070 GO TO 5050
9900 FOR N=1 TO 200: NEXT N: CLS
: FOR N=1 TO 20: BEEP .01 N: NE
XT N: IF S>VAL H$(S,8 TO ) THEN
INPUT "NAME:" LINE N$
9905 LET N$=(N$+" ")( TO 5
)
9909 FOR Z=4 TO 1 STEP -1
9910 IF S>VAL H$(Z,3 TO ) THEN L
ET H$(Z+1)=H$(Z): LET H$(Z)=N$+"
--"+!"00000"( TO 5-LEN STR$ S))+

```

```

STR$ S
9920 NEXT Z
9930 PRINT AT 6,0; PAPER 0; INK
7;"HIGH SCORES:"
9950 FOR Z=1 TO 4
9960 PRINT AT Z+6,10; INK 7; PAP
ER 0;H$(Z): NEXT Z
9970 RETURN
9999 RUN

```

3

Treasure Hunt



(16K)

Blackbeard the fierce pirate captain has hidden all his treasure on a desert island. All you have to do is find it. Easy!

However, you may find it a little difficult to locate the treasure because the island is covered by the tide every eight hours (represented by 30 seconds 'real time' on the computer).

All you need to remember is to type in 'R' as the instructions scroll across the screen. This will start the game. A number of clues will then appear at the bottom of the screen, which will tell you either in which direction the treasure is to be found or

22

how many moves away it is. All you have to do is to find the treasure before the time limit is up.

If you want to have another go type Y for 'Yes'. If not, simply type N for 'No'.
Happy treasure hunting!

Key to graphics characters

ABCDEFGHIJKLMNPOQRSTU
*ABCDEFGHIJKLMNPOQRSTU

```

10 REM *****
20 REM * TREASURE HUNT *
30 REM * © TOBY MATTHEWS *
40 REM * & ELLIS HORWOOD *
50 REM *****
60 POKE 23656,6
70 GO SUB 9000
80 PAPER 7: INK 0: BORDER 7
90 CLS
100 PRINT AT 0,3: PAPER 1: INK
110 "TREASURE HUNT!"
120 PLOT 0,152: DRAW 255,0
130 BEEP 1,10
140 PRINT AT 4,0: INVERSE 1;"KEYS-"
150 PRINT AT 6,3: INK 7; PAPER
160 "NORTH"
170 PRINT AT 7,3: INK 7; PAPER
180 "L SOUTH"
190 PRINT AT 8,3: INK 7; PAPER
200 "Z WEST"
210 PRINT AT 9,3: INK 7; PAPER
220 "X EAST"
230 PLOT 0,66: DRAW 255,0
240 PLOT 0,52: DRAW 255,0
250 PLOT 0,67: DRAW 255,0
260 PRINT AT 15,2:"PRESS ""R""
270 KEY TO START PLAY!"
280 LET A$=""
290 "YOU MUST FIND THE T
300 REASURE BEFORE YOUR TIME RUNS OU
310 T, USING ONLY THE CLUES AT THE BO
320 TTOM OF THE SCREEN!"
330 PRINT AT 14,0: INVERSE 1;A$
340 (" TO 32)
350 LET A$=A$(2 TO )+A$(1)
360 IF INKEY$="R" THEN GO TO 25
370
380 BEEP .01,10: FOR N=1 TO 2:
390 NEXT N: BEEP .01,10
400 GO TO 200
410 LET G=0: GO SUB 5000
420 REM MAIN LOOP
430 INK 0: PAPER 6
440 LET TX=INT (RND*31)
450 LET TY=4+INT (RND*14)
460 IF CODE SCREEN$ (TY,TX)=0 T
470 HEN GO TO 270
480 LET X=10: LET Y=10

```

Listing continued next page

```

310 PRINT AT Y,X;"X"
320 LET M=0
330 POKE 23674,0: POKE 23673,0:
POKE 23672,0:
340 LET T=30-((55536*PEEK 23674
+255*PEEK 23673+PEEK 23672)/50)
350 PRINT AT 2,30; PAPER 7;"
:AT 2,0:"MOVES:";M;AT 2,25;"TIME
:INT T
360 LET A=INT (RND*2)
390 IF INT T<=0 THEN GO TO 7000
400 IF INKEY$="P" THEN IF CODE
SCREEN$ (Y-1,X)=32 THEN PRINT AT
Y,X;"X": LET Y=Y-1: PRINT AT Y
,X;"X": LET M=M+1
410 IF INKEY$="L" THEN IF CODE
SCREEN$ (Y+1,X)=32 THEN PRINT AT
Y,X;"X": LET Y=Y+1: PRINT AT Y
,X;"X": LET M=M+1
420 IF INKEY$="Z" THEN IF CODE
SCREEN$ (Y,X-1)=32 THEN PRINT AT
Y,X;"X": LET X=X-1: PRINT AT Y
,X;"X": LET M=M+1
430 IF INKEY$="X" THEN IF CODE
SCREEN$ (Y,X+1)=32 THEN PRINT AT
Y,X;"X": LET X=X+1: PRINT AT Y
,X;"X": LET M=M+1
440 IF X=TX AND Y=TY THEN GO TO
6000
450 GO SUB 3000+(A*100)
460 FOR N=1 TO 30: NEXT N: GO T
O 340
3000 REM DISTANCE
3010 LET D1=0: LET D2=0
3020 IF TX<X THEN LET D1=TX-X
3030 IF TX>X THEN LET D1=X-TX
3040 IF TY<Y THEN LET D2=TY-Y
3050 IF TY>Y THEN LET D2=Y-TY
3060 IF D<=1 THEN RETURN
3070 PRINT AT 20,0; PAPER 7;"
T 20,2; PAPER 7:"THE TREASURE IS
:D2+D1;" MOVES AWAY"
3080 BEEP -1,10
3090 FOR N=1 TO 60: NEXT N
3100 RETURN
3110 REM DIRECTION
3120 LET D$=""
3130 IF TY<Y THEN LET D$=D$+"SOU
TH"
3140 IF TY>Y THEN LET D$=D$+"NOR
TH"
3150 IF TX<X THEN LET D$=D$+"EAS
T"
3160 IF TX>X THEN LET D$=D$+"WES
T"
3170 PRINT AT 20,0; PAPER 7;"
T 20,0;"THE TREASURE'S TO THE ";
D$
3180 BEEP -1,10
3190 FOR N=1 TO 60: NEXT N
3200 RETURN
5000 REM SET UP SCREEN
5010 PAPER 1: INK 6: BORDER 1
5020 PRINT AT 3,0;"

```

```

5030 PRINT AT 4,0;"
5040 PRINT AT 5,0;"
5050 PRINT AT 6,0;"
5060 PRINT AT 7,0;"
5070 PRINT AT 8,0;"
5080 PRINT AT 9,0;"
5090 PRINT AT 10,0;"
5100 PRINT AT 11,0;"
5110 PRINT AT 12,0;"
5120 PRINT AT 13,0;"
5130 PRINT AT 14,0;"
5140 PRINT AT 15,0;"
5150 PRINT AT 16,0;"
5160 PRINT AT 17,0;"
5170 PRINT AT 18,0;"
5180 RETURN
6000 REM WIN
6010 CLS
6020 FOR N=1 TO 20: BEEP .02,N:
NEXT N
6030 PRINT AT 6,5;"YOU DID IT IN
:M;" MOVES!"
6040 PRINT AT 8,6;"AND ";30-T;"
SECONDS"
6050 GO TO 7050
7000 REM OUT OF TIME
7010 CLS
7020 FOR N=-20 TO -30 STEP -1: B
EEP .1,N: NEXT N
7030 PRINT AT 4,2;"OH DEAR! YOU
RAN OUT OF TIME"
7035 LET G=1: GO SUB 3000
7040 PRINT AT 6,6;"YOU WERE ";D1
+D2;" MOVES";AT 6,7;" FROM THE T
REASURE"
7050 PRINT AT 10,10;"ANOTHER GO
?"
7060 IF INKEY$="Y" THEN RUN
7070 IF INKEY$="N" THEN STOP
7080 GO TO 7050
9000 FOR N=0 TO 15: READ A: POKE
USR "A",N:A: NEXT N
9010 DATA 0,24,30,219,35,219,35,
195,56,56,16,264,16,40,66,130
9020 RETURN
9999 RUN

```

4

Living Dead



(16K)

The main object of this game is to get to the treasure trove, marked with an X, which can appear anywhere on the screen. However, after you materialize in the swampland, you will have to avoid the zombies who chase after you, at the same time as skirting the marshes. If you fall into a marsh, you will lose one of the five lives which the game allows you. If a zombie catches you, you will also lose a life. If this was not enough, you must also be careful not to run out of time (the amount of time taken is displayed at the top of the screen).

Each time you manage to get to the cross on the screen, the time allowance for the

game is re-set to zero. Therefore, if you continue to reach the treasure trove without losing any lives, or running out of time, your score will increase. The faster you find the treasure trove, the quicker your score will mount.

One final sophistication should be explained. If you wish you can redefine the movement keys. Simply press E to *Edit*, and type in the letter, figure or symbol you require to change the key.

Key to graphics characters

ABCDEFGHIJKLMNPOQRSTU
VWDEFGHIJKLMNPOQRSTU

```

5 REM LIVING DEAD
6 P. SMITH /
7 ELLIS HORWOOD
10 FOR a=1 TO 3: READ a$
20 FOR b=0 TO 7
30 READ c: POKE USR a$+b,c
40 NEXT b
50 NEXT a
60 DATA "a",0,146,146,64,56,16
70 DATA "c",56,64,40,124,186,1
86,40,106
90 DATA "b",0,60,90,255,165,60
100,231,0
110 BORDER 0: PAPER 0: INK 7: C
120
130 POKE 23550,8
140 LET K$="8765"
150 GO SUB 9000
200 REM VARIABLES
210 DIM a$(19,32)
220 FOR z=1 TO 60
230 LET a$(INT (RAND*19)+1,INT (
RAND*32+1))="Y"
240 NEXT z
250 LET s=0
260 DIM c(10): DIM d(10)
270 FOR z=1 TO 10
280 LET c(z)=INT (RAND*19+1)
290 LET d(z)=INT (RAND*32)
300 IF a$(c(z),d(z)+1)="Y" THEN
GO TO 280
310 NEXT z
320 LET a=INT (RAND*19+1)
330 LET b=INT (RAND*32)
340 LET i=5
350 LET j=INT (RAND*19+1)
360 LET k=INT (RAND*32)
370 LET a$(i,j+1)="X"
380 LET TIME=0
400 CLS
410 PRINT AT 21,0;"SCORE:";s;c
415 GO SUB 8000
420 FOR z=1 TO 10
430 PRINT INK (RAND*4+2);AT c(z)
,d(z);"a"
440 NEXT z

```

Listing continued next page

```

445 INPUT AT 0,0;"ENTER SKILL L
EVEL
0 - HARD:";5K
1 - EASY 1
450 GO SUB 7000
980 LET f=INT (RAND*9+1)
990 FOR g=1 TO INT (RAND*5+5)
1000 LET a1=8: LET b1=b
1010 LET z$=INKEY$
1020 LET a=a+(z$=K$(3) AND a<19)
-(z$=K$(2) AND a>1)
1030 LET b=b+(z$=K$(1) AND b<31)
-(z$=K$(4) AND b>8)
1040 IF a1=a AND b1=b THEN GO TO
1060
1050 PRINT AT a1,b1;a$(a1,b1+1)
1060 PRINT INK 6;AT a,b;"
1080 IF a$(a,b+1)="Y" THEN PRINT
AT a,b; INK 4;"Y": PRINT FLASH
1100 REM LET e=INT (RAND*10+1)
1101 FOR e=f TO f+1
1105 LET c1=c(e): LET d1=d(e)
1110 IF a<c(e) THEN LET c(e)=c(e)
+1
1120 IF a>c(e) THEN LET c(e)=c(e)
+1
1130 IF b>d(e) THEN LET d(e)=d(e)
+1
1140 IF b<d(e) THEN LET d(e)=d(e)
+1
1150 PRINT AT c1,d1;a$(c1,d1+1)
1160 PRINT INK (RAND*4+2);AT c(e)
d(e);"
1180 IF a$(c(e),d(e)+1)="Y" OR A
$(C(E),D(E)+1)="X" THEN GO SUB 2
000
1190 NEXT e
1200 IF ATTR (A,B)<>7 THEN GO TO
1300
1300 IF a=i AND b=j THEN GO TO 5
000
1500 PRINT AT I,J; INK 7;"X"
1510 LET TIME=TIME+5K
1520 PLOT 0,175: DRAW TIME,0
1530 IF TIME>245 THEN GO TO 6000
1900 NEXT g
1990 GO TO 950
2000 LET sc=sc+1
2010 BEEP "1,00
2020 PRINT INK 4;AT c(e),d(e);"Y"
2030 LET c(e)=INT (RAND*19+1)
2040 LET d(e)=INT (RAND*32)
2050 IF a$(c(e),d(e)+1)="Y" THEN
GO TO 2030
2060 PRINT INK 7;AT 21,6;sc
2090 RETURN
3000 REM CAUGHT
3001 PRINT FLASH 1;AT 21,16;"CAU
GHT"
3005 PRINT "
3010 LET li=li-1
3020 BEEP .02,10: BEEP .02,20
3030 IF INKEY$<>" THEN GO TO 30
20
3040 PRINT INK 7;AT 21,16;"LIVES

```

```

:";li;"
3050 LET a=INT (RAND*19+1)
3060 LET b=INT (RAND*32)
3070 IF a$(a,b+1)="Y" THEN GO TO
3080
3090 IF li=0 THEN GO TO 4000
3095 GO SUB 7000
3099 GO TO 1000
3500 INK 2
3590 GO TO 1000
4000 PRINT FLASH 1;AT 10,12;"GAM
E"
4010 PRINT "
4020 PRINT INVERSE 1; FLASH 1;"O
VER"
4030 PRINT AT 21,16;"PRESS 1 TO
RERUN"
4040 IF INKEY$<>"1" THEN GO TO 4
040
4050 RUN
5000 REM SUCCESS
5010 LET BO=255: FOR Z=TIME TO 0
STEP -1
5020 LET BO=BO-1: PRINT AT 21,15
;"BONUS:";BO;"
5030 BEEP .01,Z/4.25: PLOT OVER
1,Z,175: NEXT Z
5031 LET TIME=0: LET SC=SC+BO: P
RINT AT 21,6;SC
5035 LET A$(I,J+1)="
5040 LET I=INT (RAND*19+1): LET J
=INT (RAND*32)
5045 IF A$(I,J+1)="Y" THEN GO TO
5040
5050 FOR Z=1 TO 10: PRINT AT I,J
;" FOR X=1 TO 10: NEXT X: PRI
NT AT I,J;"X": FOR X=1 TO 10: NE
XT X: NEXT Z
5060 IF INKEY$="" THEN GO TO 506
0
5065 PRINT AT 21,16;"LIVES:";LI;
"
5070 GO TO 1310
6000 REM DEAD
6005 BEEP .8,-10: FOR X=1 TO 30:
NEXT X
6010 FOR Z=LI TO 0 STEP -1: BEEP
.2,Z*10: PRINT AT 21,16;"LIVES:
";Z: FOR X=1 TO 10: NEXT X: NEXT
Z: GO TO 4000
7000 FOR Z=0 TO 7 STEP .2
7010 BEEP .05,Z*10-10
7020 PRINT AT A,B; INK Z;"
7030 NEXT Z
7040 IF INKEY$="" THEN GO TO 704
0
7050 RETURN
8000 FOR z=1 TO 19
8001 PLOT 0,169: DRAW 255,0
8002 PLOT 0,14: DRAW 255,0
8005 FOR x=0 TO 31
8010 IF a$(z,x+1)="Y" THEN PRINT
AT z,x; INK 4;"Y"
8015 NEXT x

```

Listing continued next page

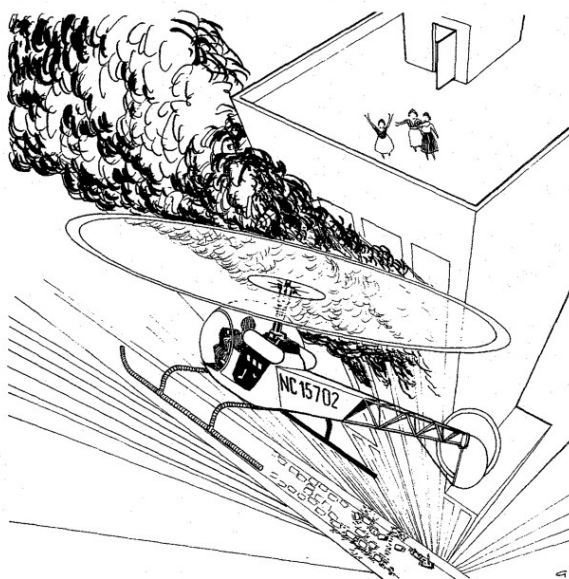
```

9020 NEXT Z
9030 PRINT AT 1,J; INK 7;"X"
9040 RETURN
9050 REM ■ INTRODUCTION ■
9060 CLS
9070 PRINT "      L I V I N G      D
      E A D      "
9080 PRINT AT 6,13;K$(1); INK 3;
      " - RIGHT"
9090 PRINT AT 8,13;K$(2); INK 4;
      " - UP"
9100 PRINT AT 10,13;K$(3); INK 5;
      " - DOWN"
9110 PRINT AT 12,13;K$(4); INK 6;
      " - LEFT"
9120 PRINT AT 14,0;"-----"
9130 PRINT ",," "PRESS "; INK 5;
      "E";
9140 PRINT " TO EDIT "; INK 4;"P"
9150 PRINT " TO PLAY"
9160 PRINT ",," "
9170 PRINT AT 21,0;"      L I V I
      N G      D E A D"
9180 IF INKEY$="E" THEN GO TO 92
9190 IF INKEY$="P" THEN BEEP .1,
      RETURN
9200 GO TO 9130
9210 REM ■ EDIT ■
9220 IF INKEY$<>" " THEN GO TO 92
9230
9240 FLASH 1
9250 FOR Z=1 TO 4
9260 PRINT AT 4+Z*2,13;K$(Z)
9270 LET Z$=INKEY$
9280 IF Z$="" THEN GO TO 9230
9290 PRINT FLASH 0;AT 4+Z*2,13;Z
$
9300 LET K$(Z)=Z$: BEEP .01,45:
IF INKEY$<>" " THEN GO TO 9250
9310 NEXT Z
9320 FLASH 0
9330 LET WWW=0: FOR Z=1 TO 4: FO
R X=1 TO 4: IF Z<>X THEN LET WWW
=WWW+(K$(Z)=K$(X))
9340 NEXT X: NEXT Z: IF WWW<>0 T
HEN GO TO 9200
9350 GO TO 9130
9360 RUN

```

5

Helicopter Rescue



(16K)

The object of this game is to rescue the beautiful maidens in distress. But instead of being stranded in medieval castles we have brought things a little more up to date and placed them on top of burning skyscrapers. You pilot a helicopter to rescue them: you must get all of them off the skyscrapers and land them safely on the white platform at the right of the screen before the fire reaches them.

But be careful. No more than one maiden can ride in the helicopter at a time: if you try to get more than one inside you will cause a fatal accident. And if you fly into a skyscraper you will have failed in your mission.

The game incorporates a difficulty factor — the fire reaches the top of the buildings more rapidly as the game progresses, so you have less time to rescue the maidens. As soon as three maidens are killed the game is over. Once the game is running, press P to play: you can do this at any time whilst the instructions are scrolling past. The following keys operate the helicopter:

P = Up
L = Down
Z = Left
X = Right

The game features a high score routine which allows you to type in your name and automatically displays your four best scores on the screen.

Key to graphics characters

ABCDEFGHIJKLMNPOQRSTU
* * * * *

```

10 REM *****
20 REM * HELICOPTER RESCUE *
30 REM * @ TOBY MATTHEUS *
40 REM * & ELLIS HORWOOD *
50 REM *****
60 POKE 23558,8
70 PAPER 5: BORDER 1: INK 5: C
L5
80 GO SUB 9000
85 LET N$="TOBY": LET H$="5"
86 DIM B$(5,12): FOR Z=1 TO 5:
LET B$(Z,6 TO )="--00000": NEXT
Z
89 LET S=0
90 LET MK=0: LET D=10: GO SUB
9000
105 PRINT AT 4,1: PAPER 0:"PRES
S ""P"" KEY TO COMMENCE PLAY"
110 LET A$="
LEFT X..RIGHT RESCU
E THE MAIDENS FROM THE BURNING S
KYSRAPERS AND LAND THEM ON THE
PLATFORM ON THE RIGHT OF THE SCR
EEN"
120 PRINT AT 6,0: INK 0:A$( TO
32)
130 LET A$=A$(2 TO )+A$(1)
140 BEEP .01,10: FOR N=1 TO 5:
BEEP .01,10
150 IF INKEY$="P" THEN GO TO 17
0
160 GO TO 120
170 REM MAIN LOOP
180 PRINT AT 6,0:"
185 PRINT AT 4,0:"

```

```

190 LET Q$="TOBY": LET HI=0: LE
T L=0: LET Y=3: LET X=10
200 PRINT AT Y,X: INK 0;"5"
210 LET B=22: GO SUB 3000
220 FOR O=1 TO 40
230 PRINT AT 0,0: INK 0:"SCORE
"/5:AT 0,16:"MAIDENS KILLED "/MK
235 PRINT AT 1,0: INK 0:"MAIDEN
S SAVED "/H$
240 IF INKEY$="P" THEN GO SUB 1
000
250 IF INKEY$="L" THEN GO SUB 1
500
260 IF INKEY$="Z" THEN GO SUB 2
000
270 IF INKEY$="X" THEN GO SUB 2
500
280 IF LEN M$+MK=5K THEN GO TO
6000
285 IF Y+1=21 THEN IF X=27 THE
N IF X<=30 THEN IF L=1 THEN GO S
UB 7000
290 IF MK=3 THEN GO TO 8000
290 NEXT O
300 GO SUB 3000
310 GO TO 230
1000 REM UP
1005 IF Y=2 THEN RETURN
1010 PRINT AT Y,X:"
1020 LET Y=Y-1
1030 PRINT AT Y,X: INK 0;H$
1040 RETURN
1500 REM DOWN
1505 IF Y=20 THEN RETURN
1510 IF L=0 THEN IF ATTR (Y+1,X)
=41 OR ATTR (Y+1,X+1)=41 THEN LE
T L=1: BEEP .1,10: LET S=S+100:
GO TO 1600
1515 IF L=1 THEN IF ATTR (Y+1,X)
=41 OR ATTR (Y+1,X+1)=41 THEN LE
T MK=MK+1: BEEP .1,-20
1530 IF ATTR (Y+1,X+1)=40 OR ATT
R (Y+1,X+1)=42 THEN GO TO 8000
1540 IF ATTR (Y+1,X)=40 OR ATTR
(Y+1,X)=42 THEN GO TO 8000
1600 PRINT AT Y,X:"
1610 LET Y=Y+1
1620 PRINT AT Y,X: INK 0;H$
1630 RETURN
2000 REM LEFT
2005 LET H$="5"
2010 IF L=0 THEN IF ATTR (Y,X-1)
=41 THEN LET L=1: BEEP .1,10: LE
T S=S+100: GO TO 2100
2020 IF X=0 THEN RETURN
2030 IF L=1 THEN IF ATTR (Y,X-1)
=41 THEN LET MK=MK+1: BEEP .1,-2
0
2040 IF ATTR (Y,X-1)=40 OR ATTR
(Y,X-1)=42 THEN GO TO 8000
2100 PRINT AT Y,X:"
2110 LET X=X-1
2120 PRINT AT Y,X: INK 0;H$
2130 RETURN

```

Listing continued next page

```

2500 REM RIGHT
2505 LET H$="A"
2510 IF L=0 THEN IF ATTR(Y,X+2)
=41 THEN LET L=1: BEEP .1,10: LE
T S=S+100: GO TO 2600
2520 IF X=30 THEN RETURN
2530 IF L=1 THEN IF ATTR(Y,X+2)
=41 THEN LET MK=MK+1: BEEP .1,-2
0
2540 IF ATTR(Y,X+2)=40 OR ATTR
(Y,X+2)=42 THEN GO TO 3000
2550 PRINT AT Y,X;" "8000
2560 LET X=X+1
2570 PRINT AT Y,X; INK 0;H$
2580 RETURN
3000 REM BURN BUILDING
3010 LET H=0: LET B=B-1
3020 FOR N=0 TO 24 STEP 4
3030 IF ATTR(B,N)<40 THEN LET
H=H+1: NEXT N
3040 IF N=25 THEN GO TO 3060
3050 PRINT AT B,N; INK 2;"8000"
3060 IF ATTR(B-1,N+1)=41 THEN B
EEP .1,-10: LET MK=MK+1: PRINT AT
B-1,N+1;" "
3070 NEXT N
3080 RETURN
4000 REM HI SCORES
4005 CLS
4006 FOR N=1 TO 20: BEEP .01,N:
NEXT N
4030 IF S>VAL B$(4,8 TO ) THEN I
NPUT "PLEASE ENTER YOUR NAME:";
LINE N$
4040 LET N$=(N$+" ")( TO 5
)
4045 FOR Z=4 TO 1 STEP -1
4050 IF S>VAL B$(Z,8 TO ) THEN L
ET B$(Z+1)=B$(Z): LET B$(Z)=N$+"
"+("00000"( TO 5-LEN STR$ S))+
STR$ S
4055 PRINT AT 6,0; PAPER 1;"HIGH
SCORES:"
4060 NEXT Z
4070 FOR Z=1 TO 4
4080 PRINT AT Z+6,11; PAPER 1;B$
(Z): NEXT Z
4090 PRINT AT 15,11; PAPER 1;"AN
OTHER GO?"
4100 IF INKEY$="Y" THEN CLS : GO
TO 89
4110 IF INKEY$="N" THEN STOP
4120 GO TO 4100
5000 REM SET UP SCREEN
5010 FOR N=0 TO 27 STEP 4
5015 LET A=D+(INT (RND*7))
5020 FOR F=21 TO A STEP -1
5030 PRINT AT F,N; INK 0;"8000"
5040 NEXT F
5050 PRINT AT F,N+1; INK 1;"#"
5060 NEXT N
5070 PRINT AT 21,28; INK 7;"8000"
5080 PRINT AT 0,0; INK 0;"SCORE
":S; AT 0,16;"MAIDENS KILLED ":MK
5090 PRINT AT 1,0; INK 0;"MAIDEN
S SAVED ":M$

```

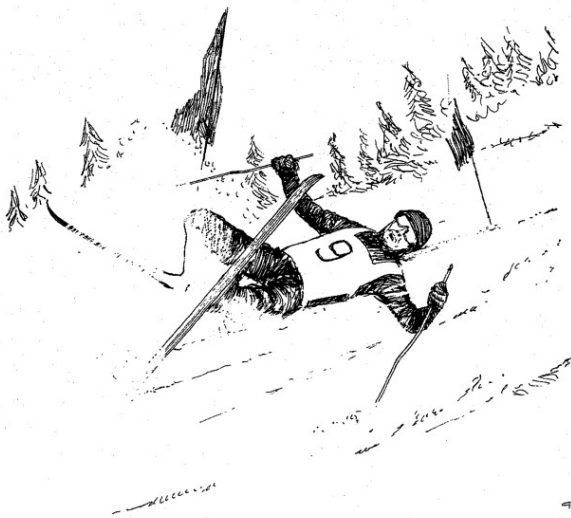
```

5100 RETURN
6000 REM BONUS
6010 FOR N=1 TO 20: BEEP .01,N:
NEXT N
6020 PRINT AT 6,11; PAPER 1;"BON
US":SK=100
6025 LET S=S+(SK*100)
6030 LET SK=SK+7
6040 FOR N=1 TO 100: NEXT N: CLS
6050 LET D=D+1: GO SUB 5000
6060 GO TO 210
7000 REM LAND MAIDEN
7010 LET M$=M$+"*": LET S=S+100
7020 LET L=0
7025 BEEP .1,10
7030 RETURN
8000 REM CRASH
8010 FOR N=0 TO -20 STEP -1: BEE
P .1,N: NEXT N
8020 PRINT AT 6,12; FLASH 1; PAP
ER 1;"GAME OVER"
8030 FOR N=1 TO 100: NEXT N: GO
TO 4000
9000 REM CHARACTER SET
9010 FOR N=0 TO 47: READ A: POKE
USR "A"+N,A: NEXT N
9020 DATA 55,55,15,254,55,124,25
4,40,255,153,153,255,255,153,153
,255,254,128,240,144,153,254,254
,255,127,1,7,143,207,255,255,1
27,1,15,0,5,7,127,127,63,254,128,
224,224,241,243,255,255
9030 RETURN
9999 RUN

```

6

Skiing: Downhill Racer



(16K)

Fancy yourself as Franz Klammer, but without taking the bone-breaking risks? Well this program provides all the thrills of the blue riband ski event — downhill racing. Unfortunately you will have to ski a difficult course: it has rocks and trees in it. As in the real thing, you must stay inside the red posts — if you ski outside them you will be disqualified. Hitting rocks or trees will slow you down — and hitting too many eventually breaks your skis, so go carefully.

The game incorporates six difficulty levels (1 'easy' to 6 'hard') and can be skied over a range of run lengths. Like real downhill racing, an audible signal tells you when to

start. The screen will show the half-way split time, and once you have completed your run it will show your total elapsed time and your average speed.

You will be surprised how much skill is required to ski a fast run.

Good luck!

Key to graphics characters

ABCDEFGHIJKLMNPOQRSTU
 ABCDEFGHIJKLMNPOQRSTU

```

10 REM *****
20 REM * SKIING *
30 REM * @ TOBY MATTHEWS *
40 REM * & ELLIS HORWOOD *
50 REM *****
60 PAPER 7: INK 0: BORDER 7: C
LS
80 LET N$="TOBY": DIM H$(5,10)
  FOR Z=1 TO 5: LET H$(Z,6 TO )=
  :NEXT Z
100 GO SUB 9000
110 REM INTRODUCTION
115 INK 0
120 POKE 23658,0
130 PLOT 40,168: DRAW -32,0: DR
AU 0,-16: DRAW 32,0: DRAW 0,-16:
DRAW -32,0
140 PLOT 48,168: DRAW 0,-16: DR
AU 32,16: PLOT 48,136: DRAW 0,16
: DRAW 32,-16
150 PLOT 66,168: DRAW 16,0: DRA
W 0,-32: DRAW 16,0
160 PLOT 120,168: DRAW -16,0: D
RAU 0,-32: DRAW -16,0
170 PLOT 128,168: DRAW 16,0: DR
AU 0,-32: DRAW 16,0
180 PLOT 160,168: DRAW -16,0: D
RAU 0,-32: DRAW -16,0
190 PLOT 168,136: DRAW 0,32: DR
AU 32,-32: DRAW 0,32
200 PLOT 240,168: DRAW -32,0: D
RAU 0,-32: DRAW 32,0: DRAW 0,16:
DRAW -16,0
210 PLOT 0,128: DRAW 255,0
220 BEEP 1,10
230 PRINT AT 7,0:"KEYS: -"
240 PRINT AT 8,6:"P--MORE SPEED
"
250 PRINT AT 9,6:"L--LESS SPEED
"
260 PRINT AT 10,6:"Z--TURN LEFT
"
270 PRINT AT 11,6:"X--TURN RIGH
T"
280 PRINT AT 13,0: INVERSE 1:"P
LEASE INPUT LEVEL OF DIFFICULTY"
290 INPUT "1' (EASY) TO '6' (HAR
D)": D
295 LET D=7-D

```

Listing continued next page

```

300 IF D<1 OR D>5 THEN GO TO 29
0
310 LET D=D+3
320 BEEP .1,10
330 PRINT AT 15,0; INVERSE 1;"P
LEASE INPUT LENGTH OF SKI RUN"
340 INPUT "0.5km TO 5km";L
350 IF L<.5 OR L>5 THEN GO TO 3
40
355 BEEP .1,10
370 LET L=INT (L*100)+25
380 INK 7
390 LET P=14
400 LET X=16
410 LET S=40
420 LET TH=0
500 REM MAIN LOOP
510 CLS : FOR N=0 TO 20: PRINT
AT N,P; INK 2;"M";AT N,P+D;"M":
NEXT N
520 PRINT AT 0,X; INK 0;"M"
530 FOR N=1 TO 5: BEEP .05,20:
FOR F=1 TO 75: NEXT F: NEXT N
540 POKE 23674,0: POKE 23673,0:
POKE 23672,0
550 FOR O=1 TO L
560 LET E=INT (RND*2)
570 LET P=P-(E=1 AND P>1)+(E=0
AND P<16)
580 POKE 23692,-1
590 PRINT AT 21,P; INK 2;"M";AT
21,P+D;"M": PRINT
595 PRINT AT 0,X; INK 0;"M"
600 FOR N=1 TO INT (RND*4): PRI
NT AT 21,INT (RND*32); INK 4;"M"
: NEXT N
610 FOR N=1 TO INT (RND*3): PRI
NT AT 21,INT (RND*32); INK 0;"M"
: NEXT N
620 IF O=L-20 THEN PRINT AT 21,
P; PAPER 2;"F I N I S H": PRINT
: LET T=(65536*PEEK 23674+256*PE
EK 23673+PEEK 23672)/50
700 IF INKEY$="P" THEN GO SUB 1
000
710 IF INKEY$="L" THEN GO SUB 1
500
720 IF INKEY$="Z" THEN GO SUB 2
000
730 IF INKEY$="X" THEN GO SUB 2
500
740 IF ATTR (1,X)=50 THEN GO SU
B 7000
750 IF ATTR (1,X)=60 THEN BEEP
.1,-30: FOR C=1 TO 375: NEXT C:
LET TH=TH+1
760 IF ATTR (1,X)=55 THEN BEEP
.1,-30: FOR I=1 TO 400: NEXT I:
LET TH=TH+1
770 IF TH=3 THEN GO TO 8000
790 IF O=INT ((L/2)-10) THEN PR
INT 80:"SPLIT TIME = ";(65536*PE
EK 23674+256*PEEK 23673+PEEK 236
72)/50:" SECONDS": BEEP 1,10
810 FOR N=1 TO S: NEXT N: NEXT
O

```

```

900 CLS
930 FOR N=1 TO 20: BEEP .1,N: N
EXT N
940 PRINT AT 5,0; INK 0; FLASH
1;"CONGRATULATIONS YOU MADE IT!!
!!!"
950 PRINT AT 8,0; INK 0; INVERS
E 1;"YOUR TIME WAS ";T;" SECONDS
"
960 PRINT AT 10,0; INK 0; INVER
SE 1;"THAT IS AN AVERAGE OF ";IN
T (((L-24)*10)/T)*3.6;" km/h"
970 FOR N=1 TO 20: BEEP .01,N:
NEXT N
980 FOR N=1 TO 150: NEXT N
990 GO SUB 4000
1000 REM SPEED UP
1005 IF S=0 THEN RETURN
1010 LET S=S-5
1020 RETURN
1030 REM SLOW DOWN
1040 LET S=S+5
1050 RETURN
2000 REM LEFT
2010 IF ATTR (0,X-1)=55 THEN GO
SUB 7000
2020 IF ATTR (0,X-1)=60 THEN BEE
P .1,-30: FOR N=1 TO 50: NEXT N:
LET TH=TH+1
2030 IF ATTR (0,X-1)=55 THEN BEE
P .1,-30: FOR N=1 TO 75: NEXT N:
LET TH=TH+1
2040 PRINT AT 0,X;" "
2050 LET X=X-1
2060 PRINT AT 0,X; INK 0;"M"
2070 RETURN
2500 REM RIGHT
2510 IF ATTR (0,X+1)=55 THEN GO
SUB 7000
2520 IF ATTR (0,X+1)=60 THEN BEE
P .1,-30: FOR N=1 TO 50: NEXT N:
LET TH=TH+1
2530 IF ATTR (0,X+1)=55 THEN BEE
P .1,-30: FOR N=1 TO 75: NEXT N:
LET TH=TH+1
2540 PRINT AT 0,X;" "
2550 LET X=X+1
2560 PRINT AT 0,X; INK 0;"M"
2570 RETURN
4000 REM STOP SPEEDS
4002 FOR N=1 TO 20: BEEP .01,N:
NEXT N: CLS
4005 LET SC=INT (((L-24)*10)/T)
+3.5)
4030 IF SC>VAL H$(5,8 TO ) THEN
INPUT "PLEASE ENTER YOUR NAME:";
LINE N$
4040 LET N$=(N$+" ")( TO 5
)
4050 FOR Z=4 TO 1 STEP -1
4060 IF SC>VAL H$(Z,8 TO ) THEN
LET H$(Z+1)=H$(Z): LET H$(Z)=N$+
"-"+"000"( TO 3-LEN STR$ SC))+
STR$ SC

```

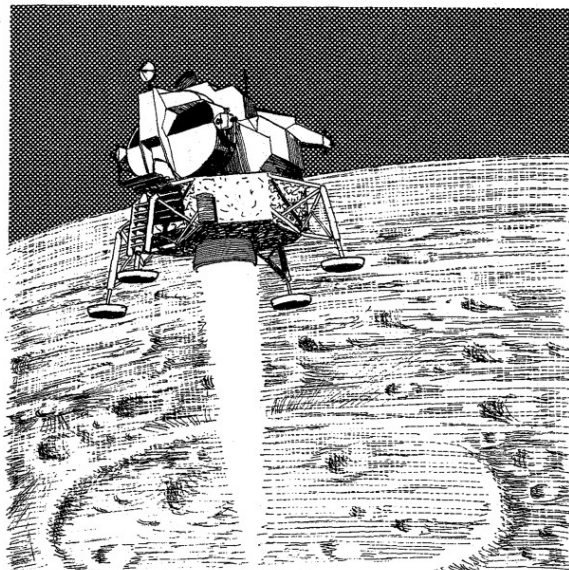
Listing continued next page

```

4070 NEXT Z
4075 PRINT AT 4,0; PAPER 1;"TOP
SPEEDS TODAY:"
4080 FOR Z=1 TO 4
4090 PRINT AT 5+Z,11; PAPER Z-1;
H$(Z);"KM/H: NEXT Z
4100 PRINT AT 14,10; PAPER 0;"AN
OTHER GO ?"
4110 IF INKEY$="Y" THEN CLS : GO
TO 110
4120 IF INKEY$="N" THEN STOP
4130 GO TO 4110
7000 REM DISQUALIFY
7010 FOR N=0 TO -20 STEP -1: BEE
P.1,N: NEXT N
7020 CLS
7030 PRINT AT 6,0; PAPER 0;"YOU
ARE DISQUALIFIED FOR HITTING"
7040 PRINT AT 7,12; PAPER 0;"A P
OST!"
7045 FOR N=1 TO 200: NEXT N
7050 CLS : LET SC=-1: GO TO 4010
8000 REM BROKEN SKIS
8010 FOR N=0 TO -20 STEP -1: BEE
P.1,N: NEXT N
8020 CLS
8030 PRINT AT 6,0; PAPER 0;"YOUR
SKIS HAVE BROKEN HARD LUCK!"
8040 GO TO 7045
9000 REM CHARACTER SET
9010 FOR N=0 TO 31: READ A: POKE
USR "A"+N,A: NEXT N
9020 DATA 36,36,60,126,126,133,1
9030,36,36,225,129,129,133,1
9040,73,66,99,124,124,96,24,0
9050,126,126,225,24,24
9060 RETURN
9999 RUN

```

Lunar Rover



(16K)

This game tests your ability to fly a lunar module. How do you think your skills would compare with those of Neil Armstrong, the first man on the moon? Here is your chance to find out.

The game has two main variables: the amount of thrust used in the descent (controlled by any key on the keyboard) and the quantity of fuel remaining in the module — which reduces as the rocket thrusters are fired. So you have to get down before the fuel runs out: otherwise you will crash! Like Neil Armstrong, you won't get a second chance.

Key to graphics characters.

ABCDEFGHIJKLMNQRSTU
 1234567890LMNOPQRSTU

5 REM

© PAUL SMITH
 /ELLIS HORWOOD

```

10 BORDER 0: PAPER 0: INK 7: C
15 : OVER 0
100 BEEP .2,45
100 REM ■ GRAPHICS CHARACTERS ■
105 FOR A=USR "A" TO USR "K":7
110 READ B: POKE A,B: NEXT A
120 DATA 0,0,0,0,0,3,15,31
130 DATA 0,24,60,60,255,171,255
140 DATA 0,0,0,0,0,192,240,248
150 DATA 63,122,58,31,2,4,8,60
160 DATA 255,170,170,255,60,126
170 DATA 252,174,172,248,64,32,
180 DATA 127,10,31,60,120,56,28
190 DATA 255,170,255,231,66,66,
200 DATA 254,176,248,60,30,26,6
210 DATA 200,221,255,255,255,0,
220 DATA 152,191,255,255,255,0,
300 REM ■ VARIABLES ■
310 LET MH=INT (RND*48+50)
320 LET A$=""
330 LET A=1
340 LET TR=0
350 LET FU=18
360 LET RO=0
380 LET C$=""
400 LET E$=""
410 LET X=0
420 LET H=MH
700 REM ■ INITIALISE ■
710 GO SUB 5000: GO SUB 6000
750 INPUT AT 0,0: "SKILL LEVEL-1
(EASY & SLOW) TO 1
0 (HARD & FAST):";SK
760 IF SK>10 OR SK<1 THEN GO TO
750
800 PRINT INK 6;AT 19,3;"PRESS
2 TO PLAY";AT 20,7;"ANY TO THRU5
T"
810 IF INKEY$(">")="2" THEN GO TO 8
900
820 BEEP .1,45

```

```

830 PRINT INK 6;AT 19,3;"
840 PRINT INK 6;AT 20,7;"
1000 REM ■ MAIN LOOP ■
1010 LET X=X+1
1050 IF INKEY$(">")="" THEN LET TR=TR+2
1060 LET TR=TR-1
1070 IF TR<0 THEN LET TR=0
1080 IF TR>18 THEN LET TR=18
1090 IF A<18 THEN PRINT AT A+2,4
: " " IF TR>0 THEN PRINT AT A+2,
4; INK 2;"V"
1100 LET RO=RO-TR/9+1: IF RO<0 T
HEN LET RO=0
1110 IF X/INT (MH/50+(10-SK))=IN
T (X/INT (MH/50+(10-SK))) THEN L
ET A$=A$(2 TO )+A$(1): PRINT AT
20,2; INK 7;A$
1120 LET H=H-RO/9+TR/35
1130 LET FU=FU-TR/(72*(11-SK))
1135 LET A1=A
1140 LET A=INT ((100-INT (H/MH*1
00))/5.26+1)
1150 IF A<1 THEN LET A=1
1160 IF FU<1 THEN LET FU=0: LET
TR=0
1500 IF A<A1 THEN PRINT AT A1+2,
4;" "
1510 IF A<A1 THEN PRINT AT A1,3
: "AT A1+1,3;" "AT A,3; I
NK 5;" "AT A+1,3;" "
1520 PRINT AT A+2,0;" "AT A+1,0
: "
1550 BEEP .01,(TR/3)*10
1600 IF A=18 THEN LET Z$=" YOU C
RASHED ON THE LUNAR SURFACE.SC
ORE:00": GO TO 4000
1605 IF A=18 AND (A$(1)="T" OR A
$(2)="T" OR A$(3)="T") THEN GO T
O 2000
1610 IF A=18 AND (A$(2)<>" " OR
A$(3)<>" " OR A$(4)<>" ") THEN L
ET Z$=" YOU MISSED THE LUNAR ROV
ER. SCORE:"+STR$ INT (4*FU)+"
": GO TO 4000
1630 IF A$(1)="T" THEN GO TO 300
0
1640 IF RO>18 THEN LET Z$=" YOUR
RATE OF DESCENT CAUSED YOU TO B
REAK UP": GO TO 4000
1900 GO SUB 6000: GO TO 1000
2000 REM ■ HIT BASE ■
2010 IF RO<16-SK THEN GO TO 2500
2020 LET Z$=" YOU HIT THE ROVER
TOO FAST. SCORE:"+STR$ INT (4
*FU)+"": GO TO 4000
2500 REM ■ SUCCESSFUL LANDING ■
2510 IF A$(1)="T" OR A$(3)="T" T
HEN LET Z$=" YOU HIT THE EDGE O
F THE TARGET. SCORE:"+STR$ INT (
FU*6)+"": GO TO 4000
2520 LET Z$=" YOU HIT THE TARGE

```

```

T EXACTLY. SCORE:"+STR$ INT (F
U*8)+". GO TO 4000
3000 REM TELEPORT
3010 FOR Z=7 TO 0 STEP -.5
3020 PRINT AT 20,2; INK Z;"
3030 PRINT AT 20,10; INK (7-Z);"
3040 BEEP .01,Z*10-10
3050 NEXT Z
3060 LET A$=""
3070 INK 8
3080 GO TO 1000
4000 REM REPORT
4005 FOR Z=10 TO -10 STEP -2: BE
EP 1,Z: NEXT Z
4005 INK 7
4010 FOR Z=1 TO 10: PRINT AT Z,2
;" : NEXT Z: PRINT AT 10,2;
AT 20,2;"
4020 PRINT AT 10,2; INK 5;"REPOR
T:"
4030 FOR Z=1 TO 22: PRINT AT 19,
Z+5,Z*(Z): NEXT Z
4040 FOR Z=23 TO 44: PRINT AT 20
,Z-14,Z*(Z): NEXT Z
4050 LET Z$="PRESS 1 TO RUN": F
OR Z=1 TO 10: PRINT AT Z,4;Z*(Z)
: NEXT Z
4060 OVER 1: FOR Z=45 TO 159: PL
OT 30,Z: DRAW 11,0
4070 IF INKEY$="1" THEN RUN
4080 NEXT Z: FOR Z=30 TO 41: PLO
T Z,45: DRAW 0,111
4090 IF INKEY$="1" THEN RUN
4100 NEXT Z
4105 IF AND(.5 THEN GO TO 4000
4110 GO TO 4000
5000 REM SCREEN DISPLAY
5010 INK 4: PLOT 15,155: DRAW 40
0: DRAW 0,-140: DRAW 152,0: DRA
W 0,-25: DRAW -233,0: DRAW 0,155
5020 PRINT AT 21,2;"
5025 INK 6
5030 PLOT 54,32: DRAW 2,135: FOR
Z=32 TO 157 STEP 3.2: PLOT 64,Z
: DRAW 2,0: NEXT Z: FOR Z=32 TO
157 STEP 16: PLOT 64,5+Z: DRAW 7
,0: NEXT Z
5035 INK 7
5040 PRINT AT 17,9;INT (MH/5);AT
13,9;INT (MH/2.5);AT 9,9;INT (M
H/1.67);AT 5,9;INT (MH/1.25);AT
1,9;INT (MH)
5050 PRINT AT 20,2; INK 7;A$
5060 PRINT AT A,5; INK 5;"A
T A+1.3;"
5070 FOR Z=20 TO 8+2 STEP -1: PR
INT INK 7-Z/4;AT Z,0;" : NEXT Z
5080 INK 6: PLOT 104,63: DRAW 14
3,0: FOR Z=105 TO 247 STEP 9.2:
PLOT Z,63: DRAW 0,-4: NEXT Z: FO
R Z=105 TO 247 STEP 16: PLOT Z,6

```

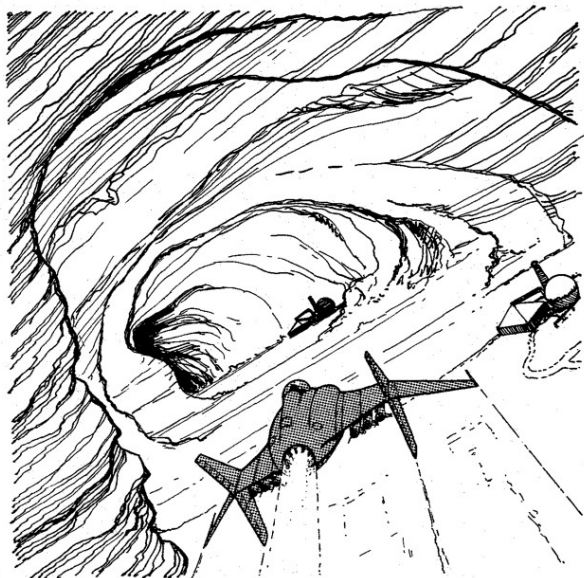
```

3: DRAW 0,-7: NEXT Z
5090 INK 7: PRINT AT 15,13;"0
1 2 3 4";AT 15,13;"0 0
5100 LET Z$="TR5 FEL ROD": FOR Z
=2 TO 12: PRINT AT Z,12;Z*(Z-1)
: NEXT Z
5110 FOR Z=2 TO 12: PRINT AT Z,1
3; INK 2;" : INK 3;" : INK
4;" : INK 5;" : INK 6;"
: NEXT Z: INK 7
5120 FOR Z=6 TO 8: PRINT AT Z,13
; INK 7;" : INK 6;" : INK
5;" : INK 4;" : INK 3;"
: NEXT Z: INK 7
5130 PRINT AT 21,10; INK 2;"
5140 PRINT AT 21,14;"THRUST"AT 5
,14;"FUEL" : AT 10,14;"RAT
E OF DESCENT"
5190 RETURN
6000 REM GRAPHIC UPDATE
6010 INK 6: PAPER 8
6020 PRINT AT 4,13;C$( TO TR);E$
(TR+1 TO )
6030 PRINT AT 8,13;C$( TO FU);E$
(FU+1 TO )
6040 PRINT AT 12,13;C$( TO RO);E
$(RO+1 TO )
6050 RETURN
9999 RUN

```

8

Mission Impossible



(16K)

Your mission is to bomb as many alien ground stations as possible whilst flying through the vast caverns of the alien planet. An interesting variant on the 'shoot-em-up' type of game which demands a lot of skill: you will have to launch your bombs at exactly the right moment in order to knock out the alien positions, and make sure that you do not fly into the cavern walls. You will also need a certain sense of humour: the mission really is impossible!

46

Key to graphics characters.

ABCDEFGHIJKLMNQRSTU
 A B C D E F G H I J K L M N O P Q R S T U

```

1 REM MISSION IMPOSSIBLE
5 REM @ PAUL SMITH /
10 FOR s=1 TO 13: READ a$
20 FOR b=0 TO 7
30 READ c: POKE USA a$+b,c
40 NEXT b
50 NEXT a
60 DATA "a",128,64,32,16,8,4,2
70 DATA "b",1,2,4,8,16,32,64,1
80 DATA "c",0,0,6,26,100,26,6,
90 DATA "d",0,0,3,14,3,0,0,0
100 DATA "e",0,126,126,126,126,
110 DATA "f",146,64,0,198,0,64
120 DATA "g",255,16,184,230,184
130 DATA "h",0,16,16,40,40,64,1
140 DATA "i",255,0,0,0,0,0,0
150 DATA "j",3,12,48,192,0,0,0
160 DATA "k",0,0,0,0,3,12,48,192
170 DATA "l",192,48,12,3,0,0,0
180 DATA "m",0,0,0,0,192,48,12,3
190 BORDER 0: PAPER 0: INK 7: C
200 LET a$=""
210 LET b$=""
220 LET c$=""
230 LET f=0: LET sc=0
240 LET fu=32
250 LET i=2
260 PLOT 0,15: DRAW 255,0
270 PLOT 0,95: DRAW 255,0
280 PRINT AT 0,1;"SCORE:";sc
290 GO SUB 3500
300 INPUT AT 0,0;"ENTER SKILL L
310 1(EASY) TO
320 5(HARD):";v
330 IF v>5 OR v<1 THEN GO TO 76
340 LET v=v-1
350 PRINT AT 0,1; INK 7;"MISSIO
360 N IMPOSSIBLE"
370 BEEP 2,30

```

Listing continued next page

```

780 PRINT AT 21,0;"
790 FOR Z=5 TO 2 STEP -1
800 PRINT INK 2;AT Z,0;"
810 NEXT Z
820 POKE 23558,0
830 PRINT AT 12,1;"KEYS - P -
THRUST";AT 13,2;"O - HOLD POSITI
ON";AT 14,3;"Q - UP";AT 15,3;"R
- DOWN";AT 16,3;"M - BOMB T
O PLAY"
840 PRINT AT 21,4;"PRESS BOMB T
O PLAY"
850 IF INKEY$<>"M" THEN GO TO 8
40
860 PRINT AT 21,0;"
870 FOR Z=11 TO 17
910 PRINT AT Z,0;"
920 NEXT Z
930 LET a=12: LET b=8
940 LET c=0: LET d=2: LET e=2
950 LET g=0: LET h=0: LET i=0
960 LET j=0: LET k=10: LET l=10
970 POKE 23558,0
1000 LET z$=INKEY$
1010 LET a1=0: LET b1=b
1020 IF z$="P" THEN LET b=b+2
1030 LET b=b-1
1040 LET a=a+(z$="a" AND a<17)-(
z$="q" AND a>11)
1045 IF z$="O" THEN LET b=b+1
1048 IF b>31 THEN GO SUB 6000
1050 PRINT AT a1,b1;"
1055 IF b<0 THEN GO TO 4000
1070 PRINT INK 4;AT a,b;"
1080 IF b1>b AND a1=a THEN GO TO
1100
1090 IF b1>0 THEN PRINT INK 2;AT
a1,b1-1;"
1095 IF b>0 THEN PRINT INK 2;AT
a,b-1;"
1100 GO SUB 9000: GO SUB 9100
1105 IF a=INT k AND l=b THEN GO
TO 4000
1120 LET z$=INKEY$
1200 IF c<>1 AND IN 32766=255 TH
EN GO TO 1300
1210 IF c=0 THEN LET d=a: LET e=
b: LET c=1: LET fu=fu-1: PRINT A
T l,fu;" : IF fu=0 THEN GO TO
4000
1220 LET d1=d: LET e1=e
1230 LET d=d+1: LET e=e+1
1240 PRINT AT d1,e1;"
1250 PRINT INK 6;AT d,e;"
1260 IF e>30 THEN PRINT AT d,e;"
: LET c=0
1270 IF d>17 THEN GO TO 2000
1280 IF i=e AND d=h THEN GO TO 3
000
1290 IF INT k=d AND l=e THEN GO
TO 3500
1300 IF f<14 THEN GO TO 1400
1310 IF a$<>" " THEN GO TO 1400

```

```

1320 LET b$="AAAA A AA AA
AAAA
1330 LET f=0
1400 IF g=0 AND (b+(18-a)-v-2<1
OR b+(18-a)-v-1>32) THEN GO TO 1
500
1410 IF g=0 AND (" "+b$+"
") (b+(18-a)-v+3)<>"A" THEN GO TO
1500
1420 IF g=1 THEN GO TO 1450
1430 LET g=1: LET i=b+(18-a)-v-2
: LET h=18
1440 LET b$ (b+(18-a)-v-1)=" ": L
ET f=f+1
1450 LET h1=h: LET i1=i
1460 IF b<i THEN LET i=i-1
1470 IF b>i THEN LET i=i+1
1475 LET h=h-1
1480 PRINT AT h1,i1;"
1485 IF h=10 THEN LET g=0: GO TO
1500
1490 PRINT INK 5;AT h,i;"A"
1495 IF h=a AND i=b THEN GO TO 4
000
1498 IF i=e AND d=h THEN GO TO 3
000
1501 IF j=1 THEN GO TO 1550
1510 IF b>20 THEN GO TO 1500
1520 LET j=1
1530 LET k=a: LET l=31
1540 LET k1=k: LET l1=l
1550 LET l=l-1
1560 IF a<k THEN LET k=k-.2
1565 IF a>k THEN LET k=k+.2
1570 PRINT AT INT k1,l1;"
1580 PRINT INK 3;AT INT k,l;"4"
1590 IF l=0 THEN LET j=0: PRINT
AT INT k,0;" : LET l=10: LET k=
0
1595 IF a=INT k AND l=b THEN GO
TO 4000
1598 IF l=e AND d=INT k THEN GO
TO 3500
1599 GO TO 1000
2000 PRINT INK 6;AT d,e;"%"
2010 BEEP .03,0
2020 IF b$(e+1)="A" THEN LET sc=
s(c+10: DEEP .1,45: LET b$(e+1)="
": LET f=f+1: PRINT AT 8,7;sc
2030 PRINT AT d,e;"
2040 LET c=0
2090 GO TO 1300
3000 PRINT INK 6;AT d,e;"%"
3010 BEEP .1,45
3020 PRINT AT d,e;" "
3030 LET c=0: LET g=0
3040 LET sc=sc+INT (RAND*3+3)*10
3050 PRINT AT 8,7;sc
3060 LET h=0: LET i=0
3080 LET d=2: LET e=2
3090 GO TO 1500
3500 PRINT AT d,e;"%"
3510 BEEP .1,45
3520 PRINT AT d,e;" "
3530 LET j=0: LET c=0

```

```

3540 LET s=c+s+100; PRINT AT 8,7
3550 LET k=10; LET l=10; GO TO 3600
4000 PRINT INK li;AT (li,0);""
4040 PRINT AT (li,l#z);"TERMINATE D:"
4005 LET li=li+1
4010 LET fu=32
4040 FOR z=60 TO 0 STEP -5: BEEP
      IF Z NEXT z
4090 IF l#=7 THEN GO TO 5000
4090 GO TO 900
5000 PRINT AT 14,9; FLASH 1; INK
      2;"MISSION FAILED."
5005 LET a$=""
PRESS A KEY FOR ANOTHER GAME. PRESS A
        @ PAUL SMITH / E
LLIS HORWOOD
5010 BEEP .05,20; BEEP .05,30
5012 LET a$=a$(2 TO LEN a$)+a$(1
5017 PRINT AT 21,0; INK AND#6+2;
      TO 32)
5020 IF INKEY$="" THEN GO TO 501
5030 RUN
0000 PRINT AT a,30;" "
0005 IF fu>23 THEN PRINT AT li,0
      INK li;""
          ; LET fu=32; GO TO 60
5060 FOR I=fu TO fu+6
    6010 LET fu=fu+1; PRINT AT li,z;
      INK ""
    6030 NEXT z
6050 LET s=c+s+50; PRINT AT 8,7;
sc
0030 LET b=2
RETURN
0010 LET b$=b$(2 TO 32)+b$(1)
0010 LET b=b$(2 TO 32)+b$(1)
0020 LET c=c$(2 TO 32)+c$(1)
0020 RETURN
1100 PRINT INK 5;AT 18,0;b$
1110 PRINT AT 18,0;b$
0120 PRINT AT 10,0;c$
0190 RETURN
LET Z=z$
XXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXX
          LET y$=""
          LET x$=""
          PRESS A KEY
9501 PRINT AT 21,6;"PRESS ANY KE
Y TO PLAY"
9502 PRINT AT 10,0;c$(1 TO 32)
9503 PRINT AT 18,0; INK 5;b$(1 T
O 32)
9504 PRINT a$(1 TO 32)
9510 LET Z=z$(2 TO LEN Z$)+Z$(1
TO 2)
9515 BEEP .004,INT (RAND#30+20)
9520 LET y=y$(2 TO LEN Y$)+Y$(1

```

```

9530 LET X$=X$(2 TO LEN X$)+X$(1
9540 PRINT INK 4;AT 2,0;X$(1 TO
9550 PRINT INK 5;X$(1 TO 32)
9560 PRINT INK 6;X$(1 TO 32)
9570 IF INKEY$<>"" THEN GO TO 96
9580 GO TO 9510
9590 PRINT AT 21,3;"@ P.SMITH /
9600 HORWOD"
9610 BEEP 2,20
9620 RETURN
9630 RUN

```

9

Code Breaker



(16K)

This game is a real test of intelligence and memory. The object is to guess a sequence of between three and eight number characters which can be selected either by the computer or by one of the players. (One or two players can play the game.) The positions of the number characters and whether they have been correctly guessed or not are indicated on the screen by ticks and crosses. A # symbol indicates that a number has been duplicated. A maximum of 17 guesses are allowed by the game, and there is a facility for estimating 'intelligence'. The game also includes a variable time limit, and therefore can be played over a range from relatively simple to ferociously complex.

52

The game includes a machine code sound routine as illustrated later in the book.

Key to graphics characters

ABCDEFGHIJKLMNPOQRSTU
 ^_#*%&'@~!~!~!~!~!~!

```

1 REM @ PAUL SMITH /
5 LET I$="O P.SMITH/E.HORWOOD

10 POKE 23556,0
120 CLS
20 FOR Z=USR "A" TO USR "B"+28
30 READ X: POKE Z,X: NEXT Z
40 DATA 0,1,2,4,5,8,0,32,0
50 DATA 6,1,167,33,16,0,17,1,0
229,205,181,3,225,17,5,0,167,23
7,90,125,254,255,32,237,193,16,2
30,220
300 REM VARIABLES
310 LET A=4: LET B=4
320 LET C=1: LET X$=""
330 LET E=0
340 LET MODE=0
500 REM TYPE OF GAME
510 PLOT 0,172: DRAW 255,0
520 PRINT AT 1,0; "CODE BREAKER"
" I$
530 PLOT 0,155: DRAW 255,0
540 PRINT AT 4,0; INK 1; "INPUT"
INK 0; " INFORMATION REQUIRED B
ELOW THEN SELECT YOUR CHOICE."
550 PRINT AT 7,1; INK 2; "I"; IN
K 0; " INPUT YOUR OWN NUMBER USIN
G
NUMBER OF CHARACTERS SELEC
TED"
560 PRINT AT 10,1; INK 2; "I"; I
NK 0; " GET COMPUTER TO SELECT RA
NDOM
CHARACTERS NON-DUPLICATED"
570 PRINT AT 13,1; INK 2; "I"; I
NK 0; " GET COMPUTER TO SELECT RA
NDOM
CHARACTERS MAYBE DUPLICAT
ED"
575 PRINT AT 16,1; INK 2; "I"; I
NK 0; " SAVE GAME FACILITY"
576 PLOT 0,28: DRAW 255,0
577 INPUT AT 0,0; "ENTER NUMBER
OF CHARACTERS:"; D
578 IF D>8 OR D<3 THEN GO TO 57
7
579 PRINT AT 19,0; " NUMBER OF C
HARACTERS:"; D
580 INPUT AT 0,0; "ENTER NUMBER
OF GUESSES:"; GUS: PRINT AT 20,0;
" MAXIMUM NUMBER OF GUESSES:"; GU
S; " IF GUS<1 OR GUS>17 THE
N GO TO 580
581 IF INKEY$="1" THEN LET L=US
R USR "B": GO TO 9000

```

Listing continued next page

```

552 IF INKEY$="2" THEN LET L=US
R USR "B": GO TO 9100
553 IF INKEY$="3" THEN LET L=US
R USR "B": GO TO 9200
554 IF INKEY$="4" THEN LET L=US
R USR "B": GO TO 9300
555 GO TO 581
556 PRINT AT 21,6;"PRESS ""0""
TO COMMENCE"
559 IF INKEY$<"0" THEN GO TO 5
93
557 POKE USR "B"+1,1: POKE USR
"B"+7,10: POKE USR "B"+15,3: LET
L=USR USR "B"
559 CLS
560 REM SURFEN
561 PRINT AT 10,0: FLASH 1;"WAR
NINGS"; FLASH 0: "ANY CHARACTER L
EFT BLANK WILL BE REPLACED RANDOM
LY."
562 PLOT 0,100: DRAW 255,0: PLO
T 0,75: DRAW 255,0
563 PAUSE 300: CLS
565 PLOT 0,172: DRAW 255,0
567 PRINT AT 1,0: CODE BREAKER
© P. SMITH/E. HORWOOD
565 PLOT 0,156: DRAW 255,0
567 PRINT INK 2,AT 3,13; W
569 PRINT AT 3,10: INK 1;"ANSTR
W
564 PRINT AT 5,16: INK 2;"W"; I
NK 0;"=RIGHT IN RIGHT";AT 6,16;"
PLACE"
565 PRINT AT 8,16: INK 2;"W"; I
NK 0;"=RIGHT IN WRONG";AT 9,16;"
PLACE"
566 PRINT AT 11,16: INK 1;"W";
INK 0;"=CURSOR RIGHT";AT 12,16;"
WHEN SHIFTED"
567 PRINT AT 14,16: INK 1;"W";
INK 0;"=CURSOR LEFT";AT 15,16;"W
HEN SHIFTED"
568 PRINT AT 17,16: INK 1;"W";
INK 0;"=PERCENTAGE";AT 18,16;"IN
TELLIGENCE"
569 PRINT AT 20,16: INK 1;"W";
INK 0;"=QUIT PLAY"
565 PLOT 0,4: DRAW 255,0
567 POKE USR "B"+1,1: POKE USR
"B"+7,1: POKE USR "B"+15,5: LET
L=USR USR "B"
710 LET A$="-----"
720 LET A$=A$(TO D)+ "
730 DIM C$(GUS,D)
740 DIM D$(GUS,D)
750 DIM E$(GUS)
755 PRINT AT 3,1: INK 2;"MODE";
INK 0;"":MODE
756 INPUT AT 0,0;"TIME ALLOWED
FOR EACH GUESS:";TIME
770 IF MODE<2 THEN PRINT #0;"
IN MODE 1 & 3, # = DUPLICATION"
1000 REM INPUT
1005 POKE 23674,0: POKE 23673,0:
POKE 23672,0
1010 LET Z$=STR$ C

```

```

1020 LET Z$=X$(1 TO 3-LEN Z$)+Z$
1030 PRINT AT A,E;Z$;"W"
1100 PRINT AT A,E+4;A$(1 TO B-4)
;AT A,E+0: FLASH 1;A$(B-3); FLAS
H 0;A$(B-2 TO D+1)
1110 LET Z$=INKEY$
1112 IF INT ((65536+PEEK 23674+2
56+PEEK 23673+PEEK 23672)/50)>TI
ME THEN GO TO 1300
1115 IF Z$=" " THEN GO TO 1110
1116 LET L=USR USR "B"
1120 IF Z$>"0" AND Z$<="9" AND
B-4<>D THEN GO TO 1200
1130 LET B=B+((CODE Z$=9 OR Z$="
") AND B-3<D+1)-((CODE Z$=8 OR
Z$="") AND B-3<1)
1140 IF CODE Z$=10 AND B-3=D+1 T
HEN PRINT AT A,E+D+4;" ": GO TO
1300
1150 IF Z$="D" THEN GO SUB 2000
1160 IF Z$="0" THEN LET C=C-1: G
O SUB 9500
1180 IF INKEY$<" " THEN GO TO 11
80
1190 GO TO 1100
1200 LET A$(B-3)=Z$: LET B=B+1
1210 PRINT AT A,D;B-1;A$(B-4)
1220 IF INKEY$<" " THEN GO TO 12
80
1290 GO TO 1100
1300 REM CHECK THE GUESS
1310 LET Z$="1234567890"
1320 FOR Z=1 TO D
1330 IF A$(Z)="-" THEN LET A$(Z)
=Z$(INT (RAND*10+1))
1340 NEXT Z
1350 LET A$=A$(1 TO D)
1360 LET C$(C)=A$
1365 PRINT AT A,3;"-";C$(C)
1400 REM CHECK
1410 LET A1=0
1420 FOR Z=1 TO D
1430 IF A$(Z)=B$(Z) THEN LET A1=
A1+1
1440 NEXT Z
1450 LET D$(C)=STR$ A1
1460 PRINT AT A,13;D$(C)
1500 REM CHECK
1510 LET A1=0
1520 FOR Z=1 TO D
1530 FOR X=1 TO D
1540 IF Z=X THEN GO TO 1580
1550 IF B$(Z)=A$(X) THEN LET A1=
A1+1
1560 NEXT X: NEXT Z
1580 LET E$(C)=STR$ A1
1590 IF A1>9 THEN LET E$(C)="#"
1595 PRINT AT A,14;E$(C)
1595 IF A$=B$ THEN GO TO 1700
1600 REM UPDATE
1610 LET A=A+1: LET B=4
1620 LET A$="-----"
1630 LET A$=A$(TO D)+ "
1650 IF C=GUS THEN GO TO 9500

```

Listing continued next page

```

1650 LET C=C+1
1690 GO TO 1000
1700 REM END
1710 PRINT AT 1,0;,,,AT 1,0;"YOU
1720 "VE DONE IT IN ",(C);," GUESSES";
IF C>1 THEN PRINT "E5"
1790 GO TO 9515
2000 REM *****
2010 INPUT AT 0,0;"INTELLIGENCE
2011 IF A2=0 THEN RETURN
2015 IF A2>C OR A2<1 THEN GO TO
2010
2017 IF MODE<>2 THEN PRINT AT 3+
2018 4;"WRONG MODE!";GO TO 2021
2020 PRINT AT 3+A2,4;,"INT (VA
L D$(A2)*(100/D)+.5*VAL E$(A2)*(
100/D));,"%
2030 LET L=USR USR "B": PAUSE 20
2040 PRINT AT 3+A2,4;C$(A2);X$(
A2,4);"WRONG MODE!";D$(A2);E$(A2)
2090 RETURN
2095 INPUT AT 0,0;"ENTER YOUR ";
(D);," CHARACTERS:"; LINE B$
2010 IF LEN B$<>D THEN GO TO 900
2015 LET MODE=1
2020 FOR Z=1 TO D
2030 IF B$(Z){"0" OR B$(Z)>"9" T
HEN GO TO 9000
2040 NEXT Z
2090 GO TO 590
2100 PRINT AT 21,0;" COMPUTER NO
W PRODUCING NUMBER
2105 LET MODE=2
2110 LET Z$="1234567890"
2120 FOR Z=1 TO 40
2130 LET Z1=INT (RAND*10+1)
2140 LET Z1=INT (RAND*10+1)
2150 LET Q$=Z$(Z1)
2160 LET Z$(Z1)=Z$(Z1)
2170 LET Z$(Z1)=Q$: NEXT Z
2180 LET B$=Z$(TO D)
2190 PRINT AT 21,0;,,
2200 GO TO 590
2200 PRINT AT 21,0;" COMPUTER NO
W PRODUCING NUMBER ": LET Z$="1
234567890"
2205 LET MODE=3
2210 LET B$="": FOR Z=1 TO D
2220 LET B$=B$+Z$(INT (RAND*10+1)
): NEXT Z
2280 PRINT AT 21,0;,,
2290 GO TO 590
2300 INPUT "ENTER FILE NAME:"; L
INE Z$
2310 IF LEN Z$>10 THEN GO TO 930
2320 SAVE Z$
2330 RUN
2350 PRINT AT 1,0;,"YOU FAILED,NU
MBER WAS "; FLASH 1,B$
2315 GO SUB 9900: LET F$=STR$ A3
+,"X"

```

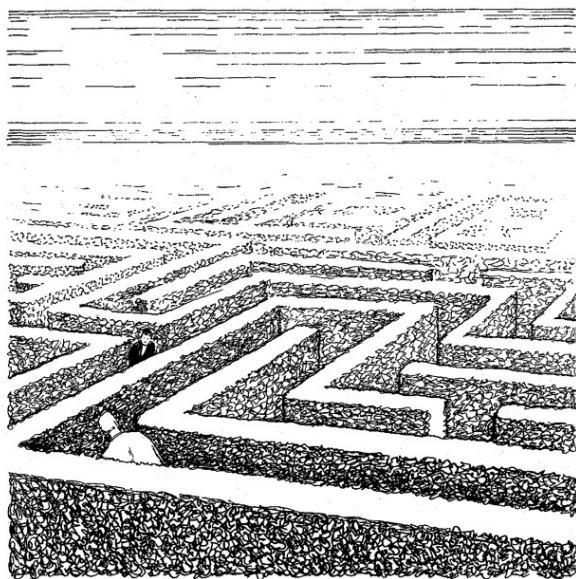
```

9515 IF A3<=25 AND A3<=50 THEN L
ET F$=F$+" POOR TRY"
9517 IF A3>25 AND A3<=50 THEN LE
T F$=F$+" NOT BAD"
9518 IF A3>50 THEN LET F$=F$+" V
ERY GOOD"
9519 IF A3=1000 THEN LET F$="MOD
E 2 ONLY!"
9520 INPUT AT 0,0;"INTELLIGENCE:
";(F$);AT 1,0;"ANOTHER GAME ? ";
LINE Z$
9530 IF Z$="" THEN GO TO 9520
9540 IF Z$(1)="Y" THEN RUN
9550 IF Z$(1)<>"N" THEN GO TO 95
20
9560 STOP
9900 REM *****
9905 IF MODE<>2 THEN LET A3=1000
: RETURN
9910 LET A1=0: LET A2=0
9920 FOR Z=1 TO C
9930 LET A1=A1+VAL D$(Z)
9940 LET A2=A2+VAL E$(Z)
9950 NEXT Z
9955 IF C=0 THEN LET A3=1000: RE
TURN
9960 LET A1=A1/C
9970 LET A2=A2/C
9980 LET A3=INT (A1*(100/D)+.5*A
2*(100/D))
9990 RETURN
9999 RUN

```

10

Duel



(16K)

An exciting two-player maze game using multi-key inputs to enable simultaneous play by both players. The object is to fill in as much of the maze as possible, and to block or box in the other player. But be careful! You will lose the game if you crash into your own or your opponent's trail. The game will not finish, but will wait for your opponent to complete the rest of the remaining maze. A bonus is awarded to the first player to trap his opponent.

58

Key to graphics characters

ABCDEFGHIJKLMNPOQRSTU
 VWX YZ [\] ^ _ ` { } ~

```

10 REM *****
200 REM * DUEL *
300 REM * @ TOBY MATTHEWS *
400 REM * & ELLIS HORWOOD *
500 REM *****
700 POKE 23550,0
750 LET P=0
800 PAPER 0: INK 7: BORDER 0
900 REM * TITLE *
950 CLS : GO SUB 9000
1000 PLOT 0,168
1100 DRAW 0,-32: DRAW 48,0: DRAW
0,32: DRAW -48,0
1200 PLOT 24,168
1300 DRAW 0,-32
1400 PLOT 76,168
1500 DRAW 0,-32: DRAW 48,0: DRAW
0,32:
1600 PLOT 80,168
1700 DRAW 0,-32
1800 PLOT 168,136
1900 DRAW -48,0: DRAW 0,32: DRAW
48,0:
2000 PLOT 136,168
2100 DRAW 0,-32
2200 PLOT 132,152
2300 DRAW 48,0
2400 PLOT 168,168
2500 DRAW 0,-32: DRAW 48,0
2600 PLOT 162,168
2700 DRAW 0,-32
2800 PLOT 0,128
2900 DRAW 255,0
3000 REM * INTRODUCTION *
3100 PLOT 0,175: DRAW 255,0: DRA
U 0,-47
3110 PLOT 0,175: DRAW 0,-47
3150 IF P=1 THEN RETURN
3200 PRINT AT 0,1: PAPER 1: "KEYS
- PLAYER 1: PLAYER 2:
3300 PRINT AT 9,1: PAPER 2: " UP
0
3400 PRINT AT 10,1: PAPER 3: "DOW
N
3500 PRINT AT 11,1: PAPER 4: "RIG
HT
3600 PRINT AT 12,1: PAPER 5: "LEF
T
3700 PRINT AT 14,1: PAPER 1: "SHI
PS-
3800 BEEP 1,10: PRINT AT 18,1: P
APER 2: FLASH 1: "PRESS A KEY TO
COMMENCE BATTLE"
3900 IF INKEY$<>"" THEN GO TO 39
5
3920 GO TO 390

```

Listing continued next page

```

405 REM SET UP SCREEN
406 LET A$="XXXXXXXXXXXXXXXXXXXX"
407 PRINT A$
408 PAPER 0: INK 0: CLS
409 PRINT AT 1,0; INK 7;A$;AT 2
1,0;A$
410 FOR N=2 TO 20
411 PRINT AT N,0; INK 7;"0";AT
N,31;"0"
412 NEXT N
413 FOR N=3 TO 19 STEP 2: FOR F
=2 TO 12 STEP 2
414 PRINT AT N,F; INK 7;"0"
415 NEXT F: NEXT N
416 FOR N=3 TO 19 STEP 2
417 PRINT AT N,15; INK 7;"00":
NEXT N
418 FOR N=3 TO 19 STEP 2: FOR F
=1 TO 12 STEP 2
419 PRINT AT N,F; INK 7;"0"
420 NEXT F: NEXT N
421 REM VARIABLES
422 LET S1=0
423 LET F=0
424 LET G=0
425 LET D=0
426 LET L=0: LET M=0
427 LET X=1: LET Y=11
428 LET S=30: LET T=11
429 LET C$="X"
430 LET D$="8"
431 GO SUB 1010
432 GO SUB 1020
433 PRINT AT 0,0; INK 7;"P.1 5
CORE:";S1;AT 0,17;"P.2 SCORE:";S
2
500 REM MAIN LOOP
501 IF L=1 THEN GO TO 640
510 IF L=64510=254 THEN LET C$
="0": LET F=1
620 IF F=1 AND ATTR (Y-1,X)=7 T
HEN LET F=0
625 IF F=1 AND ATTR (Y-1,X)=6
GO TO 12000
630 IF F=1 AND ATTR (Y-1,X)=69 THEN
630 IF F=1 THEN LET Y=Y-1: LET
S1=S1+10
635 IF F=1 THEN GO SUB 1010
640 IF F=1 THEN PRINT AT Y+1,X;
BRIGHT 1; INK 5;"G"
645 IF M=1 THEN GO TO 710
650 IF IN 57342=254 THEN LET D$
="X": LET G=1
655 IF G=1 AND ATTR (T-1,S)=7 T
HEN LET G=0
660 IF G=1 AND ATTR (T-1,S)=68
GO TO 3000
665 IF G=1 THEN LET T=T-1: LET
S2=S2+10
670 IF G=1 THEN GO SUB 1020
700 IF G=1 THEN PRINT AT T+1,S;
BRIGHT 1; INK 5;"G"
705 IF T=1 THEN GO TO 740
720 IF IN 65022=254 THEN LET C$
="X": LET F=2

```

```

725 IF F=2 AND ATTR (Y+1,X)=7 T
HEN LET F=0
727 IF F=2 AND ATTR (Y+1,X)=68
OR G=158 AND ATTR (Y+1,X)=68 THEN
G=200
730 IF F=2 THEN LET Y=Y+1: LET
S1=S1+10
735 IF F=2 THEN GO SUB 1010
740 IF F=2 THEN PRINT AT Y-1,X;
BRIGHT 1, INK 4;
747 IF F=2 THEN GO TO 805
760 IF IN 49150=253 THEN LET D$
="5": LET G=2
770 IF G=2 AND ATTR (T+1,S)=7 T
HEN LET G=0
775 IF G=2 AND ATTR (T+1,S)=68
OR G=3 AND ATTR (T+1,S)=68 THEN
GO TO 3000
780 IF G=2 THEN LET T=T+1: LET
S2=S2+10
785 IF G=2 THEN GO SUB 1020
790 IF G=2 THEN PRINT AT T-1,S;
BRIGHT 1, INK 4;
805 IF L=1 THEN GO TO 849
820 IF IN 65276=251 THEN LET C$
="5": LET F=3
825 IF F=3 AND ATTR (Y,X-1)=7 T
HEN LET F=0
827 IF F=3 AND ATTR (Y,X-1)=68
OR F=3 AND ATTR (Y,X-1)=68 THEN
GO TO 2000
830 IF F=3 THEN LET X=X-1: LET
S1=S1+10
840 IF F=3 THEN GO SUB 1010
845 IF F=3 THEN PRINT AT Y,X+1;
BRIGHT 1, INK 4;
849 IF M=1 THEN GO TO 905
860 IF IN 32766=247 THEN LET D$
="5": LET G=3
870 IF G=3 AND ATTR (T,S-1)=7 T
HEN LET G=0
875 IF G=3 AND ATTR (T,S-1)=68
OR G=3 AND ATTR (T,S-1)=68 THEN
GO TO 3000
880 IF G=3 THEN LET S=S-1: LET
S2=S2+10
885 IF G=3 THEN GO SUB 1020
890 IF G=3 THEN PRINT AT T,S+1;
BRIGHT 1, INK 5;
905 IF L=1 THEN GO TO 949
920 IF IN 65276=247 THEN LET C$
="5": LET F=4
925 IF F=4 AND ATTR (Y,X+1)=7 T
HEN LET F=0
927 IF F=4 AND ATTR (Y,X+1)=68
OR F=4 AND ATTR (Y,X+1)=68 THEN
GO TO 2000
930 IF F=4 THEN LET X=X+1: LET
S1=S1+10
935 IF F=4 THEN GO SUB 1010
940 IF F=4 THEN PRINT AT Y,X-1;
BRIGHT 1, INK 4;
949 IF M=1 THEN GO TO 580
960 IF IN 32766=251 THEN LET D$
="5": LET G=4

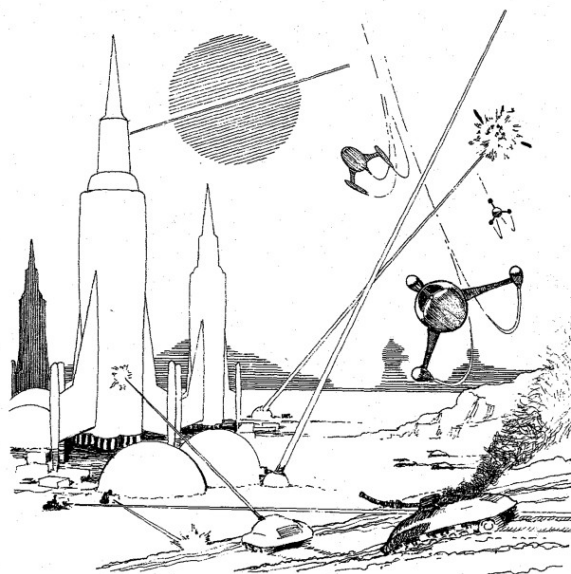
```

Lazers

```

970 IF G=4 AND ATTR (T,S+1)=7 T
HEN LET G=0
975 IF G=4 AND ATTR (T,S+1)=66
OR G=4 AND ATTR (T,S+1)=69 THEN
GO TO 3000
980 IF G=4 THEN LET S=S+1: LET
S2=S2+10
985 IF G=4 THEN GO SUB 1020
990 IF G=4 THEN PRINT AT T,S-1:
BRIGHT 1: INK 5: " ":
1000 GO TO 580
1010 PRINT AT Y,X: INK 4: BRIGHT
1: C$: RETURN
1020 PRINT AT T,S: INK 5: BRIGHT
1: D$: RETURN
2000 REM DESTROY PLAYER 1
2005 IF M=1 THEN GO TO 5000
2010 BEEP 1,-20: LET L=1: LET S2
=S2+100
2015 GO TO 580
2020 REM DESTROY PLAYER 2
2025 IF L=1 THEN GO TO 5000
2030 BEEP 1,-20: LET M=1: LET S1
=S1+100
2035 GO TO 580
2040 REM GAME OVER
2045 LET P=1: CLS: INK 7: GO SU
100
2050 FOR N=1 TO 30: BEEP .01,N:
NEXT N
2060 PRINT AT 7,12: FLASH 1: "GAM
OVER"
2070 FLASH 0
2080 PRINT AT 9,0: "PLAYER 1 SCOR
S1
2090 PRINT AT 10,0: "PLAYER 2 SCOR
S2
2100 IF S1>S2 THEN PRINT AT 13,0
"PLAYER 1 WINS!!"
2110 IF S2>S1 THEN PRINT AT 13,0
"PLAYER 2 WINS!!"
2120 IF S2=S1 THEN PRINT AT 13,1
"DRAW!"
2130 PRINT AT 15,10: "ANOTHER GO?"
5000 IF INKEY$="Y" THEN RUN
5010 IF INKEY$="N" THEN STOP
5020 GO TO 5000
5030 REM CHARACTER SET
5040 FOR N=0 TO 71: READ A: POKE
USR "A"+N,A: NEXT N
5050 DATA 24,24,153,169,231,219,
102,189,189,102,219,231,189,153,
24,24,153,112,219,175,170,219,11
102,189,161,14,27,245,245,27,14,161
5060 DATA 24,24,126,189,231,102,189,
102,189,222,104,231,231,104,222,4
5070 DATA 255,129,189,189,189,18
5080 DATA 255
5090 RETURN
5100 RUN

```



(16K)

A novel variant on the classic 'shoot-em-up' type of game. Having landed on the planet Zog, your space fleet is attacked by an alien task force. You must prevent them from destroying your vital fuel supplies, and your reserve of four space cruisers.

The high score remains in the computer merely as long as the power supply is switched on.


```

1400 PLOT OVER 1;E1*8+7,135: DRA
U OVER 1;-4,-111
1410 GO TO 8000
1420 IF A$(E1)<>" " THEN PRINT A
T 19,E1;" " PRINT AT 20,E1;A$(E
1);LET E1;A$(E1+32)=A$(E1):LET A$
(E1)="" GO TO 1430
1430 IF A$(E1+32)<>" " THEN PRIN
T AT 20,E1;" " PRINT AT 21,E1;A
$(E1+32):LET A$(E1+32)="" :LET
FU=FU+40:GO TO 1490
1490 PLOT OVER 1;E1*8+7,135: DRA
U OVER 1;-4,-111
1500 REM ■■■■■
1510 IF (B+1)/3<>INT ((B+1)/3) T
HEN GO TO 1520
1520 IF D=1 THEN LET D$( TO 24)=
D$(24)+D$( TO 23)
1530 IF D=-1 THEN LET D$( TO 24)=
D$(2 TO 24)+D$(1)
1540 PRINT INK E2;AT 8,1;D$( TO
30)
1550 LET D1=D1+D
1560 IF D$(24)="" THEN LET D=-1
IF D$(25)="" THEN LET FU=FU-1
00: BEEP .01;0: LET D$(24)=""
LET D$(25)=""
1570 IF D$(2)="" THEN LET D=1:
LET D$(5)=""
1580 IF D$(25 TO 30)=""
(26 TO )+" " IF D$(25 TO 30)=""
33 33 33
1600 REM ■■■■■
1610 IF (B+2)/3<>INT ((B+2)/3) T
HEN GO TO 1620
1620 IF (B+2)/9=INT ((B+2)/9) TH
EN LET C#=C$(2 TO )+" " GO TO 1
630
1630 LET C#=C$(2 TO )+" "
1640 PRINT AT 12,1;C#
1650 LET X=INT (RAND*10+11)
1660 IF C$(X)<>" " THEN GO TO 16
00
1665 LET Y=INT (RAND*18+7)
1670 IF RAND>.8 AND B>200 THEN LE
T Y=A+INT (RAND*5)
1680 PLOT 8*X+4,71: DRAW 8*(Y-X)
+4,-43: BEEP .005,30
1690 IF Y(A+1 OR Y)>A+3 THEN GO T
O 1750
1700 PLOT OVER 1;8*X+4,71: DRAW
OVER 1;8*(Y-X)+4,-43
1710 GO TO 8000
1720 PLOT OVER 1;8*X+4,71: DRAW
OVER 1;8*(Y-X)+4,-43
1800 REM ■ FIRE ■
1810 IF (IN 49150=255 AND PEEK 2
3550<13) OR FU<1 OR A<5 OR A>22
THEN GO TO 1900
1815 BEEP .005,40
1820 PLOT 8*A+19,32: DRAW 0,112
1830 IF A>3=E1 AND A<E1 THEN L
ET E=1: BEEP .1;0: PRINT AT 4,E1
-1;" " :LET SC=SC+10: LET E1=
3: LET E$=""

```

```

1840 IF C$(A+2)="" THEN BEEP .1
0: PRINT AT 12,A+2;" " :LET SC=
SC+15+INT (RAND*3): LET C$(A+2)=""
1850 IF D$(A+2)<>" " THEN LET E2
=E2+.25: IF E2=5 THEN LET E2=1:
BEEP .1;0: PRINT AT 8,A+2;" " :L
ET SC=SC+200+INT (RAND*20): LET D
$( TO 24)=""
1860 PLOT OVER 1;8*A+19,32: DRAW
OVER 1;0,112
1900 PRINT INVERSE 1;AT 0,21;SC
1910 PRINT INVERSE 1;AT 1,21;FU;
1920 IF FU<1 THEN PRINT AT 1,21;
INVERSE 1;" " : GO TO 9000
1930 GO TO 1000
5000 REM ■ PRINT SCREEN ■
5005 BORDER 0: PAPER 7: INK 0: C
LS
5010 PRINT PAPER 6; INVERSE 1;AT
0,0; SCORE:
0 PS LAZERS FUEL:
5020 FOR Z=3 TO 18: PRINT AT Z,0
" " AT Z,31;" " NEXT Z
5030 FOR Z=8 TO 14 STEP 4: PRINT
INVERSE 1; PAPER (Z-2)/4+3;AT Z
1;" " AT Z,25;" " NE
XT Z
5040 PRINT AT 19,0;A$
5050 PRINT PAPER 6;AT 21,7; INVE
RSE 1;"000000000000000000000000"
5060 PRINT AT 20,1; INVERSE 1; P
APER 6;" " AT 21,26;" " AT 2
1,1; PAPER 4;" " AT 20,26;" "
5070 PRINT INK 2;AT 18,A;" " =
YOUR SHIP
5080 PRINT INK 3;AT 4,1;E#;AT 4,
7;" " = 10 POINTS"
5090 PRINT INK 4;AT 6,1;D$( TO 3
0);AT 6,7;" " = 200-220 POINTS"
5100 PRINT INK 2;AT 12,1;C#;AT 1
2,14;" " = 15-17 POINTS"
5190 RETURN
6000 REM ■ LOSE LIFE ■
6010 LET LI=LI-1
6015 INVERSE 1
6020 IF LI=4 THEN PRINT AT 20,1;
" "
6030 IF LI=3 THEN PRINT AT 20,28
" "
6040 IF LI=2 THEN PRINT AT 21,1;
" "
6050 IF LI=1 THEN PRINT AT 21,28
" "
6060 FOR Z=10 TO 0 STEP -1: BEEP
.1;Z: NEXT Z
6065 INVERSE 0
6070 FOR Z=1 TO 5
6080 PRINT AT 18,A;" "

```

Listing continued next page

```

8030 FOR X=1 TO 30: NEXT X
8100 PRINT AT 10,8;"
8110 FOR X=1 TO 30: NEXT X
8120 NEXT Z
8130 IF LI=0 THEN GO TO 9000
8170 BEEP .1,20: BEEP .1,20
8180 LET S=1: LET B=0
8190 GO TO 1000
9000 REM THE END
9010 PRINT AT 0,1;D$( TO 30)
9020 PRINT AT 0,0; FLASH 1;"T.H
9030 E N D";AT 10,11;"SCORE:";SC
9030 LET HS=PEEK USR "U"*100+PEE
K (USR "U"+1)
9040 IF SC>HS THEN LET HS=SC
9050 PRINT AT 14,8; FLASH 1;"HIG
H SCORE:";HS
9060 POKE USR "U",INT (HS/100)
9070 POKE USR "U"+1,(HS/100-INT
(HS/100))*100
9080 FOR Z=10 TO 0 STEP -1: BEEP
.2;Z: NEXT Z
9090 INPUT 0: PRINT #0;" PRE
SS ANY KEY TO START"
9100 IF INKEY$="" THEN GO TO 910
9110 RUN

```

12

Word Search



(16K)

A fascinating and original game which tests your vocabulary, and your skill at negotiating a constantly variable maze. The idea is to pick up and assemble the letters of a word which are placed at a number of points in the maze. Because the maze is infinitely variable in configuration, it can take a while to collect all the letters – and there is a time limit. You can also choose between six levels of difficulty, from three-to eight-letter words. Once you have picked up all the letters in the maze you cannot assemble the word until you have escaped through the little door which opens at the top of the maze. You then have twenty seconds to guess the word.

Two game modes are possible: the first in which the computer selects the word from its memory, and a second where you or your opponent can type in a word of any length. Why not try 'antidisestablishmentarianism' (one of the longest words in the English language)?

Key to graphics characters

ABCDEFGHIJKLMNPOQRSTU
 *ABCDEFGHIJKLMNPOQRSTU

```

10 REM *****
20 REM * WORD SEARCH *
30 REM * @ TOBY MATTHEWS *
40 REM * * ELLIS HORWOOD *
50 REM *****
60 POKE 23658,8
70 BORDER 4: PAPER 4: INK 7
80 GO SUB 9000
90 GOSUB 1000
100 PRINT AT 0,6; PAPER 1;"W O
R D S E A R C H"
110 BEEP 1,10
120 PRINT AT 14,0; PAPER 2;"GAM
E OPTION:"
130 PRINT AT 16,0; PAPER 1;"1-U
SE COMPUTER VOCABULARY"
140 PRINT AT 18,0; PAPER 1;"2-U
SE OWN WORD"
145 GO SUB 1000
150 INPUT PAPER 1; INK 7;"PRESS
1 OR 2 THEN ENTER"
155 IF A>2 OR A<1 THEN GO TO 15
0
160 IF A=1 THEN GO TO 180
170 IF A=2 THEN GO TO 8000
180 BEEP 2,10: PRINT AT 20,0;
PAPER 0;"PLEASE INPUT DIFFICULTY
!"
190 INPUT PAPER 2; INK 7;"1 (EA
SY) TO 6 (HARD); D
200 IF D<1 OR D>6 THEN GO TO 19
0
210 GO SUB 6000
215 LET A$=U$(0)
220 FOR N=1 TO 20
230 LET X=INT (RND*(D+2)+1)
240 LET Y=INT (RND*(D+2)+1)
250 LET T$=A$(X)
260 LET A$(X)=A$(Y)
270 LET A$(Y)=T$
280 NEXT N
290 GO SUB 5000
310 REM MAIN LOOP
320 FOR N=1 TO LEN A$
330 LET U=2+(INT (RND*19))
340 LET U=INT (RND*31)
350 IF CODE SCREEN$(U,U)=0 THE
N GO TO 330
360 PRINT AT U,U; PAPER 1; INK
7;A$(N)

```

```

370 NEXT N
380 POKE 23674,0: POKE 23673,0:
POKE 23672,0
385 LET D$="": LET M=1: LET L=1
0
390 LET T=INT (250-((65526+PEEK
23674+256*PEEK 23673+PEEK 23672
)/50))
400 PRINT AT 1,24;" ";AT 1,24
; PAPER 1;T
410 PRINT AT 1,2;D$
420 PRINT AT L,M; INK 0;"X"
430 IF INKEY$="P" THEN IF CODE
SCREEN$(L-1,M)>=65 THEN LET H=C
ODE SCREEN$(L-1,M): LET D$=D$+C
H$ H: PRINT AT L,M;" "
440 IF INKEY$="D" THEN IF CODE
SCREEN$(L-1,M)<>0 THEN PRINT AT
L,M;" "; LET L=L-1: PRINT AT L,
M; INK 0;"X"
450 IF INKEY$="L" THEN IF CODE
SCREEN$(L+1,M)>=65 THEN LET H=C
ODE SCREEN$(L+1,M): LET D$=D$+C
H$ H: PRINT AT L,M+1;" "
460 IF INKEY$="X" THEN IF CODE
SCREEN$(L,M+1)<>0 THEN PRINT AT
L,M;" "; LET M=M+1: PRINT AT L,
M; INK 0;"X"
470 IF INKEY$="Z" THEN IF CODE
SCREEN$(L,M-1)>=65 THEN LET H=C
ODE SCREEN$(L,M-1): LET D$=D$+C
H$ H: PRINT AT L,M-1;" "
480 IF INKEY$="Z" THEN IF CODE
SCREEN$(L,M-1)<>0 THEN PRINT AT
L,M;" "; LET M=M-1: PRINT AT L,
M; INK 0;"X"
490 FOR N=1 TO 2
500 LET V=3+(INT (RND*17))
510 LET U=INT (RND*31)
520 IF CODE SCREEN$(U,U)>=65 T
HEN GO TO 560
530 IF V=L OR U=M THEN GO TO 56
0
540 PRINT AT U,U;"@"
550 NEXT N
560 FOR N=1 TO 2
570 LET V=3+(INT (RND*17))
580 LET U=1+(INT (RND*30))
590 IF CODE SCREEN$(U,U)>=65 T
HEN GO TO 620
600 PRINT AT U,U;" "
610 NEXT N
620 IF LEN D$=LEN A$ THEN PRINT
AT 2,15;
630 IF L=2 AND LEN D$=LEN A$ TH
EN GO TO 2000

```

Listing continued next page

[illegible]

Listing continued next page

```

6180 LET W$(8) = "FAN"
6190 RETURN
6200 DIM W$(9,4)
6210 LET W$(1) = "BYTE"
6220 LET W$(2) = "QUIZ"
6230 LET W$(3) = "SOFT"
6240 LET W$(4) = "ACRE"
6250 LET W$(5) = "TEST"
6260 LET W$(6) = "DARK"
6270 LET W$(7) = "BOUL"
6280 LET W$(8) = "LORD"
6290 RETURN
6300 DIM W$(9,5)
6310 LET W$(1) = "LAUGH"
6320 LET W$(2) = "EARTH"
6330 LET W$(3) = "BUILD"
6340 LET W$(4) = "APRIL"
6350 LET W$(5) = "SPORT"
6360 LET W$(6) = "UNCLE"
6370 LET W$(7) = "CAROL"
6380 RETURN
6390 DIM W$(9,6)
6400 LET W$(1) = "ANTLER"
6410 LET W$(2) = "FLIGHT"
6420 LET W$(3) = "MOTIVE"
6430 LET W$(4) = "SACRED"
6440 LET W$(5) = "LUMBER"
6450 LET W$(6) = "UNISON"
6460 LET W$(7) = "ZODIAC"
6470 LET W$(8) = "WIZARD"
6480 RETURN
6490 DIM W$(9,7)
6500 LET W$(1) = "SPECIAL"
6510 LET W$(2) = "NOVELTY"
6520 LET W$(3) = "NOTABLE"
6530 LET W$(4) = "INTRODE"
6540 LET W$(5) = "PHANTOM"
6550 LET W$(6) = "MIXTURE"
6560 LET W$(7) = "QUIBBLE"
6570 LET W$(8) = "TORPEDO"
6580 RETURN
6590 DIM W$(9,8)
6600 LET W$(1) = "SPECTRUM"
6610 LET W$(2) = "COMPUTER"
6620 LET W$(3) = "CREATION"
6630 LET W$(4) = "SQUANDER"
6640 LET W$(5) = "THANKFUL"
6650 LET W$(6) = "COMPRISE"
6660 LET W$(7) = "HYDROGEN"
6670 LET W$(8) = "RESOLUTE"
6680 RETURN
7000 REM AGAIN?
7010 PRINT AT 10,10; PAPER 1;"AN
OTHER GO ?"
7020 IF INKEY$="Y" THEN RUN
7030 IF INKEY$="N" THEN STOP
7040 GO TO 7020
8000 REM ENTER WORD
8010 INPUT ; PAPER 1; INK 7;"ENT
ER WORD"; LINE 1$
8020 DEFP A$=1$
8030 LET A$=1$
8040 FOR N=1 TO 20
8050 LET X=INT (RND*LEN A$)+1
8060 LET Y=INT (RND*LEN A$)+1
8070 LET T$=A$(X)

```

```

8080 LET A$(X)=A$(Y)
8090 LET A$(Y)=T$
8100 NEXT N
8110 GO TO 8000
8000 REM CHARACTER SET
8010 FOR N=0 TO 15: READ A: POKE
US0, "A"+N, A: NEXT N
8020 DATA 255,129,189,189,189,18
9,129,255
8030 DATA 56,56,16,254,16,40,68,
130
8040 RETURN
9999 RUN

```

13



(16K)

(16K) All the thrills of the turf are contained in this game, which tests your reactions to the limit. One or two players can take part in the game, the object being to stop a continuously scrolling number reel at the bottom of the screen, on the number corresponding to the lane in which your horse is running. However, you and your opponent are playing against the computer which controls the other two or three horses in the game, and can also stop the reel when it wants to. But unlike the players, the computer never makes a mistake: it can stop the reel at exactly the right point to make sure its horses lead the race.

The game starts automatically when the number of players and the lanes they have chosen are typed in. The game will list the overall winner after any number of games up to a maximum of twenty.

Key to graphics characters

ABCDEF GHIJ KLMNOP QRSTU
 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

```

10 REM ***** RACING *****
20 REM HORSE RACING
30 REM © TOBY MATTHEWS, *
50 REM * & ELLIS HORWOOD. *
60 REM *****
70 LET Y=0
80 LET U=0
90 GO SUB 9000
100 REM OPTIONS
110 POKE 23552,8
120 INK 7: BORDER 4: PAPER 4: C
L5
130 PRINT AT 0,0: PAPER 2:
140 PRINT AT 21,0: PAPER 2:
150 FOR N=1 TO 20
160 PRINT AT N,0: PAPER 2:
170 NEXT N
180 PRINT AT 4,0: PAPER 2:
190 PRINT AT 1,2: PAPER 2:
200 PRINT AT 3,3: PAPER 2:
210 PRINT AT 3,3: PAPER 2:
220 IF Y=1 THEN GO TO 5030
230 IF X=2 THEN GO TO 292
240 BEEP .5,0
250 PRINT .5,0
260 PRINT AT 6,1: PAPER 4: "PLE
ASE INPUT NO. OF PLAYERS."
270 PRINT AT 7,13: PAPER 1: "1 O
R
280 INPUT A
290 IF A>2 OR A<1 THEN GO TO 15
300 BEEP .5,0
310 PRINT AT 9,5: PAPER 1: "PLAY
ER 1 USES KEY:"
320 THEN PRINT AT 10,6:
PAPER 3: "PLAYER 2 USES KEY:"
330 PRINT AT 12,13: LANE3:
340 FOR N=14 TO 17
350 PRINT AT 14,N: PAPER N-13: N
360 NEXT N
370 PRINT AT 15,1: PAPER 4: "PLE
ASE INPUT LANE NO. PLAYER 1"
380 INPUT B
390 IF B<1 OR B>4 THEN GO TO 24

```

Listing continued next page

```

250 IF A=2 THEN PRINT AT 17,1;
PAPER 1;"PLEASE INPUT LANE NO. P
LAYER 10;
260 IF A=2 THEN INPUT C: IF C<1
OR C>4 OR C=5 THEN GO TO 260
260 PRINT AT 19,5;"PLAYER 1 CHO
SE LANE:"; PAPER B;B
270 IF A=2 THEN PRINT AT 20,5;"
PLAYER 2 CHOSE LANE:"; PAPER C;C
280 FOR N=1 TO 200: NEXT N: LET
Y=2: GO TO 70
285 PRINT AT 0,1; PAPER 1;"ENTE
R NUMBER OF RACES 1 TO 20": INPU
T NO:
290 IF NO<1 OR NO>20 THEN GO TO
300
300 LET S=0: LET T=0: LET W=0
305 REM PRINT TRACK
310 FOR D=1 TO NO: PAUSE 150: C
L
310 PLOT 0,150: DRAW 255,0
320 FOR N=0 TO 255 STEP 8
330 PLOT N,150: DRAW 0,-8
340 NEXT N
345 PLOT 255,150: DRAW 0,-8
350 PLOT 0,55: DRAW 255,0
360 FOR N=0 TO 255 STEP 8
370 PLOT N,55: DRAW 0,-8
380 NEXT N
385 PLOT 255,55: DRAW 0,-8
390 PLOT 16,150: DRAW 0,10
400 INK 2: CIRCLE 16,172,3
410 INK 2: CIRCLE 16,172,2
420 INK 7
430 LET H=3
440 FOR N=1 TO 4
450 PRINT PAPER N;AT H,0;" ";AT
H+1,0;N;AT H+2,0;
460 LET H=H+3
470 NEXT N
480 REM SET UP VARIABLES
490 LET K=29: LET L=29: LET M=2
500 LET N=29
510 PRINT AT 3,K;"A";AT 4,K;"A
";AT 5,K;"A";AT 6,K;"A";AT 7,L;"A
";AT 8,L;"A";AT 9,M;"A";AT 10,M;"
";AT 11,M;"A";AT 12,N;"A";AT 13,N;"
";AT 14,N;"A";AT 15,N;"A";
520 LET O=17
530 PRINT AT 21,15;"+"
540 PLOT 47,7: DRAW 0,9: DRAW 1
53,0: DRAW 0,-9: DRAW -153,0
550 REM MAIN LOOP
560 LET R=1
570 RESTORE
580 READ X: LET A$=A$+CHR$ X: NEXT
Z
545 FOR J=4 TO 0 STEP -1
547 FOR G=1 TO 40
550 PRINT AT 20,5;A$(TO 57)
560 LET A$=A$(4 TO J)+A$(TO 3)
570 IF J=0 THEN GO TO 545

```

```

580 IF IN 55022=254 THEN PRINT
AT 18,0;"PLAYER 1 STOPPED REEL D
T LANE:"; PAPER VAL A$(15);A$(15)
);GO SUB VAL A$(15)*1000
590 IF A=2 THEN GO TO 750
700 LET U=INT (RND*3)
701 IF U=1 AND VAL A$(15)=B THE
N GO TO 700
702 IF A=1 THEN GO TO 710
703 IF U=1 AND VAL A$(15)=C THE
N GO TO 700
710 IF U=1 THEN PRINT AT 18,0;"
I STOPPED REEL AT LANE 1; PAP
ER VAL A$(15);A$(15);AT 18,27;P
APER 4;"LET O=O+1. GO SU
B VAL A$(15)*1000
715 BEEP (5-J)/500,10
730 NEXT G: NEXT J
750 IF IN 49150=253 THEN PRINT
AT 18,0;"PLAYER 2 STOPPED REEL A
T LANE:"; PAPER VAL A$(15);A$(15)
);GO SUB VAL A$(15)*1000
760 GO TO 700
800 DATA 0,1,49,0,2,50,0,3,51,0
,4,52,0,1,45,0,2,50,0,3,51,0,4,5
2,0,1,49,0,2,50,0,3,51,0,4,52,0
,1,49,0,2,50,0,3,51,0,4,52,0,1,45
,0,2,50,0,3,51,0,4,52
1000 REM MOVE HORSES
1001 LET R=1
1010 GO SUB 5000
1030 PRINT AT 3,K;" ";AT 4,K;"
";AT 5,K;"
1040 LET K=K-J
1050 PRINT AT 3,K;"A";AT 4,K;"A
";AT 5,K;"A";AT 6,K;"A";AT 7,L;"A
";AT 8,L;"A";AT 9,M;"A";AT 10,M;"
";AT 11,M;"A";AT 12,N;"A";AT 13,N;"
";AT 14,N;"A";AT 15,N;"A";
1060 IF K<2 THEN GO TO 5000
1070 RETURN
2000 LET R=2
2010 GO SUB 5000
2030 PRINT AT 6,L;" ";AT 7,L;"
";AT 8,L;"
2040 LET L=L-J
2050 PRINT AT 6,L;"A";AT 7,L;"A
";AT 8,L;"A";AT 9,M;"A";AT 10,M;"
";AT 11,M;"A";AT 12,N;"A";AT 13,N;"
";AT 14,N;"A";AT 15,N;"A";
2060 IF L<2 THEN GO TO 5000
2070 RETURN
3000 LET R=3
3010 GO SUB 5000
3030 PRINT AT 9,M;" ";AT 10,M;"
";AT 11,M;"
3040 LET M=M-J
3050 PRINT AT 9,M;"A";AT 10,M;"
";AT 11,M;"A";AT 12,N;"A";AT 13,N;"
";AT 14,N;"A";AT 15,N;"A";
3060 IF M<2 THEN GO TO 5000
3070 RETURN
4000 LET R=4
4010 GO SUB 5000
4030 PRINT AT 12,N;" ";AT 13,N;"
";AT 14,N;"
4040 LET N=N-J
4050 PRINT AT 12,N;"A";AT 13,N;"
";AT 14,N;"A";AT 15,N;"A";
4060 IF N<2 THEN GO TO 5000

```

Listing continued next page

```

4070 RETURN
5000 REM END OF RACE
5001 FOR N=20 TO 0 STEP -1: BEEP
5002 N: NEXT N
5003 FOR N=0 TO 20: BEEP .01,N:
5004 NEXT N
5005 LET Y=1: GO TO 5100
5006 IF A=2 THEN GO TO 5100
5007 IF R=3 THEN PRINT AT 10,6;
5008 FLASH 1;"PLAYER 1 WINS"
5009 D: LET U=U+1: GO TO 5200
5010 PRINT AT 6,10;"PAPER 1: FLA
5011 SH 1: I WIN RACE"; D: LET S=S+1
5012 GO TO 5200
5013 IF R=0 THEN PRINT AT 6,8;
5014 FLASH 1;"PLAYER 2 WINS"
5015 D: LET T=T+1: GO TO 5200
5016 GO TO 5040
5017 LET C$="RACES"
5018 LET D$="RACE"
5019 PRINT AT 9,2;"I HAVE WON ";
5020 C$: IF S=1 THEN PRINT AT 9,15;
5021 D$
5022 PRINT AT 10,2;"PLAYER 1 HAS
5023 WON"; U:C$: IF U=1 THEN PRINT A
5024 T 10,20; D$
5025 IF A=2 THEN GO TO 5250
5026 GO TO 5290
5027 PRINT AT 11,2;"PLAYER 2 HAS
5028 WON"; T:C$: IF T=1 THEN PRINT A
5029 T 11,20; D$
5030 NEXT D
5031 REM END OF GAME
5032 IF A=2 THEN GO TO 5400
5033 IF U>S THEN PRINT AT 13,3;
5034 PAPER B;"PLAYER 1 WINS OVERALL";
5035 IF S>U THEN PRINT AT 13,9;"
5036 I WIN OVERALL"
5037 PRINT AT 15,10; PAPER 1;"AN
5038 OTHER GO?"
5039 IF INKEY$="N" THEN STOP
5040 IF INKEY$="V" THEN RUN
5041 GO TO 5350
5042 IF U>S AND U>T THEN PRINT A
5043 T 13,3; PAPER B;"PLAYER 1 WINS O
5044 VERALL"
5045 IF S>U AND S>T THEN PRINT A
5046 T 13,9;"I WIN OVERALL"
5047 IF T>S AND T>U THEN PRINT A
5048 T 13,3; PAPER C;"PLAYER 2 WINS O
5049 VERALL"
5050 GO TO 5340
5051 FOR U=1 TO 75: NEXT U
5052 PRINT AT 18,0;"
5053 IF U=1 THEN GO TO 5100
5054 IF A=2 THEN GO TO 5050
5055 IF B=R THEN PRINT AT 18,2;"
5056 YOU PICKED PLAYER 1'S HORSE";
5057 IF B<>R THEN PRINT AT 18,6;"
5058 YOU PICKED MY HORSE"
5059 GO TO 5090
5060 IF C=R THEN PRINT AT 18,2;"
5061 YOU PICKED PLAYER 2'S HORSE";
5062 IF B=R THEN PRINT AT 18,2;"
5063 YOU PICKED PLAYER 1'S HORSE"

```

```

6080 IF B<>R AND C<>R THEN PRINT
6081 AT 18,6;"YOU PICKED MY HORSE"
6082 RETURN
6110 IF B=R THEN PRINT AT 18,3;"
6111 I PICKED PLAYER 1'S HORSE"
6130 IF B<>R THEN PRINT AT 18,6;
6131 "I PICKED MY HORSE"
6140 GO TO 6090
9000 REM CHARACTER SET
9010 RESTORE 9020: FOR N=0 TO 53
9011 READ A: POKE USA "A"+N,A: NEXT
9012 N
9020 DATA 0,0,1,3,7,1,0,16,0,0,0
9021 120,132,240,240,120,60,126,127,
9022 95,127,243,225,0,126,126,111,141
9023 159,159,159,120,0,1,1,0,0,0,0,
9024 255,251,243,1,0,1,1,3,0,0,0,0,
9025 247,176,85,192,192,192,0,243,201
9026 9030 RETURN
9031 RUN

```

14

Minefield



(48K)

Can you cross a cratered minefield in your tank without setting off one of the mines? This game tests your skill and judgement. You must not get blown up by a mine, fall in one of the craters or run out of fuel in the middle of the minefield. 'Adolf', the enemy, also makes frequent sorties through the minefield. If he gets your tank, or if you run over any of the mines he has just laid, your game will be finished.

Although the mines are concealed, you do have a detection device, which will tell you when you are right next to a mine. It displays the number of mines next to your

tank in the top left-hand corner of the screen. But it is rather a crude device: it will not tell you the direction in which the mine will be found — you have to guess!

The quicker you get across the minefield, the higher your score will be. A bit of care is necessary not to go off the edge of the screen: because you will fall in a hole if you do so.

Key to graphics characters

ABCDEFGHIJKLMNPOQRSTU
 V W X Y Z 0 1 2 3 4 5 6 7 8 9

```

10 REM *****
20 REM * MINE FIELD *
30 REM * © TOBY MATTHEWS *
40 REM * & ELLIS HORWOOD *
50 REM *****
60 GO SUB 8010
65 REM ■ INTRODUCTION■
67 POKE 23558,8
70 BORDER 0: PAPER 0: INK 7: C
LS
80 PRINT AT 0,7; PAPER 2;"M I
N E F I E L D."
90 PRINT AT 2,0;"-----"
100 PRINT AT 20,0;"-----"
120 PRINT AT 4,0; PAPER 1;"KEYS"
130 PRINT AT 4,10; PAPER 0;"P";
AT 4,12;"UP"
140 PRINT AT 6,10; PAPER 1;"L";
AT 6,12;"DOWN"
150 PRINT AT 8,10; PAPER 2;"Z";
AT 8,12;"RIGHT"
160 PRINT AT 10,10; PAPER 3;"X"
;AT 10,12;"LEFT"
170 PRINT AT 12,0;"-----"
180 PRINT AT 14,5;" YOU.
ADOLF."
190 PRINT AT 16,7;"■"
200 PRINT AT 17,7;"■"
220 PRINT AT 19,2;"PRESS ""R""
KEY TO START PLAY!"
300 DEFP .01,-10
310 PAUSE 2
320 DEFP .01,10
330 IF INKEY$="R" THEN GO TO 30
355 REM ■ VARIABLES■
370 GO TO 220
380 LET S=1000
390 LET L=1
410 LET X=15
420 LET Y=20
430 LET F=1

```

Listing continued next page

```

340 LET P=0
350 LET D=0
360 REM DRAW MINEFIELD
400 PAPER 4: CLS
410 PRINT AT 0,7; PAPER 2;"M I
N E F I E L D"
420 PRINT AT 2,0; INK 0;"
430 PRINT AT 2,17; INK 0;"
440 PRINT AT 21,0; INK 0;"
450 PRINT AT 21,17; INK 0;"
460 FOR A=3 TO 10
470 PRINT AT A,0; INK 0;"
480 PRINT AT A,31; INK 0;"
490 NEXT A
500 FOR A=13 TO 21
510 PRINT AT A,0; INK 0;"
520 PRINT AT A,31; INK 0;"
530 NEXT A
540 REM LAY MINES
550 FOR M=1 TO L*3+30
560 LET U=INT (RND*30)+1
570 LET V=INT (RND*18)+1: IF 0<
5 THEN GO TO 620
580 PRINT AT 0,V; INK 4;"0"
590 NEXT M
600 REM MAKE HOLES
610 FOR N=1 TO L*3
620 LET U=INT (RND*30)+1
630 LET V=INT (RND*18)+1: IF 0<
5 THEN GO TO 670
640 PRINT AT 0,V; INK 0;"0"
650 NEXT N
660 GO SUB 6000
670 REM MAIN LOOP
680 LET A$="": LET B$="":
690 LET U=INT (RND*19)+1: IF U<
4 THEN GO TO 740
700 LET T=27: LET J=0
710 PRINT AT Y,X; INK 0;A$;AT Y
+1,X;B$
720 PRINT AT 1,0; PAPER 1;"MINE
S:"
730 PRINT AT 1,28; PAPER 1;"
":AT 1,23;"FUEL:"
740 REM MINE DETECTOR
750 LET D=0
760 IF ATTR (Y-1,X)=36 THEN LET
D=D+1
770 IF ATTR (Y+2,X)=36 THEN LET
D=D+1
780 IF ATTR (Y-1,X+1)=36 THEN L
ET D=D+1
790 IF ATTR (Y+2,X+1)=36 THEN L
ET D=D+1
800 IF ATTR (Y,X+2)=36 THEN LET
D=D+1
810 IF ATTR (Y+1,X+2)=36 THEN L
ET D=D+1
820 IF ATTR (Y,X-1)=36 THEN LET
D=D+1
830 IF ATTR (Y+1,X-1)=36 THEN L
ET D=D+1

```

```

890 PRINT AT 1,0; PAPER 1;"MINE
S:"
891 GO TO 1027
895 REM CHECK FOR MINE
900 IF INKEY$="P" AND ATTR (Y-
1,X)=36 OR INKEY$="P" AND ATTR (Y
-1,X+1)=36 THEN GO TO 3000
910 IF INKEY$="L" AND ATTR (Y+2
,X)=36 OR INKEY$="L" AND ATTR (Y
+2,X+1)=36 THEN GO TO 3000
920 IF INKEY$="Z" AND ATTR (Y,X
-1)=36 OR INKEY$="Z" AND ATTR (Y
+1,X-1)=36 THEN GO TO 3000
930 IF INKEY$="X" AND ATTR (Y,X
+2)=36 OR INKEY$="X" AND ATTR (Y
+1,X+2)=36 THEN GO TO 3000
940 IF INKEY$="P" AND ATTR (Y-1
,X)=36 OR INKEY$="P" AND ATTR (Y
-1,X+1)=36 THEN GO TO 7000
950 IF INKEY$="L" AND ATTR (Y+2
,X)=36 OR INKEY$="L" AND ATTR (Y
+2,X+1)=36 THEN GO TO 7000
960 IF INKEY$="Z" AND ATTR (Y,X
-1)=36 OR INKEY$="Z" AND ATTR (Y
+1,X-1)=36 THEN GO TO 7000
970 IF INKEY$="X" AND ATTR (Y,X
+2)=36 OR INKEY$="X" AND ATTR (Y
+1,X+2)=36 THEN GO TO 7000
1020 IF Y=2 THEN GO TO 2000
1025 RETURN
1027 REM MOVE TANK
1030 IF INKEY$="P" THEN LET A$="
": LET B$="":
1040 IF INKEY$="P" THEN GO SUB 9
00: LET Y=Y-1: PRINT AT Y,X; INK
0;A$;AT Y+1,X;B$;AT Y+2,X; BRIG
HT 1; PAPER 4;"
1050 IF INKEY$="L" THEN LET A$="
": LET B$="":
1060 IF INKEY$="L" THEN GO SUB 9
00: LET Y=Y+1: PRINT AT Y,X; INK
0;A$;AT Y+1,X;B$;AT Y-1,X; BRIG
HT 1; PAPER 4;"
1070 IF INKEY$="Z" THEN LET A$="
": LET B$="":
1080 IF INKEY$="Z" THEN GO SUB 9
00: LET X=X-1: PRINT AT Y,X; INK
0;A$;AT Y+1,X;B$;AT Y,X+2; BRIG
HT 1; PAPER 4;"
1090 IF INKEY$="X" THEN LET A$="
": LET B$="":
1100 IF INKEY$="X" THEN GO SUB 9
00: LET X=X+1: PRINT AT Y,X; INK
0;A$;AT Y+1,X;B$;AT Y,X-1; BRIG
HT 1; PAPER 4;"
1150 LET S=5-5
1160 IF S=0 THEN GO TO 4000
1170 REM ADOLF
1200 IF ATTR (Y,X+2)=33 THEN GO
TO 5000
1210 IF ATTR (Y+1,X+2)=33 THEN G
O TO 5000
1220 IF J=1 AND T>=1 THEN GO TO
1400

```

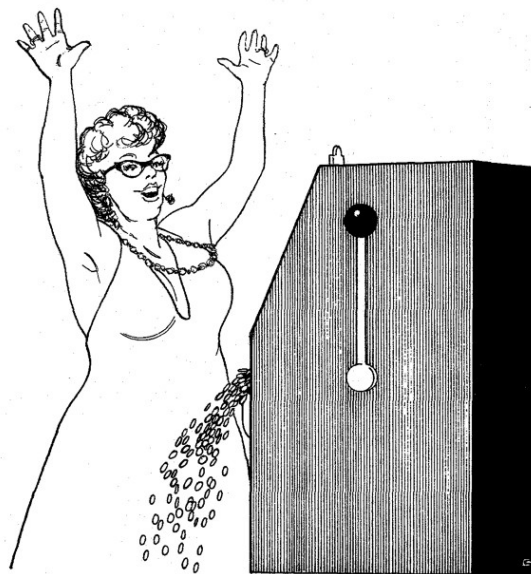
Listing continued next page


```

7030 LET Q$=" OH DEAR!! YOU FELL
IN A HOLE!"
7040 LET C=30
7050 GO SUB 7500
7060 PRINT AT 10,0;"YOUR SCORE W
AS ";S*((20*L)-Y)
7100 BEEP 1,10
7110 PRINT AT 12,10;"ANOTHER GO
?"
7120 IF INKEY$="Y" THEN RUN
7130 IF INKEY$="N" THEN STOP
7140 GO TO 7120
7150 REM PRINT STRING
7200 FOR N=1 TO C
7210 PRINT AT 0,N;Q$(N)
7220 BEEP .01,10
7230 PAUSE 5
7240 BEEP .01,10
7250 NEXT N
7260 RETURN
9000 REM CHARACTER SET
9010 FOR N=0 TO 157: READ A: POK
E USR "A"+N,A: NEXT N
9020 DATA 1,1,57,1,63,7,63,0,63,
7,63,6,63,6,63,126,126,156,126,
235,224,252,252,1,134,224,252,
0,63,0,252,1,252,7,7,63,63,
1,1,2,63,0,63,63,63,63,240,
1,1,2,240,240,63,63,63,63,63,
9030 DATA 63,63,63,63,63,63,63,63,
63,63,1,57,1,1,63,63,63,63,63,
63,63,63,63,224,252,126,135,1,1,
9040 DATA 0,0,42,42,42,15,15,254,
254,15,15,42,42,42,0,0,0,158,
158,158,224,224,95,95,224,224,15,
2,158,158,0,0
9050 DATA 0,17,15,31,63,115,115,1
27,127,127,252,252,31,15,7,0,0,2
4,240,240,252,252,252,254,254,25
3,223,63,240,240,254,0
9060 DATA 60,126,255,255,255,255
1,1,63,63
9100 RETURN
9999 RUN

```

15 Jackpot



A game for up to four players designed for lovers of one-armed bandits! Jackpot works just like a fruit machine although the symbols on the reels are a little different. The game allows you to check the winning lines and permanently displays the winnings of each player, as well as the amount of money left in the fruit machine. It also incorporates: an extra gambling facility which allows you to double your winnings or lose the lot; a 'nudge' facility which permits you to move any of the reels along one place; and a 'hold' facility which allows any of the reels to remain stationary whilst the others are spun.

The computer will ask the player whether he wants to gamble, nudge or hold. Use Y and N keys for 'Yes' and 'No' to these questions. The game runs automatically - you will not need to press any keys to start the reels turning.

Key to graphics characters

AB C D E F G H I J K L M N O P Q R S T U
 A B C D E F G H I J K L M N O P Q R S T U

```

1 REM ***** JACOPOT. *****
2 REM © TOBY MATTHEWS
3 REM ** ELLIS MORWOOD **
4 REM *****
5 POKER 23000,8
6 SUB 0000
7 PAPER 4: INK 7: BORDER 4: C
L 8
9 RANDOMIZE
10 GO SUB 0000
11 REM OPTIONS
12 PRINT AT 7,2; PAPER 1;"PLEA
S 13 NPNT OF 72 PLAYERS."
14 PRINT AT 9,12; PAPER 2;"(1
T 15 0 4) INPUT A
16 INPUT A
17 IF A>4 OR A<1 THEN GO TO 12
@ 18
19 DIM N(A)
20 FOR N=1 TO A
21 LET M(N)=5
22 NEXT N
23 PRINT AT 11,7; PAPER 0;"GET
READY TO PLAY;"
24 LET B=0
25 BEEP 1,10
26 PAUSE 100
27 GOSUB 0000
28 REM SUB 0000
29 REM GET UP VARIABLES
30 LET A="*****"
31 LET B="*****"
32 LET C="*****"
33 REM DRAW MAIN SCREEN
34 PRINT AT 8,0; PAPER 0;"REEL
: 35 PRINT AT 11,0; PAPER 1;"RE
L: 36 PRINT AT 14,0; PAPER 2;"RE
L: 37
38 LET J=100
39 LET A=1
40 REM MAIN LOOP
41 INK 0
42 PLOT 103,112: DRAW 41,0: DR
A 43 0,0: DRAW -41,0: DRAW 0,9
44 PLOT 103,88: DRAW 41,0: DR
W 45 0,0: DRAW -41,0: DRAW 0,9

```

```

340 PLOT 103,54: DRAW 41,0: DRA
350 DRAW 0,0: DRAW 0,0
350 FOR N=7 TO 13 STEP 3: PRINT
    AT N,15;"0": AT N+2,15;"0": NEXT
    N
370 LET T=1
375 INK 0
380 PLOT 169,120: DRAW 0,-120:
DRAW 56,0: DRAW 0,120: DRAW -86,
0
385 PLOT 0,45: DRAW 169,0
390 INK 7
400 LET P$="P L A Y E R "
410 P$=1 TO 12: NEXT N
420 PAPER 1;P$(N): NEXT N
430 PRINT AT 20,22: PAPER T;T
440 PRINT AT 9,24: PAPER 1;"MON
EY": AT 10,24:"LEFT:"
450 PRINT AT 11,25: PAPER 4;"
": AT 0,24: PAPER 1;"M(I)
460 PRINT AT 13,24: PAPER 2;"RO
UNDS": AT 14,24:"PLAYED"
470 PRINT AT 15,26: PAPER 2;R
480 PRINT AT 17,24: PAPER 3;"M
ONEY": AT 18,24:"LEFT IN": AT 19,
24:"MAINE": AT 20,24:"U
500 PRINT AT 17,0: PAPER 0;"PRE
55": AT 18,0: PAPER 1;"0 TO QUIT
GAME": AT 19,0: PAPER 2;"W TO SE
E WINNING": AT 20,0:"LINES"
520 BEEP .3,18: FOR N=1 TO 150
530 IF INKEY$="W" THEN GO TO 70
0
530 IF INKEY$="0" THEN GO TO 80
0
540 NEXT N
550 FOR N=17 TO 20: PRINT AT N,
0:
600 FOR N=1 TO A: IF M(N) NEXT
N LET B=B+1: NEXT N: IF B=A THEN
GO TO 8050
610 IF M(I)=0 THEN GO SUB 1000
620 IF J<=0 THEN LET J=0: GO TO
8050
630 LET M(I)=M(I)-.10: LET J=J+
.10
640 PRINT AT 11,25: PAPER 4;"
": AT 11,25: PAPER 1;M(I): AT 2
0,25: PAPER 4;"": AT 20,25:
PAPER 3
700 GO SUB 2000
999 REM NO MONEY
1000 BEEP .1,-20: FOR N=17 TO 20
: PRINT AT N,0;"
NEXT N
1010 PRINT AT 19,0: PAPER 0;"PLA
YER ":T:" HAS NO MONEY"
1015 IF T=A THEN GO TO 315
1017 LET T=T+1: GO TO 375
1020 FOR N=1 TO 50: NEXT N: FOR
N=17 TO 20: PRINT AT N,0;"
NEXT N
1030 RETURN
1999 REM SPAN REELS

```

Listing continued next page

```

2000 LET D=20+INT (RND*40)
2005 LET E=20+INT (RND*40)
2010 LET F=20+INT (RND*40)
2020 LET G=0: LET K=0: LET I=0
2030 PRINT AT 8,13; PAPER 0;A$(
TO 5)
2040 PRINT AT 11,13; PAPER 1;B$(
TO 5)
2050 PRINT AT 14,13; PAPER 2;C$(
TO 5)
2060 PRINT AT 8,7;" ": PRINT
AT 11,7;" ": PRINT AT 14,7;"
"
2100 LET H=INT (RND*10): IF H=5
THEN GO SUB 3000
2210 IF G=D THEN GO TO 2250
2220 PRINT AT 8,13; PAPER 0;A$(
TO 5)
2230 LET A$=A$(2 TO )+A$(1)
2240 LET G=G+1
2250 IF K=E THEN GO TO 2290
2260 PRINT AT 11,13; PAPER 1;B$(
TO 5)
2270 LET B$=B$(2 TO )+B$(1)
2280 LET K=K+1
2290 IF I=F THEN GO TO 2330
2300 PRINT AT 14,13; PAPER 2;C$(
TO 5)
2310 LET C$=C$(2 TO )+C$(1)
2320 LET I=I+1
2330 IF I=F AND K=E AND G=D THEN
GO TO 2350
2340 GO TO 2210
2350 LET Q=INT (RND*15): IF Q=10
AND H<>5 THEN GO SUB 4000
2360 GO SUB 5000
2370 IF T=A THEN LET R=R+1: GO TO
0 315
2380 LET T=T+1: GO TO 375
2999 REM HOLD
3000 PRINT AT 8,7; PAPER 0;"HOLD
"
3010 PRINT AT 11,7; PAPER 1;"HOL
D"
3020 PRINT AT 14,7; PAPER 2;"HOL
D"
3030 PRINT AT 17,0; PAPER 0;"HOL
D REEL 1"
3040 IF INKEY$="Y" THEN LET G=D:
PRINT AT 17,14; PAPER 0;"YES":
LET A$(2)=A$(3): GO TO 3070
3050 IF INKEY$="N" THEN PRINT AT
17,14; PAPER 0;"NO": PRINT AT 8
,7; PAPER 4;" ": GO TO 3070
3060 GO TO 3040
3070 FOR N=1 TO 50: NEXT N: PRIN
T AT 18,0; PAPER 1;"HOLD REEL 2"
?
3080 IF INKEY$="Y" THEN LET K=E:
PRINT AT 18,14; PAPER 1;"YES":
LET B$(2)=B$(3): GO TO 3110
3090 IF INKEY$="N" THEN PRINT AT
18,14; PAPER 1;"NO": PRINT AT 1
,7; PAPER 4;" ": GO TO 3110
3100 GO TO 3060
3110 FOR N=1 TO 50: NEXT N: PRIN

```

```

T AT 19,0; PAPER 2;"HOLD REEL 3
?"
3120 IF INKEY$="Y" THEN LET F=I:
PRINT AT 19,14; PAPER 2;"YES":
LET C$(2)=C$(3): GO TO 3150
3130 IF INKEY$="N" THEN PRINT AT
19,14; PAPER 2;"NO": PRINT AT 1
,7; PAPER 4;" ": GO TO 3150
3140 GO TO 3120
3150 FOR N=1 TO 100: NEXT N: FOR
N=17 TO 19: PRINT AT N,0;" ":
NEXT N
3160 RETURN
3999 REM NUDGE
4000 PRINT AT 8,7; PAPER 0;"NUDG
E"
4010 PRINT AT 11,7; PAPER 1;"NUD
GE"
4020 PRINT AT 14,7; PAPER 2;"NUD
GE"
4030 PRINT AT 17,0; PAPER 0;"NUD
GE REEL 1"
4040 IF INKEY$="Y" THEN PRINT AT
17,15; PAPER 0;"YES": PRINT AT
8,13; PAPER 0;A$( TO 5): LET A$(
2)=A$(3): GO TO 4070
4050 IF INKEY$="N" THEN PRINT AT
17,15; PAPER 0;"NO": GO TO 4070
4060 GO TO 4040
4070 FOR N=1 TO 50: NEXT N: PRIN
T AT 18,0; PAPER 1;"NUDGE REEL 2"
?
4080 IF INKEY$="Y" THEN PRINT AT
18,15; PAPER 1;"YES": PRINT AT
11,13; PAPER 1;B$( TO 5): LET B$(
2)=B$(3): GO TO 4100
4090 IF INKEY$="N" THEN PRINT AT
18,15; PAPER 1;"NO": GO TO 4100
4095 GO TO 4080
4100 FOR N=1 TO 50: NEXT N: PRIN
T AT 19,0; PAPER 2;"NUDGE REEL 3
?"
4110 IF INKEY$="Y" THEN PRINT AT
19,15; PAPER 2;"YES": PRINT AT
14,13; PAPER 2;C$( TO 5): LET C$(
2)=C$(3): GO TO 4140
4120 IF INKEY$="N" THEN PRINT AT
19,15; PAPER 2;"NO": GO TO 4140
4130 GO TO 4110
4150 FOR N=1 TO 100: NEXT N: FOR
N=17 TO 19: PRINT AT N,0;" ":
NEXT N
4160 RETURN
4999 REM WIN MONEY
5000 FOR N=1 TO 20: BEEP .01,N:
NEXT N
5010 LET W$=A$(2)+B$(2)+C$(2)
5035 LET W=0
5040 IF W$(1)="0" THEN LET W=.30
5050 IF W$( TO 2)="00" THEN LET
W=.50
5060 IF W$="000" THEN LET W=.80
5070 IF W$(1)="0" THEN LET W=.50

```

Listing continued next page

```

5080 IF W$( TO 2) = "♦♦" THEN LET
W=.70
5090 IF W$="♦♦♦" THEN LET W=1.20
5100 IF W$(1) = "♦" THEN LET W=.40
5110 IF W$( TO 2) = "♦♦" THEN LET
W=.50
5120 IF W$="♦♦♦" THEN LET W=1
5130 IF W$="♦♦♦♦" THEN LET W=5
5140 IF W$="♦♦♦♦" THEN LET W=10
5150 PRINT AT 19,4; PAPER T;W$;R
T 19,8; "PAYS:£";W; FOR N=1 TO 10
0; NEXT N
5160 IF W>0 THEN GO SUB 5500
5165 LET M(T)=M(T)+W; LET J=J+W
5170 PRINT AT 11,25; PAPER 4; "
;AT 11,25; PAPER 1;M(T);AT 2
0,25; PAPER 4; "
;AT 20,25;
PAPER 3;
5180 BEEP 1,10; FOR N=1 TO 100;
NEXT N; FOR N=17 TO 19; PRINT AT
N,0; "
; NEXT
T N
5190 RETURN
5200 BEEP 2,10; FOR N=17 TO 19;
PRINT AT N,0; "
; NEXT N
5210 PRINT AT 17,6; PAPER T; "GAM
BLE 7"
5220 IF INKEY$="Y" THEN GO TO 55
5230 IF INKEY$="N" THEN RETURN
5240 GO TO 5520
5250 LET L=10+INT (RND*10); LET
U=0
5270 IF U=L THEN GO TO 5600
5280 PRINT AT 18,6; PAPER T; "WIN
";AT 18,10; PAPER 4; "
5290 LET U=U+1; BEEP .1,10
5300 IF U=L THEN GO TO 5700
5310 PRINT AT 18,6; PAPER 4; "
";AT 18,10; PAPER T; "LOSE"
5320 LET U=U+1; BEEP .2,-10
5330 GO TO 5570
5340 LET W=W*2
5350 BEEP .5,10; PRINT AT 20,5;
PAPER T; "YOU WIN £";W
5360 FOR N=1 TO 100; NEXT N; FOR
N=17 TO 20; PRINT AT N,0; "
"; NEXT N
5370 RETURN
5380 BEEP 5,-10; PRINT AT 20,4;
PAPER T; "YOU LOSE YOUR";AT 21,6
; "WINNINGS!"
5390 FOR N=1 TO 100; NEXT N; LET
W=0
5400 FOR N=17 TO 21; PRINT AT N,
0; "
"; NEXT N
5410 RETURN
5420 REM DRAW JACKPOT
5430 PRINT AT 8,0; "
"
5440 PRINT AT 5,0; "
"
5450 PRINT AT 1,2; "
"
5460 PRINT AT 2,2; "
"

```

```

5470 PRINT AT 3,2; "
"
5480 PRINT AT 4,2; "
"
5490 RETURN
5500 REM WINNING LINES
7000 BEEP .1,10
7010 FOR N=17 TO 20; PRINT AT N,
0; "
; NEXT N
7020 PRINT AT 17,0; PAPER 1; "♦--
PAYS 20.30"
7030 PRINT AT 18,0; PAPER 1; "♦♦-
PAYS 20.50"
7040 PRINT AT 19,0; PAPER 1; "♦♦♦
PAYS 20.80"
7050 GO SUB 7500
7060 PRINT AT 17,0; PAPER 2; "♦--
PAYS 20.40"
7070 PRINT AT 18,0; PAPER 2; "♦♦-
PAYS 20.60"
7080 PRINT AT 19,0; PAPER 2; "♦♦♦
PAYS 20.80"
7090 GO SUB 7500
7100 PRINT AT 17,0; PAPER 3; "♦--
PAYS 20.50"
7110 PRINT AT 18,0; PAPER 3; "♦♦-
PAYS 20.70"
7120 PRINT AT 19,0; PAPER 3; "♦♦♦
PAYS 21.20"
7130 GO SUB 7500
7140 PRINT AT 17,0; PAPER 1; "£££
PAYS 25.00"
7150 PRINT AT 19,0; PAPER 2; "£££
PAYS 210.00"
7160 GO SUB 7500
7170 FOR N=17 TO 20; PRINT AT N,
0; "
"; NEXT N
7180 FOR N=1 TO 100; NEXT N; GO TO
5500
7190 PRINT AT 21,0; PAPER 0; "PRE
SS 'C' TO CONTINUE"
7200 IF INKEY$="C" THEN BEEP .1,
10; GO TO 7550
7210 GO TO 7510
7220 FOR N=17 TO 21; PRINT AT N,
0; "
"; NEXT
N
7230 RETURN
7240 REM END OF GAME
7250 FOR N=17 TO 21; PRINT AT N,
0; "
"; NEXT
N
7260 PRINT AT 19,0; PAPER 0; "ARE
YOU SURE (Y OR N)"; BEEP .5,10
7270 IF INKEY$="N" THEN FOR N=17
TO 21; PRINT AT N,0; "
"; NEXT N; GO TO 500
7280 IF INKEY$="Y" THEN GO TO 80
7290
7300 GO TO 8030
7310 CLS : GO SUB 6000
7320 FOR N=1 TO -6 STEP -1; BEEP
.3,N; NEXT N

```

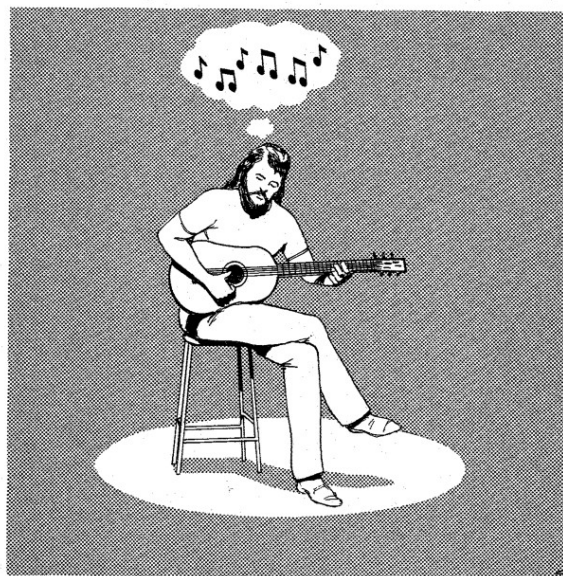
```

0070 PRINT AT 7,0; PAPER 0;"AFTE
0080 R;" ROUNDS"
0090 FOR N=1 TO 4
0100 PRINT AT N+10,0; PAPER N;"P
0110 LAYER ";N;" FINISHED WITH 2";M(N
0120 NEXT N
0130 PRINT AT N+12,0; PAPER 0;"T
0140 HE MACHINE FINISHED WITH 2";J
0150 PRINT AT N+14,10; PAPER 2;"
0160 ANOTHER GO ?"
0170 IF INKEY#="N" THEN STOP
0180 IF INKEY#="Y" THEN RUN
0190 TO 0130
0200 CHARACTER SET
0210 N=0 TO 47: READ A: POKE
0220 "A"+N,A: NEXT N
0230 DATA 24,16,20,107,255,255,255,255,
0240 255,255,255,255,255,255,255,255,
0250 255,255,255,255,255,255,255,255,
0260 255,255,255,255,255,255,255,255,
0270 255,255,255,255,255,255,255,255,
0280 255,255,255,255,255,255,255,255,
0290 255,255,255,255,255,255,255,255,
0300 RETURN
0310 RUN

```

16

Musical Memory



(48K)

The principle of this challenging game is to memorize patterns of colour and sound created either by the computer or by your opponent.

Four game types are possible:

- A: the computer produces the sequence you are to follow (in other words this is a one-person game).
- B: a two-person game in which each player, after repeating the sequence of notes, adds his own note to extend the sequence;

C: as game A, without a visual indication of the notes played;
D: as game B, but without a visual indication of the notes played.

Key to graphics characters

ABCDEFGHIJKLMNQRSTU
SCORE: 7-4 1 ENT DEL OPERSTU

```

1 REM *****
  *
  * @ PAUL SMITH &
  *
  * /ELLIS HORWOOD
  *
  * *****
2 OVER 0
3 POKE 23650,0
4 BORDER 0
5 RANDOMIZE
6 FOR A=USR "A" TO USR "N"+7:
READ B: POKE A,B: NEXT A
20 DATA 0,119,66,116,20,119,0,
0
30 DATA 0,119,85,87,86,117,0,0
40 DATA 0,112,64,102,64,112,0,
0
50 DATA 0,0,0,31,31,24,24,24
60 DATA 0,0,0,248,248,24,24,24
70 DATA 0,0,0,255,255,0,0,0
80 DATA 24,24,24,31,31,0,0,0
90 DATA 24,24,24,248,248,0,0,0
100 DATA 0,24,40,8,6,12,12
110 DATA 0,7,4,7,4,7,0,0
120 DATA 0,69,100,64,76,60,0,0
130 DATA 0,195,129,129,129,129,191,
0
140 DATA 0,221,81,89,81,221,0,0
150 DATA 0,0,0,0,0,192,0,0
2000 REM VARIABLES
2010 LET SPD=1: LET G$="A"
2020 DIM A$(5,16)
2030 LET A1=12: LET B1=8: LET C1
=16: LET D1=12
240 LET A$(1)="PWJS-1-A SCORE-000000
"
250 LET A$(2)="TSM -2-B SCORE-000000
"
260 LET A$(3)="JAF -3-C SCORE-000000
"
270 LET A$(4)="E.H.-4-D SCORE-000000
"
280 LET B$="ABCD"
290 LET F=0: LET F1=1
700 GO SUB 2000
710 GO SUB 3000
715 GO SUB 9600: FOR B=1 TO 40:
NEXT B
720 GO SUB 4000
800 IF INKEY$="c" THEN GO TO 50
810 IF INKEY$="p" THEN GO TO 60
80

```

```

820 BEEP .01,F
830 LET F=F+F1
840 IF F=15 THEN LET F1=-1
850 IF F=0 THEN LET F1=1
860 GO TO 800
1999 STOP
2000 REM END
2001 PAPER 4: CLS
2005 INK 7
2010 FOR Z=5 TO 8: PRINT PAPER 0
:AT Z,1:
NEXT Z
2020 FOR Z=10 TO 12: PRINT PAPER
:1:AT Z,1:
NEXT Z
2030 FOR Z=14 TO 16: PRINT PAPER
:2:AT Z,1:
NEXT Z
2040 FOR Z=18 TO 20: PRINT PAPER
:3:AT Z,1:
NEXT Z
2050 PLOT 48,124: DRAW 24,0: DR
W 0,-16: DRAW -24,0: DRAW 0,16
2060 PLOT 80,108: DRAW 0,16: DR
W 24,-16: DRAW 0,16
2070 PLOT 136,108: DRAW -24,0: D
RAW 0,16: DRAW 24,0: PLOT 112,11
3: DRAW 12,0
2080 PLOT 48,92: DRAW 24,0: DRAW
-12,0: DRAW 0,-16: PLOT 80,92:
DRAW 0,-16: DRAW 12,0: DRAW 0,8:
DRAW 0,-8: DRAW 12,0: DRAW 0,16
: PLOT 112,92: DRAW 24,0: DRAW 0
,-16: DRAW -24,0: DRAW 0,16
2090 PLOT 16,60: DRAW 24,0: DRAW
-12,0: DRAW 0,-16: PLOT 48,60:
DRAW 0,-16: DRAW 0,8: DRAW 24,0:
DRAW 0,-8: DRAW 0,16: PLOT 80,4
4: DRAW 0,16: DRAW 24,0: DRAW 0,
-8: DRAW -24,0: DRAW 24,-8
2100 PLOT 136,44: DRAW -24,0: DR
AW 0,16: DRAW 24,0: PLOT 112,52:
DRAW 12,0
2110 PLOT 168,44: DRAW -24,0: DR
AW 0,16: DRAW 24,0: PLOT 144,52:
DRAW 12,0
2120 PLOT 32,12: DRAW 0,16: DRAW
24,0: PLOT 32,20: DRAW 12,0: PL
OT 64,12: DRAW 0,16: DRAW 24,0:
DRAW 0,-16: DRAW -24,0
2130 PLOT 96,28: DRAW 0,-16: DR
W 24,0: DRAW 0,16: PLOT 128,12:
DRAW 0,16: DRAW 24,0: DRAW 0,-8:
DRAW -24,0: DRAW 24,-8
2140 PLOT 7,128: DRAW 169,0: DR
W 0,-25: DRAW -169,0: DRAW 0,25
2150 PLOT 7,96: DRAW 169,0: DRAW
0,-25: DRAW -169,0: DRAW 0,25
2160 PLOT 7,64: DRAW 169,0: DRAW
0,-25: DRAW -169,0: DRAW 0,25
2170 PLOT 7,32: DRAW 169,0: DRAW
0,-25: DRAW -169,0: DRAW 0,25
2200 INK 0: PAPER 7

```

```

2210 PRINT AT 1,1: INVERSE 1;"MU
SICAL MEMORY © PAUL SMITH"
2215 INPUT 0: PRINT 0; PAPER 4;
INK 0;" © PAUL SMITH / ELLIS H
ORWOOD"
2220 PLOT 4,171: DRAW 247,0: DRA
W 0,-15: DRAW -247,0: DRAW 0,15
2230 PRINT AT 4,1: INVERSE 1;"SP
EED:";SPD;AT 4,10:"GAME TYPE:";G
AME;D1;"HI-SCORE"
2230 RETURN
3000 REM HI-SCORE
3010 PRINT AT 6,23; PAPER 1; INK
7;A$(1,1 TO 8);AT 7,23;A$(1,9 T
O 16)
3020 PRINT AT 9,23; PAPER 1; INK
7;A$(2,1 TO 8);AT 10,23;A$(2,9
TO 16)
3030 PRINT AT 12,23; PAPER 1; IN
K 7;A$(3,1 TO 8);AT 13,23;A$(3,9
TO 16)
3040 PRINT AT 15,23; PAPER 1; IN
K 7;A$(4,1 TO 8);AT 16,23;A$(4,9
TO 16)
3050 RETURN
4000 PRINT AT 18,23; FLASH 1;" P
LAY"
4010 PRINT AT 19,23; INK 7; PAPE
R 2;"P-PLAY";AT 20,23;"C-CHANG
E"
4020 RETURN
5000 REM SOUNDS
5010 FOR Z=18 TO 20: PRINT PAPER
4;AT Z,23;" ";NEXT Z
5020 FOR Z=6 TO 20: PRINT PAPER,,
7;AT Z,1;" "
NEXT Z
5030 PLOT 7,128: DRAW 169,0: DRA
W 0,-121: DRAW -169,0: DRAW 0,12
1
5040 INK 0
5050 PRINT AT 7,2; INK 2; INVERS
E 1;"GAME ALTERATIONS:"
5060 PRINT AT 9,2;"USE Z,X & ENT
ER TO";AT 10,2;"ADJUST GAME:"
5070 PRINT AT 13,2; PAPER 1; INK
7;"SPEED:"; INK 2; PAPER 7;" "
5080 PRINT AT 17,2; PAPER 1; INK
7;"GAME TYPE:"; INK 2; PAPER 7;
" "
5090 PRINT AT A1,B1;" ";AT A1+
,B1;" ";AT C1,D1;" ";AT C1+
,D1;" "
5100 LET A2=A1: LET B2=B1
5101 LET Z$=INKEY$
5105 IF CODE Z$=13 THEN BEEP .1,
: GO TO 5105
5107 IF Z$<>"X" AND Z$<>"Z" THEN
GO TO 5101
5110 LET B1=B1+2*(Z$="X" AND B1<
17)-2*(Z$="Z" AND B1>9)";AT A2+
,B2;" "
5120 PRINT AT A2,B2;" "
5130 PRINT AT A1,B1;" ";AT A1+
,B1;" "

```

```

5170 LET SPD=B1/2-3: PRINT AT 4,
7; INVERSE 1;SPD
5180 BEEP .1,B1
5190 GO TO 5100
5195 FOR A=1 TO 50: NEXT A
5200 LET C2=C1: LET D2=D1
5201 LET Z$=INKEY$
5205 IF CODE Z$=13 THEN BEEP .1,
: GO TO 5300
5207 IF Z$<>"X" AND Z$<>"Z" THEN
GO TO 5201
5210 LET D1=D1+2*(Z$="X" AND D1<
17)-2*(Z$="Z" AND D1>13)
5220 PRINT AT C2,D2;" ";AT C2+
,D2;" "
5230 PRINT AT C1,D1;" ";AT C1+
,D1;" "
5270 LET G$=B$(D1/2-5): PRINT AT
4,20; INVERSE 1;G$
5280 BEEP .1,D1
5290 GO TO 5200
5300 FOR Z=5 TO 21: PRINT AT Z,0
; PAPER 4;" "
NEXT Z: GO SUB 2005: GO TO
710
6000 REM BARS
6001 LET VI=1: FOR Z=1 TO 50: NE
XT Z:GO SUB 9000: FOR Z=18 TO 2
0: PRINT AT Z,23; PAPER 4;" "
NEXT Z
6002 PAUSE 100
6005 FOR B=1 TO 50: NEXT B
6010 IF G$<>"A" AND G$<>"C" THEN
GO TO 6000
6011 IF G$="C" THEN GO SUB 9700
6015 PRINT AT 19,23; INVERSE 1;"
SCORE:"
6020 LET C$=""
6030 LET NO=1
6040 LET SCR=0
6100 LET C$=C$+CHR$(INT (RND*4)
+42)
6105 FOR A=1 TO LEN C$
6110 LET X1=VAL C$(A)*4+2
6120 LET SPD1=(7-SPD)/10
6130 GO SUB 9000
6135 NEXT A
6140 LET NO=NO+1
6200 FOR A=1 TO LEN C$
6205 LET Z$=INKEY$
6210 IF Z$<"1" OR Z$>"4" THEN GO
TO 6205
6220 LET X1=VAL Z$*4+2: LET SPD1
=1
6235 GO SUB 9000
6236 IF Z$<>C$(A) THEN LET SPD1=
.05: FOR B=1 TO 15: GO SUB 9000:
NEXT B: GO TO 6300
6237 IF INKEY$<>" " THEN GO TO 62
37
6238 LET SCR=SCR+1
6239 PRINT AT 19,26;SCR
6240 NEXT A
6245 FOR B=1 TO 70: NEXT B

```

Listing continued next page

```

6250 GO TO 6100
6300 LET S$="00000" ( TO 5-LEN (S
TR$ SCR1))+STR$ SCR: GO SUB 9100
6310 INK 0: PAPER 4: GO SUB 2005
6320 TO 710
6330 IF S$="D" THEN GO SUB 9700
6340 PRINT AT 19,23; INVERSE 1;"
150000" AT 19,23; "250000"
6520 LET SCR1=0: LET SCR2=0
6530 LET C$=""
6540 LET NO=1
6550 PRINT AT 20,23; INK 7; PAPE
R 2;"PLAYER 1"
6560 LET Z$=INKEY$: IF Z$<"1" OR
Z$>"4" THEN GO TO 6550
6570 LET X1=VAL Z$*4+2: LET SPD1
=(7-SPD1)/10: GO SUB 9000
6580 LET C$=C$+Z$
6590 BEEP .05,50: BEEP .05,60
6600 PRINT AT 20,23; INK 7; PAPE
R 2;"PLAYER 2"
6610 FOR A=1 TO LEN C$
6620 LET Z$=INKEY$: IF Z$<"1" OR
Z$>"4" THEN GO TO 6570
6630 LET X1=VAL Z$*4+2: GO SUB 9
000
6640 IF Z$<>C$(A) THEN GO TO 680
0
6650 LET SCR2=SCR2+1: PRINT AT 1
9,27; SCR2
6660 NEXT A
6670 LET Z$=INKEY$: IF Z$<"1" OR
Z$>"4" THEN GO TO 6570
6680 LET X1=VAL Z$*4+2: GO SUB 9
000
6690 LET C$=C$+Z$
6700 BEEP .05,50: BEEP .05,60
6710 PRINT AT 20,23; INK 7; PAPE
R 2;"PLAYER 1"
6720 FOR A=1 TO LEN C$
6730 LET Z$=INKEY$: IF Z$<"1" OR
Z$>"4" THEN GO TO 6670
6740 LET X1=VAL Z$*4+2: GO SUB 9
000
6750 IF Z$<>C$(A) THEN GO TO 690
0
6760 LET SCR1=SCR1+1: PRINT AT 1
9,27; SCR1
6770 NEXT A
6780 LET Z$=INKEY$: IF Z$<"1" OR
Z$>"4" THEN GO TO 6720
6790 LET X1=VAL Z$*4+2: GO SUB 9
000
6800 LET C$=C$+Z$
6810 BEEP .05,50: BEEP .05,60
6820 GO TO 6500
6830 FOR B=1 TO 15: LET SPD1=.05
: GO SUB 9000: NEXT B
6840 PRINT AT 20,23; INK 7; PAPE
R 1;"ONE WINS"
6850 INK 7: PAPER 2
6860 FOR A=SCR2 TO 0 STEP -1
6870 LET SCR1=SCR1+1: PRINT AT 1
9,27; SCR1

```

```

6840 PRINT AT 19,27;A; PAPER 4;"
6845 BEEP .05,0: BEEP .05,10
6850 NEXT A
6855 LET S$="00000" ( TO 5-LEN (S
TR$ SCR1))+STR$ SCR1: GO SUB 910
0
6860 GO TO 6310
6870 FOR B=1 TO 15: LET SPD1=.05
: GO SUB 9000: NEXT B
6880 PRINT AT 20,23; INK 7; PAPE
R 1;"TWO WINS"
6890 FOR A=SCR1 TO 0 STEP -1
6900 LET SCR2=SCR2+1: PRINT AT 1
9,27; SCR2
6910 PRINT AT 18,27;A; PAPER 4;"
6915 BEEP .05,0: BEEP .05,10
6920 NEXT A
6925 LET S$="00000" ( TO 5-LEN (S
TR$ SCR2))+STR$ SCR2: GO SUB 910
0
6930 GO TO 6310
6940 STOP
6950 INK 7: OVER 1
6960 IF VI=1 THEN PRINT AT X1+1,
1; PAPER 8;">"; PAPER 6;AT X1+1,
5;"21;"<"
6970 IF X1=5 THEN BEEP SPD1,.8
6980 IF X1=10 THEN BEEP SPD1,.8
6990 IF X1=14 THEN BEEP SPD1,.8
7000 IF X1=18 THEN BEEP SPD1,.8
7010 INK 7: PAPER (X1-8)/4
7020 IF VI=1 THEN PRINT AT X1+1,
1;">";AT X1+1,5;"
AT X1+1,21;"<"
7030 OVER 0
7040 RETURN
7050 REM 25000
7060 INK 0: PAPER 7
7070 IF VAL S$<=VAL A$(4,12 TO 1
6) THEN RETURN
7080 FOR Z=6 TO 20: PRINT AT Z,1
: NEXT Z
7090 PLOT 7,128: DRAW 169,0: DRA
W 0,-121: DRAW -169,0: DRAW 0,12
1
7100 PRINT AT 7,2; INK 7; PAPER
2;"HI-SCORE"
7110 PRINT AT 18,8;" ";AT 1
9,9;"-----";AT 20,8;" "
7120 PRINT AT 9,3; INK 1; PAPER
7;"0 0 0 0 0 0 0 0"
7130 PRINT AT 11,3; INK 1; PAPER
7;"0 0 0 0 0 0 0 0"
7140 PRINT AT 13,3; INK 1; PAPER
7;"0 0 0 0 0 0 0 0"
7150 PRINT AT 15,3;"USE CURSOR K
EYS &";AT 16,3;"ENTER TO INPUT
";AT 17,3;"YOUR NAME"
7160 LET A$=0: LET B$=2
7170 LET E1=1: LET E$="----"
7180 GO TO 9260

```

Listing continued next page

```

92200 LET A5=A5: LET B5=B5
92210 LET Z$=INKEY$
92215 IF CODE Z$=13 THEN GO TO 93
92220 IF Z$<"5" OR Z$>"8" THEN GO
TO 9210
92230 LET A5=A5+2*(Z$="6" AND A5<
12)+2*(Z$="7" AND A5>8)
92240 LET B5=B5+2*(Z$="6" AND B5<
17)+2*(Z$="8" AND B5>2)
92250 PRINT AT A5,B5;" ";AT A5+
B5,B5;" "
92260 PRINT AT A5,B5;" ";AT A5+
B5,B5;" "
92270 BEEP .1,A5+B5
92280 GO TO 9200
92290 LET X$=SCREEN$ (A5+1,B5+1)
92310 LET E$(E1)=X$
92320 PRINT AT 19,9;E$
92330 LET E1=E1+1
92340 BEEP .1,0
92345 IF INKEY$<>" " THEN GO TO 93
45
92350 IF E1<5 THEN GO TO 9200
92360 LET S1=4
92370 IF VAL S$>VAL A$(S1,12 TO 1
6) THEN LET A$(S1+1)=A$(S1): LET
A$(S1)=E$+"-"+STR$ SPD+"-"+G$+"
"+S$
92380 LET S1=S1-1: IF S1>0 THEN G
O TO 9210
92390 FOR Z=5 TO 21: PRINT AT Z,0
: PAPER 4;"
NEXT Z
92400 GO SUB 3000
92410 RETURN
92420 REM 92430
92430 RESTORE 9600
92440 FOR A=1 TO 4
92450 BEEP .09,0: BEEP .1,2: BEEP
.11,4
92460 READ B: BEEP .12,B: NEXT A
92470 DATA 11,9,7,5
92480 BEEP .05,0: BEEP .05,2: BEE
P .05,4: BEEP .1,2: BEEP .3,0
92490 RETURN
92500 REM 92510
92510 PRINT AT 19,23; FLASH 1;"EX
AMPLE:"
92520 LET SPD1=1
92530 FOR A=1 TO 2
92540 FOR B=6 TO 18 STEP 4
92550 LET X1=B: GO SUB 9000
92560 NEXT B: NEXT A: INK 0: PAPER
4: LET V1=0: FOR B=1 TO 30: NE
XT B: PRINT AT 19,23; PAPER 4;"
": GO SUB 9600: FOR D=1 T
O 40: NEXT B: RETURN
92599 RUN

```

17

Space Merchant



(48K)

How do you fancy your chances as a trader in the galactic market place? This game offers you the opportunity to trade amongst the planets of the galactic empire. Four commodities can be traded: their price, however, varies from planet to planet, and from day to day according to the laws of supply and demand. The commodities are:

Tobium: a precious metal
Arms: weaponry

Muipo: a valuable psychedelic drug sought throughout the galaxy, but subject to big variations in price
Computers: a basic part of planetary communication.

Your object is to trade as successfully as possible throughout the galaxy. Two game types are available. In one you play to make as much money (in megacredits or MCs) as possible in a specified time — 1 to 200 days. However, a sensible range is from 40 to 150 days. In the other game type your aim is to make a specific amount of money as quickly as possible. To avoid cheating, the game prevents you from entering as an amount to be made a sum less than the game equips you with.

Four levels of difficulty are available in the game from 1, the easiest, to 4, the hardest. In effect you are given varying amounts of megacredits to play the game in selecting difficulty level.

Before you can start trading you must equip your trading vessel. Firstly you must buy an engine: the faster the engine the more it costs, but a fast engine allows you to move around the galactic market place more rapidly. Secondly, you must decide whether or not to buy an autotranslator: having one allows you to trade on those planets which do not speak English and thus gives you a bigger choice of markets. Thirdly, a defence computer can be bought: this will protect you from one of the hazards of galactic trading — Space Pirates!!! If they catch your ship, all of your cargo will be stolen. With a defence computer, you can fight them off and keep all your cargo.

Having equipped your space vessel, you can begin trading around the galaxy. Firstly, buy your cargo — any combination of goods is possible. Then you can start to move about the galaxy, selling and buying where prices are best. On Earth you have an option not possible on other planets. If you want to increase your cargo when you are getting a bit low on megacredits, you can go to Slaycrab — the galactic bank that opens on Saturday mornings. To protect its interests Slaycrab will allow you to borrow any amount up to half of your current stock of megacredits. But beware, they charge 10% per day interest on their loans, so it is sensible to repay them as rapidly as you can. Slaycrab will demand their money back once you owe 50,000 MCs: if you cannot repay immediately, they will repossess your space vessel and cargo and you will be made bankrupt.

It is possible to alter ship design at any point in the game. You may decide to update your ship after starting the game with a cheap set of options. Simply press the 'alter ship' key to do this.

During trading at the easiest level of the game you can request information on the planets' commodity requirements and which language they speak by pressing key 'H' for *Help*. This feature is only available on Earth. If you make a mistake in typing an option, (i.e. *move, sell, buy, borrow or repay*) you can return to the menu simply by typing 'MI' then <ENTER>.

The game also includes a machine code subroutine, the principles of which appear later in the book on pages 155–156.

```

10 REM *****
20 REM * SPACE MERCHANT *
30 REM * @ TOBY MATTHEWS *
40 REM * & ELLIS HORWOOD *
50 REM *****
60 REM * 23558,8 *
70 GO SUB 9000
80 PAPER 4: INK 7: BORDER 4: C
LS
85 REM MENU
90 FOR N=1 TO 5: LET L=USR USR
100 NEXT N
110 PRINT AT 6,5: PAPER 1: "PLEASE
120 INPUT YOUR NAME"
130 INPUT N$: IF LEN N$>17 OR N
140 *="" THEN GO TO 110
150 LET L=USR USR "A": PRINT AT
160 8,132-(5+LEN N$)/2: PAPER 1: "N
170 AME: "N$
180 PRINT AT 10,0: PAPER 2: "PLE
190 ASE INPUT DIFFICULTY (1 TO 4)"
200 INPUT "1(EASY) TO 4(HARD)":
210 D: IF D>4 OR D<1 THEN GO TO 130
220 LET L=USR USR "A": PRINT AT
230 12,12: PAPER 2: "LEVEL: ";D
240 LET D=5-D
250 GO SUB 9000
260 REM VARIABLES
270 LET IN=0: FOR N=1 TO 4: DIM
280 C(N): LET C(N)=0: NEXT N
290 DIM M=D*35000
300 DIM P(9)
310 LET P(1)="EARTH"
320 LET P(2)="VENUS"
330 LET P(3)="MARS"
340 LET P(4)="MERCURY"
350 LET P(5)="JUPITER"
360 LET P(6)="SATURN"
370 LET P(7)="URANUS"
380 LET P(8)="NEPTUNE"
390 LET P(9)="PLUTO"
400 LET S=0: LET LA=0: LET DE=0
410 DIM R(9): FOR N=1 TO 9: LET
420 R(N)=INT (RND*4)+1: NEXT N
430 LET A=50
440 LET MI=100
450 FOR N=1 TO 4: DIM E(N): LET
460 E(N)=0: NEXT N
470 FOR N=1 TO 100: NEXT N: LET
480 L=USR USR "A": GO SUB 3000
490 LET T=1
500 LET P=1
510 LET LA1=0
520 GO SUB 5500
530 LET G=0: LET H=0: LET I=0:
540 LET J=0: LET P1=1: GO SUB 7300:
550 LET P1=0
560 LET E(1)=(4000+INT (RND*100
570 0))+G
580 LET E(2)=(500+INT (RND*1000
590 ))+H
600 LET E(3)=(6000+INT (RND*100
610 0))+I

```

Listing continued next page

```

430 LET E(4)=(1000+INT (RND*100
0))+J
440 PRINT AT 14,0; PAPER 4;"
";AT 16,0;
";AT 20,0;"
450 PRINT AT 14,0; PAPER 1;E(1)
;"MC";AT 16,0;E(2) "MC";AT 18,0;
E(3) "MC";AT 20,0;E(4) "MC";
500 PRINT "MID IN L O O S E"
510 PRINT AT 1,0; PAPER 0;"PLAN
ET";P;(P);" DAY";T
511 IF DE=1 AND INT (RND*15)=10
THEN GO SUB 3500
512 IF LA=1 AND INT (RND*15)=10
THEN GO SUB 3510
520 IF M<=0 AND R=50 THEN GO TO
5500
520 PRINT AT 6,0;" "
530 PRINT AT 6,0; PAPER 1;M;"MC
"
545 IF C=1 THEN IF T>=C1 THEN G
O TO 6500
550 IF C=2 THEN IF M>=C2 AND B=
0 THEN GO TO 8000
555 PRINT AT 9,0;" "
560 PAPER 2;B;"MC
";AT 10,0;
560 IF B=0 THEN GO TO 7600
570 FOR N=17 TO 20: PRINT AT N,
12;"
NEXT N
585 PRINT AT 12,28;" ";AT 13,2
8;" ";AT 14,28;" ";AT 15,28;"
"
590 PRINT AT 12,28; PAPER 2;C(1)
;AT 13,28;C(2);AT 14,28;C(3);AT
15,28;C(4)
595 LET R=50-(C(1)+C(2)+C(3)+C(
4));PRINT AT 10,24;" ";AT 10,2
4;PAPER 0;"
600 PRINT AT 17,12; PAPER 0;"KE
YS:"
605 IF D=4 AND P=1 THEN PRINT A
T 17,19; PAPER 1;"H-HELL"
610 PRINT AT 17,12; PAPER 1;"M-
M-HELL"
615 IF D=1 THEN PRINT AT 20,12;
;"B-BUY";AT 18,19;"A-ALTER SHIP"
620 IF P=1 THEN PRINT AT 19,19; PA
PER 1;"L-BORROW";AT 20,19;"R-REP
AY"
630 IF INKEY$="S" AND R<50 THEN
GO TO 4500
630 IF INKEY$="B" AND R>0 THEN
GO TO 4000
640 IF INKEY$="M" THEN GO TO 70
00
650 IF INKEY$="A" THEN GO TO 97
00
660 IF INKEY$="H" AND D=4 AND P
=1 THEN GO TO 2000
670 IF INKEY$="L" AND P=1 THEN
GO TO 1000
680 IF INKEY$="R" AND P=1 THEN
GO TO 1500
700 GO TO 620
1000 REM "BORROW"
1010 FOR N=1 TO 5: LET L=USR USR

```

```

"INT": NEXT N: FOR N=17 TO 20: PR
INT AT N,12;"
": NEXT N
1100 PRINT AT 17,12; PAPER 0;"*B
ORRQU:"
1110 INPUT AT 0,0; PAPER 1; INK
7;"HOW MUCH DO YOU WANT ?";BA
1125 LET BA=INT BA
1130 IF BA=MI THEN GO TO 500
1135 IF INT (M/2) <50000 THEN GO
TO 1137
1137 IF BA<50000 THEN PRINT AT 1
9,12; PAPER 1;"YOU CAN ONLY BORR
BORRQU AT 20,12;"50000MC": GO TO 11
20
1137 IF BA>INT (M/2) THEN PRINT
AT 19,12; PAPER 1;"YOU CAN ONLY
BORRQU AT 20,12; INT (M/2); "MC":
GO TO 1120
1140 LET B=B+BA
1150 PRINT AT 19,12;"
":AT 19,12; PAPER 2;BA;"M
C"
1155 LET M=M+BA
1160 FOR N=1 TO 5: LET L=USR USR
"R": NEXT N: FOR N=1 TO 100: NE
X,12;" FOR N=17 TO 20: PRINT AT N
N": NEXT
1170 GO TO 500
1180 REM *REPAY*
1190 FOR N=1 TO 5: LET L=USR USR
"R": NEXT N: FOR N=17 TO 20: PR
INT AT N,12;"
": NEXT N
1200 PRINT AT 17,12; PAPER 0;"*R
EPLY:"
1210 INPUT AT 0,0; PAPER 1; INK
7;"HOW MUCH DO YOU REPLY?";RA
1235 LET RA=INT RA
1240 IF RA=MI THEN GO TO 500
1250 IF RA>B THEN GO TO 1530
1260 LET B=B-RA
1270 PRINT AT 19,12; PAPER 2;RA;
"MC"
1275 LET M=M-RA
1280 FOR N=1 TO 5: LET L=USR USR
"R": NEXT N: FOR N=17 TO 20: PR
INT AT N,12;"
": NEXT N
1500 GO TO 500
20000 REM *HELP*
20100 CLS: "FOR N=1 TO 5: LET L=U
SR USR "R": NEXT N
20150 DIM R$(4,0)
20200 LET R$(2)="ARMS": LET R$(3
)="HUID": LET R$(4)="COMPUTERS"
20220 PRINT AT 2,1; PAPER 0;"PLAN
ENGLISH REQUIREMENTS"
20250 IF C=2 THEN PRINT AT 0,1; P
APER 2;"DAYS LEFT":C1=
20260 IF C=2 THEN PRINT AT 0,1; P

```

Listing continued next page

```

APER 2;"MONEY STILL NEEDED=";C2-
M;"MC"
3030 PAPER 1
3040 PRINT AT 4,1;P$(1);" YES
      R$(R(1))
3050 PRINT AT 6,1;P$(2);" YES
      R$(R(2))
3060 PRINT AT 8,1;P$(3);" NO
      R$(R(3))
3070 PRINT AT 10,1;P$(4);" N
      R$(R(4))
3080 PRINT AT 12,1;P$(5);" YE
      R$(R(5))
3090 PRINT AT 14,1;P$(6);" N
      R$(R(6))
3100 PRINT AT 16,1;P$(7);" YE
      R$(R(7))
3110 PRINT AT 18,1;P$(8);" N
      R$(R(8))
3120 PRINT AT 20,1;P$(9);" N
      R$(R(9))
3130 PAPER 4
3140 INPUT PAPER 1; INK 7;"PRESS
      'ENTER' TO RETURN"; LINE 0$
3150 GO SUB 3000
3160 GO TO 500
3170 REM ANOTHER GO
3180 PRINT AT 14,10; PAPER 1;"AN
      OTHER GO ?"
3190 IF INKEY$="Y" THEN RUN 50
3200 IF INKEY$="N" THEN STOP
3210 GO TO 2520
3220 REM DRAW SCREEN
3230 INK 0;CLS
3240 PLOT 0,156: DRAW 255,0
3250 PLOT 87,156: DRAW 0,-152: D
      RAW 155,0
3260 PLOT 87,100: DRAW 155,0
3270 PLOT 87,44: DRAW 155,0
3280 PLOT 0,4: DRAW 255,0
3290 PLOT 0,92: DRAW 87,0
3300 INK 7
3310 PRINT AT 0,(32-(15+LEN N$));
      /2; PAPER D;"SPACE MERCHANT "N$
3320 PRINT AT 3,17; PAPER 0;"PLA
      NETS:"
3330 FOR N=1 TO 4: PRINT AT N+3,
      12; PAPER N,N;"-";P$(N);AT N+3,2
      0;N+5;"-";P$(N+5);NEXT N
3340 PRINT AT 8,12; PAPER 0;"S-"
      P$(5)
3350 PRINT AT 10,12; PAPER 0;"CA
      RRO SPACE:"R
3360 PRINT AT 10,27; PAPER 1;"OT
      Y:"
3370 PRINT AT 12,12; PAPER 1;"1-
      TOBIUM...";AT 13,12;"2-ARMS..."
      ;AT 14,12;"3-MUIPO....."
      ;AT 15,12;"4-COMPUTERS..."
3380 PRINT AT 12,28; PAPER 2;C(1
      );AT 13,28;C(2);AT 14,28;C(3);AT
      15,28;C(4)
3390 PRINT AT 3,0; PAPER 0;"MONE
      Y:"
3400 PRINT AT 5,0; PAPER 1;"YOUR
      MONEY";AT 6,0;M;"MC"

```

```

3190 PRINT AT 7,0; PAPER 2;"YOU
      ONE";AT 8,0;"SLAYCRAB";AT 9,0;B
      ;"MC"
3200 PRINT AT 11,2; PAPER 0;"PRI
      CES"
3210 PRINT AT 13,0; PAPER 2;"TOB
      IUM";AT 15,0;"ARMS";AT 17,0;"MUI
      PO";AT 19,0;"COMPUTERS"
3220 PRINT AT 14,0; PAPER 1;E(1)
      ;"MC";AT 16,0;E(2);"MC";AT 18,0;
      E(3);"MC";AT 20,0;E(4);"MC"
3230 RETURN
3240 REM BREAKDOWNS
3250 FOR N=1 TO 5: LET L=USR USR
      "A":NEXT N
3260 FOR N=17 TO 20: PRINT AT N,
      12;"":NEXT
      N
3270 PRINT AT 17,12; PAPER 1;"YO
      UR DEFENCE";AT 18,12; PAPER 1;"C
      OMPUTER HAS BROKEN";AT 19,12; PA
      PER 1;"DOWN!"
3280 FOR N=1 TO 100: NEXT N: FOR
      N=1 TO 5: LET L=USR USR "A": NE
      XT N
3290 FOR N=17 TO 20: PRINT AT N,
      12;"":NEXT
      N
3300 PRINT AT 17,12; PAPER 1;"DO
      YOU WANT TO";AT 18,12; PAPER 1;
      "REPLACE IT (Y/N)?" ;AT 19,12; PA
      PER 1;"IT WILL COST 30000MC"
3310 IF INKEY$="Y" THEN LET M=M-
      30000: GO TO 3600
3320 IF INKEY$="N" THEN LET DE=0
      : GO TO 3600
3330 GO TO 3580
3340 RETURN
3350 FOR N=1 TO 5: LET L=USR USR
      "A":NEXT N
3360 FOR N=17 TO 20: PRINT AT N,
      12;"":NEXT
      N
3370 PRINT AT 17,12; PAPER 1;"YO
      UR AUTO TRANSLATOR";AT 18,12; PA
      PER 1;"HAS BROKEN DOWN!"
3380 FOR N=1 TO 100: NEXT N: FOR
      N=1 TO 5: LET L=USR USR "A": NE
      XT N
3390 FOR N=17 TO 20: PRINT AT N,
      12;"":NEXT
      N
3400 PRINT AT 17,12; PAPER 1;"DO
      YOU WANT TO";AT 18,12; PAPER 1;
      "REPLACE IT (Y/N)?" ;AT 19,12; PA
      PER 1;"IT WILL COST 30000MC"
3410 IF INKEY$="Y" THEN LET M=M-
      30000: GO TO 3600
3420 IF INKEY$="N" THEN LET LA=0
      : GO TO 3600
3430 GO TO 3670
3440 RETURN
3450 STOP
3460 REM BUY

```

Listing continued next page

```

4010 FOR N=17 TO 20: PRINT AT N,
12; " " : NEXT
N
4020 FOR N=1 TO 5: LET L=USR USR
"A": NEXT N
4030 PRINT AT 17,12; PAPER 0; " *5
UY* "
4040 PRINT AT 19,12; PAPER 2; "UH
AT WOULD YOU LIKE"; AT 20,18; "TO
BUY"
4050 INPUT AT 0,0; INK 7; PAPER
1; "1,2,3 OR 4 " : S
4055 LET S=INT S
4060 IF S=MI THEN GO TO 500
4070 IF S<1 OR S>4 THEN GO TO 40
50
4080 PRINT AT 19,12; "
" : AT 19,12; PAPER 1; "YOU
CAN AFFORD " : INT (M/E(S))
4085 PRINT AT 20,12; "
"
4090 LET L=USR USR "A": INPUT AT
0,0; INK 7; PAPER 0; "HOW MANY D
O YOU WANT TO BUY ? " : NB
4092 LET NB=INT NB
4095 IF NB<0 THEN GO TO 4090
4100 IF R-NB<0 THEN PRINT AT 19,
12; PAPER 1; "YOU DON'T HAVE ROOM
" : AT 20,12; "FOR " : NB: FOR N=1 TO
100: NEXT N: GO TO 4080
4115 IF M-(E(S)*NB)<0 THEN PRINT
AT 19,12; PAPER 1; "YOU CAN'T AF
FORD " : AT 20,12; NB: FOR N=1 TO 1
00: NEXT N: GO TO 4080
4120 LET C(S)=C(S)+NB
4130 LET M=M-(NB*E(S))
4140 GO TO 500
4500 REM #SELL#
4510 FOR N=17 TO 20: PRINT AT N,
12; " " : NEXT
N
4520 FOR N=1 TO 5: LET L=USR USR
"A": NEXT N
4530 PRINT AT 17,12; PAPER 0; " *5
ELL* "
4540 PRINT AT 19,12; PAPER 2; "UH
AT WOULD YOU LIKE"; AT 20,18; "TO
SELL"
4550 INPUT AT 0,0; INK 7; PAPER
1; "1,2,3 OR 4 " : S
4555 LET S=INT S
4560 IF S=MI THEN GO TO 500
4565 IF S<1 OR S>4 THEN GO TO 45
50
4570 IF C(S)=0 THEN PRINT AT 19,
12; PAPER 1; "YOU DON'T HAVE ANY
" : AT 20,12; PAPER 4; "
" : GO TO 4550
4580 PRINT AT 19,12; " " : PAPER
1; "YOU HAVE " : C(S); PAPER 4; "
"
4585 PRINT AT 20,12; "
"
4590 LET L=USR USR "A": INPUT IN
K 7; PAPER 0; AT 0,0; "HOW MANY DO
YOU WANT TO SELL ? " : NS
4600 IF NS<0 THEN GO TO 4590

```

```

4605 IF NS>C(S) THEN PRINT AT 19
12; PAPER 0; "YOU DON'T HAVE " : N
S: FOR N=1 TO 3: LET L=USR USR "
A": NEXT N: FOR N=1 TO 100: NEXT
N: GO TO 4580
4610 FOR N=17 TO 20: PRINT AT N,
12; " " : NEXT
N
4620 LET C(S)=C(S)-NS
4630 LET M=M+(NS*E(S))
4640 GO TO 500
5500 REM #SHIP DESIGN#
5501 PRINT AT 17,12; PAPER 0; "SH
IP DESIGN"
5510 PRINT AT 18,12; PAPER 1; "1L
IGHT SPEED 50000MC"; AT 19,12; "2U
RP SPEED 25000MC"; AT 20,12; "3T
URBO BOOST 15000MC"
5520 LET L=USR USR "A": INPUT AT
0,0; PAPER 2; INK 7; "INPUT ENGI
NE TYPE 1,2 OR 3 " : F
5525 LET F=INT F
5530 IF F>3 OR F<1 THEN GO TO 55
20
5540 IF F=1 THEN LET M=M-50000
5550 IF F=2 THEN LET M=M-25000
5560 IF F=3 THEN LET M=M-15000
5570 LET L=USR USR "A": FOR N=18
TO 20: PRINT AT N,12; "
" : NEXT N
5575 IF LA=1 THEN GO TO 5625
5580 PRINT AT 18,12; PAPER 2; "WO
ULD YOU LIKE AN " : AT 19,12; "AUTO
TRANSLATOR FOR"; AT 20,15; "50000
MC (Y/N) ? "
5590 IF INKEY$="Y" THEN LET LA=1
: LET M=M-50000: GO TO 5620
5600 IF INKEY$="N" THEN LET LA=0
: GO TO 5620
5610 GO TO 5590
5620 LET L=USR USR "A"
5625 IF DE=1 THEN GO TO 5670
5630 PRINT AT 18,12; PAPER 2; "WO
ULD YOU LIKE A"; AT 19,12; "DEFENC
E COMPUTER FOR"; AT 20,15; "50000M
C (Y/N) ? "
5640 IF INKEY$="Y" THEN LET DE=1
: LET M=M-50000: GO TO 5670
5650 IF INKEY$="N" THEN LET DE=0
: GO TO 5670
5660 GO TO 5640
5670 FOR N=1 TO 5: LET L=USR USR
"A": NEXT N
5680 FOR N=17 TO 20: PRINT AT N,
12; " " : NEXT
N
5690 RETURN
6000 REM #PIRATES#
6010 CLS : FOR N=1 TO 2: FOR Y=1
TO 7: LET L=USR USR "A": BORDER
Y: NEXT Y: NEXT N
6015 BORDER 4: CLS
6020 PRINT AT 8,2; FLASH 1; PAPE
R 2; "YOU ARE ATTACKED BY PIRATES

```

Listing continued next page

```

1"
6030 IF DE=1 THEN PRINT AT 10,0;
PAPER 1;"YOU DEFEND YOURSELF SU
CCESSFULLY."
6040 IF DE=0 THEN PRINT AT 10,3;
PAPER 2;"THEY SEIZE ALL YOUR CR
RGD!"; FOR N=1 TO 4: LET C(N)=0;
NEXT N
6050 FOR N=1 TO 200: NEXT N: CLS
6060 FOR N=1 TO 5: LET L=USR USR "
A"; NEXT N
6070 GO SUB 3000
6075 RETURN
6080 REM OUT OF TIME
6090 LET L$="PROFIT"
6100 IF M-(35000*D)<0 THEN LET L
$="LOSS"
6110 CLS: FOR N=1 TO 10: LET L=
USR USR "A": NEXT N
6120 PRINT AT 6,12; PAPER 2;"THE
END!"
6130 PRINT AT 8,0; PAPER 1;"YOU
FINISHED WITH "M;"MC"
6140 PRINT AT 10,0; PAPER 2;"THA
T IS A "L$;" OF "ABS (M-(35000
*D));"MC"
6150 GO TO 2500
6160 REM MOVE
6170 FOR N=17 TO 20: PRINT AT N,
12;: NEXT
N
6180 FOR N=1 TO 5: LET L=USR USR
"A": NEXT N
6190 PRINT AT 17,12; PAPER 0;"*M
QUE*"
6200 INPUT INK 7; PAPER 1; AT 0,0;
"WHICH PLANET DO YOU WANT 1-9";
P1
6210 LET P1=INT P1
6220 IF P1=MI THEN GO TO 500
6230 IF P1<1 OR P1>10 THEN GO TO
7040
6240 IF P1=P THEN PRINT AT 19,12;
PAPER 1;"YOU ARE ALREADY ON"; A
T 20,10; P$(P1); GO TO 7040
6250 FOR N=18 TO 20: PRINT AT N,
12;: NEXT
N
6260 GO SUB 7200+(10*P1)
6270 GO SUB 7300
6280 IF LA<LA1 THEN PRINT AT 18,
12; PAPER 0;"YOU CANNOT VISIT"; A
T 19,10; P$(P1)
6290 IF LA<LA1 THEN FOR N=1 TO 5
: LET L=USR USR "A": NEXT N: FOR
N=1 TO 100: NEXT N: GO TO 7040
6300 IF LA<LA1 THEN FOR N=17 TO
20: PRINT AT N,12;: NEXT N
6310 IF P1<P THEN LET P2=(P-P1)*
F: GO TO 7160
6320 LET P2=INT (P1-P)*F
6330 PRINT AT 18,12; PAPER 1;"TH
E TRIP WILL TAKE"; AT 19,17; P2; "
DAYS"
6340 IF P2=1 THEN PRINT AT 19,25

```

```

1"
7180 LET IN=INT (P2*.1*B): LET B
=5+IN
7190 LET T=T+P2
7200 IF INT (RAND*5)=3 THEN GO SU
B 6000
7210 FOR N=1 TO 100: NEXT N: FOR
N=17 TO 20: PRINT AT N,12;: NEXT
N
7220 LET P=P1: GO TO 400
7230 LET LA1=0: RETURN
7240 LET LA1=1: RETURN
7250 LET LA1=2: RETURN
7260 LET LA1=3: RETURN
7270 LET LA1=4: RETURN
7280 LET LA1=5: RETURN
7290 LET LA1=6: RETURN
7300 IF R(P1)=1 THEN LET G=1250+
(LA1*250)
7310 IF R(P1)=2 THEN LET H=1250+
(LA1*250)
7320 IF R(P1)=3 THEN LET I=1250+
LA1
7330 IF R(P1)=4 THEN LET J=1250+
(LA1*250)
7340 RETURN
7350 REM SLAYCRAB
7360 CLS: FOR N=1 TO 10: LET L=
USR USR "A": NEXT N
7370 PRINT AT 4,2; PAPER 0;"SLAY
CRAB HAS GROWN IMPATIENT"
7380 PRINT AT 5,4; PAPER 2;"HE T
AKES AT YOU ONE HIM"
7390 LET M=M-B
7400 LET B=0
7410 FOR N=1 TO 100: NEXT N: CLS
7420 FOR N=1 TO 10: LET L=USR USR
"A": NEXT N: GO SUB 3000: GO TO
500
7430 REM TOTAL REACHED
7440 CLS: FOR N=1 TO 10: LET L=
USR USR "A": NEXT N
7450 PRINT AT 6,12; PAPER 2;"THE
END!"
7460 PRINT AT 8,5; PAPER 1;"YOU
REACHED YOUR TOTAL"; AT 10,11; "IN
"; T; " DAYS"
7470 GO SUB 2500
7480 REM BANKRUPT
7490 CLS: FOR N=1 TO 10: LET L=
USR USR "A": NEXT N
7500 PRINT AT 6,12; PAPER 2;"THE
END!"
7510 PRINT AT 8,6; PAPER 0;"YOU
ARE BANKRUPT!"
7520 PRINT AT 10,7; PAPER 1;"YOU
LASTED "T;" DAYS"
7530 IF T=1 THEN PRINT AT 10,23;
7540 GO SUB 2500
7550 REM M/C SOUND
7560 FOR A=USR "A" TO USR "A"+29

```

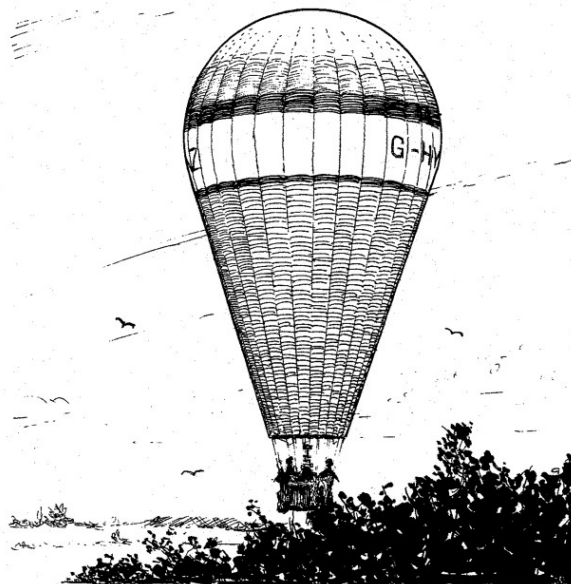
Listing continued next page

```

9010 READ B: POKE A,B: NEXT A
9020 DATA 6,1,197,35,0,0,17,1,0,
229,205,161,3,225,17,3,0,167,237,
190,125,254,1,32,237,193,16,230,
9030 RETURN
9700 REM ALTER SHIP
9710 FOR N=1 TO 5: LET L=USR USR
"A": NEXT N: FOR N=17 TO 20: PR
INT AT N,12;
NEXT N
9720 PRINT AT 17,12; PAPER 0;"*A
LTER SHIP:"
9730 PRINT AT 19,12; PAPER 1;"CH
ANGE ENGINE?"
9740 IF INKEY$="Y" THEN GO SUB 5
9750 GO TO 9770
9760 IF INKEY$="N" THEN GO SUB 3
9770 GO TO 9770
9780 GO TO 9740
9790 GO TO 500
9800 PRINT AT 14,0; PAPER 0;"INP
UT GAME TYPE"
9810 PRINT AT 16,0; PAPER 1;"1-P
LAY UNTIL SPECIFIED DAY";AT 16,0
;"2-PLAY UNTIL SPECIFIED TOTAL"
9820 INPUT C
9830 LET C=INT C
9840 LET L=USR USR "A"
9850 IF C<2 OR C>0 THEN GO TO 98
20
9860 IF C=1 THEN GO TO 9900
9870 PRINT AT 20,0; PAPER 1;"INP
UT TARGET:200000 - 1000000MC"
9880 INPUT C2
9890 LET C2=INT C2
9900 IF C2<200000 OR C2>1000000
THEN GO TO 9840
9910 LET L=USR USR "A"
9920 RETURN
9930 PRINT AT 20,0; PAPER 1;"INP
UT NUMBER OF DAYS:2 TO 200"
9940 INPUT C1
9950 LET C1=INT C1
9960 IF C1<2 OR C1>200 THEN GO T
O 9900
9970 LET L=USR USR "A"
9980 RETURN
9990 RUN

```

Balloon Flight Simulation



(48K)

Can you fly a hot-air balloon? This program gives you a chance to try. Setting off from the take-off platform, you must get to the landing platform using your fuel and ballast reserves. But you are unlikely to have enough fuel to make the trip which means that you will almost certainly have to land in the large white cross and take on more fuel. Since you also get bonus points for doing this successfully, it will help your final score.

In order to help you work out how your flight is progressing, there is an altitude simulator to plot your path provided at the bottom of the screen. And, for those who

Key to graphics characters

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

10 REM

© PAUL SMITH
ELLIS HORWOOD

```

1 900 POK 23558 18
2 100 REM MACHIN 18
3 1100 REM A=USR "A" CODE "A" "A" 54
4 1200 READ A:B: NEXT
5 1300 POKE A,B: NEXT
6 1400 POKE A,B: NEXT
7 1500 POKE A,B: NEXT
8 1600 POKE A,B: NEXT
9 1700 POKE A,B: NEXT
10 1800 POKE A,B: NEXT
11 1900 POKE A,B: NEXT
12 2000 POKE A,B: NEXT
13 2100 POKE A,B: NEXT
14 2200 POKE A,B: NEXT
15 2300 POKE A,B: NEXT
16 2400 POKE A,B: NEXT
17 2500 POKE A,B: NEXT
18 2600 POKE A,B: NEXT
19 2700 POKE A,B: NEXT
20 2800 POKE A,B: NEXT
21 2900 POKE A,B: NEXT
22 3000 POKE A,B: NEXT
23 3100 POKE A,B: NEXT
24 3200 POKE A,B: NEXT
25 3300 POKE A,B: NEXT
26 3400 POKE A,B: NEXT
27 3500 POKE A,B: NEXT
28 3600 POKE A,B: NEXT
29 3700 POKE A,B: NEXT
30 3800 POKE A,B: NEXT
31 3900 POKE A,B: NEXT
32 4000 POKE A,B: NEXT
33 4100 POKE A,B: NEXT
34 4200 POKE A,B: NEXT
35 4300 POKE A,B: NEXT
36 4400 POKE A,B: NEXT
37 4500 POKE A,B: NEXT
38 4600 POKE A,B: NEXT
39 4700 POKE A,B: NEXT
40 4800 POKE A,B: NEXT
41 4900 POKE A,B: NEXT
42 5000 POKE A,B: NEXT
43 5100 POKE A,B: NEXT
44 5200 POKE A,B: NEXT
45 5300 POKE A,B: NEXT
46 5400 POKE A,B: NEXT
47 5500 POKE A,B: NEXT
48 5600 POKE A,B: NEXT
49 5700 POKE A,B: NEXT
50 5800 POKE A,B: NEXT
51 5900 POKE A,B: NEXT
52 6000 POKE A,B: NEXT
53 6100 POKE A,B: NEXT
54 6200 POKE A,B: NEXT
55 6300 POKE A,B: NEXT
56 6400 POKE A,B: NEXT
57 6500 POKE A,B: NEXT
58 6600 POKE A,B: NEXT
59 6700 POKE A,B: NEXT
60 6800 POKE A,B: NEXT
61 6900 POKE A,B: NEXT
62 7000 POKE A,B: NEXT
63 7100 POKE A,B: NEXT
64 7200 POKE A,B: NEXT
65 7300 POKE A,B: NEXT
66 7400 POKE A,B: NEXT
67 7500 POKE A,B: NEXT
68 7600 POKE A,B: NEXT
69 7700 POKE A,B: NEXT
70 7800 POKE A,B: NEXT
71 7900 POKE A,B: NEXT
72 8000 POKE A,B: NEXT
73 8100 POKE A,B: NEXT
74 8200 POKE A,B: NEXT
75 8300 POKE A,B: NEXT
76 8400 POKE A,B: NEXT
77 8500 POKE A,B: NEXT
78 8600 POKE A,B: NEXT
79 8700 POKE A,B: NEXT
80 8800 POKE A,B: NEXT
81 8900 POKE A,B: NEXT
82 9000 POKE A,B: NEXT
83 9100 POKE A,B: NEXT
84 9200 POKE A,B: NEXT
85 9300 POKE A,B: NEXT
86 9400 POKE A,B: NEXT
87 9500 POKE A,B: NEXT
88 9600 POKE A,B: NEXT
89 9700 POKE A,B: NEXT
90 9800 POKE A,B: NEXT
91 9900 POKE A,B: NEXT
92 10000 POKE A,B: NEXT
93 10100 POKE A,B: NEXT
94 10200 POKE A,B: NEXT
95 10300 POKE A,B: NEXT
96 10400 POKE A,B: NEXT
97 10500 POKE A,B: NEXT
98 10600 POKE A,B: NEXT
99 10700 POKE A,B: NEXT
100 10800 POKE A,B: NEXT
101 10900 POKE A,B: NEXT
102 11000 POKE A,B: NEXT
103 11100 POKE A,B: NEXT
104 11200 POKE A,B: NEXT
105 11300 POKE A,B: NEXT
106 11400 POKE A,B: NEXT
107 11500 POKE A,B: NEXT
108 11600 POKE A,B: NEXT
109 11700 POKE A,B: NEXT
110 11800 POKE A,B: NEXT
111 11900 POKE A,B: NEXT
112 12000 POKE A,B: NEXT
113 12100 POKE A,B: NEXT
114 12200 POKE A,B: NEXT
115 12300 POKE A,B: NEXT
116 12400 POKE A,B: NEXT
117 12500 POKE A,B: NEXT
118 12600 POKE A,B: NEXT
119 12700 POKE A,B: NEXT
120 12800 POKE A,B: NEXT
121 12900 POKE A,B: NEXT
122 13000 POKE A,B: NEXT
123 13100 POKE A,B: NEXT
124 13200 POKE A,B: NEXT
125 13300 POKE A,B: NEXT
126 13400 POKE A,B: NEXT
127 13500 POKE A,B: NEXT
128 13600 POKE A,B: NEXT
129 13700 POKE A,B: NEXT
130 13800 POKE A,B: NEXT
131 13900 POKE A,B: NEXT
132 14000 POKE A,B: NEXT
133 14100 POKE A,B: NEXT
134 14200 POKE A,B: NEXT
135 14300 POKE A,B: NEXT
136 14400 POKE A,B: NEXT
137 14500 POKE A,B: NEXT
138 14600 POKE A,B: NEXT
139 14700 POKE A,B: NEXT
140 14800 POKE A,B: NEXT
141 14900 POKE A,B: NEXT
142 15000 POKE A,B: NEXT
143 15100 POKE A,B: NEXT
144 15200 POKE A,B: NEXT
145 15300 POKE A,B: NEXT
146 15400 POKE A,B: NEXT
147 15500 POKE A,B: NEXT
148 15600 POKE A,B: NEXT
149 15700 POKE A,B: NEXT
150 15800 POKE A,B: NEXT
151 15900 POKE A,B: NEXT
152 16000 POKE A,B: NEXT
153 16100 POKE A,B: NEXT
154 16200 POKE A,B: NEXT
155 16300 POKE A,B: NEXT
156 16400 POKE A,B: NEXT
157 16500 POKE A,B: NEXT
158 16600 POKE A,B: NEXT
159 16700 POKE A,B: NEXT
160 16800 POKE A,B: NEXT
161 16900 POKE A,B: NEXT
162 17000 POKE A,B: NEXT
163 17100 POKE A,B: NEXT
164 17200 POKE A,B: NEXT
165 17300 POKE A,B: NEXT
166 17400 POKE A,B: NEXT
167 17500 POKE A,B: NEXT
168 17600 POKE A,B: NEXT
169 17700 POKE A,B: NEXT
170 17800 POKE A,B: NEXT
171 17900 POKE A,B: NEXT
172 18000 POKE A,B: NEXT
173 18100 POKE A,B: NEXT
174 18200 POKE A,B: NEXT
175 18300 POKE A,B: NEXT
176 18400 POKE A,B: NEXT
177 18500 POKE A,B: NEXT
178 18600 POKE A,B: NEXT
179 18700 POKE A,B: NEXT
180 18800 POKE A,B: NEXT
181 18900 POKE A,B: NEXT
182 19000 POKE A,B: NEXT
183 19100 POKE A,B: NEXT
184 19200 POKE A,B: NEXT
185 19300 POKE A,B: NEXT
186 19400 POKE A,B: NEXT
187 19500 POKE A,B: NEXT
188 19600 POKE A,B: NEXT
189 19700 POKE A,B: NEXT
190 19800 POKE A,B: NEXT
191 19900 POKE A,B: NEXT
192 20000 POKE A,B: NEXT
193 20100 POKE A,B: NEXT
194 20200 POKE A,B: NEXT
195 20300 POKE A,B: NEXT
196 20400 POKE A,B: NEXT
197 20500 POKE A,B: NEXT
198 20600 POKE A,B: NEXT
199 20700 POKE A,B: NEXT
200 20800 POKE A,B: NEXT
201 20900 POKE A,B: NEXT
202 21000 POKE A,B: NEXT
203 21100 POKE A,B: NEXT
204 21200 POKE A,B: NEXT
205 21300 POKE A,B: NEXT
206 21400 POKE A,B: NEXT
207 21500 POKE A,B: NEXT
208 21600 POKE A,B: NEXT
209 21700 POKE A,B: NEXT
210 21800 POKE A,B: NEXT
211 21900 POKE A,B: NEXT
212 22000 POKE A,B: NEXT
213 22100 POKE A,B: NEXT
214 22200 POKE A,B: NEXT
215 22300 POKE A,B: NEXT
216 22400 POKE A,B: NEXT
217 22500 POKE A,B: NEXT
218 22600 POKE A,B: NEXT
219 22700 POKE A,B: NEXT
220 22800 POKE A,B: NEXT
221 22900 POKE A,B: NEXT
222 23000 POKE A,B: NEXT
223 23100 POKE A,B: NEXT
224 23200 POKE A,B: NEXT
225 23300 POKE A,B: NEXT
226 23400 POKE A,B: NEXT
227 23500 POKE A,B: NEXT
228 23600 POKE A,B: NEXT
229 23700 POKE A,B: NEXT
230 23800 POKE A,B: NEXT
231 23900 POKE A,B: NEXT
232 24000 POKE A,B: NEXT
233 24100 POKE A,B: NEXT
234 24200 POKE A,B: NEXT
235 24300 POKE A,B: NEXT
236 24400 POKE A,B: NEXT
237 24500 POKE A,B: NEXT
238 24600 POKE A,B: NEXT
239 24700 POKE A,B: NEXT
240 24800 POKE A,B: NEXT
241 24900 POKE A,B: NEXT
242 25000 POKE A,B: NEXT
243 25100 POKE A,B: NEXT
244 25200 POKE A,B: NEXT
245 25300 POKE A,B: NEXT
246 25400 POKE A,B: NEXT
247 25500 POKE A,B: NEXT
248 25600 POKE A,B: NEXT
249 25700 POKE A,B: NEXT
250 25800 POKE A,B: NEXT
251 25900 POKE A,B: NEXT
252 26000 POKE A,B: NEXT
253 26100 POKE A,B: NEXT
254 26200 POKE A,B: NEXT
255 26300 POKE A,B: NEXT
256 26400 POKE A,B: NEXT
257 26500 POKE A,B: NEXT
258 26600 POKE A,B: NEXT
259 26700 POKE A,B: NEXT
260 26800 POKE A,B: NEXT
261 26900 POKE A,B: NEXT
262 27000 POKE A,B: NEXT
263 27100 POKE A,B: NEXT
264 27200 POKE A,B: NEXT
265 27300 POKE A,B: NEXT
266 27400 POKE A,B: NEXT
267 27500 POKE A,B: NEXT
268 27
```

```

410 DII A$(3,11)
414 LET Y=0
420 LET A$(1)=" "
430 LET A$(2)=" "
440 LET A$(3)=" "
445 LET D=INT (RAND*5+1)
450 LET HE=0
455 LET E=INT (RAND*5+1)
460 LET TH=0: LET FU=47
465 LET C=5
470 LET A=5
480 LET B=1
490 LET
495 LET DI=INT (RAND*10+140)
499 DIM J(151): FOR Z=1 TO 151:
LET J(Z)=-10.5: NEXT Z: FOR Z=1
TO 151 TO DI STEP -1: LET J(Z)=0: NE
500 REM
505 REM INITIALISE
510 GO SUB 5000
520 PRINT AT 4,2;"KEYS-"
530 MORE: AT INK 5:THRUST 1;"
535 PRINT INK 4:AT 9,2;D$(2);"
540 LESS:AT 10,5;THRUST 1;"
545 PRINT INK 6:AT 12,2;B$(3);"
550 DRAP:AT 13,2;"BALLAST"
555 PRINT AT 15,2;PRESS-"":AT
17,2; INK 5;"E - EDIT":AT
19,2;"P - PLAY"
560 IF INKEY$="E" THEN GO TO 60
570 IF INKEY$="P" THEN GO TO 70
580 GO TO 560
590 REM
600 EDIT
605 IF INKEY$<>" " THEN GO TO 60
610 FOR Z=1 TO 3
620 PRINT AT 3+Z*3,2; INK 8; IN
VERSE 1;D$(Z)
630 LET Z$=INKEY$
640 IF Z$<>" " THEN GO TO 630
650 LET B$(Z)=Z$
655 PRINT AT 3+Z*3,2; INK 6;D$(
Z)
660 IF INKEY$<>" " THEN GO TO 66
665 BEEP .05,Z*2
670 NEXT Z
680 GO TO 560
690 FOR Z=3 TO 20: PRINT AT Z,2
: NEXT Z
705 POKE USR:"A",1,32: FOR Z=1
TO 3: LET L=USR USR "A": NEXT Z
710 LET L=USR USR "A": PRINT AT
20,5; PAPER 6; INK 0;"
720 FOR Z=1 TO 3: LET L=USR USR
"0": PRINT AT 20,4; PAPER 6; IN
K 0;"
730 LET L=USR USR "A": PRINT AT
20,5; PAPER 6; INK 0;"

```

```

740 FOR Z=1 TO 3: LET L=USR USR
  "A": NEXT Z
750 FOR Z=1 TO 2: LET L=USR USR
  "A": PRINT AT 20,0; PAPER 2; IN
  K 0; " " NEXT Z
760 FOR Z=1 TO 7: LET L=USR USR
  "A": NEXT Z
770 INK 6: PAPER 6
780 PRINT AT 5,1; A$(1)
790 PRINT AT 5,1; A$(2)
800 PRINT AT 7,1; A$(3)
1000 REM MAIN LOOP
1020 LET Y=Y+1
1030 IF Y=100 THEN LET Y=0
1100 LET TH=TH+(CHR$(PEEK 23550)
  )-B$(1) AND TH<47)+0-B*(CHR$(PE
  EK 23550)-B$(2) AND TH>0)
1110 IF CHR$(PEEK 23550)=B$(3)
  THEN LET BA=BA-1: GO SUB 3500
1120 POKE 23550,33
1130 IF FU<1 THEN LET FU=0: LET
  TH=0
1200 LET HE=HE+INT (TH/12)-1-BA/
  20
1210 IF HE<0 THEN LET HE=0
1220 IF HE>107 THEN LET HE=107
1230 LET FU=FU-TH/120
1500 IF HE>100 THEN GO TO 1508
1501 IF HE>80 AND INT (Y/2)=Y/2
  THEN GO TO 1508
1502 IF HE>60 AND INT (Y/3)=Y/3
  THEN GO TO 1508
1503 IF HE>40 AND INT (Y/4)=Y/4
  THEN GO TO 1508
1504 IF HE>20 AND INT (Y/5)=Y/5
  THEN GO TO 1508
1505 IF HE>10 AND INT (Y/6)=Y/6
  THEN GO TO 1508
1507 GO TO 1700
1508 LET A=A+1
1509 IF A=1 THEN POKE USR "A"+1,
  40: PRINT AT 20,1; PAPER 5; INK
  0; " " TO INT (RAND*7+2
  )
1510 IF A=2 THEN POKE USR "A"+1,
  32: PRINT AT 20,1; PAPER 4; INK
  0; " " TO INT (RAND*7+2
  )
1520 IF A=20 THEN LET A=0: LET B
  =INT (RAND*5+7): LET C=INT (RAND*1
  0+1): LET F=INT (RAND*10+1)
1550 IF A=15 OR A=16 THEN PRINT
  AT 20,C; PAPER 2; INK 0; " "
1555 IF A=5 OR A=6 THEN PRINT AT
  20,F; PAPER 3; INK 0; " "
1560 IF DI=75 THEN PRINT AT 20,D
  +1; PAPER 7; INK 0; " "
1565 IF DI=76 THEN PRINT AT 20,D
  : PAPER 7; INK 0; " "
1570 IF DI=77 THEN PRINT AT 20,D
  +1; PAPER 7; INK 0; " "
1580 IF DI=16 OR DI=12 THEN PRIN
  T AT 20,E+1; PAPER 6; INK 0; "
  "
1590 IF DI=15 OR DI=14 OR DI=13
  THEN PRINT AT 20,E; PAPER 6; INK

```

```

  0; " "
1600 LET G1=G
1610 IF DI>90 OR (DI>18 AND DI<5
  4) THEN LET G=G+INT (RAND*3-1)
1620 IF G<1 THEN LET G=1
1625 IF G>9 THEN LET G=9
1630 IF DI<77 AND DI>55 THEN LET
  G=G+(D>8)-(D<8)
1640 IF DI<18 AND DI>-2 THEN LET
  G=G+((E+1)>G)-((E+1)<G)
1670 IF G1>G THEN FOR Z=1 TO 3:
  LET A$(Z)=A$(Z,2 TO )+A$(Z,1): N
  EXT Z
1675 IF G>G1 THEN FOR Z=1 TO 3:
  LET A$(Z)=A$(Z,11)+A$(Z, TO 10):
  NEXT Z
1680 FOR Z=1 TO 3: PRINT AT 4+Z,
  1; A$(Z): NEXT Z
1690 LET L=USR USR "A"
1691 IF DI>1 THEN LET J(DI)=INT
  HE
1695 LET DI=DI-1
1700 GO SUB 7000
1710 IF INT DI=100 OR DI=28 THEN
  BEEP .02,20: BEEP .02,20
1720 IF DI<-10 THEN GO TO 5600
1750 OVER 1: PLOT 112+(151-DI)/1
  :205,18+HE/4.65: OVER 0
1800 REM RUN CHECKS
1810 IF HE>10 THEN GO TO 2100
1820 GO SUB 3000
1830 IF HE>0 THEN GO TO 2000
1840 FOR Z=1 TO 9
1850 FOR Z=1 TO 9
1860 IF I(Z)=56 THEN GO TO 4500
1870 IF I(Z)=48 THEN GO TO 5500
1890 NEXT Z
1900 REM ROUGH LANDING
1910 PRINT AT 3,3; PAPER 7; "LAND
  ED"; AT 14,1; "PRESS A KEY"
1915 LET BON=BON+INT (FU/2)
1920 PRINT AT 4,14; FLASH 1; "BON
  US"; FLASH 0; " " AT 4,
  22; BON
1925 FOR X=1 TO 2: FOR Z=0 TO 10
  : BEEP .03,Z: NEXT Z: NEXT X
1930 IF INKEY#="" THEN GO TO 193
  0
1990 GO TO 6000
2010 FOR Z=1 TO 9
2020 IF I(Z)=24 OR I(Z)=16 THEN
  GO TO 5600
2030 NEXT Z
2090 GO TO 1000
3000 REM COL UND BALLOON
3010 DIM I(9)
3020 LET I(1)=ATTR (5,G)
3030 LET I(2)=ATTR (5,G+1)
3040 LET I(3)=ATTR (5,G+2)
3050 LET I(4)=ATTR (6,G)
3060 LET I(5)=ATTR (6,G+1)
3070 LET I(6)=ATTR (6,G+2)
3080 LET I(7)=ATTR (7,G)
3090 LET I(8)=ATTR (7,G+1)

```

Listing continued next page

```

3095 LET I(9)=ATTR (7,6+2): RETU
RN
3500 IF BA=-1 THEN LET BA=0: RET
URN
3510 PRINT AT 13,24+BA;" ": RETU
RN
4500 REM ■ FUEL BASE ■
4510 PRINT AT 4,14; FLASH 1;"BON
US"; FLASH 0;"
4520 LET Y=0; FOR Z=1 TO 9: LET
Y=Y+(I(Z)=56): NEXT Z
4530 LET X=BON: LET BON=BON+FU+Y
*10
4540 FOR Z=X TO BON: PRINT AT 4,
22;Z: BEEP .001,(Z/BON)*60: NEXT
Z
4550 IF INKEY$="" THEN GO TO 455
0
4560 PRINT AT 4,14;"HEIGHT : 0
": LET HE=0
4565 LET J(DI)=0
4570 LET BON=INT BON: LET TH=24:
LET HE=2: FOR Z=3 TO 9: FOR X=D
TO D+2: IF ATTR (Z,X)=56 THEN P
RINT AT Z,X: OVER 1; PAPER 4;" "
4575 NEXT X: NEXT Z
4580 LET FU=47-8*SK
4585 LET J(DI)=0: LET J(DI-1)=0:
LET J(DI-2)=0: LET J(DI-3)=0: L
ET DI=DI-3
4590 GO TO 1000
5000 REM ■ FIX SCREEN ■
5010 BORDER 0: INK 7: PAPER 0: C
S
5020 GO SUB 6000
5030 PLOT 6,153: DRAW 91,0: DRAW
0,-147: DRAW -91,0: DRAW 0,147
5040 PLOT 102,153: DRAW 147,0: D
RAW 0,-99: DRAW -147,0: DRAW 0,9
9
5045 FOR Z=115 TO 239 STEP 8: PL
OT Z,23: PLOT Z,35: NEXT Z: FOR
Z=16 TO 39 STEP 5: PLOT 102,Z: P
LOT 231,Z: NEXT Z
5050 PLOT 102,49: DRAW 147,0: DR
AW 0,-43: DRAW -147,0: DRAW 0,43
5060 PRINT AT 4,14;"HEIGHT : ";H
E
5065 PRINT AT 6,15; INK 6;"■■■■■■■
■■■■■■■"; AT 6,23; INK 5;"■■■■■■■
■■■■■■■"; AT 9,15; INK 6; INVER
SE 1;"THRUST"; AT 9,23; INK 5;"-F
UEL "
5080 INK 6: PLOT 119,128: DRAW 4
9,0: DRAW 0,-33: DRAW -49,0: DRA
W 0,33
5090 INK 5: PLOT 183,128: DRAW 4
9,0: DRAW 0,-33: DRAW -49,0: DRA
W 0,33
5100 INK 7
5110 PRINT AT 11,14;"DISTANCE :
"; DI
5120 PRINT AT 13,14;"BALLAST : "
; INK 4;"■■■■■■■"
5170 GO SUB 7000
5175 PRINT #0;"SKILL LEVEL 1(EAS

```

```

Y) TO 5(HARD)"
5180 LET Z$=INKEY$: IF Z$>"5" OR
Z$<"1" THEN GO TO 5180
5185 LET FU=47-8*(VAL Z$-1): LET
SK=VAL Z$: BEEP .1,30: GO SUB 7
000: INPUT AT 0,0: PRINT #0;" ©
PAUL SMITH / ELLIS HORWOOD"
5190 RETURN
5200 REM ■ WINNER ■
5210 IF DI>100 THEN GO TO 1000
5220 PRINT AT 4,14; FLASH 1;"BON
US"; FLASH 0;"
5230 LET Y=0: FOR Z=1 TO 9: LET
Y=Y+(I(Z)=48): NEXT Z
5240 LET X=BON: LET BON=BON+Y*20
+FU*2+5
5250 FOR Z=X TO BON: PRINT AT 4,
22;Z: BEEP .001,(Z/BON)*60: NEXT
Z
5255 PRINT AT 17,1; PAPER 7;"PRE
PARE A KEY"
5260 IF INKEY$="" THEN GO TO 526
0
5265 GO TO 8000
5270 REM ■ CRASH ■
5280 PRINT AT 9,4; PAPER 7;"CRAS
H"
5290 LET BON=0
5300 BEEP 1,-20: FOR Z=10 TO 0 S
TEP -1: BEEP .1,Z: NEXT Z
5310 PRINT AT 4,14;"BONUS : 0
"
5340 GO TO 8000
5350 REM ■ TITLE ■
5360 PLOT 8,158: DRAW 20,0: DRAW
0,-4: DRAW 16,0: DRAW 0,4: PLO
T 12,160: DRAW 0,4: DRAW 20,0: D
RAW 0,-4: DRAW -24,0
5370 PLOT 36,160: DRAW 0,0: DRAW
-24,0: DRAW 36,-8: DRAW 0,4: DRA
W -24,0
5380 PLOT 64,168: DRAW 0,-8: DRA
W 24,0
5390 PLOT 92,168: DRAW 0,-8: DRA
W 24,0
5400 PLOT 120,168: DRAW 0,8: DRA
W 24,0: DRAW 0,-8: DRAW -24,0
5410 PLOT 148,168: DRAW 0,8: DRA
W 24,0: DRAW 0,-8: DRAW -24,0
5420 PLOT 176,168: DRAW 0,8: DRA
W 24,0: DRAW 0,-8: DRAW -24,0
5430 PRINT AT 1,27;"© PS"
5440 RETURN
7000 REM ■ GRAPHIC UPDATE ■
7010 PRINT AT 7,15;"": AT 8
,15;"": PLOT 144,104: DRAW
TH-24,15
7020 PRINT AT 7,23;"": AT 8
,23;"": PLOT 206,104: DRAW
FU-24,15
7030 PRINT AT 4,23;INT HE;" "
7040 PRINT AT 11,25;ABS DI;" "
7090 RETURN
8000 REM ■ THE END ■

```

Listing continued next page

```

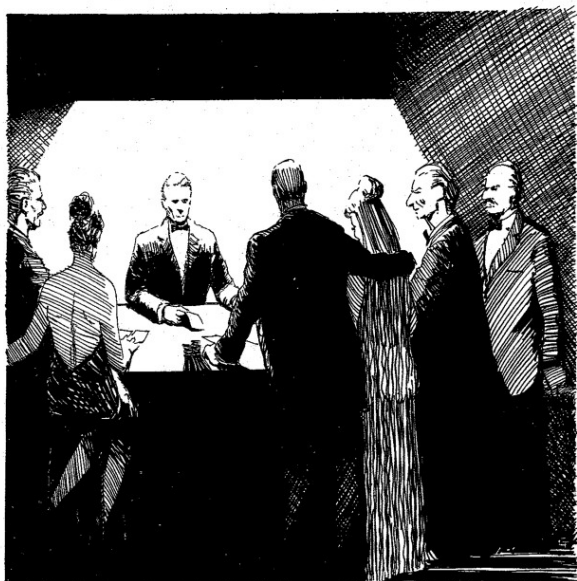
8005 BORDER 7: PAPER 7: INK 0
8008 FOR Z=0 TO 1: PRINT OVER 1;
AT Z,0;: NEXT Z
8009 INPUT 0,0: PRINT #0;"PLEASE
ENTER YOUR NAME"
8010 FOR Z=2 TO 21: PRINT AT Z,0
: NEXT Z
8015 PLOT 6,153: DRAW 173,0: DRA
W 0,-139: DRAW -173,0: DRAW 0,13
9
8020 PLOT 23,143: DRAW 0,-112: D
RAW 152,0
8030 FOR Z=32 TO 144 STEP 16: PL
OT 16,Z: DRAW 7,0: NEXT Z
8040 FOR Z=40 TO 143 STEP 16: PL
OT 20,Z: DRAW 3,0: NEXT Z
8050 FOR Z=24 TO 163 STEP 16: PL
OT 24,Z: DRAW 0,7: NEXT Z
8060 FOR Z=32 TO 184 STEP 16: PL
OT Z,28: DRAW 0,3: NEXT Z
8070 LET Z$="HEIGHT
R Z=1 TO 14: PRINT AT Z+3,1: INK
2,Z$(Z): NEXT Z
8080 PRINT AT 19,1: INK 2;"150
DISTANCE
8094 FOR Z=32 TO 178 STEP 10: PL
OT Z,53: PLOT Z,126: NEXT Z
8095 FOR Z=1 TO 151: LET FU=FU+(
J(Z)<38 AND J(Z)>0)-(J(Z)>95)/3:
NEXT Z
8096 LET FU=INT FU: LET BON=INT
BON
8097 LET SC=FU+BON
8100 PRINT AT 3,23: PAPER 1: INK
7;"SCORE:" AT 6,23;"BONUS:" AT
9,23;"FINAL:" AT 10,25;"SCORE:"
8110 PRINT AT 4,25: PAPER 2: INK
7;FU: AT 7,25:BON: AT 11,25;SC
8120 PRINT AT 13,23: PAPER 1: IN
K 7;"HI-SCORE"
8130 FOR Z=1 TO 6: PRINT PAPER Z
/2: INK 7;AT 14+Z,23;H$(Z,5 TO 4)
: INK Z/2: PAPER 7;H$(Z,5 TO 4):
NEXT Z
8175 INK 2
8180 PLOT 108,33: DRAW 8,0
8185 PLOT 170,33: DRAW 8,0
8188 PLOT 24,33: DRAW 8,0
8190 PLOT 24,33
8195 INK 8: IF DI>-2 AND HE<2 TH
EN LET J(1)=0: IF DI>0 THEN LET
J(DI)=0
8200 FOR Z=2 TO 150
8205 IF J(151-Z)=-18.5 THEN GO T
O 8225
8210 DRAW 1,J(151-Z)-J(151-(Z-1)
)
8220 NEXT Z
8225 INPUT 0
8230 IF SC<VAL H$(6, TO 4) THEN
GO TO 8400
8240 FOR Z=6 TO 1 STEP -1
8250 IF SC>VAL H$(Z, TO 4) THEN
LET H$(Z+1)=H$(Z): LET H$(Z)="00
000"( TO 4-(LEN (STR$ SC)))+STR$
SC+"-7777": NEXT Z

```

```

8260 FOR Y=1 TO 6: PRINT PAPER Y
/2: INK 7;AT 14+Y,23;H$(Y, TO 4)
: INK Y/2: PAPER 7;H$(Y,5 TO 4):
NEXT Y
8265 PRINT AT 21,0: PAPER 1: INK
7;"PLEASE ENTER YOUR NAME"
8270 LET X=1: INK 0: LET X$="???"
8280 LET Z$=INKEY$
8290 IF Z$="" THEN GO TO 8280
8292 IF CODE Z$=13 THEN BEEP .1,
0: GO TO 8320
8295 LET X$(X)=Z$: LET X=X+1: IF
X=5 THEN LET X=1
8296 BEEP .01,10
8300 PRINT AT 15+Z,26: FLASH 1;X
$
8305 IF INKEY$<>"" THEN GO TO 83
05
8310 GO TO 8260
8320 PRINT AT 15+Z,26;X$
8330 LET H$(Z+1,5 TO 4)=X$
8400 PRINT AT 21,0: PAPER 2: INK
7;"(Y/N) FOR A HARD COPY?"
8410 IF INKEY$="Y" THEN PRINT AT
21,0: COPY: GO TO 8500
8420 IF INKEY$="N" THEN PRINT AT
21,0: GO TO 8500
8430 GO TO 8400
8500 INK 0: PRINT INVERSE 1;AT 2
1,0;"PRESS 1 FOR ANOTHER GO"
8510 IF INKEY$<>"1" THEN GO TO 8
510
8515 BEEP .2,30
8520 GO TO 400
9999 RUN

```



126

Listing continued next page

```

230 DIM M(9): DIM S(9,2): DIM A
  (10,2,2,10)
240 FOR Z=1 TO 9: LET M(Z)=1000
250 NEXT Z
250 LET B$="23456789:;<=>?@ABCD
  EFGHIJKLMNOPQRSTUVWXYZ[\]^_`abced
  "
260 FOR Z=1 TO 100
270 LET X=INT (RND*52+1): LET Y
  =INT (RND*52+1)
280 LET Z$=B$(X): LET B$(X)=B$(
  Y): LET B$(Y)=Z$
290 NEXT Z
300 LET A=1
310 DIM N$(12,8)
320 LET C$="
330 LET G$="1234567890JQK123456
  7890JQK1234567890JQK1234567890JQ
  K": LET H$="A♦♥♣"
340 DIM N(9)
350 DIM C(11)
360 DIM I$(11,6): LET I$(1)=" A
  CDS": LET I$(2)=" TWOS": LET I
  $(3)=" THREES": LET I$(4)=" FOURS
  ": LET I$(5)=" FIVES": LET I$(6)
  =" SIXES": LET I$(7)=" SEVENS": L
  ET I$(8)=" EIGHTS": LET I$(9)=" NI
  NES": LET I$(10)=" TENS": LET
  I$(11)=" ROYALS"
370 FOR Z=1 TO 10: LET C(Z)=4:
  NEXT Z: LET C(11)=12
380 DIM O(10,2)
400 PRINT AT 19,10: PAPER 1;"PR
  ESS ENTER TO PLAY"
410 BEEP .2,10: BEEP .2,10
420 FOR Z=1 TO 400: IF CODE INK
  EY$=13 THEN GO TO 450
430 NEXT Z
440 GO TO 410
450 IF INKEY$("<") THEN GO TO 45
  0
451 LET Z$="
  "
  "PRESS ANY KEY TO START
  IN
  "
  "THIS VERSION OF BLACKJACK, THE B
  ANK (PLAYED BY THE COMPUTER) HAS
  TO HIT UNTIL IT HAS REACHED 17 W
  HERE IT MUST STAY... ALSO TH
  IS VERSION ALLOWS PLAYERS TO USE
  ANY ACE CARD AS BEING EITHER 11
  OR 1...
460 FOR Z=1 TO 900
465 PRINT AT 21,0: PAPER 1; INK
  7; Z$ (TO 32)
470 LET Z$=Z$(2 TO )+Z$(1)
475 PAUSE 2
480 IF INKEY$("<") THEN BEEP .1,
  0: GO TO 500
490 NEXT Z
500 REM PICTURE
510 PAPER 4: CLS
515 PRINT #0; TAB 2: PAPER 2: IN
  K 7;"© PAUL SMITH / ELLIS HORWOOD
  "
520 PAPER 2: INK 7

```

```

560 PRINT "
  K PLAYER BLACKJACK
  "
565 PRINT "
  "
580 PRINT AT 5,21: PAPER 1;"YOU
  R HAND": PAPER 2; AT 7,21;"MNY:£
  10000": AT 8,21;"STK:£": AT 9
  ,21;"SPLIT 0"
590 PRINT AT 11,0: PAPER 7; INK
  4;"
  "
600 PRINT AT 15,21: PAPER 1;"BA
  NKS HAND": PAPER 2; AT 17,21;"DIS
  CARD": AT 18,21;"MAX:£": AT
  19,21;"MIN:£"
610 PRINT AT 21,0: PAPER 4;"
  "
620 PRINT AT 18,26;MA; AT 19,27;
  H1
700 PRINT AT 5,2;"THIS TABLE CA
  N": AT 7,2;"PLAY UP TO NINE": AT 9
  ,1;"HOW MANY PLAYERS?"
705 LET Z$=INKEY$
710 IF Z$="9" OR Z$("<1") THEN GO
  TO 705
715 BEEP .05,0
720 LET MPL=VAL Z$
730 PRINT AT 9,1: PAPER 1;"NUMB
  ER OF PLAYERS:"; MPL
740 FOR Z=1 TO MPL
741 PRINT PAPER 4; AT 15,10;"
  "
742 FOR Y=17 TO 19: PRINT PAPER
  4; AT Y,1;"
  "
  NEXT Y
745 PRINT AT 15,2: PAPER 1;"PLA
  YER Z"
750 PRINT AT 17,1;"ENTER YOUR N
  AME"
750 PRINT AT 19,2;">-----"
755 LET X=1
770 LET Z$=INKEY$
775 IF Z$="" THEN GO TO 770
780 IF CODE Z$=13 THEN GO TO 82
  0
790 LET N$(Z,X)=Z$
800 PRINT AT 19,2+X; Z$
801 LET X=X+1: IF X=9 THEN LET
  X=1
802 BEEP .02,40
805 IF INKEY$("<") THEN GO TO 80
  5
810 GO TO 770
820 IF N$(Z)="" THEN LE
  T N$(Z)="PLAYER "+STR$ Z
822 BEEP .05,0
823 LET T=0: FOR Y=1 TO 8: IF N
  $(Z,Y)("<") THEN LET T=T+1
824 NEXT Y: LET N(Z)=T: FOR Y=1
  TO T: LET N(Z)=N(Z)+(N$(Z,Y)+"

```

Listing continued next page

```

") : NEXT Y
825 IF INKEY$(">") THEN GO TO 82
5
825 PRINT AT 1,30;Z;AT 2,23;N$(Z)
855 PRINT AT 15,2; PAPER 1;"PLA
YER ";Z;"-";N$(Z, TO N(Z))
855 PRINT AT 17,1; PAPER 4;" "
860 PRINT AT 17,2;"DO YOU WANT
THE";AT 18,2;"COMPUTER TO PLAY";
AT 19,2;"THIS HAND (Y/N) ?"
880 IF INKEY$="N" THEN LET C$(Z)
="N" : GO TO 900
880 IF INKEY$="Y" THEN LET C$(Z)
="Y" : GO TO 900
890 GO TO 880
900 BEEP .05,10 : NEXT Z
905 GO SUB 8000
910 FOR Z=5 TO 9 : PRINT PAPER 4
;AT Z,0;"
NEXT Z
920 FOR Z=15 TO 19 : PRINT PAPER
4;AT Z,0;"
NEXT Z
1000 REM ■ PLAY ■
1005 LET SP=1 : GO SUB 5000
1010 LET A1=1 : LET B1=1
1015 FOR U=1 TO 2
1020 FOR Y=1 TO MPL
1030 GO SUB 5000
1040 LET A$(Y,1,1,A1)=E$
1050 LET A$(Y,1,2,A1)=F$
1060 NEXT Y
1070 LET PL=1 : LET SP=1 : GO SUB
5100
1080 GO SUB 5000
1090 LET A$(10,1,1,B1)=E$
1100 LET A$(10,1,2,B1)=F$
1110 IF B1=1 THEN GO SUB 5200
1120 LET A1=A1+1 : LET B1=B1+1
1130 NEXT U
1140 FOR Z=15 TO 19 : PRINT AT Z,
5;INK 0; PAPER 7;"■"; PAPER 4;"
" : NEXT Z
1150 LET PL=10 : GO SUB 5300 : IF
T<>21 THEN GO TO 1190
1155 BEEP .1,10
1160 FOR Z=5 TO 9 : PRINT AT Z,0;
PAPER 4;"
NEXT Z : PRINT AT 12,0; PAPER 7
;
1162 LET B1=2 : GO SUB 5200 : FOR
Z=1 TO 50 : NEXT Z : PRINT AT 17,1
0;"NATURAL !";PRINT AT 5,1;"DRA
WING NATURALS !";AT 7,1;"PLAYERS
-";AT 9,1;"HARD LUCK OTHERS"
1165 FOR P=1 TO MPL
1170 LET PL=P : GO SUB 5300 : IF T
=21 THEN BEEP .1,20 : PRINT AT 7,
10+P; PAPER 1;P : LET O(P,1)=100
1175 NEXT P : LET O(10,1)=100
1176 FOR Z=1 TO 300 : IF INKEY$="
" THEN NEXT Z
1177 FOR Z=5 TO 9 STEP 2 : PRINT
AT Z,0; PAPER 4;"
" : NEXT Z

```

```

1180 GO TO 2000
1190 LET PL=1
1200 LET SP=1
1205 IF M(PL)=0 THEN LET O(PL,1)
=-200 : GO TO 1500
1210 PRINT AT 1,30;PL
1220 PRINT AT 2,23;N$(PL)
1230 PRINT AT 7,25;" ";AT 7,
26;M(PL)-5(PL,1)-5(PL,2)
1240 PRINT AT 8,26;" ";AT 8,
26;5(PL,SP)
1250 PRINT AT 9,27;SP
1255 PRINT AT 12,0;"ARE YOU READ
Y";N$(PL, TO N(PL));" ?"
1256 IF C$(PL)="Y" THEN GO TO 12
58
1257 IF INKEY$=" " THEN GO TO 125
6
1260 GO SUB 5300
1270 IF T=21 THEN GO TO 7300
1280 IF A$(PL,2,1,1)=" " AND A$(
PL,SP,1,1)=A$(PL,SP,1,2) THEN GO
TO 6500
1290 PRINT AT 12,0; PAPER 7;"
1300 PRINT AT 12,0;N$(PL, TO N(P
L));" ";T;"-STAY,HIT,DOUBLE DOWN
"
1310 LET Z$=INKEY$
1311 IF C$(PL)="Y" THEN GO SUB 5
300
1315 IF Z$(">") AND Z$("<")"C" THEN
PRINT AT 12,0; PAPER 7;"
1320 IF (Z$="1" AND Z$="9") OR
Z$="T" OR Z$="R" THEN BEEP .03,
40 : GO TO 5400
1340 IF Z$="S" THEN BEEP .02,20 :
GO TO 1400
1350 IF Z$="D" THEN BEEP .02,50 :
GO TO 7100
1360 IF Z$="H" THEN LET Z$=" " : B
EEP .02,10 : GO TO 7000
1370 IF Z$="C" THEN GO SUB 9500
1380 IF Z$="V" THEN BEEP .02,30 :
GO SUB 5600
1390 GO TO 1300
1400 REM ■ STAY ■
1405 PRINT AT 12,0; PAPER 7;"
1410 GO SUB 5300 : LET O(PL,SP)=T
1420 PRINT AT 12,3;"STAY": FOR Z
=1 TO 50 : NEXT Z
1430 BEEP .1,10 : BEEP .1,10
1500 REM ■ NEXT TURN ■
1510 IF A$(PL,2,1,1)=" " THEN GO
TO 1550
1520 IF SP=2 THEN GO TO 1550
1530 LET SP=2
1540 GO TO 1600
1550 IF PL=MPL THEN GO TO 1700
1560 LET PL=PL+1
1570 LET SP=1
1580 FOR Z=5 TO 9 : PRINT AT Z,0;
PAPER 4;"
NEXT Z
1610 LET A1=1

```

Listing continued next page

```

1620 GO SUB 5100
1630 LET A1=A1+1
1640 IF A$(PL,SP,1,A1)=" " THEN
GO TO 1650
1650 GO TO 1620
1660 IF SP=2 THEN GO TO 1210
1670 GO TO 1200
1700 REM PLAYERS OVER
1710 FOR Z=5 TO 9: PRINT AT Z,0;
PAPER 4;
NEXT Z
1720 PRINT AT 12,0;"BANKER IS PL
AYING - PLEASE WAIT."
1730 PRINT AT 1,30;"B";AT 2,23;"
BANKER"
1740 PRINT AT 7,26;" ";AT 8,
26;" ";AT 9,26;" ";
1750 LET B1=2: GO SUB 5200: LET
B1=3: LET PL=10: LET SP=1
1760 GO SUB 5300
1770 IF T>10 THEN GO TO 1800
1780 GO SUB 5000: LET A$(10,1,1,
B1)=E$: LET A$(10,1,2,B1)=F$: GO
SUB 5200: LET B1=B1+1
1785 BEEP .02,10
1790 GO TO 1760
1800 IF T>21 THEN LET O(10,1)=-9
0: PRINT AT 17,5;"BUST": BEEP .4
0: GO TO 2000
1810 LET O(10,1)=T
1820 PRINT AT 17,5;"STAY"
1830 BEEP .2,20
1840 REM SETTLEMENT
1850 PRINT AT 12,0;"CALCULATING
WINNINGS AND LOSSES."
1860 FOR Z=1 TO MPL
1865 LET SP=1
1870 PRINT AT 5,1; PAPER 1;"PLAY
ER ";Z;"-"; PAPER 2;N$(Z); TO N(Z
); PAPER 4;
1880 IF O(Z,SP)>O(10,1) THEN LET
M(Z)=M(Z)+S(Z,SP): LET Y$="WIN!"
1890 IF O(Z,SP)<O(10,1) THEN LET
M(Z)=M(Z)-S(Z,SP): LET Y$="LOSE"
1900 IF O(Z,SP)=O(10,1) THEN LET
Y$="DRAW"
1910 PRINT AT 7,1; PAPER 1;"STAK
E "; PAPER 4;
1920 PRINT AT 9,1; PAPER 1;"MONE
Y "; PAPER 4;
1930 PRINT AT 9,14;"SPT:";SP
1940 PRINT AT 7,15;Y$
1950 PRINT AT 12,0; PAPER 7;,,;A
T 12,3; PAPER 2;"PRESS ANY KEY T
O CONTINUE"
1960 FOR X=1 TO 300
1970 IF INKEY$="" THEN NEXT X
1980 PRINT AT 12,0; PAPER 7;,,;
1990 BEEP .1,10
2000 IF INKEY$<>"" THEN GO TO 20
05
2010 IF O(Z,2)<>0 THEN LET SP=SP

```

```

+1: IF SP=2 THEN GO TO 2030
2110 NEXT Z
2111 IF (MPL+1)*5+A<52 THEN GO T
O 2120
2120 PRINT AT 12,0; PAPER 7;4;
I SHUFFLE
2114 LET U$=STR$ A+"" : PRINT A
T 17,29; FLASH 1;U$(1); INVERSE
1;U$(2); FOR P=1 TO 20: BEEP .01
20: NEXT P
2115 FOR P=1 TO 100: LET U=INT (
AND*52+1): LET V=INT (AND*52+1):
LET U$=B$(U): LET B$(U)=B$(V):
LET B$(V)=U$: NEXT P: PRINT AT 1
7,29;"1 " : LET A=1: BEEP .2,0
2116 FOR Z=1 TO 10: LET C(Z)=4:
NEXT Z: LET C(11)=12
2117 LET B$=B$(20 TO )+B$( TO 19
)
2120 DIM A$(10,2,2,10): DIM O(10
,2): LET PL=1: LET SP=1
2125 FOR Z=1 TO 9
2126 IF M(Z)<1 THEN LET M(Z)=0
2127 NEXT Z
2130 FOR Z=5 TO 9: PRINT AT Z,0;
PAPER 4;
NEXT Z
2140 FOR Z=15 TO 19: PRINT AT Z,
0; PAPER 4;
NEXT Z
2150 FOR Z=1 TO MPL
2151 IF Z<5 THEN PRINT PAPER Z/3
;AT Z+4,2;N$(Z);"-2 " ;AT Z+4
,12;M(Z)
2170 IF Z>5 THEN PRINT PAPER Z/3
;AT Z+9,2;N$(Z);"-2 " ;AT Z+9
,12;M(Z)
2180 NEXT Z: LET H=M+1: PRINT AT
12,0; PAPER 7;4; : PRINT AT 12,2
; "1 HAND TO GO"; IF MH-M<1 TH
EN PRINT PAPER 2;AT 12,2;MH-M;"
HANDS TO GO!"
2185 IF H=MH THEN GO TO 9000
2190 FOR Z=1 TO 50*MPL+50: BEEP
.001,-30: IF INKEY$="" THEN NEXT
Z
2187 FOR Z=5 TO 9: PRINT AT Z,0;
PAPER 4;
NEXT Z
2188 FOR Z=15 TO 19: PRINT AT Z,
0; PAPER 4;
NEXT Z
2189 PRINT AT 12,0; PAPER 7;,,;
2190 GO TO 1000
2199 STOP
5000 REM PICK A CARD
5005 LET X=CODE (B$(A))-49
5010 LET E$=B$(X): LET F$=H$(INT
((X-1)/13)+1)
5020 PRINT AT 17,29;A
5030 LET A=A+1
5040 IF E$=" " THEN LET C(11)=C(

```

Listing continued next page

```

111)-1: GO TO 5050
5050 LET C(CODE E$-143)=C(CODE E
$-143)-1
5090 RETURN
5100 REM PRINT CARD
5110 IF A1=1 THEN FOR Z=5 TO 9:
PRINT INK 7; PAPER 4; AT Z,1; "
NEXT Z: PRINT PAPER 7; INK
(A$(PL,SP,2,A1)=" " OR A$(PL,SP,
2,A1)="*")*2; AT 5,4; A$(PL,SP,2,A
1); AT 6,4; A$(PL,SP,1,A1); AT 6,2;
A$(PL,SP,2,A1); AT 9,2; A$(PL,SP,1
,A1)
5120 IF A1>1 THEN FOR Z=5 TO 9:
PRINT INK 7; PAPER 4; AT Z,2*A1+1
; "
NEXT Z: PRINT PAPER 7; I
NK (A$(PL,SP,2,A1)=" " OR A$(PL
,SP,2,A1)="*")*2; AT 5,2*A1+2; A$(P
L,SP,2,A1); AT 6,2*A1+2; A$(PL,SP,
1,A1)
5130 RETURN
5200 REM PRINT BANK
5210 IF B1=1 THEN FOR Z=15 TO 19
: PRINT INK 7; PAPER 4; AT Z,1; "
NEXT Z: PRINT PAPER 7; IN
K (A$(10,2,B1)=" " OR A$(10,1,2
,B1)="*")*2; AT 15,4; A$(10,1,2,B
1); AT 16,4; A$(10,1,1,B1); AT 16,2
; A$(10,1,2,B1); AT 19,2; A$(10,1,1
,B1)
5220 IF B1>1 THEN FOR Z=15 TO 19
: PRINT INK 7; PAPER 4; AT Z,2*B1
+1; "
NEXT Z: PRINT PAPER 7;
INK (A$(10,1,2,B1)=" " OR A$(10
,1,2,B1)="*")*2; AT 15,2*B1+2; A$(
10,1,2,B1); AT 16,2*B1+2; A$(10,1,
1,B1)
5230 RETURN
5300 REM TOTAL
5310 LET T=0: LET Z=1
5320 IF A$(PL,SP,1,Z)=" " THEN G
O TO 5350
5330 IF A$(PL,SP,1,Z)>"9" THEN L
ET T=T+10: GO TO 5350
5340 LET T=T+CODE A$(PL,SP,1,Z)-
143
5350 LET Z=Z+1: GO TO 5320
5360 FOR Z=1 TO 10
5370 IF A$(PL,SP,1,Z)="1" AND T<
12 THEN LET T=T+10
5380 NEXT Z
5390 RETURN
5400 REM MEMORY
5410 IF Z$="1" AND Z$<="9" THEN
PRINT AT 12,2; I$(CODE Z$-48); "
: CODE Z$-48)
5420 IF Z$="T" THEN PRINT AT 12,
2; I$(10); " : C(10)
5430 IF Z$="R" THEN PRINT AT 12,
2; I$(11); " : C(11)
5440 IF INKEY$<>" " THEN GO TO 54
40
5450 PRINT AT 12,0; PAPER 7;,,
5460 GO TO 1300
5500 REM COMPUTERS GO
5510 GO SUB 5300

```

```

5530 IF T<10 THEN LET Z$="H": RE
TURN
5540 IF T>9 AND CODE G$(CODE B$(
A)-49)-143+T>17 AND CODE G$(CODE
B$(A)-49)-143+T<22 AND T<14 THE
N LET Z$="D": RETURN
5545 LET TA=0: FOR Z=1 TO 10: IF
A$(PL,SP,1,Z)="1" THEN LET TA=T
A+1
5546 NEXT Z
5547 IF CODE G$(CODE B$(A)-49)-1
43+T<18 AND TA>0 THEN LET Z$="H"
: RETURN
5548 IF T>19 THEN LET Z$="S": RE
TURN
5549 IF T<13 THEN LET Z$="H": RE
TURN
5550 IF CODE G$(CODE B$(A)-49)-1
43+22-T THEN LET Z$="H": RETURN
5555 IF T=10 THEN LET Z$="D": RE
TURN
5560 LET Z$="S": RETURN
5560 REM VIEW
5565 LET Y$="1"
5570 PRINT AT 12,3; "PRESS PLAYER
NUMBER (1-"MPL;")"
5580 LET X$=INKEY$
5590 IF X$>STR$ MPL OR X$<"1" TH
EN GO TO 5620
5591 IF A$(PL,2,1,1)=" " THEN GO
TO 5640
5592 IF INKEY$<>" " THEN GO TO 56
32
5593 PRINT AT 12,3; PAPER 1; "PRE
SS SPLIT NUMBER (1-2)"; PAPER 7;
5594 LET Y$=INKEY$
5595 IF Y$>"2" OR Y$<"1" THEN GO
TO 5634
5596 PRINT AT 12,0; PAPER 7;,, PL
5598 LET A2=A1: LET A1=1: LET PL
1=PL: LET PL=VAL X$: LET SP1=SP:
LET SP=VAL Y$
5599 FOR Z=5 TO 9: PRINT PAPER 4
; AT Z,0; "
NEXT Z
5600 IF A$(PL,SP,1,A1)=" " THEN
GO TO 5660
5670 GO SUB 5100: LET A1=A1+1: G
O TO 5660
5680 GO SUB 5300: PRINT AT 12,0;
; AT 12,0; N$(PL, TO N(PL)); "S
HAND-TOTAL: "; T; "-SPLIT: "; SP
5690 FOR Z=1 TO 100: IF CODE INK
EY$<>13 THEN NEXT Z
5700 PRINT PAPER 1; AT 12,0; " P
RESS ENTER TO RETURN
5705 FOR Z=1 TO 50: IF CODE INKE
Y$<>13 THEN NEXT Z
5710 IF CODE INKEY$<>13 THEN GO
TO 5660
5720 LET A1=1: LET PL=PL1: LET S
P=SP1

```

Listing continued next page

```

5725 FOR Z=5 TO 9: PRINT PAPER 4
:AT Z,0;
NEXT Z
5730 GO SUB 5100: LET A1=A1+1: I
F A$(PL,SP,1,A1)<>" " THEN GO TO
5735
5770 GO SUB 5300
5780 PRINT AT 12,0; PAPER 7;,,
5790 RETURN
6000 REM STAKES
6005 PRINT AT 7,25; " ";AT 7,
25;M(PL);AT 9,25;0
6010 FOR Z=1 TO MPL
6011 IF M(Z)=0 THEN LET S(Z,1)=0
:LET S(Z,2)=0: NEXT Z
6015 PRINT AT 7,25; " ";AT 7,
25;M(Z)
6020 PRINT AT 1,30;Z;AT 2,23;N$(
Z)
6030 PRINT AT 12,0;N$(Z,TO,N(Z)
);"PLEASE ENTER YOUR STAKE"
6040 PRINT AT 8,25;S(Z,SP);"----
"(TO S-LEN (STR$ S(Z,SP)))
6045 LET X=1: LET X$=STR$ S(Z,SP
);"
"(TO S-LEN (STR$ S(Z,SP
)))
6050 IF C$(Z)="Y" THEN PRINT AT
8,25;" " GO SUB 9600: LET X
$=STR$ TB: PRINT AT 8,25;X$: GO
TO 5100
6060 LET Z$=INKEY$
6065 IF CODE Z$=13 THEN GO TO 61
00
6070 IF Z$<"0" OR Z$>"9" THEN GO
TO 6060
6080 LET X$(X)=Z$: PRINT AT 8,25
+X;Z$
6085 LET X=X+1: IF X=5 THEN LET
X=1
6090 BEEP .05,40
6095 IF INKEY$<>" " THEN GO TO 60
00
6099 GO TO 6060
6100 BEEP .1,10
6101 IF VAL X$>MA THEN LET X$=ST
R$ MA
6102 IF VAL X$<MI THEN LET X$=ST
R$ MI
6103 IF VAL X$>M(Z) THEN LET X$=
STR$ M(Z)
6105 LET S(Z,SP)=VAL X$
6106 PRINT AT 12,0; PAPER 7;,,
6110 NEXT Z
6120 PRINT AT 1,30;"1";AT 2,23;N
$(1)
6190 RETURN
6500 REM SPLIT
6510 PRINT AT 12,2; PAPER 1;"DO
YOU WANT TO SPLIT (Y/N) ?"
6520 LET Y$=INKEY$
6521 IF C$(PL)="Y" THEN LET Y$="
N": IF (A$(PL,SP,1,1)<"8" AND A$
(PL,SP,1,1)>"5") OR A$(PL,SP,1,1
)="-1" THEN LET Y$="Y"
6525 IF Y$="Y" THEN BEEP .02,0:
GO TO 6550

```

```

6530 IF Y$="N" THEN GO TO 1290
6540 GO TO 6520
6570 LET A$(PL,2,1,1)=A$(PL,1,1,
2)
6580 LET A$(PL,2,2,1)=A$(PL,1,2,
2)
6590 LET A1=2: GO SUB 5000
6600 LET A$(PL,1,1,2)=E$
6610 LET A$(PL,1,2,2)=F$
6620 GO SUB 5000
6630 LET A$(PL,2,1,2)=E$
6640 LET A$(PL,2,2,2)=F$
6650 LET SP=1: PRINT AT 9,27;SP:
GO SUB 5100: LET S(PL,2)=S(PL,1
)
6660 LET A1=3
6670 GO SUB 5300
6680 PRINT AT 12,0; PAPER 7;,,
6690 GO TO 1210
7000 REM HIT PLAYER
7010 GO SUB 5000
7020 LET A$(PL,SP,1,A1)=E$
7030 LET A$(PL,SP,2,A1)=F$
7040 GO SUB 5100
7045 LET A1=A1+1
7050 GO SUB 5300
7060 IF T>21 THEN GO TO 7200
7090 GO TO 1315
7100 REM DOUBLE DOWN
7102 PRINT AT 12,0;"DOUBLE DOWN"
7105 IF M(PL)-(S(PL,1)*2)<0 THEN
PRINT AT 12,2; PAPER 1;"YOU HAV
EN'T GOT ENOUGH MONEY": BEEP 2-
10: FOR Z=1 TO 60: NEXT Z: PRINT
AT 12,0; PAPER 7;,, GO TO 1300
7110 LET S(PL,SP)=S(PL,SP)*2
7120 PRINT AT 7,25; " ";AT 7,
25;M(PL)-S(PL,1)-S(PL,2);AT 8,25
:S(PL,SP)
7130 LET Z$="S": GO TO 7000
7200 REM PLAYER BUST
7210 LET O(PL,SP)=-100
7220 PRINT AT 12,4;"BUST": FOR Z
=1 TO 50: NEXT Z
7230 FOR Z=10 TO 1 STEP -1: BEEP
.01,Z: NEXT Z
7290 GO TO 1500
7300 REM PLAYER BJ
7305 PRINT AT 12,0; PAPER 7;,,
7310 LET O(PL,SP)=100
7320 PRINT AT 12,4;"NATURAL 1"
7330 FOR Y=1 TO 2: FOR Z=1 TO 10
: BEEP .01,Z: NEXT Z: NEXT Y
7340 LET S(PL,SP)=S(PL,SP)*1.5
7350 LET S(PL,SP)=INT S(PL,SP)
7390 GO TO 1500
8000 REM MAX HANDS
8010 PRINT AT 12,0; PAPER 7;
8020 PRINT AT 12,1;"END OF GAME
AT ----- HANDS"
8030 LET X$="0": LET X=1
8040 LET Z$=INKEY$
8045 IF CODE Z$=13 THEN GO TO 81
00

```

Listing continued next page

```

8050 IF Z$<"0" OR Z$>"9" THEN GO
TO 8040
8055 BEEP .02,40: LET X$(X)=Z$
8070 PRINT AT 12,15+X;Z$
8080 LET X=X+1: IF X=6 THEN LET
X=1
8090 IF INKEY$<>" " THEN GO TO 80
90
8095 GO TO 8040
8100 IF VAL X$<2 THEN BEEP 1,0:
GO TO 8040
8110 LET MH=VAL X$
8120 LET H=0
8125 BEEP .1,20
8130 IF MH=20 THEN LET MH=20: PR
INT AT 12,0; PAPER 7;: PRINT A
T 12,3;"MAXIMUM IS 20!"; FOR P=
1 TO 50: NEXT P
8150 RETURN
9000 REM ■ THE END ■
9001 LET MA=0: LET X$=""
: FOR Z=1 TO 9
9002 IF M(Z)>MA THEN LET MA=M(Z)
: LET X$=N$(Z, TO N(Z))
9003 NEXT Z
9004 PRINT AT 20,5; FLASH 1; PAP
ER 0;X$;" WINS"
9010 PRINT AT 12,0; PAPER 1;"PRE
SS ENTER TO PLAY ANOTHER GAME"
9020 IF CODE INKEY$<>13 THEN GO
TO 9030
9030 BEEP .1,20: RUN 200
9500 REM ■ CHEET ■
9510 LET X=CODE (B$(A))-49: PRIN
T AT 12,30; PAPER 0;G$(X);H$(INT
((X-1)/13)+1)
9520 BEEP .1,0
9530 IF INKEY$<>" " THEN GO TO 95
30
9550 PRINT AT 12,30; PAPER 7;"
9590 RETURN
9600 REM ■ COMPUTER STAKE ■
9605 LET TB=100
9610 FOR P=1 TO MPL
9620 IF P<>Z THEN IF M(P)>TB THE
N LET TB=M(P)
9630 NEXT P
9640 LET TB=TB-M(Z)
9645 IF TB<0 THEN LET TB=0
9650 LET TB=TB+50
9690 RETURN
9700 REM ■ HELP ■
9710 BORDER 7: INK 7: PAPER 4: C
LS: PAPER 2
9720 PRINT

```

BLACKJACK
 © PAUL SMITH

```

8730 PRINT AT 5,1; PAPER 1;"THIS
IS THE CASINO VERSION OF";AT 6,
15;"BLACKJACK"
8740 PRINT AT 8,1;"THE COMPUTER
WILL ACT AS BANK";AT 9,3;"AND CA
N ALSO PLAY UP TO NINE";AT 10,22
;"PLAYERS."

```

```

8750 PRINT AT 12,1;"YOU AND UP T
O EIGHT OTHER";AT 13,6;"PEOPLE C
OULD ALSO PLAY."
8760 PRINT PAPER 1;AT 15,1;"THE
OBJECT OF THE GAME IS TO";AT 16,
2;"MAKE AS MUCH MONEY AS YOU CAN
";AT 17,3;"IN THE DESIGNATED NUM
BER OF";AT 18,4;"HANDS OR ROUNDS
"
8770 PRINT AT 20,2; PAPER 3;"PRE
SS ENTER TO SEE THE KEYS "; FLAS
H 1;">"
8780 IF CODE INKEY$<>13 THEN GO
TO 8790
8790 FOR Z=4 TO 21: PRINT AT Z,0
: PAPER 4;: NEXT Z
8800 PRINT AT 5,1; PAPER 1;"THE
KEY'S FUNCTIONS -";AT 7,1;"3";AT
7,16;"H";AT 9,1;"D";AT 9,16;"U"
:AT 11,1;"KEYS 1 TO 9";AT 8,16;"R"
9810 PRINT PAPER 4;AT 7,3;"-";AT
7,16;"-";AT 9,3;"-";AT 9,20;"-";
:AT 11,19;"-";
9820 PRINT AT 7,5;"STAY";AT 7,20
;"HIT ME";AT 9,5;"DOUBLE DOWN";A
T 9,22;"VIEW HAND"
9830 PRINT AT 11,21;"SHOW HOW";A
T 12,19;"MANY OF THAT";AT 13,6;"
PARTICULAR CARD ARE STILL";AT 14
,6;"LEFT IN THE PACK."
9840 PRINT PAPER 3;AT 16,1;"PLEA
SE WAIT WHILE I SHUFFLE";AT 17,3
;"THEN AFTER THE TONE "; FLASH 1
:
9890 RETURN
9999 RUN

```



The object of the game is to keep the enemy out of your base. But, because the game is played over a long time scale (from the 15th to the 21st centuries) the enemies' weapons change from cannons to aircraft and tanks: your base also changes form, transforming itself from a medieval castle to a nuclear reactor.

Listing continued next page

```

350 PRINT AT 4,1; INVERSE 1;"@
PAUL SMITH";AT 6,1;"KEYS";AT 13,
1;"PRESS";
360 PRINT AT 5,6;"-";AT 13,7;"-";
370 PRINT AT 8,1; PAPER 1; INK
7;"1-5 DRAW";AT 9,7;"BRIDGE";AT
10,1;"6-8 TOWER";AT 11,6;"DEFENC
E"; PAPER 2;AT 15,1;"4 LIFE GAME";
AT 17,1;"6 LIFE GAME";
380 INK 2; PAPER 0
391>LET Z$="
COPYRIGHT © PAUL SM
ITH / ELLIS HORWOOD
PRESS ANY KEY
TO START... WELCOME TO ADJU
DICATION... THE OBJECT OF THE
GAME IS TO KEEP THE ENEMY OUT A
ND LET YOUR FRIENDS IN YOUR BASE
WATCH OUT! -THE ENEMIE
S' WEAPONS CHANGE FROM CANNONS T
O AIRCRAFT AND TANKS... YOU
CAN INCREASE YOUR FINAL SCORE BY
GUESSING HOW MANY VEHICLES OR O
BJECTS YOU HAVE DESTROYED, YOU HA
VE TO SELECT FROM A LIST OF SIX,
AND JUST TO MAKE THINGS DIFFICUL
T THERE IS A TIME "LIMIT ON YOUR
CHOICE"
392 PRINT PAPER RND*2+1;AT 20,1
;Z$( TO 30)
393 PAUSE 2: LET Z$=Z$(2 TO )+Z
$(1)
394 IF INKEY$<">" THEN BEEP .1,
0: GO TO 400
395 GO TO 392
400 OVER 1: FOR Z=1 TO 8
410 PLOT Z+7,48: DRAW 0,7
420 PLOT 8,Z+31: DRAW 7,0
430 IF INKEY$="4" THEN LET SIZE
=4: GO TO 450
440 IF INKEY$="8" THEN LET SIZE
=8: GO TO 450
450 NEXT Z: GO TO 400
460 OVER 0: PAPER 7: INK 0
470 BEEP .1,0
480 BORDER 0: PAPER 0: INK 7: C
L
1000 REM 1000
1020 GO SUB 9000
1021 GO SUB 7000
1022 GO SUB 9400
1023 PRINT #0;"ENEMY: " & " R
EADY "
1024 IF INKEY$=" " THEN GO TO 102
4
1025 BEEP .1,20: INPUT 0
1030 LET A$=" "
LET B$=" "
1050 LET A=0: LET B=0: LET F=111
: PLOT 138,111: DRAW 8,4: DRAW -
0,4
1050 PRINT AT 20,14: INK 5;"SCOR
E:";AT 21,14;"YEAR:";AT 20,20; I
NK 6;SCR;AT 21,19;YEAR
1070 LET E$=" "

```

```

" : LET D$=" "
+++
1070 LET C$=" "
1080 LET G=0
1090 LET H=20: LET I=2: LET J=4
1095 IF SHE=1 THEN LET I=1
1095 IF SHE=2 THEN LET J=3
1100 REM 1000
1105 LET G=G+1
1110 IF A=0 AND IN 53486<>255 TH
EN BEEP .005,50: LET A=1: PRINT
AT 17,12;" " ;AT 18,12;" " ;AT 19,
10; INK 5;" "
1120 IF B=0 AND IN 51438<>255 TH
EN BEEP .005,40: LET B=1: PRINT
AT 12,19; INK 6;" "
1150 LET A$=C$(1)+A$( TO 15)
1155 LET C$=C$(2 TO )+" "
1155 IF G/J>INT (G/J) THEN LET E
=INT (RND*30+1)*2: LET C$(9 TO )
=E$(E TO E+1)
1155 IF G/I>INT (G/I) THEN GO T
O 1170
1160 LET B$=B$(2 TO )+" "
1165 IF G/H>INT (G/H) THEN LET B
$=B$(2 TO )+D$(INT (RND*10+1))
1170 PRINT AT 18,0;A$(3 TO 14)+A
1180 PRINT AT 12,20;B$(2 TO 5)
1200 IF A$(14)=" " AND A=1 THEN
LET SCR=SCR+1
1210 IF A$(14)=" " AND A=0 THEN
LET SCR=SCR+1: LET TOT=TOT+1: LE
T A$(13 TO 14)=" " : PRINT AT 15
10; INK 2;" "
1220 IF A$(14)=" " AND A=0 THEN
LET A$(13 TO 14)=" " : BEEP .2,0
: PRINT AT 18,10;" " ; INK 2;AT
19,10;" "
1230 IF A$(14)=" " AND A=1 THEN
FOR Z=1 TO 10: PRINT AT 18,10;" "
: BEEP .2,0: PRINT AT 18,10;" "
: BEEP .2,0: NEXT Z: LET A$(13
TO 14)=" " : LET DE=DE+1: GO TO
2000
1240 IF B$(2)=" " AND B=1 THEN L
ET SCR=SCR+1: LET TOT=TOT+1: LET
B$(2)=" " : BEEP .005,30: PRINT
AT 12,20; INK 2;" "
1250 IF B$(2)=" " AND B=0 THEN L
ET SCR=SCR+1: LET B$(2)=" "
1260 IF B$(2)=" " AND B=1 THEN L
ET B$(2)=" " : FOR Z=1 TO 10: PRI
NT AT 12,20;" " : BEEP .2,0: PRI
T AT 12,20;" " : BEEP .2,0: NEXT
Z: LET DE=DE+1: GO TO 2000
1270 IF B$(2)=" " AND B=0 THEN L
ET B$(2)=" " : PRINT AT 12,19; I
NK 2;" "
: BEEP .2,0: BEEP .2,0: FOR Z=1 TO
10: PRINT AT 12,19;" "
2000

```

Listing continued next page

Listing continued next page

```

2450 IF B$(17)="F" AND B=1 THEN
LET SCR=SCR+1: LET TOT=TOT+1: BE
EP .005: 30: PRINT AT 5,13: INK 2
2460 IF B$(17)="F" AND B=0 THEN
LET B$(17)="F": FOR Z=1 T
O 10: BEEP .2: 10: PRINT AT 5,13:
2470 NEXT Z: LET DE=DE+1: GO TO
3000
2480 IF B$(17)="F" AND B=1 THEN
LET B$(17)="F": FOR Z=1 T
O 10: BEEP .2: 10: PRINT AT 5,13:
2490 NEXT Z: LET DE=DE+1: GO TO
3000
2500 PRINT AT 20,20: INK 6: SCR
2510 LET G=G+1
2520 IF IN 63486=255 THEN PRINT
AT 19,10: INK 6: "J": LET A=0
2530 IF B=1 AND IN 61436=255 THE
N PRINT AT 5,15: " " LET B=0
2540 IF G<SKI THEN GO TO 2200
2550 BEEP .01: 0: BEEP .09: 5
2560 LET I$="A A A A A A A A": LET
H$=" "
2570 LET H=H+1
2580 FOR Z=1 TO H
2590 LET I$=I$+"A A A A A A A A": L
ET H$=H$+" "
2600 NEXT Z
2610 DIM Y$(64): LET I$=I$+Y$: L
ET H$=H$+Y$
2620 LET F=F+1: LET F=F-1: PRINT
AT F,25: " ": AT F,25: " "
2630 LET G=0
2640 IF F=5 THEN GO SUB 9400: LE
T SHE=SHE+1: GO TO 2101
2650 GO TO 2200
2660 REM END OF THE END
2670 GO SUB 9300
2680 IF DE=3 OR DE=7 THEN GO SUB
9200: GO TO 2490
2690 PRINT AT 5,0: " " INK
6: AT 19,0: " "
2700 LET Z$=" "
2710 FOR Z=1 TO 11: PRINT AT 18,
0: Z$ ( TO 12)
2720 FOR X=1 TO 20: NEXT X
2730 LET Z$=Z$(2 TO )+Z$(1): NEX
T Z
2740 BEEP .01,45: FOR Z=24 TO 71
STEP 2: PLOT INK 2;Z,29: NEXT Z
2750 BEEP .01,0: FOR Z=24 TO 71 STE
P 2: PLOT OVER 1: INK 2;Z,29: NE
XT Z
2760 FOR Z=7 TO 0 STEP -.25: BEE
P .04,Z: PRINT AT 18,9: INK Z: " "
2770 NEXT Z
2780 GO SUB 9200
2790 FOR Z=1 TO 5: PRINT AT 18,1
: " " FOR X=1 TO 20: NEXT X: PR
INT AT 18,1: " " FOR X=1 TO 20:
NEXT X: BEEP .009,10-Z: NEXT Z

```

```

3090 FOR Z=3 TO 19: PRINT AT Z,0
: AT 21,9: PRINT AT 20,9: " "
3100 NEXT Z: GO TO 3200
3110 PRINT AT 4,1: INVERSE 1: "UH
ICH OF THE FOLLOWING NUMBER": AT
5,1: "OF OBJECTS AND VEHICLES DES
TROYED IS CORRECT?"
3120 PRINT INVERSE 1: AT 8,1: "IF
CORRECT YOU WIN A BONUS OF": AT 9
,1: "THAT NUMBER DESTROYED + TIME
"
3130 PRINT #0: "ARE YOU READY?"
3140 IF INKEY$="" THEN GO TO 321
2
3150 BEEP .1,10: INPUT 0
3160 DIM M(7): LET M(INT (RND*5+
1))=TOT
3170 FOR Z=1 TO 5
3180 IF M(Z)=0 THEN LET M(Z)=INT
(RND*INT (RND*20+10))-9+TOT: IF
M(Z)=0 THEN LET M(Z)=0
3190 NEXT Z
3200 INVERSE 1
3210 PRINT INK 5: AT 11,1: "1 - ";
M(1): AT 11,15: "2 - "; M(2):
3220 PRINT INK 3: AT 13,1: "3 - ";
M(3): AT 13,15: "4 - "; M(4):
3230 PRINT INK 4: AT 15,1: "5 - ";
M(5): AT 15,15: "6 - "; M(6):
3240 INVERSE 0
3250 PRINT INVERSE 1: AT 18,1: "PR
ESS": AT 18,10: INK 5: "15": INK
3: "34": INK 4: "55": INK 7: AT 18
,22: "TIME"
3260 FOR Z=100 TO 0 STEP -1
3270 PRINT AT 18,28: INVERSE 1:
INK INT (RND*3)+3,Z: INVERSE 0: "
"
3280 LET Z$=INKEY$: IF Z$<>" " TH
EN GO TO 3360
3290 NEXT Z
3300 IF Z$<"1" OR Z$>"6" THEN LE
T Z$="7"
3310 LET X=SCR
3320 IF M(VAL Z$)=TOT THEN LET X
=SCR: LET SCR=SCR+TOT+Z
3330 FOR Z=X TO SCR: PRINT AT 20
,20: INK 5,Z: BEEP .005,(Z+1)/SC
R*50: NEXT Z
3340 FOR Z=3 TO 19: PRINT AT Z,0
: AT 21,9: " "
3350 IF SIZE=4 OR DE=5 THEN GO T
O 2500
3360 LET YE=INT (RND*100+1400)
3370 LET Z$=STR$ YEAR+: REACTOR
CASTLE: "+STR$ YE
3380 GO SUB 9500
3390 LET YEAR=YE: PRINT AT 21,19
: INK 6 YEAR
3400 FOR Z=3 TO 19: PRINT AT Z,0
: AT 21,9: " "

```

Listing continued next page

[illegible]

```

7190 PRINT AT 15,13," ^ ^ ^ AT 11
17," ^ AT 12,12," ^
^ U"; AT 14,13," ^ ^ U"; AT 17
13," ^ U"; AT 12,12," ^
7195 OVER 0
7200 PLOT 137,108: DRAW 0,36: DR
AW -1,0: DRAW 2,0
7210 INK 2: PLOT 77,15: DRAW 0,-
5: DRAW 2,3: DRAW 0,2: DRAW 1,0
7220 DRAW 2,2: DRAW 2,2: DRAW 2,-2:
DRAW 2,-2: DRAW 2,-2: DRAW 0,8
7230 INK 6: PLOT 48,128: DRAW -4
,-24,-2: DRAW 4,24,3,4: INK 7
7235 PRINT AT 12,24, INK 2,"0"
7240 RETURN
7250 RESTORE 7500
7505 RESTORE 7500
7510 FOR Z=USR "F" TO USR "T"+7
7520 READ X: POKE Z,X: NEXT Z
7530 DATA 224,54,64,64,0,0,0,
224,10,74,1,23,0,0,0,0,0,
14,0,0,0,0,0,0,0,0,45,0,170,105,4
6,0
7540 DATA 0,0,234,171,170,170,23
4,0,0,0,69,100,84,75,69,0,0,0,39
7,39,37,0,3,0
7550 DATA 12,26,124,25,12,7,
255,17,87,17,125,113,255,0
7555 DATA 3,12,46,192,3,12,48,19
2,0,0,0,12,12,0,0,0
7560 DATA 255,1,1,1,1,0,255,
128,128,128,128,128,12,0,128,12
1,128,128,128,128,255,0,1,1,1,1,
1,1,255,0
7565 PRINT AT 19,0: INK 4,"XXXXXXXXXXXXXXXXXXXX"
7570 PRINT AT 19,0: INK 4,"XXXXXXXXXXXXXXXXXXXX"
7575 PLOT 96,24: DRAW 0,16: DRAW
0,16: DRAW 0,15: DRAW -4,8: DRAW
0,16: DRAW 0,15: DRAW -4,8: DRAW
0,-16: DRAW 0,-16: DRAW -4,-8: D
RAW 0,-8: DRAW 16,0: DRAW 0,8: D
RAW -4,8: DRAW 0,47: DRAW -16,8:
DRAW -16,0: DRAW -4,2: DRAW 0,4
: DRAW -8,0: DRAW -4,8: DRAW 0,9:
DRAW -8,0: DRAW -4,8: DRAW 0,4:
DRAW 4,2: DRAW 40,0
7580 DRAW 4,-4: DRAW -4,-4: DRAW
4,-4: DRAW -4,-4
7585 DRAW 4,-4: DRAW -4,-4: DRAW
7590 DRAW 0,-8: DRAW 8,-4: DRAW
0,64: DRAW 4,0: DRAW 0,16
7635 DRAW -4,4: DRAW 4,4: DRAW -
4,4: DRAW 4,4
7638 DRAW 4,4: DRAW 4,4: DRAW -
4,4: DRAW 4,4
7640 DRAW 4,0: DRAW 0,-48: DRAW
-16,-16: DRAW 0,-32: DRAW 16,-16
7645 DRAW 20,0: DRAW -4,4: DRAW 4,4

```

Listing continued next page

```

7650 DRAW -4,4: DRAW 4,4: DRAW -
4,4: DRAW 4,4: DRAW -
7655 DRAW -4,4: DRAW 4,4: DRAW -
4,4: DRAW 4,4: DRAW -
7660 DRAW -4,4: DRAW 4,4: DRAW -
4,4: DRAW 4,4: DRAW 16,0
7670 DRAW -4,4: DRAW -4,-4: DRAW
4,-4: DRAW -4,-4: DRAW
7675 DRAW 4,-4: DRAW -4,-4: DRAW
4,-4: DRAW -4,-4: DRAW
7680 DRAW 4,-4: DRAW -4,-4: DRAW
4,-4: DRAW -4,-4: DRAW
7685 DRAW 4,-4: DRAW -4,-4: DRAW
4,0: DRAW 0,-8
7690 FOR Z=40 TO 88 STEP 8
7700 PLOT 196,Z: DRAW 16,-8: PLO
T 203,Z-10: DRAW 0,3: DRAW 1,0:
DRAW 0,-3: NEXT Z
7710 PLOT 199,88: DRAW 0,50: DRA
W -1,0: DRAW 0,0
7720 PLOT 97,35: DRAW 0,-11: DRA
W 1,0: DRAW 0,10
7725 PLOT 120,10: DRAW 16,0: DRA
W 0,72: DRAW 17,0: DRAW 0,-81: D
RAW 0,0: DRAW 0,8
7730 OVER 1
7740 PRINT AT 4,15: "-----": AT 5,
16: "A": AT 6,12: "-----": AT 7,
13: "B": AT 8,13: "R": AT
13,13: "A": AT 15,13: "T": AT 17,13
"R": AT 19,13: "E": AT 14,13: "C": A
T 16,13: "O"
7750 PRINT AT 8,17: "": AT 11,17
"": AT 14,17: "": AT 17,16: "
7765 PRINT AT 16,24: INK 6: "
": AT 14,24: "": AT 12,24: "
7770 INK 2: PLOT 77,15: DRAW 0,-
8: DRAW 2,2: DRAW 20,-2: DRAW 2,2
: DRAW 2,2: DRAW 2,2: DRAW 1,0:
DRAW 2,2: DRAW 2,2: DRAW 2,-2:
DRAW 0,2: DRAW 2,-2: DRAW 0,8
7775 OVER 0: INK 7
7780 PRINT AT 19,10: INK 6: "[-"
7790 RESTORE 7900
7800 FOR Z=USR "F" TO USR "L"+7
7810 READ X: POKE Z,X: NEXT Z
7820 DATA 128,192,204,255,243,43
,33,127,0,0,240,204,127,254,0,22
4,127,0,120,198,254,3,1,31,255,1
20,224,144,248,240,34,252
7830 DATA 28,14,15,30,63,100,36,
27,0,0,255,0,254,147,140,100,24,
96,128,0,254,147,146,100
7840 RETURN
8500 REM *****
8510 BORDER 7: INK 0: PAPER 7: F
OR Z=0 TO 21: PRINT OVER 1,AT Z,
0: NEXT Z
8515 INPUT 0
8520 GO SUB 9700
8530 PLOT 4,148: DRAW 104,0: DRA
W 0,-128: DRAW -104,0: DRAW 0,12
8
8540 PRINT AT 4,1: INVERSE 1: "©

```

```

PAUL SMITH": INK 2: AT 8,1: "1 - R
ESTART": AT 9,9: "GAME": AT 11,1: "2
- CLEAR": AT 12,5: "HI-SCORE": AT
14,1: "3 - ENTER": AT 15,5: "HI-SCO
RE": AT 17,1: "4 - NEW THIS": AT 19
5: "PROGRAM": INK 1: AT 6,1: "PRE
SS": INVERSE 0: "
8545 LET A$="HI"
8550 IF INKEY$="1" THEN GO TO 20
0
8560 IF INKEY$="2" THEN BEEP .1,
10: GO SUB 100: GO SUB 9700
8570 IF INKEY$="3" THEN GO TO 86
00
8580 IF INKEY$="4" THEN NEW
8590 GO TO 8550
8600 IF A$<>"HI" THEN BEEP .5,-1
0: GO TO 8550
8610 IF SIZE=4 AND SCR<VAL K$(1,
5 TO 5) THEN BEEP .5,-10: GO TO
8550
8611 IF SIZE=8 AND SCR<VAL K$(2,
5 TO 5) THEN BEEP .5,-10: GO TO
8550
8612 GO SUB 9800
8616 LET X=1: IF SIZE=8 THEN LET
X=0
8616 INPUT AT 0,0: "ENTER YOUR NA
ME:-----": AT 0,16: LINE A$
8617 IF LEN A$<1 OR LEN A$>10 TH
EN GO TO 8616
8618 LET Z$="00000" ( TO 5-LEN (S
TR$ SCR)) +STR$ SCR+ "-" +A$+ "
" ( TO 10-LEN A$)
8620 FOR Z=5 TO 1 STEP -1
8630 IF SCR<VAL K$(X,Z TO 5) TH
EN LET K$(X,Z+1)=K$(X,Z): LET K$
(X,Z)=Z$
8640 NEXT Z
8650 GO SUB 9700: GO TO 8550
9000 REM *****
9010 PLOT 4,171: DRAW 247,0: DRA
W 0,-15: DRAW -247,0: DRAW 0,15
9020 PLOT 8,160: DRAW 0,8: DRA
W 15,0: DRAW 0,-8: DRAW 0,4: DRA
W -15,0
9030 PLOT 32,166: DRAW 16,0: DRA
W 0,-8: DRAW -16,0: DRAW 4,0: DRA
W 0,8
9040 PLOT 56,166: DRAW 16,0: DRA
W -8,0: DRAW 0,-8: DRAW -8,0
9050 PLOT 80,166: DRAW 0,-8: DRA
W 16,0: DRAW 0,8
9060 PLOT 104,166: DRAW 16,0: DRA
W 0,-8: DRAW -16,0: DRAW 4,0: D
RAW 0,8
9070 PLOT 128,160: DRAW 0,8
9080 PLOT 152,160: DRAW -16,0: D
RAW 0,-8: DRAW 16,0
9090 PLOT 160,160: DRAW 0,8: DRA
W 16,0: DRAW 0,-8: DRAW 0,4: DRA
W -16,0
9100 PLOT 192,160: DRAW 0,8: DRA
W -8,0: DRAW 16,0

```

Listing continued next page

```

9110 PLOT 208,150: DRAW 0,8: DRA
U 10,0: DRAW 0,-5: DRAW -10,0
9120 PLOT 232,150: DRAW 0,8: DRA
U 16,0: DRAW 0,-4: DRAW -16,0: D
DRAW 16,-4
9130 RETURN
9140 REM *****
9150 FOR Z=1 TO 12
9160 PRINT AT 20,0;G$(21,0;F$
LET G$=G$(2 TO 1)+ " "
LET F$=F$(2 TO 1)+ " "
9170 BEEP .01,Z*3
9180 NEXT Z
9190 IF DE=1 THEN LET G$="  "
LET F$="  "
9245 IF DE=2 THEN LET G$="  "
LET F$="  "
9247 IF DE=3 THEN LET G$="  "
LET F$="  "
9248 IF DE=3 THEN LET G$="  "
LET F$="  "
9250 FOR Z=1 TO 10
9255 PRINT AT 20,0;G$(11-Z TO );
AT 21,0;F$(11-Z TO )
9260 NEXT Z
9270 RETURN
9280 REM *****
9290 RESTORE 9300
9300 FOR Z=1 TO 4: BEEP .09,0: B
EEP .12,X: NEXT Z
9330 DATA 11,9,7,5
9340 BEEP .05,0: BEEP .05,2: BEE
P .05,4: BEEP .1,2: BEEP .3,0
9350 RETURN
9360 REM *****
9370 RESTORE 9400
9420 FOR Z=1 TO 3: BEEP .1,0: BE
EP .1,0: READ X: BEEP .2,X: NEXT
Z
9430 DATA 5,7,9
9440 BEEP .1,7: BEEP .1,5: BEEP
.1,7: BEEP .1,5: BEEP .1,7: BEEP
.3,9
9450 RETURN
9460 REM *****
9470 PLOT 4,28: DRAW 0,104: DRAW
9480 0: DRAW 0,-104: DRAW -248,0
9490 PLOT 8,120: DRAW 16,0: DRAW
-8,0: DRAW 0,-16
9525 PLOT 32,120: DRAW 16,0: DRA
U -8,0: DRAW 0,-16: DRAW -8,0: D
RAW 16,0
9530 PLOT 56,104: DRAW 0,16: DRA
U 8,0: DRAW 0,-8: DRAW 0,8: DRA
W 8,0: DRAW 0,-16
9535 PLOT 96,104: DRAW -16,0: DR
AW 0,8: DRAW 8,0: DRAW -8,0: DRA
W 0,8: DRAW 16,0
9540 PLOT 112,120: DRAW 16,0: DR
AW -8,0: DRAW 0,16
9545 PLOT 136,104: DRAW 0,16: DR
AW 16,0: DRAW 0,-8: DRAW -16,0:
DRAW 16,-8
9550 PLOT 160,104: DRAW 0,16: DR

```

```

AU 16,0: DRAW 0,-16: DRAW 0,8: D
RAW -16,0
9555 PLOT 184,120: DRAW 0,-8: DR
AW 8,8: DRAW 0,8
9560 PLOT 224,104: DRAW -16,0: D
RAW 0,8: DRAW 8,0: DRAW -8,0: DR
AW 0,8: DRAW 16,0
9565 PLOT 232,120: DRAW 0,-16: D
RAW 16,0
9570 PLOT 24,43: DRAW -8,0: DRAW
-8,4: DRAW 0,8: DRAW 240,0: DRA
W 0,-8: DRAW -8,-4: DRAW -8,0
9575 PRINT AT 16,3;Z$
9580 FOR Z=12 TO 248 STEP 8: PLO
T Z,56: DRAW 0,2: NEXT Z
9585 FOR Z=16 TO 248 STEP 16: PL
OT Z,56: DRAW 0,4: NEXT Z
9590 FOR Z=8 TO 248 STEP 16: PLO
T Z,56: DRAW 0,7: NEXT Z
9595 INK 2
9600 FOR Z=8 TO 128
9610 PLOT Z,56: DRAW 0,7
9620 PRINT AT 21,19; INK 5; INT (
YEAR+((YE-YEAR)/240)*(Z-8)); "
"
9625 BEEP .005,Z/2
9630 NEXT Z
9640 FOR Z=129 TO 247
9650 INK 4: PLOT Z,56: DRAW 0,7
9660 PRINT AT 21,19; INK 5; INT (
YEAR+((YE-YEAR)/240)*(Z-8)); "
"
9665 BEEP .005,54-((Z-128)/2)
9670 NEXT Z
9675 INK 7
9677 FOR Z=1 TO 6
9680 PRINT AT 21,19; " ";AT 16
4,25; "
"
9685 FOR X=1 TO 20: NEXT X
9685 PRINT AT 16,25;Z$(23 TO 26)
;AT 21,19; INK 6;Z$(23 TO 26)
9687 FOR X=1 TO 20: NEXT X
9690 NEXT Z: RETURN
9700 REM *****
9710 PLOT 116,148: DRAW 136,0: D
RAW 0,-128: DRAW -136,0: DRAW 0,
128
9720 PRINT AT 4,15; INVERSE 1; "4
LIFE HI-SCORE ";AT 12,15; "8 LIF
E HI-SCORE "
9730 FOR Z=1 TO 5
9735 INK 7: PAPER Z-1
9740 PRINT AT Z+5,15;K$(1,Z);AT
Z+13,15;K$(2,Z);AT 5+Z,20; INVER
SE 1; " ";AT 13+Z,20; " "
9750 NEXT Z
9760 INK 0: PAPER 7
9790 RETURN
9800 REM *****
9810 RESTORE 9810
9815 LET W=0: DIM V(11): DIM M(1
1)
9820 FOR Z=1 TO 11
9830 READ X,Y: LET V(Z)=X: LET M
(Z)=Y

```

Listing continued next page

```

9840 NEXT Z
9850 DATA .05,0,.05,2,.05,5,.05,
.05,4,.05,2,.05,3,.05,4,.05,4,
.05,2,.05,0
9855 FOR Z=1 TO 11
9856 BEEP U(Z),M(Z)+W: PAUSE 1
9857 NEXT Z
9860 IF W=0 THEN LET W=8: PAUSE
4: GO TO 9855
9870 IF W=8 THEN LET W=4: PAUSE
4: GO TO 9855
9890 RETURN
9899 RUN

```

Sound effects on the ZX Spectrum

The sound facility provided in the Spectrum is a great help to the games programmer. You can make realistic vehicle, weapon and other sounds which add a lot to the fun of games playing.

Here are a few of the more interesting sounds that you can program with the computer: a 'machine gun', 'lazer', 'buzzer' and 'missile' which are simple to incorporate in any game. But you must always remember to *run* any sound subroutine which contains machine code, such as these programs, before typing the command:

Let L = USR USR "A"

This is because if you do not run the subroutine and call the machine code using the above BASIC command, the computer will 'crash' and all your hard work on the rest of the program will be lost.

The computer will also 'crash' if you try to redefine any of the graphics characters A to D. Do not worry too much about this: none of the programs listed in this book will cause the computer to 'crash' if you type them in accurately.

```

10 REM MACHINE GUN
   © PAUL SMITH
   / E. HORWOOD
20 FOR A=USR "A" TO USR "A"+29
30 READ B: POKE A,B: NEXT A
40 DATA 6,4,197,33,15,0,17,1,0
,229,205,181,3,225,17,255,0,167,
,237,90,125,254,255,32,237,193,16
,230,201,0
50 REM TO MAKE SOUND LET
   L=USR USR "A"

```

```

10 REM LAZER
   © PAUL SMITH
   / E. HORWOOD
20 FOR A=USR "A" TO USR "A"+29
30 READ B: POKE A,B: NEXT A
40 DATA 6,1,197,33,15,0,17,15,
0,229,205,161,3,225,17,16,8,167,
237,90,125,254,255,32,237,193,16,
230,201,0
50 REM TO MAKE SOUND 'LET
   L=USR USR "A" 'LET

```

```

10 REM BUZZER
   © PAUL SMITH
   / E. HORWOOD
20 FOR A=USR "A" TO USR "A"+29
30 READ B: POKE A,B: NEXT A
40 DATA 6,255,197,33,3,0,17,1,
0,229,205,161,3,225,17,255,0,167,
237,90,125,254,255,32,237,193,1,
230,201,0
50 REM TO MAKE SOUND 'LET
   L=USR USR "A" 'LET

```

```

10 REM MISSILE
   © PAUL SMITH
   / E. HORWOOD
20 FOR A=USR "A" TO USR "A"+29
30 READ B: POKE A,B: NEXT A
40 DATA 6,1,197,33,15,0,17,20,
0,229,205,161,3,225,17,0,167,2,
237,90,125,254,255,32,237,193,16,
230,201,0
50 REM TO MAKE SOUND 'LET
   L=USR USR "A" 'LET

```

Quickscreen

It is often useful to be able to get rapid access to a screen at any point in a program. This is especially important in games programming, where you will often want to use complex screens which would otherwise be very slow and boring to display.

The following program allows you to load a predefined screen from tape and print it at any point in your own program. You might, for example, need to use a map screen like this:



In order to do this you would have to:

- (1) draw the screen;
- (2) save the screen on a blank tape using the command:
SAVE "<NAME>" SCREEN\$
- (3) type in the Quickscreen program;

- (4) run the Quickscreen program;
- (5) load in the screen already saved.
- (6) To access the screen quickly you can now use the command:

LET L =USR USR "A"

If you wish to incorporate the Quickscreen program in any of your own programs, you need only use lines 30 to 105.

```

10 REM QUICK SCREEN
   REM © PAUL SMITH
   REM / E. HOWOOD
15 REM
20 REM
   REM 1 - DRAW THE SCREEN AND
   REM   SAVE IT ON TAPE
   REM   USING COMMAND "SAVE
   REM   (NAME)" "SCREENS"
   REM 2 - RUN THIS PROGRAM
30 CLEAR 25500
40 FOR A=USR "A" TO USR "A"+11
50 READ B: POKE A,B: NEXT A
60 DATA 1,0,27,33,0,100,17,0,6
4,237,176,201
100 CLS: PRINT "LOAD YOUR SCRE
EN NOW": PRINT
105 LOAD "CODE 25500"
110 REM
   REM USE LET L=USR USR "A" TO
   REM PRINT THE SCREEN FAST !
120 LET L=USR USR "A"

```

Multi-key inputs

As you may have noticed, in the game programs contained in this book, when using the command INKEY\$ to read the keyboard, nothing happens when two keys are pressed simultaneously. To get around this problem the command IN can be used. The Spectrum's keyboard is divided into eight equal parts each with a different address: we call them *Areas*.

- Area 1 - IN 65278 reads the half row CAP SHIFT to V
- 2 - IN 65022 reads the half row A to G
- 3 - IN 65410 reads the half row Q to T
- 4 - IN 63486 reads the half row I to S
- 5 - IN 61438 reads the half row 6 to 0
- 6 - IN 57342 reads the half row Y to P
- 7 - IN 49150 reads the half row H to ENTER
- 8 - IN 32766 reads the half row B to SPACE

To check if a key is pressed the following command is used: IF IN followed by the number corresponding to the section of the keyboard where they key is situated, followed by = and then the number corresponding to each particular key. For example, in place of:

IF INKEY\$ = "A" THEN

you will find it better to use;

IF IN 65022 = 254 THEN

Use the following program to discover the number corresponding to each key:

```

10 REM MULTI-KEY INPUTS
   TOBY MATTHEWS
   & ELLIS HORWOOD.
20 CLS
30 PRINT AT 2,0;"AREA 1--KEYS
<CAP SHIFT> TO U"
40 PRINT AT 3,0;"AREA 2--KEYS
A TO S"
50 PRINT AT 4,0;"AREA 3--KEYS
Q TO T"
60 PRINT AT 5,0;"AREA 4--KEYS
1 TO 5"
70 PRINT AT 6,0;"AREA 5--KEYS
6 TO 0"
80 PRINT AT 7,0;"AREA 6--KEYS
Y TO P"
90 PRINT AT 8,0;"AREA 7--KEYS
<ENTER> TO H"
100 PRINT AT 9,0;"AREA 8--KEYS
<SPACE> TO B"
110 INPUT "PLEASE ENTER AREA:";
A
120 IF A<1 OR A>8 OR A<>INT A
HEN GO TO 110
130 LET A=A-1
140 LET B=254+256*(255-2+A)
145 CLS
150 PRINT AT 10,15; INVERSE 1;I
N B
160 IF IN B=224 THEN RUN
170 GO TO 150

```

Input the area of keyboard to be used then press any key in that area and make a note of its number. For example, you may want to discover the number corresponding to key A. In which case, when the computer requests the area of the keyboard you require, type:

"2" then press ENTER.

The computer will now display a number in the middle of the screen. This will be 255, a number which indicates that no key in the area selected is being pressed. In order to find the number corresponding to Key 'A' simply hold down key A and the number will appear on the screen.

Hints on writing games and programs

In this section we will give you a few simple hints on how to set out good, well-structured programs.

Firstly, make sure that you use the ZX Spectrum Manual as a source of information. It may not be the clearest reference work ever written, but it does contain a lot of useful data. Rather more helpful in the design of your own programs is another book in this series - *Mastering the ZX Spectrum* by Lawrie Moore (Ellis Horwood, 1983), which is very clearly written and will be invaluable if you want to design the sort of programs contained in this book. Our book is a collection of games, whilst Lawrie Moore's book will give you the background information on how the ZX Spectrum allows you to design all sorts of programs, including games programs.

Careful study of the games programs we have listed in this book will tell you a lot about how to construct the sorts of games you are likely to want to play. Obviously, you can mix elements from several different games together but it is a good idea to have a clear idea of what sort of game you want to make before starting. Two things are essential to the sorts of games found in this book: the first is squared paper; and the second is a clear structure.

Squared paper is indispensable, because it allows you to work out where everything is going to go on the screen, and to define graphics characters more accurately. For example, in the 'Horse Race' program on pages 76-81 of this book, the horse characters look quite realistic. The horse was initially drawn, quite large, on squared paper by an artist friend of one of the authors. This drawing was then carefully scaled down to be defined as a graphics character. Using squared paper allows you to define the positions of items on complicated screens quite easily, and so allows you to design programs which look good when they are running on the screen.

The other thing which is essential to good programming is working with a *clear structure*. This is rather like using squared paper. Having a clear idea of where certain

elements of programs should go makes them easier to write. Although programmers' ideas about how to create a clear structure for their programs do tend to vary, a few guidelines can be suggested. Perhaps the best way to set out a structure is to reserve certain numbers of lines for certain parts of the program.

We suggest you try the following formula which we use in a number of our programs:

Lines 0-100	: Pokes to set-up the machine itself, i.e. capslock; colour specifications. Any machine code elements should be defined as quickly as possible.
Lines 100-200	: Graphics (alternatively, these can be left until the very end of the program, at line 9000 onward, as in some of our programs).
Lines 200-700	: Variables
Lines 700-1000	: Setting up screen; instructions on how to play the game.
Lines 1000-2000	: Main program loop.
Lines 2000-9000	: Subroutines.
Lines 9000-n	: End of game.

You do not have to follow the above structure to get a clearly structured program — the point is that you should have a clear idea of where each element of the program is in relation to the others. This helps you to think through the problems which writing the program will pose, and allows you to plan the work properly. The other advantage of a clear structure is that it allows you to work with a friend or friends on a program, dividing up responsibility for different elements of the game according to the structure plan.

The various subroutines which are listed in this book will help you to write games programs with effective sound, graphics, and action. We hope you find them useful when you come to write your own games. Good luck!

