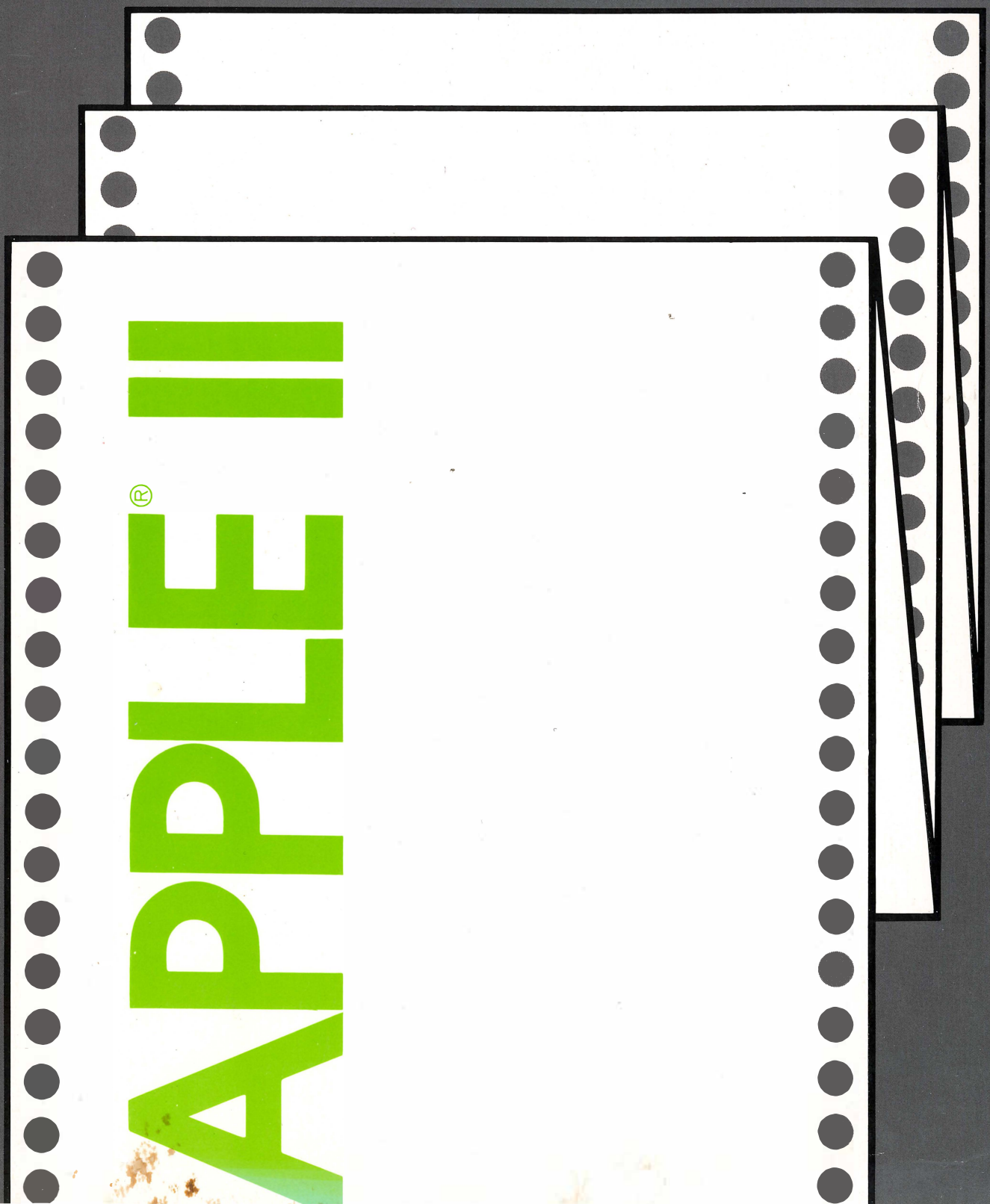
21864

Mostly BASIC: Applications for Your APPLE® II Book 2

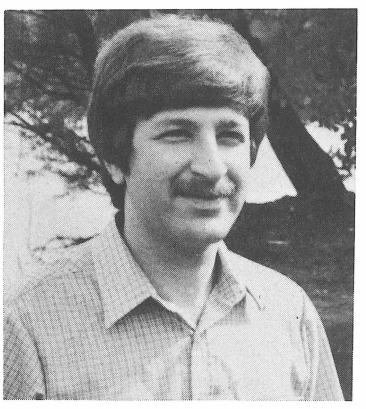
By Howard Berenbon



Mostly BASIC:

Applications for Your Apple® II

Book 2



Howard Berenbon is a graduate of Wayne State University with a Bachelor of Science in Electrical Engineering. He is currently employed in the automotive industry and spends much of his spare time developing new programs for microcomputers. He is the author of the companion to this volume, *Mostly BASIC: Applications for Your Apple® II, Book 1;* two similar books for the TRS-80®, *Mostly BASIC: Applications for Your TRS-80®,* Books 1 and 2; and *Mostly BASIC: Applications for Your PET.* His articles have appeared in many of the popular electronics and microcomputer publications.

Mostly BASIC:
Applications for Your Apple® II
Book 2

by

Howard Berenbon

Howard W. Sams & Co., Inc.
4300 WEST 62ND ST. INDIANAPOLIS, INDIANA 46268 USA

Copyright © 1981 by Howard Berenbon

FIRST EDITION
SECOND PRINTING—1982

All rights reserved. No part of this book shall be reproduced, stored in a retrieval system, or transmitted by any means, electronic, mechanical, photocopying, recording, or otherwise, without written permission from the publisher. No patent liability is assumed with respect to the use of the information contained herein. While every precaution has been taken in the preparation of this book, the publisher assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein.

International Standard Book Number: 0-672-21864-X
Library of Congress Catalog Card Number: 80-53273

Edited by: *Jack Davis*

Printed in the United States of America.

Preface

This book is a companion volume to *Mostly BASIC: Applications for Your Apple® II, Book 1*. Written for the Apple* II computer hobbyist, it consists of 32 chapters, with 37 complete computer programs written in BASIC. It can help you learn history, budget your household expenses, analyze your utility costs, and aid in stock market investment, to mention a few.

As an added feature, two types of educational fantasy games are included. The first program is a single-level dungeon called The Time Dungeon. As you wander through the maze, you will be teleported to different dates in history, to answer questions relating to actual events from the past. You will receive gold for a correct response, and you will lose gold for an incorrect response. The second and similar program is called The Algebra Dungeon, where you must solve algebraic equations as you wander through a two-level dungeon.

Also included is a fantasy game called The Dungeon of Danger. Here, you must fight monsters that roam the chambers and corridors of the dungeon. Your goal is to find the way out, unharmed, with as much gold as possible.

The programs are written in BASIC for the Apple II Applesoft microcomputer. Also, many of the programs are easily modified to run in other microcomputer BASICs. In some cases the programs contain additional lines to ensure some compatibility with the many dialects of BASIC.

Note portions of some of the programs are identical. However, to avoid confusion, especially for the beginning operator, the complete program listing is given for each version. Thus, there is no need to input part of the program from one listing and then skip to another to complete the desired program.

I hope that this book will help stimulate your imagination and aid you in the development of some of your own applications for your home computer.

HOWARD BERENBON

---

* Apple is a registered trademark of Apple Computer, Inc.

To my parents, Fay and Irving Berenbon.
To my family and friends who helped with their encouragement and constructive criticism.

Contents

SECTION I

Educational Programs

CHAPTER 1

THE TIME DUNGEON 13

CHAPTER 2

THE ALGEBRA DUNGEON 84

CHAPTER 3

WORD ASSOCIATION 96

CHAPTER 4

ADVANCED MATH: ALGEBRA 99

CHAPTER 5

MEMORY CHALLENGER II: RANDOM LETTERS 102

CHAPTER 6

MEMORY CHALLENGER III: RANDOM WORDS 105

CHAPTER 7

PERCEPTION TESTING: EIDETIC IMAGERY 109

CHAPTER 8

PRESIDENTS OF THE UNITED STATES 112

CHAPTER 9

STATE CAPITALS 116

CHAPTER 10

THE STUDENT GRADER 119

CHAPTER 11

RELATIVISTIC MASS SIMULATION 121

SECTION II

Home Applications

CHAPTER 12

MONTHLY BUDGET 127

CHAPTER 13

VALUABLES INVENTORY 131

CHAPTER 14

TELEPHONE NUMBER DIRECTORY 134

CHAPTER 15

SPECIAL DATE CALENDAR 137

CHAPTER 16

WEEKLY CALENDAR 139

CHAPTER 17

GAS USAGE ANALYSIS 142

CHAPTER 18

WATER USAGE ANALYSIS 144

CHAPTER 19

APPLIANCE OPERATING COST ANALYSIS 146

CHAPTER 20

FAMILY DENTAL EXPENSES 150

CHAPTER 21

WEEKLY JOGGING RECORD 152

CHAPTER 22

COST OF FOOD ANALYSIS 155

SECTION III

Money and Investment

CHAPTER 23

DOUBLE CHECK 161

CHAPTER 24

MONTHLY SAVINGS PLAN 164

CHAPTER 25

COMPOUND INTEREST TABLE 166

CHAPTER 26

MONEY MARKET INTEREST TABLE 170

CHAPTER 27

STOCK BUYING GUIDE 173

CHAPTER 28

STOCK RECORD KEEPER 179

CHAPTER 29

STOCK PLOTTER 183

SECTION IV

ESP Testing

CHAPTER 30

PARAPSYCHOLOGY TEST 1: CLAIRVOYANCE 189

CHAPTER 31

PARAPSYCHOLOGY TEST 2: PRECOGNITION 194

SECTION V

A Fantasy Game

CHAPTER 32

THE DUNGEON OF DANGER 201

SECTION I

Educational Programs

An important application for the home computer is its use as an educational aid. This section consists of eleven chapters, with sixteen educational programs written in BASIC.

The section begins with an educational fantasy game called The Time Dungeon. Here, the player is teleported to different dates in history, to answer questions relating to actual events from the past. There are six separate programs including American History, 1607 to 1850; American History, 1848 to 1914; American History, 1916 to 1975; World History, World War I; World History, World War II; and Ancient History, Middle East, 4000 B.C. to 6 B.C. All six programs are identical except for the subject and date at line 100 and the question DATA sets at lines 483 to 532. After entering one complete program, you need only change line 100 and the DATA set to complete the entry of all six games. But each program is listed separately to avoid confusion.

Next is an algebra educational fantasy game called The Algebra Dungeon. The word association program is a test for children. The algebra test program generates simple algebra problems. There are two memory test games: one that generates random letters and another that displays words. There is the Presidents test program that tests for dates in office, and the State Capitals test that tests your knowledge of the capitals. The Student Grader is an aid for teachers. Finally, there is a Relativistic Mass Simulation for physics students.

CHAPTER 1

The Time Dungeon

The Time Dungeon is an educational fantasy game where you must answer history questions while wandering through the chambers and corridors of the 64-chamber dungeon. When you enter an active time portal, you will be teleported to an event in history. There, you will be asked a question. There are six complete programs in this chapter. They are written in BASIC for your microcomputer. See Program 1-1 for American History, 1607 to 1850; Program 1-2 for American History, 1848 to 1914; Program 1-3 for American History, 1916 to 1975; Program 1-4 for World History, World War I; Program 1-5 for World History, World War II; and Program 1-6 for Ancient History, Middle East, 4000 B.C. to 6 B.C.

THE PROGRAM

You are given 1000 gold pieces and then teleported to a random location in the dungeon. Your goal is to find your way out, with as much gold as possible. Gold pieces are acquired by correctly answering questions about events in history. When you enter a chamber that is an active time portal, you will be teleported to a specific year. Then a question relating to that year is displayed. You will receive a random amount of gold if a correct answer is entered, and you will lose gold for an incorrect response. See Fig. 1-1 for a sample run.

ACTIONS OR MOVES

In your trip through the dungeon you will encounter active time portals, alien travelers, inactive time portals, time traps, secret doors leading to north-south or east-west corridors, maps, a crystal key, and exit portals.

After you run the program, enter your name, or your favorite fantasy character's name, for your trip into history. Then enter the present year. In a few seconds you will be teleported to an inactive time portal, somewhere in the dungeon.

You now have a choice of six actions. Enter the letter in parentheses for the following actions or moves in the dungeon:

(N)ORTH movement (up)
(E)AST movement (right)
(S)OUTH movement (down)
(W)EST movement (left)
E(X)IT (when you are at an exit portal and have the crystal key)
(G)OLD pieces left

Mapping the Dungeon

Before you proceed, it is a good idea to begin mapping out the dungeon. Find your way to a corner, to orient yourself. Draw an eight (8) by eight (8) checkerboard, and make a note of the contents of each square using the following symbols:

0 = inactive portal
AP = active portal
NS = north-south corridor
EW = east-west corridor
A = alien traveler
X = exit portal
T = time trap
=P= = your location in the dungeon

It must be noted that after you answer a question correctly (in an active time portal) that portal becomes inactive. But an incorrect answer leaves the portal active for future use. Also, after encountering an alien traveler, that chamber becomes an inactive portal. But the alien can reappear elsewhere in the dungeon.

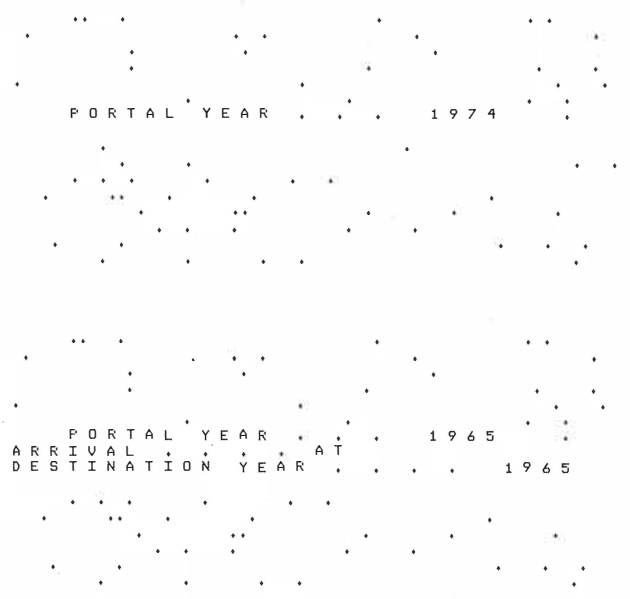
Mapping the dungeon will allow you to find all the active time portals, keep track of time traps (so you can avoid them), and identify exit portal locations. On occasion, maps can be found on glowing screens within corridors. But this will be discussed later in the text.

North Movement (UP)

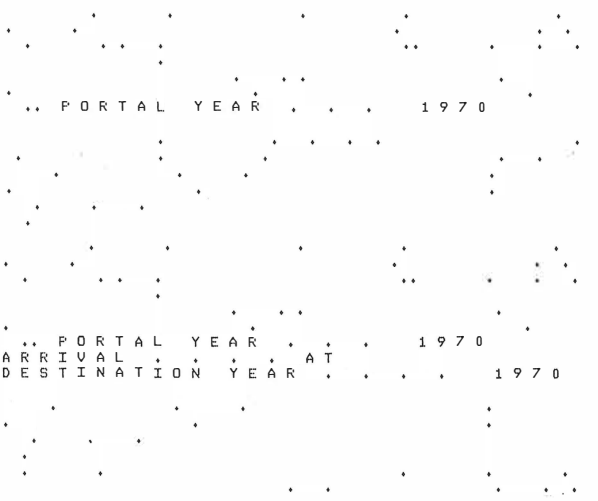
Entering an N allows you to move north through the dungeon. You may not move north under the following conditions:

1. If you reach the North Wall, you cannot pass through it.

```
THE TIME DUNGEON: AMERICAN HISTORY
COPYRIGHT (C) 1980 BY HOWARD BERENBON

AN EDUCATIONAL FANTASY GAME




YOU WILL BE TELEPORTED TO . . .

THE TIME DUNGEON . . . .
TO STUDY AMERICAN HISTORY

ENTER YOUR CHARACTER'S NAME?
? SARGON
ENTER PRESENT YEAR
? 1981

SARGON . . . YOU ARE ON YOUR WAY




YOU HAVE ARRIVED AT . . . .

THE TIME DUNGEON: AMERICAN HISTORY
FOR THE YEARS:    1916 TO 1975

YOU CARRY 1000 GOLD PIECES

YOU WILL ENCOUNTER . . .
TIME PORTALS WHICH TELEPORT
YOU TO EVENTS IN AMERICAN HISTORY



YOU ARE IN A GLOWING TIME PORTAL

THE LIGHT FADES . . . . . .
THE PORTAL IS INACTIVE . . . .

SARGON,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH
(W)EST, E(X)IT, (G)OLD
? N


YOU ENTER INTO A BLUE HAZY . . .
. . . . . TIME PORTAL . . .

A PULSATING GLOW . . . . . .
. . . . INDICATES ACTIVATION

PRESENT YEAR . . .   1981
```



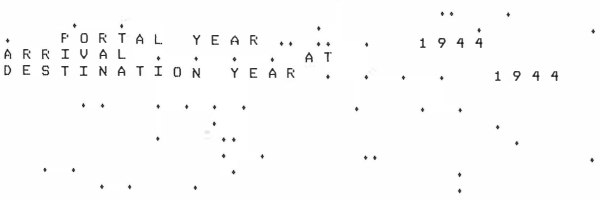

```
YOU HAVE ARRIVED AT THE YEAR  1965
. . . . . IN AMERICAN HISTORY

YOU MUST ANSWER THIS QUESTION . . TO CONTINUE YOUR JOURNEY
-----------------------------------------------------------------
THE YEAR IS:  1965

RACE RIOTS ERUPTED IN THE .... SECTION OF LOS ANGELES?:
WHITE          POOR
OLD            WATTS
-----------------------------------------------------------------
QUESTION TYPE: *** MULTIPLE CHOICE ?
ENTER CORRECT ANSWER?
? WATTS


CORRECT
YOU WIN  237  GOLD PIECES

SARGON,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH
(W)EST, E(X)IT, (G)OLD
? E


YOU ENTER INTO A BLUE HAZY . . .
. . . . . TIME PORTAL . . .

A PULSATING GLOW . . . . . .
. . . . INDICATES ACTIVATION

PRESENT YEAR . . .   1965
```



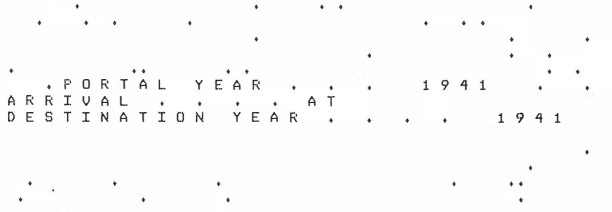

```
YOU HAVE ARRIVED AT THE YEAR  1970
. . . . . IN AMERICAN HISTORY

YOU MUST ANSWER THIS QUESTION . . TO CONTINUE YOUR JOURNEY
-----------------------------------------------------------------
THE YEAR IS:  1970

U.S. AND S. VIETNAMESE TROOPS ENTERED WHAT CITY
-----------------------------------------------------------------
QUESTION TYPE: PEOPLE, PLACES, OR THINGS ?
ENTER CORRECT ANSWER?
? CAMBODIA


CORRECT
YOU WIN  260  GOLD PIECES

SARGON,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH
(W)EST, E(X)IT, (G)OLD
? S
```

Fig. 1-1. The Time Dungeon

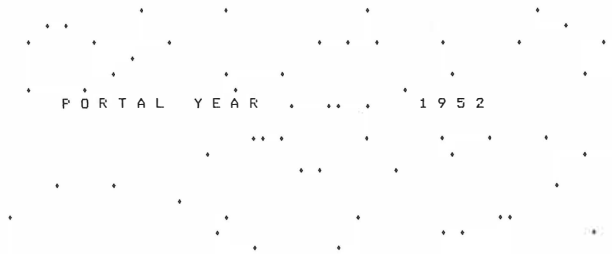
```
YOU ENTER A NORTH-SOUTH CORRIDOR
THRU A SECRET DOOR

THE DOOR CLOSES AND LOCKS BEHIND YOU

ON THE WALL IS A GLOWING SCREEN
BELOW THE SCREEN IS A RED BUTTON


DO YOU WISH TO PUSH THE BUTTON?
ENTER  (Y)ES  OR  (N)O
? Y


THE TIME DUNGEON * * * MAP

?   AP  0   0   0   ?   0   ?
NS  0   0   ?   ?   AP  ?   AP
X   AP  NS  NS  AP  AP  AP  0
EW  EW  AP  X   ?   AP  NS  NS
0   0   0   AP  0   AP  0   AP
AP  NS  AP  ?   NS  EW  NS  AP
EW  0   AP  AP  0   0   0   0
EW  NS  0   0   0   0   =P=  AP


YOU ENTER INTO A BLUE HAZY . . .
. . . . . TIME PORTAL . . .

A PULSATING GLOW . . . . . .
. . . . INDICATES ACTIVATION

PRESENT YEAR . . .  1942
```



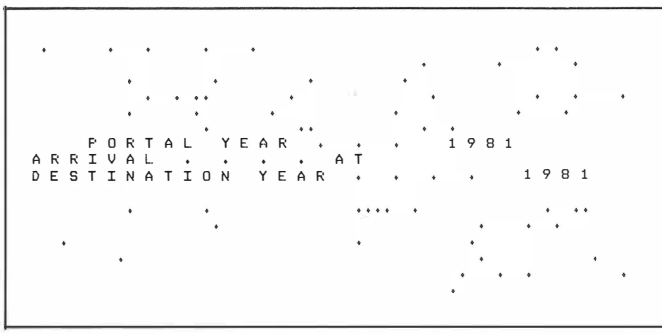

```
YOU HAVE ARRIVED AT THE YEAR  1944
. . . . . IN AMERICAN HISTORY

YOU MUST ANSWER THIS QUESTION . . TO CONTINUE YOUR JOURNEY
-------------------------------------------------------------
THE YEAR IS:  1944

THE .... INVADED EUROPE AND FREED FRANCE-BELGIUM-& LUXEMBOURG
-------------------------------------------------------------
QUESTION TYPE: PEOPLE, PLACES, OR THINGS ?
ENTER CORRECT ANSWER?
? ALLIES


CORRECT
YOU WIN  308  GOLD PIECES

SARGON,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH
(W)EST, E(X)IT, (G)OLD
? N


YOU ENTER INTO A BLUE HAZY . . .
. . . . . TIME PORTAL . . .

A PULSATING GLOW . . . . . .
. . . . INDICATES ACTIVATION

PRESENT YEAR . . .  1944
```




```
YOU HAVE ARRIVED AT THE YEAR  1941
. . . . . IN AMERICAN HISTORY

YOU MUST ANSWER THIS QUESTION . . TO CONTINUE YOUR JOURNEY
-------------------------------------------------------------
THE YEAR IS:  1941

ROOSEVELT AND CHURCHILL ISSUED THE .... CHARTER OF POSTWAR ARMS?
:
PACIFIC         FREEDOM
ATLANTIC        WESTERN
-------------------------------------------------------------
QUESTION TYPE: *** MULTIPLE CHOICE ?
ENTER CORRECT ANSWER?
? ATLANTIC


CORRECT
YOU WIN  248  GOLD PIECES

YOU SEARCH THE CHAMBER . . . AND
FIND . . . . THE CRYSTAL KEY


SARGON,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH
(W)EST, E(X)IT, (G)OLD
? W


YOU ARE AT AN EXIT PORTAL

(A KEY IS REQUIRED)


SARGON,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH
(W)EST, E(X)IT, (G)OLD
? X


YOU ENTER THE EXIT PORTAL AND
INSERT THE CRYSTAL KEY INTO THE SLOT


THE MACHINE BEGINS TO HUM . . . .
```



sample run.




```
YOU FOUND YOUR WAY . . . . .
. . . . BACK TO THE PRESENT

YOU HAVE ACQUIRED  3511  GOLD PIECES


GAME RATING IS  447

YOU TOOK  57  TURNS TO FIND THE WAY OUT
AND ANSWERED  9  QUESTION(S) CORRECTLY,
OUT OF  9  QUESTIONS ASKED.

ANOTHER GAME?
ENTER '1'-YES  '0'-NO
? 1
```

Fig. 1-1—cont. The Time Dungeon sample run.

2. If you enter an east-west corridor (through a secret door), movement north is not allowed.

East Movement (RIGHT)

Entering an E allows you to move east. You may not move east under the following conditions:

1. If you reach the East Wall, you cannot pass through it.
2. If you enter a north-south corridor (through a secret door), movement east is not allowed.

South Movement (DOWN)

Entering an S allows you to move south. You may not move south under the following conditions:

1. If you reach the South Wall, you cannot pass through it.
2. If you enter an east-west corridor (through a secret door), movement south is not allowed.

West Movement (LEFT)

Entering a W allows you to move west. You may not move west under the following conditions:

1. If you reach the West Wall, you cannot pass through it.
2. If you enter a north-south corridor (through a secret door), movement west is not allowed.

Exiting the Dungeon

Entering an X, when you are at an exit portal and have the crystal key, allows you to be teleported back to the present. If you haven't found the key, or you are not at an exit portal, you may not exit the dungeon.

To find the crystal key, you must correctly answer a random number of history questions. But, on occasion, you may find the key when encountering unfriendly alien travelers.

Gold Pieces Left

Entering a G will display the number of gold pieces you have with you. You will start out with 1000 and can gain or lose gold during your trip. But if you lose all your gold pieces, you will lose the game.

Active Portals

When you encounter an active time portal, the year in which you currently are will be displayed, and then a star background will be generated, indicating activation. The portal year will be displayed at the center of the screen as it decrements or increments from the present year to your new destination year. When approaching the destination year this action will slow down, and it will stop when the year is reached.

The question is displayed along with the year that you were teleported to. It is chosen randomly from a list of 50 and will not be repeated until all other questions are asked (for at least two or three games).

A correct answer wins you a random amount of gold, up to 625 pieces, then the portal becomes inactive. If your answer is incorrect, then the correct answer is displayed and you lose a random amount of gold (up to 425 pieces). But the time portal remains active for future use.

The questions are high-school and college level.

Question Types

There are four types of questions possible:

1. People, places, or things.
2. True or false.
3. Who am I (name).
4. Multiple choice.

Type 1 questions may be on any subject relating to the portal destination year. Enter the word or group of words that apply. It can be a fill-in-the-blank type or just a question.

Type 2 requires a true or false response. Enter the letter T for true, or F for false, when requested.

Type 3 requires a last-name entry. Enter the last name only.

Type 4 is a multiple-choice question. It will display a question with four possible answers, one of which is correct. Enter the correct answer.

Question types 1, 3, and 4 require that your answer be spelled correctly, otherwise an incorrect response will be indicated.

The Crystal Key

You will find the crystal key after you answer a random number of questions correctly (you need the key to exit the dungeon).

ALIEN TRAVELERS

When you encounter an alien traveler, he may be friendly or unfriendly. The friendly alien will give you a random number of gold pieces as he leaves. The unfriendly alien will take some of your gold. In this encounter, however, there is a chance that you may find the crystal key.

When the alien leaves, the chamber becomes an inactive portal, but the alien may reappear elsewhere in the dungeon.

TIME TRAPS

Some of the chambers contain time traps, which may, or may not, activate. If they activate, then you will be teleported to an unknown location in the dungeon and lose all but 100 gold pieces. When you discover time traps, avoid them.

NORTH-SOUTH AND EAST-WEST CORRIDORS

North-south and east-west corridors may be entered from any direction (through secret doors), but will limit your next move to the corridor direction displayed.

Corridor Objects

It is possible to find maps or gold inside a corridor. On occasion you will discover a glowing screen on the wall, with a red button below the screen. Depressing this button will result in one of three happenings:

1. A map of the dungeon will be displayed for a random number of seconds. The following symbols will be printed for the 64-chamber dungeon:

   0 = inactive portal
   AP = active portal
   NS = north-south corridor
   EW = east-west corridor
   ? = unknown contents (either an alien traveler or time trap)
   X = exit portal
   =P= = your location in the dungeon

2. Nothing happens.
3. You will receive gold pieces each time you push the button, but the corridor narrows at the same time. There is a possibility of getting stuck in the corridor. If that happens, you lose the game.

See Fig. 1-2 for a sample map.

```
THE TIME DUNGEON * * * MAP

?   AP  0   0   0   ?   0   ?
NS  0   0   0   ?   AP  ?   AP
X   AP  NS  =P= 0   0   0   0
EW  EW  AP  X   0   AP  NS  NS
?   0   0   0   0   AP  0   0
AP  NS  AP  ?   NS  EW  NS  0
EW  0   AP  AP  0   0   0   0
EW  NS  0   0   0   ?   NS  AP
```

Fig. 1-2. The Time Dungeon sample map.

INACTIVE PORTALS

Inactive portals are, normally, empty chambers. Occasionally, however, you will find a door inside the chamber. Trying the door will result in one of three happenings:

1. The door opens, and you find gold inside the closet.
2. The door won't open.
3. The door opens, and the chamber begins to spin. You are teleported, momentarily, into another dimension, where you can lose up to half of your gold and waste up to 20 moves.

GAME RATING

After you complete the game, a game rating is displayed along with the number of gold pieces acquired, the number of history questions answered correctly out of the number of questions asked, and the number of turns (moves) taken. The rating is a number from approximately −600 to +2000, depending on the above statistics. The higher the rating number, the better is the game rating. A negative number indicates a poor rating.

Program 1-1. The Time Dungeon: American History, 1607 to 1850, Program Listing

```
100  HOME :BZ$ = "AMERICAN HISTORY":BW$ = "1607 TO 1850"
101  PRINT "THE TIME DUNGEON: ";BZ$
102  PRINT "COPYRIGHT (C) 1981 BY HOWARD BERENBON"
103  PRINT "APPLE II"
104  PRINT
105  PRINT "AN EDUCATIONAL FANTASY GAME"
106 GT = 5: GOSUB 134:Q3 = 0
107  HOME : DIM A(9,9),B(50): GOSUB 451
108  PRINT "YOU WILL BE TELEPORTED TO . . ."
109  PRINT
110  PRINT "THE TIME DUNGEON . . . ."
111  PRINT "TO STUDY ";BZ$
112  PRINT
114 CA = 0:G = 1000:M1 = 1:K = 0:KL = 1:TT = 0:TR = 0
115  PRINT "ENTER YOUR CHARACTER'S NAME?"
116  INPUT A$
117  PRINT "ENTER PRESENT YEAR"
118  INPUT Y2:YY = Y2: IF Y2 > 2000 THEN 117
119  PRINT : PRINT A$;" . . . YOU ARE ON YOUR WAY"
120 GT = 2: GOSUB 134
121  GOSUB 143
122  HOME
123  PRINT "YOU HAVE ARRIVED AT . . . ."
124  PRINT
125  PRINT "THE TIME DUNGEON: ";BZ$
126  PRINT "FOR THE YEARS:    ";BW$
127  PRINT
128  PRINT "YOU CARRY 1000 GOLD PIECES": PRINT
129  PRINT "YOU WILL ENCOUNTER . . ."
130  PRINT "TIME PORTALS WHICH TELEPORT"
131  PRINT "YOU TO EVENTS IN ";BZ$
132 GT = 8: GOSUB 134
133  GOTO 199
134  FOR ZZ = 1 TO 908 * GT
135  NEXT ZZ
136  RETURN
137  PRINT "O   ";: RETURN
138  PRINT "AP  ";: RETURN
139  PRINT "?   ";: RETURN
140  PRINT "NS  ";: RETURN
141  PRINT "EW  ";: RETURN
142  PRINT "X   ";: RETURN
143  REM  SET UP DUNGEON
144  FOR X = 1 TO 8
145  FOR Y = 1 TO 8
146 A(X,Y) =  INT ( RND (1) * 7 + 1)
147  NEXT Y
148  NEXT X
149  REM  TRAPS
150 H =  INT ( RND (1) * 3 + 1) + 1
151  FOR N = 1 TO H
152 X =  INT ( RND (1) * 8 + 1)
153 Y =  INT ( RND (1) * 8 + 1)
```

Program 1-1—cont. The Time Dungeon: American History, 1607 to 1850, Program Listing

```
154 A(X,Y) = 8
155  NEXT N
156  REM  EXITS
157 S =  INT ( RND (1) * 4 + 1) + 1
158  FOR N = 1 TO S
159 X =  INT ( RND (1) * 8 + 1)
160 Y =  INT ( RND (1) * 8 + 1)
161 A(X,Y) = 9
162  NEXT N
163  RETURN
164 R6 =  INT ( RND (1) * 4 + 1): PRINT QD$;"?:": PRINT
165  ON R6 GOSUB 167,168,169,170
166  GOTO 433
167  PRINT AD$,I1$: PRINT I2$,I3$: RETURN
168  PRINT I2$,AD$: PRINT I1$,I3$: RETURN
169  PRINT I1$,I2$: PRINT AD$,I3$: RETURN
170  PRINT I3$,I1$: PRINT I2$,AD$: RETURN
171  HOME
173 GT = 1
174  GOSUB 134
175  FOR B = 1 TO 70:B4 =  INT ( RND (1) * 23 + 1)
176 B7 =  INT ( RND (1) * 39 + 1): VTAB B4: PRINT  TAB( B7)".";
177  PRINT : NEXT B: PRINT
178 GT = .005:Y5 = 25
179  IF Y3 = YY THEN  VTAB 1: PRINT "ALREADY AT . . . . ": GOTO 196
180  IF Y3 < YY THEN 188
181  IF (Y3 - YY) <  = 50 THEN 185
182 Y3 = Y3 - Y5
183  GOSUB 382
184  IF Y3 = YY THEN 195
185  IF (Y3 - YY) <  = 50 THEN Y5 = 1
186  IF (Y3 - YY) <  = 5 THEN GT = .4
187  GOTO 182
188  IF (YY - Y3) <  = 50 THEN 192
189 Y3 = Y3 + Y5
190  GOSUB 382
191  IF Y3 = YY THEN 195
192  IF (YY - Y3) <  = 50 THEN Y5 = 1
193  IF (YY - Y3) <  = 5 THEN GT = .4
194  GOTO 189
195  PRINT : PRINT "ARRIVAL . . . . AT"
196  PRINT "DESTINATION YEAR . . . . ";YY
197 GT = 4: GOSUB 134
198  HOME : RETURN
199 C =  INT ( RND (1) * 8 + 1):D =  INT ( RND (1) * 8 + 1):A(C,D) = 1
200 K4 =  INT ( RND (1) * 4 + 1) + 3
201  HOME :A = A(C,D):GT = 1: GOSUB 134
202  ON A GOSUB 292,300,410,410,306,330,335,338,362
203  IF KL = 0 THEN 567
204  PRINT : IF TT = 1 THEN TT = 0: GOTO 201
205  IF G <  = 0 THEN 264
206  PRINT A$;",  WHAT IS YOUR ACTION OR MOVE?"
207  PRINT
```

Program 1-1—cont. The Time Dungeon: American History, 1607 to 1850, Program Listing

```
208  PRINT "(N)ORTH, (E)AST, (S)OUTH"
209  PRINT "(W)EST, E(X)IT, (G)OLD"
210  INPUT M1$
211 M1 = M1 + 1: IF K = 0 AND M1 > 70 THEN 371
212  IF M1$ = "N" THEN 220
213  IF M1$ = "E" THEN 225
214  IF M1$ = "S" THEN 230
215  IF M1$ = "W" THEN 235
216  IF M1$ = "X" THEN 240
217  IF M1$ = "G" THEN 251
218  PRINT
219  GOTO 204
220  REM  NORTH
221  IF A = 7 THEN 255
222  IF (D - 1) = 0 THEN 281
223 D = D - 1
224  GOTO 201
225  REM  EAST
226  IF A = 6 THEN 260
227  IF (C + 1) = 9 THEN 286
228 C = C + 1
229  GOTO 201
230  REM  SOUTH
231  IF A = 7 THEN 255
232  IF (D + 1) = 9 THEN 288
233 D = D + 1
234  GOTO 201
235  REM  WEST
236  IF A = 6 THEN 260
237  IF (C - 1) = 0 THEN 290
238 C = C - 1
239  GOTO 201
240  HOME
241  IF A <  > 9 THEN 248
242  IF K = 1 THEN 387
243  PRINT "YOU CANNOT EXIT THE TIME DUNGEON"
244  PRINT "YOU DON'T HAVE THE CRYSTAL KEY"
245 GT = 2: GOSUB 134
246  PRINT
247  GOTO 204
248  PRINT "YOU ARE NOT AT AN EXIT PORTAL"
249 GT = 2: GOSUB 134
250  GOTO 204
251  REM  GOLD
252  HOME : PRINT "YOU HAVE ";G;" GOLD PIECES WITH YOU"
253  PRINT
254  GOTO 204
255  REM  EW
256  HOME : PRINT "YOU ARE IN AN EAST-WEST CORRIDOR"
257  PRINT "YOU CAN ONLY GO EAST OR WEST"
258  PRINT
259  GOTO 204
260  REM  NS
```

Program 1-1—cont. The Time Dungeon: American History, 1607 to 1850, Program Listing

```
261  HOME : PRINT "YOU ARE IN A NORTH-SOUTH CORRIDOR"
262  PRINT "YOU CAN ONLY GO NORTH OR SOUTH"
263  GOTO 258
264  REM  GOLD ZERO
265 GT = 2: GOSUB 134
266  PRINT
267  PRINT "YOU LOST ALL YOUR GOLD AND YOU WERE"
268  PRINT " . . . UNABLE TO MEET THE DEMANDS OF"
269  PRINT " . . . THE TIME DUNGEON . . . . ."
270  PRINT
271  PRINT
272 T = 3: GOSUB 134
273  GOSUB 402
274  PRINT
275  PRINT "ANOTHER GAME?"
276  PRINT "ENTER '1'-YES  '0'-NO"
277  INPUT AA
278  IF AA <  > 1 THEN 280
279  HOME : GOTO 108
280  END
281  HOME : PRINT "YOU ARE AT THE NORTH WALL"
282  PRINT "YOU CANNOT PASS THROUGH"
283  PRINT
284  PRINT "TRY ANOTHER DIRECTION?"
285  GOTO 204
286  HOME : PRINT "YOU ARE AT THE EAST WALL"
287  GOTO 282
288  HOME : PRINT "YOU ARE AT THE SOUTH WALL"
289  GOTO 282
290  HOME : PRINT "YOU ARE AT THE WEST WALL"
291  GOTO 282
292 KT =  INT ( RND (1) * 9 + 1)
293  PRINT "YOU ARE IN A GLOWING TIME PORTAL"
294 GT = 1: GOSUB 134
295  PRINT
296  PRINT "THE LIGHT FADES . . . . . ."
297  PRINT "THE PORTAL IS INACTIVE . . . ."
298  IF A = 1 AND KT > 8 THEN 570
299  RETURN
300  PRINT "YOU ARE IN A DUST FILLED PORTAL"
301 GT = 1: GOSUB 134
302  PRINT
303  PRINT "A BRIGHT LIGHT IS ACTIVATED AND . ."
304  PRINT
305  GOTO 296
306  HOME
307  PRINT "AN ALIEN TRAVELER IS IN THIS CHAMBER"
308 A(C,D) =  INT ( RND (1) * 2 + 1): GOSUB 478
309 GT = 1: GOSUB 134
310 TD =  INT ( RND (1) * 10 + 1)
311 G4 =  INT ( RND (1) * 350 + 1)
312 Y =  INT ( RND (1) * 8 + 1)
313  IF Y <  = 5 THEN 320
```

Program 1-1—cont. The Time Dungeon: American History, 1607 to 1850, Program Listing

```
314  PRINT : IF (G - G4) < 0 THEN G4 = G
315  PRINT "HE IS UNFRIENDLY . . . . AND AS HE"
316  PRINT "LEAVES . . . HE TAKES ";G4;" GOLD PIECES"
317  PRINT :G = G - G4
318  IF TD = 5 AND K = 0 THEN 325
319  RETURN
320  PRINT
321  PRINT "HE IS FRIENDLY . . . . . AND GIVES YOU"
322  PRINT ". . ";G4;" GOLD PIECES, WHICH YOU ACCEPT"
323  PRINT :G = G + G4
324  GOTO 318
325  PRINT :GT = 2: GOSUB 134
326  PRINT "YOU SEARCH THE CHAMBER . . . AND"
327 GT = 1: GOSUB 134
328  PRINT "FIND . . . . THE CRYSTAL KEY"
329 K = 1: RETURN
330  HOME
331  PRINT "YOU ENTER A NORTH-SOUTH CORRIDOR"
332  PRINT "THRU A SECRET DOOR": PRINT : GOSUB 380
333 KT =  INT ( RND (1) * 9 + 1): IF KT >  = 7 THEN 545
334  RETURN
335  HOME
336  PRINT "YOU ENTER AN EAST-WEST CORRIDOR"
337  GOTO 332
338  REM  TRAP
339  PRINT "YOU ENCOUNTER . . . A TIME TRAP"
340  PRINT ". . . . . IN THIS CHAMBER":GT = 1: GOSUB 134
341 TD =  INT ( RND (1) * 9 + 1)
342  IF TD >  = 7 THEN 347
343  PRINT
344  PRINT "BUT YOU'RE LUCKY . . . . ."
345  PRINT ". . . IT DIDN'T ACTIVATE"
346  RETURN
347 TT = 1: PRINT "AND IT ACTIVATED . . . . .":GT = 2: GOSUB 134
348  FOR A = 1 TO 250
349  PRINT "*        %";
350  NEXT A
351 C =  INT ( RND (1) * 8 + 1):D =  INT ( RND (1) * 8 + 1)
352  PRINT
353  PRINT :G = 100
354  PRINT "YOU HAVE BEEN TELEPORTED TO . . . ."
355  PRINT ". . . . AN UNKNOWN LOCATION . . . ."
356  PRINT
357  PRINT "AND YOU LOST MOST OF YOUR GOLD"
358  PRINT
359  PRINT "YOU HAVE . . . ";G;" GOLD PIECES LEFT"
360 GT = 6: GOSUB 134
361  RETURN
362  PRINT "YOU ARE AT AN EXIT PORTAL"
363  PRINT
364  PRINT "(A KEY IS REQUIRED)"
365  PRINT
366  RETURN
```

Program 1-1—cont. The Time Dungeon: American History, 1607 to 1850, Program Listing

```
367 H = 1:O = 9:W = 8
368 B = O:E = 5:R = 14
369 C = O:PR = O
370  GOTO 216
371  PRINT :GT = 2: GOSUB 134
372  PRINT "BUT BEFORE YOU PROCEED . ."
373  PRINT "YOU LOOK TO THE GROUND AND . . ."
374  PRINT ". . . FIND THE CRYSTAL KEY . .":K = 1
375 GT = 3: GOSUB 134
376  GOTO 212
377  PRINT "YOU ANSWERED ";CA;" QUESTION(S) CORRECTLY"
378  PRINT " . . . . . IN ";M1;" TURNS,"
379  GOTO 409
380  PRINT "THE DOOR CLOSES AND LOCKS BEHIND YOU":GT = 1: GOSUB 134
381  RETURN
382  REM  TIME DISPLAY
383  VTAB 12: PRINT "PORTAL YEAR . . . ";Y3
385  GOSUB 134
386  RETURN
387  HOME : REM  EXIT PORTAL
388  PRINT "YOU ENTER THE EXIT PORTAL AND"
389  PRINT "INSERT THE CRYSTAL KEY INTO THE SLOT"
390  PRINT :GT = 4: GOSUB 134
391  PRINT "THE MACHINE BEGINS TO HUM . . . ."
392  PRINT :GT = 2: GOSUB 134
393 YY = Y2: GOSUB 171
394  PRINT
395  PRINT "YOU FOUND YOUR WAY . . . . ."
396  PRINT ". . . . BACK TO THE PRESENT"
397  PRINT
398  PRINT "YOU HAVE ACQUIRED ";G;" GOLD PIECES"
399  PRINT
400  GOSUB 402
401  GOTO 274
402 GG = G + 100
403 R =  INT ((GG * CA - 7000 + 1) / M1)
404  PRINT
405  PRINT "GAME RATING IS ";R
406  PRINT : IF G <  = O OR KL = O THEN 377
407  PRINT "YOU TOOK ";M1;" TURNS TO FIND THE WAY OUT"
408  PRINT "AND ANSWERED ";CA;" QUESTION(S) CORRECTLY,"
409  PRINT "OUT OF ";TR;" QUESTIONS ASKED.": RETURN
410  HOME :Y3 = YY
411  GOSUB 444
412 Q3 = Q3 + 1
413  IF Q3 > 50 THEN Q3 = O: GOTO 415
414  GOTO 416
415  GOSUB 451
416 Q =  INT ( RND (1) * 50 + 1)
417  IF B(Q) = 1 THEN 416
418 B(Q) = 1
419  PRINT
420  FOR AB = 1 TO Q
```

Program 1-1—cont. The Time Dungeon: American History, 1607 to 1850, Program Listing

```
421  READ YY,QD$,ID,AD$,I1$,I2$,I3$
422  NEXT AB
423  RESTORE
424  GOSUB 171
425  HOME :TR = TR + 1
426  PRINT "YOU HAVE ARRIVED AT THE YEAR ";YY
427  PRINT ". . . . . IN ";BZ$: PRINT
428  PRINT "YOU MUST ANSWER THIS QUESTION"
429  PRINT " . . TO CONTINUE YOUR JOURNEY"
430  PRINT "----------------------------------------"
431  PRINT "THE YEAR IS: ";YY: PRINT : IF ID = 4 THEN 164
432  PRINT QD$
433  PRINT "----------------------------------------"
434  PRINT "QUESTION TYPE: "
435  ON ID GOSUB 455,456,457,458
436  GOSUB 459
437  IF E$ = AD$ THEN 441
438  PRINT "INCORRECT"
439  GOSUB 471
440  RETURN
441  PRINT "CORRECT"
442  GOSUB 463
443  RETURN
444  PRINT "YOU ENTER INTO A BLUE HAZY . . ."
445  PRINT ". . . . . TIME PORTAL . . ."
446  PRINT :GT = 1: GOSUB 134
447  PRINT "A PULSATING GLOW . . . . . ."
448  PRINT ". . . . INDICATES ACTIVATION": PRINT
449  PRINT "PRESENT YEAR . . .  "Y3:GT = 3: GOSUB 134
450  RETURN
451  FOR I = 1 TO 50
452  B(I) = 0
453  NEXT I
454  RETURN
455  PRINT "PEOPLE, PLACES, OR THINGS ?": RETURN
456  PRINT "*** (T)RUE OR (F)ALSE  ?": RETURN
457  PRINT "*** WHO AM I (LAST NAME) ?": RETURN
458  PRINT "*** MULTIPLE CHOICE ?": RETURN
459  PRINT "ENTER CORRECT ANSWER?"
460  INPUT E$
461 G4 =  INT ( RND (1) * 500 + 1) + 125
462  RETURN
463 G = G + G4
464  PRINT "YOU WIN ";G4;" GOLD PIECES"
465 A(C,D) =  INT ( RND (1) * 2 + 1)
466 CA = CA + 1: IF K = 1 THEN  RETURN
467  IF CA = K4 THEN 469
468  RETURN
469  GOSUB 325
470  RETURN
471  PRINT :G4 =  INT ( RND (1) * 400 + 1) + 25
472  PRINT "THE CORRECT ANSWER IS '";AD$;"'"
473  PRINT : IF (G - G4) < 0 THEN G4 = G
```

```
474 G = G - G4
475 GT = 1: GOSUB 134
476  PRINT "YOU LOSE ";G4;" GOLD PIECES"
477  RETURN
478 ZT = 5
479 X =  INT ( RND (1) * 8 + 1):Y =  INT ( RND (1) * 8 + 1)
480  IF A(X,Y) <  = 2 THEN A(X,Y) = 5: RETURN
481 ZT = ZT - 1: IF ZT = 0 THEN  RETURN
482  GOTO 479
483  DATA  1619,IN WHAT COLONY BEGAN THE SALE OF SLAVES FROM AFRICA,4,VIR
     GINIA,NEW HAMPSHIRE,PLYMOUTH,CONNECTICUT
484  DATA  1620,WHAT GROUP OF PEOPLE FOUNDED THE PLY-    MOUTH COLONY,4,S
     EPARATISTS,MORMONS,ENGLISH,CONFORMISTS
485  DATA  1607,THE LONDON CO. EXPEDITION SENT 3 SHIPS- GODSPEED-SARAH CO
     NSTANT-& ....,4,DISCOVERY,ENTERPRISE,BRITAIN,NEW WORLD
486  DATA  1607,CAPT. CHRISTOPHER .... COMMANDED THE 1ST LONDON CO. EXPED
     ITION,4,NEWPORT,PIKE,SMITH,WILLIAMS
487  DATA  1607,JAMESTOWN IS NAMED AFTER THE ENGLISH    KING-JAMES I,2,T,
     0,0,0
488  DATA  1630,WHAT GROUP BEGAN THE COLONY OF MASSACHU- SETTS BAY,4,PURI
     TANS,SEPARATISTS,MORMONS,LOYALISTS
489  DATA  1630,THE PURITANS WERE NOT WELL EQUIPPED TO  SETTLE IN MASSACH
     USETTS,2,F,0,0,0
490  DATA  1635,WHAT COLONY DID REVEREND THOMAS HOOK    HELP ESTABLISH,4,
     CONNECTICUT,VIRGINIA,PLYMOUTH,MASSACHUSETTS
491  DATA  1635,I WAS BANISHED FROM MASSACHUSETTS BAY   FOR MY RELIGIOUS
     BELIEFS,3,WILLIAMS,0,0,0
492  DATA  1783,WHAT DOCUMENT ENDED THE WAR OF INDEPEN- DENCE?,1,TREATY O
     F PARIS,0,0,0
493  DATA  1781,I SURRENDERED MY ENTIRE ARMY DURING THE WAR OF INDEPENDEN
     CE,3,CORNWALLIS,0,0,0
494  DATA  1766,WHAT COLONIAL TAX DID THE BRITISH REPEAL,4,STAMP ACT,WOOL
     EN ACT,SHIP TAX,FOOD TAX
495  DATA  1690,BRITISH PASSED THE .... ACT TO STOP THE MANUFACTURE OF TE
     XTILES,4,WOOLEN,COTTON,RAYON,CLOTHS
496  DATA  1782,AT WHAT CITY WAS THE AMERICAN VICTORY   THAT SHOCKED THE
     BRITISH,4,YORKTOWN,JAMESTOWN,NEW YORK,SARATOGA
497  DATA  1786,AT WHAT CITY BEGAN THE ALTERING OF THE  ARTICLES OF CONFE
     DERATION,4,ANNAPOLIS,SARATOGA,NEW YORK,ALBANY
498  DATA  1636,I FOUNDED THE SETTLEMENT CALLED PROVI-  DENCE,3,WILLIAMS,
     0,0,0
499  DATA  1638,NEW HAMPSHIRE WAS BUILT BY OVERFLOW OF  PEOPLE FROM MASSA
     CHUSETTS,2,T,0,0,0
500  DATA  1679,IN 1679-WHAT COLONY RECEIVED A CHARTER  FROM THE KING,4,N
     EW HAMPSHIRE,PLYMOUTH,VIRGINIA,CONNECTICUT
501  DATA  1649,LORD BALTIMORE PERSUADED THE VIRGINIA   COLONY TO PASS A
     TOLERATION ACT,2,F,0,0,0
502  DATA  1649,.... AND WILLIAMS ESTABLISHED THE TOLER-ATION ACT,4,BALTI
     MORE,WASHINGTON,JEFFERSON,FRANKLIN
503  DATA  1649,TOLERATION ACT ALLOWS CATHOLICS & PROTE-STANTS RELIGIOUS
     FREEDOM,2,T,0,0,0
504  DATA  1624,NEW YORK HAD BEEN FOUNDED AS NEW NETHER-LAND-A DUTCH COLO
     NY,2,T,0,0,0
```

Program 1-1—cont. The Time Dungeon: American History, 1607 to 1850, Program Listing

```
505 DATA 1760,I WAS KNOWN FOR MY EXPERIMENTS WITH ELEC-TRICITY,3,FRANKL
    IN,0,0,0
506 DATA 1760,I WROTE THE BOOK CALLED 'NOTES ON VIR- GINIA',3,JEFFERSO
    N,0,0,0
507 DATA 1763,THE FRENCH & INDIAN WAR ENDED WITH THE SIGNING OF WHAT D
    OCUMENT,1,PEACE OF PARIS,0,0,0
508 DATA 1777,MAIN BATTLE BETWEEN CONTINENTALS & BUR- GOYNE'S FORCES WA
    S NEAR,4,SARATOGA,NEW YORK,YORKTOWN,ANNAPOLIS
509 DATA 1785,CONFEDERATIONS 1ST LAND ORDINANCE WAS CALLED-LAND ORDIN
    ANCE OF 1785,2,T,0,0,0
510 DATA 1787,NORTHWEST ORDINANCE ALLOWED CREATION OF NEW STATES IN THE
     WEST,2,T,0,0,0
511 DATA 1787,THE CONSTITUTION OF THE UNITED STATES WAS COMPLETED IN
    1785,2,F,0,0,0
512 DATA 1791,WHAT WERE THE 1ST 10 AMENDMENTS TO THE CONSTITUTION CALL
    ED,1,BILL OF RIGHTS,0,0,0
513 DATA 1790,THOMAS JEFFERSON AND JAMES MADISON FOUND-ED THE .... PART
    Y,1,REPUBLICAN,0,0,0
514 DATA 1812,WAR OF 1812 RESULTED FROM BRITISH VIOLA-TING AMERICAN TRA
    DE RIGHTS,2,T,0,0,0
515 DATA 1807,WHAT AMERICAN SHIP DID THE BRITISH OPEN FIRE UPON,4,CHESA
    PEAKE,SARATOGA,DISCOVERY,GODSPEED
516 DATA 1812,WHO COMMANDED THE BATTLE OF NEW ORLEANS,4,JACKSON,BALTIMO
    RE,LINCOLN,WASHINGTON
517 DATA 1806,HE FOLLOWED THE MISSISSIPPI RIVER NORTH-WARD TO ITS SOURC
    E,4,PIKE,SMITH,ROGERS,JAMES
518 DATA 1845,WHAT GROUP OF PEOPLE MIGRATED TO THE GREAT SALT LAKE,4
    ,MORMONS,SEPARATISTS,LOYALISTS,INDIANS
519 DATA 1845,I LEAD THE MORMON MIGRATION TO THE UTAH TERRITORY,3,YOUNG
    ,0,0,0
520 DATA 1850,BETWEEN 1830 AND 1850-2 MILLION EUROPEON-S IMMIGRATED TO
    THE U.S.,2,T,0,0,0
521 DATA 1807,I INVENTED THE STEAMBOAT-WHICH MADE WATER TRANSPORTAT
    ION EASIER,3,FULTON,0,0,0
522 DATA 1812,BY 1812-STEAMBOATS SERVED ON THE OHIO AND MISSISSIPPI R
    IVERS,2,T,0,0,0
523 DATA 1816,I CREATED THE 'ERA OF GOOD FEELING' IN POLITICS,3,MONROE,
    0,0,0
524 DATA 1832,I FEARED THE BANK OF THE UNITED STATES AS TOO POWERFUL,3
    ,JACKSON,0,0,0
525 DATA 1830,I SPOKE BEFORE THE SENATE IN SUPPORT OF 'UNIONS',3,WEBSTE
    R,0,0,0
526 DATA 1812,THE WAR OF 1812 WAS OFTEN CALLED THE SECOND WAR FOR IN
    DEPENDENCE,2,T,0,0,0
527 DATA 1803,.... PURCHASE WAS AN ACHIEVEMENT OF JEFFERSON'S ADMIN
    ISTRATION,4,LOUISIANA,NORTHWEST,SOUTHERN,VIRGINIAN
528 DATA 1825,THE GREATEST NUMBER OF PEOPLE MIGRATED TO NORTHERN-MOHAW
    K VALLEY,2,T,0,0,0
529 DATA 1790,IN 1790-THERE WERE 8 MILLION PEOPLE IN THE UNITED STATES
    ,2,F,0,0,0
530 DATA 1850,THERE WERE 8 MILLION PEOPLE BEYOND THE APPALACHIAN MOUNT
    AINS,2,T,0,0,0
```

Program 1-1—cont. The Time Dungeon: American History, 1607 to 1850, Program Listing

```
531  DATA  1825,THE .... CANAL-CONNECTING ALBANY WITH   THE GREAT LAKES-W
     AS OPENED,4,ERIE,NEW YORK,MICHIGAN,ST CLARE
532  DATA  1810,THE MACON BILL NO. 2 ALLOWED TRADE WITH FRANCE AND ENGLAN
     D,2,T,0,0,0
533  HOME : PRINT "THE TIME DUNGEON * * * MAP"
534  PRINT
535  FOR Q = 1 TO 8
536  FOR N = 1 TO 8
537  IF C = N AND D = Q THEN  PRINT "=P= ";: GOTO 540
538 S1 = A(N,Q)
539  ON S1 GOSUB 137,137,138,138,139,140,141,139,142
540  NEXT N
541  PRINT
542  NEXT Q
543 GT =  INT ( RND (1) * 8 + 1) +  INT ( RND (1) * (CA + 5) + 1)
544  GOSUB 134: HOME : RETURN
545  PRINT : PRINT "ON THE WALL IS A GLOWING SCREEN"
546  PRINT "BELOW THE SCREEN IS A RED BUTTON": PRINT
547 KT =  INT ( RND (1) * 9 + 1):KL =  INT ( RND (1) * 15 + 1) + 2
548  GOSUB 565
549  INPUT K$
550  IF K$ = "Y" THEN 552
551  RETURN
552  IF KT >  = 6 THEN 533
553  IF KT <  = 4 THEN 562
554  PRINT :G4 =  INT ( RND (1) * 100 + 1) + 25:G = G + G4
555  PRINT "YOU RECEIVE ";G4;" GOLD PIECES . . ."
556  PRINT "BUT . . . . . THE CORRIDOR NARROWS":GT = 3: GOSUB 134
557 KL = KL - 1: IF KL = 0 THEN  RETURN
558  GOSUB 565
559  INPUT K$
560  IF K$ = "Y" THEN 554
561  RETURN
562  PRINT : PRINT "NOTHING HAPPENS"
563 GT = 1: GOSUB 134
564  RETURN
565  PRINT : PRINT "DO YOU WISH TO PUSH THE BUTTON?"
566  PRINT "ENTER  (Y)ES  OR  (N)O": RETURN
567  HOME : PRINT "YOU ARE STUCK IN THE NARROW CORRIDOR"
568  PRINT ". . . . . AND . . .": PRINT :GT = 3: GOSUB 134
569  GOTO 264
570  PRINT : PRINT "YOU NOTICE A DOOR TO YOUR RIGHT"
571  PRINT
572 KT =  INT ( RND (1) * 9 + 1)
573  PRINT "DO YOU WISH TO OPEN THE DOOR?"
574  PRINT "ENTER  (Y)ES  OR  (N)O"
575  INPUT K$
576  IF K$ = "Y" THEN 578
577  RETURN
578  PRINT : PRINT "YOU TRY THE DOOR . . . . .":GT = 1: GOSUB 134
579  IF KT >  = 7 THEN 589
580  IF KT <  = 4 THEN 587
581  PRINT :G4 =  INT ( RND (1) * 100 + 1) + 25
```

Program 1-1—cont. The Time Dungeon: American History, 1607 to 1850, Program Listing

```
582  PRINT "THE DOOR OPENS . . . . . ."
583  PRINT "REVEALING A CLOSET . . . ."
584  PRINT :G = G + G4
585  PRINT "WHERE YOU FIND ";G4;" GOLD PIECES"
586  PRINT : RETURN
587  PRINT "BUT THE DOOR WON'T OPEN . . . ."
588  PRINT ". . . . IT MUST BE LOCKED": RETURN
589  PRINT : PRINT "THE DOOR OPENS . . . AND SUDDENLY"
590  PRINT "THE CHAMBER BEGINS TO . . . SPIN"
591 G7 =  INT (G / 2):G4 =  INT ( RND (1) * G7 + 1):MM =  INT ( RND (1) *
     20 + 1)
592 GT = 4: GOSUB 134:G = G - G4
593  FOR K9 = 1 TO 250
594  PRINT "+    =    +";: NEXT K9
596  HOME : PRINT "YOU WERE TELEPORTED INTO . . . ."
597  PRINT ". . . . ANOTHER DIMENSION . . . ."
598  PRINT ". . AND RETURNED IN AN INSTANT . ."
599  PRINT : PRINT "BUT YOU DROPPED ";G4;" GOLD PIECES"
600  PRINT ". . . AND WASTED ";MM;" MOVES . . ."
601 M1 = M1 + MM
602 GT = 4: GOSUB 134
603  RETURN
```

Program 1-2. The Time Dungeon: American History, 1848 to 1914, Program Listing

```
100  HOME :BZ$ = "AMERICAN HISTORY":BW$ = "1848 TO 1914"
101  PRINT "THE TIME DUNGEON: ";BZ$
102  PRINT "COPYRIGHT (C) 1981 BY HOWARD BERENBON"
103  PRINT "APPLE II"
104  PRINT
105  PRINT "AN EDUCATIONAL FANTASY GAME"
106 GT = 5: GOSUB 134:Q3 = 0
107  HOME : DIM A(9,9),B(50): GOSUB 451
108  PRINT "YOU WILL BE TELEPORTED TO . . ."
109  PRINT
110  PRINT "THE TIME DUNGEON . . . ."
111  PRINT "TO STUDY ";BZ$
112  PRINT
114 CA = 0:G = 1000:M1 = 1:K = 0:KL = 1:TT = 0:TR = 0
115  PRINT "ENTER YOUR CHARACTER'S NAME?"
116  INPUT A$
117  PRINT "ENTER PRESENT YEAR"
118  INPUT Y2:YY = Y2: IF Y2 > 2000 THEN 117
119  PRINT : PRINT A$;" . . . YOU ARE ON YOUR WAY"
120 GT = 2: GOSUB 134
121  GOSUB 143
122  HOME
123  PRINT "YOU HAVE ARRIVED AT . . . ."
124  PRINT
125  PRINT "THE TIME DUNGEON: ";BZ$
126  PRINT "FOR THE YEARS:    ";BW$
127  PRINT
128  PRINT "YOU CARRY 1000 GOLD PIECES": PRINT
129  PRINT "YOU WILL ENCOUNTER . . ."
130  PRINT "TIME PORTALS WHICH TELEPORT"
131  PRINT "YOU TO EVENTS IN ";BZ$
132 GT = 8: GOSUB 134
133  GOTO 199
134  FOR ZZ = 1 TO 908 * GT
135  NEXT ZZ
136  RETURN
137  PRINT "O   ";: RETURN
138  PRINT "AP  ";: RETURN
139  PRINT "?   ";: RETURN
140  PRINT "NS  ";: RETURN
141  PRINT "EW  ";: RETURN
142  PRINT "X   ";: RETURN
143  REM  SET UP DUNGEON
144  FOR X = 1 TO 8
145  FOR Y = 1 TO 8
146 A(X,Y) =  INT ( RND (1) * 7 + 1)
147  NEXT Y
148  NEXT X
149  REM  TRAPS
150 H =  INT ( RND (1) * 3 + 1) + 1
151  FOR N = 1 TO H
152 X =  INT ( RND (1) * 8 + 1)
153 Y =  INT ( RND (1) * 8 + 1)
```

Program 1-2—cont. The Time Dungeon: American History, 1848 to 1914, Program Listing

```
154 A(X,Y) = 8
155  NEXT N
156  REM  EXITS
157 S =  INT ( RND (1) * 4 + 1) + 1
158  FOR N = 1 TO S
159 X =  INT ( RND (1) * 8 + 1)
160 Y =  INT ( RND (1) * 8 + 1)
161 A(X,Y) = 9
162  NEXT N
163  RETURN
164 R6 =  INT ( RND (1) * 4 + 1): PRINT QD$;"?:": PRINT
165  ON R6 GOSUB 167,168,169,170
166  GOTO 433
167  PRINT AD$,I1$: PRINT I2$,I3$: RETURN
168  PRINT I2$,AD$: PRINT I1$,I3$: RETURN
169  PRINT I1$,I2$: PRINT AD$,I3$: RETURN
170  PRINT I3$,I1$: PRINT I2$,AD$: RETURN
171  HOME
173 GT = 1
174  GOSUB 134
175  FOR B = 1 TO 70:B4 =  INT ( RND (1) * 23 + 1)
176 B7 =  INT ( RND (1) * 39 + 1): VTAB B4: PRINT  TAB( B7)".";
177  PRINT : NEXT B: PRINT
178 GT = .005:Y5 = 25
179  IF Y3 = YY THEN  VTAB 1: PRINT "ALREADY AT . . . . ": GOTO 196
180  IF Y3 < YY THEN 188
181  IF (Y3 - YY) <  = 50 THEN 185
182 Y3 = Y3 - Y5
183  GOSUB 382
184  IF Y3 = YY THEN 195
185  IF (Y3 - YY) <  = 50 THEN Y5 = 1
186  IF (Y3 - YY) <  = 5 THEN GT = .4
187  GOTO 182
188  IF (YY - Y3) <  = 50 THEN 192
189 Y3 = Y3 + Y5
190  GOSUB 382
191  IF Y3 = YY THEN 195
192  IF (YY - Y3) <  = 50 THEN Y5 = 1
193  IF (YY - Y3) <  = 5 THEN GT = .4
194  GOTO 189
195  PRINT : PRINT "ARRIVAL . . . . AT"
196  PRINT "DESTINATION YEAR . . . . ";YY
197 GT = 4: GOSUB 134
198  HOME : RETURN
199 C =  INT ( RND (1) * 8 + 1):D =  INT ( RND (1) * 8 + 1):A(C,D) = 1
200 K4 =  INT ( RND (1) * 4 + 1) + 3
201  HOME :A = A(C,D):GT = 1: GOSUB 134
202  ON A GOSUB 292,300,410,410,306,330,335,338,362
203  IF KL = 0 THEN 567
204  PRINT : IF TT = 1 THEN TT = 0: GOTO 201
205  IF G <  = 0 THEN 264
206  PRINT A$;",  WHAT IS YOUR ACTION OR MOVE?"
207  PRINT
```

Program 1-2—cont. The Time Dungeon: American History, 1848 to 1914, Program Listing

```
208  PRINT "(N)ORTH, (E)AST, (S)OUTH"
209  PRINT "(W)EST, E(X)IT, (G)OLD"
210  INPUT M1$
211 M1 = M1 + 1: IF K = 0 AND M1 > 70 THEN 371
212  IF M1$ = "N" THEN 220
213  IF M1$ = "E" THEN 225
214  IF M1$ = "S" THEN 230
215  IF M1$ = "W" THEN 235
216  IF M1$ = "X" THEN 240
217  IF M1$ = "G" THEN 251
218  PRINT
219  GOTO 204
220  REM  NORTH
221  IF A = 7 THEN 255
222  IF (D - 1) = 0 THEN 281
223 D = D - 1
224  GOTO 201
225  REM  EAST
226  IF A = 6 THEN 260
227  IF (C + 1) = 9 THEN 286
228 C = C + 1
229  GOTO 201
230  REM  SOUTH
231  IF A = 7 THEN 255
232  IF (D + 1) = 9 THEN 288
233 D = D + 1
234  GOTO 201
235  REM  WEST
236  IF A = 6 THEN 260
237  IF (C - 1) = 0 THEN 290
238 C = C - 1
239  GOTO 201
240  HOME
241  IF A <  > 9 THEN 248
242  IF K = 1 THEN 387
243  PRINT "YOU CANNOT EXIT THE TIME DUNGEON"
244  PRINT "YOU DON'T HAVE THE CRYSTAL KEY"
245 GT = 2: GOSUB 134
246  PRINT
247  GOTO 204
248  PRINT "YOU ARE NOT AT AN EXIT PORTAL"
249 GT = 2: GOSUB 134
250  GOTO 204
251  REM  GOLD
252  HOME : PRINT "YOU HAVE ";G;" GOLD PIECES WITH YOU"
253  PRINT
254  GOTO 204
255  REM  EW
256  HOME : PRINT "YOU ARE IN AN EAST-WEST CORRIDOR"
257  PRINT "YOU CAN ONLY GO EAST OR WEST"
258  PRINT
259  GOTO 204
260  REM  NS
```

Program 1-2—cont. The Time Dungeon: American History, 1848 to 1914, Program Listing

```
261  HOME : PRINT "YOU ARE IN A NORTH-SOUTH CORRIDOR"
262  PRINT "YOU CAN ONLY GO NORTH OR SOUTH"
263  GOTO 258
264  REM  GOLD ZERO
265 GT = 2: GOSUB 134
266  PRINT
267  PRINT "YOU LOST ALL YOUR GOLD AND YOU WERE"
268  PRINT " . . . UNABLE TO MEET THE DEMANDS OF"
269  PRINT " . . . THE TIME DUNGEON . . . . ."
270  PRINT
271  PRINT
272 T = 3: GOSUB 134
273  GOSUB 402
274  PRINT
275  PRINT "ANOTHER GAME?"
276  PRINT "ENTER '1'-YES  '0'-NO"
277  INPUT AA
278  IF AA <  > 1 THEN 280
279  HOME : GOTO 108
280  END
281  HOME : PRINT "YOU ARE AT THE NORTH WALL"
282  PRINT "YOU CANNOT PASS THROUGH"
283  PRINT
284  PRINT "TRY ANOTHER DIRECTION?"
285  GOTO 204
286  HOME : PRINT "YOU ARE AT THE EAST WALL"
287  GOTO 282
288  HOME : PRINT "YOU ARE AT THE SOUTH WALL"
289  GOTO 282
290  HOME : PRINT "YOU ARE AT THE WEST WALL"
291  GOTO 282
292 KT =  INT ( RND (1) * 9 + 1)
293  PRINT "YOU ARE IN A GLOWING TIME PORTAL"
294 GT = 1: GOSUB 134
295  PRINT
296  PRINT "THE LIGHT FADES . . . . . ."
297  PRINT "THE PORTAL IS INACTIVE . . . ."
298  IF A = 1 AND KT > 8 THEN 570
299  RETURN
300  PRINT "YOU ARE IN A DUST FILLED PORTAL"
301 GT = 1: GOSUB 134
302  PRINT
303  PRINT "A BRIGHT LIGHT IS ACTIVATED AND . ."
304  PRINT
305  GOTO 296
306  HOME
307  PRINT "AN ALIEN TRAVELER IS IN THIS CHAMBER"
308 A(C,D) =  INT ( RND (1) * 2 + 1): GOSUB 478
309 GT = 1: GOSUB 134
310 TD =  INT ( RND (1) * 10 + 1)
311 G4 =  INT ( RND (1) * 350 + 1)
312 Y =  INT ( RND (1) * 8 + 1)
313  IF Y <  = 5 THEN 320
```

Program 1-2—cont. The Time Dungeon: American History, 1848 to 1914, Program Listing

```
314  PRINT : IF (G - G4) < 0 THEN G4 = G
315  PRINT "HE IS UNFRIENDLY . . . . AND AS HE"
316  PRINT "LEAVES . . . HE TAKES ";G4;" GOLD PIECES"
317  PRINT :G = G - G4
318  IF TD = 5 AND K = 0 THEN 325
319  RETURN
320  PRINT
321  PRINT "HE IS FRIENDLY . . . . . AND GIVES YOU"
322  PRINT ". . ";G4;" GOLD PIECES, WHICH YOU ACCEPT"
323  PRINT :G = G + G4
324  GOTO 318
325  PRINT :GT = 2: GOSUB 134
326  PRINT "YOU SEARCH THE CHAMBER . . . AND"
327 GT = 1: GOSUB 134
328  PRINT "FIND . . . . THE CRYSTAL KEY"
329 K = 1: RETURN
330  HOME
331  PRINT "YOU ENTER A NORTH-SOUTH CORRIDOR"
332  PRINT "THRU A SECRET DOOR": PRINT : GOSUB 380
333 KT =  INT ( RND (1) * 9 + 1): IF KT >  = 7 THEN 545
334  RETURN
335  HOME
336  PRINT "YOU ENTER AN EAST-WEST CORRIDOR"
337  GOTO 332
338  REM  TRAP
339  PRINT "YOU ENCOUNTER . . . A TIME TRAP"
340  PRINT ". . . . . IN THIS CHAMBER":GT = 1: GOSUB 134
341 TD =  INT ( RND (1) * 9 + 1)
342  IF TD >  = 7 THEN 347
343  PRINT
344  PRINT "BUT YOU'RE LUCKY . . . . ."
345  PRINT ". . . IT DIDN'T ACTIVATE"
346  RETURN
347 TT = 1: PRINT "AND IT ACTIVATED . . . . .":GT = 2: GOSUB 134
348  FOR A = 1 TO 250
349  PRINT "*        %";
350  NEXT A
351 C =  INT ( RND (1) * 8 + 1):D =  INT ( RND (1) * 8 + 1)
352  PRINT
353  PRINT :G = 100
354  PRINT "YOU HAVE BEEN TELEPORTED TO . . . ."
355  PRINT ". . . . AN UNKNOWN LOCATION . . . ."
356  PRINT
357  PRINT "AND YOU LOST MOST OF YOUR GOLD"
358  PRINT
359  PRINT "YOU HAVE . . . ";G;" GOLD PIECES LEFT"
360 GT = 6: GOSUB 134
361  RETURN
362  PRINT "YOU ARE AT AN EXIT PORTAL"
363  PRINT
364  PRINT "(A KEY IS REQUIRED)"
365  PRINT
366  RETURN
```

Program 1-2—cont. The Time Dungeon: American History, 1848 to 1914, Program Listing

```
367 H = 1:O = 9:W = 8
368 B = 0:E = 5:R = 14
369 C = 0:PR = 0
370  GOTO 216
371  PRINT :GT = 2: GOSUB 134
372  PRINT "BUT BEFORE YOU PROCEED . ."
373  PRINT "YOU LOOK TO THE GROUND AND . . ."
374  PRINT ". . . FIND THE CRYSTAL KEY . .":K = 1
375 GT = 3: GOSUB 134
376  GOTO 212
377  PRINT "YOU ANSWERED ";CA;" QUESTION(S) CORRECTLY"
378  PRINT " . . . . . IN ";M1;" TURNS,"
379  GOTO 409
380  PRINT "THE DOOR CLOSES AND LOCKS BEHIND YOU":GT = 1: GOSUB 134
381  RETURN
382  REM  TIME DISPLAY
383  VTAB 12: PRINT "PORTAL YEAR . . . ";Y3
385  GOSUB 134
386  RETURN
387  HOME : REM  EXIT PORTAL
388  PRINT "YOU ENTER THE EXIT PORTAL AND"
389  PRINT "INSERT THE CRYSTAL KEY INTO THE SLOT"
390  PRINT :GT = 4: GOSUB 134
391  PRINT "THE MACHINE BEGINS TO HUM . . . ."
392  PRINT :GT = 2: GOSUB 134
393 YY = Y2: GOSUB 171
394  PRINT
395  PRINT "YOU FOUND YOUR WAY . . . . ."
396  PRINT ". . . . BACK TO THE PRESENT"
397  PRINT
398  PRINT "YOU HAVE ACQUIRED ";G;" GOLD PIECES"
399  PRINT
400  GOSUB 402
401  GOTO 274
402 GG = G + 100
403 R =  INT ((GG * CA - 7000 + 1) / M1)
404  PRINT
405  PRINT "GAME RATING IS ";R
406  PRINT : IF G <  = 0 OR KL = 0 THEN 377
407  PRINT "YOU TOOK ";M1;" TURNS TO FIND THE WAY OUT"
408  PRINT "AND ANSWERED ";CA;" QUESTION(S) CORRECTLY,"
409  PRINT "OUT OF ";TR;" QUESTIONS ASKED.": RETURN
410  HOME :Y3 = YY
411  GOSUB 444
412 Q3 = Q3 + 1
413  IF Q3 > 50 THEN Q3 = 0: GOTO 415
414  GOTO 416
415  GOSUB 451
416 Q =  INT ( RND (1) * 50 + 1)
417  IF B(Q) = 1 THEN 416
418 B(Q) = 1
419  PRINT
420  FOR AB = 1 TO Q
```

Program 1-2—cont. The Time Dungeon: American History, 1848 to 1914, Program Listing

```
421  READ YY,QD$,ID,AD$,I1$,I2$,I3$
422  NEXT AB
423  RESTORE
424  GOSUB 171
425  HOME :TR = TR + 1
426  PRINT "YOU HAVE ARRIVED AT THE YEAR ";YY
427  PRINT ". . . . . IN ";BZ$: PRINT
428  PRINT "YOU MUST ANSWER THIS QUESTION"
429  PRINT " . . TO CONTINUE YOUR JOURNEY"
430  PRINT "----------------------------------------"
431  PRINT "THE YEAR IS: ";YY: PRINT : IF ID = 4 THEN 164
432  PRINT QD$
433  PRINT "----------------------------------------"
434  PRINT "QUESTION TYPE: "
435  ON ID GOSUB 455,456,457,458
436  GOSUB 459
437  IF E$ = AD$ THEN 441
438  PRINT "INCORRECT"
439  GOSUB 471
440  RETURN
441  PRINT "CORRECT"
442  GOSUB 463
443  RETURN
444  PRINT "YOU ENTER INTO A BLUE HAZY . . ."
445  PRINT ". . . . . TIME PORTAL . . ."
446  PRINT :GT = 1: GOSUB 134
447  PRINT "A PULSATING GLOW . . . . . ."
448  PRINT ". . . . INDICATES ACTIVATION": PRINT
449  PRINT "PRESENT YEAR . . .  "Y3:GT = 3: GOSUB 134
450  RETURN
451  FOR I = 1 TO 50
452 B(I) = 0
453  NEXT I
454  RETURN
455  PRINT "PEOPLE, PLACES, OR THINGS ?": RETURN
456  PRINT "*** (T)RUE OR (F)ALSE  ?": RETURN
457  PRINT "*** WHO AM I (LAST NAME) ?": RETURN
458  PRINT "*** MULTIPLE CHOICE ?": RETURN
459  PRINT "ENTER CORRECT ANSWER?"
460  INPUT E$
461 G4 =  INT ( RND (1) * 500 + 1) + 125
462  RETURN
463 G = G + G4
464  PRINT "YOU WIN ";G4;" GOLD PIECES"
465 A(C,D) =  INT ( RND (1) * 2 + 1)
466 CA = CA + 1: IF K = 1 THEN  RETURN
467  IF CA = K4 THEN 469
468  RETURN
469  GOSUB 325
470  RETURN
471  PRINT :G4 =  INT ( RND (1) * 400 + 1) + 25
472  PRINT "THE CORRECT ANSWER IS '";AD$;"'"
473  PRINT : IF (G - G4) < 0 THEN G4 = G
```

Program 1-2—cont. The Time Dungeon: American History, 1848 to 1914, Program Listing

```
474 G = G - G4
475 GT = 1: GOSUB 134
476  PRINT "YOU LOSE ";G4;" GOLD PIECES"
477  RETURN
478 ZT = 5
479 X =  INT ( RND (1) * 8 + 1):Y =  INT ( RND (1) * 8 + 1)
480  IF A(X,Y) <  = 2 THEN A(X,Y) = 5: RETURN
481 ZT = ZT - 1: IF ZT = 0 THEN  RETURN
482  GOTO 479
483  DATA 1850,SLAVE TRADE WAS ABOLISHED IN WASHINGTON DC,2,T,0,0,0
484  DATA 1848,THE .... RUSH STARTED IN CALIFORNIA,4,GOLD,SILVER,TIN,BRAS
     S
485  DATA 1852,I PUBLISHED 'UNCLE TOMS'S CABIN',3,STOWE,0,0,0
486  DATA 1853,WHAT ALLOWED PURCHASE OF LAND FROM MEXI-CO,1,GADSDEN PURCH
     ASE,0,0,0
487  DATA 1854,I ENACTED THE KANSAS & NEBRASKA ACT,3,DOUGLAS,0,0,0
488  DATA 1856,WHAT POLITICAL PARTY WAS FORMED THIS    YEAR,4,REPUBLICAN,
     DEMOCRATIC,WHIGS,PROGRESSIVE
489  DATA 1857,THE SUPREME COURT RULED THE MISSOURI    COMPROMISE CONSTIT
     UTIONAL,2,F,0,0,0
490  DATA 1858,HE DEBATED SENATOR DOUGLAS ON SLAVERY,4,LINCOLN,PLESSY,STO
     WE,LEE
491  DATA 1859,I TRIED TO SEIZE THE FEDERAL ARSENAL AT HARPERS FERRY,3,BR
     OWN,0,0,0
492  DATA 1860,LINCOLN WAS ELECTED PRESIDENT IN THIS  YEAR,2,T,0,0,0
493  DATA  1861,WHO WAS PRESIDENTOF THE 'CONFEDERATE   STATESOF AMERICA',
     4,DAVIS,LEE,BROWN,LINCOLN
494  DATA 1861,S. CAROLINA TROOPS FIRED ON FORT ..... -STARTING THE CIVIL
      WAR,1,SUMTER,0,0,0
495  DATA 1861,NORTH CAROLINA WAS A CONFEDERATE STATE,2,T,0,0,0
496  DATA  1862,THE EMANCIPATION PROCLAMATION WAS TO    TAKE EFFECT IN JA
     NUARY-1863,2,T,0,0,0
497  DATA  1863,GENERAL MEADE'S UNION FORCES DEFEATS    GENERAL LEE'S AT?
     ,4,GETTYSBURG,NEW YORK,APPOMATTOX,WASHINGTON
498  DATA 1864,HE BECAME COMMANDER OF THE UNION ARMIES,4,GRANT,LEE,DAVIS,
     JACKSON
499  DATA 1865,THE .... AMENDMENT-ABOLISHING SLAVERY-  WAS RATIFIED,4,13T
     H,2ND,20TH,5TH
500  DATA 1865,WHO ASSASSINATED LINCOLN-ON APRIL 14TH,1,BOOTH,0,0,0
501  DATA 1865,GENERAL LEE SURRENDERED AT ..... COURT HOUSE,1,APPOMATTOX,
     0,0,0
502  DATA 1866,IN WHAT STATE WAS THE KU KLUX KLAN FORM-ED,4,TENNESSEE,VIR
     GINIA,TEXAS,GEORGIA
503  DATA 1867,WHAT LAND WAS PURCHASED FROM RUSSIA THIS YEAR,4,ALASKA,HAW
     AII,OREGON,TEXAS
504  DATA 1867,WHAT WERE THE NORTHERNERS CALLED WHO    HELPED TO REBUILD
     THE SOUTH,1,CARPETBAGGERS,0,0,0
496  DATA  1862,THE EMANCIPATION PROCLAMATION WAS TO    TAKE EFFECT IN JA
     NUARY-1863,2,T,0,0,0
505  DATA 1870,THE 15TH AMENDMENT GAVE 'BACKS' THE     RIGHT TO ....,1,VO
     TE,0,0,0
506  DATA 1871,A DISASTROUS FIRE DESTROYED WHAT CITY,4,CHICAGO,DETROIT,NE
     W YORK,BOSTON
```

Program 1-2—cont. The Time Dungeon: American History, 1848 to 1914, Program Listing

```
507 DATA 1875,CIVIL RIGHTS ACT PASSED AGAINST PUBLIC  DISCRIMINATION OF
    BLACKS,2,T,0,0,0
508 DATA 1876,MY TROOPS WERE MASSACRED BY SITTING BULL-AT LITTLE BIGHORN
    ,3,CUSTER,0,0,0
509 DATA 1881,WHAT PRESIDENT WAS SHOT THIS YEAR,4,GARFIELD,LINCOLN,TAFT,
    DAVIS
510 DATA 1886,HE WAS PRESIDENT OF THE AMERICAN FEDERA-TION OF LABOR,4,GO
    MPERS,MONROE,TAFT,FRICK
511 DATA 1883,THE ..... ACT ESTABLISHED THE CIVIL SER-VICE SYSTEM,4,PEND
    LETON,LABOR,TRADE,WORKERS
512 DATA 1890,THE ..... ANTI-TRUST ACT BECAME LAW THIS YEAR,4,SHERMAN,PU
    LLMAN,PENDLETON,TAFT
513 DATA 1894,WHAT STRIKE BROUGHT FEDERAL INTERVENTION,4,PULLMAN,COAL,FA
    RMERS,GRAIN
514 DATA 1895,SOUTHERN STATES USED .... CLAUSES-      DEPRIVE BLACKS VOT
    ING RIGHTS,1,GRANDFATHER,0,0,0
515 DATA 1896,SUPREME COURT-PLESSY V. FERGUSON-UPHELD LOUISIANA SEGREGAT
    ION LAW,2,T,0,0,0
516 DATA 1897,KLONDIKE .... RUSH BEGAN THIS YEAR,4,GOLD,SILVER,URANIUM,D
    IAMOND
517 DATA 1898,SPANISH-AMERICAN WAR BEGAN WHEN WHAT    SHIP EXPLODED-HAVA
    NA HARBOR,4,MAINE,UNION,YORK,ATLANTIC
518 DATA 1898,THE UNITED STATES ANNEXED THE .....     ISLANDS,1,HAWAIIAN
    ,0,0,0
519 DATA 1900,SAMOAN ISLANDS WERE DIVIDED BETWEEN THE UNITED STATES & ..
    ..,4,GERMANY,RUSSIA,FRANCE,ITALY
520 DATA 1901,I BECAME PRESIDENT AFTER MCKINLEY WAS   SHOT,3,ROOSEVELT,0
    ,0,0
521 DATA 1902,WHAT DID ROOSEVELT PLEDGE FOR BOTH LABOR & INDUSTRY,1,SQUA
    RE DEAL,0,0,0
522 DATA 1903,THE ..... BROTHERS FLEW THE 1ST SUCCESS-FUL AIRPLANE FLIGH
    T,1,WRIGHT,0,0,0
523 DATA 1906,EARTHQUAKE AND FIRE DESTROYED WHAT CITY,4,SAN FRANCISCO,CH
    ICAGO,BOSTON,RICHMOND
524 DATA 1907,GENTLEMANS AGREEMENT-WITH JAPAN-ALLOWED LABORERS TO MIGRAT
    E HERE,2,F,0,0,0
525 DATA 1899,THE UNITED STATES PARTICIPATED IN THE   1ST ..... CONFEREN
    CE,1,HAGUE,0,0,0
526 DATA 1909,HE DISCOVERED THE NORTH POLE THIS YEAR,4,PEARY,LOUIS,SMITH
    ,PIKE
527 DATA 1912,ROOSEVELT WAS WHAT PARTY'S CANDIDATE FOR PRESIDENT,1,PROGR
    ESSIVE, 0,0,0
528 DATA 1913,THE FEDERAL .... SYSTEM WAS ESTABLISHED THIS YEAR,1,RESERV
    E,0,0,0
529 DATA 1914,THE FEDERAL .... COMMISSION WAS ESTAB-  LISHED THIS YEAR,1
    ,TRADE,0,0,0
530 DATA 1908,I WAS ELECTED PRESIDENT THIS YEAR,3,TAFT,0,0,0
531 DATA 1914,THE UNITED STATES CLAIMED NEUTRALITY TO WORLD WAR I,2,T,0,
    0,0
532 DATA 1913,WILSON WON A REDUCTION OF THE .... AFTER A HARD FIGHT,1,TA
    RIFF,0,0,0
533 HOME : PRINT "THE TIME DUNGEON * * * MAP"
534 PRINT
```

Program 1-2—cont. The Time Dungeon: American History, 1848 to 1914, Program Listing

```
535  FOR Q = 1 TO 8
536  FOR N = 1 TO 8
537  IF C = N AND D = Q THEN  PRINT "=P= ";: GOTO 540
538 S1 = A(N,Q)
539  ON S1 GOSUB 137,137,138,138,139,140,141,139,142
540  NEXT N
541  PRINT
542  NEXT Q
543 GT =  INT ( RND (1) * 8 + 1) +  INT ( RND (1) * (CA + 5) + 1)
544  GOSUB 134: HOME : RETURN
545  PRINT : PRINT "ON THE WALL IS A GLOWING SCREEN"
546  PRINT "BELOW THE SCREEN IS A RED BUTTON": PRINT
547 KT =  INT ( RND (1) * 9 + 1):KL =  INT ( RND (1) * 15 + 1) + 2
548  GOSUB 565
549  INPUT K$
550  IF K$ = "Y" THEN 552
551  RETURN
552  IF KT >  = 6 THEN 533
553  IF KT <  = 4 THEN 562
554  PRINT :G4 =  INT ( RND (1) * 100 + 1) + 25:G = G + G4
555  PRINT "YOU RECEIVE ";G4;" GOLD PIECES . . ."
556  PRINT "BUT . . . . . THE CORRIDOR NARROWS":GT = 3: GOSUB 134
557 KL = KL - 1: IF KL = 0 THEN  RETURN
558  GOSUB 565
559  INPUT K$
560  IF K$ = "Y" THEN 554
561  RETURN
562  PRINT : PRINT "NOTHING HAPPENS"
563 GT = 1: GOSUB 134
564  RETURN
565  PRINT : PRINT "DO YOU WISH TO PUSH THE BUTTON?"
566  PRINT "ENTER  (Y)ES  OR  (N)O": RETURN
567  HOME : PRINT "YOU ARE STUCK IN THE NARROW CORRIDOR"
568  PRINT ". . . . . AND . . .": PRINT :GT = 3: GOSUB 134
569  GOTO 264
570  PRINT : PRINT "YOU NOTICE A DOOR TO YOUR RIGHT"
571  PRINT
572 KT =  INT ( RND (1) * 9 + 1)
573  PRINT "DO YOU WISH TO OPEN THE DOOR?"
574  PRINT "ENTER  (Y)ES  OR  (N)O"
575  INPUT K$
576  IF K$ = "Y" THEN 578
577  RETURN
578  PRINT : PRINT "YOU TRY THE DOOR . . . . .":GT = 1: GOSUB 134
579  IF KT >  = 7 THEN 589
580  IF KT <  = 4 THEN 587
581  PRINT :G4 =  INT ( RND (1) * 100 + 1) + 25
582  PRINT "THE DOOR OPENS . . . . . ."
583  PRINT "REVEALING A CLOSET . . . ."
584  PRINT :G = G + G4
585  PRINT "WHERE YOU FIND ";G4;" GOLD PIECES"
586  PRINT : RETURN
587  PRINT "BUT THE DOOR WON'T OPEN . . . ."
```

Program 1-2—cont. The Time Dungeon: American History, 1848 to 1914, Program Listing

```
588  PRINT ". . . . IT MUST BE LOCKED": RETURN
589  PRINT : PRINT "THE DOOR OPENS . . . AND SUDDENLY"
590  PRINT "THE CHAMBER BEGINS TO . . . SPIN"
591 G7 =  INT (G / 2):G4 =  INT ( RND (1) * G7 + 1):MM =  INT ( RND (1) *
     20 + 1)
592 GT = 4: GOSUB 134:G = G - G4
593  FOR K9 = 1 TO 250
594  PRINT "+    =    +";: NEXT K9
596  HOME : PRINT "YOU WERE TELEPORTED INTO . . . ."
597  PRINT ". . . . ANOTHER DIMENSION . . . ."
598  PRINT ". . AND RETURNED IN AN INSTANT . ."
599  PRINT : PRINT "BUT YOU DROPPED ";G4;" GOLD PIECES"
600  PRINT ". . . AND WASTED ";MM;" MOVES . . ."
601 M1 = M1 + MM
602 GT = 4: GOSUB 134
603  RETURN
```

Program 1-3. The Time Dungeon: American History, 1916 to 1975, Program Listing

```
100  HOME :BZ$ = "AMERICAN HISTORY":BW$ = "1916 TO 1975"
101  PRINT "THE TIME DUNGEON: ";BZ$
102  PRINT "COPYRIGHT (C) 1981 BY HOWARD BERENBON"
103  PRINT "APPLE II"
104  PRINT
105  PRINT "AN EDUCATIONAL FANTASY GAME"
106 GT = 5: GOSUB 134:Q3 = 0
107  HOME : DIM A(9,9),B(50): GOSUB 451
108  PRINT "YOU WILL BE TELEPORTED TO . . ."
109  PRINT
110  PRINT "THE TIME DUNGEON . . . ."
111  PRINT "TO STUDY ";BZ$
112  PRINT
114 CA = 0:G = 1000:M1 = 1:K = 0:KL = 1:TT = 0:TR = 0
115  PRINT "ENTER YOUR CHARACTER'S NAME?"
116  INPUT A$
117  PRINT "ENTER PRESENT YEAR"
118  INPUT Y2:YY = Y2: IF Y2 > 2000 THEN 117
119  PRINT : PRINT A$;" . . . YOU ARE ON YOUR WAY"
120 GT = 2: GOSUB 134
121  GOSUB 143
122  HOME
123  PRINT "YOU HAVE ARRIVED AT . . . ."
124  PRINT
125  PRINT "THE TIME DUNGEON: ";BZ$
126  PRINT "FOR THE YEARS:    ";BW$
127  PRINT
128  PRINT "YOU CARRY 1000 GOLD PIECES": PRINT
129  PRINT "YOU WILL ENCOUNTER . . ."
130  PRINT "TIME PORTALS WHICH TELEPORT"
131  PRINT "YOU TO EVENTS IN ";BZ$
132 GT = 8: GOSUB 134
133  GOTO 199
134  FOR ZZ = 1 TO 908 * GT
135  NEXT ZZ
136  RETURN
137  PRINT "O   ";: RETURN
138  PRINT "AP  ";: RETURN
139  PRINT "?   ";: RETURN
140  PRINT "NS  ";: RETURN
141  PRINT "EW  ";: RETURN
142  PRINT "X   ";: RETURN
143  REM  SET UP DUNGEON
144  FOR X = 1 TO 8
145  FOR Y = 1 TO 8
146 A(X,Y) =  INT ( RND (1) * 7 + 1)
147  NEXT Y
148  NEXT X
149  REM  TRAPS
150 H =  INT ( RND (1) * 3 + 1) + 1
151  FOR N = 1 TO H
152 X =  INT ( RND (1) * 8 + 1)
153 Y =  INT ( RND (1) * 8 + 1)
```

Program 1-3—cont. The Time Dungeon: American History, 1916 to 1975, Program Listing

```
154 A(X,Y) = 8
155  NEXT N
156  REM  EXITS
157 S =  INT ( RND (1) * 4 + 1) + 1
158  FOR N = 1 TO S
159 X =  INT ( RND (1) * 8 + 1)
160 Y =  INT ( RND (1) * 8 + 1)
161 A(X,Y) = 9
162  NEXT N
163  RETURN
164 R6 =  INT ( RND (1) * 4 + 1): PRINT QD$;"?:": PRINT
165  ON R6 GOSUB 167,168,169,170
166  GOTO 433
167  PRINT AD$,I1$: PRINT I2$,I3$: RETURN
168  PRINT I2$,AD$: PRINT I1$,I3$: RETURN
169  PRINT I1$,I2$: PRINT AD$,I3$: RETURN
170  PRINT I3$,I1$: PRINT I2$,AD$: RETURN
171  HOME
173 GT = 1
174  GOSUB 134
175  FOR B = 1 TO 70:B4 =  INT ( RND (1) * 23 + 1)
176 B7 =  INT ( RND (1) * 39 + 1): VTAB B4: PRINT  TAB( B7)".";
177  PRINT : NEXT B: PRINT
178 GT = .005:Y5 = 25
179  IF Y3 = YY THEN  VTAB 1: PRINT "ALREADY AT . . . . ": GOTO 196
180  IF Y3 < YY THEN 188
181  IF (Y3 - YY) <  = 50 THEN 185
182 Y3 = Y3 - Y5
183  GOSUB 382
184  IF Y3 = YY THEN 195
185  IF (Y3 - YY) <  = 50 THEN Y5 = 1
186  IF (Y3 - YY) <  = 5 THEN GT = .4
187  GOTO 182
188  IF (YY - Y3) <  = 50 THEN 192
189 Y3 = Y3 + Y5
190  GOSUB 382
191  IF Y3 = YY THEN 195
192  IF (YY - Y3) <  = 50 THEN Y5 = 1
193  IF (YY - Y3) <  = 5 THEN GT = .4
194  GOTO 189
195  PRINT : PRINT "ARRIVAL . . . . AT"
196  PRINT "DESTINATION YEAR . . . . ";YY
197 GT = 4: GOSUB 134
198  HOME : RETURN
199 C =  INT ( RND (1) * 8 + 1):D =  INT ( RND (1) * 8 + 1):A(C,D) = 1
200 K4 =  INT ( RND (1) * 4 + 1) + 3
201  HOME :A = A(C,D):GT = 1: GOSUB 134
202  ON A GOSUB 292,300,410,410,306,330,335,338,362
203  IF KL = 0 THEN 567
204  PRINT : IF TT = 1 THEN TT = 0: GOTO 201
205  IF G <  = 0 THEN 264
206  PRINT A$;",  WHAT IS YOUR ACTION OR MOVE?"
207  PRINT
```

Program 1-3—cont. The Time Dungeon: American History, 1916 to 1975, Program Listing

```
208  PRINT "(N)ORTH, (E)AST, (S)OUTH"
209  PRINT "(W)EST, E(X)IT, (G)OLD"
210  INPUT M1$
211 M1 = M1 + 1: IF K = 0 AND M1 > 70 THEN 371
212  IF M1$ = "N" THEN 220
213  IF M1$ = "E" THEN 225
214  IF M1$ = "S" THEN 230
215  IF M1$ = "W" THEN 235
216  IF M1$ = "X" THEN 240
217  IF M1$ = "G" THEN 251
218  PRINT
219  GOTO 204
220  REM  NORTH
221  IF A = 7 THEN 255
222  IF (D - 1) = 0 THEN 281
223 D = D - 1
224  GOTO 201
225  REM  EAST
226  IF A = 6 THEN 260
227  IF (C + 1) = 9 THEN 286
228 C = C + 1
229  GOTO 201
230  REM  SOUTH
231  IF A = 7 THEN 255
232  IF (D + 1) = 9 THEN 288
233 D = D + 1
234  GOTO 201
235  REM  WEST
236  IF A = 6 THEN 260
237  IF (C - 1) = 0 THEN 290
238 C = C - 1
239  GOTO 201
240  HOME
241  IF A <  > 9 THEN 248
242  IF K = 1 THEN 387
243  PRINT "YOU CANNOT EXIT THE TIME DUNGEON"
244  PRINT "YOU DON'T HAVE THE CRYSTAL KEY"
245 GT = 2: GOSUB 134
246  PRINT
247  GOTO 204
248  PRINT "YOU ARE NOT AT AN EXIT PORTAL"
249 GT = 2: GOSUB 134
250  GOTO 204
251  REM  GOLD
252  HOME : PRINT "YOU HAVE ";G;" GOLD PIECES WITH YOU"
253  PRINT
254  GOTO 204
255  REM  EW
256  HOME : PRINT "YOU ARE IN AN EAST-WEST CORRIDOR"
257  PRINT "YOU CAN ONLY GO EAST OR WEST"
258  PRINT
259  GOTO 204
260  REM  NS
```

Program 1-3—cont. The Time Dungeon: American History, 1916 to 1975, Program Listing

```
261  HOME : PRINT "YOU ARE IN A NORTH-SOUTH CORRIDOR"
262  PRINT "YOU CAN ONLY GO NORTH OR SOUTH"
263  GOTO 258
264  REM  GOLD ZERO
265 GT = 2: GOSUB 134
266  PRINT
267  PRINT "YOU LOST ALL YOUR GOLD AND YOU WERE"
268  PRINT " . . . UNABLE TO MEET THE DEMANDS OF"
269  PRINT " . . . THE TIME DUNGEON . . . . ."
270  PRINT
271  PRINT
272 T = 3: GOSUB 134
273  GOSUB 402
274  PRINT
275  PRINT "ANOTHER GAME?"
276  PRINT "ENTER '1'-YES  '0'-NO"
277  INPUT AA
278  IF AA <  > 1 THEN 280
279  HOME : GOTO 108
280  END
281  HOME : PRINT "YOU ARE AT THE NORTH WALL"
282  PRINT "YOU CANNOT PASS THROUGH"
283  PRINT
284  PRINT "TRY ANOTHER DIRECTION?"
285  GOTO 204
286  HOME : PRINT "YOU ARE AT THE EAST WALL"
287  GOTO 282
288  HOME : PRINT "YOU ARE AT THE SOUTH WALL"
289  GOTO 282
290  HOME : PRINT "YOU ARE AT THE WEST WALL"
291  GOTO 282
292 KT =  INT ( RND (1) * 9 + 1)
293  PRINT "YOU ARE IN A GLOWING TIME PORTAL"
294 GT = 1: GOSUB 134
295  PRINT
296  PRINT "THE LIGHT FADES . . . . . ."
297  PRINT "THE PORTAL IS INACTIVE . . . ."
298  IF A = 1 AND KT > 8 THEN 570
299  RETURN
300  PRINT "YOU ARE IN A DUST FILLED PORTAL"
301 GT = 1: GOSUB 134
302  PRINT
303  PRINT "A BRIGHT LIGHT IS ACTIVATED AND . ."
304  PRINT
305  GOTO 296
306  HOME
307  PRINT "AN ALIEN TRAVELER IS IN THIS CHAMBER"
308 A(C,D) =  INT ( RND (1) * 2 + 1): GOSUB 478
309 GT = 1: GOSUB 134
310 TD =  INT ( RND (1) * 10 + 1)
311 G4 =  INT ( RND (1) * 350 + 1)
312 Y =  INT ( RND (1) * 8 + 1)
313  IF Y <  = 5 THEN 320
```

Program 1-3—cont. The Time Dungeon: American History, 1916 to 1975, Program Listing

```
314  PRINT : IF (G - G4) < 0 THEN G4 = G
315  PRINT "HE IS UNFRIENDLY . . . . AND AS HE"
316  PRINT "LEAVES . . . HE TAKES ";G4;" GOLD PIECES"
317  PRINT :G = G - G4
318  IF TD = 5 AND K = 0 THEN 325
319  RETURN
320  PRINT
321  PRINT "HE IS FRIENDLY . . . . . AND GIVES YOU"
322  PRINT ". . ";G4;" GOLD PIECES, WHICH YOU ACCEPT"
323  PRINT :G = G + G4
324  GOTO 318
325  PRINT :GT = 2: GOSUB 134
326  PRINT "YOU SEARCH THE CHAMBER . . . AND"
327 GT = 1: GOSUB 134
328  PRINT "FIND . . . . THE CRYSTAL KEY"
329 K = 1: RETURN
330  HOME
331  PRINT "YOU ENTER A NORTH-SOUTH CORRIDOR"
332  PRINT "THRU A SECRET DOOR": PRINT : GOSUB 380
333 KT =  INT ( RND (1) * 9 + 1): IF KT >  = 7 THEN 545
334  RETURN
335  HOME
336  PRINT "YOU ENTER AN EAST-WEST CORRIDOR"
337  GOTO 332
338  REM  TRAP
339  PRINT "YOU ENCOUNTER . . . A TIME TRAP"
340  PRINT ". . . . . IN THIS CHAMBER":GT = 1: GOSUB 134
341 TD =  INT ( RND (1) * 9 + 1)
342  IF TD >  = 7 THEN 347
343  PRINT
344  PRINT "BUT YOU'RE LUCKY . . . . ."
345  PRINT ". . . IT DIDN'T ACTIVATE"
346  RETURN
347 TT = 1: PRINT "AND IT ACTIVATED . . . . .":GT = 2: GOSUB 134
348  FOR A = 1 TO 250
349  PRINT "*        %";
350  NEXT A
351 C =  INT ( RND (1) * 8 + 1):D =  INT ( RND (1) * 8 + 1)
352  PRINT
353  PRINT :G = 100
354  PRINT "YOU HAVE BEEN TELEPORTED TO . . . ."
355  PRINT ". . . . AN UNKNOWN LOCATION . . . ."
356  PRINT
357  PRINT "AND YOU LOST MOST OF  YOUR GOLD"
358  PRINT
359  PRINT "YOU HAVE . . . ";G;" GOLD PIECES LEFT"
360 GT = 6: GOSUB 134
361  RETURN
362  PRINT "YOU ARE AT AN EXIT PORTAL"
363  PRINT
364  PRINT "(A KEY IS REQUIRED)"
365  PRINT
366  RETURN
```

Program 1-3—cont. The Time Dungeon: American History, 1916 to 1975, Program Listing

```
367 H = 1:O = 9:W = 8
368 B = O:E = 5:R = 14
369 C = O:PR = O
370  GOTO 216
371  PRINT :GT = 2: GOSUB 134
372  PRINT "BUT BEFORE YOU PROCEED . ."
373  PRINT "YOU LOOK TO THE GROUND AND . . ."
374  PRINT ". . . FIND THE CRYSTAL KEY . .":K = 1
375 GT = 3: GOSUB 134
376  GOTO 212
377  PRINT "YOU ANSWERED ";CA;" QUESTION(S) CORRECTLY"
378  PRINT " . . . . . IN ";M1;" TURNS,"
379  GOTO 409
380  PRINT "THE DOOR CLOSES AND LOCKS BEHIND YOU":GT = 1: GOSUB 134
381  RETURN
382  REM  TIME DISPLAY
383  VTAB 12: PRINT "PORTAL YEAR . . . ";Y3
385  GOSUB 134
386  RETURN
387  HOME : REM  EXIT PORTAL
388  PRINT "YOU ENTER THE EXIT PORTAL AND"
389  PRINT "INSERT THE CRYSTAL KEY INTO THE SLOT"
390  PRINT :GT = 4: GOSUB 134
391  PRINT "THE MACHINE BEGINS TO HUM . . . ."
392  PRINT :GT = 2: GOSUB 134
393 YY = Y2: GOSUB 171
394  PRINT
395  PRINT "YOU FOUND YOUR WAY . . . . ."
396  PRINT ". . . . BACK TO THE PRESENT"
397  PRINT
398  PRINT "YOU HAVE ACQUIRED ";G;" GOLD PIECES"
399  PRINT
400  GOSUB 402
401  GOTO 274
402 GG = G + 100
403 R =  INT ((GG * CA - 7000 + 1) / M1)
404  PRINT
405  PRINT "GAME RATING IS ";R
406  PRINT : IF G <  = 0 OR KL = 0 THEN 377
407  PRINT "YOU TOOK ";M1;" TURNS TO FIND THE WAY OUT"
408  PRINT "AND ANSWERED ";CA;" QUESTION(S) CORRECTLY,"
409  PRINT "OUT OF ";TR;" QUESTIONS ASKED.": RETURN
410  HOME :Y3 = YY
411  GOSUB 444
412 Q3 = Q3 + 1
413  IF Q3 > 50 THEN Q3 = 0: GOTO 415
414  GOTO 416
415  GOSUB 451
416 Q =  INT ( RND (1) * 50 + 1)
417  IF B(Q) = 1 THEN 416
418 B(Q) = 1
419  PRINT
420  FOR AB = 1 TO Q
421  READ YY,QD$,ID,AD$,I1$,I2$,I3$
```

Program 1-3—cont. The Time Dungeon: American History, 1916 to 1975, Program Listing

```
422  NEXT AB
423  RESTORE
424  GOSUB 171
425  HOME :TR = TR + 1
426  PRINT "YOU HAVE ARRIVED AT THE YEAR ";YY
427  PRINT ". . . . . IN ";BZ$: PRINT
428  PRINT "YOU MUST ANSWER THIS QUESTION"
429  PRINT " . . TO CONTINUE YOUR JOURNEY"
430  PRINT "----------------------------------------"
431  PRINT "THE YEAR IS: ";YY: PRINT : IF ID = 4 THEN 164
432  PRINT QD$
433  PRINT "----------------------------------------"
434  PRINT "QUESTION TYPE: "
435  ON ID GOSUB 455,456,457,458
436  GOSUB 459
437  IF E$ = AD$ THEN 441
438  PRINT "INCORRECT"
439  GOSUB 471
440  RETURN
441  PRINT "CORRECT"
442  GOSUB 463
443  RETURN
444  PRINT "YOU ENTER INTO A BLUE HAZY . . ."
445  PRINT ". . . . . TIME PORTAL . . ."
446  PRINT :GT = 1: GOSUB 134
447  PRINT "A PULSATING GLOW . . . . . ."
448  PRINT ". . . . INDICATES ACTIVATION": PRINT
449  PRINT "PRESENT YEAR . . .  "Y3:GT = 3: GOSUB 134
450  RETURN
451  FOR I = 1 TO 50
452 B(I) = 0
453  NEXT I
454  RETURN
455  PRINT "PEOPLE, PLACES, OR THINGS ?": RETURN
456  PRINT "*** (T)RUE OR (F)ALSE  ?": RETURN
457  PRINT "*** WHO AM I (LAST NAME) ?": RETURN
458  PRINT "*** MULTIPLE CHOICE ?": RETURN
459  PRINT "ENTER CORRECT ANSWER?"
460  INPUT E$
461 G4 =  INT ( RND (1) * 500 + 1) + 125
462  RETURN
463 G = G + G4
464  PRINT "YOU WIN ";G4;" GOLD PIECES"
465 A(C,D) =  INT ( RND (1) * 2 + 1)
466 CA = CA + 1: IF K = 1 THEN  RETURN
467  IF CA = K4 THEN 469
468  RETURN
469  GOSUB 325
470  RETURN
471  PRINT :G4 =  INT ( RND (1) * 400 + 1) + 25
472  PRINT "THE CORRECT ANSWER IS '";AD$;"'"
473  PRINT : IF (G - G4) < 0 THEN G4 = G
474 G = G - G4
```

Program 1-3—cont. The Time Dungeon: American History, 1916 to 1975, Program Listing

```
475 GT = 1: GOSUB 134
476  PRINT "YOU LOSE ";G4;" GOLD PIECES"
477  RETURN
478 ZT = 5
479 X =  INT ( RND (1) * 8 + 1):Y =  INT ( RND (1) * 8 + 1)
480  IF A(X,Y) <  = 2 THEN A(X,Y) = 5: RETURN
481 ZT = ZT - 1: IF ZT = 0 THEN  RETURN
482  GOTO 479
483  DATA 1917,UNITED STATES SEVERED RELATIONS WITH    WHAT COUNTRY,4,GER
     MANY,CANADA,RUSSIA,FRANCE
484  DATA 1916,HE PURSUED PANCHO VILLA INTO MEXICO-    WITHOUT SUCCESS,4,
     PERSHING,YORK,HILL,SINCLAIR
485  DATA 1917,CONGRESS DECLARED WAR ON GERMANY-APRIL 6-1917,2,T,0,0,0
486  DATA  1920,HE ORDERED MASS ARRESTS DURING THE 'RED SCARE' PERIOD,4,P
     ALMER,SCOPES,MARSHALL,MCCARTHY
487  DATA 1920,THE 19TH AMENDMENT-WOMEN'S ....-WAS     RATIFIED THIS YEAR
     ,1,SUFFRAGE,0,0,0
488  DATA 1923,I BECAME PRESIDENT AFTER HARDING DIED,3,COOLIDGE,0,0,0
489  DATA 1925,I WAS CONVICTED FOR TEACHING EVOLUTION  IN TENNESSEE,3,SCO
     PES,0,0,0
490  DATA 1923,WHAT SWINDLE ENVOLVED OIL RESERVES LEAS-ED TO SINCLAIR BY
     SEC. FALL,1,TEAPOT DOME,0,0,0
491  DATA 1927,I MADE THE 1ST NONSTOP SOLO FLIGHT FROM NEW YORK TO PARIS,
     3,LINDBERGH,0,0,0
492  DATA 1929,WHAT CRASH GREW INTO THE 'GREAT DEPRES- SION,1,STOCK MARKE
     T,0,0,0
493  DATA 1933,ROOSEVELT ADOPTED WHAT POLICIES FOR     ECONOMIC & SOCIAL
     WELFARE,1,NEW DEAL,0,0,0
494  DATA 1933,A SEVERE DROUGHT CONVERTED THE GREAT    PLAINS INTO WHAT,1
     ,DUST BOWL,0,0,0
495  DATA 1934,THE FBI KILLED WHAT WELL KNOWN GANGSTER-IN CHICAGO,1,DILLI
     NGER,0,0,0
496  DATA 1939,SCIENTISTS-INCLUDING EINSTEIN-TOLD ROO- SEVELT THAT AN ATO
     MIC BOMB WAS POSSIBLE,2,T,0,0,0
497  DATA 1939,U.S. PLEDGED NEUTRALITY AFTER THE WAR   BEGAN IN EUROPE,2,
     T,0,0,0
498  DATA 1940,THE .... ACT MADE IT UNLAWFUL TO ADVO-  CATE THE OVERTHROW
      OF THE U.S.,4,SMITH,TRUMAN,TAFT,GUN
499  DATA 1941,JAPANESE ATTACKED .... HARBOR-ON DECEM- BER 7-1941,1,PEARL
     ,0,0,0
500  DATA 1941,ROOSEVELT AND CHURCHILL ISSUED THE .... CHARTER OF POSTWAR
      ARMS,4,ATLANTIC,PACIFIC,FREEDOM,WESTERN
501  DATA 1941,THE UNITED STATES DECLARED WAR ON WHAT  COUNTRY,1,JAPAN,0,
     0,0
502  DATA 1942,JAPANESE-AMERICANS WERE RELOCATED TO    WESTERN .... CAMPS
      IN 1942,4,DETENTION,SAFETY,SECURITY,FREEDOM
503  DATA 1944,THE .... INVADED EUROPE AND FREED FRANCE-BELGIUM-& LUXEMBO
     URG,1,ALLIES,0,0,0
504  DATA 1945,THE U.S. DROPPED ATOMIC BOMBS ON HIRO-  SHIMA AND ....,1,N
     AGASKI,0,0,0
505  DATA 1947,I PROPOSED A PLAN FOR EUROPEAN RECOVERY THIS YEAR,3,MARSHA
     LL,0,0,0
```

Program 1-3—cont. The Time Dungeon: American History, 1916 to 1975, Program Listing

```
506 DATA 1948,HE ACCUSED ALGER HISS OF GIVING DOCU-  MENTS TO THE RUSSI
    ANS,4,CHAMBERS,TRUMAN,MCCARTHY,ROOSEVELT
507 DATA 1947,THE ....-HARTLY ACT LIMITED POWER OF   LABOR,4,TAFT,SMITH
    ,SHERMAN,BROWN
508 DATA 1949,THE NORTH .... TREATY ORGANIZATION WAS  APPROVED THIS YEAR
    ,4,ATLANTIC,PACIFIC,WEST,AMERICAN
509 DATA 1950,TRUMAN SENT U.S. TROOPS TO WHAT COUNTRY,4,KOREA,ISRAEL,TUR
    KEY,ITALY
510 DATA 1950,SENATOR .... CHARGED THAT THE STATE DEPT WAS INFILTRATED B
    Y COMMUNISTS,4,MCCARTHY,BROWN,MARSHALL,TAFT
511 DATA 1954,THE SUPREME COURT OUTLAWED .... SEGREGA-TION IN THE PUBLIC
     SCHOOLS,1,RACIAL,0,0,0
512 DATA 1955,THE AFL AND .... MERGED INTO ONE LABOR  ORGANIZATION,4,CIO
    ,NRA,CIA,FBI
513 DATA 1956,I REFUSED TO GIVE MY BUS SEAT TO A WHITE MAN-IN MONTGOMERY
    ,3,PARKS,0,0,0
514 DATA 1957,THE TRUMAN DOCTRINE WAS EXTENDED TO AID WHAT MIDDLE EAST C
    OUNTRY,4,JORDAN,ISRAEL,IRAN,EGYPT
515 DATA 1957,THE .... RIGHTS ACT WAS PASSED-DEALING  WITH MINORITIES,1,
    CIVIL,0,0,0
516 DATA 1959,THE STATES OF .... AND HAWII WERE ADMIT-ED TO THE UNION,1,
    ALASKA,0,0,0
517 DATA 1960,I FLEW THE U-2 SPY PLANE THAT WAS SHOT  DOWN OVER RUSSIA,3
    ,POWERS,0,0,0
518 DATA 1961,THE ANTI-CASTRO INVASION AT BAY OF PIGS WAS SUCCESSFUL,2,F
    ,0,0,0
519 DATA 1962,HE WAS THE 1ST AMERICAN TO ORBIT THE    EARTH,4,GLENN,POWE
    RS,ARMSTRONG,ALDRIN
520 DATA 1963,IN WHAT CITY WAS PRESIDENT KENNEDY      ASSASSINATED,4,DAL
    LAS,WASHINGTON,BOSTON,CHICAGO
521 DATA 1964,WHAT AMENDMENT-ABOLISHING POLL TAX-WAS  RATIFIED,4,24TH,20
    TH,31ST,29TH
522 DATA 1965,U.S. TROOP BUILD-UP IN VIETNAM CAUSED   ANTI-WAR DEMONSTRA
    TIONS,2,T,0,0,0
523 DATA 1965,RACE RIOTS ERUPTED IN THE .... SECTION  OF LOS ANGELES,4,W
    ATTS,POOR,OLD,WHITE
524 DATA 1968,REV. MARTIN LUTHER .... WAS ASSASSINATED THIS YEAR,1,KING,
    0,0,0
525 DATA 1968,SENATOR ROBERT F. .... WAS ASSASSINATED THIS YEAR,1,KENNED
    Y,0,0,0
526 DATA 1967,HE WAS THE 1ST BLACK ELECTED TO THE     SUPREME COURT,3,MA
    RSHALL,COSBY,CARVER,KING
527 DATA 1969,ARMSTRONG AND ALDRIN WERE THE 1ST TO    LAND ON THE MOON,2
    ,T,0,0,0
528 DATA 1970,U.S. AND S. VIETNAMESE TROOPS ENTERED   WHAT CITY,1,CAMBOD
    IA,0,0,0
529 DATA 1971,THE 26TH AMENDMENT ALLOWED VOTING RIGHTS TO .... YEAR OLDS
    ,4,18,20,17,16
530 DATA 1972,WHAT SCANDLE WAS 'COVERED UP' BY NIXON,1,WATERGATE,0,0,0
531 DATA 1975,THE WAR IN .... ENDED THIS YEAR,1,VIETNAM,0,0,0
532 DATA 1974,PRESIDENT NIXON RESIGNED BECAUSE OF THE .... SCANDLE,1,WAT
    ERGATE,0,0,0
533 HOME : PRINT "THE TIME DUNGEON * * * MAP"
```

Program 1-3—cont. The Time Dungeon: American History, 1916 to 1975, Program Listing

```
534  PRINT
535  FOR Q = 1 TO 8
536  FOR N = 1 TO 8
537  IF C = N AND D = Q THEN  PRINT "=P= ";: GOTO 540
538 S1 = A(N,Q)
539  ON S1 GOSUB 137,137,138,138,139,140,141,139,142
540  NEXT N
541  PRINT
542  NEXT Q
543 GT =  INT ( RND (1) * 8 + 1) +  INT ( RND (1) * (CA + 5) + 1)
544  GOSUB 134: HOME : RETURN
545  PRINT : PRINT "ON THE WALL IS A GLOWING SCREEN"
546  PRINT "BELOW THE SCREEN IS A RED BUTTON": PRINT
547 KT =  INT ( RND (1) * 9 + 1):KL =  INT ( RND (1) * 15 + 1) + 2
548  GOSUB 565
549  INPUT K$
550  IF K$ = "Y" THEN 552
551  RETURN
552  IF KT >  = 6 THEN 533
553  IF KT <  = 4 THEN 562
554  PRINT :G4 =  INT ( RND (1) * 100 + 1) + 25:G = G + G4
555  PRINT "YOU RECEIVE ";G4;" GOLD PIECES . . ."
556  PRINT "BUT . . . . . THE CORRIDOR NARROWS":GT = 3: GOSUB 134
557 KL = KL - 1: IF KL = 0 THEN  RETURN
558  GOSUB 565
559  INPUT K$
560  IF K$ = "Y" THEN 554
561  RETURN
562  PRINT : PRINT "NOTHING HAPPENS"
563 GT = 1: GOSUB 134
564  RETURN
565  PRINT : PRINT "DO YOU WISH TO PUSH THE BUTTON?"
566  PRINT "ENTER  (Y)ES  OR  (N)O": RETURN
567  HOME : PRINT "YOU ARE STUCK IN THE NARROW CORRIDOR"
568  PRINT ". . . . . AND . . .": PRINT :GT = 3: GOSUB 134
569  GOTO 264
570  PRINT : PRINT "YOU NOTICE A DOOR TO YOUR RIGHT"
571  PRINT
572 KT =  INT ( RND (1) * 9 + 1)
573  PRINT "DO YOU WISH TO OPEN THE DOOR?"
574  PRINT "ENTER  (Y)ES  OR  (N)O"
575  INPUT K$
576  IF K$ = "Y" THEN 578
577  RETURN
578  PRINT : PRINT "YOU TRY THE DOOR . . . . .":GT = 1: GOSUB 134
579  IF KT >  = 7 THEN 589
580  IF KT <  = 4 THEN 587
581  PRINT :G4 =  INT ( RND (1) * 100 + 1) + 25
582  PRINT "THE DOOR OPENS . . . . . ."
583  PRINT "REVEALING A CLOSET . . . ."
584  PRINT :G = G + G4
585  PRINT "WHERE YOU FIND ";G4;" GOLD PIECES"
586  PRINT : RETURN
```

Program 1-3—cont. The Time Dungeon: American History, 1916 to 1975, Program Listing

```
587  PRINT "BUT THE DOOR WON'T OPEN . . . ."
588  PRINT ". . . . IT MUST BE LOCKED": RETURN
589  PRINT : PRINT "THE DOOR OPENS . . . AND SUDDENLY"
590  PRINT "THE CHAMBER BEGINS TO . . . SPIN"
591 G7 =  INT (G / 2):G4 =  INT ( RND (1) * G7 + 1):MM =  INT ( RND (1) *
     20 + 1)
592 GT = 4: GOSUB 134:G = G - G4
593  FOR K9 = 1 TO 250
594  PRINT "+    =    +";: NEXT K9
596  HOME : PRINT "YOU WERE TELEPORTED INTO . . . ."
597  PRINT ". . . . ANOTHER DIMENSION . . . ."
598  PRINT ". . AND RETURNED IN AN INSTANT . ."
599  PRINT : PRINT "BUT YOU DROPPED ";G4;" GOLD PIECES"
600  PRINT ". . . AND WASTED ";MM;" MOVES . . ."
601 M1 = M1 + MM
602 GT = 4: GOSUB 134
603  RETURN
```

Program 1-4. The Time Dungeon: World History, World War I, Program Listing

```
100  HOME :BZ$ = "WORLD HISTORY-WW I":BW$ = "1894 TO 1919"
101  PRINT "THE TIME DUNGEON: ";BZ$
102  PRINT "COPYRIGHT (C) 1981 BY HOWARD BERENBON"
103  PRINT "APPLE II"
104  PRINT
105  PRINT "AN EDUCATIONAL FANTASY GAME"
106 GT = 5: GOSUB 134:Q3 = 0
107  HOME : DIM A(9,9),B(50): GOSUB 451
108  PRINT "YOU WILL BE TELEPORTED TO . . ."
109  PRINT
110  PRINT "THE TIME DUNGEON . . . ."
111  PRINT "TO STUDY ";BZ$
112  PRINT
114 CA = 0:G = 1000:M1 = 1:K = 0:KL = 1:TT = 0:TR = 0
115  PRINT "ENTER YOUR CHARACTER'S NAME?"
116  INPUT A$
117  PRINT "ENTER PRESENT YEAR"
118  INPUT Y2:YY = Y2: IF Y2 > 2000 THEN 117
119  PRINT : PRINT A$;" . . . YOU ARE ON YOUR WAY"
120 GT = 2: GOSUB 134
121  GOSUB 143
122  HOME
123  PRINT "YOU HAVE ARRIVED AT . . . ."
124  PRINT
125  PRINT "THE TIME DUNGEON: ";BZ$
126  PRINT "FOR THE YEARS:    ";BW$
127  PRINT
128  PRINT "YOU CARRY 1000 GOLD PIECES": PRINT
129  PRINT "YOU WILL ENCOUNTER . . ."
130  PRINT "TIME PORTALS WHICH TELEPORT"
131  PRINT "YOU TO EVENTS IN ";BZ$
132 GT = 8: GOSUB 134
133  GOTO 199
134  FOR ZZ = 1 TO 908 * GT
135  NEXT ZZ
136  RETURN
137  PRINT "O   ";: RETURN
138  PRINT "AP  ";: RETURN
139  PRINT "?   ";: RETURN
140  PRINT "NS  ";: RETURN
141  PRINT "EW  ";: RETURN
142  PRINT "X   ";: RETURN
143  REM  SET UP DUNGEON
144  FOR X = 1 TO 8
145  FOR Y = 1 TO 8
146 A(X,Y) =  INT ( RND (1) * 7 + 1)
147  NEXT Y
148  NEXT X
149  REM  TRAPS
150 H =  INT ( RND (1) * 3 + 1) + 1
151  FOR N = 1 TO H
152 X =  INT ( RND (1) * 8 + 1)
153 Y =  INT ( RND (1) * 8 + 1)
```

Program 1-4—cont. The Time Dungeon: World History, World War I, Program Listing

```
154 A(X,Y) = 8
155  NEXT N
156  REM  EXITS
157 S =  INT ( RND (1) * 4 + 1) + 1
158  FOR N = 1 TO S
159 X =  INT ( RND (1) * 8 + 1)
160 Y =  INT ( RND (1) * 8 + 1)
161 A(X,Y) = 9
162  NEXT N
163  RETURN
164 R6 =  INT ( RND (1) * 4 + 1): PRINT QD$;"?:": PRINT
165  ON R6 GOSUB 167,168,169,170
166  GOTO 433
167  PRINT AD$,I1$: PRINT I2$,I3$: RETURN
168  PRINT I2$,AD$: PRINT I1$,I3$: RETURN
169  PRINT I1$,I2$: PRINT AD$,I3$: RETURN
170  PRINT I3$,I1$: PRINT I2$,AD$: RETURN
171  HOME
173 GT = 1
174  GOSUB 134
175  FOR B = 1 TO 70:B4 =  INT ( RND (1) * 23 + 1)
176 B7 =  INT ( RND (1) * 39 + 1): VTAB B4: PRINT  TAB( B7)".";
177  PRINT : NEXT B: PRINT
178 GT = .005:Y5 = 25
179  IF Y3 = YY THEN  VTAB 1: PRINT "ALREADY AT . . . . ": GOTO 196
180  IF Y3 < YY THEN 188
181  IF (Y3 - YY) <  = 50 THEN 185
182 Y3 = Y3 - Y5
183  GOSUB 382
184  IF Y3 = YY THEN 195
185  IF (Y3 - YY) <  = 50 THEN Y5 = 1
186  IF (Y3 - YY) <  = 5 THEN GT = .4
187  GOTO 182
188  IF (YY - Y3) <  = 50 THEN 192
189 Y3 = Y3 + Y5
190  GOSUB 382
191  IF Y3 = YY THEN 195
192  IF (YY - Y3) <  = 50 THEN Y5 = 1
193  IF (YY - Y3) <  = 5 THEN GT = .4
194  GOTO 189
195  PRINT : PRINT "ARRIVAL . . . . AT"
196  PRINT "DESTINATION YEAR . . . . ";YY
197 GT = 4: GOSUB 134
198  HOME : RETURN
199 C =  INT ( RND (1) * 8 + 1):D =  INT ( RND (1) * 8 + 1):A(C,D) = 1
200 K4 =  INT ( RND (1) * 4 + 1) + 3
201  HOME :A = A(C,D):GT = 1: GOSUB 134
202  ON A GOSUB 292,300,410,410,306,330,335,338,362
203  IF KL = 0 THEN 567
204  PRINT : IF TT = 1 THEN TT = 0: GOTO 201
205  IF G <  = 0 THEN 264
206  PRINT A$;",  WHAT IS YOUR ACTION OR MOVE?"
207  PRINT
```

Program 1-4—cont. The Time Dungeon: World History, World War I, Program Listing

```
208  PRINT "(N)ORTH, (E)AST, (S)OUTH"
209  PRINT "(W)EST, E(X)IT, (G)OLD"
210  INPUT M1$
211 M1 = M1 + 1: IF K = 0 AND M1 > 70 THEN 371
212  IF M1$ = "N" THEN 220
213  IF M1$ = "E" THEN 225
214  IF M1$ = "S" THEN 230
215  IF M1$ = "W" THEN 235
216  IF M1$ = "X" THEN 240
217  IF M1$ = "G" THEN 251
218  PRINT
219  GOTO 204
220  REM  NORTH
221  IF A = 7 THEN 255
222  IF (D - 1) = 0 THEN 281
223 D = D - 1
224  GOTO 201
225  REM  EAST
226  IF A = 6 THEN 260
227  IF (C + 1) = 9 THEN 286
228 C = C + 1
229  GOTO 201
230  REM  SOUTH
231  IF A = 7 THEN 255
232  IF (D + 1) = 9 THEN 288
233 D = D + 1
234  GOTO 201
235  REM  WEST
236  IF A = 6 THEN 260
237  IF (C - 1) = 0 THEN 290
238 C = C - 1
239  GOTO 201
240  HOME
241  IF A <  > 9 THEN 248
242  IF K = 1 THEN 387
243  PRINT "YOU CANNOT EXIT THE TIME DUNGEON"
244  PRINT "YOU DON'T HAVE THE CRYSTAL KEY"
245 GT = 2: GOSUB 134
246  PRINT
247  GOTO 204
248  PRINT "YOU ARE NOT AT AN EXIT PORTAL"
249 GT = 2: GOSUB 134
250  GOTO 204
251  REM  GOLD
252  HOME : PRINT "YOU HAVE ";G;" GOLD PIECES WITH YOU"
253  PRINT
254  GOTO 204
255  REM  EW
256  HOME : PRINT "YOU ARE IN AN EAST-WEST CORRIDOR"
257  PRINT "YOU CAN ONLY GO EAST OR WEST"
258  PRINT
259  GOTO 204
260  REM  NS
```

Program 1-4—cont. The Time Dungeon: World History, World War I, Program Listing

```
261  HOME : PRINT "YOU ARE IN A NORTH-SOUTH CORRIDOR"
262  PRINT "YOU CAN ONLY GO NORTH OR SOUTH"
263  GOTO 258
264  REM  GOLD ZERO
265 GT = 2: GOSUB 134
266  PRINT
267  PRINT "YOU LOST ALL YOUR GOLD AND YOU WERE"
268  PRINT " . . . UNABLE TO MEET THE DEMANDS OF"
269  PRINT " . . . THE TIME DUNGEON . . . . ."
270  PRINT
271  PRINT
272 T = 3: GOSUB 134
273  GOSUB 402
274  PRINT
275  PRINT "ANOTHER GAME?"
276  PRINT "ENTER '1'-YES  '0'-NO"
277  INPUT AA
278  IF AA <  > 1 THEN 280
279  HOME : GOTO 108
280  END
281  HOME : PRINT "YOU ARE AT THE NORTH WALL"
282  PRINT "YOU CANNOT PASS THROUGH"
283  PRINT
284  PRINT "TRY ANOTHER DIRECTION?"
285  GOTO 204
286  HOME : PRINT "YOU ARE AT THE EAST WALL"
287  GOTO 282
288  HOME : PRINT "YOU ARE AT THE SOUTH WALL"
289  GOTO 282
290  HOME : PRINT "YOU ARE AT THE WEST WALL"
291  GOTO 282
292 KT =  INT ( RND (1) * 9 + 1)
293  PRINT "YOU ARE IN A GLOWING TIME PORTAL"
294 GT = 1: GOSUB 134
295  PRINT
296  PRINT "THE LIGHT FADES . . . . . ."
297  PRINT "THE PORTAL IS INACTIVE . . . ."
298  IF A = 1 AND KT > 8 THEN 570
299  RETURN
300  PRINT "YOU ARE IN A DUST FILLED PORTAL"
301 GT = 1: GOSUB 134
302  PRINT
303  PRINT "A BRIGHT LIGHT IS ACTIVATED AND . ."
304  PRINT
305  GOTO 296
306  HOME
307  PRINT "AN ALIEN TRAVELER IS IN THIS CHAMBER"
308 A(C,D) =  INT ( RND (1) * 2 + 1): GOSUB 478
309 GT = 1: GOSUB 134
310 TD =  INT ( RND (1) * 10 + 1)
311 G4 =  INT ( RND (1) * 350 + 1)
312 Y =  INT ( RND (1) * 8 + 1)
313  IF Y <  = 5 THEN 320
```

Program 1-4—cont. The Time Dungeon: World History, World War I, Program Listing

```
314  PRINT : IF (G - G4) < 0 THEN G4 = G
315  PRINT "HE IS UNFRIENDLY . . . . AND AS HE"
316  PRINT "LEAVES . . . HE TAKES ";G4;" GOLD PIECES"
317  PRINT :G = G - G4
318  IF TD = 5 AND K = 0 THEN 325
319  RETURN
320  PRINT
321  PRINT "HE IS FRIENDLY . . . . . AND GIVES YOU"
322  PRINT ". . ";G4;" GOLD PIECES, WHICH YOU ACCEPT"
323  PRINT :G = G + G4
324  GOTO 318
325  PRINT :GT = 2: GOSUB 134
326  PRINT "YOU SEARCH THE CHAMBER . . . AND"
327 GT = 1: GOSUB 134
328  PRINT "FIND . . . . THE CRYSTAL KEY"
329 K = 1: RETURN
330  HOME
331  PRINT "YOU ENTER A NORTH-SOUTH CORRIDOR"
332  PRINT "THRU A SECRET DOOR": PRINT : GOSUB 380
333 KT =  INT ( RND (1) * 9 + 1): IF KT >  = 7 THEN 545
334  RETURN
335  HOME
336  PRINT "YOU ENTER AN EAST-WEST CORRIDOR"
337  GOTO 332
338  REM  TRAP
339  PRINT "YOU ENCOUNTER . . . A TIME TRAP"
340  PRINT ". . . . . IN THIS CHAMBER":GT = 1: GOSUB 134
341 TD =  INT ( RND (1) * 9 + 1)
342  IF TD >  = 7 THEN 347
343  PRINT
344  PRINT "BUT YOU'RE LUCKY . . . . ."
345  PRINT ". . . IT DIDN'T ACTIVATE"
346  RETURN
347 TT = 1: PRINT "AND IT ACTIVATED . . . . .":GT = 2: GOSUB 134
348  FOR A = 1 TO 250
349  PRINT "*        %";
350  NEXT A
351 C =  INT ( RND (1) * 8 + 1):D =  INT ( RND (1) * 8 + 1)
352  PRINT
353  PRINT :G = 100
354  PRINT "YOU HAVE BEEN TELEPORTED TO . . . ."
355  PRINT ". . . . AN UNKNOWN LOCATION . . . ."
356  PRINT
357  PRINT "AND YOU LOST MOST OF YOUR GOLD"
358  PRINT
359  PRINT "YOU HAVE . . . ";G;" GOLD PIECES LEFT"
360 GT = 6: GOSUB 134
361  RETURN
362  PRINT "YOU ARE AT AN EXIT PORTAL"
363  PRINT
364  PRINT "(A KEY IS REQUIRED)"
365  PRINT
366  RETURN
```

Program 1-4—cont. The Time Dungeon: World History, World War I, Program Listing

```
367 H = 1:O = 9:W = 8
368 B = O:E = 5:R = 14
369 C = O:PR = O
370  GOTO 216
371  PRINT :GT = 2: GOSUB 134
372  PRINT "BUT BEFORE YOU PROCEED . ."
373  PRINT "YOU LOOK TO THE GROUND AND . . ."
374  PRINT ". . . FIND THE CRYSTAL KEY . .":K = 1
375 GT = 3: GOSUB 134
376  GOTO 212
377  PRINT "YOU ANSWERED ";CA;" QUESTION(S) CORRECTLY"
378  PRINT " . . . . . IN ";M1;" TURNS,"
379  GOTO 409
380  PRINT "THE DOOR CLOSES AND LOCKS BEHIND YOU":GT = 1: GOSUB 134
381  RETURN
382  REM  TIME DISPLAY
383  VTAB 12: PRINT "PORTAL YEAR . . . ";Y3
385  GOSUB 134
386  RETURN
387  HOME : REM  EXIT PORTAL
388  PRINT "YOU ENTER THE EXIT PORTAL AND"
389  PRINT "INSERT THE CRYSTAL KEY INTO THE SLOT"
390  PRINT :GT = 4: GOSUB 134
391  PRINT "THE MACHINE BEGINS TO HUM . . . ."
392  PRINT :GT = 2: GOSUB 134
393 YY = Y2: GOSUB 171
394  PRINT
395  PRINT "YOU FOUND YOUR WAY . . . . ."
396  PRINT ". . . . BACK TO THE PRESENT"
397  PRINT
398  PRINT "YOU HAVE ACQUIRED ";G;" GOLD PIECES"
399  PRINT
400  GOSUB 402
401  GOTO 274
402 GG = G + 100
403 R =  INT ((GG * CA - 7000 + 1) / M1)
404  PRINT
405  PRINT "GAME RATING IS ";R
406  PRINT : IF G <  = 0 OR KL = 0 THEN 377
407  PRINT "YOU TOOK ";M1;" TURNS TO FIND THE WAY OUT"
408  PRINT "AND ANSWERED ";CA;" QUESTION(S) CORRECTLY,"
409  PRINT "OUT OF ";TR;" QUESTIONS ASKED.": RETURN
410  HOME :Y3 = YY
411  GOSUB 444
412 Q3 = Q3 + 1
413  IF Q3 > 50 THEN Q3 = O: GOTO 415
414  GOTO 416
415  GOSUB 451
416 Q =  INT ( RND (1) * 50 + 1)
417  IF B(Q) = 1 THEN 416
418 B(Q) = 1
419  PRINT
420  FOR AB = 1 TO Q
```

Program 1-4—cont. The Time Dungeon: World History, World War I, Program Listing

```
421  READ YY,QD$,ID,AD$,I1$,I2$,I3$
422  NEXT AB
423  RESTORE
424  GOSUB 171
425  HOME :TR = TR + 1
426  PRINT "YOU HAVE ARRIVED AT THE YEAR ";YY
427  PRINT ". . . . . IN ";BZ$: PRINT
428  PRINT "YOU MUST ANSWER THIS QUESTION"
429  PRINT " . . TO CONTINUE YOUR JOURNEY"
430  PRINT "----------------------------------------"
431  PRINT "THE YEAR IS: ";YY: PRINT : IF ID = 4 THEN 164
432  PRINT QD$
433  PRINT "----------------------------------------"
434  PRINT "QUESTION TYPE: "
435  ON ID GOSUB 455,456,457,458
436  GOSUB 459
437  IF E$ = AD$ THEN 441
438  PRINT "INCORRECT"
439  GOSUB 471
440  RETURN
441  PRINT "CORRECT"
442  GOSUB 463
443  RETURN
444  PRINT "YOU ENTER INTO A BLUE HAZY . . ."
445  PRINT ". . . . . TIME PORTAL . . ."
446  PRINT :GT = 1: GOSUB 134
447  PRINT "A PULSATING GLOW . . . . . ."
448  PRINT ". . . . INDICATES ACTIVATION": PRINT
449  PRINT "PRESENT YEAR . . .  "Y3:GT = 3: GOSUB 134
450  RETURN
451  FOR I = 1 TO 50
452 B(I) = 0
453  NEXT I
454  RETURN
455  PRINT "PEOPLE, PLACES, OR THINGS ?": RETURN
456  PRINT "*** (T)RUE OR (F)ALSE  ?": RETURN
457  PRINT "*** WHO AM I (LAST NAME) ?": RETURN
458  PRINT "*** MULTIPLE CHOICE ?": RETURN
459  PRINT "ENTER CORRECT ANSWER?"
460  INPUT E$
461 G4 =  INT ( RND (1) * 500 + 1) + 125
462  RETURN
463 G = G + G4
464  PRINT "YOU WIN ";G4;" GOLD PIECES"
465 A(C,D) =  INT ( RND (1) * 2 + 1)
466 CA = CA + 1: IF K = 1 THEN  RETURN
467  IF CA = K4 THEN 469
468  RETURN
469  GOSUB 325
470  RETURN
471  PRINT :G4 =  INT ( RND (1) * 400 + 1) + 25
472  PRINT "THE CORRECT ANSWER IS '";AD$;"'"
473  PRINT : IF (G - G4) < 0 THEN G4 = G
```

Program 1-4—cont. The Time Dungeon: World History, World War I, Program Listing

```
474 G = G - G4
475 GT = 1: GOSUB 134
476  PRINT "YOU LOSE ";G4;" GOLD PIECES"
477  RETURN
478 ZT = 5
479 X =  INT ( RND (1) * 8 + 1):Y =  INT ( RND (1) * 8 + 1)
480  IF A(X,Y) <  = 2 THEN A(X,Y) = 5: RETURN
481 ZT = ZT - 1: IF ZT = 0 THEN  RETURN
482  GOTO 479
483  DATA 1894,FRANCE AND .... FORMED A MILITARY ALLI- ANCE,4,RUSSIA,ITAL
     Y,GERMANY,SPAIN
484  DATA 1904,THE AGREEMENT BETWEEN ENGLAND & FRANCE  WAS CALLED ....,4,
     ENTENTE CORDIALE,NEW EUROPE,FREE EUROPE,AMI ICI
485  DATA 1902,GREAT BRITAIN AND .... FORMED AN ALLI-  ANCE THIS YEAR,4,J
     APAN,U.S.,CANADA,GERMANY
486  DATA 1905,ENGLAND BUILT THE .... BATTLESHIP THIS  YEAR,4,DREADNOUGHT
     ,DISCOVERY,FREEDOM,BRITAIN
487  DATA 1899,THE 1ST PEACE CONFERENCE WAS HELD AT THE ....,1,HAGUE,0,0,
     0
488  DATA 1907,THE HAGUE PEACE CONFERENCES WERE NOT    EFFECTIVE,2,T,0,0,
     0
489  DATA 1905,FRANCE TRIED TO OCCUPY .... THIS YEAR,4,MOROCCO,HOLLAND,TU
     RKEY,SPAIN
490  DATA 1911,ITALY DECLARED WAR ON ....-AND SEIZED  TRIPOLI,4,TURKEY,S
     PAIN,JAPAN,RUMANIA
491  DATA 1912,THE BALKAN WARS PREPARED EUROPE FOR WW I,2,T,0,0,0
492  DATA 1914,JUNE 28-THE ARCHDUKE FRANCIS .... WAS   ASSASSINATED,1,FER
     DINAND,0,0,0
493  DATA 1914,ARCHDUKE FERDINAND WAS SHOT IN WHAT CITY,1,SARAJEVO,0,0,0
494  DATA 1914,JULY 28-AUSTRIA-HUNGARY DECLARED WAR ON ....,4,SERBIA,U.S.
     ,SPAIN,ITALY
495  DATA 1914,AUG 1-GERMANY DECLARED WAR ON ....,1,RUSSIA,0,0,0
496  DATA 1914,AUG 4-ENGLAND DECLARED WAR ON ....,1,GERMANY,0,0,0
497  DATA 1914,AUG 3-GERMANY DECLARED WAR ON ....,1,FRANCE,0,0,0
498  DATA 1914,THE CENTRAL POWERS WERE STRONGER THAN   THE ALLIES,2,F,0,0
     ,0
499  DATA 1914,SEPT 6-THE 1ST BATTLE OF THE ....       RIVER,4,MARNE,SEIN
     E,TEMPS,HAGUE
500  DATA 1914,GERMANS TRY TO CAPTURE PARIS-BUT FAIL,2,T,0,0,0
501  DATA  1914,AUG-RUSSIANS LOST THE BATTLE OF ....,4,TANNENBERG,SEINE,H
     INDENBURG,AUSTR
502  DATA 1914,I COMMANDED THE GERMANS AT THE BATTLE OF TANNENBERG,3,HIND
     ENBURG,0,0,0
503  DATA 1915,ALLIES HOPED TO TIGHTEN THE ....-TO     LIMIT SUPPLIES TO
     THE ENEMY,1,BLOCKADE,0,0,0
504  DATA 1915,SPRING-GERMANS LAUNCHED A HEAVY OFFEN-  SIVE ON THE EASTER
     N FRONT,2,T,0,0,0
505  DATA 1915,THE BRITISH CAMPAIGN IN THE MIDDLE EAST WAS A SUCCESS,2,F,
     0,0,0
506  DATA 1916,RUSSIAN FORCES HIT AUSTRIA-& TOOK ABOUT 300000 PRISONERS,2
     ,T,0,0,0
507  DATA 1916,MOST OF RUMANIA WAS OCCUPIED BY THE     CENTRAL POWERS,2,T
     ,0,0,0
```

Program 1-4—cont. The Time Dungeon: World History, World War I, Program Listing

```
508  DATA 1915,GERMANS DECLARED THE SEAS AROUND THE     BRITISH ISLES A .
     ...,4,WAR ZONE,HAZARD,NEUTRAL ZONE,BOMB ZONE
509  DATA 1915,MAY-BRITISH LINER .... WAS TORPEDOED BY THE GERMANS,4,LUSI
     TANIA,CONCORD,BRITAIN,ALLENBY
510  DATA 1916,DEC 12-GERMANY CONTACTED THE ALLIES TO  SUGGEST PEACE TALK
     S,2,T,0,0,0
511  DATA 1918,NOV 3-AUSTRIA ASKED FOR AN ARMISTICE,2,T,0,0,0
512  DATA 1916,DEC 30-ALLIES AGREE TO MAKE PEACE WITH  GERMANY,2,F,0,0,0
513  DATA 1917,APRIL 6-U.S. DECLARED WAR ON ....,1,GERMANY,0,0,0
514  DATA 1916,MY SLOGAN WAS 'HE KEPT US OUT OF WAR',3,WILSON,0,0,0
515  DATA 1917,JAN 19-GERMANY BEGINS .... WARFARE-UN-  RESTRICTED,4,SUBMA
     RINE,LAND,AIR,ALL OUT
516  DATA 1917,I COMMANDED THE AMERICAN EXPEDITIONARY  FORCE,3,PERSHING,0
     ,0,0
517  DATA 1917,BRITISH GENERAL .... WON THE HOLY LAND,4,ALLENBY,THOMAS,SM
     YTH,ROGERS
518  DATA 1918,WILSON'S '14 POINTS' OUTLINED A LASTING PEACE,2,T,0,0,0
519  DATA 1918,THE AMERICAN 2ND DIVISION STOPPED THE   GERMANS AT ....-FR
     ANCE,4,CHATEAUTHIERRY,HAGUE,NICE,CANNES
520  DATA 1918,JULY-2ND BATTLE OF THE MARNE PUSHED BACK THE GERMANS,2,T,0
     ,0,0
521  DATA 1918,OCT-THE .... LINE WAS BROKEN IN MANY    PLACES,4,HINDENBUR
     G,EASTERN,FRONT,WESTERN
522  DATA 1918,OCT-GENERAL ALLENBY CONQUERED ....,4,TURKEY,IRAN,JORDAN,EG
     YPT
523  DATA 1919,JAN 18-THE .... PEACE CONFERENCE OPENED THIS DAY,4,PARIS,L
     ONDON,NEW YORK,HAGUE
524  DATA 1919,THE PARIS CONFERENCE PRODUCED FIVE PEACE ....,1,TREATIES,0
     ,0,0
525  DATA 1919,THE TREATY OF .... WAS SIGNED BETWEEN   GERMANY & THE ALLI
     ES,1,VERSAILLES,0,0,0
526  DATA 1919,TREATY OF VERSAILLES WAS SIGNED IN THE  ....,1,HALL OF MIR
     RORS,0,0,0
527  DATA 1918,NOV-KAISER WILLIAM II WAS FORCED TO ....,1,ABDICATE,0,0,0
528  DATA 1918,NOV 11-GERMANS SIGNED AN ARMISTICE IN A RAILROAD CAR,2,T,0
     ,0,0
529  DATA 1918,TOTAL COST OF THE WAR WAS ABOUT 300     BILLION DOLLARS,2,
     T,0,0,0
530  DATA 1919,ALL OF WILSON'S 14 POINTS WERE ACCEPTED,2,F,0,0,0
531  DATA 1919,CLEMINCEAU OF FRANCE WANTED TO KEEP     GERMANY ....,4,WEA
     K,UNDIVIDED,DIVIDED,STRONG
532  DATA 1919,WILSONS'S POINT 14 GAVE RISE TO THE     'LEAGUE OF NATIONS
     ',2,T,0,0,0
533  HOME : PRINT "THE TIME DUNGEON * * * MAP"
534  PRINT
535  FOR Q = 1 TO 8
536  FOR N = 1 TO 8
537  IF C = N AND D = Q THEN  PRINT "=P= ";: GOTO 540
538 S1 = A(N,Q)
539  ON S1 GOSUB 137,137,138,138,139,140,141,139,142
540  NEXT N
541  PRINT
542  NEXT Q
```

Program 1-4—cont. The Time Dungeon: World History, World War I, Program Listing

```
543 GT =  INT ( RND (1) * 8 + 1) +  INT ( RND (1) * (CA + 5) + 1)
544  GOSUB 134: HOME : RETURN
545  PRINT : PRINT "ON THE WALL IS A GLOWING SCREEN"
546  PRINT "BELOW THE SCREEN IS A RED BUTTON": PRINT
547 KT =  INT ( RND (1) * 9 + 1):KL =  INT ( RND (1) * 15 + 1) + 2
548  GOSUB 565
549  INPUT K$
550  IF K$ = "Y" THEN 552
551  RETURN
552  IF KT >  = 6 THEN 533
553  IF KT <  = 4 THEN 562
554  PRINT :G4 =  INT ( RND (1) * 100 + 1) + 25:G = G + G4
555  PRINT "YOU RECEIVE ";G4;" GOLD PIECES . . ."
556  PRINT "BUT . . . . . THE CORRIDOR NARROWS":GT = 3: GOSUB 134
557 KL = KL - 1: IF KL = 0 THEN  RETURN
558  GOSUB 565
559  INPUT K$
560  IF K$ = "Y" THEN 554
561  RETURN
562  PRINT : PRINT "NOTHING HAPPENS"
563 GT = 1: GOSUB 134
564  RETURN
565  PRINT : PRINT "DO YOU WISH TO PUSH THE BUTTON?"
566  PRINT "ENTER  (Y)ES  OR  (N)O": RETURN
567  HOME : PRINT "YOU ARE STUCK IN THE NARROW CORRIDOR"
568  PRINT ". . . . . AND . . .": PRINT :GT = 3: GOSUB 134
569  GOTO 264
570  PRINT : PRINT "YOU NOTICE A DOOR TO YOUR RIGHT"
571  PRINT
572 KT =  INT ( RND (1) * 9 + 1)
573  PRINT "DO YOU WISH TO OPEN THE DOOR?"
574  PRINT "ENTER  (Y)ES  OR  (N)O"
575  INPUT K$
576  IF K$ = "Y" THEN 578
577  RETURN
578  PRINT : PRINT "YOU TRY THE DOOR . . . . .":GT = 1: GOSUB 134
579  IF KT >  = 7 THEN 589
580  IF KT <  = 4 THEN 587
581  PRINT :G4 =  INT ( RND (1) * 100 + 1) + 25
582  PRINT "THE DOOR OPENS . . . . . ."
583  PRINT "REVEALING A CLOSET . . . ."
584  PRINT :G = G + G4
585  PRINT "WHERE YOU FIND ";G4;" GOLD PIECES"
586  PRINT : RETURN
587  PRINT "BUT THE DOOR WON'T OPEN . . . ."
588  PRINT ". . . . IT MUST BE LOCKED": RETURN
589  PRINT : PRINT "THE DOOR OPENS . . . AND SUDDENLY"
590  PRINT "THE CHAMBER BEGINS TO . . . SPIN"
591 G7 =  INT (G / 2):G4 =  INT ( RND (1) * G7 + 1):MM =  INT ( RND (1) *
     20 + 1)
592 GT = 4: GOSUB 134:G = G - G4
593  FOR K9 = 1 TO 250
594  PRINT "+    =    +";: NEXT K9
```

Program 1-4—cont. The Time Dungeon: World History, World War I, Program Listing

```
596  HOME : PRINT "YOU WERE TELEPORTED INTO . . . ."
597  PRINT ". . . . ANOTHER DIMENSION . . . ."
598  PRINT ". . AND RETURNED IN AN INSTANT . ."
599  PRINT : PRINT "BUT YOU DROPPED ";G4;" GOLD PIECES"
600  PRINT ". . . AND WASTED ";MM;" MOVES . . ."
601 M1 = M1 + MM
602 GT = 4: GOSUB 134
603  RETURN
```

Program 1-5. The Time Dungeon: World History, World War II, Program Listing

```
100  HOME :BZ$ = "WORLD HISTORY-WW II":BW$ = "1933 TO 1945"
101  PRINT "THE TIME DUNGEON: ";BZ$
102  PRINT "COPYRIGHT (C) 1981 BY HOWARD BERENBON"
103  PRINT "APPLE II"
104  PRINT
105  PRINT "AN EDUCATIONAL FANTASY GAME"
106 GT = 5: GOSUB 134:Q3 = 0
107  HOME : DIM A(9,9),B(50): GOSUB 451
108  PRINT "YOU WILL BE TELEPORTED TO . . ."
109  PRINT
110  PRINT "THE TIME DUNGEON . . . ."
111  PRINT "TO STUDY ";BZ$
112  PRINT
114 CA = 0:G = 1000:M1 = 1:K = 0:KL = 1:TT = 0:TR = 0
115  PRINT "ENTER YOUR CHARACTER'S NAME?"
116  INPUT A$
117  PRINT "ENTER PRESENT YEAR"
118  INPUT Y2:YY = Y2: IF Y2 > 2000 THEN 117
119  PRINT : PRINT A$;" . . . YOU ARE ON YOUR WAY"
120 GT = 2: GOSUB 134
121  GOSUB 143
122  HOME
123  PRINT "YOU HAVE ARRIVED AT . . . ."
124  PRINT
125  PRINT "THE TIME DUNGEON: ";BZ$
126  PRINT "FOR THE YEARS:    ";BW$
127  PRINT
128  PRINT "YOU CARRY 1000 GOLD PIECES": PRINT
129  PRINT "YOU WILL ENCOUNTER . . ."
130  PRINT "TIME PORTALS WHICH TELEPORT"
131  PRINT "YOU TO EVENTS IN ";BZ$
132 GT = 8: GOSUB 134
133  GOTO 199
134  FOR ZZ = 1 TO 908 * GT
135  NEXT ZZ
136  RETURN
137  PRINT "O   ";: RETURN
138  PRINT "AP  ";: RETURN
139  PRINT "?   ";: RETURN
140  PRINT "NS  ";: RETURN
141  PRINT "EW  ";: RETURN
142  PRINT "X   ";: RETURN
143  REM  SET UP DUNGEON
144  FOR X = 1 TO 8
145  FOR Y = 1 TO 8
146 A(X,Y) =  INT ( RND (1) * 7 + 1)
147  NEXT Y
148  NEXT X
149  REM  TRAPS
150 H =  INT ( RND (1) * 3 + 1) + 1
151  FOR N = 1 TO H
152 X =  INT ( RND (1) * 8 + 1)
153 Y =  INT ( RND (1) * 8 + 1)
```

Program 1-5—cont. The Time Dungeon: World History, World War II, Program Listing

```
154 A(X,Y) = 8
155  NEXT N
156  REM  EXITS
157 S =  INT ( RND (1) * 4 + 1) + 1
158  FOR N = 1 TO S
159 X =  INT ( RND (1) * 8 + 1)
160 Y =  INT ( RND (1) * 8 + 1)
161 A(X,Y) = 9
162  NEXT N
163  RETURN
164 R6 =  INT ( RND (1) * 4 + 1): PRINT QD$;"?:": PRINT
165  ON R6 GOSUB 167,168,169,170
166  GOTO 433
167  PRINT AD$,I1$: PRINT I2$,I3$: RETURN
168  PRINT I2$,AD$: PRINT I1$,I3$: RETURN
169  PRINT I1$,I2$: PRINT AD$,I3$: RETURN
170  PRINT I3$,I1$: PRINT I2$,AD$: RETURN
171  HOME
173 GT = 1
174  GOSUB 134
175  FOR B = 1 TO 70:B4 =  INT ( RND (1) * 23 + 1)
176 B7 =  INT ( RND (1) * 39 + 1): VTAB B4: PRINT  TAB( B7)".";
177  PRINT : NEXT B: PRINT
178 GT = .005:Y5 = 25
179  IF Y3 = YY THEN  VTAB 1: PRINT "ALREADY AT . . . . ": GOTO 196
180  IF Y3 < YY THEN 188
181  IF (Y3 - YY) <  = 50 THEN 185
182 Y3 = Y3 - Y5
183  GOSUB 382
184  IF Y3 = YY THEN 195
185  IF (Y3 - YY) <  = 50 THEN Y5 = 1
186  IF (Y3 - YY) <  = 5 THEN GT = .4
187  GOTO 182
188  IF (YY - Y3) <  = 50 THEN 192
189 Y3 = Y3 + Y5
190  GOSUB 382
191  IF Y3 = YY THEN 195
192  IF (YY - Y3) <  = 50 THEN Y5 = 1
193  IF (YY - Y3) <  = 5 THEN GT = .4
194  GOTO 189
195  PRINT : PRINT "ARRIVAL . . . . AT"
196  PRINT "DESTINATION YEAR . . . . ";YY
197 GT = 4: GOSUB 134
198  HOME : RETURN
199 C =  INT ( RND (1) * 8 + 1):D =  INT ( RND (1) * 8 + 1):A(C,D) = 1
200 K4 =  INT ( RND (1) * 4 + 1) + 3
201  HOME :A = A(C,D):GT = 1: GOSUB 134
202  ON A GOSUB 292,300,410,410,306,330,335,338,362
203  IF KL = 0 THEN 567
204  PRINT : IF TT = 1 THEN TT = 0: GOTO 201
205  IF G <  = 0 THEN 264
206  PRINT A$;",  WHAT IS YOUR ACTION OR MOVE?"
207  PRINT
```

Program 1-5—cont. The Time Dungeon: World History, World War II, Program Listing

```
208  PRINT "(N)ORTH, (E)AST, (S)OUTH"
209  PRINT "(W)EST, E(X)IT, (G)OLD"
210  INPUT M1$
211 M1 = M1 + 1: IF K = 0 AND M1 > 70 THEN 371
212  IF M1$ = "N" THEN 220
213  IF M1$ = "E" THEN 225
214  IF M1$ = "S" THEN 230
215  IF M1$ = "W" THEN 235
216  IF M1$ = "X" THEN 240
217  IF M1$ = "G" THEN 251
218  PRINT
219  GOTO 204
220  REM  NORTH
221  IF A = 7 THEN 255
222  IF (D - 1) = 0 THEN 281
223 D = D - 1
224  GOTO 201
225  REM  EAST
226  IF A = 6 THEN 260
227  IF (C + 1) = 9 THEN 286
228 C = C + 1
229  GOTO 201
230  REM  SOUTH
231  IF A = 7 THEN 255
232  IF (D + 1) = 9 THEN 288
233 D = D + 1
234  GOTO 201
235  REM  WEST
236  IF A = 6 THEN 260
237  IF (C - 1) = 0 THEN 290
238 C = C - 1
239  GOTO 201
240  HOME
241  IF A <  > 9 THEN 248
242  IF K = 1 THEN 387
243  PRINT "YOU CANNOT EXIT THE TIME DUNGEON"
244  PRINT "YOU DON'T HAVE THE CRYSTAL KEY"
245 GT = 2: GOSUB 134
246  PRINT
247  GOTO 204
248  PRINT "YOU ARE NOT AT AN EXIT PORTAL"
249 GT = 2: GOSUB 134
250  GOTO 204
251  REM  GOLD
252  HOME : PRINT "YOU HAVE ";G;" GOLD PIECES WITH YOU"
253  PRINT
254  GOTO 204
255  REM  EW
256  HOME : PRINT "YOU ARE IN AN EAST-WEST CORRIDOR"
257  PRINT "YOU CAN ONLY GO EAST OR WEST"
258  PRINT
259  GOTO 204
260  REM  NS
```

Program 1-5—cont. The Time Dungeon: World History, World War II, Program Listing

```
261  HOME : PRINT "YOU ARE IN A NORTH-SOUTH CORRIDOR"
262  PRINT "YOU CAN ONLY GO NORTH OR SOUTH"
263  GOTO 258
264  REM  GOLD ZERO
265 GT = 2: GOSUB 134
266  PRINT
267  PRINT "YOU LOST ALL YOUR GOLD AND YOU WERE"
268  PRINT " . . . UNABLE TO MEET THE DEMANDS OF"
269  PRINT " . . . THE TIME DUNGEON . . . . ."
270  PRINT
271  PRINT
272 T = 3: GOSUB 134
273  GOSUB 402
274  PRINT
275  PRINT "ANOTHER GAME?"
276  PRINT "ENTER '1'-YES  '0'-NO"
277  INPUT AA
278  IF AA <  > 1 THEN 280
279  HOME : GOTO 108
280  END
281  HOME : PRINT "YOU ARE AT THE NORTH WALL"
282  PRINT "YOU CANNOT PASS THROUGH"
283  PRINT
284  PRINT "TRY ANOTHER DIRECTION?"
285  GOTO 204
286  HOME : PRINT "YOU ARE AT THE EAST WALL"
287  GOTO 282
288  HOME : PRINT "YOU ARE AT THE SOUTH WALL"
289  GOTO 282
290  HOME : PRINT "YOU ARE AT THE WEST WALL"
291  GOTO 282
292 KT =  INT ( RND (1) * 9 + 1)
293  PRINT "YOU ARE IN A GLOWING TIME PORTAL"
294 GT = 1: GOSUB 134
295  PRINT
296  PRINT "THE LIGHT FADES . . . . . ."
297  PRINT "THE PORTAL IS INACTIVE . . . ."
298  IF A = 1 AND KT > 8 THEN 570
299  RETURN
300  PRINT "YOU ARE IN A DUST FILLED PORTAL"
301 GT = 1: GOSUB 134
302  PRINT
303  PRINT "A BRIGHT LIGHT IS ACTIVATED AND . ."
304  PRINT
305  GOTO 296
306  HOME
307  PRINT "AN ALIEN TRAVELER IS IN THIS CHAMBER"
308 A(C,D) =  INT ( RND (1) * 2 + 1): GOSUB 478
309 GT = 1: GOSUB 134
310 TD =  INT ( RND (1) * 10 + 1)
311 G4 =  INT ( RND (1) * 350 + 1)
312 Y =  INT ( RND (1) * 8 + 1)
313  IF Y <  = 5 THEN 320
```

Program 1-5—cont. The Time Dungeon: World History, World War II, Program Listing

```
314  PRINT : IF (G - G4) < 0 THEN G4 = G
315  PRINT "HE IS UNFRIENDLY . . . . AND AS HE"
316  PRINT "LEAVES . . . HE TAKES ";G4;" GOLD PIECES"
317  PRINT :G = G - G4
318  IF TD = 5 AND K = 0 THEN 325
319  RETURN
320  PRINT
321  PRINT "HE IS FRIENDLY . . . . . AND GIVES YOU"
322  PRINT ". . ";G4;" GOLD PIECES, WHICH YOU ACCEPT"
323  PRINT :G = G + G4
324  GOTO 318
325  PRINT :GT = 2: GOSUB 134
326  PRINT "YOU SEARCH THE CHAMBER . . . AND"
327 GT = 1: GOSUB 134
328  PRINT "FIND . . . . THE CRYSTAL KEY"
329 K = 1: RETURN
330  HOME
331  PRINT "YOU ENTER A NORTH-SOUTH CORRIDOR"
332  PRINT "THRU A SECRET DOOR": PRINT : GOSUB 380
333 KT =  INT ( RND (1) * 9 + 1): IF KT >  = 7 THEN 545
334  RETURN
335  HOME
336  PRINT "YOU ENTER AN EAST-WEST CORRIDOR"
337  GOTO 332
338  REM  TRAP
339  PRINT "YOU ENCOUNTER . . . A TIME TRAP"
340  PRINT ". . . . . IN THIS CHAMBER":GT = 1: GOSUB 134
341 TD =  INT ( RND (1) * 9 + 1)
342  IF TD >  = 7 THEN 347
343  PRINT
344  PRINT "BUT YOU'RE LUCKY . . . . ."
345  PRINT ". . . IT DIDN'T ACTIVATE"
346  RETURN
347 TT = 1: PRINT "AND IT ACTIVATED . . . . .":GT = 2: GOSUB 134
348  FOR A = 1 TO 250
349  PRINT "*        %";
350  NEXT A
351 C =  INT ( RND (1) * 8 + 1):D =  INT ( RND (1) * 8 + 1)
352  PRINT
353  PRINT :G = 100
354  PRINT "YOU HAVE BEEN TELEPORTED TO . . . ."
355  PRINT ". . . . AN UNKNOWN LOCATION . . . ."
356  PRINT
357  PRINT "AND YOU LOST MOST OF YOUR GOLD"
358  PRINT
359  PRINT "YOU HAVE . . . ";G;" GOLD PIECES LEFT"
360 GT = 6: GOSUB 134
361  RETURN
362  PRINT "YOU ARE AT AN EXIT PORTAL"
363  PRINT
364  PRINT "(A KEY IS REQUIRED)"
365  PRINT
366  RETURN
```

Program 1-5—cont. The Time Dungeon: World History, World War II, Program Listing

```
367 H = 1:O = 9:W = 8
368 B = O:E = 5:R = 14
369 C = O:PR = O
370  GOTO 216
371  PRINT :GT = 2: GOSUB 134
372  PRINT "BUT BEFORE YOU PROCEED . ."
373  PRINT "YOU LOOK TO THE GROUND AND . . ."
374  PRINT ". . . FIND THE CRYSTAL KEY . .":K = 1
375 GT = 3: GOSUB 134
376  GOTO 212
377  PRINT "YOU ANSWERED ";CA;" QUESTION(S) CORRECTLY"
378  PRINT " . . . . . IN ";M1;" TURNS,"
379  GOTO 409
380  PRINT "THE DOOR CLOSES AND LOCKS BEHIND YOU":GT = 1: GOSUB 134
381  RETURN
382  REM  TIME DISPLAY
383  VTAB 12: PRINT "PORTAL YEAR . . . ";Y3
385  GOSUB 134
386  RETURN
387  HOME : REM  EXIT PORTAL
388  PRINT "YOU ENTER THE EXIT PORTAL AND"
389  PRINT "INSERT THE CRYSTAL KEY INTO THE SLOT"
390  PRINT :GT = 4: GOSUB 134
391  PRINT "THE MACHINE BEGINS TO HUM . . . ."
392  PRINT :GT = 2: GOSUB 134
393 YY = Y2: GOSUB 171
394  PRINT
395  PRINT "YOU FOUND YOUR WAY . . . . ."
396  PRINT ". . . . BACK TO THE PRESENT"
397  PRINT
398  PRINT "YOU HAVE ACQUIRED ";G;" GOLD PIECES"
399  PRINT
400  GOSUB 402
401  GOTO 274
402 GG = G + 100
403 R =  INT ((GG * CA - 7000 + 1) / M1)
404  PRINT
405  PRINT "GAME RATING IS ";R
406  PRINT : IF G <  = O OR KL = O THEN 377
407  PRINT "YOU TOOK ";M1;" TURNS TO FIND THE WAY OUT"
408  PRINT "AND ANSWERED ";CA;" QUESTION(S) CORRECTLY,"
409  PRINT "OUT OF ";TR;" QUESTIONS ASKED.": RETURN
410  HOME :Y3 = YY
411  GOSUB 444
412 Q3 = Q3 + 1
413  IF Q3 > 50 THEN Q3 = O: GOTO 415
414  GOTO 416
415  GOSUB 451
416 Q =  INT ( RND (1) * 50 + 1)
417  IF B(Q) = 1 THEN 416
418 B(Q) = 1
419  PRINT
420  FOR AB = 1 TO Q
```

Program 1-5—cont. The Time Dungeon: World History, World War II, Program Listing

```
421  READ YY,QD$,ID,AD$,I1$,I2$,I3$
422  NEXT AB
423  RESTORE
424  GOSUB 171
425  HOME :TR = TR + 1
426  PRINT "YOU HAVE ARRIVED AT THE YEAR ";YY
427  PRINT ". . . . . IN ";BZ$: PRINT
428  PRINT "YOU MUST ANSWER THIS QUESTION"
429  PRINT " . . TO CONTINUE YOUR JOURNEY"
430  PRINT "----------------------------------------"
431  PRINT "THE YEAR IS: ";YY: PRINT : IF ID = 4 THEN 164
432  PRINT QD$
433  PRINT "----------------------------------------"
434  PRINT "QUESTION TYPE: "
435  ON ID GOSUB 455,456,457,458
436  GOSUB 459
437  IF E$ = AD$ THEN 441
438  PRINT "INCORRECT"
439  GOSUB 471
440  RETURN
441  PRINT "CORRECT"
442  GOSUB 463
443  RETURN
444  PRINT "YOU ENTER INTO A BLUE HAZY . . ."
445  PRINT ". . . . . TIME PORTAL . . ."
446  PRINT :GT = 1: GOSUB 134
447  PRINT "A PULSATING GLOW . . . . . ."
448  PRINT ". . . . INDICATES ACTIVATION": PRINT
449  PRINT "PRESENT YEAR . . .  "Y3:GT = 3: GOSUB 134
450  RETURN
451  FOR I = 1 TO 50
452 B(I) = 0
453  NEXT I
454  RETURN
455  PRINT "PEOPLE, PLACES, OR THINGS ?": RETURN
456  PRINT "*** (T)RUE OR (F)ALSE  ?": RETURN
457  PRINT "*** WHO AM I (LAST NAME) ?": RETURN
458  PRINT "*** MULTIPLE CHOICE ?": RETURN
459  PRINT "ENTER CORRECT ANSWER?"
460  INPUT E$
461 G4 =  INT ( RND (1) * 500 + 1) + 125
462  RETURN
463 G = G + G4
464  PRINT "YOU WIN ";G4;" GOLD PIECES"
465 A(C,D) =  INT ( RND (1) * 2 + 1)
466 CA = CA + 1: IF K = 1 THEN  RETURN
467  IF CA = K4 THEN 469
468  RETURN
469  GOSUB 325
470  RETURN
471  PRINT :G4 =  INT ( RND (1) * 400 + 1) + 25
472  PRINT "THE CORRECT ANSWER IS '";AD$;"'"
473  PRINT : IF (G - G4) < 0 THEN G4 = G
```

```
474 G = G - G4
475 GT = 1: GOSUB 134
476  PRINT "YOU LOSE ";G4;" GOLD PIECES"
477  RETURN
478 ZT = 5
479 X =  INT ( RND (1) * 8 + 1):Y =  INT ( RND (1) * 8 + 1)
480  IF A(X,Y) <  = 2 THEN A(X,Y) = 5: RETURN
481 ZT = ZT - 1: IF ZT = 0 THEN  RETURN
482  GOTO 479
483  DATA 1945,FROM 1939 TO 1945 NAZIS MURDERED 6      MILLION JEWS,2,T,0
     ,0,0
484  DATA 1933,HITLER AND HIS .... BECAME GERMANY'S    GOVERNMENT,4,NAZIS
     ,NATIONALS,DEMOCRATICS,COMMUNISTS
485  DATA 1933,HITLER BLAMED THE .... FOR MOST OF      GERMANY'S ILLS,4,J
     EWS,ENGLISH,CATHOLICS,PROTESTANTS
486  DATA 1935,THE .... LAWS DEPRIVED THE JEWS OF      CITIZENSHIP,1,NURE
     MBERG,0,0,0
487  DATA 1934,HITLER'S SECRET POLICE WAS CALLED THE   ....,4,GESTAPO,CIA
     ,KBG,SPO
488  DATA 1936,THE SPANISH .... WAR BEGINS,4,CIVIL,COLD,GERMAN,RUSSIAN
489  DATA 1938,HITLER'S TROOPS RODE INTO .... AUSTRIA  THIS YEAR,1,VIENNA
     ,0,0,0
490  DATA 1938,GERMANS WORKED ON FORTIFICATIONS CALLED THE .... LINE,4,SI
     EGFRIED,MGINOT,FRONT,WESTERN
491  DATA 1939,AUG 23-RUSSIA SIGNED A .... PACT WITH   GERMANY,1,NONAGGRE
     SSION,0,0,0
492  DATA 1939,SEPT 1-GERMAN FORCES INVADED ....,4,POLAND,FRANCE,RUSSIA,E
     NGLAND
493  DATA 1939,SEPT 3-GREAT BRITAIN AND .... DECLARED  WAR ON GERMANY,1,F
     RANCE,0,0,0
494  DATA 1939,GERMAN'S OCCUPYING POLAND KILLED 3      MILLION .... BY 19
     45,4,JEWS,COMMUNISTS,SOCIALISTS,TURKS
495  DATA 1945,THE NUREMBERG .... TRIED NAZIS LEADERS  FOR  WAR CRIMES,1,
     TRIALS,0,0,0
496  DATA 1940,MARCH-.... LOST SOME OF HER BEST LAND   TO RUSSIA,4,FINLAN
     D,HOLLAND,FRANCE,ITALY
497  DATA 1939,DEC-BRITISH SHIPS TRAPPED THE GERMAN    SHIP .... IN MONTE
     VIDEO HARBOR,4,GRAF SPEE,NUREMBERG,SIEGFRIED,LUFTWAFFE
498  DATA 1940,APRIL 9-THE NAZIS INVADED .... & NORWAY,1,DENMARK,0,0,0
499  DATA 1940,APRIL-I WAS A NAZIS SYMPATHIZER IN      NORWAY,3,QUISLING,
     0,0,0
500  DATA 1940,MAY-HITLER BEGAN THE INVASION OF THE    NETHERLANDS- LUXEM
     BERG- & ....,4,BELGIUM,NORWAY,DENMARK,FRANCE
501  DATA 1940,BY MAY 10-GERMANS BROKE THRU THE ....   -AT SEDAN,1,MAGINO
     T LINE,0,0,0
502  DATA 1940,JUNE-GERMAN TROOPS OCCUPIED ....,4,FRANCE,ENGLAND,EGYPT,RU
     SSIA
503  DATA 1940,JUNE 18-BATTLE OF .... BEGAN AFTER THE  FALL OF FRANCE,4,B
     RITAIN,FREEDOM,FRANCE,GERMANY
504  DATA 1941,HITLER LOST THE BATTLE OF BRITAIN,2,T,0,0,0
505  DATA 1940,THE GERMAN .... (AIR FORCE) GREATLY HURT BRITAIN,1,LUFTWAF
     FE,0,0,0
506  DATA 1940,OCT-ITALIAN TROOPS INVADED ....,1,GREECE,0,0,0
```

Program 1-5—cont. The Time Dungeon: World History, World War II, Program Listing

```
507  DATA 1941,JUNE 22-HITLER ATTACKED THE SOVIET UNION,2,T,0,0,0
508  DATA 1941,BY 1941-HITLER CONTROLLED THE .... AND  WESTERN EUROPE,1,B
     ALKANS,0,0,0
509  DATA 1941,DEC 7-THE JAPANESE ATTACKED .... HARBOR,1,PEARL,0,0,0
510  DATA 1941,NOV-CONGRESS REPEALED THE .... ACT,1,NEUTRALITY,0,0,0
511  DATA 1942,JAN 1-THE .... NATIONS WAS CREATED DUR- ING WW II,1,UNITED
     ,0,0,0
512  DATA 1942,JUNE-AMERICANS HELD OFF THE JAPANESE AT .... ISLAND,1,MIDW
     AY,0,0,0
513  DATA 1942,GERMANS FAILED TO TAKE ....-IN RUSSIA,1,STALINGRAD,0,0,0
514  DATA 1943,JAN-ROOSEVELT & CHURCHHILL MET IN ....  -MOROCCO,1,CASABLA
     NCA,0,0,0
515  DATA 1943,I WAS CALLED THE DESERT FOX (GERMAN),3,ROMMEL,0,0,0
516  DATA 1943,EARLY IN 1943-AMERICANS BEGAN AN OFFEN- SIVE IN THE ....,1
     ,ALEUTIANS,0,0,0
517  DATA 1944,JUNE 4-GENERAL CLARK'S AMERICAN TROOPS  MARCHED INTO ....,
     4,ROME,FLORENCE,VENICE,NAPLES
518  DATA 1944,GERMANS V-1 ROCKET WAS KNOWN IN BRITAIN AS THE ....,4,BUZZ
      BOMB,FLY BOMB,ROCKET BOMB,DEATH BOMB
519  DATA 1944,SEPT-ALLIES FREED BELGIUM-LUXEMBURG- &  MOST OF ....,1,FRA
     NCE,0,0,0
520  DATA 1944,SEPT 12-THE BATTLE OF .... BEGAN,4,GERMANY,FRANCE,OKINAWA,
     EGYPT
521  DATA 1945,MAY 7-GERMANS SIGNED A SURRENDER AGREE- MENT IN ....-CITY,
     4,REIMS,LONDON,PARIS,NICE
522  DATA 1944,JUNE 6-'D-DAY' WAS THE ALLIED INVASION  OF ....,4,FRANCE,G
     ERMANY,ITALY,SPAIN
523  DATA 1945,THE JAPANESE USED .... OR SUICIDE PLANES,1,KAMIKAZE,0,0,0
524  DATA 1945,JUNE-AMERICANS WON THE JAPANESE ISLAND  OF ....,4,OKINAWA,
     KAMIKAZE,NAGASAKI,HIROSHIMA
525  DATA 1945,JULY-ALLIES ISSUED THE .... DECLARATION,4,POTSDAM,FREEDOM,
     FINAL,LAST
526  DATA 1945,AUG 6-AN ATOMIC BOMB WAS DROPPED ON ....-CITY,1,HIROSHIMA,
     0,0,0
527  DATA 1945,AUG 9-AN ATOMIC BOMB WAS DROPPED ON ....-CITY,1,NAGASAKI,0
     ,0,0
528  DATA 1945,AUG 14-JAPAN SURRENDERED AFTER THE      ATOMIC DEVASTATION
     ,2,T,0,0,0
529  DATA 1945,SEPT 2-JAPAN FORMALLY SURRENDERED ON THE AMERICAN SHIP ...
     .,4,MISSOURI,MIDWAY,ENTERPRISE,OHIO
530  DATA 1944,THE INVASION OF FRANCE TOOK PLACE       BETWEEN CHERBOURG
     & ....,4,LE HARVE,NICE,CANNES,PARIS
531  DATA 1945,GENOCIDE OF THE JEWS-IN NAZIS CONCENTRA-TION CAMPS-WAS REV
     EALED,2,T,0,0,0
532  DATA 1944,DEC 16-GERMANS COUNTER OFFENSIVE WAS THE 'BATTLE OF THE ..
     ..',4,BULGE,BOLD,RHINE,SWINE
533  HOME : PRINT "THE TIME DUNGEON * * * MAP"
534  PRINT
535  FOR Q = 1 TO 8
536  FOR N = 1 TO 8
537  IF C = N AND D = Q THEN  PRINT "=P= ";: GOTO 540
538 S1 = A(N,Q)
539  ON S1 GOSUB 137,137,138,138,139,140,141,139,142
```

Program 1-5—cont. The Time Dungeon: World History, World War II, Program Listing

```
540  NEXT N
541  PRINT
542  NEXT Q
543 GT =  INT ( RND (1) * 8 + 1) +  INT ( RND (1) * (CA + 5) + 1)
544  GOSUB 134: HOME : RETURN
545  PRINT : PRINT "ON THE WALL IS A GLOWING SCREEN"
546  PRINT "BELOW THE SCREEN IS A RED BUTTON": PRINT
547 KT =  INT ( RND (1) * 9 + 1):KL =  INT ( RND (1) * 15 + 1) + 2
548  GOSUB 565
549  INPUT K$
550  IF K$ = "Y" THEN 552
551  RETURN
552  IF KT >  = 6 THEN 533
553  IF KT <  = 4 THEN 562
554  PRINT :G4 =  INT ( RND (1) * 100 + 1) + 25:G = G + G4
555  PRINT "YOU RECEIVE ";G4;" GOLD PIECES . . ."
556  PRINT "BUT . . . . . THE CORRIDOR NARROWS":GT = 3: GOSUB 134
557 KL = KL - 1: IF KL = 0 THEN  RETURN
558  GOSUB 565
559  INPUT K$
560  IF K$ = "Y" THEN 554
561  RETURN
562  PRINT : PRINT "NOTHING HAPPENS"
563 GT = 1: GOSUB 134
564  RETURN
565  PRINT : PRINT "DO YOU WISH TO PUSH THE BUTTON?"
566  PRINT "ENTER  (Y)ES  OR  (N)O": RETURN
567  HOME : PRINT "YOU ARE STUCK IN THE NARROW CORRIDOR"
568  PRINT ". . . . . AND . . .": PRINT :GT = 3: GOSUB 134
569  GOTO 264
570  PRINT : PRINT "YOU NOTICE A DOOR TO YOUR RIGHT"
571  PRINT
572 KT =  INT ( RND (1) * 9 + 1)
573  PRINT "DO YOU WISH TO OPEN THE DOOR?"
574  PRINT "ENTER  (Y)ES  OR  (N)O"
575  INPUT K$
576  IF K$ = "Y" THEN 578
577  RETURN
578  PRINT : PRINT "YOU TRY THE DOOR . . . . .":GT = 1: GOSUB 134
579  IF KT >  = 7 THEN 589
580  IF KT <  = 4 THEN 587
581  PRINT :G4 =  INT ( RND (1) * 100 + 1) + 25
582  PRINT "THE DOOR OPENS . . . . . ."
583  PRINT "REVEALING A CLOSET . . . ."
584  PRINT :G = G + G4
585  PRINT "WHERE YOU FIND ";G4;" GOLD PIECES"
586  PRINT : RETURN
587  PRINT "BUT THE DOOR WON'T OPEN . . . ."
588  PRINT ". . . . IT MUST BE LOCKED": RETURN
589  PRINT : PRINT "THE DOOR OPENS . . . AND SUDDENLY"
590  PRINT "THE CHAMBER BEGINS TO . . . SPIN"
591 G7 =  INT (G / 2):G4 =  INT ( RND (1) * G7 + 1):MM =  INT ( RND (1) *
     20 + 1)
```

Program 1-5—cont. The Time Dungeon: World History, World War II, Program Listing

```
592 GT = 4: GOSUB 134:G = G - G4
593  FOR K9 = 1 TO 250
594  PRINT "+    =    +";: NEXT K9
596  HOME : PRINT "YOU WERE TELEPORTED INTO . . . ."
597  PRINT ". . . . ANOTHER DIMENSION . . . ."
598  PRINT ". . AND RETURNED IN AN INSTANT . ."
599  PRINT : PRINT "BUT YOU DROPPED ";G4;" GOLD PIECES"
600  PRINT ". . . AND WASTED ";MM;" MOVES . . ."
601 M1 = M1 + MM
602 GT = 4: GOSUB 134
603  RETURN
```

Program 1-6. The Time Dungeon: Ancient History, Middle East, 4000 B.C. to 6 B.C., Program Listing

```
100  HOME :BZ$ = "ANCIENT HISTORY-MID EAST":BW$ = "4000 BC TO 6 BC"
101  PRINT "THE TIME DUNGEON:": PRINT BZ$
102  PRINT "COPYRIGHT (C) 1981 BY HOWARD BERENBON"
103  PRINT "APPLE II"
104  PRINT
105  PRINT "AN EDUCATIONAL FANTASY GAME"
106 GT = 5: GOSUB 134:Q3 = 0
107  HOME : DIM A(9,9),B(50): GOSUB 451
108  PRINT "YOU WILL BE TELEPORTED TO . . ."
109  PRINT
110  PRINT "THE TIME DUNGEON . . . ."
111  PRINT "TO STUDY ";BZ$
112  PRINT
114 CA = 0:G = 1000:M1 = 1:K = 0:KL = 1:TT = 0:TR = 0
115  PRINT "ENTER YOUR CHARACTER'S NAME?"
116  INPUT A$
117  PRINT "ENTER PRESENT YEAR"
118  INPUT Y2:YY = Y2: IF Y2 > 2000 THEN 117
119  PRINT : PRINT A$;" . . . YOU ARE ON YOUR WAY"
120 GT = 2: GOSUB 134
121  GOSUB 143
122  HOME
123  PRINT "YOU HAVE ARRIVED AT . . . ."
124  PRINT
125  PRINT "THE TIME DUNGEON: ";BZ$
126  PRINT "FOR THE YEARS:    ";BW$
127  PRINT
128  PRINT "YOU CARRY 1000 GOLD PIECES": PRINT
129  PRINT "YOU WILL ENCOUNTER . . ."
130  PRINT "TIME PORTALS WHICH TELEPORT YOU TO"
131  PRINT "EVENTS IN ";BZ$
132 GT = 8: GOSUB 134
133  GOTO 199
134  FOR ZZ = 1 TO 908 * GT
135  NEXT ZZ
136  RETURN
137  PRINT "O   ";: RETURN
138  PRINT "AP  ";: RETURN
139  PRINT "?   ";: RETURN
140  PRINT "NS  ";: RETURN
141  PRINT "EW  ";: RETURN
142  PRINT "X   ";: RETURN
143  REM  SET UP DUNGEON
144  FOR X = 1 TO 8
145  FOR Y = 1 TO 8
146 A(X,Y) =  INT ( RND (1) * 7 + 1)
147  NEXT Y
148  NEXT X
149  REM  TRAPS
150 H =  INT ( RND (1) * 3 + 1) + 1
151  FOR N = 1 TO H
152 X =  INT ( RND (1) * 8 + 1)
153 Y =  INT ( RND (1) * 8 + 1)
```

Program 1-6—cont. The Time Dungeon: Ancient History, Middle East, 4000 B.C. to 6 B.C., Program Listing

```
154 A(X,Y) = 8
155  NEXT N
156  REM  EXITS
157 S =  INT ( RND (1) * 4 + 1) + 1
158  FOR N = 1 TO S
159 X =  INT ( RND (1) * 8 + 1)
160 Y =  INT ( RND (1) * 8 + 1)
161 A(X,Y) = 9
162  NEXT N
163  RETURN
164 R6 =  INT ( RND (1) * 4 + 1): PRINT QD$;"?:": PRINT
165  ON R6 GOSUB 167,168,169,170
166  GOTO 433
167  PRINT AD$,I1$: PRINT I2$,I3$: RETURN
168  PRINT I2$,AD$: PRINT I1$,I3$: RETURN
169  PRINT I1$,I2$: PRINT AD$,I3$: RETURN
170  PRINT I3$,I1$: PRINT I2$,AD$: RETURN
171  HOME
173 GT = 1
174  GOSUB 134
175  FOR B = 1 TO 70:B4 =  INT ( RND (1) * 23 + 1)
176 B7 =  INT ( RND (1) * 39 + 1): VTAB B4: PRINT  TAB( B7)".";
177  PRINT : NEXT B: PRINT
178 GT = .005:Y5 = 25
179  IF Y3 = YY THEN  VTAB 1: PRINT "ALREADY AT . . . . ": GOTO 196
180  IF Y3 < YY THEN 188
181  IF (Y3 - YY) <  = 50 THEN 185
182 Y3 = Y3 - Y5
183  GOSUB 382
184  IF Y3 = YY THEN 195
185  IF (Y3 - YY) <  = 50 THEN Y5 = 1
186  IF (Y3 - YY) <  = 5 THEN GT = .4
187  GOTO 182
188  IF (YY - Y3) <  = 50 THEN 192
189 Y3 = Y3 + Y5
190  GOSUB 382
191  IF Y3 = YY THEN 195
192  IF (YY - Y3) <  = 50 THEN Y5 = 1
193  IF (YY - Y3) <  = 5 THEN GT = .4
194  GOTO 189
195  PRINT : PRINT "ARRIVAL . . . . AT"
196  PRINT "DESTINATION YEAR . . . . ";YY
197 GT = 4: GOSUB 134
198  HOME : RETURN
199 C =  INT ( RND (1) * 8 + 1):D =  INT ( RND (1) * 8 + 1):A(C,D) = 1
200 K4 =  INT ( RND (1) * 4 + 1) + 3
201  HOME :A = A(C,D):GT = 1: GOSUB 134
202  ON A GOSUB 292,300,410,410,306,330,335,338,362
203  IF KL = 0 THEN 567
204  PRINT : IF TT = 1 THEN TT = 0: GOTO 201
205  IF G <  = 0 THEN 264
206  PRINT A$;",  WHAT IS YOUR ACTION OR MOVE?"
207  PRINT
```

Program 1-6—cont. The Time Dungeon: Ancient History, Middle East, 4000 B.C. to 6 B.C., Program Listing

```
208  PRINT "(N)ORTH, (E)AST, (S)OUTH"
209  PRINT "(W)EST, E(X)IT, (G)OLD"
210  INPUT M1$
211 M1 = M1 + 1: IF K = 0 AND M1 > 70 THEN 371
212  IF M1$ = "N" THEN 220
213  IF M1$ = "E" THEN 225
214  IF M1$ = "S" THEN 230
215  IF M1$ = "W" THEN 235
216  IF M1$ = "X" THEN 240
217  IF M1$ = "G" THEN 251
218  PRINT
219  GOTO 204
220  REM  NORTH
221  IF A = 7 THEN 255
222  IF (D - 1) = 0 THEN 281
223 D = D - 1
224  GOTO 201
225  REM  EAST
226  IF A = 6 THEN 260
227  IF (C + 1) = 9 THEN 286
228 C = C + 1
229  GOTO 201
230  REM  SOUTH
231  IF A = 7 THEN 255
232  IF (D + 1) = 9 THEN 288
233 D = D + 1
234  GOTO 201
235  REM  WEST
236  IF A = 6 THEN 260
237  IF (C - 1) = 0 THEN 290
238 C = C - 1
239  GOTO 201
240  HOME
241  IF A <  > 9 THEN 248
242  IF K = 1 THEN 387
243  PRINT "YOU CANNOT EXIT THE TIME DUNGEON"
244  PRINT "YOU DON'T HAVE THE CRYSTAL KEY"
245 GT = 2: GOSUB 134
246  PRINT
247  GOTO 204
248  PRINT "YOU ARE NOT AT AN EXIT PORTAL"
249 GT = 2: GOSUB 134
250  GOTO 204
251  REM  GOLD
252  HOME : PRINT "YOU HAVE ";G;" GOLD PIECES WITH YOU"
253  PRINT
254  GOTO 204
255  REM  EW
256  HOME : PRINT "YOU ARE IN AN EAST-WEST CORRIDOR"
257  PRINT "YOU CAN ONLY GO EAST OR WEST"
258  PRINT
259  GOTO 204
260  REM  NS
```

Program 1-6—cont. The Time Dungeon: Ancient History, Middle East, 4000 B.C. to 6 B.C., Program Listing

```
261  HOME : PRINT "YOU ARE IN A NORTH-SOUTH CORRIDOR"
262  PRINT "YOU CAN ONLY GO NORTH OR SOUTH"
263  GOTO 258
264  REM  GOLD ZERO
265 GT = 2: GOSUB 134
266  PRINT
267  PRINT "YOU LOST ALL YOUR GOLD AND YOU WERE"
268  PRINT " . . . UNABLE TO MEET THE DEMANDS OF"
269  PRINT " . . . THE TIME DUNGEON . . . . ."
270  PRINT
271  PRINT
272 T = 3: GOSUB 134
273  GOSUB 402
274  PRINT
275  PRINT "ANOTHER GAME?"
276  PRINT "ENTER '1'-YES  '0'-NO"
277  INPUT AA
278  IF AA <  > 1 THEN 280
279  HOME : GOTO 108
280  END
281  HOME : PRINT "YOU ARE AT THE NORTH WALL"
282  PRINT "YOU CANNOT PASS THROUGH"
283  PRINT
284  PRINT "TRY ANOTHER DIRECTION?"
285  GOTO 204
286  HOME : PRINT "YOU ARE AT THE EAST WALL"
287  GOTO 282
288  HOME : PRINT "YOU ARE AT THE SOUTH WALL"
289  GOTO 282
290  HOME : PRINT "YOU ARE AT THE WEST WALL"
291  GOTO 282
292 KT =  INT ( RND (1) * 9 + 1)
293  PRINT "YOU ARE IN A GLOWING TIME PORTAL"
294 GT = 1: GOSUB 134
295  PRINT
296  PRINT "THE LIGHT FADES . . . . . ."
297  PRINT "THE PORTAL IS INACTIVE . . . ."
298  IF A = 1 AND KT > 8 THEN 570
299  RETURN
300  PRINT "YOU ARE IN A DUST FILLED PORTAL"
301 GT = 1: GOSUB 134
302  PRINT
303  PRINT "A BRIGHT LIGHT IS ACTIVATED AND . ."
304  PRINT
305  GOTO 296
306  HOME
307  PRINT "AN ALIEN TRAVELER IS IN THIS CHAMBER"
308 A(C,D) =  INT ( RND (1) * 2 + 1): GOSUB 478
309 GT = 1: GOSUB 134
310 TD =  INT ( RND (1) * 10 + 1)
311 G4 =  INT ( RND (1) * 350 + 1)
312 Y =  INT ( RND (1) * 8 + 1)
313  IF Y <  = 5 THEN 320
```

```
314  PRINT : IF (G - G4) < 0 THEN G4 = G
315  PRINT "HE IS UNFRIENDLY . . . . AND AS HE"
316  PRINT "LEAVES . . . HE TAKES ";G4;" GOLD PIECES"
317  PRINT :G = G - G4
318  IF TD = 5 AND K = 0 THEN 325
319  RETURN
320  PRINT
321  PRINT "HE IS FRIENDLY . . . . . AND GIVES YOU"
322  PRINT ". . ";G4;" GOLD PIECES, WHICH YOU ACCEPT"
323  PRINT :G = G + G4
324  GOTO 318
325  PRINT :GT = 2: GOSUB 134
326  PRINT "YOU SEARCH THE CHAMBER . . . AND"
327 GT = 1: GOSUB 134
328  PRINT "FIND . . . . THE CRYSTAL KEY"
329 K = 1: RETURN
330  HOME
331  PRINT "YOU ENTER A NORTH-SOUTH CORRIDOR"
332  PRINT "THRU A SECRET DOOR": PRINT : GOSUB 380
333 KT =  INT ( RND (1) * 9 + 1): IF KT >  = 7 THEN 545
334  RETURN
335  HOME
336  PRINT "YOU ENTER AN EAST-WEST CORRIDOR"
337  GOTO 332
338  REM  TRAP
339  PRINT "YOU ENCOUNTER . . . A TIME TRAP"
340  PRINT ". . . . . IN THIS CHAMBER":GT = 1: GOSUB 134
341 TD =  INT ( RND (1) * 9 + 1)
342  IF TD >  = 7 THEN 347
343  PRINT
344  PRINT "BUT YOU'RE LUCKY . . . . ."
345  PRINT ". . . IT DIDN'T ACTIVATE"
346  RETURN
347 TT = 1: PRINT "AND IT ACTIVATED . . . . .":GT = 2: GOSUB 134
348  FOR A = 1 TO 250
349  PRINT "*        %";
350  NEXT A
351 C =  INT ( RND (1) * 8 + 1):D =  INT ( RND (1) * 8 + 1)
352  PRINT
353  PRINT :G = 100
354  PRINT "YOU HAVE BEEN TELEPORTED TO . . . ."
355  PRINT ". . . . AN UNKNOWN LOCATION . . . ."
356  PRINT
357  PRINT "AND YOU LOST MOST OF YOUR GOLD"
358  PRINT
359  PRINT "YOU HAVE . . . ";G;" GOLD PIECES LEFT"
360 GT = 6: GOSUB 134
361  RETURN
362  PRINT "YOU ARE AT AN EXIT PORTAL"
363  PRINT
364  PRINT "(A KEY IS REQUIRED)"
365  PRINT
366  RETURN
```

Program 1-6—cont. The Time Dungeon: Ancient History, Middle East, 4000 B.C. to 6 B.C., Program Listing

```
367 H = 1:O = 9:W = 8
368 B = O:E = 5:R = 14
369 C = O:PR = O
370  GOTO 216
371  PRINT :GT = 2: GOSUB 134
372  PRINT "BUT BEFORE YOU PROCEED . ."
373  PRINT "YOU LOOK TO THE GROUND AND . . ."
374  PRINT ". . . FIND THE CRYSTAL KEY . .":K = 1
375 GT = 3: GOSUB 134
376  GOTO 212
377  PRINT "YOU ANSWERED ";CA;" QUESTION(S) CORRECTLY"
378  PRINT " . . . . . IN ";M1;" TURNS,"
379  GOTO 409
380  PRINT "THE DOOR CLOSES AND LOCKS BEHIND YOU":GT = 1: GOSUB 134
381  RETURN
382  REM  TIME DISPLAY
383  VTAB 12: PRINT "PORTAL YEAR . . . ";Y3;" "
385  GOSUB 134
386  RETURN
387  HOME : REM  EXIT PORTAL
388  PRINT "YOU ENTER THE EXIT PORTAL AND"
389  PRINT "INSERT THE CRYSTAL KEY INTO THE SLOT"
390  PRINT :GT = 4: GOSUB 134
391  PRINT "THE MACHINE BEGINS TO HUM . . . ."
392  PRINT :GT = 2: GOSUB 134
393 YY = Y2: GOSUB 171
394  PRINT
395  PRINT "YOU FOUND YOUR WAY . . . . ."
396  PRINT ". . . . BACK TO THE PRESENT"
397  PRINT
398  PRINT "YOU HAVE ACQUIRED ";G;" GOLD PIECES"
399  PRINT
400  GOSUB 402
401  GOTO 274
402 GG = G + 100
403 R =  INT ((GG * CA - 7000 + 1) / M1)
404  PRINT
405  PRINT "GAME RATING IS ";R
406  PRINT : IF G <  = 0 OR KL = 0 THEN 377
407  PRINT "YOU TOOK ";M1;" TURNS TO FIND THE WAY OUT"
408  PRINT "AND ANSWERED ";CA;" QUESTION(S) CORRECTLY,"
409  PRINT "OUT OF ";TR;" QUESTIONS ASKED.": RETURN
410  HOME :Y3 = YY
411  GOSUB 444
412 Q3 = Q3 + 1
413  IF Q3 > 50 THEN Q3 = 0: GOTO 415
414  GOTO 416
415  GOSUB 451
416 Q =  INT ( RND (1) * 50 + 1)
417  IF B(Q) = 1 THEN 416
418 B(Q) = 1
419  PRINT
420  FOR AB = 1 TO Q
```

Program 1-6—cont. The Time Dungeon: Ancient History, Middle East, 4000 B.C. to 6 B.C., Program Listing

```
421  READ YY,QD$,ID,AD$,I1$,I2$,I3$
422  NEXT AB
423  RESTORE
424  GOSUB 171
425  HOME :TR = TR + 1
426  PRINT "YOU HAVE ARRIVED AT THE YEAR ";YY
427  PRINT ". . . . . IN ";BZ$: PRINT
428  PRINT "YOU MUST ANSWER THIS QUESTION"
429  PRINT " . . TO CONTINUE YOUR JOURNEY"
430  PRINT "----------------------------------------"
431  PRINT "THE YEAR IS: ";YY: PRINT : IF ID = 4 THEN 164
432  PRINT QD$
433  PRINT "----------------------------------------"
434  PRINT "QUESTION TYPE: "
435  ON ID GOSUB 455,456,457,458
436  GOSUB 459
437  IF E$ = AD$ THEN 441
438  PRINT "INCORRECT"
439  GOSUB 471
440  RETURN
441  PRINT "CORRECT"
442  GOSUB 463
443  RETURN
444  PRINT "YOU ENTER INTO A BLUE HAZY . . ."
445  PRINT ". . . . . TIME PORTAL . . ."
446  PRINT :GT = 1: GOSUB 134
447  PRINT "A PULSATING GLOW . . . . . ."
448  PRINT ". . . . INDICATES ACTIVATION": PRINT
449  PRINT "PRESENT YEAR . . .  "Y3:GT = 3: GOSUB 134
450  RETURN
451  FOR I = 1 TO 50
452 B(I) = 0
453  NEXT I
454  RETURN
455  PRINT "PEOPLE, PLACES, OR THINGS ?": RETURN
456  PRINT "*** (T)RUE OR (F)ALSE  ?": RETURN
457  PRINT "*** WHO AM I (LAST NAME) ?": RETURN
458  PRINT "*** MULTIPLE CHOICE ?": RETURN
459  PRINT "ENTER CORRECT ANSWER?"
460  INPUT E$
461 G4 =  INT ( RND (1) * 500 + 1) + 125
462  RETURN
463 G = G + G4
464  PRINT "YOU WIN ";G4;" GOLD PIECES"
465 A(C,D) =  INT ( RND (1) * 2 + 1)
466 CA = CA + 1: IF K = 1 THEN  RETURN
467  IF CA = K4 THEN 469
468  RETURN
469  GOSUB 325
470  RETURN
471  PRINT :G4 =  INT ( RND (1) * 400 + 1) + 25
472  PRINT "THE CORRECT ANSWER IS '";AD$;"'"
473  PRINT : IF (G - G4) < 0 THEN G4 = G
```

Program 1-6—cont. The Time Dungeon: Ancient History, Middle East, 4000 B.C. to 6 B.C., Program Listing

```
474 G = G - G4
475 GT = 1: GOSUB 134
476  PRINT "YOU LOSE ";G4;" GOLD PIECES"
477  RETURN
478 ZT = 5
479 X =  INT ( RND (1) * 8 + 1):Y =  INT ( RND (1) * 8 + 1)
480  IF A(X,Y) <  = 2 THEN A(X,Y) = 5: RETURN
481 ZT = ZT - 1: IF ZT = 0 THEN  RETURN
482  GOTO 479
483  DATA -4000,THE SIGHT OF BABYLON WAS SETTLED BY THE SUMERIANS,2,T,0,0
     ,0
484  DATA -3700,1ST USE OF WRITING WAS IN ....-A        SUMERIAN CITY,4,U
     RUK,ERECH,KISH,AGADE
485  DATA -3500,THE .... SETTLED ALONG THE EUPHRATES,1,SUMERIANS,0,0,0
486  DATA -3000,.... WAS THE LEADING SUMERIAN CITY      UNDER KING ETANA,
     4,KISH,URUK,ERECH,AGADE
487  DATA -2800,MESKIAGGASHER FOUNDED DYNASTY IN ....-  CITY,4,ERECH,URUK
     ,GIZEH,SUMER
488  DATA -2686,BEGINNING OF THE .... KINGDOM OF EGYPT,4,OLD,2ND,MIDDLE,N
     EW
489  DATA -2600,THE GREAT .... FOR PHARAOH KHUFU WAS    COMPLETED,4,PYRAM
     ID,BATHS,FOUNTAIN,FORTRESS
490  DATA -2600,GREAT PYRAMID FOR PHARAOH KHUFU WAS     BUILT AT GIZEH,2,
     T,0,0,0
491  DATA -2650,.... REIGNED AS KING OF ERECH-SUMERIAN,1,GILGAMESH,0,0,0
492  DATA -2325,.... THE GREAT RULED OVER MESOPOTAMIA,4,SARGON,URUK,ETANA
     , KISH
493  DATA -2200,GUTIANS CONQUERED SUMERIA AND DESTROYED ....,4,AGADE,GIZE
     H,URUK,KISH
494  DATA -2133,BEGINNING OF THE .... KINGDOM OF EGYPT,4,MIDDLE,2ND,OLD,N
     EW
495  DATA -2100,UR-NAMMAU FOUNDED THE LAST SUMERIAN     DYNASTY,2,T,0,0,0

496  DATA -3200,UPPER AND .... EGYPT UNITED BY PHARAOH  MENES,4,LOWER,NEW
     ,MIDDLE,OLD
497  DATA -3200,.... WAS THE 1ST PHARAOH-BUILT MEMPHIS,4,MENES,SARGON,PIL
     SER,ABRAHAM
498  DATA -2000,THE .... DESTROYED UR IN MESOPOTAMIA,4,ELAMITES,HITTITES,
     HEBREWS,EGYPTIANS
499  DATA -2000,I WAS THE FOUNDER OF JUDAISM,3,ABRAHAM,0,0,0
500  DATA -2000,THE .... LIVED AS NOMADIC SHEPHERDS IN  CANAAN,4,HEBREWS,
     TURKS,EGYPTIANS,SUMERIANS
501  DATA -1786,EGYPT RULED BY .... KINGS,4,HYKSOS,HEBREW,ELAMITE,HITTITE

502  DATA -1750,HAMMURABI RULED BABYLONIA-HAD CODE OF   LAWS,2,T,0,0,0
503  DATA -1600,BABYLONIAN DYNASTY DESTROYED BY THE ....,4,HITTITES,HEBRE
     WS,SUMERIANS,EGYPTIANS
504  DATA -1567,BEGINNING OF THE .... KINGDOM IN EGYPT,4,NEW,OLD,MIDDLE,U
     PPER
505  DATA -1468,EGYPTIANS CONQUERED SYRIA-BATTLE OF ....,1,MEGIDDO,0,0,0
506  DATA -1250,I LED THE HEBREWS OUT OF BONDAGE IN     EGYPT,3,MOSES,0,0
     ,0
```

```
507  DATA -1250,PHOENICIANS ESTABLISHED THE CITY STATES OF TYRE & ....,4,
     SIDON,URUK,BABYLON,CANAAN
508  DATA -1250,THE HEBREWS ENTERED ....,4,CANAAN,EGYPT,BABYLON,URUK
509  DATA -1020,.... BECAME KING OF THE HEBREWS,4,SAUL,MOSES,ABRAHAM,DAVI
     D
510  DATA -910,BEGINNING OF THE .... EMPIRE,4,ASSYRIAN,EGYPTIAN,TURKISH,H
     EBREW
511  DATA -747,TIGLATH-.... III RULED ASSYRIA,1,PILSER,0,0,0
512  DATA -705,SENNACHERIB OF ASSYRIA DESTROYED ....,4,BABYLON,EGYPT,PERS
     IA,SUMERIA
513  DATA -705,SENNACHERIB OF ASSYRIA BUILT A PALACE AT ....,1,NINEVEH,0,
     0,0
514  DATA -705,SARGON II OF ASSYRIA COMPLETED CONQUEST OF ....,4,ISRAEL,E
     GYPT,TURKEY,BABYLON
515  DATA -625,BEGINNING OF THE .... EMPIRE OF MESOPO- TAMIA,1,CHALDEAN,0
     ,0,0
516  DATA -606,BATTLE OF .... ENDED THE ASSYRIAN EMPIRE,1,CARCHEMISH,0,0,
     0
517  DATA -605,BEGINS THE REIGN OF KING ....-II OF     BABYLONIA,4,NEBUCH
     ADNEZZAR,SARGON,HAMMURABI,PILSER
518  DATA -550,BEGINNING OF THE PERSIAN EMPIRE,2,T,0,0,0
519  DATA -550,PERSIAN EMPIRE FOUNDED BY .... THE GREAT,4,CYRUS,HAMMURABI
     ,PILSER,DARIUS
520  DATA -538,CYRUS THE GREAT CONQUERED ....,4,BABYLON,EGYPT,TURKEY,ISRA
     EL
521  DATA -538,PERSIANS CONQUERED BABYLON & RETURNED   HEBREWS TO ....,1,
     JERUSALEM,0,0,0
522  DATA -525,PERSIANS CONQUERED AND RULED ....,4,EGYPT,IRAN,JORDAN,SYRI
     A
523  DATA -490,1ST PERSIAN EXPEDITION TO GREECE UNDER  DARIUS I,2,T,0,0,0

524  DATA -480,2ND PERSIAN EXPEDITION TO GREECE UNDER  ....-I,1,XERXES,0,
     0,0
525  DATA -334,.... THE GREAT FOUNDED THE CITY         ALEXANDRIA,1,ALEXA
     NDER,0,0,0
526  DATA -300,ALEXANDRIA ....-BECAME AN INTELLECTUAL  CENTER,4,EGYPT,ISR
     AEL,TURKEY,PERSIA
527  DATA -250,THE .... EMPIRE SUCCEEDED THE PERSIAN   EMPIRE,1,PARTHIAN,
     0,0,0
528  DATA -280,....-II BUILT A LIGHTHOUSE ON PHAROS-   ALEXANDRIA,1,PTOLE
     MY,0,0,0
529  DATA -192,BEGINS .... WAR BETWEEN ROME AND        SELEUCIDS,4,SYRIAN
     ,MACCABEES,SELEUCID,PERSIAN
530  DATA -167,HEBREW .... REVOLTED AGAINST ANTIOCHUS- IV OF SYRIA,1,MACC
     ABEES,0,0,0
531  DATA -48,AIDED BY CAESAR-I BECAME THE QUEEN OF   EGYPT,3,CLEOPATRA,0
     ,0,0
532  DATA -6,.... CHRIST WAS BORN IN BETHLEHEM,1,JESUS,0,0,0
533  HOME : PRINT "THE TIME DUNGEON * * * MAP"
534  PRINT
535  FOR Q = 1 TO 8
536  FOR N = 1 TO 8
537  IF C = N AND D = Q THEN  PRINT "=P= ";: GOTO 540
```

Program 1-6—cont. The Time Dungeon: Ancient History, Middle East, 4000 B.C. to 6 B.C., Program Listing

```
538 S1 = A(N,Q)
539  ON S1 GOSUB 137,137,138,138,139,140,141,139,142
540  NEXT N
541  PRINT
542  NEXT Q
543 GT =  INT ( RND (1) * 8 + 1) +  INT ( RND (1) * (CA + 5) + 1)
544  GOSUB 134: HOME : RETURN
545  PRINT : PRINT "ON THE WALL IS A GLOWING SCREEN"
546  PRINT "BELOW THE SCREEN IS A RED BUTTON": PRINT
547 KT =  INT ( RND (1) * 9 + 1):KL =  INT ( RND (1) * 15 + 1) + 2
548  GOSUB 565
549  INPUT K$
550  IF K$ = "Y" THEN 552
551  RETURN
552  IF KT >  = 6 THEN 533
553  IF KT <  = 4 THEN 562
554  PRINT :G4 =  INT ( RND (1) * 100 + 1) + 25:G = G + G4
555  PRINT "YOU RECEIVE ";G4;" GOLD PIECES . . ."
556  PRINT "BUT . . . . . THE CORRIDOR NARROWS":GT = 3: GOSUB 134
557 KL = KL - 1: IF KL = 0 THEN  RETURN
558  GOSUB 565
559  INPUT K$
560  IF K$ = "Y" THEN 554
561  RETURN
562  PRINT : PRINT "NOTHING HAPPENS"
563 GT = 1: GOSUB 134
564  RETURN
565  PRINT : PRINT "DO YOU WISH TO PUSH THE BUTTON?"
566  PRINT "ENTER  (Y)ES  OR  (N)O": RETURN
567  HOME : PRINT "YOU ARE STUCK IN THE NARROW CORRIDOR"
568  PRINT ". . . . . AND . . .": PRINT :GT = 3: GOSUB 134
569  GOTO 264
570  PRINT : PRINT "YOU NOTICE A DOOR TO YOUR RIGHT"
571  PRINT
572 KT =  INT ( RND (1) * 9 + 1)
573  PRINT "DO YOU WISH TO OPEN THE DOOR?"
574  PRINT "ENTER  (Y)ES  OR  (N)O"
575  INPUT K$
576  IF K$ = "Y" THEN 578
577  RETURN
578  PRINT : PRINT "YOU TRY THE DOOR . . . . .":GT = 1: GOSUB 134
579  IF KT >  = 7 THEN 589
580  IF KT <  = 4 THEN 587
581  PRINT :G4 =  INT ( RND (1) * 100 + 1) + 25
582  PRINT "THE DOOR OPENS . . . . . ."
583  PRINT "REVEALING A CLOSET . . . ."
584  PRINT :G = G + G4
585  PRINT "WHERE YOU FIND ";G4;" GOLD PIECES"
586  PRINT : RETURN
587  PRINT "BUT THE DOOR WON'T OPEN . . . ."
588  PRINT ". . . . IT MUST BE LOCKED": RETURN
589  PRINT : PRINT "THE DOOR OPENS . . . AND SUDDENLY"
590  PRINT "THE CHAMBER BEGINS TO . . . SPIN"
```

Program 1-6—cont. The Time Dungeon: Ancient History, Middle East, 4000 B.C. to 6 B.C., Program Listing

```
591 G7 =  INT (G / 2):G4 =  INT ( RND (1) * G7 + 1):MM =  INT ( RND (1) *
    20 + 1)
592 GT = 4: GOSUB 134:G = G - G4
593  FOR K9 = 1 TO 250
594  PRINT "+    =    +";: NEXT K9
596  HOME : PRINT "YOU WERE TELEPORTED INTO . . . ."
597  PRINT ". . . . ANOTHER DIMENSION . . . ."
598  PRINT ". . AND RETURNED IN AN INSTANT . ."
599  PRINT : PRINT "BUT YOU DROPPED ";G4;" GOLD PIECES"
600  PRINT ". . . AND WASTED ";MM;" MOVES . . ."
601 M1 = M1 + MM
602 GT = 4: GOSUB 134
603  RETURN
```

CHAPTER 2

The Algebra Dungeon

The Algebra Dungeon is an educational fantasy game where the player must solve algebraic equations as he or she wanders through the chambers and corridors of the dungeon. It's a two-level dungeon, based on the fantasy role playing game Dungeons and Dragons.* It's written in BASIC for your microcomputer. See Program 2-1 for the program listing.

THE PROGRAM

You are given 1000 gold pieces and are then teleported to a random location in the lower level of this 128-chamber, two-level dungeon (64 chambers per level). Your goal is to find your way out, with as much gold as possible. Gold pieces are acquired by solving algebraic equations given by monsters that occupy the dungeon. Each time an equation is solved correctly, a random amount of gold is given as a reward. If your answer is incorrect, then a random amount of gold is taken away. The level of math is beginning algebra. See Fig. 2-1 for a sample run.

The Algebra Problems

The problems are generated randomly using program lines 3240 through 3480 and 4360 through 4470. A random number generator subroutine at line 3840 is used to generate the X, Y, P, and Q components of the problems. The following equations are used to generate random problems. In all cases, X must be solved for:

$Y = PX$	$Y = PX - Q$	$Y = PX + Q$
$X = PY$	$X = PY - Q$	$X = PY + Q$

In any case where division is required to solve for X, the division will result in an integer.

In the lower level of the dungeon, level two, the problems are generally less difficult than those at level one. The maximum value generated for X, Y, P, and Q is 50 for level one, and 25 for level two. The values in the random-number generator subroutine may be changed for different difficulty levels.

ACTIONS OR MOVES

In your trip into the dungeon, you will encounter algebra monsters, thieves, empty chambers, trap doors, secret doors leading to north-south or east-west corridors, maps, and enchanted keys.

Enter the letter in parentheses for the following actions or moves in the dungeon:

(N)ORTH movement (up)
(E)AST movement (right)
(S)OUTH movement (down)
(W)EST movement (left)
(U)P movement (when at a stairway, and have the enchanted key)
(M)AP display (if found—when encountering thieves)
(G)OLD pieces left

North Movement

Entering an N allows you to move north through the dungeon. You may not move north under the following conditions:

1. If you reach the North Wall, you cannot pass through it.
2. If you enter an east-west corridor (through a secret door), movement north is not allowed.

* Dungeons and Dragons is a registered trademark of TSR Hobbies, Inc.

```
YOU WILL BE TELEPORTED TO . . .

THE ALGEBRA DUNGEON

ENTER YOUR CHARACTER'S NAME?
? ERIC THE BOLD

YOU CARRY 1000 GOLD PIECES WITH YOU

ERIC THE BOLD . . . YOU ARE ON YOUR WAY


YOU HAVE ARRIVED AT . . . .

THE ALGEBRA DUNGEON . . . LEVEL 2

YOU WILL ENCOUNTER MONSTERS AND
THIEVES, AND GOLD . . . BUT WATCH
YOUR STEP . . . . . .
TRAP DOORS CAN BE COSTLY . . . .



YOU ARE IN A COLD AND DARK
 . . . . . EMPTY CHAMBER


ERIC THE BOLD,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD
? N


YOU DISTURBED A MONSTER IN THIS CHAMBER
AND HE SPEAKS . . . . . .

HALT . . . I AM THE KEEPER
OF . . . . . ALGEBRA

YOU MAY NOT PASS THRU UNTIL
YOU SOLVE THIS EQUATION FOR X

Y =  19 X

IF Y =  133  THEN SOLVE FOR X

? 7


CORRECT
YOU WIN  59  GOLD PIECES


ERIC THE BOLD,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD
? N


YOU ARE IN A DAMP AND MISTY
. . . . . EMPTY CHAMBER


ERIC THE BOLD,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD
? E


YOU DISTURBED A MONSTER IN THIS CHAMBER
AND HE SPEAKS . . . . . .

HALT . . . I AM THE KEEPER
OF . . . . . ALGEBRA

YOU MAY NOT PASS THRU UNTIL
YOU SOLVE THIS EQUATION FOR X

Y =  13 X -  7

IF Y =  149  THEN SOLVE FOR X

? 12


12
CORRECT
YOU WIN  70  GOLD PIECES

YOU HAVE FOUND THE ENCHANTED KEY . . .


ERIC THE BOLD,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD
? S


YOU DISTURBED A MONSTER IN THIS CHAMBER
AND HE SPEAKS . . . . . .

HALT . . . I AM THE KEEPER
OF . . . . . ALGEBRA

YOU MAY NOT PASS THRU UNTIL
YOU SOLVE THIS EQUATION FOR X

X =  10 Y +  4

IF Y =  16  THEN SOLVE FOR X

? 164


CORRECT
YOU WIN  312  GOLD PIECES


ERIC THE BOLD,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD
? E


YOU ACTIVATED A . . . TRAP DOOR

BUT . . . YOU CAUGHT YOURSELF
FROM FALLING

ERIC THE BOLD,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD
? E


YOU DISTURBED A MONSTER IN THIS CHAMBER
AND HE SPEAKS . . . . . .

HALT . . . I AM THE KEEPER
OF . . . . . ALGEBRA

YOU MAY NOT PASS THRU UNTIL
YOU SOLVE THIS EQUATION FOR X

X =  15 Y

IF Y =  40  THEN SOLVE FOR X

? 600


600
CORRECT
YOU WIN  382  GOLD PIECES


ERIC THE BOLD,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD
? E


YOU ARE AT A STAIRWAY
 . . . . . GOING UP


ERIC THE BOLD,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD
? U


YOU WALK UP THE STAIRWAY
THE ENCHANTED KEY . . . OPENS THE LOCK
YOU FOUND YOUR WAY . . .
 . . . OUT OF THE ALGEBRA DUNGEON

YOU HAVE ACQUIRED  4289  GOLD PIECES

GAME RATING IS  521

YOU TOOK  155  TURNS TO FIND THE WAY OUT,
AND ANSWERED  20  QUESTIONS CORRECTLY
OUT OF  20  QUESTIONS ASKED.

ANOTHER GAME?
ENTER '1'-YES  '0'-NO
? 1
```

Fig. 2-1. The Algebra Dungeon sample run.

East Movement

Entering an E allows you to move east. You may not move east under the following conditions:

1. If you reach the East Wall, you cannot pass through it.
2. If you enter a north-south corridor (through a secret door), movement east is not allowed.

South Movement

Entering an S allows you to move south. You may not move south under the following conditions:

1. If you reach the South Wall, you cannot pass through it.
2. If you enter an east-west corridor (through a secret door), movement south is not allowed.

West Movement

Entering a W allows you to move west. You may not move west under the following conditions:

1. If you reach the West Wall, you cannot pass through it.
2. If you enter a north-south corridor (through a secret door), movement west is not allowed.

Up Movement

Entering a U, when you are at a stairway and have found the Enchanted Key, allows you to go up to the next level. If you haven't found the key or you are not at a stairway, you cannot go up the stairway. To find the Enchanted Key, you must solve a random number of algebraic equations correctly, for each level. There is a different key for each level.

Map Display

Entering an M when you have found a map will display the map for that level. Each level has a different map, and the maps may be found when you are encountering thieves. The 64-chamber dungeon is displayed using the following symbols:

M = algebra monster
0 = empty chamber
? = unknown contents (either a thief or a trap door)
UP = stairway up
NS = north-south corridor (entered through secret doors)
EW = east-west corridor (entered through secret doors)
P1 = your location in the dungeon

See Fig. 2-2 for a sample map.

A question mark (?) indicates either a thief or a trap door. There is no way of knowing which it is unless you enter the chamber. If you encounter a thief, either you surprise him and he drops some of his gold pieces or he surprises you and steals some of your gold pieces. This is randomly determined, but it's in favor of the thief.

If you activate a trap door, you can either fall through or catch yourself from falling. If you fall through, you will lose most of your gold pieces. There is a 50-percent chance that you will fall through. If you are at level two, you will fall into a deep pit. If you are at level one, you will fall through to level two.

Gold Pieces Left

Entering a G will display the number of gold pieces you have with you. You will start out with 1000 and can gain or lose gold during your trip. But if you lose all your gold pieces, you will lose the game.

GAME RATING

After you complete the game, a game rating is displayed, along with the number of gold pieces acquired, the number of algebraic equations solved correctly out of the number of questions asked, and the number of turns taken. The rating is a number from approximately −600 to +2000, depending on the above statistics. The higher the rating number, the better is the game rating. A negative number indicates a poor rating.

```
THE ALGEBRA DUNGEON  *** MAP LEVEL  1 ***

EW  ?   UP  0   ?   0   NS  0
0   0   EW  M   0   0   EW  0
0   0   0   0   UP  UP  0   EW
EW  M   0   NS  EW  UP  NS  0
?   M   P1  M   M   0   UP  0
0   NS  0   0   M   0   0   0
M   M   M   EW  EW  0   0   0
M   UP  NS  NS  ?   0   NS  NS

ERIC THE BOLD, WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD
? E
```

Fig. 2-2. The Algebra Dungeon sample map.

Program 2-1. The Algebra Dungeon Program Listing

```
100  HOME
110  PRINT "THE ALGEBRA DUNGEON"
120  PRINT "APPLE II"
130  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
140  PRINT
150  PRINT "AN EDUCATIONAL FANTASY GAME"
160  GOSUB 440
170  GOSUB 440
180  HOME : DIM A(9,9,2)
190  PRINT "YOU WILL BE TELEPORTED TO . . . "
200  PRINT
210  PRINT "THE ALGEBRA DUNGEON"
220  PRINT :
230  PRINT
240 MA = 0:CA = 0:G = 1000:M1 = 1:K = 0:TR = 0
250  PRINT "ENTER YOUR CHARACTER'S NAME?"
260  INPUT A$
270  GOSUB 440
280  PRINT : PRINT "YOU CARRY 1000 GOLD PIECES WITH YOU"
290  PRINT : GOSUB 440: PRINT A$;" . . . YOU ARE ON YOUR WAY"
300  GOSUB 440
310  GOSUB 480
320  HOME
330  PRINT "YOU HAVE ARRIVED AT . . . ."
340  PRINT
350  PRINT "THE ALGEBRA DUNGEON . . . LEVEL 2"
360  PRINT
370  PRINT "YOU WILL ENCOUNTER MONSTERS AND"
380  PRINT "THIEVES, AND GOLD . . . BUT WATCH"
390  PRINT "YOUR STEP  . . . . . ."
400  PRINT "TRAP DOORS CAN BE COSTLY . . . ."
410  FOR AB = 1 TO 4540
420  NEXT AB
430  GOTO 1010
440  REM  DELAY
450  FOR Z2 = 1 TO 908
460  NEXT Z2
470  RETURN
480  REM  SET UP 2 LEVEL DUNGEON
490  FOR X = 1 TO 8
500  FOR Y = 1 TO 8
510  FOR Z = 1 TO 2
520 A(X,Y,Z) =  INT ( RND (1) * 7 + 1)
530  NEXT Z
540  NEXT Y
550  NEXT X
560  REM  TRAP DOORS #8, MIN-1, MAX-3
570 H =  INT ( RND (1) * 3 + 1)
580  FOR A = 1 TO 2
590  FOR N = 1 TO H
600 X =  INT ( RND (1) * 8 + 1)
610 Y =  INT ( RND (1) * 8 + 1)
620 A(X,Y,A) = 8
```

Program 2-1—cont. The Algebra Dungeon Program Listing

```
630  NEXT N
640  NEXT A
650  REM  STAIRWAYS #9, MIN-3, MAX-6
660 S =  INT ( RND (1) * 4 + 1) + 2
670  FOR A = 1 TO 2
680  FOR N = 1 TO S
690 X =  INT ( RND (1) * 8 + 1)
700 Y =  INT ( RND (1) * 8 + 1)
710 A(X,Y,A) = 9
720  NEXT N
730  NEXT A
740  RETURN
750  REM  STAIRWAY
760 L1 = L1 - 1
770  PRINT "YOU WALK UP THE STAIRWAY"
780  GOSUB 440
790  PRINT "THE ENCHANTED KEY . . . OPENS THE LOCK"
800  GOSUB 440
810  IF L1 = 0 THEN 870
820 MA = 0:K = 0:K4 =  INT ( RND (1) * 4 + 1) + 4
830  PRINT :CB = CA + K4
840  PRINT "YOU ARE AT . . . . . LEVEL 1"
850  GOSUB 440: GOSUB 440: GOSUB 440: GOSUB 440
860  GOTO 1070
870  PRINT "YOU FOUND YOUR WAY . . ."
880  PRINT " . . . OUT OF THE ALGEBRA DUNGEON"
890  PRINT
900  PRINT "YOU HAVE ACQUIRED ";G;" GOLD PIECES"
910  GOSUB 930
920  GOTO 1910
930 GG = G + 100: REM  RATING
940 R =  INT ((GG * CA - 7000 + 1) / M1)
950  PRINT
960  PRINT "GAME RATING IS ";R
970  PRINT : IF G <  = 0 THEN 4280
980  PRINT "YOU TOOK ";M1;" TURNS TO FIND THE WAY OUT,"
990  PRINT "AND ANSWERED ";CA;" QUESTIONS CORRECTLY"
1000  PRINT "OUT OF ";TR;" QUESTIONS ASKED.": RETURN
1010  REM  SET UP 1ST MOVE
1020 C =  INT ( RND (1) * 8 + 1)
1030 D =  INT ( RND (1) * 8 + 1)
1040 A(C,D,2) = 1
1050 L1 = 2
1060 K4 =  INT ( RND (1) * 4 + 1) + 4
1070  REM  PLAYER MOVE ROUTINE
1080  HOME
1090 A = A(C,D,L1)
1100  GOSUB 440
1110  ON A GOSUB 2220,2280,2340,2340,2390,2700,2750,2790,3070
1120  PRINT
1130  IF G <  = 0 THEN 1820
1140  PRINT A$;",  WHAT IS YOUR ACTION OR MOVE?"
1150  PRINT
```

Program 2-1—cont. The Algebra Dungeon Program Listing

```
1160  PRINT "(N)ORTH, (E)AST, (S)OUTH, (W)EST"
1170  PRINT "(U)P, (M)AP, (G)OLD"
1180  INPUT M1$
1190 M1 = M1 + 1: IF K = 0 AND M1 >  = 140 / L1 THEN 4190
1200  IF M1$ = "N" THEN 1290
1210  IF M1$ = "E" THEN 1340
1220  IF M1$ = "S" THEN 1390
1230  IF M1$ = "W" THEN 1440
1240  IF M1$ = "U" THEN 1490
1250  IF M1$ = "M" THEN 1610
1260  IF M1$ = "G" THEN 1670
1270  PRINT
1280  GOTO 1120
1290  REM  NORTH MOVEMENT
1300  IF A = 7 THEN 1710
1310  IF (D - 1) = 0 THEN 1980
1320 D = D - 1
1330  GOTO 1070
1340  REM  EAST MOVEMENT
1350  IF A = 6 THEN 1770
1360  IF (C + 1) = 9 THEN 2030
1370 C = C + 1
1380  GOTO 1070
1390  REM  SOUTH MOVEMENT
1400  IF A = 7 THEN 1710
1410  IF (D + 1) = 9 THEN 2050
1420 D = D + 1
1430  GOTO 1070
1440  REM  WEST MOVEMENT
1450  IF A = 6 THEN 1770
1460  IF (C - 1) = 0 THEN 2070
1470 C = C - 1
1480  GOTO 1070
1490  HOME : REM  STAIRWAY UP
1500  IF A <  > 9 THEN 1580
1510  IF K = 1 THEN 750
1520  PRINT
1530  PRINT "YOU CANNOT GO UP THE STAIRWAY"
1540  PRINT "YOU DON'T HAVE THE KEY"
1550  GOSUB 440
1560  PRINT
1570  GOTO 1120
1580  PRINT "YOU ARE NOT AT A STAIRWAY"
1590  GOSUB 440
1600  GOTO 1120
1610  HOME : REM  MAP
1620  IF MA = 1 THEN 2090
1630  PRINT "YOU DON'T HAVE THE MAP"
1640  PRINT
1650  GOSUB 440
1660  GOTO 1120
1670  REM  GOLD PIECES
1680  HOME : PRINT "YOU HAVE ";G;" GOLD PIECES WITH YOU"
```

Program 2-1—cont. The Algebra Dungeon Program Listing

```
1690  PRINT
1700  GOTO 1120
1710  REM  EW CORRIDOR
1720  PRINT
1730  HOME : PRINT "YOU ARE IN AN EAST-WEST CORRIDOR"
1740  PRINT "YOU CAN ONLY GO EAST OR WEST"
1750  PRINT
1760  GOTO 1120
1770  REM  NS CORRIDOR
1780  PRINT
1790  HOME : PRINT "YOU ARE IN A NORTH-SOUTH CORRIDOR"
1800  PRINT "YOU CAN ONLY GO NORTH OR SOUTH"
1810  GOTO 1750
1820  REM  GOLD ZERO
1830  GOSUB 440: GOSUB 440
1840  PRINT
1850  PRINT "YOU LOST ALL YOUR GOLD AND YOU WERE"
1860  PRINT " . . . UNABLE TO MEET THE DEMANDS OF"
1870  PRINT " . . . THE ALGEBRA DUNGEON . . ."
1880  PRINT : PRINT
1890  PRINT "YOU CAN ONLY GO NORTH OR SOUTH"
1900  GOSUB 930
1910  PRINT
1920  PRINT "ANOTHER GAME?"
1930  PRINT "ENTER '1'-YES  '0'-NO"
1940  INPUT AA
1950  IF AA <  > 1 THEN 1970
1960  HOME : GOTO 210
1970  END
1980  HOME : PRINT "YOU ARE AT THE EAST WALL"
1990  PRINT "YOU CANNOT PASS THROUGH"
2000  PRINT
2010  PRINT "TRY ANOTHER DIRECTION?"
2020  GOTO 1120
2030  HOME : PRINT "YOU ARE AT THE EAST WALL"
2040  GOTO 1990
2050  HOME : PRINT "YOU ARE AT THE SOUTH WALL"
2060  GOTO 1990
2070  HOME : PRINT "YOU ARE AT THE WEST WALL"
2080  GOTO 1990
2090  REM  DISPLAY MAP
2100  HOME
2120  PRINT
2130  FOR Q = 1 TO 8
2140  FOR N = 1 TO 8
2150  IF C = N AND D = Q THEN  PRINT "P1  ";: GOTO 2180
2160 S1 = A(N,Q,L1)
2170  ON S1 GOSUB 3110,3110,3130,3130,3150,3170,3190,3210,3220
2180  NEXT N
2190  PRINT
2200  NEXT Q
2210  GOTO 1120
2220  REM  EMPTY ROOM
```

Program 2-1—cont. The Algebra Dungeon Program Listing

```
2230  PRINT
2240  PRINT "YOU ARE IN A COLD AND DARK"
2250  PRINT " . . . . . EMPTY CHAMBER"
2260  PRINT
2270  RETURN
2280  REM  EMPTY ROOM 2
2290  PRINT
2300  PRINT "YOU ARE IN A DAMP AND MISTY"
2310  PRINT ". . . . . EMPTY CHAMBER"
2320  PRINT
2330  RETURN
2340 TR = TR + 1: HOME : GOSUB 4140
2350 M4 =  INT ( RND (1) * 6 + 1)
2360  ON M4 GOSUB 3240,3370,3540,3670,4360,4420
2370  PRINT
2380  RETURN
2390  HOME : PRINT "THERE IS A THIEF IN THIS CHAMBER"
2400 A(C,D,L1) = 2
2410  GOSUB 440
2420 G4 =  INT ( RND (1) * 350 / L1 + 1)
2430 Y =  INT ( RND (1) * 8 + 1)
2440  IF Y <  = 3 THEN 2610
2450  PRINT
2460  PRINT ". . . . . HE SURPRISES YOU": PRINT
2470  GOSUB 440
2480  PRINT "AS HE QUICKLY PASSES BY YOU HE"
2490  PRINT "SNATCHES . . . ";G4;" GOLD PIECES": PRINT
2500 G = G - G4
2510  REM  LOOK FOR MAP
2520  IF MA = 1 THEN  RETURN
2530 MA =  INT ( RND (1) * 4 + 1): IF MA <  = 2 THEN MA = 1
2540  IF MA = 1 THEN 2570
2550  RETURN
2560  GOSUB 440
2570  PRINT "YOU SEARCH THE CHAMBER AND"
2580  GOSUB 440
2590  PRINT "YOU . . . . . FIND A MAP"
2600  RETURN
2610  PRINT "YOU SURPRISED THE THIEF . . . ."
2620  PRINT : GOSUB 440
2630  PRINT "AS HE RUNS OUT HE DROPS . . . ."
2640  PRINT " . . . ";G4;" GOLD PIECES."
2650  PRINT "YOU PICK UP THE GOLD PIECES":G = G + G4
2660  PRINT : IF MA = 1 THEN  RETURN
2670 MA =  INT ( RND (1) * 4 + 1): IF MA <  = 2 THEN MA = 1
2680  IF MA = 1 THEN 2570
2690  RETURN
2700  HOME : REM  NORTH SOUTH CORRIDOR
2710  PRINT
2720  PRINT "YOU ENTER A NORTH-SOUTH CORRIDOR"
2730  PRINT "THRU A SECRET DOOR": PRINT : GOSUB 4310
2740  RETURN
2750  HOME : REM  EAST WEST CORRIDOR
```

Program 2-1—cont. The Algebra Dungeon Program Listing

```
2760  PRINT
2770  PRINT "YOU ENTER AN EAST-WEST CORRIDOR"
2780  GOTO 2730
2790  REM  TRAP DOOR
2800  PRINT "YOU ACTIVATED A . . . TRAP DOOR"
2810  GOSUB 440
2820 TD =  INT ( RND (1) * 4 + 1)
2830  IF TD >  = 3 THEN 2880
2840  PRINT
2850  PRINT "BUT . . . YOU CAUGHT YOURSELF"
2860  PRINT "FROM FALLING"
2870  RETURN
2880  IF L1 = 2 THEN 2990
2890 L1 = L1 + 1: PRINT :K = 1
2900  PRINT "YOU FELL THRU TO LEVEL 3 . . . AND"
2910 G = 100
2920  GOSUB 440
2930  PRINT
2940  PRINT "YOU . . . . . LOST"
2950  PRINT "MOST OF YOUR GOLD PIECES": PRINT
2960  PRINT "YOU HAVE . . ";G;" GOLD PIECES LEFT"
2970  PRINT "BUT . . . YOU STILL HAVE YOUR KEY"
2980  RETURN
2990  PRINT "YOU FELL INTO A DEEP . . . PIT"
3000  GOSUB 440
3010  PRINT "YOU'RE LUCKY . . . . "
3020  PRINT "YOU DIDN'T GET HURT"
3030  PRINT
3040  GOSUB 440
3050  PRINT "BUT IN CLIMBING OUT . . ."
3060  GOTO 4230
3070  PRINT "YOU ARE AT A STAIRWAY"
3080  PRINT " . . . . . GOING UP"
3090  PRINT
3100  RETURN
3110  PRINT "O   ";
3120  RETURN
3130  PRINT "M   ";
3140  RETURN
3150  PRINT "?   ";
3160  RETURN
3170  PRINT "NS  ";
3180  RETURN
3190  PRINT "EW  ";
3200  RETURN
3210  GOTO 3150
3220  PRINT "UP  ";
3230  RETURN
3240  REM  Y=PX
3250  GOSUB 4330
3260  GOSUB 3800
3270  GOSUB 3840:Y = P * X
3280  PRINT "Y = ";P;"X"
```

Program 2-1—cont. The Algebra Dungeon Program Listing

```
3290  PRINT : PRINT "IF Y= ";Y;" THEN SOLVE FOR X"
3300  PRINT : INPUT A1
3310  IF A1 = X THEN 3350
3320  REM  LOSE GOLD
3330  GOSUB 4000
3340  RETURN
3350  GOSUB 3900
3360  RETURN
3370  REM  Y=PX-Q
3380  GOSUB 4330
3390  GOSUB 3800
3400  GOSUB 3840:Y = P * X
3410  PRINT "Y = ";P;"X - ";Q
3420  PRINT : PRINT "IF Y = ";Y - Q;" THEN SOLVE FOR X"
3430  PRINT : INPUT A1
3440  IF A1 = X THEN 3470
3450  GOSUB 4000
3460  RETURN
3470  GOSUB 3900
3480  RETURN
3490  GOSUB 480
3500 H = 1:O = 9:W = 8
3510 B = 0:E = 5:R = 14
3520 C = 0:PR = 0
3530  GOTO 1010
3540  REM  Y=PX+Q
3550  GOSUB 4330
3560  GOSUB 3800
3570  GOSUB 3840:Y = P * X
3580  PRINT "Y = ";P;"X + ";Q
3590  PRINT : PRINT "IF Y = ";Y + Q;" THEN SOLVE FOR X"
3600  PRINT : INPUT A1
3610  IF A1 = X THEN 3650
3620  REM  LOSE GOLD
3630  GOSUB 4000
3640  RETURN
3650  GOSUB 3900
3660  RETURN
3670  REM  X=PY+Q
3680  GOSUB 4330
3690  GOSUB 3800
3700  GOSUB 3840:X = P * Y + Q
3710  PRINT "X = ";P;"Y + ";Q
3720  PRINT : PRINT "IF Y = ";Y;" THEN SOLVE FOR X"
3730  PRINT : INPUT A1
3740  IF A1 = X THEN 3780
3750  REM  LOSE GOLD
3760  GOSUB 4000
3770  RETURN
3780  GOSUB 3900
3790  RETURN
3800  PRINT "YOU MAY NOT PASS THRU UNTIL"
3810  PRINT "YOU SOLVE THIS EQUATION FOR X"
```

Program 2-1—cont. The Algebra Dungeon Program Listing

```
3820  PRINT
3830  RETURN
3840  REM  RANDOM ROUTINE
3850 X =  INT ( RND (1) * 50 / L1 + 1):P =  INT ( RND (1) * 50 / L1 + 1)
3860 Y =  INT ( RND (1) * 50 / L1 + 1):Q =  INT ( RND (1) * 50 / L1 + 1)
3870  GOSUB 440
3880  GOSUB 440
3890  RETURN
3900  PRINT "CORRECT"
3910 G4 =  INT ( RND (1) * 400 / L1 + 1) + 25
3920 G = G + G4
3930  GOSUB 440
3940  PRINT "YOU WIN ";G4;" GOLD PIECES"
3950 A(C,D,L1) = 1
3960 CA = CA + 1: IF K = 1 THEN  RETURN
3970  IF L1 = 1 THEN 4210
3980  IF CA = K4 THEN 4090
3990  RETURN
4000  PRINT
4010  PRINT "INCORRECT"
4020  PRINT "THE CORRECT ANSWER IS ";X
4030  PRINT
4040 G4 =  INT ( RND (1) * 350 / L1 + 1)
4050 G = G - G4
4060  GOSUB 440
4070  PRINT "YOU LOSE ";G4;" GOLD PIECES"
4080  RETURN
4090  GOSUB 440
4100 K = 1
4110  PRINT : PRINT "YOU HAVE FOUND THE ENCHANTED KEY . . ."
4120  GOSUB 440
4130  RETURN
4140  PRINT "YOU DISTURBED A MONSTER IN THIS CHAMBER"
4150  GOSUB 440
4160  PRINT "AND HE SPEAKS . . . . . .": PRINT
4170  GOSUB 440
4180  RETURN
4190  GOSUB 4100
4200  GOTO 1200
4210  IF CA = CB THEN 4090
4220  RETURN
4230 G = 100: GOSUB 440: PRINT
4240  PRINT "YOU . . . . . DROPPED"
4250  PRINT "MOST OF YOUR GOLD PIECES."
4260  PRINT "YOU HAVE . .";G;" GOLD PIECES LEFT"
4270  RETURN
4280  PRINT "YOU ANSWERED ";CA;" QUESTIONS CORRECTLY"
4290  PRINT "OUT OF ";TR;" QUESTIONS ASKED,": PRINT " . . . . . IN ";M1;" TURNS."
4300  RETURN
4310  PRINT "THE DOOR CLOSES AND LOCKS BEHIND YOU": GOSUB 440
4320  RETURN
4330  PRINT "HALT . . . I AM THE KEEPER"
4340  PRINT "OF . . . . . ALGEBRA"
```

Program 2-1—cont. The Algebra Dungeon Program Listing

```
4350  PRINT : RETURN
4360  REM  X=PY
4370  GOSUB 4330
4380  GOSUB 3800
4390  GOSUB 3840:X = P * Y
4400  PRINT "X = ";P;"Y"
4410  GOTO 3720
4420  REM  X=PY-Q
4430  GOSUB 4330
4440  GOSUB 3800
4450  GOSUB 3840:X = P * Y - Q
4460  PRINT "X = ";P;"Y - ";Q
4470  GOTO 3720
```

CHAPTER 3

Word Association

The Word Association program is an educational exercise for children. It gives a twenty-question test, with each question displaying four words. The word that is "not like the others" must be chosen. The program is written in BASIC for your microcomputer. See Program 3-1 for the program listing.

THE PROGRAM

The program begins by accepting the student's name, then requesting the entry of a 1 to begin the test. Each question displays four words, three of which are on a related subject, and the fourth is not related. The student must enter the word that is not related to the others. CORRECT is displayed for a correct response, and INCORRECT is displayed for an incorrect entry. This is repeated for all twenty questions, then the student's score is calculated. Finally, the number of correct out of twenty is displayed, along with the percent score. See Fig. 3-1 for a sample run.

THE QUESTIONS

The words are stored in DATA statements beginning at line 690. The first three words in each statement are related, and the fourth is not related. Each time a question is displayed, the unrelated word will appear in one of four positions on the display. The word list may be changed for a different set of questions.

```
WORD ASSOCIATION
COPYRIGHT (C) 1980 BY HOWARD BERENBON

THIS PROGRAM IS A TEACHING AID FOR
CHILDREN. IT GIVES A 20 QUESTION
WORD ASSOCIATION TEST. FOUR WORDS
ARE DISPLAYED FOR EACH QUESTION,
AND THE STUDENT MUST ENTER THE ONE
THAT IS UNRELATED TO THE REST. THE
WORD LIST IS ENTERED IN DATA STATE-
MENTS BEGINNING WITH LINE 690. IT
MAY BE CHANGED FOR DIFFERENT TESTS.

ENTER STUDENT'S NAME
? DAVID


ENTER '1' TO BEGIN TEST
? 1


WORD ASSOCIATION TEST
QUESTION #  1

CAR             ONE             TWO             THREE

ENTER THE WORD THAT IS NOT RELATED
TO THE OTHER THREE WORDS

? CAR

CORRECT




QUESTION #  3

BOAT            SAIL            LAKE            TRUMPET

ENTER THE WORD THAT IS NOT RELATED
TO THE OTHER THREE WORDS

? TRUMPET

CORRECT

QUESTION #  19

AIRPLANE        BOAT            GRASS           TRAIN

ENTER THE WORD THAT IS NOT RELATED
TO THE OTHER THREE WORDS

? GRASS

CORRECT



QUESTION #  20

DINNER          SCHOOL          READING         WRITING

ENTER THE WORD THAT IS NOT RELATED
TO THE OTHER THREE WORDS

? DINNER

CORRECT




TEST SCORING FOR STUDENT
DAVID

TOTAL CORRECT OUT OF 20 =  20
PERCENT SCORE IS =  100
```

Fig. 3-1. Word Association sample run.

Program 3-1. Word Association Program Listing

```
100  HOME : PRINT "WORD ASSOCIATION"
110  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
120  PRINT "APPLE II"
130  PRINT
140  PRINT "THIS PROGRAM IS A TEACHING AID FOR"
150  PRINT "CHILDREN. IT GIVES A 20 QUESTION"
160  PRINT "WORD ASSOCIATION TEST. FOUR WORDS"
170  PRINT "ARE DISPLAYED FOR EACH QUESTION,"
180  PRINT "AND THE STUDENT MUST ENTER THE ONE"
190  PRINT "THAT IS UNRELATED TO THE REST. THE"
200  PRINT "WORD LIST IS ENTERED IN DATA STATE-"
210  PRINT "MENTS BEGINNING WITH LINE 690. IT"
220  PRINT "MAY BE CHANGED FOR DIFFERENT TESTS."
230  PRINT
240  PRINT "ENTER STUDENT'S NAME"
250  INPUT A$:S = 0
260  PRINT
270  PRINT "ENTER '1' TO BEGIN TEST"
280  INPUT A: HOME
290  PRINT "WORD ASSOCIATION TEST"
300  FOR T = 1 TO 20: PRINT "QUESTION # ";T
310  PRINT : READ B$,C$,D$,E$
320 R =  INT ( RND (1) * 4 + 1)
330  ON R GOSUB 450,470,490,510
340  GOSUB 420
350  INPUT F$
360  IF F$ = E$ THEN 530
370  PRINT : PRINT "INCORRECT"
380  PRINT
390  PRINT "THE CORRECT WORD IS ";E$
400  GOSUB 660: HOME : NEXT T
410  GOTO 580
420  PRINT : PRINT "ENTER THE WORD THAT IS NOT RELATED"
430  PRINT "TO THE OTHER THREE WORDS"
440  PRINT : RETURN
450  PRINT B$;"  ";C$;"  ";D$;"  ";E$
460  RETURN
470  PRINT C$;"  ";D$;"  ";E$;"  ";B$
480  RETURN
490  PRINT D$;"  ";E$;"  ";B$;"  ";C$
500  RETURN
510  PRINT E$;"  ";B$;"  ";C$;"  ";D$
520  RETURN
530 S = S + 5
540  PRINT
550  PRINT "CORRECT"
560  PRINT
570  GOTO 400
580  HOME
590  PRINT "TEST SCORING FOR STUDENT"
600  PRINT A$
610  PRINT
620  PRINT "TOTAL CORRECT OUT OF 20 = ";S / 5
```

Program 3-1—cont. Word Association Program Listing

```
630  PRINT "PERCENT SCORE IS = ";S
640  PRINT
650  END
660  FOR A = 1 TO 2045
670  NEXT A
680  RETURN
690  DATA ONE,TWO,THREE,CAR
700  DATA TIRE,CAR,FENDER,SAIL
710  DATA BOAT,SAIL,LAKE,TRUMPET
720  DATA GUITAR,TRUMPET,VIOLIN,SISTER
730  DATA BROTHER,SISTER,FATHER,BOOK
740  DATA BINDING,BOOK,PAGES,DRILL
750  DATA SAW,CUT,DRILL,GYM
760  DATA FOOTBALL,BASKETBALL,BASEBALL,TRUCK
770  DATA ARM,HAND,EYES,TIME
780  DATA HOURS,MINUTES,SECONDS,PEOPLE
790  DATA PENCIL,PAPER,PEN,AIRPLANE
800  DATA FLYING,AIRPORT,AIRPLANE,SING
810  DATA TALK,SING,WHISPER,JUMP
820  DATA WALK,STAND,RUN,EAT
830  DATA SALT,PEPPER,GARLIC,GLUE
840  DATA LAKE,RIVER,STREAM,TRAIN
850  DATA COOKIES,CAKE,BROWNIES,STEAM
860  DATA ICE,WATER,STEAM,MOUNTAIN
870  DATA  TRAIN,AIRPLANE,BOAT,GRASS
880  DATA SCHOOL,READING,WRITING,DINNER
```

CHAPTER 4

Advanced Math: Algebra

Here's a program that gives a ten-question algebra test. Each question is randomly generated from six different algebra equations. The program is written in BASIC for your microcomputer. See Program 4-1 for the program listing.

THE PROGRAM

After you run the program, enter the difficulty level: 1 for moderate or 2 for difficult. Then the test will begin. An equation will be displayed, where you must solve for the value of X. You have two tries to enter the correct answer. CORRECT will be displayed for a correct response, and the program will go on to the next question; INCORRECT will be displayed for a wrong answer. After two incorrect entries, the correct answer will be displayed, and the program will advance to the next question. After all ten questions are answered, your score will be displayed, with the number correct out of ten and the percent score. Finally, another test may be taken, or you can end the program. See Fig. 4-1 for a sample run.

THE PROBLEMS

The problems are generated randomly using program lines 530 through 1020. A random-number generator subroutine is used to generate the X, Y, P, and Q components of the problems. The following equations are used to generate the problems. In all cases, X must be solved for:

$$Y = PX \qquad Y = PX - Q \qquad Y = PX + Q$$
$$X = PY \qquad X = PY - Q \qquad X = PY + Q$$

In any case where division is required to solve for X, the division will result in an integer.

```
ADVANCED MATH: ALGEBRA
COPYRIGHT (C) 1980 BY HOWARD BERENBON

THIS IS AN ALGEBRA TEST PROGRAM WHICH
RANDOMLY GENERATES A 10-QUESTION TEST.
YOU HAVE 2-TRIES PER QUESTION.

ENTER DIFFICULTY LEVEL

1) MODERATE
2) DIFFICULT
? 1



                ALGEBRA TEST
PROBLEM  1
TRIAL  1

X =  15 Y +  24

IF Y =  17  THEN SOLVE FOR X

? 279

CORRECT



                ALGEBRA TEST
PROBLEM  2
TRIAL  1

Y =  4 X +  19

IF Y =  115  THEN SOLVE FOR X

? 24

CORRECT


                ALGEBRA TEST
PROBLEM  9
TRIAL  1

Y =  6 X -  4

IF Y =  134  THEN SOLVE FOR X

? 23

CORRECT



                ALGEBRA TEST
PROBLEM  10
TRIAL  1

Y =  19 X -  23

IF Y =  376  THEN SOLVE FOR X

? 21

CORRECT



YOU HAVE  10  CORRECT OUT OF 10
THAT'S A SCORE OF  100  %

ANOTHER TEST? 1-YES  0-NO
? 1
```

Fig. 4-1. Advanced math: Algebra sample run.

Program 4-1. Advanced Math: Algebra Program Listing

```
100  HOME : PRINT "ADVANCED MATH: ALGEBRA"
110  PRINT "APPLE II"
120  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON": PRINT
130  PRINT "THIS IS AN ALGEBRA TEST PROGRAM WHICH"
140  PRINT "RANDOMLY GENERATES A 10-QUESTION TEST."
150  PRINT "YOU HAVE 2-TRIES PER QUESTION."
160  PRINT : GOSUB 380
170 S = 0
180  FOR A = 1 TO 10
190 R =  INT ( RND (1) * 6 + 1)
200 T = 1
210  GOSUB 470
220  HOME : PRINT  TAB( 10)"ALGEBRA TEST"
230  GOSUB 340
240  ON R GOTO 530,610,690,770,950,990
250  NEXT A
260  PRINT
270  PRINT "YOU HAVE ";S;" CORRECT OUT OF 10"
280  PRINT "THAT'S A SCORE OF ";S * 10;" %"
290  PRINT
300  PRINT "ANOTHER TEST? 1-YES  0-NO"
310  INPUT Z
320  HOME : IF Z = 1 THEN 160
330  END
340  PRINT "PROBLEM ";A
350  PRINT "TRIAL ";T
360  PRINT
370  RETURN
380  PRINT "ENTER DIFFICULTY LEVEL"
390  PRINT
400  PRINT "1) MODERATE"
410  PRINT "2) DIFFICULT"
420  INPUT E
430  ON E GOTO 450,460
440  GOTO 380
450 D = 25: RETURN
460 D = 50: RETURN
470 X =  INT ( RND (1) * D + 1):P =  INT ( RND (1) * D + 1)
480 Y =  INT ( RND (1) * D + 1):Q =  INT ( RND (1) * D + 1)
490  RETURN
500  FOR Z = 1 TO 1500
510  NEXT Z
520  RETURN
530  REM  Y=PX
540 Y = P * X
550  PRINT "Y = ";P;"X"
560  PRINT : PRINT "IF Y = ";Y;" THEN SOLVE FOR X"
570  PRINT : INPUT A1
580  IF A1 = X THEN 600
590  GOTO 880
600  GOTO 850
610  REM  Y=PX-Q
620 Y = P * X
```

Program 4-1—cont. Advanced Math: Algebra Program Listing

```
630  PRINT "Y = ";P;"X - ";Q
640  PRINT : PRINT "IF Y = ";Y - Q;" THEN SOLVE FOR X"
650  PRINT : INPUT A1
660  IF A1 = X THEN 680
670  GOTO 880
680  GOTO 850
690  REM  Y=PX+Q
700 Y = P * X
710  PRINT "Y = ";P;"X + ";Q
720  PRINT : PRINT "IF Y = ";Y + Q;" THEN SOLVE FOR X"
730  PRINT : INPUT A1
740  IF A1 = X THEN 760
750  GOTO 880
760  GOTO 850
770  REM  X=PY+Q
780 X = P * Y + Q
790  PRINT "X = ";P;"Y + ";Q
800  PRINT : PRINT "IF Y = ";Y;" THEN SOLVE FOR X"
810  PRINT : INPUT A1
820  IF A1 = X THEN 840
830  GOTO 880
840  REM  CORRECT
850  PRINT "CORRECT": GOSUB 500
860 S = S + 1
870  GOTO 250
880  PRINT
890  PRINT "INCORRECT": GOSUB 500
900 T = T + 1: IF T = 3 THEN 920
910  GOTO 220
920  PRINT "THE CORRECT ANSWER IS ";X
930  GOSUB 500
940  GOTO 250
950  REM  X=PY
960 X = P * Y
970  PRINT "X = ";P;"Y"
980  GOTO 800
990  REM  X=PY-Q
1000 X = P * Y - Q
1010  PRINT "X = ";P"Y - ";Q
1020  GOTO 800
```

CHAPTER 5

Memory Challenger II: Random Letters

The Memory Challenger II is a game used to test your memory and concentration. It generates and displays random letters (A–Z) of different lengths. You must enter the letters that are flashed on the screen. The program is written in BASIC for your microcomputer. See Program 5-1 for the program listing.

THE PROGRAM

The program begins by accepting entry of the difficulty level. Enter a 1 for easy, 2 for medium difficulty, or 3 for most difficult. Letters will be displayed from slow to fast, depending on the difficulty level; 1 is the slowest and 3 is the quickest.

After entering a 1 to begin, GET READY will be printed at the top center of the display. Then a set of random letters will be displayed at a random location on the screen, for a short period. Enter the letters that were displayed. The correct answer is displayed, and CORRECT or INCORRECT is printed. Then the number of correct answers out of the number of tries is displayed. Finally, TRY AGAIN will be displayed; and you have a choice of playing again at the same difficulty level, playing again at another difficulty level, or ending the test. When you decide to end the test, your final percent score will be displayed. See Fig. 5-1 for a sample run.

```
MEMORY CHALLENGER II: RANDOM LETTERS
COPYRIGHT (C) 1981 BY HOWARD BERENBON

THE PROGRAM GENERATES & DISPLAYS RANDOM
LETTERS OF DIFFERENT LENGTHS. ENTER
THE LETTERS THAT ARE FLASHED AT RANDOM
LOCATIONS ON THE SCREEN.

ENTER DIFFICULTY LEVEL:
1=EASY
2=MEDIUM DIFFICULTY
3=MOST DIFFICULT
? 2


ENTER '1' TO BEGIN
? 1




                    GET READY




                PFOZ

                  DIFFICULTY LEVEL  2
ENTER LETTERS
? PFOZ
THE ANSWER IS 'PFOZ'


CORRECT
YOU HAVE  1  CORRECT OUT OF  1  TRIES
```

```
.RY AGAIN?
1 = YES & SAME DIFFICULTY-**GET READY**
2 = YES & CHANGE DIFFICULTY
0 = NO
? 1



                    GET READY




                                                PCDH



                  DIFFICULTY LEVEL  2
ENTER LETTERS
? PCDH
THE ANSWER IS 'PCDH'

CORRECT
YOU HAVE  2  CORRECT OUT OF  2  TRIES

TRY AGAIN?
1 = YES & SAME DIFFICULTY-**GET READY**
2 = YES & CHANGE DIFFICULTY
0 = NO
? 0


YOUR FINAL SCORE IS  100  PERCENT
```

Fig. 5-1. Memory Challenger II: Random Letters sample run.

Program 5-1. Memory Challenger II: Random Letters Program Listing

```
100  HOME : PRINT "MEMORY CHALLENGER II: RANDOM LETTERS"
110  PRINT "APPLE II"
120  PRINT "COPYRIGHT (C) 1981 BY HOWARD BERENBON"
130  PRINT : DIM F$(6)
140  PRINT "THE PROGRAM GENERATES & DISPLAYS RANDOM"
150  PRINT "LETTERS OF DIFFERENT LENGTHS. ENTER"
160  PRINT "THE LETTERS THAT ARE FLASHED AT RANDOM"
170  PRINT "LOCATIONS ON THE SCREEN."
180  PRINT
190 Z = 0
200 W = 0
210  PRINT "ENTER DIFFICULTY LEVEL:"
220  PRINT "1=EASY"
230  PRINT "2=MEDIUM DIFFICULTY"
240  PRINT "3=MOST DIFFICULT"
250  INPUT A
260  HOME
270  IF A = 1 THEN 600
280  IF A = 2 THEN 640
290  IF A = 3 THEN 680
300  GOTO 210
310  HOME
320  IF D = 1 THEN 340
330  PRINT "ENTER '1' TO BEGIN": INPUT B
340  FOR T = 1 TO 5
350 F$(T) = ""
360  NEXT T
370  HOME : VTAB 4
380  PRINT  TAB( 18)"GET READY"
390  FOR D = 1 TO 454
400  NEXT D
410  HOME
420  GOSUB 870
430 K =  INT ( RND (1) * 22 + 1):K1 =  INT ( RND (1) * 37 + 1)
440  VTAB K: PRINT  TAB( K1);G$
450  GOSUB 720
460  HOME
470  PRINT  TAB( 20)"DIFFICULTY LEVEL ";A
480  PRINT "ENTER LETTERS"
490 Z = Z + 1
500  INPUT C$
510  PRINT "THE ANSWER IS '";G$;"'"
520  PRINT
530  IF G$ = C$ THEN 570
540  PRINT "INCORRECT"
550  PRINT "YOU HAVE ";W;" CORRECT OUT OF ";Z;" TRIES"
560  GOTO 770
570  PRINT "CORRECT"
580 W = W + 1
590  GOTO 550
600 G = 79
610 F = 2
620 N =  INT ( RND (1) * 454 + 1)
```

Program 5-1—cont. Memory Challenger II: Random Letters Program Listing

```
630  GOTO 320
640 N =  INT ( RND (1) * 340 + 1)
650 G = 102
660 F = 4
670  GOTO 320
680 N =  INT ( RND (1) * 227 + 1)
690 G = 68
700 F = 5
710  GOTO 320
720  FOR E = 1 TO G + N
730  NEXT E
740  RETURN
750  PRINT "YOUR FINAL SCORE IS "; INT (W / Z * 100);" PERCENT"
760  END
770  PRINT
780  PRINT "TRY AGAIN?"
790  PRINT "1 = YES & SAME DIFFICULTY-**GET READY**"
800  PRINT "2 = YES & CHANGE DIFFICULTY"
810  PRINT "0 = NO"
820  INPUT D
830  IF D = 1 THEN 260
840  IF D = 2 THEN 210
850  IF D = 0 THEN 750
860  GOTO 770
870 F$(0) = ""
880  FOR T = 1 TO F
890 X =  INT ( RND (1) * 26 + 1)
900  FOR B = 1 TO X
910  READ F$(0)
920  NEXT B
930 F$(T) = F$(0)
940  RESTORE
950  NEXT T
960 G$ = F$(1) + F$(2) + F$(3) + F$(4) + F$(5)
970  RETURN
980  DATA A,B,C,D,E,F,G,H,I,J,K,L,M
990  DATA N,O,P,Q,R,S,T,U,V,W,X,Y,Z
```

CHAPTER 6

Memory Challenger III: Random Words

The Memory Challenger III is another game used to test your memory and concentration. It's similar to the Memory Challenger II of Chapter 5, except that it displays random words taken from DATA statements beginning at line 1000. You must enter the word that is flashed at a random location on the screen. The program is written in BASIC for your microcomputer. See Program 6-1 for the program listing.

THE PROGRAM

The program begins by accepting entry of the difficulty level. Enter a 1 for easy, 2 for medium difficulty, or 3 for most difficult. Words will be displayed from slow to fast, depending on the difficulty level; 1 is the slowest and 3 is the quickest.

After entering a 1 to begin, GET READY will be printed at the top center of the display. Then a word is displayed at a random location on the screen for a short period. Enter the word that was displayed. The correct answer is displayed, and CORRECT or INCORRECT is printed. Then the number of correct answers out of the number of tries is displayed. Finally, TRY AGAIN will be displayed; and you have a choice of playing again at the same difficulty level, playing again at another difficulty level, or ending the test. When you decide to end the test, your final percent score will be displayed. See Fig. 6-1 for a sample run.

THE WORD LIST

The word list begins at program line 1000. Its content is arbitrary, with no specific purpose in mind. It may be changed, but the choice of words is up to you. They can be just random words with no apparent connection, or they can be words relating to a specific subject.

To enter a new word list, type in a set of 50 words, in DATA statements, beginning at line 1000. Limit the word length to no longer than six characters, otherwise the word may be too difficult to catch when displayed at difficulty levels 2 and 3. Alternately, you may enter longer words, but limit the difficulty level to level 1.

```
MEMORY CHALLENGER III: RANDOM WORDS
COPYRIGHT (C) 1981 BY HOWARD BERENBON

MEMORY CHALLENGER III IS USED TO TEST
YOUR MEMORY. IT DISPLAYS WORDS RANDOMLY
FROM A LIST OF 50 WORDS, LOCATED IN DATA
STATEMENTS BEGINNING AT 1000. EACH WORD
WILL APPEAR AT A RANDOM LOCATION ON THE
SCREEN. ENTER THE WORD THAT WAS FLASHED
ON THE SCREEN.

ENTER DIFFICULTY LEVEL:
1=EASY
2=MEDIUM DIFFICULTY
3=MOST DIFFICULT
? 2


ENTER '1' TO BEGIN
? 1



                        GET READY



      SALUTE



                    DIFFICULTY LEVEL  2
ENTER THE WORD
? SALUTE
THE ANSWER IS 'SALUTE'

CORRECT
YOU HAVE  1  CORRECT OUT OF  1  TRIES
```

```
TRY AGAIN?
1 = YES & SAME DIFFICULTY-**GET READY**
2 = YES & CHANGE DIFFICULTY
0 = NO
? 1



                                GET READY



                                                KIND



                    DIFFICULTY LEVEL  2
ENTER THE WORD
? KIND
THE ANSWER IS 'KIND'

CORRECT
YOU HAVE  2  CORRECT OUT OF  2  TRIES

TRY AGAIN?
1 = YES & SAME DIFFICULTY-**GET READY**
2 = YES & CHANGE DIFFICULTY
0 = NO
? 0



YOUR FINAL SCORE IS  100  PERCENT
```

Fig. 6-1. Memory Challenger III: Random Words sample run.

Program 6-1. Memory Challenger III: Random Words Program Listing

```
100  HOME : PRINT "MEMORY CHALLENGER III: RANDOM WORDS"
105  PRINT "APPLE II"
110  PRINT "COPYRIGHT (C) 1981 BY HOWARD BERENBON"
120  PRINT
125  PRINT "MEMORY CHALLENGER III IS USED TO TEST"
130  PRINT "FROM A LIST OF 59 WORDS, LOCATED IN DATA"
145  PRINT "STATEMENTS BEGINNING AT 1000. EACH WORD"
150  PRINT "WILL APPEAR AT A RANDOM LOCATION ON THE"
155  PRINT "SCREEN. ENTER THE WORD THAT WAS FLASHED"
160  PRINT "ON THE SCREEN.": PRINT
170 Z = 0
180 W = 0
190  PRINT "ENTER DIFFICULTY LEVEL:"
200  PRINT "1=EASY"
210  PRINT "2=MEDIUM DIFFICULTY"
220  PRINT "3=MOST DIFFICULT"
230  INPUT A
240  HOME
250  IF A = 1 THEN 550
260  IF A = 2 THEN 590
270  IF A = 3 THEN 630
280  GOTO 190
290  HOME
300  IF D = 1 THEN 330
310  PRINT "ENTER '1' TO BEGIN": INPUT B
330  HOME : VTAB 4
340  PRINT  TAB( 18)"GET READY"
350  FOR D = 1 TO 454
360  NEXT D
370  GOSUB 820
380  HOME
385 R =  INT ( RND (1) * 22 + 1):R1 =  INT ( RND (1) * 37 + 1)
390  VTAB R: PRINT  TAB( R1);G$
400  GOSUB 670
410  HOME
420  PRINT  TAB( 20)"DIFFICULTY LEVEL ";A
430  PRINT "ENTER THE WORD"
440 Z = Z + 1
450  INPUT C$
460  PRINT "THE ANSWER IS '";G$;"'"
470  PRINT
480  IF G$ = C$ THEN 520
490  PRINT "INCORRECT"
500  PRINT "YOU HAVE ";W;" CORRECT OUT OF ";Z;" TRIES"
510  GOTO 720
520  PRINT "CORRECT"
530 W = W + 1
540  GOTO 500
550  REM  DIFFICULTY LEVELS
560 G = 170
570 N =  INT ( RND (1) * 454 + 1)
580  GOTO 300
590 N =  INT ( RND (1) * 340 + 1)
```

Program 6-1—cont. Memory Challenger III: Random Words Program Listing

```
600 G = 79
620  GOTO 300
630 N =  INT ( RND (1) * 227 + 1)
640 G = 68
660  GOTO 300
670  FOR E = 1 TO G + N
680  NEXT E
690  RETURN
700  PRINT "YOUR FINAL SCORE IS "; INT (W / Z * 100);" PERCENT"
710  END
720  PRINT
730  PRINT "TRY AGAIN?"
740  PRINT "1 = YES & SAME DIFFICULTY-**GET READY**"
750  PRINT "2 = YES & CHANGE DIFFICULTY"
760  PRINT "0 = NO"
770  INPUT D
780  IF D = 1 THEN 330
790  IF D = 2 THEN 190
800  IF D = 0 THEN 700
810  GOTO 720
820 X =  INT ( RND (1) * 50 + 1)
830  FOR T = 1 TO X
840  READ G$
845  NEXT T
850  RESTORE
860  RETURN
1000  DATA ABOVE,ACID,ADMIT,BARGE,BEAR
1010  DATA CAKE,CAR,COW,DODGE,DUST
1020  DATA EDIT,EGG,EVICT,FIRE,FLASH
1030  DATA GAME,GATE,GOLD,HEAT,HEAVY
1040  DATA INCISE,INFANT,INTO,JUST,JUDGE
1050  DATA KNOW,KIND,LADY,LAUGH,LEAVE
1060  DATA MAGIC,MARK,NICE,NEW,PANE
1070  DATA QUART,QUICK,RAFT,RADIO,SALUTE
1080  DATA TREE,THRUST,ULTRA,UNTIL,VEST
1090  DATA WELL,WHITE,YOUNG,ZOOM,ZINC
```

CHAPTER 7

Perception Testing: Eidetic Imagery

Here's a program that may be used in perception testing. It will test for the ability to form eidetic images. Eidetic imagery is the ability of the mind to form an almost photographic image of an object. A recalled eidetic image is a visual sensation and should be perfect. (A very accurate description is not necessarily eidetic.) The program is written in BASIC for your microcomputer. See Program 7-1 for the program listing.

THE PROGRAM

The program will generate two pictures, each made up of asterisks (*). When one is superimposed on the other, a recognizable pattern will result.

Enter a 1 to display the first picture. Study the picture and try to remember it. When you think you have memorized it, enter a 1 to display the second picture. This will erase the first picture and display the second. Now, try to recall the first picture and superimpose its pattern on the second. If you think you can identify what you have seen, then enter the answer at the keyboard. Otherwise enter NO. See Fig. 7-1 for a sample run.

A person that has the ability to form eidetic images will immediately recognize what he or she sees, and the answer will become apparent.

```
PERCEPTION TESTING
EIDETIC IMAGERY
COPYRIGHT (C) 1980 BY HOWARD BERENSON

THIS PROGRAM WILL TEST YOU FOR
THE ABILITY TO FORM EIDETIC IMAGES.
IT WILL GENERATE TWO PICTURES, WHICH
YOU MUST TRY TO MEMORIZE. IF YOU
CAN IDENTIFY THE IMAGE FORMED BY
SUPERIMPOSING THE 1ST ON THE 2ND
THEN ENTER THE ANSWER.

ENTER '1' TO DISPLAY 1ST
PICTURE
? 1


 ****
*
*
*
*  **
*

*
*    *
 ** *

TRY TO MEMORIZE THIS PICTURE

ENTER '1' TO DISPLAY 2ND
PICTURE
? 1


*
     *
     *
     *
 **
     *
*    *
     *

*  *

NOW TRY TO RECALL THE 1ST PICTURE AND
SUPERIMPOSE ITS PATTERN ON THE 2ND.

ENTER '1' TO CONTINUE
? 1


IF YOU CAN IDENTIFY WHAT YOU
HAVE SEEN, THEN ENTER YOUR
ANSWER AT THE KEYBOARD.

OTHERWISE ENTER 'NO'.
?
```

Fig. 7-1. Perception Testing: Eidetic Imagery sample run.

Program 7-1. Perception Testing: Eidetic Imagery Program Listing

```
100  HOME : PRINT "PERCEPTION TESTING"
110  PRINT "EIDETIC IMAGERY"
120  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
130  PRINT "APPLE II"
140  PRINT
150  PRINT "THIS PROGRAM WILL TEST YOU FOR"
160  PRINT "THE ABILITY TO FORM EIDETIC IMAGES."
170  PRINT "IT WILL GENERATE TWO PICTURES, WHICH"
180  PRINT "YOU MUST TRY TO MEMORIZE. IF YOU"
190  PRINT "CAN IDENTIFY THE IMAGE FORMED BY"
200  PRINT "SUPERIMPOSING THE 1ST ON THE 2ND"
210  PRINT "THEN ENTER THE ANSWER."
220  PRINT
230  PRINT "ENTER '1' TO DISPLAY 1ST"
240  PRINT "PICTURE"
250  INPUT A: HOME
260  GOSUB 760
270  PRINT
280  PRINT "TRY TO MEMORIZE THIS PICTURE"
290  PRINT
300  PRINT "ENTER '1' TO DISPLAY 2ND"
310  PRINT "PICTURE"
320  INPUT A: HOME
330  GOSUB 870
340  PRINT
350  PRINT "NOW TRY TO RECALL THE 1ST PICTURE AND"
360  PRINT "SUPERIMPOSE ITS PATTERN ON THE 2ND."
370  PRINT
380  PRINT "ENTER '1' TO CONTINUE"
390  INPUT A: HOME
400  PRINT
410  PRINT "IF YOU CAN IDENTIFY WHAT YOU"
420  PRINT "HAVE SEEN, THEN ENTER YOUR"
430  PRINT "ANSWER AT THE KEYBOARD."
440  PRINT
450  PRINT "OTHERWISE ENTER 'NO'."
460  INPUT A$
470  IF A$ = "B" THEN 640
480  IF A$ = "NO" THEN 520
490  PRINT
500  HOME : PRINT "YOUR ENTRY IS INCORRECT . ."
510  PRINT
520  PRINT "FROM THE ABOVE TEST, THERE IS"
530  PRINT "NO INDICATION THAT YOU HAVE THE"
540  PRINT "ABILITY TO FORM EIDETIC IMAGES."
550  GOSUB 570
560  GOTO 630
570  PRINT
580  PRINT "THE PATTERN SEEN WHEN THE TWO"
590  PRINT "PICTURES ARE SUPERIMPOSED"
600  PRINT "FORMS THE LETTER 'B'."
610  PRINT
620  RETURN
```

Program 7-1—cont. Perception Testing: Eidetic Imagery Program Listing

```
630  END
640  PRINT
650  HOME : PRINT "CORRECT"
660  GOSUB 570
670  PRINT
680  PRINT "THERE IS AN INDICATION"
690  PRINT "THAT YOU HAVE THE ABILITY"
700  PRINT "TO FORM EIDETIC IMAGES."
710  PRINT
720  PRINT "FURTHER TESTING IS RECOMMENDED,"
730  PRINT "TO VERIFY THIS CONCLUSION."
740  PRINT
750  GOTO 630
760  PRINT " ****"
770  PRINT "*"
780  PRINT "*"
790  PRINT "*"
800  PRINT "*  **"
810  PRINT "*"
820  PRINT
830  PRINT "*"
840  PRINT "*    *"
850  PRINT " ** *"
860  RETURN
870  PRINT "*"
880  PRINT "     *"
890  PRINT "     *"
900  PRINT "     *"
910  PRINT " **"
920  PRINT "     *"
930  PRINT "*    *"
940  PRINT "     *"
950  PRINT
960  PRINT "*  *"
970  RETURN
```

CHAPTER 8

Presidents of the United States

This program tests your knowledge of the Presidents of the United States. It displays a list of Presidents giving their number, name, party, and first year of term. Then, a ten-question test may be taken. The problems are randomly generated from the list of forty Presidents. The program is written in BASIC for your microcomputer. See Program 8-1 for the program listing.

THE PROGRAM

You may review the list of Presidents by entering a 1. Entering a 2 will generate the ten-question test. Each question will display the President's number, his name, and his political party (abbreviated using initials). It requires entry of the first year of the term of office. CORRECT will be displayed if your entry is correct. If your entry is incorrect, then INCORRECT will be displayed along with the correct answer.

After all ten questions are answered, your final score will be displayed, with the number correct out of ten and your percent score. You may now review the list and take another test, or end the program. Four ten-question tests can be taken before any of the questions will be repeated. See Fig. 8-1 for a sample run.

```
PRESIDENTS OF THE UNITED STATES
COPYRIGHT (C) 1980 BY HOWARD BERENBON

HERE'S AN EDUCATIONAL PROGRAM THAT TESTS
YOUR KNOWLEDGE OF THE PRESIDENTS. IT
DISPLAYS A LIST OF THE PRESIDENTS GIVING
THEIR #, NAME, PARTY, AND FIRST YEAR OF
TERM. THEN, A 10 QUESTION QUIZ  MAY BE
TAKEN. RANDOMLY, A NAME OF A PRESIDENT
IS DISPLAYED. YOU MUST ENTER THE FIRST
YEAR OF THAT TERM.

ENTER A  '1' TO REVIEW THE LIST
ENTER A  '2' TO TAKE THE TEST
? 2

10 QUESTION PRESIDENT QUIZ

ENTER '1' TO BEGIN THE TEST
? 1


QUESTION #  1   PRESIDENTS QUIZ

PRESIDENT OF THE UNITED STATES

PRESIDENT #  31
HERBERT C. HOOVER (R)

1ST YEAR OF TERM?
(ENTER YEAR)
? 1929
CORRECT


QUESTION #  2   PRESIDENTS QUIZ

PRESIDENT OF THE UNITED STATES

PRESIDENT #  32
FRANKLIN D. ROOSEVELT (D)

1ST YEAR OF TERM?
(ENTER YEAR)
? 1933
CORRECT


QUESTION #  3   PRESIDENTS QUIZ

PRESIDENT OF THE UNITED STATES

PRESIDENT #  4
JAMES MADISON (DR)

1ST YEAR OF TERM?
(ENTER YEAR)
? 1809
CORRECT



QUESTION #  10  PRESIDENTS QUIZ

PRESIDENT OF THE UNITED STATES

PRESIDENT #  39
JAMES E. CARTER, JR. (D)

1ST YEAR OF TERM?
(ENTER YEAR)
? 1977
CORRECT



FINAL SCORE
 10  QUESTIONS CORRECT OUT OF 10
THAT'S  100  % CORRECT

ANOTHER QUIZ  AND REVIEW THE LIST?
ENTER  1-YES  2-NO
? 1
```

Fig. 8-1. Presidents of The United States sample run.

Program 8-1. Presidents of the United States Program Listing

```
100  HOME : PRINT "PRESIDENTS OF THE UNITED STATES"
110  PRINT "APPLE II"
120  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
130  PRINT : DIM B(50): GOSUB 1150
140  PRINT "HERE'S AN EDUCATIONAL PROGRAM THAT TESTS"
150  PRINT "YOUR KNOWLEGE OF THE PRESIDENTS. IT"
160  PRINT "DISPLAYS A LIST OF THE PRESIDENTS GIVING"
170  PRINT "THEIR #, NAME, PARTY, AND FIRST YEAR OF"
180  PRINT "TERM. THEN, A 10 QUESTION QUIZ MAY BE"
190  PRINT "TAKEN. RANDOMLY, A NAME OF A PRESIDENT"
200  PRINT "IS DISPLAYED. YOU MUST ENTER THE FIRST"
210  PRINT "YEAR OF TERM."
220  PRINT :Q3 = 0
230  PRINT "ENTER A  '1' TO REVIEW THE LIST"
240  PRINT "ENTER A  '2' TO TAKE THE TEST"
250  INPUT A
260  IF A = 1 THEN 290
270  IF A = 2 THEN 410
280  GOTO 230
290  HOME : REM  REVIEW THE LIST
300  FOR B = 1 TO 40
310  HOME
320  PRINT "PRES #   NAME & PARTY        1ST YR-TERM"
330  PRINT
340  READ A$,E
350  PRINT B;"      ";A$;"    ";E
360  GOSUB 920
370  NEXT B
380  RESTORE
390  PRINT
400  GOTO 230
410  HOME : REM  10 QUESTION QUIZ
420  PRINT "10 QUESTION QUIZ"
430  PRINT
440  PRINT "ENTER '1' TO BEGIN THE TEST"
450  INPUT A
460  HOME
470  IF A = 1 THEN 490
480  GOTO 440
490  REM  DISPLAY NAME
500 CA = 0
510  FOR A = 1 TO 10
520  HOME
530  PRINT "QUESTION # ";A,"PRESIDENTS QUIZ"
540  PRINT : GOSUB 1190
550 Q =  INT ( RND (1) * 40 + 1)
560  IF B(Q) = 1 THEN 550
570 B(Q) = 1
580  FOR A1 = 1 TO Q
590  READ A$,E
600  NEXT A1
610  RESTORE
620  PRINT "PRESIDENT OF THE UNITED STATES"
```

Program 8-1—cont. Presidents of the United States Program Listing

```
630  PRINT
640  PRINT "PRESIDENT # ";Q
650  PRINT A$
660  PRINT
670  PRINT "1ST YEAR OF TERM?"
680  PRINT "(ENTER YEAR)"
690  INPUT F
700  IF F = E THEN 760
710  GOSUB 900
720  PRINT "THE CORRECT YEAR IS ";E
730  GOSUB 920
740  NEXT A
750  GOTO 800
760  PRINT "CORRECT"
770 CA = CA + 1
780  GOSUB 920
790  NEXT A
800  HOME
810  PRINT "FINAL SCORE"
820  PRINT CA;" QUESTIONS CORRECT OUT OF 10"
830  PRINT "THAT'S ";10 * CA;" % CORRECT"
840  PRINT
850  PRINT "ANOTHER QUIZ AND REVIEW THE LIST?"
860  PRINT "ENTER  1-YES  2-NO"
870  INPUT Y
880  IF Y = 1 THEN 230
890  END
900  PRINT "INCORRECT"
910  RETURN
920  FOR T = 1 TO 2270
930  NEXT T
940  RETURN
950  DATA "GEORGE WASHINGTON (F)",1789,"JOHN ADAMS (F)     ",1797
960  DATA "THOMAS JEFFERSON (DR)",1801,"JAMES MADISON (DR)",1809
970  DATA "JAMES MONROE (DR)",1817,"JOHN Q. ADAMS (DR)",1825
980  DATA "ANDREW JACKSON (D)",1829,"MARTIN VAN BUREN (D)",1837
990  DATA "WILLIAM H. HARRISON (W)",1841,"JOHN TYLER (W)     ",1841
1000  DATA "JAMES KNOX POLK (D)",1845,"ZACHARY TAYLOR (W)",1849
1010  DATA "MILLARD FILLMORE (W)",1850,"FRANKLIN PIERCE (D)",1853
1020  DATA "JAMES BUCHANAN (D)",1857,"ABRAHAM LINCOLN (R)",1861
1030  DATA "ANDREW JOHNSON (R)",1865,"ULYSSES S. GRANT (R)",1869
1040  DATA "RUTHERFORD B. HAYES (R)",1877,"JAMES A. GARFIELD (R)",1881
1050  DATA "CHESTER A. ARTHUR (R)",1881,"GROVER CLEVELAND (D)",1885
1060  DATA "BENJAMIN HARRISON (R)",1889,"GROVER CLEVELAND (D)",1893
1070  DATA "WILLIAM MCKINLEY (R)",1897,"THEODORE ROOSEVELT (R)",1901
1080  DATA "WILLIAM H. TAFT (R)",1909,"WOODROW WILSON (D)",1913
1090  DATA "WARREN G. HARDING (R)",1921,"CALVIN COOLIDGE (R)",1923
1100  DATA "HERBERT C. HOOVER (R)",1929,"FRANKLIN D. ROOSEVELT (D)",1933
1110  DATA "HARRY S. TRUMAN (D)",1945,"DWIGHT D. EISENHOWER (R)",1953
1120  DATA "JOHN F. KENNEDY (D)",1961,"LYNDON B. JOHNSON (D)",1963
1130  DATA "RICHARD M. NIXON (R)",1969,"GERALD R. FORD (R)",1974
1140  DATA "JAMES E. CARTER, JR. (D)",1977,"RONALD REAGAN (R)",1981
1150  FOR I = 1 TO 40
```

Program 8-1—cont. Presidents of the United States Program Listing

```
1160 B(I) = 0
1170  NEXT I
1180  RETURN
1190 Q3 = Q3 + 1
1200  IF Q3 > 40 THEN Q3 = 0: GOSUB 1150
1210  RETURN
```

CHAPTER 9

State Capitals

This program tests your knowledge of the state capitals of the United States. For a review it displays a list of all fifty states and their capitals. Then a ten-question test may be taken. The program is written in BASIC for your microcomputer. See Program 9-1 for the program listing.

THE PROGRAM

After you run the program, you may enter a 1 to review the state capitals, enter a 2 to take the ten-question test, or enter a 3 to end the program.

After you enter a 2 to take the test, enter a 1 to begin. You are required to enter the name of the state capital for the state that is displayed. CORRECT will be displayed for a correct entry. If your answer is incorrect, then INCORRECT will be displayed, along with the correct answer. When all ten questions are answered, your final score will be displayed, with the number correct out of ten and the percent score. You may now review the states, take another test, or end the program. Five tests may be taken without any of the questions being repeated.

See Fig 9-1 for a sample run.

```
STATE CAPITALS
COPYRIGHT (C) 1980 BY HOWARD BERENBON

THIS PROGRAM TESTS YOUR KNOWLEDGE
OF STATE CAPITALS. IT GIVES A TEN
QUESTION QUIZ , RANDOMLY CHOOSING
THE QUESTIONS. THE LIST OF STATES AND
CAPITALS MAY BE REVIEWED BEFORE TAKING
THE TEST.

ENTER 1-REVIEW STATE CAPITALS
      2-FOR TEST
      3-END PROGRAM
? 2


10 QUESTION STATE CAPITAL TEST

ENTER '1' TO BEGIN
? 1


QUESTION #  1  STATE CAPITALS

THE STATE IS: MASSACHUSETTS

ENTER ITS CAPITAL
? BOSTON

CORRECT




QUESTION #  2  STATE CAPITALS

THE STATE IS: WASHINGTON

ENTER ITS CAPITAL
? OLYMPIA

CORRECT

QUESTION #  3  STATE CAPITALS

THE STATE IS: DELAWARE

ENTER ITS CAPITAL
? DOVER

CORRECT




QUESTION #  10  STATE CAPITALS

THE STATE IS: CONNECTICUT

ENTER ITS CAPITAL
? HARTFORD

CORRECT




FINAL SCORE:
 10  QUESTIONS CORRECT OUT OF 10
THAT'S  100  % CORRECT




ENTER 1-REVIEW STATE CAPITALS
      2-FOR TEST
      3-END PROGRAM
? 1
```

Fig. 9-1. State Capitals sample run.

Program 9-1. State Capitals Program Listing

```
100  HOME : PRINT "STATE CAPITALS"
110  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
120  PRINT "APPLE II":Q3 = 0
130  PRINT : DIM B(50): GOSUB 1100
140  PRINT "THIS PROGRAM TESTS YOUR KNOWLEDGE"
150  PRINT "OF STATE CAPITALS. IT GIVES A TEN"
160  PRINT "QUESTION QUIZ, RANDOMLY CHOOSING"
170  PRINT "THE QUESTIONS. THE LIST OF STATES AND"
180  PRINT "CAPITALS MAY BE REVIEWED BEFORE TAKING"
190  PRINT "THE TEST."
200  PRINT
210  PRINT "ENTER 1-REVIEW STATE CAPITALS"
220  PRINT  TAB( 7)"2-FOR TEST"
230  PRINT  TAB( 7)"3-END PROGRAM"
240  INPUT A
250  ON A GOTO 270,420,800
260  GOTO 200
270  HOME : PRINT "REVIEWING THE STATES"
280 GT = 2: GOSUB 380
290  FOR A = 1 TO 50
300  READ S$,C$
310  PRINT "STATE","CAPITAL"
320  PRINT
330  PRINT S$,C$
340 GT = 2: GOSUB 380
350  NEXT A
360  RESTORE
370  GOTO 200
380  FOR T = 1 TO 750 * GT
390  NEXT T
400  HOME
410  RETURN
420  HOME : PRINT "TEN QUESTION STATE CAPITAL TEST"
430  PRINT
440  PRINT "ENTER '1' TO BEGIN"
450  INPUT D
460  HOME
470  IF D = 1 THEN 490
480  GOTO 430
490 CA = 0
500  FOR Q = 1 TO 10
510  HOME : PRINT "QUESTION # ";Q;" STATE CAPITALS"
520  PRINT : GOSUB 810
530 R =  INT ( RND (1) * 50 + 1)
540  IF B(R) = 1 THEN 530
550 B(R) = 1
560  FOR H = 1 TO R
570  READ S$,C$
580  NEXT H
590  RESTORE
600  PRINT "THE STATE IS: ";S$
610  PRINT
620  PRINT "ENTER ITS CAPITAL"
```

Program 9-1—cont. State Capitals Program Listing

```
630  INPUT C1$
640  IF C1$ = C$ THEN 710
650  PRINT
660  PRINT "INCORRECT"
670  PRINT "THE CAPITAL OF ";S$;" IS '";C$;"'"
680 GT = 3: GOSUB 380
690  NEXT Q
700  GOTO 750
710  PRINT
720  PRINT "CORRECT"
730 CA = CA + 1
740  GOTO 680
750  HOME : PRINT "FINAL SCORE:"
760  PRINT CA;" QUESTIONS CORRECT OUT OF 10"
770  PRINT "THAT'S ";10 * CA;" % CORRECT"
780 GT = 3: GOSUB 380
790  GOTO 200
800  END
810 Q3 = Q3 + 1
820  IF Q3 > 50 THEN Q3 = 0: GOTO 840
830  RETURN
840  GOSUB 1100: RETURN
850  DATA ALABAMA,MONTGOMERY,ALASKA,JUNEAU
860  DATA ARIZONA,PHOENIX,ARKANSAS,LITTLE ROCK
870  DATA CALIFORNIA,SACRAMENTO,COLORADO,DENVER
880  DATA CONNECTICUT,HARTFORD,DELAWARE,DOVER
890  DATA FLORIDA,TALLAHASSEE,GEORGIA,ATLANTA
900  DATA HAWAII,HONOLULU,IDAHO,BOISE
910  DATA ILLINOIS,SPRINGFIELD,INDIANA,INDIANAPOLIS
920  DATA IOWA,DES MOINES,KANSAS,TOPEKA
930  DATA KENTUCKY,FRANKFORT,LOUISIANA,BATON ROUGE
940  DATA MAINE,AUGUSTA,MARYLAND,ANNAPOLIS
950  DATA MASSACHUSETTS,BOSTON,MICHIGAN,LANSING
960  DATA MINNESOTA,ST. PAUL,MISSISSIPPI,JACKSON
970  DATA MISSOURI,JEFFERSON CITY,MONTANA,HELENA
980  DATA NEBRASKA,LINCOLN,NEVADA,CARSON CITY
990  DATA NEW HAMPSHIRE,CONCORD,NEW JERSEY,TRENTON
1000  DATA NEW MEXICO,SANTA FE,NEW YORK,ALBANY
1010  DATA NORTH CAROLINA,RALEIGH,NORTH DAKOTA,BISMARCK
1020  DATA OHIO,COLUMBUS,OKLAHOMA,OKLAHOMA CITY
1030  DATA OREGON,SALEM,PENNSYLVANIA,HARRISBURG
1040  DATA RHODE ISLAND,PROVIDENCE,SOUTH CAROLINA,COLUMBIA
1050  DATA SOUTH DAKOTA,PIERRE,TENNESSEE,NASHVILLE
1060  DATA TEXAS,AUSTIN,UTAH,SALT LAKE CITY
1070  DATA  VERMONT,MONTPELIER,VIRGINIA,RICHMOND
1080  DATA WASHINGTON,OLYMPIA,WEST VIRGINIA,CHARLESTON
1090  DATA WISCONSIN,MADISON,WYOMING,CHEYENNE
1100  FOR I = 1 TO 50
1110 B(I) = 0
1120  NEXT I
1130  RETURN
```

CHAPTER 10

The Student Grader

The Student Grader is a program designed to aid the teacher. It will accept entry of each student's individual grades, and it will display each set of grades with their average. It will also display the class average for any number of students in the list. The program is written in BASIC for your microcomputer. See Program 10-1 for the program listing.

THE PROGRAM

The program accepts entry of the student's grades, in DATA statements, beginning at line 500. Enter each student's name, each grade in percent (separated by commas), and the number 999, which is used to detect the end of each student's grades. After the whole list of students' grades is entered, DATA "END" must be entered as the last DATA statement in the list. The following are examples of DATA statement entries:

```
550 DATA TOM SMITH,86,78,79,88,80,999
560 DATA MIKE ROSS,78,88,90,90,85,83,999
```

Each of the students' grade lists may have a different number of percent scores. The program calculates the average score on the number of grades in each student's DATA statement.

After you run the program, enter a 1 to begin. The program will display each of the student's grades, and the average grade, for all of the students in the list. The program will also display the class average, calculated by adding each average grade of each student and dividing by the total number of students.

See Fig. 10-1 for a sample run.

```
THE STUDENT GRADER
COPYRIGHT (C) 1980 BY HOWARD BERENBON



THIS PROGRAM WILL AID THE TEACHER
IN RECORDING AND GRADING TEST SCORES.

ENTER EACH STUDENT'S NAME AND GRADES
IN DATA STATEMENTS BEGINNING AT LINE
500. ENTER AS FOLLOWS:
DATA NAME,60,70,80,78,79,67,999
999 MUST BE THE LAST NUMBER, WHICH
DETECTS THE END OF THE GRADES. ALSO,
DATA 'END' MUST BE THE LAST DATA
STATEMENT IN THE DATA LIST.

ENTER A '1' TO BEGIN
? 1


THE STUDENT GRADER

NAME       GRADE(%)

RICK  86   78   85   79   88   80   AVE= 83
BRUCE  78   80   78   90   91   78   AVE= 83
DAVE  89   88   87   67   68   90   AVE= 82
MIKE  56   60   67   56   80   70   AVE= 65

CLASS AVERAGE WITH  4  STUDENTS
IS  78  PERCENT
```

Fig. 10-1. The Student Grader sample run.

Program 10-1. The Student Grader Program Listing

```
100  HOME : PRINT "THE STUDENT GRADER"
110  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
120  PRINT "APPLE II"
130  PRINT : PRINT : GOSUB 480
140  PRINT "THIS PROGRAM WILL AID THE TEACHER"
150  PRINT "IN RECORDING AND GRADING TEST SCORES."
160  PRINT
170  PRINT "ENTER EACH STUDENT'S NAME AND GRADES"
180  PRINT "IN DATA STATEMENTS BEGINNING AT LINE"
190  PRINT "500. ENTER AS FOLLOWS:"
200  PRINT "DATA NAME,60,70,80,78,79,67,999"
210  PRINT "999 MUST BE THE LAST NUMBER, WHICH"
220  PRINT "DETECTS THE END OF THE GRADES. ALSO,"
230  PRINT "DATA 'END' MUST BE THE LAST DATA"
240  PRINT "STATEMENT IN THE DATA LIST."
250  PRINT
260  PRINT "ENTER A '1' TO BEGIN"
270  INPUT S
280  HOME :N = 0:C = 0
290 N1 = 0:C1 = 0
300  PRINT "THE STUDENT GRADER"
310  PRINT
320  PRINT "NAME"; TAB( 10)"GRADE(%)"
330  PRINT
340  READ A$: IF A$ = "END" THEN 440
350  PRINT A$;" ";
360  READ B: IF B = 999 THEN 410
370  PRINT B;" ";
380 N = N + 1
390 C = B + C
400  GOTO 360
410 S1 =  INT ((C / N) + .5): PRINT " AVE=";S1: GOSUB 480
420 C1 = S1 + C1:N = 0:C = 0:N1 = N1 + 1
430  GOTO 340
440  RESTORE : PRINT
450 A1 =  INT ((C1 / N1) + .5): PRINT "CLASS AVERAGE WITH ";N1;" STUDENTS"
460  PRINT "IS ";A1;" PERCENT"
470  END
480  FOR T = 1 TO 2043
490  NEXT T: RETURN
500  DATA "RICK",86,78,85,79,88,80,999
510  DATA "BRUCE",78,80,78,90,91,78,999
520  DATA "DAVE",89,88,87,67,68,90,999
530  DATA "MIKE",56,60,67,56,80,70,999
540  DATA "END"
```

CHAPTER 11

Relativistic Mass Simulation

Here's a scientific program using Einstein's theory of relativity. It takes the formula for the mass of a body in motion as it relates to the speed of light, and allows an interesting simulation. The program will display the change in mass for an object traveling at a given velocity, having a rest mass of m_o. It is written in BASIC for your microcomputer. See Program 11-1 for the program listing.

THE PROGRAM

The program creates the relativistic mass simulation using Einstein's equation:

$$m = \frac{m_o}{\sqrt{1 - v^2/c^2}}$$

where

m is the mass of the moving object,
m_o is the mass of the object at rest,
v is the velocity of the object,
c is the speed of light (2.997925 $\times$ 10^8 meters/second).

It allows the entry of the rest mass, m_o, of a given object, and its velocity, v. Enter the mass of the object in kilograms, and its velocity in meters per second. The program displays the mass of the object at rest, the mass at the velocity entered, the change in mass, and the percent change in mass.

Entering a small velocity will display no apparent change in mass. But as you increase the velocity, the change will become noticeable. When your test velocity approaches the speed of light, the mass change will become more apparent. The program will accept entry of any initial mass value, but it will limit the velocity entry to less than the speed of light, following Einstein's Special Theory of Relativity.

After the simulation is complete, enter a 1 to continue with the same mass and different velocity, enter a 2 to continue the simulation with a different mass, enter a 3 for a new simulation, or enter a 4 to end the program.

See Fig. 11-1 for a sample run.

Fig. 11-1. Relativisitc Mass Simulation sample run.

```
RELATIVISTIC MASS SIMULATION
COPYRIGHT (C) 1980 BY HOWARD BERENBON

THIS PROGRAM  WILL DISPLAY THE
CHANGE IN MASS FOR AN OBJECT
TRAVELING AT A GIVEN VELOCITY,
HAVING A REST MASS OF M0.
IT USES EINSTEIN'S RELATIONSHIP
THAT THE MASS OF AN OBJECT
INCREASES AS ITS VELOCITY INCREASES

ENTER THE NAME OF THE OBJECT
IN THE SIMULATION
? SPACE CAPSULE


ENTER THE MASS AT REST (KG)
FOR THE OBJECT 'SPACE CAPSULE'
? 2724

ENTER SIMULATED VELOCITY (M/S)
FOR THE OBJECT 'SPACE CAPSULE'
? 20000

GIVEN THE OBJECT: SPACE CAPSULE
WITH A REST MASS OF  2724  KG

THE MASS OF THE OBJECT:
SPACE CAPSULE-AT  20000  M/S IS
 2724  KG

THE INCREASE IN MASS IS
 0  KG, OR  0  %

ENTER 1-CONT. SIMULATION-SAME MASS
      2-CONT. SIMULATION-DIFF. MASS
      3-NEW SIMULATION
      4-END PROGRAM
? 1

ENTER THE SIMULATED VELOCITY (M/S)
FOR THE OBJECT 'SPACE CAPSULE'
? 2200000

GIVEN THE OBJECT: SPACE CAPSULE
WITH A REST MASS OF  2724  KG

THE MASS OF THE OBJECT:
SPACE CAPSULE-AT  2.2E+06  M/S IS
 2724.07  KG

THE INCREASE IN MASS IS
 .0732422  KG, OR  2.68877E-03  %

ENTER 1-CONT. SIMULATION-SAME MASS
      2-CONT. SIMULATION-DIFF. MASS
      3-NEW SIMULATION
      4-END PROGRAM
? 1


ENTER THE SIMULATED VELOCITY (M/S)
FOR THE OBJECT 'SPACE CAPSULE'
? 2.24E+08

GIVEN THE OBJECT: SPACE CAPSULE
WITH A REST MASS OF  2724  KG

THE MASS OF THE OBJECT:
SPACE CAPSULE-AT  2.24E+08  M/S IS
 4098.6  KG

THE INCREASE IN MASS IS
 1374.6  KG, OR  50.4624  %

ENTER 1-CONT. SIMULATION-SAME MASS
      2-CONT. SIMULATION-DIFF. MASS
      3-NEW SIMULATION
      4-END PROGRAM
? 4
```

Program 11-1. Relativistic Mass Simulation Program Listing

```
100  HOME
110  PRINT "RELATIVISTIC MASS SIMULATION"
120  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
130  PRINT "APPLE II"
140  PRINT :C = 2.997925E + 8
150  PRINT "THIS PROGRAM WILL DISPLAY THE"
160  PRINT "CHANGE IN MASS FOR AN OBJECT"
170  PRINT "TRAVELING AT A GIVEN VELOCITY,"
180  PRINT "HAVING A REST MASS OF MO."
190  PRINT "IT USES EINSTEIN'S RELATIONSHIP"
200  PRINT "THAT THE MASS OF AN OBJECT"
210  PRINT "INCREASES AS ITS VELOCITY INCREASES"
220  PRINT
230  PRINT "ENTER THE NAME OF THE OBJECT"
240  PRINT "IN THE SIMULATION"
250  INPUT A$
260  PRINT
270  PRINT "ENTER THE MASS AT REST (KG)"
280  PRINT "FOR THE OBJECT '";A$;"'"
290  INPUT M
300  PRINT
310  PRINT "ENTER THE SIMULATED VELOCITY (M/S)"
320  PRINT "FOR THE OBJECT '";A$;"'"
330  INPUT V
340  IF V >  = C THEN 570
350 V2 = V * V
360  HOME :C2 = C * C
370  PRINT "GIVEN THE OBJECT: ";A$
380  PRINT "WITH A  REST MASS OF ";M;" KG"
390 Q =  SQR (1 - (V2 / C2))
400 MR = M / Q:T = MR - M
410  PRINT
420  PRINT "THE MASS OF THE OBJECT:"
430  PRINT A$;"-AT ";V;" M/S IS"
440  PRINT MR;" KG"
450  PRINT
460  PRINT "THE INCREASE IN MASS IS"
470  PRINT T;" KG";: GOSUB 650
480  PRINT
490  PRINT "ENTER 1-CONT. SIMULATION-SAME MASS"
500  PRINT  TAB( 7)"2-CONT. SIMULATION-DIFF. MASS"
510  PRINT  TAB( 7)"3-NEW SIMULATION"
520  PRINT  TAB( 7)"4-END PROGRAM"
530  INPUT T
540  ON T GOTO 300,260,110,560
550  GOTO 480
560  END
570  PRINT
580  PRINT "EINSTEIN SAID THAT NO OBJECT CAN"
590  PRINT "TRAVEL EQUAL TO OR GREATER THAN"
600  PRINT "SPEED OF LIGHT."
610  PRINT
620  PRINT "ENTER A VELOCITY LESS THAN THE"
```

Program 11-1—cont. Relativistic Mass Simulation Program Listing

```
630  PRINT "SPEED OF LIGHT."
640  GOTO 300
650 P = (T / M) * 100
660  PRINT ", OR ";P;" %"
670  RETURN
```

SECTION II

Home Applications

This section describes some useful home application programs including a monthly budget program, a valuables inventory, a telephone number directory, a special date calendar, a weekly calendar, gas and water usage analysis, electrical appliance operating cost analysis, family dental expenses, weekly jogging record, and, finally, a cost of food analysis.

CHAPTER 12

Monthly Budget

Here's a program that will help you budget your household expenses. It accepts entry of your monthly net wage and individual expenses to calculate the amount available to save. The program is written in BASIC for your microcomputer. See Program 12-1 for the program listing.

THE PROGRAM

The program begins by requesting the month number (1–12) for analysis. Then it requests your monthly net wage. Next, you are required to enter all monthly expenses, under the following categories:

1. Rent, or house payment
2. Utility expenses
   a. Telephone bill
   b. Electric bill
   c. Gas or oil costs
   d. Water bill
3. Garbage pickup
4. Monthly food bills
5. Clothing, shoes, linen
6. Drugstore purchases
7. Medical expenses
8. Bank charges
9. House expenses
10. Automobile expenses
11. Entertainment expenses
12. Miscellaneous expenses

The monthly food bill category allows entry of individual food bills, for that month. Entering a 999 allows you to advance to the next category. All other categories accept only one expense entry per month.

After all your monthly expenses are entered, the program calculates the total expense for that month. It then displays the month number, monthly wage (allowed budget amount), and your total monthly expense.

The difference between your total monthly expense and your monthly budget amount is calculated and displayed. If you spent less during the month than your budget allows, then it is recommended that the amount left over be saved. If you are over your monthly budget, then this will be noted.

See Fig. 12-1 for a sample run.

```
MONTHLY BUDGET
COPYRIGHT (C) 1980 BY HOWARD BERENBON

THE MONTHLY BUDGET PROGRAM WILL
HELP YOU BUDGET YOUR HOUSEHOLD
EXPENSES. ENTER YOUR MONTHLY NET
WAGE, OR AMOUNT ALLOWED, AND TOTAL
MONTHLY EXPENSES. THE AMOUNT LEFT
OVER AFTER ALL BILLS ARE PAID WILL
BE THE AMOUNT AVAILABLE TO SAVE.

ENTER MONTH # (1-12)
? 4


ENTER MONTHLY NET WAGE (BUDGET AMT)
? 816


ENTER MONTHLY STATISTICS

RENT OR HOUSE PAYMENT
? 300

UTILITY EXPENSES

TELEPHONE
? 10
ELECTRIC
? 15
GAS OR OIL
? 15
WATER
? 4

GARBAGE PICKUP
? 10


MONTHLY FOOD BILLS
1 BILL PER ENTRY
(ENTER 999 TO STOP)
# 1
? 75

MONTHLY FOOD BILLS
1 BILL PER ENTRY
(ENTER 999 TO STOP)
# 2
? 999



ENTER MONTHLY STATISTICS

CLOTHING, SHOES, LINEN
? 24
DRUG STORE PURCHASES
? 15
MEDICAL EXPENSES
(DOCTOR, DENTIST, ETC.)
? 25
BANK CHARGES
? 0
HOUSE EXPENSES (INSURANCE, REPAIRS, ETC)
? 10


AUTOMOBILE EXPENSES
(REPAIRS, GAS, ETC.)
? 50
ENTERTAINMENT (MOVIES, PLAYS, DINNERS
BOOKS, MAGAZINES, ETC.)
? 85
MISCELLANEOUS EXPENSES
? 25



MONTHLY BUDGET STATISTICS FOR
MONTH # 4

MONTHLY WAGE OR ALLOWED AMT=$ 816

YOUR TOTAL MONTHLY EXPENSE
IS $ 663

YOU SPENT LESS IN MONTH # 4 , AND
HAVE $ 153  LEFT OVER TO SAVE.
```

Fig. 12-1. Monthly Budget sample run.

Program 12-1. Monthly Budget Program Listing

```
100  HOME : PRINT "MONTHLY BUDGET"
110  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
120  PRINT "APPLE II"
130  PRINT
140  PRINT "THE MONTHLY BUDGET PROGRAM WILL"
150  PRINT "HELP YOU BUDGET YOUR HOUSEHOLD"
160  PRINT "EXPENSES. ENTER YOUR MONTHLY NET"
170  PRINT "WAGE, OR AMOUNT ALLOWED, AND TOTAL"
180  PRINT "MONTHLY EXPENSES. THE AMOUNT LEFT"
190  PRINT "OVER AFTER ALL BILLS ARE PAID WILL"
200  PRINT "BE THE AMOUNT AVAILABLE TO SAVE."
210  PRINT
220  PRINT "ENTER MONTH # (1-12)"
230  INPUT N: IF N < 1 OR N > 12 THEN 210
240  PRINT
250  PRINT "ENTER MONTHLY NET WAGE (BUDGET AMT)"
260  INPUT W
270  GOSUB 890
280  PRINT "RENT OR HOUSE PAYMENT"
290  INPUT R: PRINT
300  PRINT "UTILITY EXPENSES"
310  PRINT
320  PRINT "TELEPHONE"
330  INPUT T
340  PRINT "ELECTRIC"
350  INPUT E
360  PRINT "GAS OR OIL"
370  INPUT G
380  PRINT "WATER"
390  INPUT WA
400  PRINT "GARBAGE PICKUP"
410  INPUT GA
420  HOME :F = 0:FC = 1
430  PRINT "MONTHLY FOOD BILLS"
440  PRINT "1 BILL PER ENTRY"
450  PRINT "(ENTER 999 TO STOP)"
460  PRINT "#";FC
470 FC = FC + 1
480  INPUT FD: IF FD = 999 THEN 510
490  PRINT :F = FD + F
500  GOTO 430
510  GOSUB 890
520  PRINT "CLOTHING, SHOES, LINEN"
530  INPUT CL
540  PRINT "DRUG STORE PURCHASES"
550  INPUT DR
560  PRINT "MEDICAL EXPENSES"
570  PRINT "(DOCTOR, DENTIST, ETC.)"
580  INPUT M
590  PRINT "BANK CHARGES"
600  INPUT BC
610  PRINT "HOUSE EXPENSES (INSURANCE, REPAIRS, ETC)"
620  INPUT HR
```

Program 12-1—cont. Monthly Budget Program Listing

```
630  PRINT "AUTOMOBILE EXPENSES"
640  PRINT "(REPAIRS, GAS, ETC.)"
650  INPUT AU
660  PRINT "ENTERTAINMENT (MOVIES, PLAYS, DINNERS"
670  PRINT "BOOKS, MAGAZINES, ETC.)"
680  INPUT EN
690  PRINT "MISCELLANEOUS EXPENSES"
700  INPUT MS
710  REM  CALCULATE EXPENSES
720 TL = R + T + E + G + WA + GA + F + CL + DR + M + BC + HR + AU + EN + MS
730  HOME
740 BU = W - TL
750  PRINT "MONTHLY BUDGET STATISTICS FOR"
760  PRINT "MONTH #";N
770  PRINT
780  PRINT "MONTHLY WAGE OR ALLOWED AMT=$";W
790  PRINT
800  PRINT "YOUR TOTAL MONTHLY EXPENSE"
810  PRINT "IS $";TL
820  PRINT : IF TL > W THEN 860
830  PRINT "YOU SPENT LESS IN MONTH #";N;", AND"
840  PRINT "HAVE $";BU;" LEFT OVER TO SAVE."
850  GOTO 880
860 ET = TL - W
870  PRINT "YOU SPENT $";ET;" OVER YOUR BUDGET"
880  END
890  HOME : PRINT "ENTER MONTHLY STATISTICS"
900  PRINT
910  RETURN
```

CHAPTER 13

Valuables Inventory

The Valuables Inventory program keeps a list of your valuables, including the name of each item and its price. It is useful for keeping a record of your valuables for insurance purposes. The program is written in BASIC for your microcomputer. See Program 13-1 for the program listing.

THE PROGRAM

The valuables data must be entered into DATA statements, beginning at line 850. Enter the items in the following format:

```
DATA CATEGORY #,NAME,PRICE
```

or

```
850 DATA 1,BRACELET,225
```

The category number is a number from 1 to 6. It represents the following types of items:

1—Gold, silver, jewelry
2—Appliances
3—Furniture
4—Clothing
5—Collectables (art, antiques, etc.)
6—Miscellaneous

Each item should have its own data statement with the category number, its name, and its value entered. After all items are entered, then DATA 9999,0,0 must be the last DATA statement in the list.

After running the program, enter a 1 to begin. The program calculates and displays the cumulative total worth of your valuables. Then you have the option of listing the items, prices, and cumulative total for each category separately (1–6), display the total list, or end the program. Enter a 7 to display the total list, or an 8 to end the program. See Fig. 13-1 for a sample run.

IDENTIFICATION NUMBER

Use the DATA statement line number as an identification number (ID) for each item in your valuables list. Engrave the statement number, if possible, to the corresponding item. In case of a fire or theft, you have a record of each item, with its separate ID number. Keep a cassette copy of the program, with the inventory data list, in a safety deposit box for insurance purposes.

```
VALUABLES INVENTORY
COPYRIGHT (C) 1980 BY HOWARD BERENSON

THIS PROGRAM WILL KEEP A LIST
OF YOUR VALUABLES, AND ALLOW YOU
TO DISPLAY A PARTIAL OR FULL LIST
WITH EACH ITEM NAME, VALUE, AND
CUMULATIVE VALUE. ENTER THE ITEMS
IN DATA STATEMENTS BEGINNING AT
LINE 850, IN THE FOLLOWING FORMAT:
DATA CATEGORY,NAME,PRICE
DATA 1,BRACELET,225
DATA 9999,0,0 IS THE LAST STATEMENT
ENTER '1' TO BEGIN
? 1


ENTER CATEGORY #
1-GOLD, SILVER, JEWELRY
2-APPLIANCES
3-FURNITURE
4-CLOTHING
5-COLLECTABLES
6-MISCELLANEOUS
7-TOTAL LIST
8-END PROGRAM

? 5


5
COLLECTABLES

ITEM            PRICE          CUM. TOTAL
OIL PAINTING     1700           1700
WATER COLOR      190            1890



6
MISCELLANEOUS

ITEM            PRICE          CUM. TOTAL
BICYCLE          175            175
CHESS SET        200            375
```

Fig. 13-1. Valuables Inventory sample run.

Program 13-1. Valuables Inventory Program Listing

```
100  HOME : PRINT "VALUABLES INVENTORY"
110  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
120  PRINT "APPLE II"
130  PRINT
140  PRINT "THIS PROGRAM WILL KEEP A LIST"
150  PRINT "OF YOUR VALUABLES, AND ALLOW YOU"
160  PRINT "TO DISPLAY A PARTIAL OR FULL LIST"
170  PRINT "WITH EACH ITEM NAME, VALUE, AND"
180  PRINT "CUMULATIVE VALUE. ENTER THE ITEMS"
190  PRINT "IN DATA STATEMENTS BEGINNING AT"
200  PRINT "LINE 850, IN THE FOLLOWING FORMAT:"
210  PRINT "DATA CATEGORY,NAME,PRICE"
220  PRINT "DATA 1,BRACELET,225"
230  PRINT "DATA 9999,0,0 IS THE LAST STATEMENT"
240  PRINT "ENTER '1' TO BEGIN"
250  INPUT A: HOME
260  RESTORE : IF B = 7 THEN A = A + 1: PRINT : GOTO 400
270  IF T > 0 THEN  PRINT "CUM. TOTAL =$";T
280  PRINT : PRINT "ENTER CATEGORY #"
290 T = 0:C = 0:E = 0
300  PRINT "1-GOLD, SILVER, JEWELRY"
310  PRINT "2-APPLIANCES"
320  PRINT "3-FURNITURE"
330  PRINT "4-CLOTHING"
340  PRINT "5-COLLECTABLES"
350  PRINT "6-MISCELLANEOUS"
360  PRINT "7-TOTAL LIST"
370  PRINT "8-END PROGRAM"
380  PRINT
390  INPUT A: IF A = 7 THEN B = 7
400  IF B = 7 THEN E = E + 1: IF E = 7 THEN 730
410  ON A GOTO 460,500,540,580,620,660,700,730
420  GOTO 280
430  FOR G = 1 TO 2043
440  NEXT G
450  RETURN
460  PRINT : PRINT "GOLD, SILVER, JEWELRY"
470  GOSUB 750
480  GOSUB 780
490  GOTO 260
500  PRINT "APPLIANCES"
510  GOSUB 750
520  GOSUB 780
530  GOTO 260
540  PRINT "FURNITURE"
550  GOSUB 750
560  GOSUB 780
570  GOTO 260
580  PRINT "CLOTHING"
590  GOSUB 750
600  GOSUB 780
610  GOTO 260
620  PRINT "COLLECTABLES"
```

Program 13-1—cont. Valuables Inventory Program Listing

```
630  GOSUB 750
640  GOSUB 780
650  GOTO 260
660  PRINT "MISCELLANEOUS"
670  GOSUB 750
680  GOSUB 780
690  GOTO 260
700  PRINT "TOTAL LIST"
710 A = 1:E = 1
720  GOTO 410
730  END
740  REM  TABLE
750  PRINT
760  PRINT "ITEM                PRICE   CUM. TOTAL"
770  RETURN
780  READ C,D$,P
790  IF C = 9999 THEN  RETURN
800  IF C <  > (A) THEN 780
810 T = P + T
820  PRINT D$; TAB( 22);P; TAB( 30);T
830  GOSUB 430
840  GOTO 780
850  DATA 1,"SILVERWARE",1500
860  DATA 1,"GOLD BRACELET",500
870  DATA 5,"OIL PAINTING",1700
880  DATA 4,"MINK COAT",1200
890  DATA 2,"COLOR TV",540
900  DATA 3,"COUCH",1195
910  DATA 3,"CHAIR",875
920  DATA 3,"DINING TABLE",880
930  DATA 2,"STEREO",695
940  DATA 1,"WATCH",295
950  DATA 6,"BICYCLE",175
960  DATA 5,"WATER COLOR",190
970  DATA 2,"COMPUTER",3500
980  DATA 2,"WASHER/DRYER",700
990  DATA 2,"BW TV",95
1000  DATA 6,"CHESS SET",200
1010  DATA 4,"COATS",450
1020  DATA 4,"SHOES",275
1030  DATA 3,"DESK",250
1040  DATA 9999,0,0
```

CHAPTER 14

Telephone Number Directory

The Telephone Number Directory will list names and telephone numbers from your list of names and numbers in DATA statements. The program is written in BASIC for your microcomputer. See Program 14-1 for the program listing.

THE PROGRAM

The program requires that your name and phone number list is stored in DATA statements beginning at line 660. Enter as follows:

```
DATA NAME,PHONE #
```

or

```
660 DATA SMITH,555-1212
```

The statement DATA END,0 must be the last DATA statement in your list. The size of your phone number list is limited only by your computer's RAM size.

After you run the program, you may display individual numbers by entering an N, display your whole list by entering an L, or end the program by entering an E. If you wish to display individual names and numbers, the computer will request your desired name entry. Enter the name as it appears in the list. The computer will search the list, comparing the name entered with the names in your list. When the name is found, the computer will display that name with its corresponding telephone number. You may now access another number or discontinue this function. If the name entered is not in the list, the computer will display ENTRY NOT FOUND. Entering an N will return the program to the main input routine, allowing access to individual numbers or the whole list. See Fig. 14-1 for a sample run.

```
TELEPHONE NUMBER DIRECTORY
COPYRIGHT (C) 1980 BY HOWARD BERENSON

THIS PROGRAM WILL LIST NAMES &
TELEPHONE NUMBERS FROM YOUR LIST
LOCATED IN DATA STATEMENTS
BEGINNING AT PROGRAM LINE 660.
ENTER THE DATA AS FOLLOWS:
DATA NAME,NUMBER
DATA SMITH,555-1212
THE LAST DATA STATEMENT IN THE
LIST MUST BE: DATA END,0



TELEPHONE # DIRECTORY


ENTER 'N' DISPLAY INDIVIDUAL #'S
      'L' DISPLAY FULL LIST
      'E' END PROGRAM
? N




TELEPHONE # DIRECTORY

ENTER NAME
? DAVE
SEARCHING LIST FOR 'DAVE'

NAME            PHONE NUMBER

DAVE            555-1963

ANOTHER ENTRY?
ENTER 'Y'-YES
      'N'-NO
?
```

Fig. 14-1. Telephone Number Directory sample run.

Program 14-1. Telephone Number Directory Program Listing

```
100  HOME : PRINT "TELEPHONE NUMBER DIRECTORY"
110  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
120  PRINT "APPLE II"
130  PRINT
140  PRINT "THIS PROGRAM WILL LIST NAMES &"
150  PRINT "TELEPHONE NUMBERS FROM YOUR LIST"
160  PRINT "LOCATED IN DATA STATEMENTS"
170  PRINT "BEGINNING AT PROGRAM LINE 660."
180  PRINT "ENTER THE DATA AS FOLLOWS:"
190  PRINT "DATA NAME,NUMBER"
200  PRINT "DATA SMITH,555-1212"
210  PRINT "THE LAST DATA STATEMENT IN THE"
220  PRINT "LIST MUST BE: DATA END,0"
230  FOR T = 1 TO 7491
240  NEXT T: GOSUB 330
250  PRINT : RESTORE
260  PRINT "ENTER 'N' DISPLAY INDIVIDUAL #'S"
270  PRINT  TAB( 7)"'L' DISPLAY FULL LIST"
280  PRINT  TAB( 7)"'E' END PROGRAM"
290  INPUT B$
300  IF B$ = "N" THEN 370
310  IF B$ = "L" THEN 570
320  END
330  HOME
340  PRINT "TELEPHONE # DIRECTORY"
350  PRINT
360  RETURN
370  GOSUB 330
380  PRINT "ENTER NAME"
390  INPUT A$
400  PRINT "SEARCHING LIST FOR '";A$;"'": PRINT
410  READ C$,D$
420  IF C$ = "END" THEN 450
430  IF C$ = A$ THEN 480
440  GOTO 410
450  PRINT "ENTRY NOT FOUND"
460  RESTORE
470  GOTO 500
480  PRINT "NAME","PHONE NUMBER": PRINT
490  PRINT C$,D$
500  PRINT
510  PRINT "ANOTHER ENTRY?"
520  PRINT "ENTER 'Y'-YES"
530  PRINT  TAB( 7)"'N'-NO"
540  INPUT B$
550  IF B$ = "Y" THEN 370
560  GOTO 250
570  GOSUB 330: PRINT "NAME","PHONE NUMBER": PRINT
580  READ C$,D$
590  IF C$ = "END" THEN 250
600  PRINT C$,D$
610  GOSUB 630
620  GOTO 580
```

Program 14-1—cont. Telephone Number Directory Program Listing

```
630  FOR T = 1 TO 2270
640  NEXT T
650  RETURN
660  DATA RICK,555-5219
670  DATA BRUCE,555-1694
680  DATA DAVE,555-1963
690  DATA HARRY,555-1282
700  DATA END,0
```

CHAPTER 15

Special Date Calendar

The Special Date Calendar is a program that displays monthly dates and names, which are taken from DATA statements. It's useful in keeping track of your special dates and occasions. The program is written in BASIC for your microcomputer. See Program 15-1 for the program listing.

THE PROGRAM

Enter important dates and their occasion in DATA statements beginning at line 1000. Enter in the following format:

```
DATA MONTH,DAY,YEAR,OCCASION
```

or

```
1000 DATA 1,6,51,RICK'S BIRTHDAY
```

The statement DATA 999,0,0,0 must be the last DATA statement in the list.

After you run the program, enter the month number (1–12) to be displayed. The program will display each date and occasion in the month entered. After all the data for that month is displayed, you may display another month or end the program. See Fig. 15-1 for a sample run.

```
SPECIAL DATE CALENDAR
COPYRIGHT (C) 1980 BY HOWARD BERENBON

THIS PROGRAM WILL DISPLAY MONTHLY
DATES AND NAMES, SO YOU CAN KEEP
TRACK OF SPECIAL DATES AND OCCASIONS

ENTER IMPORTANT DATES IN DATA
STATEMENTS BEGINNING AT LINE
1000, AS IN THE FOLLOWING FORMAT:
DATA MO,DAY,YR,OCCASION
DATA 1,6,51,RICK'S BIRTHDAY
DATA 999,0,0,0 MUST BE THE LAST
DATA STATEMENT IN YOUR LIST


ENTER MONTH # (1-12)
TO BE DISPLAYED
? 1

SPECIAL DATE CALENDAR: MONTH  1

DATE            OCCASION

 1 / 6 / 51     RICK'S BIRTHDAY
 1 / 11 / 50     HARRY'S BIRTHDAY

ANOTHER MONTH FOR DISPLAY?
1-YES  0-NO
?
```

Fig. 15-1. Special Date Calendar sample run.

Program 15-1. Special Data Calendar Program Listing

```
100  HOME
110  PRINT "SPECIAL DATE CALENDAR"
120  PRINT "APPLE II"
130  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
140  PRINT
150  PRINT "THIS PROGRAM WILL DISPLAY MONTHLY"
160  PRINT "DATES AND NAMES, SO YOU CAN KEEP"
170  PRINT "TRACK OF SPECIAL DATES AND OCCASIONS"
180  PRINT
190  PRINT "ENTER IMPORTANT DATES IN DATA"
200  PRINT "STATEMENTS BEGINNING AT LINE"
210  PRINT "1000, AS IN THE FOLLOWING FORMAT:"
220  PRINT "DATA MO,DAY,YR,OCCASION"
230  PRINT "DATA 1,6,51,RICK'S BIRTHDAY"
240  PRINT "DATA 999,0,0,0 MUST BE THE LAST"
250  PRINT "DATA STATEMENT IN YOUR LIST"
260  GOSUB 520
270  PRINT
280  PRINT "ENTER MONTH # (1-12)"
290  PRINT "TO BE DISPLAYED"
300  INPUT M
310  IF M < 1 THEN 270
320  IF M > 12 THEN 270
330 M =  INT (M): HOME
340  PRINT "SPECIAL DATE CALENDAR: MONTH ";M
350  PRINT
360  PRINT "DATE"; TAB( 16)"OCCASION"
370  PRINT
380  READ A,B,C,A$
390  IF A = 999 THEN 450
400  IF A = M THEN 420
410  GOTO 380
420  PRINT A;"/";B;"/";C;"    ";A$
430  GOSUB 520
440  GOTO 380
450  RESTORE : PRINT
460  PRINT "ANOTHER MONTH FOR DISPLAY?"
470  PRINT "1-YES  0-NO"
480  INPUT P
490  IF P = 1 THEN 270
500  END
510  PRINT
520  REM  DELAY
530  FOR T1 = 1 TO 2043
540  NEXT T1
550  RETURN
1000  DATA 12,21,52,"BRUCE'S BIRTHDAY"
1010  DATA 8,31,49,"DAVID'S BIRTHDAY"
1020  DATA 1,6,51,"RICK'S BIRTHDAY"
1030  DATA 1,11,50,"HARRY'S BIRTHDAY"
1040  DATA 999,0,0,0
```

CHAPTER 16

Weekly Calendar

The Weekly Calendar program allows you to display a weekly calendar of events. It's useful in keeping track of your daily activities. The program is written in BASIC for your microcomputer. See Program 16-1 for the program listing.

THE PROGRAM

Enter your daily activity data in DATA statements beginning at line 670. Enter in the following format:

```
DATA DAY #,TIME,ACTIVITY
```

or

```
670 1,7-30AM,BREAKFAST
```

The first element is the day number, where 1 through 7 is Sunday through Saturday. The second element is the time, where a dash (–) is used in place of a colon (:); and the last element is the activity. Enter as many DATA statements, per day, as you have activities, and continue until all your weekly activities are entered. Finally, the statement DATA 99,0,0 must be the last DATA statement in your list.

After you run the program, enter the week date as MM/DD/YY, and the day number to be displayed. The program will display each activity for that day, and the time of the activity. After the data for that day is displayed, you may display another day or end the program. See Fig. 16-1 for a sample run.

```
WEEKLY CALENDAR
COPYRIGHT (C) 1980 BY HOWARD BERENBON

THIS PROGRAM ALLOWS YOU TO
DISPLAY A WEEKLY CALENDAR.
DAILY DATA IS ENTERED INTO DATA
STATEMENTS BEGINNING AT LINE
670. ENTER DAILY ACTIVITIES
AS FOLLOWS:
DATA  DAY #,TIME,ACTIVITY
DATA 1,7-30 AM,BREAKFAST
THE LAST DATA STATEMENT IN
THE LIST MUST BE: DATA 99,0,0


ENTER WEEK DATE
(MM/DD/YY)
? 5/3/81


5/3/81

ENTER DAY # FOR DISPLAY
1-SUN  2-MON  3-TUES  4-WED
5-THUR 6-FRI  7-SAT
? 1




WEEKLY CALENDAR: WEEK DATE 5/3/81

SUNDAY

TIME            ACTIVITY

7-30            BREAKFAST
12              LUNCH
8-00            MOVIE

DISPLAY ANOTHER DAY?
1-YES  0-NO
? 0
```

Fig. 16-1. Weekly Calendar sample run.

Program 16-1. Weekly Calendar Program Listing

```
100  HOME : PRINT "WEEKLY CALENDAR"
110  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
120  PRINT "APPLE II"
130  PRINT
140  PRINT "THIS PROGRAM ALLOWS YOU TO"
150  PRINT "DISPLAY A WEEKLY CALENDAR."
160  PRINT "DAILY DATA IS ENTERED INTO DATA"
170  PRINT "STATEMENTS BEGINNING AT LINE"
180  PRINT "670. ENTER DAILY ACTIVITIES"
190  PRINT "AS FOLLOWS:"
200  PRINT "DATA  DAY #,TIME,ACTIVITY"
210  PRINT "DATA 1,7-30 AM,BREAKFAST"
220  PRINT "THE LAST DATA STATEMENT IN"
230  PRINT "THE LIST MUST BE: DATA 99,0,0"
240  PRINT : GOSUB 440: GOSUB 470
250  PRINT : PRINT "ENTER DAY # FOR DISPLAY"
260  PRINT "1-SUN  2-MON  3-TUES  4-WED"
270  PRINT "5-THUR 6-FRI  7-SAT"
280  INPUT D
290  IF D < 1 THEN 250
300  IF D > 7 THEN 250
310  HOME : PRINT "WEEKLY CALENDAR: WEEK DATE ";W$
320  PRINT
330  READ D1,T$,A$
340  IF D1 = D THEN 610
350  IF D1 = 99 THEN 370
360  GOTO 330
370  PRINT : PRINT "NO ACTIVITY DATA FOR DAY ";D;": ";
380  GOSUB 510
390  RESTORE : PRINT
400  PRINT "DISPLAY ANOTHER DAY?"
410  PRINT "1-YES  0-NO": INPUT AA
420  IF AA = 1 THEN 250
430  END
440  FOR A = 1 TO 2043
450  NEXT A
460  RETURN
470  PRINT "ENTER WEEK DATE"
480  PRINT "(MM/DD/YY)"
490  INPUT W$
500  RETURN
510  IF D = 1 THEN  PRINT "SUNDAY"
520  IF D = 2 THEN  PRINT "MONDAY"
530  IF D = 3 THEN  PRINT "TUESDAY"
540  IF D = 4 THEN  PRINT "WEDNESDAY"
550  IF D = 5 THEN  PRINT "THURSDAY"
560  IF D = 6 THEN  PRINT "FRIDAY"
570  IF D = 7 THEN  PRINT "SATURDAY"
580  PRINT : RETURN
590  PRINT "TIME","ACTIVITY"
600  RETURN
610  GOSUB 510: GOSUB 590: PRINT
620  PRINT T$,A$
```

Program 16-1—cont. Weekly Calendar Program Listing

```
630  GOSUB 440
640  READ D1,T$,A$
650  IF D1 = D THEN 620
660  GOTO 390
670  DATA 1,7-30,BREAKFAST
680  DATA 1,12,LUNCH
690  DATA 1,8-00,MOVIE
700  DATA 2,7-30,BREAKFAST
710  DATA 2,9-00,BUSINESS MEET
720  DATA 2,12,BUS. LUNCH
730  DATA 2,9-00,DINNER
740  DATA 99,0,0
```

CHAPTER 17

Gas Usage Analysis

Conservation is the key to reducing our energy consumption and costs, with the rising prices and pending shortages of all types of energy. You can help out by using the Gas Usage Analysis program. It will indicate differences in natural gas usage from one year to another, so that you can see possible imbalances in usage and correct them. The program is written in BASIC for your microcomputer. See Program 17-1 for the program listing.

THE PROGRAM

The program requires that your yearly natural gas usage data is stored in DATA statements at program lines 1000 and 1010. The first data element in line 1000 must be the comparison year (base year), followed by twelve months of gas usage units, beginning with January of that year. Program line 1010 holds the data for the "recent" year. Example:

```
1000 DATA 1977,310,268,225,110,76,60,25,28,29,100,
          260,290

1010 DATA 1981,296,282,207,141,58,63,29,27,51,123,
          233,270
```

The "base" year can be any past year, possibly the year that you moved into your house or apartment, or even the previous year. The "recent" year would be a full year's data for a recent energy consumption.

The program prints the "base" year data, including average units used per month, total units used, units used per month, and the percent of total units used per month. Then it prints the "recent" year's data, with a comparison with the "base" year. It gives the difference between the two years, with the monthly increase (+) or decrease (−) from the "base" year. See Fig. 17-1 for a sample run.

ANALYSIS

If there is a significant monthly increase in natural gas usage, pay close attention to those months. You may be using more energy than necessary. Check your insulation for possible air leaks. This leakage can cause your furnace to work overtime and use more gas than necessary. Other increases may be due to natural gas leaks. Have your natural gas appliances periodically checked for leaks; escaping gas can cause explosions and death.

```
GAS USAGE ANALYSIS
COPYRIGHT (C) 1981 BY HOWARD BERENBON

THIS PROGRAM WILL COMPARE AND DISPLAY
A 'BASE' YEAR AND 'RECENT' YEAR GAS
USAGE, IN UNITS.

ENTER THE 'BASE' YEAR DATA AT LINE 1000,
AND THE 'RECENT' YEAR DATA AT LINE 1010.

ENTER A '1' TO DISPLAY
THE 'BASE' YEAR DATA
? 1


BASE YEAR  1977                  AV/MO=  148.417
TOTAL UNITS=  1781
MONTH            UNITS           % TOTAL
 1                310             17.4
 2                268             15.04
 3                225             12.63
 4                110             6.17
 5                76              4.26
 6                60              3.36
 7                25              1.4
 8                28              1.57
 9                29              1.62
 10               100             5.61
 11               260             14.59
 12               290             16.28
ENTER '1' FOR COMPARISON? 1


RECENT YEAR  1981                AV/MO=  148.333
TOTAL UNITS=  1780    RECENT-BASE= -1
MO.   UNITS   % TOTAL   + OR - FROM BASE
 1     296     16.62     -14
 2     282     15.84      14
 3     207     11.62     -18
 4     141     7.92       31
 5     58      3.25      -18
 6     63      3.53       3
 7     29      1.62       4
 8     27      1.51      -1
 9     51      2.86       22
 10    123     6.91       23
 11    233     13.08     -27
 12    270     15.16     -20
```

Fig. 17-1. Gas Usage Analysis sample run.

Program 17-1. Gas Usage Analysis Program Listing

```
100  HOME : DIM A(50)
110  PRINT "GAS USAGE ANALYSIS: APPLE II"
120  PRINT "COPYRIGHT (C) 1981 BY HOWARD BERENBON"
130  PRINT
140  PRINT "THIS PROGRAM WILL COMPARE AND DISPLAY"
150  PRINT "A 'BASE' YEAR AND 'RECENT' YEAR GAS"
160  PRINT "USAGE, IN UNITS."
170  PRINT
180  PRINT "ENTER THE 'BASE' YEAR DATA AT LINE 1000,"
190  PRINT "AND THE 'RECENT' YEAR DATA AT LINE 1010."
200  PRINT
210  PRINT "ENTER A '1' TO DISPLAY"
220  PRINT "THE 'BASE' YEAR DATA"
230  INPUT A
240 B = 0:R = 0
250  READ P
260  FOR E = 1 TO 12
270  READ C
280 A(E) = C
290 B = A(E) + B
300  NEXT E
310  READ T
320  FOR E = 13 TO 24
330  READ C
340 A(E) = C
350 R = A(E) + R
360  NEXT E
370  PRINT "BASE YEAR ";P,"AV/MO= ";B / 12
380  PRINT "TOTAL UNITS= ";B
390  PRINT "MONTH","UNITS","% TOTAL"
400  FOR A = 1 TO 12
410  PRINT A,A(A), INT (A(A) / B * 10000) / 100
420  NEXT A
430  PRINT "ENTER '1' FOR COMPARISON";
440  INPUT A
450  PRINT
460  PRINT
470  PRINT "REC. YEAR ";T,"AV/MO= ";R / 12
480  PRINT "TOTAL UNITS= ";R;"  RECENT-BASE= ";R - B
490  PRINT "MO.   UNITS   % TOTAL   + OR - FROM BASE"
500  FOR A = 13 TO 24
510  PRINT A - 12; TAB( 6);A(A); TAB( 15); INT (A(A) / R * 10000) / 100; TAB( 26);
     A(A) - A(A - 12)
520  NEXT A
530  GOTO 530
980  REM  ENTER 'BASE' YEAR GAS DATA IN LINE 1000
990  REM  ENTER 'RECENT' YEAR GAS DATA IN LINE 1010
1000  DATA 1977,310,268,225,110,76,60,25,28,29,100,260,290
1010  DATA 1981,296,282,207,141,58,63,29,27,51,123,233,270
```

CHAPTER 18

Water Usage Analysis

Here is a program that can help you reduce your water usage. (It's similar to the Gas Usage Analysis program in Chapter 17.) It will indicate differences in water usage from one year to another, so that you can see possible imbalances in usage and correct them. The program is written in BASIC for your microcomputer. See Program 18-1 for the program listing.

THE PROGRAM

The program requires that your yearly water usage data is stored in DATA statements at program lines 1000 and 1010. The first data element in line 1000 must be the comparison year (base year), followed by the four quarters of water usage units, beginning with January or February of that year. Program line 1010 holds the data for the "recent" year. Example:

```
1000 DATA 1977,15,19,19,18

1010 DATA 1981,14,17,14,17
```

The "base" year can be any past year, possibly the year that you moved into your house, or even the previous year. The "recent" year would be a full year's data for a recent water consumption.

The program prints the "base" year data, including average units used per quarter, total units used, units used per quarter, and the percent of total units used per quarter. Then it prints the "recent" year's data, with a comparison with the "base" year. It gives the difference between the two years, with the quarterly increase (+) or decrease (−) from the "base" year. See Fig. 18-1 for a sample run.

ANALYSIS

If there is a significant quarterly increase in water usage, pay close attention to those quarters. You may be using more water than necessary. Check your faucets and pipes for leaks. Replace worn washers or faucets and pipes if necessary.

```
WATER USAGE ANALYSIS
COPYRIGHT (C) 1981 BY HOWARD BERENSON

THIS PROGRAM WILL COMPARE AND DISPLAY
A 'BASE' YEAR AND 'RECENT' YEAR WATER
USAGE, IN UNITS.

ENTER THE 'BASE' YEAR DATA AT LINE 1000,
AND THE 'RECENT' YEAR DATA AT LINE 1010.

ENTER A '1' TO DISPLAY
THE 'BASE' YEAR DATA
? 1


BASE YEAR  1977                    AV/QU=  17.75
TOTAL UNITS=  71
QUART           UNITS              % TOTAL
 1               15                 21.12
 2               19                 26.76
 3               19                 26.76
 4               18                 25.35
ENTER '1' FOR COMPARISON? 1




RECENT YEAR  1981                  AV/QU=  15.5
TOTAL UNITS=  62    RECENT-BASE= -9
QU.   UNITS   % TOTAL    + OR - FROM BASE
 1     14      22.58      -1
 2     17      27.41      -2
 3     14      22.58      -5
 4     17      27.41      -1
```

Fig. 18-1. Water Usage Analysis sample run.

Program 18-1. Water Usage Analysis Program Listing

```
100  HOME : DIM A(10)
110  PRINT "WATER USAGE ANALYSIS: APPLE II"
120  PRINT "COPYRIGHT (C) 1981 BY HOWARD BERENBON"
130  PRINT
140  PRINT "THIS PROGRAM WILL COMPARE AND DISPLAY"
150  PRINT "A 'BASE' YEAR AND 'RECENT' YEAR WATER"
160  PRINT "USAGE, IN UNITS."
170  PRINT
180  PRINT "ENTER THE 'BASE' YEAR DATA AT LINE 1000,"
190  PRINT "AND THE 'RECENT' YEAR DATA AT LINE 1010."
200  PRINT
210  PRINT "ENTER A '1' TO DISPLAY"
220  PRINT "THE 'BASE' YEAR DATA"
230  INPUT A
240 B = 0:R = 0
250  READ P
260  FOR E = 1 TO 4
270  READ C
280 A(E) = C
290 B = A(E) + B
300  NEXT E
310  READ T
320  FOR E = 5 TO 8
330  READ C
340 A(E) = C
350 R = A(E) + R
360  NEXT E
370  PRINT "BASE YEAR ";P,"AV/QU= ";B / 4
380  PRINT "TOTAL UNITS= ";B
390  PRINT "QUART","UNITS","% TOTAL"
400  FOR A = 1 TO 4
410  PRINT A,A(A), INT (A(A) / B * 10000) / 100
420  NEXT A
430  PRINT "ENTER '1' FOR COMPARISON";
440  INPUT A
450  PRINT
460  PRINT
470  PRINT "REC. YEAR ";T,"AV/QU= ";R / 4
480  PRINT "TOTAL UNITS= ";R;"  RECENT-BASE= ";R - B
490  PRINT "QU.   UNITS   % TOTAL   + OR - FROM BASE"
500  FOR A = 5 TO 8
510  PRINT A - 4; TAB( 6);A(A); TAB( 15); INT (A(A) / R * 10000) / 100; TAB( 26);
     A(A) - A(A - 4)
520  NEXT A
530  GOTO 530
980  REM  ENTER 'BASE' YEAR WATER USAGE DATA IN LINE 1000
990  REM  ENTER 'RECENT' YEAR WATER USAGE DATA IN LINE 1010
1000  DATA 1977,15,19,19,18
1010  DATA 1981,14,17,14,17
```

CHAPTER 19

Appliance Operating Cost Analysis

An interesting and useful application program for the home computer is the Appliance Operating Cost Analysis program. It's written in BASIC for your microcomputer. See Program 19-1 for the program listing.

THE PROGRAM

The program will calculate the cost of operating electrical appliances, given the number of watts they consume, the average number of hours of daily use, and the cost per kilowatt hour, for each appliance under analysis.

After you run the program, enter the number of appliances for analysis. Then enter the cost of electrical use per kilowatt-hour, in dollars. (Example: typically $0.065. Call your local power company for the exact amount. This will vary for different areas of the country.) The program will print APPLIANCE #1 and request the name of the first appliance (limit entry to eight characters). Enter the power consumed in watts and the average number of hours (or minutes) in daily use. The program is set to accept hours, but will accept minutes if 9999 is entered first. Then it will advance to accept data on the next appliance. After the last appliance data is entered, the analysis will begin.

The program then displays a table with the appliance name, watts consumed, operating cost per day, estimated cost per month, and the estimated kilowatt-hour use per month. This is repeated for each appliance. Finally, the program displays the total kilowatt-hours used and the total monthly cost for all appliances.

See Fig. 19-1 for a sample run.

ANALYSIS

The program will show you what operating each appliance costs. It may help you decide to use less of one or more appliances that require a lot of power to run, to save on energy costs.

Probably the most expensive electrical appliance to operate is the air conditioner. Proper home insulation will allow it to operate more efficiently. Also, raising the thermostat will reduce the amount of energy required to cool your home, thus reducing electricity costs.

The proper use of lighting can greatly reduce your electric bills. Make sure that all unnecessary lights are turned off. Also, the wattage of some of the light bulbs you use could be higher than necessary. Changing these bulbs to a lower wattage will reduce energy costs.

```
APPLIANCE OPERATING COST ANALYSIS
COPYRIGHT (C) 1980 BY HOWARD BERENBON

THIS PROGRAM WILL CALCULATE
THE COST OF OPERATING ELECTRICAL
APPLIANCES, GIVEN THE NUMBER OF
WATTS THEY CONSUME, THE AVERAGE
NUMBER OF HOURS OF DAILY USE,
AND THE COST PER KILOWATT HOUR
FOR EACH APPLIANCE UNDER ANALYSIS

ENTER THE # OF APPLIANCES
UNDER ANALYSIS
? 3


ENTER THE COST PER KILOWATT HOUR
(TYPICAL - $.065)
? .07¢


APPLIANCE # 1
ENTER TYPE (NAME)
LIMIT TO 8 CHARACTERS
? COLOR TV

ENTER POWER CONSUMED IN WATTS
? 110

ENTER AVERAGE # OF HOURS IN
DAILY USE (MAY ENTER FRACTIONS).
IF YOU DESIRE TO ENTER MINUTES
THEN ENTER 9999
? 5


APPLIANCE # 2
ENTER TYPE (NAME)
LIMIT TO 8 CHARACTERS
? STEREO

ENTER POWER CONSUMED IN WATTS
? 200

ENTER AVERAGE # OF HOURS IN
DAILY USE (MAY ENTER FRACTIONS).
IF YOU DESIRE TO ENTER MINUTES
THEN ENTER 9999
? 3


APPLIANCE # 3
ENTER TYPE (NAME)
LIMIT TO 8 CHARACTERS
? LIGHTS

ENTER POWER CONSUMED IN WATTS
? 500

ENTER AVERAGE # OF HOURS IN
DAILY USE (MAY ENTER FRACTIONS).
IF YOU DESIRE TO ENTER MINUTES
THEN ENTER 9999
? 8



APPLIANCE OPERATING COST ANALYSIS

APPL.       WATTS    COST/DAY     COST/MO     KWHS/MO
COLOR TV     110       .0385       1.155       16.5
STEREO       200       .042        1.26        18
LIGHTS       500       .28         8.4         120

TOTAL KILOWATT HOURS USED PER MONTH
FOR  3  APPLIANCES IS  154.5  KWHOURS

TOTAL MONTHLY COST FOR  3
APPLIANCE(S) IS $ 10.82
```

Fig. 19-1. Appliance Operating Cost Analysis sample run.

Program 19-1. Appliance Operating Cost Analysis Program Listing

```
100  HOME
110  PRINT "APPLIANCE OPERATING COST ANALYSIS"
120  PRINT "APPLE II"
130  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
140  PRINT
150  PRINT "THIS PROGRAM WILL CALCULATE"
160  PRINT "THE COST OF OPERATING ELECTRICAL"
170  PRINT "APPLIANCES, GIVEN THE NUMBER OF"
180  PRINT "WATTS THEY CONSUME, THE AVERAGE"
190  PRINT "NUMBER OF HOURS OF DAILY USE,"
200  PRINT "AND THE COST PER KILOWATT HOUR"
210  PRINT "FOR EACH APPLIANCE UNDER ANALYSIS"
220  PRINT
230  PRINT "ENTER THE # OF APPLIANCES"
240  PRINT "UNDER ANALYSIS"
250  INPUT I
260  DIM B$(I),W(I),U(I),R(I),S(I)
270  PRINT
280  PRINT "ENTER THE COST PER KILOWATT HOUR"
290  PRINT "(TYPICAL - $.065)"
300  INPUT K
310  FOR Q = 1 TO I
320  HOME
330  PRINT "APPLIANCE #";Q
340  PRINT "ENTER TYPE (NAME)"
350  PRINT "LIMIT TO 8 CHARACTERS"
360  INPUT A$:B$(Q) = A$
370  PRINT
380  PRINT "ENTER POWER CONSUMED IN WATTS"
390  INPUT W:W(Q) = W
400  PRINT
410  PRINT "ENTER AVERAGE # OF HOURS IN"
420  PRINT "DAILY USE (MAY ENTER FRACTIONS)."
430  PRINT "IF YOU DESIRE TO ENTER MINUTES"
440  PRINT "THEN ENTER 9999"
450  INPUT H
460  IF H = 9999 THEN 700
470 C = (W / 1000) * H
480 U(Q) = C * K
490 R(Q) = U(Q) * 30
500 S(Q) = C * 30
510  NEXT Q
520  HOME :S = 0:V = 0
530  PRINT "APPLIANCE OPERATING COST ANALYSIS"
540  PRINT
550  PRINT "APPL.     WATTS  COST/DY  CST/MO  KWH/MO"
560  FOR Q = 1 TO I
570  PRINT B$(Q); TAB( 11);W(Q); TAB( 18);U(Q); TAB( 27);R(Q); TAB( 35);S(Q)
580 S = S + R(Q)
590 V = V + S(Q)
600  FOR A = 1 TO 1498
610  NEXT A
620  NEXT Q
```

Program 19-1—cont. Appliance Operating Cost Analysis Program Listing

```
630  PRINT
640  PRINT "TOTAL KILOWATT HOURS USED PER MONTH"
650  PRINT "FOR ";I;" APPLIANCES IS ";V;" KWHOURS"
660  PRINT :S =  INT (100 * S + .5) / 100
670  PRINT "TOTAL MONTHLY COST FOR ";I
680  PRINT "APPLIANCE(S) IS $";S
690  END
700  PRINT "ENTER AVERAGE # OF MINUTES"
710  PRINT "IN DAILY USE"
720  INPUT M
730 H = M / 60
740  GOTO 470
```

CHAPTER 20

Family Dental Expenses

A useful way to keep track of your dental expenses is with the Family Dental Expense program. It's written in BASIC for your microcomputer. See Program 20-1 for the program listing.

THE PROGRAM

The program requires that you enter dental expenses in DATA statements beginning with program line 500. Limit the type of expense to a 14-character description. Enter each dental expense as follows:

```
DATA DATE,TYPE OF EXPENSE,COST
```

or

```
DATA 1/17/80,CLEANING,25
```

DATA END,0,0 must be the last DATA statement in the list.

After you run the program, enter the year of the report. Then enter a 1 to begin. The program will display each dental expense with the date, the type (description), the cost, and the cumulative total. After all the data is displayed, then the total yearly expense is given. See Fig. 20-1 for a sample run.

```
FAMILY DENTAL EXPENSES
COPYRIGHT (C) 1980 BY HOWARD BERENBON


THIS PROGRAM WILL KEEP TRACK OF
YOUR FAMILY DENTAL EXPENSES.
ENTER EACH DENTAL EXPENSE RECEIPT
IN DATA STATEMENTS BEGINNING AT
LINE 500, AS FOLLOWS:
DATA DATE,TYPE,COST
DATA 1/17/80,CLEANING,25-LIMIT TYPE
TO A 14 CHARACTER DESCRIPTION.
DATA END,0,0 MUST BE THE LAST
STATEMENT IN YOUR LIST.

ENTER THE YEAR OF THE REPORT
? 1980


ENTER '1' TO BEGIN
? 1


FAMILY DENTAL EXPENSE REPORT
FOR THE YEAR:  1980

DATE            TYPE            COST            CUM. TOT.

1/17/80         CLEANING         25              25
1/25/80         FILLING          35              60
2/20/80         FILLING          30              90
2/27/80         CROWN WORK       75              165
3/10/80         CROWN WORK       100             265
3/17/80         CROWN WORK       15              280
3/25/80         CROWN DONE       100             380
6/14/80         CLEAN-XRAY       35              415


FAMILY DENTAL EXPENSE REPORT
FOR THE YEAR:  1980

THE TOTAL YEARLY EXPENSE =$ 415
```

Fig. 20-1. Family Dental Expenses sample run.

Program 20-1. Family Dental Expenses Program Listing

```
100  HOME : PRINT "FAMILY DENTAL EXPENSES"
110  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
120  PRINT "APPLE II"
130  GOSUB 470: GOSUB 470
140  HOME : PRINT :C = 0
150  PRINT "THIS PROGRAM WILL KEEP TRACK OF"
160  PRINT "YOUR FAMILY DENTAL EXPENSES."
170  PRINT "ENTER EACH DENTAL EXPENSE RECEIPT"
180  PRINT "IN DATA STATEMENTS BEGINNING AT"
190  PRINT "LINE 500, AS FOLLOWS:"
200  PRINT "DATA DATE,TYPE,COST"
210  PRINT "DATA 1/17/80,CLEANING,25-LIMIT TYPE"
220  PRINT "TO A 14 CHARACTER DESCRIPTION."
230  PRINT "DATA END,0,0 MUST BE THE LAST"
240  PRINT "STATEMENT IN YOUR LIST."
250  PRINT
260  PRINT "ENTER THE YEAR OF THE REPORT"
270  INPUT Y
280  PRINT
290  PRINT "ENTER '1' TO BEGIN"
300  INPUT A
310  HOME : PRINT "FAMILY DENTAL EXPENSE REPORT"
320  PRINT "FOR THE YEAR: ";Y
330  PRINT
340  PRINT "DATE      TYPE           COST    CUM TOT"
350  PRINT
360  READ A$,B$,B
370  IF A$ = "END" THEN 420
380 C = C + B
390  PRINT A$; TAB( 11);B$; TAB( 26);B; TAB( 34);C
400  GOSUB 470
410  GOTO 360
420  PRINT : PRINT "FAMILY DENTAL EXPENSE REPORT"
430  PRINT "FOR THE YEAR: ";Y
440  PRINT
450  PRINT "THE TOTAL YEARLY EXPENSE =$";C
460  END
470  FOR A = 1 TO 2270
480  NEXT A
490  RETURN
500  DATA 1/17/80,CLEANING,25
510  DATA 1/25/80,FILLING,35
520  DATA 2/20/80,FILLING,30
530  DATA 2/27/80,CROWN WORK,75
540  DATA 3/10/80,CROWN WORK,100
550  DATA 3/17/80,CROWN WORK,15
560  DATA 3/25/80,CROWN DONE,100
570  DATA 6/14/80,CLEAN-XRAY,35
580  DATA END,0,0
```

CHAPTER 21

Weekly Jogging Record

Jogging has been a popular pastime for many people. It's a good form of exercise that requires very little cost to do. If you're a jogger, then this program can help you. It keeps a record of your weekly jogging data and displays a graph of your performance. It's written in BASIC for your microcomputer. See Program 21-1 for the program listing.

THE PROGRAM

The program requires that you enter your weekly jogging distance data in DATA statements beginning at line 960. Enter the maximum distance you ran (in miles or fraction of miles) for each day of week 1 through week W. Only enter the data for the days that you ran. If you ran three days out of seven, only enter three numbers, or all seven if you ran every day of that week. Also, 99 must be the last number in each DATA statement, and DATA 555 must be the last DATA statement in your list. Enter the data as in the following example:

```
Week 1      960   DATA 2,2,4,1,3,99
Week 2      970   DATA 2,2,2,3,4,2,99
Week 3      980   DATA 3,3,4,4,5,4,5,99
Week 4      990   DATA 4,3,4,5,99
            1000  DATA 555
```

After you run the program, it calculates the number of weeks in your data list. It then calculates the number of miles you ran for each week and the average daily miles per week. Then a table is displayed with the week number, the average miles per day, the total miles per week, and the approximate calories expended per week.

ANALYSIS

The data is analyzed using your first week of data as the "base" week. The average jog during a "base" week day is displayed. Then the average jog during the last week day is displayed. Next, the (+) increase or (−) decrease in the average daily jogging distance, from a "base" week to the last (final) week W, is displayed. Finally, you can have a plot of your weekly progress. Enter a 1 for yes or 0 for no. The plot will display the average daily miles per week, for each week in your data list. It is a horizontal plot, using the TAB function to display a plus (+) sign on the horizontal line, for the average daily miles per week. The maximum distance that can be plotted is 40 miles per week.

See Fig. 21-1 for a sample run.

```
WEEKLY JOGGING RECORD
COPYRIGHT (C) 1980 BY HOWARD BERENSON

HERE'S A PROGRAM THAT KEEPS A RECORD
OF YOUR WEEKLY JOGGING DATA, AND
GIVES A PLOT OF YOUR PERFORMANCE.
ENTER THE MAXIMUM DISTANCE YOU RAN
(IN MILES OR FRACTIONS) FOR EACH DAY
OF WEEK 1 THRU WEEK W, IN DATA STATE-
MENTS BEGINNING AT LINE 960. ENTER
ONLY THE DATA FOR DAYS THAT YOU RAN.
IF YOU RAN 3 DAYS OUT OF 7, THEN ONLY
ENTER 3 NUMBERS; OR ALL 7 IF YOU RAN
EACH DAY. ENTER AS FOLLOWS:
ENTER '1' TO CONTINUE? 1


DATA DAY1,DAY2,DAY3,DAY4,DAY5,DAY6,DAY7,99
DATA 2.5,2,3.5,5,4.5,4,5,99-99 MUST BE
LAST ENTRY IN EACH DATA STATEMENT; DATA 555
MUST BE THE LAST STATEMENT IN THE LIST.
ENTER '1' TO CONTINUE? 1


WEEK#          AV-MIL/D        MILES/WK        CALORIES/WK

 1              2.375           9.5             902.5
 2              2.7             13.5            1282.5
 3              3.2             16              1520
 4              2.7             13.5            1282.5
 5              3.75            15              1425
 6              4               16              1520

AVERAGE JOG  DURING A BASE WEEK (#1)
DAY =  2.38  MILES

AVERAGE JOG  DURING A LAST (FINAL)
WEEK DAY =  4  MILES

ENTER '1' TO CONTINUE? 1
```

Fig. 21-1. Weekly Jogging Record sample run.

Program 21-1. Weekly Jogging Record Program Listing

```
100  HOME : PRINT "WEEKLY JOGGING RECORD"
110  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
120  PRINT "APPLE II"
130  GOSUB 900
140  PRINT "HERE'S A PROGRAM THAT KEEPS A RECORD"
150  PRINT "OF YOUR WEEKLY JOGGING DATA, AND"
160  PRINT "GIVES A PLOT OF YOUR PERFORMANCE."
170  PRINT "ENTER THE MAXIMUM DISTANCE YOU RAN"
180  PRINT "(IN MILES OR FRACTIONS) FOR EACH DAY"
190  PRINT "OF WEEK 1 THRU WEEK W, IN DATA STATE-"
200  PRINT "MENTS BEGINNING AT LINE 960. ENTER"
210  PRINT "ONLY THE DATA FOR DAYS THAT YOU RAN."
220  PRINT "IF YOU RAN 3 DAYS OUT OF 7, THEN ONLY"
230  PRINT "ENTER 3 NUMBERS; OR ALL 7 IF YOU RAN"
240  PRINT "EACH DAY. ENTER AS FOLLOWS:": GOSUB 930
250  PRINT "DATA DAY1,DAY2,DAY3,DAY4,DAY5,DAY6,DAY7,99"
260  PRINT "DATA 2.5,2,3.5,5,4.5,4,5,99-99 MUST BE"
270  PRINT "LAST ENTRY IN EACH DATA STATEMENT; DATA 555"
280  PRINT "MUST BE THE LAST STATEMENT IN THE LIST."
290  GOSUB 930
300  HOME :W = 0:R1 = 0:Q = 0
310  READ R
320  IF R = 99 THEN W = W + 1
330  IF R = 555 THEN 350
340  GOTO 310
350  RESTORE
360  READ R
370  IF R = 99 THEN 400
380 Q = Q + 1:R1 = R + R1
390  GOTO 360
400 R1 = R1 / Q: RESTORE
410  DIM A(W + 1),B(W + 1)
420  FOR G = 1 TO W
430 Q = 0:S = 0
440  READ R
450  IF R = 99 THEN 480
460 Q = Q + 1:S = R + S: GOTO 440
470  NEXT G: GOTO 500
480 S1 = S / Q:A(G) = S1
490 B(G) = S: GOTO 470
500 R1 =  INT (R1 * 100 + .5) / 100
510 S1 =  INT (S1 * 100 + .5) / 100
520  HOME
530  PRINT "WEEK#  AV-MIL/D  MILES/WK  CALORIES/WK"
540  PRINT
550  FOR G = 1 TO W
560  PRINT G; TAB( 8);A(G); TAB( 18);B(G); TAB( 28);95 * B(G)
570  GOSUB 900
580  NEXT G
590  PRINT
600  PRINT "AVERAGE JOG DURING A BASE WEEK (#1)"
610  PRINT "DAY = ";R1;" MILES"
620  PRINT
```

Program 21-1—cont. Weekly Jogging Record Program Listing

```
630  PRINT "AVERAGE JOG DURING A LAST (FINAL)"
640  PRINT "WEEK DAY = ";S1;" MILES"
650  PRINT
660  GOSUB 930: GOSUB 820
670  PRINT
680  PRINT "DO YOU WISH A PLOT?"
690  PRINT "1-YES  0-NO"
700  INPUT A
710  IF A = 1 THEN 730
720  END
730  HOME : PRINT "PLOT OF WEEKLY PROGRESS"
740  PRINT
750  PRINT "AVERAGE MILES/DAY (TOTAL DAYS)"
760  PRINT "0+++++++5++++++++++10+++++++15+++++++20"
770  FOR G = 1 TO W:Z =  INT (A(G) + .5)
780  PRINT  TAB( Z * 2)"+   WEEK #";G
790  GOSUB 900
800  NEXT G
810  GOTO 720
820  PRINT "THE (+) INCREASE OR (-) DECREASE IN THE"
830  PRINT "AVERAGE DAILY JOGGING DISTANCE, FROM THE"
840  PRINT "BASE-1ST-WEEK TO THE LAST-FINAL-WEEK ";W;","
850 D = S1 - R1:PC = (D / R1) * 100
860  PRINT "IS ";D;" MILES"
870  PRINT :PC =  INT (PC * 100) / 100
880  PRINT "THAT'S A ";PC;" PERCENT CHANGE"
890  RETURN
900  FOR A = 1 TO 2270
910  NEXT A
920  RETURN
930  PRINT "ENTER '1' TO CONTINUE";
940  INPUT A: PRINT
950  RETURN
960  DATA 2,2.5,2,3,99
970  DATA 2.5,2.5,3,3.5,2,99
980  DATA 3,3,3.5,3,3.5,99
990  DATA 2.5,2,2.5,3,3.5,99
1000  DATA 3,4,4,4,99
1010  DATA 4,4,4.5,3.5,99
1020  DATA 555
```

CHAPTER 22

Cost of Food Analysis

The cost of living has been on a constant increase over the years. Due to inflation, each year it takes more and more money to buy the same goods, compared with previous years' prices. This program is used to calculate the change in cost of food, by comparing the weekly price of six "basic" foods to previous weeks' price data. It will indicate the weekly changes in these prices, to help you budget your allotted food money more efficiently. The program is written in BASIC for your microcomputer. See Program 22-1 for the program listing.

THE PROGRAM

Enter the week's food price data in DATA statements beginning at line 850, as follows:

```
DATA P1,P2,P3,P4,P5,P6
```

where P1 through P6 are the prices of one gallon of milk, one pound of butter, one dozen eggs, one pound of hamburger, one loaf of bread (20 oz), and five pounds of sugar, respectively.

Enter any number of weeks of data, beginning with a "base" week's pricing. The "base" week's data should be taken from some weeks past. The final week in your data list should be the most recent week's food costs. The last DATA statement in your list must be DATA 0,0,0,0,0,0.

Example of Data List

```
BASE WEEK   DATA 1.95,.75,.85,1.79,.61,1.59
            DATA 2.00,.85,.95,1.85,.72,1.78
            DATA 2.09,.89,.95,1.85,.75,1.75
FINAL WEEK  DATA 2.05,.79,.87,2.20,.65,1.79
            DATA 0,0,0,0,0,0
```

After you run the program, it will display the "base" week's total "basic" food cost. Then for each week, it prints the total "basic" food cost and the difference between the previous week's (N−1) total "basic" food cost and the current week's (N) total, and the percent change. Also displayed is the total change/increase from week No. 1 (the "base" week) to the previous week (N−1), and the percent change. Finally, a cost of food plot may be displayed, by entering a 1 for yes. The plot will display the total "basic" food cost for each week in your data list. It is a horizontal plot, using the TAB function to display a plus (+) sign on the horizontal line, for the weekly food costs. Then the program will display the total change/increase from week No. 1 (the "base" week) to the final (most recent) week in your data list, along with the percent change.

See Fig. 22-1 for a sample run.

```
COST OF FOOD ANALYSIS
COPYRIGHT (C) 1980 BY HOWARD BERENBON

THIS PROGRAM IS USED TO CALCULATE THE
CHANGE IN COST OF FOOD, BY COMPARING
THE WEEKLY PRICE OF MILK, BUTTER, EGGS,
HAMBURGER, BREAD, AND SUGAR TO PREVIOUS
WEEKS DATA. IT ALSO PLOTS THE COMBINED
PRICE OF THESE ITEMS FROM WEEK TO WEEK,
TO SHOW THE RISE OR FALL OF PRICES FOR
A GIVEN NUMBER OF WEEKS.

ENTER A '1' TO CONTINUE
? 1


ENTER THE WEEKS FOOD PRICE DATA IN
DATA STATEMENTS BEGINNING AT LINE 850,
AS FOLLOWS:
DATA P1,P2,P3,P4,P5,P6   WHERE
P1 THRU P6 ARE THE PRICES OF 1 GALLON
OF MILK, 1 LB OF BUTTER, 1 DOZ EGGS,
1 LB HAMBURGER, 1 LOAF OF BREAD, AND
5 LBS OF SUGAR, RESPECTIVELY.
ENTER ANY # OF WEEKS OF DATA BEGINNING
WITH A BASE WEEK PRICING, TAKEN SOME
WEEKS PAST. THE LAST DATA STATEMENT IN
THE LIST MUST BE: DATA 0,0,0,0,0,0

ENTER A '1' TO CONTINUE
? 1

BASE WEEK  1  : FOOD PRICE=$ 7.54
WEEK #  2  : FOOD PRICE=$ 8.15

DIFFERENCE FROM WEEK #  1 TO
 2  IS $ .61
A CHANGE OF  7.48466  PERCENT

ENTER A '1' TO CONTINUE
? 1

WEEK #  3  : FOOD PRICE=$ 8.28

DIFFERENCE FROM WEEK #  2 TO
 3  IS $ .13
A CHANGE OF  1.57005  PERCENT

ENTER A '1' TO CONTINUE
? 1


WEEK #  4  : FOOD PRICE=$ 8.35

DIFFERENCE FROM WEEK #  3 TO
 4  IS $ .0700007
A CHANGE OF  .838331  PERCENT

ENTER A '1' TO CONTINUE
? 1


TOTAL CHANGE/INCREASE FROM WEEK
1 TO  4  IS $ .810001
A CHANGE OF  10.7427  PERCENT

DO YOU WISH A PLOT?
1-YES  0-NO
? 1


COST OF FOOD PLOT

FOOD COST
0.........5.........10........15........20
WEEK #  1       +
WEEK #  2        +
WEEK #  3        +
WEEK #  4        +

TOTAL CHANGE/INCREASE FROM WEEK
1 TO  4  IS $ .810001
A CHANGE OF  10.7427  PERCENT
```

Fig. 22-1. Cost of Food Analysis sample run.

Program 22-1. Cost of Food Analysis Program Listing

```
100  HOME : PRINT "COST OF FOOD ANALYSIS"
110  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
120  PRINT "APPLE II"
130  PRINT :Z = 0
140  PRINT "THIS PROGRAM IS USED TO CALCULATE THE"
150  PRINT "CHANGE IN COST OF FOOD, BY COMPARING"
160  PRINT "THE WEEKLY PRICE OF MILK, BUTTER, EGGS,"
170  PRINT "HAMBURGER, BREAD, AND SUGAR TO PREVIOUS"
180  PRINT "WEEKS DATA. IT ALSO PLOTS THE COMBINED"
190  PRINT "PRICE OF THESE ITEMS FROM WEEK TO WEEK,"
200  PRINT "TO SHOW THE RISE OR FALL OF PRICES FOR"
210  PRINT "A GIVEN NUMBER OF WEEKS."
220  PRINT
230  GOSUB 780
240  PRINT "ENTER THE WEEKS FOOD PRICE DATA IN"
250  PRINT "DATA STATEMENTS BEGINNING AT LINE 850,"
260  PRINT "AS FOLLOWS:"
270  PRINT "DATA P1,P2,P3,P4,P5,P6  WHERE"
280  PRINT "P1 THRU P6 ARE THE PRICES OF 1 GALLON"
290  PRINT "OF MILK, 1 LB OF BUTTER, 1 DOZ EGGS,"
300  PRINT "1 LB HAMBURGER, 1 LOAF OF BREAD, AND"
310  PRINT "5 LBS OF SUGAR, RESPECTIVELY."
320  PRINT "ENTER ANY # OF WEEKS OF DATA BEGINNING"
330  PRINT "WITH A BASE WEEK PRICING, TAKEN SOME"
340  PRINT "WEEKS PAST. THE LAST DATA STATEMENT IN"
350  PRINT "THE LIST MUST BE: DATA 0,0,0,0,0,0
360  PRINT :N = 1
370  GOSUB 780
380  GOSUB 710:FA = BA
390  PRINT "BASE WEEK ";N;" : FOOD PRICE=$";BA
400 N = N + 1: GOSUB 710: IF B = 0 THEN 440
410  PRINT "WEEK # ";N;" : FOOD PRICE=$";BA
420  GOSUB 660
430  GOSUB 780: GOTO 400
440  PRINT : GOSUB 580
450  PRINT "DO YOU WISH A PLOT?"
460  PRINT "1-YES  0-NO"
470  INPUT A
480  IF A = 1 THEN 500
490  END
500  HOME : PRINT "COST OF FOOD PLOT": PRINT
510  PRINT "FOOD COST"
520  PRINT "0.........5.........10.......15.......20"
530 N = 1: RESTORE
540  GOSUB 710
550  IF B = 0 THEN 640
560  PRINT "WEEK # ";N; TAB( Z * 2)"+"
570 N = N + 1: GOSUB 820: GOTO 540
580  PRINT :HA = Z - FA
590  PRINT "TOTAL CHANGE/INCREASE FROM WEEK"
600  PRINT "1 TO ";N - 1;" IS $";HA
610  PRINT "A CHANGE OF ";HA / FA * 100;" PERCENT"
620  PRINT
```

Program 22-1—cont. Cost of Food Analysis Program Listing

```
630  RETURN
640  GOSUB 580
650  GOTO 490
660  PRINT
670  PRINT "DIFFERENCE FROM WEEK # ";N - 1;" TO"
680  PRINT N;" IS $";GA
690  PRINT "A CHANGE OF ";GA / Z * 100;" PERCENT"
700  PRINT : RETURN
710  READ B,C,D,E,F,G
720 H = B + C + D + E + F + G
730 AV = H
740 BA =  INT (AV * 100 + 5) / 100
750 GA = BA - Z: IF B = 0 THEN 770
760 Z = BA
770  RETURN
780  PRINT "ENTER A '1' TO CONTINUE"
790  INPUT A
800  HOME
810  RETURN
820  FOR A = 1 TO 2043
830  NEXT A
840  RETURN
850  DATA 1.95,.75,.85,1.79,.61,1.59
860  DATA 2.00,.85,.95,1.85,.72,1.78
870  DATA 2.09,.89,.95,1.85,.75,1.75
880  DATA 2.05,.79,.87,2.20,.65,1.79
890  DATA 0,0,0,0,0,0
```

SECTION III

Money and Investment

This section describes some useful application programs dealing with money and investment, including a checkbook balancing program, a monthly savings plan, compound interest program, money market interest, a stock buying guide, a stock record keeper, and, finally, a stock plotter.

CHAPTER 23

Double Check

Double Check is a program that will help you keep a record of your personal checks and keep your checking account in balance. It's written in BASIC for your microcomputer. See Program 23-1 for the program listing.

THE PROGRAM

The program accepts your check and deposit data in DATA statements beginning at line 570. Enter each check, bank charge, and deposit in the following format:

```
DATA CHECK #,DATE (MM/DD/YY),NAME PAYABLE
     TO,AMOUNT
```

or

```
DATA 702,12/10/80,EDISON,14.75
```

```
DATA CHARGE CODE,DATE (MM/DD/YY),CHARGE,
     AMOUNT
```

or

```
DATA C,12/19/80,BANK CHARGE,4.00
```

```
DATA DEPOSIT CODE,DATE (MM/DD/YY),DEPOSIT,
     AMOUNT
```

or

```
DATA D,12/22/80,DEPOSIT,350
```

The first entry into your data list must be a past balance or a deposit. Then enter the checks, bank charges, and deposits, as they appear in your checking account deposit record.

Enter the check number, the date (as MM/DD/YY—do not use commas), the name payable to, and the amount for each check written. Enter your bank charges with a C for the charge code, the date, the words BANK CHARGE, and the charge amount. Enter the deposit with a D for the deposit code, the date, the word DEPOSIT, and the deposit amount. Finally, the last statement in your data list must be DATA END,0,0,0.

After you run the program, it will list each check, bank charge, and deposit, as entered in the data list, plus the balance after each transaction. Then it will display the total number of transactions and the balance in your account. See Fig. 23-1 for a sample run.

SAVING THE PROGRAM AND DATA LIST

Each time there is a transaction in your checking account, enter it into the data list in the program. Then save the program on cassette or disk, to keep an ongoing record of your transactions.

```
DOUBLE CHECK
COPYRIGHT (C) 1980 BY HOWARD BERENBON


THIS PROGRAM WILL HELP YOU KEEP A
RECORD OF YOUR PERSONAL CHECKS, &
KEEP YOUR ACCOUNT IN BALANCE. IT'S
USED TO DOUBLE CHECK YOUR PERSONAL
CHECKING ACCOUNT RECORDS.
ENTER THE DATA IN DATA STATEMENTS
BEGINNING AT LINE 570, AS FOLLOWS:
DATA CHECK#,DATE,NAME PAYABLE TO,AMT.
YOUR DEPOST OR LAST BALANCE MUST BE
THE FIRST ENTRY IN YOUR DATA LIST.
THE LAST STATEMENT IN THE DATA LIST
MUST BE: DATA END,0,0,0



          DOUBLE CHECK

#    DATE     NAME          AMT       BAL

D    12/19/80 BALANCE       545.15    545.15
702  12/19/80 ELECTRIC      14.75     530.4
703  12/20/80 TELEPHONE     10.55     519.85
704  12/22/80 VISA          145.12    374.73
705  12/23/80 DR. SIMONS    5         369.73
706  12/23/80 RADIO SHACK   70        299.73
707  12/28/80 BOOK CLUB     9.95      289.78
D    12/28/80 DEPOSIT       200.35    490.13



THE TOTAL # OF TRANSACTIONS
IS  8 . YOUR BALANCE IS $ 490.13 .

CHECK THIS BALANCE WITH THE BALANCE
IN YOUR CHECKING ACCOUNT DEPOSIT
RECORD, AND COMPARE WITH YOUR BANK
STATEMENT FOR ACCURACY.
```

Fig. 23-1. Double Check sample run.

Program 23-1. Double Check Program Listing

```
100  HOME : PRINT "DOUBLE CHECK"
110  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
120  PRINT "APPLE II"
130 GT = 2: GOSUB 540: HOME
140 B = 0:N = 0
150  PRINT "THIS PROGRAM WILL HELP YOU KEEP A"
160  PRINT "RECORD OF YOUR PERSONAL CHECKS, &"
170  PRINT "KEEP YOUR ACCOUNT IN BALANCE. IT'S"
180  PRINT "USED TO DOUBLE CHECK YOUR PERSONAL"
190  PRINT "CHECKING ACCOUNT RECORDS."
200  PRINT "ENTER THE DATA IN DATA STATEMENTS"
210  PRINT "BEGINNING AT LINE 570, AS FOLLOWS:"
220  PRINT "DATA CHECK#,DATE,NAME PAYABLE TO,AMT."
230  PRINT "YOUR DEPOSIT OR LAST BALANCE MUST BE"
240  PRINT "THE FIRST ENTRY IN YOUR DATA LIST."
250  PRINT "THE LAST STATEMENT IN THE DATA LIST"
260  PRINT "MUST BE: DATA END,0,0,0"
270 GT = 12: GOSUB 540
280  HOME
290  PRINT  TAB( 10)"DOUBLE CHECK"
300  PRINT
310  READ N$,D$,NA$,AM
320  IF N$ = "END" THEN 350
330 N = N + 1
340  GOTO 310
350  RESTORE
360  PRINT "#    DATE     NAME         AMT      BAL"
370  PRINT
380  READ N$,D$,NA$,AM
390  IF N$ = "END" THEN 450
400  IF N$ = "D" THEN B = B + AM: GOTO 420
410 B = B - AM
420  PRINT N$; TAB( 5);D$; TAB( 14);NA$; TAB( 26);AM; TAB( 34);B
430 GT = 2: GOSUB 540
440  GOTO 380
450 FT = 2: GOSUB 540: PRINT
460  PRINT "THE TOTAL # OF TRANSACTIONS"
470  PRINT "IS ";N;". YOUR BALANCE IS $";B;"."
480  PRINT
490  PRINT "CHECK THIS BALANCE WITH THE BALANCE"
500  PRINT "IN YOUR CHECKING ACCOUNT DEPOSIT"
510  PRINT "RECORD, AND COMPARE WITH YOUR BANK"
520  PRINT "STATEMENT FOR ACCURACY."
530  END
540  FOR A = 1 TO 750 * GT
550  NEXT A
560  RETURN
570  DATA D,12/19/80,BALANCE,545.15
580  DATA 702,12/19/80,ELECTRIC,14.75
590  DATA 703,12/20/80,TELEPHONE,10.55
600  DATA 704,12/22/80,VISA,145.12
610  DATA 705,12/23/80,DR. SIMONS,5.00
620  DATA 706,12/23/80,RADIO SHACK,70.00
```

Program 23-1—cont. Double Check Program Listing

```
630  DATA 707,12/28/80,BOOK CLUB,9.95
640  DATA D,12/28/80,DEPOSIT,200.35
650  DATA END,0,0,0
```

CHAPTER 24

Monthly Savings Plan

A savings plan is a good way to force yourself to save money for some future purchase. Here is a program that will calculate and display a monthly savings plan, given the initial amount, the monthly savings amount, the yearly interest rate, and the number of months to be displayed. The interest is calculated on a monthly basis. The program is written in BASIC for your microcomputer. See Program 24-1 for the program listing.

THE PROGRAM

After you run the program, enter the initial amount of your savings plan, the monthly savings amount, the yearly interest rate (in percent), and the number of months to be displayed. The program will display the initial amount, the interest rate, and the starting amount (initial amount plus monthly savings amount). Then it will display a table including the month number, the balance, the interest, and the cumulative interest for each month in your savings plan. Finally, it will display the balance in your savings account and the total cumulative interest for the number of months in your plan.

You can use this program to project the number of months to a savings goal. By adjusting the amount entered into your account each month, or the number of months in your plan, you can reach your savings goal in a specific period.

See Fig. 24-1 for a sample run.

```
MONTHLY SAVINGS PLAN
COPYRIGHT (C) 1980 BY HOWARD BERENBON

THIS PROGRAM CALCULATES AND DISPLAYS
A MONTHLY SAVINGS PLAN, GIVEN THE
INITIAL AMOUNT, MONTHLY SAVINGS
AMOUNT, THE YEARLY INTEREST RATE,
AND THE # OF MONTHS TO BE DISPLAYED.

ENTER THE INITIAL AMOUNT OF THE PLAN
? 200

ENTER THE MONTHLY SAVINGS AMOUNT
? 100

ENTER THE YEARLY INTEREST RATE (%)
? 5.25

ENTER THE # OF MONTHS TO BE DISPLAYED
? 12


MONTHLY SAVINGS PLAN
INITIAL AMOUNT = $ 200          INTEREST RATE =  5.25
MONTHLY SAVINGS AMT = $ 100     STARTING AMT = $ 300
MONTH           BALANCE         INTEREST        CUM. INT.
 1               301.31          1.31            1.31
 2               403.07          1.76            3.07
 3               505.27          2.2             5.27
 4               607.92          2.65            7.92
 5               711.02          3.1             11.02
 6               814.57          3.55            14.57
 7               918.57          4               18.57
 8               1023.03         4.46            23.03
 9               1127.94         4.91            27.94
 10              1233.31         5.37            33.31
 11              1339.14         5.83            39.14
 12              1445.44         6.3             45.44


BALANCE AFTER  12  MONTHS = $ 1445.44
TOTAL CUMULATIVE INTEREST = $ 45.44
ANOTHER DISPLAY?
1 = YES   0 = NO
? 0
```

Fig. 24-1. Monthly Savings Plan sample run.

Program 24-1. Monthly Savings Plan Program Listing

```
100  HOME : PRINT "MONTHLY SAVINGS PLAN"
110  PRINT "APPLE II"
120  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
130  PRINT :CI = 0
140  PRINT "THIS PROGRAM CALCULATES AND DISPLAYS"
150  PRINT "A MONTHLY SAVINGS PLAN, GIVEN THE"
160  PRINT "INITIAL AMOUNT, MONTHLY SAVINGS"
170  PRINT "AMOUNT, THE YEARLY INTEREST RATE,"
180  PRINT "AND THE # OF MONTHS TO BE DISPLAYED."
190  PRINT
200  PRINT "ENTER THE INITIAL AMOUNT OF THE PLAN"
210  INPUT J
220  PRINT
230  PRINT "ENTER THE MONTHLY SAVINGS AMOUNT"
240  INPUT P
250 K = P
260 B = J
270  PRINT
280  PRINT "ENTER THE YEARLY INTEREST RATE (%)"
290  INPUT I
300  PRINT
310  PRINT "ENTER THE # OF MONTHS TO BE DISPLAYED"
320  INPUT M
330 MI = (I / 12) / 100
340  HOME
350  PRINT "MONTHLY SAVINGS PLAN"
360  PRINT "INITIAL AMOUNT=$";J;"  INTEREST RATE=";I
370  PRINT "MONTHLY SAV AMT=$";K;"  START AMT=$";J + K
380  PRINT "MONTH  BALANCE  INTEREST  CUM. INT."
390  FOR A = 1 TO M
400  GOSUB 520
410  PRINT A; TAB( 8);B; TAB( 17);IN; TAB( 27);CI
420  FOR T = 1 TO 908
430  NEXT T
440  NEXT A
450  PRINT "BALANCE AFTER ";M;" MONTHS = $";B
460  PRINT "TOTAL CUMULATIVE INTEREST = $";CI
470  PRINT "ANOTHER DISPLAY?"
480  PRINT "1 = YES   0 = NO"
490  INPUT A
500  IF A = 1 THEN 100
510  END
520  REM  CALCULATE MONTHLY DATA
530 B = B + P
540 IN = B * MI
550 IN =  INT (IN * 100 + .5) / 100
560 B = B + IN
570 B =  INT (B * 100 + .5)
580 B = B / 100
590 CI = CI + IN
600  RETURN
```

CHAPTER 25

Compound Interest Table

This program calculates and displays the compound interest for a savings account, given the type of compounding, the principal, and the yearly interest rate. It's written in BASIC for your microcomputer. See Program 25-1 for the program listing.

THE PROGRAM

After you run the program, it requests your entry of the type of compounding. Enter 1 for daily, 2 for monthly, or 3 for quarterly interest compounding. Then it requests entry of the principal amount of your account and the yearly interest rate of your savings and loan or bank. Now enter the number of days, months, or quarters to be displayed. A table will be printed for the type of compounding requested. It displays the principal, the yearly interest rate, the day, month, or quarter number, the balance, the interest, and the cumulative interest for the desired number of days, months, or quarters. Finally, the balance is displayed with the total cumulative interest. You may now enter a 1 for another display, or a 0 to end the program. See Fig. 25-1 for a sample run.

```
COMPOUND INTEREST TABLE
COPYRIGHT (C) 1980 BY HOWARD BERENBON

THIS PROGRAM CALCULATES AND DISPLAYS
THE COMPOUND INTEREST FOR A SAVINGS
ACCOUNT, GIVEN THE TYPE OF COMPOUNDING,
THE PRINCIPAL, & YEARLY INTEREST RATE.

ENTER THE TYPE OF COMPOUNDING:
1 = DAILY
2 = MONTHLY
3 = QUARTERLY
? 1



ENTER THE PRINCIPAL AMOUNT
? 2500

ENTER THE YEARLY INTEREST RATE (%)
? 5.25


DAILY INTEREST TABLE

ENTER THE # OF DAYS TO BE DISPLAYED
? 12


DAILY COMPOUND INTEREST TABLE
PRINCIPAL = $ 2500              INTEREST RATE =  5.25
DAY          BALANCE            INTEREST        CUM. INT.
 1            2500.36            .36             .36
 2            2500.72            .36             .72
 3            2501.08            .36             1.08
 4            2501.44            .36             1.44
 5            2501.8             .36             1.8
 6            2502.16            .36             2.16
 7            2502.52            .36             2.52
 8            2502.88            .36             2.88
 9            2503.25            .37             3.25
 10           2503.62            .37             3.62
 11           2503.99            .37             3.99
 12           2504.36            .37             4.36

BALANCE AFTER  12  DAYS = $ 2504.36
TOTAL CUM. INTEREST = $ 4.36
ANOTHER DISPLAY?
1 = YES   0 = NO
? 1


ENTER THE TYPE OF COMPOUNDING:
1 = DAILY
2 = MONTHLY
3 = QUARTERLY
? 2

ENTER THE PRINCIPAL AMOUNT
? 2500

ENTER THE YEARLY INTEREST RATE (%)
? 5.25


MONTHLY INTEREST TABLE

ENTER THE # OF MONTHS TO BE DISPLAYED
? 12


MONTHLY COMPOUND INTEREST TABLE
PRINCIPAL = $ 2500              INTEREST RATE =  5.25
MONTH          BALANCE          INTEREST        CUM. INT.
 1              2510.94          10.94           10.94
 2              2521.93          10.99           21.93
 3              2532.96          11.03           32.96
 4              2544.04          11.08           44.04
 5              2555.17          11.13           55.17
 6              2566.35          11.18           66.35
 7              2577.58          11.23           77.58
 8              2588.86          11.28           88.86
 9              2600.19          11.33           100.19
 10             2611.57          11.38           111.57
 11             2623             11.43           123
 12             2634.48          11.48           134.48


BALANCE AFTER 12 MONTHS = $ 2634.48
TOTAL CUM. INTEREST = $ 134.48
ANOTHER DISPLAY?
1 = YES   0 = NO
? 0
```

Fig. 25-1. Compound Interest Table sample run.

Program 25-1. Compound Interest Table Program Listing

```
100  HOME : PRINT "COMPOUND INTEREST TABLE"
110  PRINT "APPLE II"
120  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
130  PRINT :CI = 0
140  PRINT "THIS PROGRAM CALCULATES AND DISPLAYS#
150  PRINT "THE COMPOUND INTEREST FOR A SAVINGS"
160  PRINT "ACCOUNT, GIVEN THE TYPE OF COMPOUNDING,"
170  PRINT "THE PRINCIPAL, & YEARLY INTEREST RATE."
180  PRINT
190  PRINT "ENTER THE TYPE OF COMPOUNDING:"
200  PRINT "1 = DAILY"
210  PRINT "2 = MONTHLY"
220  PRINT "3 = QUARTERLY"
230  INPUT CP
240  IF CP = 1 THEN CM = 360
250  IF CP = 2 THEN CM = 12
260  IF CP = 3 THEN CM = 4
270  IF CP < 1 OR CP > 3 THEN 190
280  PRINT
290  PRINT "ENTER THE PRINCIPAL AMOUNT"
300  INPUT P
310  PRINT
320  PRINT "ENTER THE YEARLY INTEREST RATE (%)"
330  INPUT I
340  PRINT
350  ON CP GOTO 390,620,800
360  FOR T = 1 TO 908
370  NEXT T
380  RETURN
390  REM  DAILY INTEREST
400  HOME
410  PRINT "DAILY INTEREST TABLE"
420  PRINT
430  PRINT "ENTER THE # OF DAYS TO BE DISPLAYED"
440  INPUT D
450 DI = (I / CM) / 100
460  HOME
470  PRINT "DAILY COMPOUND INTEREST TABLE"
480  PRINT "PRINCIPAL=$";P;"  INTEREST RATE=";I
490  PRINT "DAY  BALANCE  INTEREST  CUM. INT."
500  FOR A = 1 TO D
510  GOSUB 980
520  PRINT A; TAB( 6);B; TAB( 15);IN; TAB( 24);CI
530  GOSUB 360
540  NEXT A
550  PRINT "BALANCE AFTER ";D;" DAYS = $";B
560  PRINT "TOTAL CUM. INTEREST = $";CI
570  PRINT "ANOTHER DISPLAY?"
580  PRINT "1 = YES   0 = NO"
590  INPUT G
600  IF G = 1 THEN 100
610  END
620  REM  MONTHLY INTEREST
```

Program 25-1—cont. Compound Interest Table Program Listing

```
630  HOME
640  PRINT "MONTHLY INTEREST TABLE"
650  PRINT
660  PRINT "ENTER THE # OF MONTHS TO BE DISPLAYED"
670  INPUT M
680 MI = (I / CM) / 100
690  HOME
700  PRINT "MONTHLY COMPOUND INTEREST TABLE"
710  PRINT "PRINCIPAL=$";P;"  INTEREST RATE=";I
720  PRINT "MONTH  BALANCE  INTEREST  CUM. INT."
730  FOR A = 1 TO M
740  GOSUB 1060
750  PRINT A; TAB( 8);B; TAB( 17);IN; TAB( 27);CI
760  GOSUB 360
770  NEXT A
780  PRINT "BALANCE AFTER ";M;" MONTHS = $";B
790  GOTO 560
800  REM  QUARTERLY INTEREST
810  HOME
820  PRINT "QUARTERLY INTEREST TABLE"
830  PRINT
840  PRINT "ENTER THE # OF QUARTERS TO BE DISPLAYED"
850  INPUT Q
860 QI = (I / CM) / 100
870  HOME
880  PRINT "QUARTERLY COMPOUND INTEREST TABLE"
890  PRINT "PRINCIPAL=$";P;"  INTEREST RATE=";I
900  PRINT "QUARTER  BALANCE  INTEREST  CUM. INT."
910  FOR A = 1 TO Q
920  GOSUB 1140
930  PRINT A; TAB( 10);B; TAB( 19);IN; TAB( 29);CI
940  GOSUB 360
950  NEXT A
960  PRINT "BALANCE AFTER ";Q;" QUARTERS = $";B
970  GOTO 560
980  REM  CALCULATE DAILY DATA
990 B = P
1000 IN = P * DI
1010 IN =  INT (IN * 100 + .5) / 100
1020 B = P + IN
1030 P = B
1040 CI = CI + IN
1050  RETURN
1060  REM  CALCULATE MONTHLY DATA
1070 B = P
1080 IN = P * MI
1090 IN =  INT (IN * 100 + .5) / 100
1100 B = P + IN
1110 P = B
1120 CI = CI + IN
1130  RETURN
1140  REM  CALCULATE QUARTERLY DATA
1150 B = P
```

Program 25-1—cont. Compound Interest Table Program Listing

```
1160 IN = P * QI
1170 IN =  INT (IN * 100 + .5) / 100
1180 B = P + IN
1190 P = B
1200 CI = CI + IN
1210  RETURN
```

CHAPTER 26

Money Market Interest Table

Here's another program for calculating interest on your savings. It's a Money Market interest calculator that calculates the simple interest for Money Market type accounts. The program is written in BASIC for your microcomputer. See Program 26-1 for the program listing.

THE PROGRAM

The program will display a table, given the type of interest calculation (daily, monthly, or quarterly), the principal, the yearly interest rate, and the number of days, months, or quarters for display.

After you run the program, enter the type of interest calculation desired. Enter a 1 for daily, 2 for monthly, or 3 for quarterly interest. Then the program requests entry of the principal amount of your Money Market Certificate and the yearly interest rate. Now enter the number of days, months, or quarters to be displayed. A table will be printed for the type of interest calculation requested. It displays the yearly interest rate, the day, month, or quarter number, the principal, the interest, and the cumulative interest for the desired number of days, months, or quarters. Finally, the total cumulative interest is displayed for the requested number of days, months, or quarters. You may now enter a 1 for another display, or a 0 to end the program. See Fig. 26-1 for a sample run.

```
MONEY MARKET INTEREST TABLE
COPYRIGHT (C) 1980 BY HOWARD BERENSON

THIS PROGRAM CALCULATES AND DISPLAYS
THE SIMPLE INTEREST FOR A MONEY MARKET
CERTIFICATE, GIVEN THE TYPE OF INTEREST
CALCULATION, THE PRINCIPAL, AND YEARLY
INTEREST RATE.

ENTER THE TYPE OF INTEREST
CALCULATION:
1 = DAILY
2 = MONTHLY
3 = QUARTERLY
? 1


ENTER THE PRINCIPAL AMOUNT
? 10000

ENTER THE YEARLY INTEREST RATE (%)
? 15.43



DAILY INTEREST TABLE

ENTER THE # OF DAYS TO BE DISPLAYED
? 12




DAILY INTEREST TABLE
INTEREST RATE =  15.43
DAY             PRINCIPAL       INTEREST        CUM. INT.
 1               10000           4.29            4.29
 2               10000           4.29            8.58
 3               10000           4.29            12.87
 4               10000           4.29            17.16
 5               10000           4.29            21.45
 6               10000           4.29            25.74
 7               10000           4.29            30.03
 8               10000           4.29            34.32
 9               10000           4.29            38.61
 10              10000           4.29            42.9
 11              10000           4.29            47.19
 12              10000           4.29            51.48

TOTAL CUM. INT. AFTER  12  DAYS
. . . IS $ 51.48
ANOTHER DISPLAY?
1 = YES    0 = NO
? 1


ENTER THE TYPE OF INTEREST
CALCULATION:
1 = DAILY
2 = MONTHLY
3 = QUARTERLY
? 2

ENTER THE PRINCIPAL AMOUNT
? 10000

ENTER THE YEARLY INTEREST RATE (%)
? 15.43


MONTHLY INTEREST TABLE

ENTER THE # OF MONTHS TO BE DISPLAYED
? 12



MONTHLY INTEREST TABLE
INTEREST RATE =  15.43
MONTH           PRINCIPAL       INTEREST        CUM. INT.
 1               10000           128.58          128.58
 2               10000           128.58          257.16
 3               10000           128.58          385.74
 4               10000           128.58          514.32
 5               10000           128.58          642.9
 6               10000           128.58          771.48
 7               10000           128.58          900.06
 8               10000           128.58          1028.64
 9               10000           128.58          1157.22
 10              10000           128.58          1285.8
 11              10000           128.58          1414.38
 12              10000           128.58          1542.96

TOTAL CUM. INT. AFTER  12  MONTHS
. . . IS $ 1542.96
ANOTHER DISPLAY?
1 = YES    0 = NO
? 0
```

Fig. 26-1. Money Market Interest Table sample run.

Program 26-1. Money Market Interest Table Program Listing

```
100  HOME : PRINT "MONEY MARKET INTEREST TABLE"
110  PRINT "APPLE II"
120  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
130  PRINT :CI = 0
140  PRINT "THIS PROGRAM CALCULATES AND DISPLAYS"
150  PRINT "THE SIMPLE INTEREST FOR A MONEY MARET"
160  PRINT "CERTIFICATE, GIVEN THE TYPE OF INTEREST"
170  PRINT "CALCULATION, THE PRINCIPAL, AND YEARLY"
180  PRINT "INTEREST RATE."
190  PRINT
200  PRINT "ENTER THE TYPE OF INTEREST"
210  PRINT "CALCULATION:"
220  PRINT "1 = DAILY"
230  PRINT "2 = MONTHLY"
240  PRINT "3 = QUARTERLY"
250  INPUT CP
260  IF CP = 1 THEN CM = 360
270  IF CP = 2 THEN CM = 12
280  IF CP = 3 THEN CM = 4
290  IF CP < 1 OR CP > 3 THEN 200
300  PRINT
310  PRINT "ENTER THE PRINCIPAL AMOUNT"
320  INPUT P
330  PRINT
340  PRINT "ENTER THE YEARLY INTEREST RATE (%)"
350  INPUT I
360  PRINT
370  ON CP GOTO 410,640,820
380  FOR T = 1 TO 908
390  NEXT T
400  RETURN
410  REM  DAILY INTEREST
420  HOME
430  PRINT "DAILY INTEREST TABLE"
440  PRINT
450  PRINT "ENTER THE # OF DAYS TO BE DISPLAYED"
460  INPUT D
470 DI = (I / CM) / 100
480  HOME
490  PRINT "DAILY INTEREST TABLE"
500  PRINT "INTEREST RATE = ";I
510  PRINT "DAY  PRINCIPAL  INTEREST  CUM. INT."
520  FOR A = 1 TO D
530  GOSUB 1000
540  PRINT A; TAB( 6);P; TAB( 17);IN; TAB( 27);CI
550  GOSUB 380
560  NEXT A
570  PRINT "TOTAL CUM. INT. AFTER ";D;" DAYS"
580  PRINT ". . . IS $";CI
590  PRINT "ANOTHER DISPLAY?"
600  PRINT "1 = YES   0 = NO"
610  INPUT G
620  IF G = 1 THEN 100
```

Program 26-1—cont. Money Market Interest Table Program Listing

```
630  END
640  REM  MONTHLY INTEREST
650  HOME
660  PRINT "MONTHLY INTEREST TABLE"
670  PRINT
680  PRINT "ENTER THE # OF MONTHS TO BE DISPLAYED"
690  INPUT M
700 MI = (I / CM) / 100
710  HOME
720  PRINT "MONTHLY INTEREST TABLE"
730  PRINT "INTEREST RATE = ";I
740  PRINT "MONTH  PRINCIPAL  INTEREST  CUM. INT."
750  FOR A = 1 TO M
760  GOSUB 1060
770  PRINT A; TAB( 8);P; TAB( 19);IN; TAB( 29);CI
780  GOSUB 380
790  NEXT A
800  PRINT "TOTAL CUM. INT. AFTER ";M;" MONTHS"
810  GOTO 580
820  REM  QUARTERLY INTEREST
830  HOME
840  PRINT "QUARTERLY INTEREST TABLE"
850  PRINT
860  PRINT "ENTER THE # OF QUARTERS TO BE DISPLAYED"
870  INPUT Q
880 QI = (I / CM) / 100
890  HOME
900  PRINT "QUARTERLY INTEREST TABLE"
910  PRINT "INTEREST RATE = ";I
920  PRINT "QUARTER  PRINCIPAL  INTEREST  CUM. INT."
930  FOR A = 1 TO Q
940  GOSUB 1110
950  PRINT A; TAB( 10);P; TAB( 21);IN; TAB( 31);CI
960  GOSUB 380
970  NEXT A
980  PRINT "TOTAL CUM. INT. AFTER ";Q;" QUARTERS"
990  GOTO 580
1000  REM  CALCULATE DAILY DATA
1010 B = P
1020 IN = P * DI
1030 IN =  INT (IN * 100 + .5) / 100
1040 CI = CI + IN
1050  RETURN
1060  REM  CALCULATE MONTHLY DATA
1070 IN = P * MI
1080 IN =  INT (IN * 100 + .5) / 100
1090 CI = CI + IN
1100  RETURN
1110  REM  CALCULATE QUARTERLY DATA
1120 IN = P * QI
1130 IN =  INT (IN * 100 + .5) / 100
1140 CI = CI + IN
1150  RETURN
```

CHAPTER 27

Stock Buying Guide

Here's an investment program for the small investor. It's a stock market buying guide questionnaire to help you determine if a particular stock is a right choice for investment. The program is written in BASIC for your microcomputer. See Program 27-1 for the program listing.

THE PROGRAM

The program consists of a fifteen-question questionnaire, requiring entry of different point values per question. A total score of 27 or better is a recommendation to invest in the stock. A preliminary question must be answered with a "no" response, to allow entry into the questionnaire.

After you run the program, the following preliminary question will be displayed:

```
IS THE COMPANY IN A DEFICIT?
1—Yes  0—No
```

The entry of a 1 indicates a "yes" and 0 indicates a "no." If the answer is "yes" (the company is in a deficit), then the program will display:

```
THE STOCK IS NOT ACCEPTABLE
IT IS NOT RECOMMENDED FOR PURCHASE
```

You will not be allowed entry into the questionnaire, since the stock is a bad risk.

Answering the question with a "no" (0 entry) allows entry into the questionnaire, and question No. 1 will be displayed. Enter the number of points that is indicated for your stock. If zero is indicated, then enter 0. The program will print the "point value so far" and advance to the next question. After all fifteen questions are answered, it displays the final point score and whether the stock is acceptable, and recommended, or not acceptable, and not recommended for purchase. See Fig. 27-1 for a sample run.

ANALYSIS

A total score of 27 or greater is an indication that your stock choice will be a safe investment. But before investing, since the market is so unpredictable, consult your stockbroker for recent information on the company, and use this program along with your judgment, as a guide for investing.

```
STOCK BUYING GUIDE
COPYRIGHT (C) 1980 BY HOWARD BERENBON


USE THE FOLLOWING QUESTIONNAIRE TO
HELP DETERMINE IF A PARTICULAR STOCK
WILL BE A GOOD INVESTMENT. THERE ARE
15 QUESTIONS WITH DIFFERENT POINT
VALUES FOR EACH ANSWER. A TOTAL SCORE
OF 27 OR BETTER IS A RECOMMENDATION
TO INVEST IN THE STOCK. THE PRELIMINARY
QUESTION MUST BE ANSWERED WITH A 'NO'
TO ALLOW ENTRY INTO THE QUESTIONNAIRE.

PRELIMINARY QUESTION

IS THE COMPANY IN A DEFICIT?
1-YES  0-NO
? 0

STOCK BUYING GUIDE

#1-STOCK PRICE

$6 TO $30 = 4 POINTS
GREATER THAN $30 = 2 POINTS
LESS THAN $6 = 0

ENTER POINT VALUE
? 2


POINTS SO FAR =  2

#2-PRICE FLUCTUATION
(LAST 6 MONTHS)

UP=2 POINTS
DOWN = 0
NO CHANGE = 1

ENTER POINT VALUE
? 2


POINTS SO FAR =  4

#3-PE RATIO

4/1 TO 8/1 = 4 POINTS
9/1 TO 13/1 = 3
```

Fig. 27-1. Stock Buying Guide sample run.

```
14/1 TO 17/1 = 2
18/1 TO 24/1 = 1
25/1 AND ABOVE = 0

ENTER POINT VALUE
? 1


POINTS SO FAR =  5


#4-VOLUME SOLD, LAST (HUNDREDS)

0 TO 300 = 0 POINTS
301 TO 600 = 1
601 TO 1000 = 2
1001 AND GREATER = 3

ENTER POINT VALUE
? 3



POINTS SO FAR =  8


#5-DIVIDENDS

NONE = 0 POINTS
1 TO 2% = 1
2.1 TO 3% = 2
3.1 TO 6% = 3
6.1 TO 12% = 4
12.1% AND ABOVE =2

ENTER POINT VALUE
? 0



POINTS SO FAR =  8


#6-EARNINGS

UP = 2 POINTS
DOWN = 0
NO CHANGE = 1

ENTER POINT VALUE
? 2



POINTS SO FAR =  10


#7-RECENT NEWS ABOUT COMPANY

NO NEWS = 1
GOOD NEWS = 2
BAD NEWS = 0

ENTER POINT VALUE
? 2



POINTS SO FAR =  12


#8-INVESTMENT TYPE

SHORT TERM INVESTMENT = 2
LONG TERM INVESTMENT = 1

ENTER POINT VALUE
? 2



POINTS SO FAR =  14


#9-RECENT SPLITS

YES = 4
NO = 0

ENTER POINT VALUE
? 4



POINTS SO FAR =  18


#10-BROKER COMMISSION

3% OR LESS = 2 POINTS
3.1 TO 4% = 1
4.1% OR GREATER = 0

ENTER POINT VALUE
? 2



POINTS SO FAR =  20


#11-EXCHANGE TRADED ON

NEW YORK = 4 POINTS
AMERICAN = 2
OTHERS = 0

ENTER POINT VALUE
? 4



POINTS SO FAR =  24


#12-NUMBER OF YEARS IN BUSINESS

0 TO 6 = 0
7 TO 20 = 1
21 TO 30 = 2
31 TO 40 = 3
41 AND ABOVE = 4

ENTER POINT VALUE
? 2



POINTS SO FAR =  26


#13-SIZE OF BUSINESS

LARGE CORPORATION OR COMPANY = 4
MEDIUM SIZE = 2
SMALL = 0

ENTER POINT VALUE
? 4



POINTS SO FAR =  30


#14-EARNINGS AND DIVIDEND RANKING

A+ = 4 POINTS
A  = 3
A- = 3
B+ = 2
B  = 2
B- = 1
C  = 0
D  = 0

ENTER POINT VALUE
? 2



POINTS SO FAR =  32


#15-STOCK MARKET CONDITIONS

UP = 2 POINTS
DOWN OR NO CHANGE = 0

ENTER POINT VALUE
? 2



POINTS SO FAR =  34


FINAL POINT SCORE IS  34

THE STOCK IS ACCEPTABLE

IT IS RECOMMENDED FOR PURCHASE
```

Fig. 27-1—cont. Stock Buying Guide sample run.

Program 27-1. Stock Buying Guide Program Listing

```
100  HOME : PRINT "STOCK BUYING GUIDE"
110  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
120  PRINT "APPLE II"
130  GOSUB 1710: HOME
140  PRINT "USE THE FOLLOWING QUESTIONNAIRE TO"
150  PRINT "HELP DETERMINE IF A PARTICULAR STOCK"
160  PRINT "WILL BE A GOOD INVESTMENT. THERE ARE
170  PRINT "15 QUESTIONS WITH DIFFERENT POINT"
180  PRINT "VALUES FOR EACH ANSWER. A TOTAL SCORE"
190  PRINT "OF 27 OR BETTER IS A RECOMMENDATION"
200  PRINT "TO INVEST IN THE STOCK. THE PRELIMINARY"
210  PRINT "QUESTION MUST BE ANSWERED WITH A 'NO'"
220  PRINT "TO ALLOW ENTRY INTO THE QUESTIONNAIRE."
230  PRINT
240  PRINT "PRELIMINARY QUESTION"
250  PRINT
260  PRINT "IS THE COMPANY IN A DEFICIT?"
270  PRINT "1-YES  0-NO"
280  INPUT A
290  IF A = 1 THEN 1740
300  IF A = 0 THEN 320
310  GOTO 230
320  HOME
330  PRINT "STOCK BUYING GUIDE"
340  PRINT
350 S1 = 0
360  PRINT "#1-STOCK PRICE"
370  PRINT
380  PRINT "$6 TO 30 = 4 POINTS"
390  PRINT "GREATER THAN $30 = 2 POINTS"
400  PRINT "LESS THAN $6 = 0"
410  GOSUB 1610
420  GOSUB 1660
430  PRINT "#2-PRICE FLUCTUATION"
440  PRINT "(LAST 6 MONTHS)"
450  PRINT
460  PRINT "UP=2 POINTS"
470  PRINT "DOWN = 0"
480  PRINT "NO CHANGE = 1"
490  GOSUB 1610
500  GOSUB 1660
510  PRINT "#3-PE RATIO"
520  PRINT
530  PRINT "4/1 TO 8/1 = 4 POINTS"
540  PRINT "9/1 TO 13/1 = 3"
550  PRINT "14/1 TO 17/1 = 2"
560  PRINT "18/1 TO 24/1 = 1"
570  PRINT "25/1 AND ABOVE = 0"
580  GOSUB 1610
590  GOSUB 1660
600  PRINT "#4-VOLUME SOLD, LAST (HUNDREDS)"
610  PRINT
620  PRINT "0 TO 300 = 0 POINTS"
```

Program 27-1—cont. Stock Buying Guide Program Listing

```
630  PRINT "301 TO 600 = 1"
640  PRINT "601 TO 1000 = 2"
650  PRINT "1001 AND GREATER = 3"
660  GOSUB 1610
670  GOSUB 1660
680  PRINT "#5-DIVIDENDS"
690  PRINT
700  PRINT "NONE = 0 POINTS"
710  PRINT "1 TO 2% = 1"
720  PRINT "2.1 TO 3% = 2"
730  PRINT "3.1 TO 6% = 3"
740  PRINT "6.1 TO 12% = 4"
750  PRINT "12.1% AND ABOVE =2"
760  GOSUB 1610
770  GOSUB 1660
780  PRINT "#6-EARNINGS"
790  PRINT
800  PRINT "UP = 2 POINTS"
810  PRINT "DOWN = 0"
820  PRINT "NO CHANGE = 1"
830  GOSUB 1610
840  GOSUB 1660
850  PRINT "#7-RECENT NEWS ABOUT COMPANY"
860  PRINT
870  PRINT "NO NEWS = 1"
880  PRINT "GOOD NEWS =2"
890  PRINT "BAD NEWS = 0"
900  GOSUB 1610
910  GOSUB 1660
920  PRINT "#8-INVESTMENT TYPE"
930  PRINT
940  PRINT "SHORT TERM INVESTMENT = 2"
950  PRINT "LONG TERM INVESTMENT = 1"
960  GOSUB 1610
970  GOSUB 1660
980  PRINT "#9-RECENT SPLITS"
990  PRINT
1000  PRINT "YES = 4"
1010  PRINT "NO = 0"
1020  GOSUB 1610
1030  GOSUB 1660
1040  PRINT "#10-BROKER COMMISSION"
1050  PRINT
1060  PRINT "3% OR LESS = 2 POINTS"
1070  PRINT "3.1 TO 4% = 1"
1080  PRINT "4.1% OR GREATER = 0"
1090  GOSUB 1610
1100  GOSUB 1660
1110  PRINT "#11-EXCHANGE TRADED ON"
1120  PRINT
1130  PRINT "NEW YORK = 4 POINTS"
1140  PRINT "AMERICAN = 2"
1150  PRINT "OTHERS = 0"
```

Program 27-1—cont. Stock Buying Guide Program Listing

```
1160  GOSUB 1610
1170  GOSUB 1660
1180  PRINT "#12-NUMBER OF YEARS IN BUSINESS"
1190  PRINT
1200  PRINT "0 TO 6 = 0"
1210  PRINT "7 TO 20 = 1"
1220  PRINT "21 TO 30 = 2"
1230  PRINT "31 TO 40 = 3"
1240  PRINT "41 AND ABOVE = 4"
1250  GOSUB 1610
1260  GOSUB 1660
1270  PRINT "#13-SIZE OF BUSINESS"
1280  PRINT
1290  PRINT "LARGE CORPORATION OR COMPANY = 4"
1300  PRINT "MEDIUM SIZE = 2"
1310  PRINT "SMALL = 0"
1320  GOSUB 1610
1330  GOSUB 1660
1340  PRINT "#14-EARNINGS AND DIVIDEND RANKING"
1350  PRINT
1360  PRINT "A+ = 4 POINTS"
1370  PRINT "A  = 3"
1380  PRINT "A- = 3"
1390  PRINT "B+ = 2"
1400  PRINT "B  = 2"
1410  PRINT "B- = 1"
1420  PRINT "C  = 0"
1430  PRINT "D  = 0"
1440  GOSUB 1610
1450  GOSUB 1660
1460  PRINT "#15-STOCK MARKET CONDITIONS"
1470  PRINT
1480  PRINT "UP = 2 POINTS"
1490  PRINT "DOWN OR NO CHANGE = 0"
1500  GOSUB 1610
1510  GOSUB 1660
1520  PRINT
1530  PRINT "FINAL POINT SCORE IS ";S1
1540  PRINT
1550  IF S1 < 27 THEN 1740
1560  PRINT
1570  PRINT "THE STOCK IS ACCEPTABLE"
1580  PRINT
1590  PRINT "IT IS RECOMMENDED FOR PURCHASE"
1600  END
1610  PRINT
1620  PRINT "ENTER POINT VALUE"
1630  INPUT S
1640 S1 = S + S1: HOME
1650  RETURN
1660  PRINT
1670  PRINT "POINTS SO FAR = ";S1
1680  PRINT
```

Program 27-1—cont. Stock Buying Guide Program Listing

```
1690  PRINT
1700  RETURN
1710  FOR A = 1 TO 2043
1720  NEXT A
1730  RETURN
1740  PRINT
1750  PRINT "THE STOCK IS NOT ACCEPTABLE"
1760  PRINT
1770  PRINT "IT IS NOT RECOMMENDED FOR PURCHASE"
1780  GOTO 1600
```

CHAPTER 28

Stock Record Keeper

If you're an investor in the stock market then the Stock Record Keeper can help you. The program allows you to keep a record of each of the stocks in your portfolio, and it gives gain or loss information on your stocks. It's written in BASIC for your microcomputer. See Program 28-1 for the program listing.

THE PROGRAM

The program requires that you enter your stock data in DATA statements beginning at line 1000. Enter the data in the following format:

```
DATA COMPANY NAME,# OF SHARES,DATE OF
PURCHASE,PURCHASE PRICE,RECENT PRICE
```

or

```
DATA GM,100,2/1/80,54,55.5
```

The last DATA statement in your list must be DATA END,0,0,0,0.

The program allows you to list data on one or all of the stocks, including the company name, the number of shares held, the date of purchase (entered MM/DD/YY), the purchase price, and the recent price. It also displays the net worth, gain or loss, and the percent (%) gain or loss for your stocks. Finally, you can display the total gain or loss in your portfolio.

After you run the program, you have the following four options:

1. Enter a 1 to list one stock.
2. Enter a 2 to list all stocks.
3. Enter a 3 to list total gain or loss.
4. Enter a 4 to end the program.

List One Stock

Entering a 1 allows you to list the data on a single stock. The program requests entry of the stock name, and it searches the list for that name. If the name is found, the stock data is displayed. If the name is not found, the computer will display ENTRY NOT FOUND and then allow you to enter into one of the four previously listed options.

List All Stocks

Entering a 2 allows you to list the data on all the stocks in your portfolio. The program will list one stock at a time. After the data for a stock is displayed, enter a 1 to continue to the next stock in your list. When all the stock data has been displayed, the program will allow you to enter into one of the four options listed.

List Total Gain or Loss

Entering a 3 allows you to list the total gain or loss for the stocks in your portfolio. The program lists the total stock costs and their total worth. Then it displays the total (+) gain or (−) loss and the percent (+) gain or (−) loss, and then it allows you to enter into one of the four options listed.

See Fig. 28-1 for a sample run.

ONE LAST NOTE

This program does not take into account the brokerage fees associated with the buying and selling of your stocks. But these fees must be included when calculating your gains or losses for income tax purposes.

```
STOCK RECORD KEEPER
COPYRIGHT (C) 1980 BY HOWARD BERENSON

THIS PROGRAM ALLOWS YOU TO KEEP
A RECORD OF YOUR STOCK PORTFOLIO.
YOU CAN LIST ONE OR ALL OF YOUR
STOCKS INCLUDING THE NAME, # OF
SHARES, THE DATE OF PURCHASE,
PURCHASE PRICE, AND RECENT PRICE.
IT ALSO DISPLAYS THE NET WORTH, GAIN
OR LOSS, % GAIN OR LOSS, AND THE
TOTAL GAIN OR LOSS IN YOUR PORTFOLIO.

ENTER '1' TO CONTINUE
? 1


ENTER YOUR STOCK DATA IN DATA
STATEMENTS BEGINNING AT LINE 1000,
IN THE FOLLOWING FORMAT:
DATA NAME,# SHARES,PUR DATE,PUR PRICE,REC PRICE
DATA GM,100,2/1/80,54,55.5
THE LAST STATEMENT IN THE LIST MUST BE:
DATA END,0,0,0,0

ENTER '1' TO CONTINUE
? 1




ENTER CHOICE

1-LIST ONE STOCK
2-LIST ALL STOCKS
3-GIVE TOTAL GAIN OR LOSS
4-END PROGRAM
? 1



LIST ONE STOCK

ENTER STOCK NAME
? AMPEX

STOCK DATA

STOCK NAME: AMPEX

# OF SHARES = 100    DATE OF PURCHASE IS 7/18/80
PURCHASE PRICE = $ 14.5    TOTAL COST = $ 1450

RECENT PRICE = $ 19.25    NET WORTH = $ 1925

(+) GAIN OR (-) LOSS IF SOLD = $ 475
PERCENT (+) GAIN OR (-) LOSS =  32.75


ENTER '1' TO CONTINUE
? 1


ENTER CHOICE

1-LIST ONE STOCK
2-LIST ALL STOCKS
3-GIVE TOTAL GAIN OR LOSS
4-END PROGRAM
? 3



TOTAL COST = $ 23125    NET WORTH =$ 25600

TOTAL (+) GAIN OR (-) LOSS FOR
ALL STOCKS IS $ 2475   OR  10.7  PERCENT

ENTER '1' TO CONTINUE
? 1
ENTER CHOICE

1-LIST ONE STOCK
2-LIST ALL STOCKS
3-GIVE TOTAL GAIN OR LOSS
4-END PROGRAM
? 4
```

Fig. 28-1. Stock Record Keeper sample run.

Program 28-1. Stock Record Keeper Program Listing

```
100  HOME : PRINT "STOCK RECORD KEEPER"
110  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
120  PRINT "APPLE II"
130  PRINT
140  PRINT "THIS PROGRAM ALLOWS YOU TO KEEP"
150  PRINT "A RECORD OF YOUR STOCK PORTFOLIO."
160  PRINT "YOU CAN LIST ONE OR ALL OF YOUR"
170  PRINT "STOCKS INCLUDING THE NAME, # OF"
180  PRINT "SHARES, THE DATE OF PURCHASE,"
190  PRINT "PURCHASE PRICE, AND RECENT PRICE."
200  PRINT "IT ALSO DISPLAYS THE NET WORTH, GAIN"
210  PRINT "OR LOSS, % GAIN OR LOSS, AND THE"
220  PRINT "TOTAL GAIN OR LOSS IN YOUR PORTFOLIO."
230  GOSUB 710
240  HOME
250  PRINT "ENTER YOUR STOCK DATA IN DATA"
260  PRINT "STATEMENTS BEGINNING AT LINE 1000,"
270  PRINT "IN THE FOLLOWING FORMAT:"
280  PRINT "DATA NAME,# SHARES,PUR DATE,PUR PRICE,  RECENT PRICE"
290  PRINT "DATA GM,100,2/1/80,54,55.5
300  PRINT "THE LAST STATEMENT IN THE LIST MUST BE:"
310  PRINT "DATA END,0,0,0,0"
320  GOSUB 710
330  PRINT "ENTER CHOICE": RESTORE
340  PRINT :P = 0:Q = 0
350  PRINT "1-LIST ONE STOCK"
360  PRINT "2-LIST ALL STOCKS"
370  PRINT "3-GIVE TOTAL GAIN OR LOSS"
380  PRINT "4-END PROGRAM"
390  INPUT B: HOME
400  ON B GOTO 420,530,600,890
410  GOTO 320
420  PRINT "LIST ONE STOCK"
430  PRINT
440  PRINT "ENTER STOCK NAME"
450  INPUT A$
460  READ B$,C,C2$,D,E
470  IF B$ = "END" THEN 690
480  IF B$ = A$ THEN 500
490  GOTO 460
500  GOSUB 740
510  PRINT
520  GOTO 320
530  PRINT "LIST ALL STOCKS"
540  PRINT
550  READ B$,C,C2$,D,E
560  IF B$ = "END" THEN 330
570  GOSUB 750
580  GOSUB 710
590  GOTO 540
600  PRINT :T2 = 0:T5 = 0
610  GOSUB 900
620 Q =  INT ((P * 100 + .5)) / 100
```

Program 28-1—cont. Stock Record Keeper Program Listing

```
630 R = (Q / T2) * 100:R =  INT (R * 100) / 100
640  PRINT "TOTAL COST=$";T2;"  NET WORTH=$";T5
650  PRINT
660  PRINT "TOTAL (+) GAIN OR (-) LOSS FOR"
670  PRINT "ALL STOCKS IS $";Q;"  OR ";R;" PERCENT"
680  GOTO 320
690  PRINT "STOCK '";A$;"' NOT FOUND"
700  GOTO 320
710  PRINT : PRINT "ENTER '1' TO CONTINUE"
720  INPUT A
730  RETURN
740  HOME : PRINT "STOCK DATA"
750  PRINT
760  PRINT "STOCK NAME: ";B$
770  PRINT
780  PRINT "# OF SHARES=";C;"  DATE OF PUR IS ";C2$
790  PRINT "PUR PRICE=$";D;"  TOTAL COST=$";C * D
800  PRINT
810  PRINT "RECENT PRICE=$";E;"   NET WORTH=$";C * E
820  PRINT : GOSUB 960
830  PRINT "(+) GAIN OR (-) LOSS IF SOLD = $";T1
840 C2 = C * D
850 R = (T1 / C2) * 100:R =  INT (R * 100) / 100
860  PRINT "PERCENT (+) GAIN OR (-) LOSS = ";R
870  PRINT
880  RETURN
890  END
900  READ B$,C,C2$,D,E
910  IF B$ = "END" THEN 950
920  GOSUB 960
930 P = P + T1
940  GOTO 900
950  RETURN
960 N = C * E:M = C * D
970 T1 = N - M:T2 = T2 + M:T5 = T5 + N
980  RETURN
1000  DATA GM,200,2/11/80,54,55.5
1010  DATA FORD,200,5/23/80,26.5,26
1020  DATA NVF,300,5/23/80,4.75,4.75
1030  DATA CHRYSLER,100,6/20/80,10.75,6.25
1040  DATA SONY,300,6/27/80,10.25,17.75
1050  DATA AMPEX,100,6/18/80,14.5,19.25
1060  DATA END,0,0,0,0
```

CHAPTER 29

Stock Plotter

A third program for the stock investor is the Stock Plotter. It will display a plot, using the TAB function, for any stock with a high price of up to $200, given a series of prices. These prices may be made of daily, weekly, or monthly data on a particular stock. The program is written in BASIC for your microcomputer. See Program 29-1 for the program listing.

THE PROGRAM

The stock price data must be entered into DATA statements beginning at line 810. Enter the data in the following format:

```
DATA PRICE1,PRICE2,PRICE3,PRICE4, . . . PRICEN
```

or

```
DATA 14.5,13.75,14.25,13.75
```

The last DATA statement in the list must be DATA 9999; this is used to test for the end of the data.

After you run the program, it requests your entry of the type of data plot. Enter a 1 for daily, 2 for weekly, or 3 for monthly. Then it requests an entry of the company name and the starting date of the plot (MM/DD/YY). Finally, enter a 1 to start the plot.

Now the program will find the highest price of the stock. Then it uses this price for scaling the output of the plot. The program will then print the company name, the date of the plot, and whether the plot is for daily, weekly, or monthly data. It then prints a horizontal scale from 0, at the left end, up to 200, at the right end. This scaling is dependent on the high price of the stock. Finally, the program plots each stock price using a plus sign (+) for each point. After all the data points are plotted, the program will display the average price of the stock over the given number of days, weeks, or months, and print the high price for that period.

See Fig. 29-1 for a sample run.

```
STOCK PLOTTER
COPYRIGHT (C) 1980 BY HOWARD BERENSON


THIS PROGRAM WILL PLOT ANY STOCK,
GIVEN A SERIES OF PRICES FOR
DAILY, WEEKLY, OR MONTHLY DATA.

DATA IS STORED IN DATA STATEMENTS,
BEGINNING AT LINE 810. ENTER IN
THE FOLLOWING FORMAT:
DATA 14.5,13.75,14.25,13.75
THE LAST DATA STATEMENT SHOULD BE
DATA 9999. THIS IS USED TO TEST
FOR THE END OF THE DATA.

ENTER TYPE OF DATA?
1=DAILY  2=WEEKLY  3=MONTHLY
? 3


3

ENTER NAME OF THE COMPANY
? ABC

ENTER THE STARTING DATE OF PLOT
(MM/DD/YY)
? 06/15/80

ENTER A '1' FOR PLOT
? 1




COMPANY=ABC  DATE=06/15/80
MONTH                PRICE
0          12.5        25          37.5          50
++++++++++++++++++++++++++++++++++++++++++++++++++++
 1         +
 2           +
 3         +
 4          +
 5            +
 6            +
 7            +
 8              +
 9            +
 10               +
 11              +
 12                     +



AVERAGE PRICE OF THE STOCK
ABC, OVER A PERIOD OF  12  MONTHS
IS $ 16.1
HIGH PRICE FOR THAT PERIOD IS $ 25.25
```

Fig. 29-1. Stock Plotter sample run.

Program 29-1. Stock Plotter Program Listing

```
100  HOME
110  PRINT "STOCK PLOTTER"
120  PRINT "APPLE II"
130  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
140  GOSUB 690: HOME
150  PRINT "THIS PROGRAM WILL PLOT ANY STOCK,"
160  PRINT "GIVEN A SERIES OF PRICES FOR"
170  PRINT "DAILY, WEEKLY, OR MONTHLY DATA."
180  PRINT
190  PRINT "DATA IS STORED IN DATA STATEMENTS,"
200  PRINT "BEGINNING AT LINE 810. ENTER IN"
210  PRINT "THE FOLLOWING FORMAT:"
220  PRINT "DATA 14.5,13.75,14.25,13.75"
230  PRINT "THE LAST DATA STATEMENT SHOULD BE"
240  PRINT "DATA 9999. THIS IS USED TO TEST"
250  PRINT "FOR THE END OF THE DATA."
260  PRINT
270  REM  BEGIN PLOT
280  PRINT "ENTER TYPE OF DATA?"
290  PRINT "1=DAILY  2=WEEKLY  3=MONTHLY"
300  INPUT T
310  PRINT
320  PRINT "ENTER NAME OF THE COMPANY"
330  INPUT A$
340  PRINT
350  PRINT "ENTER THE STARTING DATE OF PLOT"
360  PRINT "(MM/DD/YY)"
370  INPUT D$:S = 0
380  GOSUB 620
390  GOSUB 410
400  GOTO 450
410  IF S <  = 10 THEN P = 10:A = 3.5: RETURN
420  IF S <  = 35 THEN P = 35:A = 1: RETURN
430  IF S <  = 100 THEN P = 100:A = .35: RETURN
440  IF S <  = 200 THEN P = 200:A = .175: RETURN
450  PRINT : PRINT "ENTER A '1' FOR PLOT"
460  INPUT J
470  HOME :C = 1
480  PRINT "COMPANY=";A$;"  DATE=";D$
490  IF T = 1 THEN P$ = "DAY"
500  IF T = 2 THEN P$ = "WEEK"
510  IF T = 3 THEN P$ = "MONTH"
520  PRINT P$; TAB( 20)"PRICE"
530  PRINT "0"; TAB( 9);P / 4; TAB( 18);P / 2; TAB( 26);
     INT ((P / 1.3333) * 100) / 100; TAB( 35);P:R = 0
540  PRINT "++++++++++++++++++++++++++++++++++++++++"
550  READ D:U =  INT (D * A + .5)
560  IF D = 9999 THEN 720
570 R = R + D
580  PRINT C; TAB( U)"+":C = C + 1
590  FOR B = 1 TO 1500
600  NEXT B
610  GOTO 550
```

Program 29-1—cont. Stock Plotter Program Listing

```
620  REM  FIND HIGH PRICE
630 S = A
640  READ A: IF A = 9999 THEN 670
650  IF S > (A) THEN 640
660  GOTO 630
670  RESTORE
680  RETURN
690  FOR G = 1 TO 3178
700  NEXT G
710  RETURN
720  GOSUB 690
730 C = C - 1:U = R / C
740 U =  INT (100 * U) / 100
750  PRINT
760  PRINT "AVERAGE PRICE OF THE STOCK"
770  PRINT A$;", OVER A PERIOD OF ";C;" ";P$;"S"
780  PRINT "IS $";U
790  PRINT "HIGH PRICE FOR THAT PERIOD IS $";S
800  END
810  DATA 12.25,13.75,12,13,15.25,14.75
820  DATA 15.25,17.5,15.25,19.75,19.25,25.25
830  DATA 9999
```

SECTION IV

ESP Testing

This section is directed to the study of extrasensory perception, also known as ESP or psi. It consists of two programs that test for ESP. The first program tests the subject for clairvoyance, and the second program tests for precognition.

CHAPTER 30

Parapsychology Test 1: Clairvoyance

Clairvoyance is defined as the ability to perceive things that are not in sight or that cannot be seen. This program tests for clairvoyance using five each of the symbols *, +, −, =, and 0 stored in the computer. The subject will try to guess the symbol card, from the shuffled deck of 25. After the test is completed, a score is given. A score of 6 or more, after at least five consecutive tests, may be an indication of clairvoyance. The program is written in BASIC for your microcomputer. See Program 30-1 for the program listing.

THE PROGRAM

After you run the program, enter your name, or the subject's name, and the date (MM/DD/YY). Then enter a 1 to shuffle the deck. The computer will randomly mix the symbols and store them in array C$(M). After the shuffling is done, the computer will print SHUFFLING COMPLETED. Then the clairvoyance test number is displayed along with the date, the subject's name, and CARD# 1. You are then requested to enter the symbol guess.

Before entering your guess of the symbol, try to imagine yourself looking into the computer's memory and seeing the first symbol which appears in the shuffled deck. This first symbol will be stored in array C$(1), the second will be in C$(2), and so on through the twenty-fifth card. Enter the first symbol that appears in your mind. The program will advance to card No. 2. Continue entering the symbols in this manner until all 25 guesses are entered. You may now take another test by entering a Y, or end the testing with an N.

Entering an N will cause the computer to display your test data, including your score out of 25, for each test, the average score out of G tests taken, and the percent score. Then an analysis is given. If your average score is 6 or above, the program will indicate that there is a possibility that you are clairvoyant. If your average score is 5 or less, the program will indicate that you have an average score and there is no indication of clairvoyance.

It is recommended that at least five tests be taken to ensure an accurate analysis of your test data. The program allows a maximum of 25 consecutive tests.

PLOT

After your test scoring is complete, you may see a plot of the test data. The total score for each test is plotted horizontally, using the TAB function. A period (.) is displayed, along with the test number, at TAB(GG) on the horizontal line, where GG is the test score for each test as taken from the array T(A).

See Fig. 30-1 for a sample run.

```
PARAPSYCHOLOGY TEST 1
CLAIRVOYANCE
COPYRIGHT (C) 1980 BY HOWARD BERENSON

THIS IS A TEST FOR CLAIRVOYANCE. USING
FIVE EACH OF THE SYMBOLS *, +, -, =,
AND O, THE SUBJECT WILL TRY TO GUESS THE
SYMBOL CARD, FROM THE SHUFFLED DECK,
IN ORDER FROM 1 TO 25. AFTER THE TEST IS
COMPLETED, A SCORE IS GIVEN. A SCORE OF
5 OR LESS IS AVERAGE. A SCORE OF 6 OR
MORE, AFTER AT LEAST 5 TESTS, MAY BE AN
INDICATION OF CLAIRVOYANCE.

ENTER SUBJECT'S NAME
? BRUCE

BRUCE

ENTER DATE (MM/DD/YY)
? 05/07/80


ENTER A '1' TO SHUFFLE THE CARDS
? 1
NOW SHUFFLING


SHUFFLING COMPLETED



CLAIRVOYANCE TEST  1

DATE :  05/07/80
SUBJECT: BRUCE

CARD#  1        TEST  1

ENTER SYMBOL GUESS
(* + - = O)
? +


CARD#  2        TEST  1

ENTER SYMBOL GUESS
(* + - = O)
? O


CARD#  3        TEST  1

ENTER SYMBOL GUESS
(* + - = O)
? O



CARD#  4        TEST  1

ENTER SYMBOL GUESS
(* + - = O)
? O

CARD#  5        TEST  1

ENTER SYMBOL GUESS
(* + - = O)
? +



CARD#  24       TEST  1

ENTER SYMBOL GUESS
(* + - = O)
? =


CARD#  25       TEST  1

ENTER SYMBOL GUESS
(* + - = O)
? +



ANOTHER TEST?
Y=YES  N=NO
? N


CLAIRVOYANCE TEST SCORING
DATE:  05/07/80
SUBJECT:  BRUCE

CORRECT SCORE OUT OF 25
TEST #  1
 5
AVERAGE SCORE OUT OF  1
TEST(S) IS  5

THAT'S  20  PERCENT CORRECT



YOU HAVE AN AVERAGE SCORE.
AT THIS TIME, THERE IS NO
INDICATION OF CLAIRVOYANCE.
WOULD YOU LIKE A PLOT
OF THE TEST SCORES
Y=YES  N=NO
? Y


PLOT OF CLAIRVOYANCE TEST DATA
SUBJECT:  BRUCE   DATE: 05/07/80

0    5    10   15        25
++++++++++++++++++++++++++
     *   TEST #  1
```

Fig. 30-1. Parapsychology Test 1: Clairvoyance sample run.

Program 30-1. Parapsychology Test 1: Clairvoyance Program Listing

```
100  HOME : PRINT "PARAPSYCHOLOGY TEST 1"
110  PRINT "CLAIRVOYANCE"
120  PRINT "APPLE II"
130  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
140  PRINT
150  REM   DIM ARRAYS
160  DIM A(25),C$(25),T(25)
170  PRINT "THIS IS A TEST FOR CLAIRVOYANCE. USING"
180  PRINT "FIVE EACH OF THE SYMBOLS *, +, -, =,"
190  PRINT "AND O, THE SUBJECT WILL TRY TO GUESS THE"
200  PRINT "SYMBOL CARD, FROM THE SHUFFLED DECK,"
210  PRINT "IN ORDER FROM 1 TO 25. AFTER THE TEST IS"
220  PRINT "COMPLETED, A SCORE IS GIVEN. A SCORE OF"
230  PRINT "5 OR LESS IS AVERAGE. A SCORE OF 6 OR"
240  PRINT "MORE, AFTER AT LEAST 5 TESTS, MAY BE AN"
250  PRINT "INDICATION OF CLAIRVOYANCE."
260  GOSUB 1260
270  GOSUB 1260
280  PRINT
290  PRINT "ENTER SUBJECT'S NAME"
300  INPUT N$: PRINT
310  PRINT "ENTER DATE (MM/DD/YY)"
320  INPUT D$
330  PRINT
340  HOME :G = O:T = O
350  PRINT "ENTER A '1' TO SHUFFLE THE CARDS"
360  INPUT A
370  IF A <  > 1 THEN 340
380  PRINT "NOW SHUFFLING": GOSUB 840
390  PRINT :G = G + 1:T = T + 1
400  PRINT "SHUFFLING COMPLETED"
410  GOSUB 1260
420  GOSUB 1260
430  HOME
440  PRINT "CLAIRVOYANCE TEST ";T
450  PRINT : PRINT "DATA :  ";D$
460  PRINT "SUBJECT: ";N$
470  PRINT
480  FOR A = 1 TO 25
490  PRINT "CARD# ";A,"TEST ";T
500  PRINT
510  PRINT "ENTER SYMBOL GUESS"
520  PRINT "(* + - = O)"
530  INPUT C$: HOME
540  IF C$ = C$(A) THEN T(G) = T(G) + 1
550  NEXT A
560  PRINT
570  PRINT "ANOTHER TEST?"
580  PRINT "Y=YES  N=NO"
590  INPUT A$
600  IF A$ = "Y" THEN 350
610  HOME
620  PRINT "CLAIRVOYANCE TEST SCORING"
```

Program 30-1—cont. Parapsychology Test 1: Clairvoyance Program Listing

```
630  PRINT "DATE:  ";D$
640  PRINT "SUBJECT:  ";N$
650  PRINT
660  PRINT "CORRECT SCORE OUT OF 25"
670 J = 0
680  FOR A = 1 TO G
690  PRINT "TEST # ";A
700  PRINT T(A):J = T(A) + J
710  NEXT A
720  GOSUB 1260
730  PRINT "AVERAGE SCORE OUT OF ";G
740  PRINT "TEST(S) IS ";J / G
750  PRINT
760  PRINT "THAT'S ";J / G * 4;" PERCENT CORRECT"
770  GOSUB 1260: GOSUB 1260: GOSUB 1140
780  PRINT "WOULD YOU LIKE A PLOT"
790  PRINT "OF THE TEST SCORES"
800  PRINT "Y-YES  N=NO"
810  INPUT A$
820  IF A$ = "Y" THEN 980
830  END
840  FOR N = 1 TO 25
850 A(N) = 0
860  NEXT N
870  FOR N = 1 TO 25
880 M =  INT ( RND (1) * 25 + 1)
890  FOR A = 1 TO M
900  READ B$
910  NEXT A
920  RESTORE
930  IF A(M) = 1 THEN 880
940 A(M) = 1
950 C$(M) = B$
960  NEXT N
970  RETURN
980  PRINT "PLOT OF CLAIRVOYANCE TEST DATA"
990  PRINT "SUBJECT:  ";N$;"   DATE: ";D$
1000  PRINT
1010  PRINT "0    5    10   15        25"
1020  PRINT "++++++++++++++++++++++++++"
1030  FOR A = 1 TO G
1040 GG = T(A) + 1
1050  PRINT  TAB( GG)".   TEST # ";A
1060  GOSUB 1260
1070  NEXT A
1080  END
1090  DATA "*","*","*","*","*"
1100  DATA "+","+","+","+","+"
1110  DATA "-","-","-","-","-"
1120  DATA "=","=","=","=","="
1130  DATA "O","O","O","O","O"
1140  PRINT
1150  IF J / G >  = 6 THEN 1210
```

Program 30-1—cont. Parapsychology Test 1: Clairvoyance Program Listing

```
1160  PRINT
1170  PRINT "YOU HAVE AN AVERAGE SCORE."
1180  PRINT "AT THIS TIME, THERE IS NO"
1190  PRINT "INDICATION OF CLAIRVOYANCE."
1200  RETURN
1210  PRINT
1220  PRINT "YOUR SCORE IS ABOVE AVERAGE."
1230  PRINT "THERE IS A POSSIBILITY THAT YOU"
1240  PRINT "ARE CLAIRVOYANT."
1250  RETURN
1260  REM  DELAY
1270  FOR Z = 1 TO 1135
1280  NEXT Z
1290  RETURN
```

CHAPTER 31

Parapsychology Test 2: Precognition

Precognition is defined as the ability to perceive events before they occur. This program tests for precognition using five each of the symbols *, +, −, =, and 0 stored in the computer. The subject will try to guess the symbol card in order from 1 to 25. The deck is shuffled after all 25 guesses are entered. After the test is completed, a score is given. A score of 6 or more, after at least five consecutive tests, may be an indication of precognition. The program is written in BASIC for your microcomputer. See Program 31-1 for the program listing.

THE PROGRAM

After you run the program, enter your name, or the subject's name, and the date (MM/DD/YY). Then the precognition test number is displayed along with the date, the subject's name, and CARD# 1. You are then requested to enter the symbol guess.

Before entering your guess of the symbol, try to imagine yourself looking into the computer's memory at some future time, after the cards have been shuffled (the cards will not be shuffled until all symbol guesses are entered). Imagine seeing the first symbol which will appear in the shuffled deck. This first symbol will be stored in array C$(1), the second will be in C$(2), and so on through the twenty-fifth card. Enter the first symbol that appears in your mind. The program will advance to card No. 2. Continue entering the symbols in this manner until all 25 guesses are entered. Then the cards will be shuffled. You may now take another test, by entering a Y, or end the testing with an N.

Entering an N will cause the computer to display your test data including your score out of 25, for each test, the average score out of G tests taken, and the percent score. Then an analysis is given. If your average score is 6 or above, the program will indicate that there is a possibility that you have precognition abilities. If your average score is 5 or less, the program will indicate that you have an average score and there is no indication of precognition.

It is recommended that at least five tests are taken to ensure an accurate analysis of your test data. The program allows a maximum of 25 consecutive tests.

PLOT

After your test scoring is complete, you may see a plot of the test data. The total score for each test is plotted horizontally, using the TAB function. A period (.) is displayed, along with the test number, at TAB(GG) on the horizontal line, where GG is the test score for each test as taken from the array T(A).

See Fig. 31-1 for a sample run.

```
PARAPSYCHOLOGY TEST 2: PRECOGNITION
COPYRIGHT (C) 1980 BY HOWARD BERENBON

THIS IS A TEST FOR PRECOGNITION. USING
FIVE EACH OF THE SYMBOLS *, +, -, =,
AND 0, THE SUBJECT WILL TRY TO GUESS
THE SYMBOL CARD IN ORDER FROM 1 TO 25.
THE DECK IS SHUFFLED AFTER ALL 25
GUESSES ARE ENTERED. AFTER THE TEST IS
COMPLETED, A SCORE IS GIVEN. A SCORE OF
5 OR LESS IS AVERAGE. A SCORE OF 6 OR
MORE, AFTER AT LEAST 5 TESTS, MAY BE AN
INDICATION THAT THE SUBJECT CAN
PREDICT THE FUTURE.


ENTER SUBJECT'S NAME
? BRUCE

ENTER DATE (MM/DD/YY)
? 05/07/80




PRECOGNITION TEST  1

DATE :  05/07/80
SUBJECT: BRUCE

CARD#  1        TEST  1

ENTER SYMBOL GUESS
(* + - = 0)
? =



CARD#  2        TEST  1

ENTER SYMBOL GUESS
(* + - = 0)
? +



CARD#  3        TEST  1

ENTER SYMBOL GUESS
(* + - = 0)
? *



CARD#  4        TEST  1

ENTER SYMBOL GUESS
(* + - = 0)
? *



CARD#  5        TEST  1

ENTER SYMBOL GUESS
(* + - = 0)
? 0

CARD#  24       TEST  1

ENTER SYMBOL GUESS
(* + - = 0)
? =



CARD#  25       TEST  1

ENTER SYMBOL GUESS
(* + - = 0)
? -



ENTRY COMPLETED AND RECORDED

STAND BY . . .
THE CARDS ARE BEING SHUFFLED

SHUFFLING COMPLETED



NOW SCORING


TEST  1   SCORE RECORDED

ANOTHER TEST?
Y=YES  N=NO
? N



PRECOGNITION TEST SCORING
DATE:  05/07/80
SUBJECT:  BRUCE

CORRECT SCORE OUT OF 25
TEST #  1
 5
AVERAGE SCORE OUT OF  1
TEST(S) IS  5
THAT'S  20  PERCENT CORRECT



YOU HAVE AN AVERAGE SCORE.
AT THIS TIME, THERE IS NO
INDICATION OF PRECOGNITION
ABILITIES.

WOULD YOU LIKE A PLOT
OF THE TEST SCORES
Y=YES  N=NO
? Y



PLOT OF PRECOGNITION TEST DATA
SUBJECT:  BRUCE   DATE: 05/07/80

0    5    10   15        25
++++++++++++++++++++++++++
      .   TEST #  1
```

Fig. 31-1. Parasychology Test 2: Precognition sample run.

Program 31-1. Parapsychology Test 2: Precognition Program Listing

```
100  HOME : PRINT "PARAPSYCOLOGY TEST 2: PRECOGNITION"
110  PRINT "APPLE II"
120  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
130  PRINT
140  REM  DIM ARRAY
150  DIM A(25),C$(25),T(25),D$(25)
160  PRINT "THIS IS A TEST FOR PRECOGNITION. USING"
170  PRINT "FIVE EACH OF THE SYMBOLS *, +, -, =,"
180  PRINT "AND O, THE SUBJECT WILL TRY TO GUESS"
190  PRINT "THE SYMBOL CARD IN ORDER FROM 1 TO 25."
200  PRINT "THE DECK IS SHUFFLED AFTER ALL 25"
210  PRINT "GUESSES ARE ENTERED. AFTER THE TEST IS"
220  PRINT "COMPLETED, A SCORE IS GIVEN. A SCORE OF"
230  PRINT "5 OR LESS IS AVERAGE. A SCORE OF 6 OR"
240  PRINT "MORE, AFTER AT LEAST 5 TESTS, MAY BE AN"
250  PRINT "INDICATION THAT THE SUBJECT CAN"
260  PRINT "PREDICT THE FUTURE."
270  GOSUB 1250
280  GOSUB 1250
290  PRINT
300  PRINT "ENTER SUBJECT'S NAME"
310  INPUT N$: PRINT
320  PRINT "ENTER DATE (MM/DD/YY)"
330  INPUT D$
340  HOME :G = O:T = O
360 T = T + 1
370  HOME
380  PRINT "PRECOGNITION TEST ";T
390  PRINT : PRINT "DATE :  ";D$
400  PRINT "SUBJECT: ";N$
410  PRINT
420  FOR A = 1 TO 25
430  PRINT "CARD# ";A,"TEST ";T
440  PRINT
450  PRINT "ENTER SYMBOL GUESS"
460  PRINT "(* + - = O)"
470  INPUT C$: HOME
480 D$(A) = C$
490  NEXT A
500  PRINT : PRINT "ENTERY COMPLETED AND RECORDED"
510  GOSUB 1250: GOSUB 1250
520  GOSUB 1320
530  PRINT "ANOTHER TEST?"
540  PRINT "Y=YES  N=NO"
550  INPUT A$
560  IF A$ = "Y" THEN 360
570  HOME
580  PRINT "PRECOGNITION TEST SCORING"
590  PRINT "DATE:  ";D$
600  PRINT "SUBJECT:  ";N$
610  PRINT
620  PRINT "CORRECT SCORE OUT OF 25"
630 J = O
```

Program 31-1—cont. Parapsychology Test 2: Precognition Program Listing

```
640  FOR A = 1 TO G
650  PRINT "TEST # ";A
660  PRINT T(A):J = T(A) + J
670  NEXT A
680  GOSUB 1250
690  PRINT "AVERAGE SCORE OUT OF ";G
700  PRINT "TEST(S) IS ";J / G
710  PRINT "THAT'S ";(J / G) * 4;" PERCENT CORRECT"
720  GOSUB 1250: GOSUB 1250
730  GOSUB 1250: GOSUB 1250: GOSUB 1100: GOSUB 1250
740  PRINT "WOULD YOU LIKE A PLOT"
750  PRINT "OF THE TEST SCORES"
760  PRINT "Y=YES  N=NO"
770  INPUT A$
780  IF A$ = "Y" THEN 940
790  END
800  FOR N = 1 TO 25
810 A(N) = 0
820  NEXT N
830  FOR N = 1 TO 25
840 M =  INT ( RND (1) * 25 + 1)
850  FOR A = 1 TO M
860  READ B$
870  NEXT A
880  RESTORE
890  IF A(M) = 1 THEN 840
900 A(M) = 1
910 C$(M) = B$
920  NEXT N
930  RETURN
940  HOME : PRINT "PLOT OF PRECOGNITION TEST DATA"
950  PRINT "SUBJECT:  ";N$;"   DATE: ";D$
960  PRINT
970  PRINT "0    5    10   15        25"
980  PRINT "+++++++++++++++++++++++++"
990  FOR A = 1 TO G
1000 GG = T(A) + 1
1010  PRINT  TAB( GG)".   TEST # ";A
1020  GOSUB 1250
1030  NEXT A
1040  END
1050  DATA "*","*","*","*","*"
1060  DATA "+","+","+","+","+"
1070  DATA "-","-","-","-","-"
1080  DATA "=","=","=","=","="
1090  DATA "0","0","0","0","0"
1100  PRINT
1110  IF J / G >  = 6 THEN 1200
1120  IF J / G < 4 THEN 1290
1130  PRINT
1140  PRINT "YOU HAVE AN AVERAGE SCORE."
1150  PRINT "AT THIS TIME, THERE IS NO"
1160  PRINT "INDICATION OF PRECOGNITION"
```

Program 31-1—cont. Parapsychology Test 2: Precognition Program Listing

```
1170  PRINT "ABILITIES."
1180  PRINT
1190  RETURN
1200  PRINT "YOUR SCORE IS ABOVE AVERAGE."
1210  PRINT "THERE IS A POSSIBILITY THAT YOU"
1220  PRINT "HAVE PRECOGNITION ABILITIES."
1230  PRINT
1240  RETURN
1250  REM  DELAY
1260  FOR Z = 1 TO 1135
1270  NEXT Z
1280  RETURN
1290  PRINT
1300  PRINT "YOUR SCORE IS LESS THAN AVERAGE."
1310  GOTO 1150
1320  PRINT
1330  PRINT "STAND BY . . ."
1340  PRINT "THE CARDS ARE BEING SHUFFLED"
1350  GOSUB 800
1360  PRINT :G = G + 1
1370  PRINT "SHUFFLING COMPLETED"
1380  GOSUB 1250
1390  PRINT : GOSUB 1250: GOSUB 1250
1400  PRINT "NOW SCORING"
1410  GOSUB 1250: GOSUB 1250
1420  FOR A = 1 TO 25
1430  IF C$(A) = D$(A) THEN T(G) = T(G) + 1
1440  NEXT A
1450  HOME : PRINT "TEST ";T;"  SCORE RECORDED"
1460  GOSUB 1250
1470  PRINT
1480  RETURN
```

SECTION V

A Fantasy Game

This last section includes a complete fantasy game called The Dungeon of Danger. It is the longest program in the book, requiring almost 16K of RAM to run.

Here, you may choose your fantasy character's name and boldly roam the chambers and corridors of the dungeon, with your magic sword, seeking out monsters and gold. Your goal is to find your way out, unharmed, with as much gold as possible. Good luck.

CHAPTER 32

The Dungeon of Danger

The Dungeon of Danger is an adventure fantasy game in which the player must fight monsters as he or she wanders through the chambers and corridors of the dungeon. It's a two-level dungeon, based on the fantasy role-playing game Dungeons and Dragons.* It's written in BASIC for your microcomputer, and it requires 16K of RAM to run. See Program 32-1 for the program listing.

THE PROGRAM

You are given 500 gold pieces and are teleported to a random location in the lower level of this 128-chamber, two-level (64 chambers per level) dungeon. Your goal is to find your way out, with as much gold as possible. Gold pieces are acquired by finding and killing monsters that occupy the dungeon. Each time you kill a monster, you will find a random amount of gold in the chamber. But, monsters fight back, and if you're not careful you can be killed and lose the game. There are other places in the dungeon where gold may be found, but this will be discussed later.

ACTIONS OR MOVES

In your trip through the dungeon you will encounter monsters (up to 37 types), thieves, empty chambers, trap doors, secret doors leading to north-south or east-west corridors, caverns, vials (filled with liquids that can heal), teleportation traps, maps, enchanted keys, and stairways leading up.

See Fig. 32-1 for a sample run.

After you run the program, enter your name or your favorite fantasy character's name, for your trip into the Dungeon of Danger. Then enter the difficulty level; enter a 1 for moderate or a 2 for difficult. The computer will then generate your "hit-point" value for combat. A typical hit-point value for difficulty level 1 is about 26, and for difficulty level 2 is about 15. When fighting, if a monster scores a "hit" on you, then this number is subtracted from your current hit-point value. If your hit-point value is depleted to zero, then you will die and lose the game. Each monster has a different strength, and may be difficult to kill, depending on its hit-point number.

After your hit-point value is generated, you will be teleported to a random location in the lower level of the dungeon.

You now have a choice of eight actions. Enter the letter in parentheses for the following actions or moves in the dungeon:

(N)ORTH movement	(up)
(E)AST movement	(right)
(S)OUTH movement	(down)
(W)EST movement	(left)
(U)P movement	(when at a stairway, and have the enchanted key)
(M)AP display	(if found-when encountering thieves)
(G)OLD pieces left	
(H)IT POINTS left	

North Movement (UP)

Entering an N allows you to move north through the dungeon. You may not move north under the following conditions:

1. If you reach the North Wall, you cannot pass through it.
2. If you enter an east-west corridor (through

* Dungeons and Dragons is a registered trademark of TSR Hobbies, Inc.

```
THE DUNGEON OF DANGER
COPYRIGHT (C) 1980 BY HOWARD BERENBON

A FANTASY GAME



YOU WILL BE TELEPORTED TO . . .

THE DUNGEON OF DANGER

ENTER DIFFICULTY LEVEL?
1=MODERATE  2=DIFFICULT
? 1

ENTER YOUR CHARACTER'S NAME?
? FRODO



YOU CARRY A MAGIC SWORD
AND 500 GOLD PIECES WITH YOU.
YOUR 'HIT-POINT' VALUE IS  21
IF IT REACHES ZERO, YOU WILL DIE
. . . . . SO BE CAREFUL

FRODO . . . YOU ARE ON YOUR WAY



YOU HAVE ARRIVED AT . . . .

THE DUNGEON OF DANGER . . . LEVEL 2

YOU WILL ENCOUNTER MONSTERS AND
THIEVES, AND GOLD . . . GOOD LUCK



YOU ARE IN A DAMP AND MISTY
. . . . . EMPTY CHAMBER


FRODO,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD, (H)IT POINTS
? N



THERE IS SOMETHING LURKING . . .
. . . . IN THIS CHAMBER . . . .
. . . . . BEWARE

IT IS A . . . . . VAMPIRE BAT . .


WILL YOU (F)IGHT OR (R)UN ?
? F



YOU ATTACK THE . . . VAMPIRE BAT
WITH A SWING OF YOUR SWORD
YOU DO  2  HIT POINT(S) OF DAMAGE

IT HAS . .  4  'HIT-POINT(S)' LEFT


. . . . . IT ATTACKS YOU
AND IT DOES  2  'HIT-POINT(S)' OF DAMAGE

YOU HAVE . . .  19  'HIT-POINT(S)' LEFT


WILL YOU (F)IGHT OR (R)UN ?
? F


YOU ATTACK THE . . . VAMPIRE BAT
WITH A SWING OF YOUR SWORD

YOU HAVE KILLED THE VAMPIRE BAT

YOU SEARCH THE AREA . . . .
AND FIND . . .  229  GOLD PIECES

FRODO,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD, (H)IT POINTS
? E



YOU ENTER AN . . . EAST-WEST CORRIDOR
THRU A . . . . . SECRET DOOR

THE DOOR CLOSES AND LOCKS BEHIND YOU

FRODO,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD, (H)IT POINTS
? E



THERE IS A THIEF IN THIS CHAMBER

. . . . . HE SURPRISES YOU
AS HE QUICKLY PASSES BY YOU HE
SNATCHES . . .  65  GOLD PIECES


FRODO,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD, (H)IT POINTS
? N



YOU STUMBLED ONTO . . . . .
A HIDDEN CAVERN


YOU LOOK AROUND . . .
ON THE GROUND, AT YOUR FEET, IS A VIAL

YOU PICK UP THE VIAL . . AND SEE THAT
IT CONTAINS . . . A MILKY LIQUID

WOULD YOU LIKE A DRINK?
ENTER (Y)ES  OR  (N)O
? Y



YOU TAKE A DRINK . . .



IT WAS A WHITE MAGIC POTION . . .
WHICH INCREASED YOUR 'HIT-POINTS' BY  12

THE CAVERN SEEMS EMPTY . . .

FRODO,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD, (H)IT POINTS
? W



YOU ARE IN A DAMP AND MISTY
. . . . . EMPTY CHAMBER


FRODO,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD, (H)IT POINTS
? W
```

Fig. 32-1. The Dungeon

```
THERE IS SOMETHING LURKING . . .
. . . . IN THIS CHAMBER . . . .
. . . . . BEWARE

IT IS A . . . . . BLACK CAT . .


. . . . . IT ATTACKS YOU
AND IT DOES  2  'HIT-POINT(S)' OF DAMAGE

YOU HAVE . . .  36  'HIT-POINT(S)' LEFT


WILL YOU (F)IGHT OR (R)UN ?
? F




YOU ATTACK THE . . . BLACK CAT
WITH A SWING OF YOUR SWORD

YOU HAVE KILLED THE BLACK CAT

YOU SEARCH THE AREA . . . .
AND FIND . . .  126  GOLD PIECES

FRODO,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD, (H)IT POINTS
? S



THERE IS A THIEF IN THIS CHAMBER

. . . . . HE SURPRISES YOU
AS HE QUICKLY PASSES BY YOU HE
SNATCHES . . .  135  GOLD PIECES

YOU SEARCH THE CHAMBER AND
YOU . . . . . FIND A MAP

FRODO,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD, (H)IT POINTS
? S



YOU ARE AT A STAIRWAY
 . . . . . GOING UP


FRODO,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD, (H)IT POINTS
? U



YOU WALK UP THE STAIRWAY
THE ENCHANTED KEY . . . OPENS THE LOCK

YOU ARE AT . . . . . LEVEL 1



THERE IS SOMETHING LURKING . . .
. . . . IN THIS CHAMBER . . . .
. . . . . BEWARE

IT IS A . . . . . DEADLY COBRA . .


WILL YOU (F)IGHT OR (R)UN ?
? F



YOU ATTACK THE . . . DEADLY COBRA
WITH A SWING OF YOUR SWORD

YOU HAVE KILLED THE DEADLY COBRA

YOU SEARCH THE AREA . . . .
AND FIND . . .  571  GOLD PIECES

FRODO,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD, (H)IT POINTS
? E



YOU ACTIVATED A . . . TRAP DOOR

BUT . . . YOU CAUGHT YOURSELF
FROM FALLING

FRODO,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD, (H)IT POINTS
? S



THERE IS SOMETHING LURKING . . .
. . . . IN THIS CHAMBER . . . .
. . . . . BEWARE

IT IS A . . . . . BERSERKER . .


. . . . . IT ATTACKS YOU
AND IT DOES  11  'HIT-POINT(S)' OF DAMAGE

YOU HAVE . . .  25  'HIT-POINT(S)' LEFT


WILL YOU (F)IGHT OR (R)UN ?
? F



YOU ATTACK THE . . . BERSERKER
WITH A SWING OF YOUR SWORD

YOU HAVE KILLED THE BERSERKER

YOU SEARCH THE AREA . . . .
AND FIND . . .  126  GOLD PIECES

FRODO,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD, (H)IT POINTS
? N



YOU ARE AT A STAIRWAY
 . . . . . GOING UP


FRODO,  WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD, (H)IT POINTS
? U



YOU WALK UP THE STAIRWAY
THE ENCHANTED KEY . . . OPENS THE LOCK
YOU FOUND YOUR WAY . . .
. . . OUT OF THE DUNGEON OF DANGER

YOU HAVE ACQUIRED  2708  GOLD PIECES

GAME RATING IS  556  = WARRIOR

YOU TOOK  98  TURNS TO FIND THE WAY OUT,
AND KILLED  12  MONSTERS.

ANOTHER GAME?
ENTER (Y)ES  OR  (N)O
? Y
```

of Danger sample run.

a secret door), movement north is not allowed.

East Movement (RIGHT)

Entering an E allows you to move east. You may not move east under the following conditions:

1. If you reach the East Wall, you cannot pass through it.
2. If you enter a north-south corridor (through a secret door), movement east is not allowed.

South Movement (DOWN)

Entering an S allows you to move south. You may not move south under the following conditions:

1. If you reach the South Wall, you cannot pass through it.
2. If you enter an east-west corridor (through a secret door), movement south is not allowed.

West Movement (LEFT)

Entering a W allows you to move west. You may not move west under the following conditions:

1. If you reach the West Wall, you cannot pass through it.
2. If you enter a north-south corridor (through a secret door), movement west is not allowed.

Up Movement

Entering a U, when you are at a stairway and have found the Enchanted Key, allows you to go up to the next level. If you haven't found the key or you are not at a stairway, you cannot go up the stairway. To find the Enchanted Key, you must kill a random number of monsters for each level. Also, there is a different key for each level.

Map Display

Entering an M, when you have found a map, will display the map for that level. Each level has a different map, and they may be found when encountering thieves. The 64-chamber dungeon is displayed using the following symbols:

M = monster
0 = empty chamber
? = unknown contents (either a thief or a trap door)
C = cavern
UP = stairway up
NS = north-south corridor (entered through secret doors)
EW = east-west corridor (entered through secret doors)
P1 = your location in the dungeon

See Fig. 32-2 for a sample map.

```
THE DUNGEON OF DANGER--MAP:  LEV   1

M   EW  NS  M   0   C   M   UP
EW  EW  EW  C   0   M   0   M
NS  EW  EW  ?   0   M   M   UP
M   C   UP  NS  0   NS  C   C
NS  ?   0   ?   0   M   0   NS
?   UP  ?   NS  0   P1  M   0
?   M   NS  NS  0   0   0   M
NS  EW  EW  0   C   0   EW  ?

FRODO, WHAT IS YOUR ACTION OR MOVE?

(N)ORTH, (E)AST, (S)OUTH, (W)EST
(U)P, (M)AP, (G)OLD, (H)IT POINTS
? N
```

Fig. 32-2. The Dungeon of Danger sample map.

A question mark (?) indicates either a thief or a trap door. There is no way of knowing which is there, unless you enter the chamber. If you encounter a thief, either you surprise him and he drops some of his gold, or he surprises you and steals some of your gold. This is randomly determined, but it's in favor of the thief. After you encounter a thief, the chamber becomes empty.

If you activate a trap door, you can either fall through or catch yourself from falling. If you fall through, you will lose most of your gold pieces, when playing at difficulty level 1 (moderate). But you can die if you are playing at difficulty level 2 (difficult). There is a 25-percent chance that you will fall through, when your difficulty level is 1, and a 50-percent chance when your difficulty is 2. If you are at level two of the dungeon, then you will fall into a deep pit. If you made it up to level one, then you will fall back down to level two. Avoid these traps, if possible.

When displaying the map, your location in the dungeon is identified with the symbol P1.

Gold Pieces Left

Entering a G will display the number of gold pieces you have with you. You will start out with 500 and can gain or lose gold during your trip. The more gold you acquire, the better your game rating will be.

Hit-Points Left

Entering an H will display the number of hit-points you have left. Also, each time you fight a monster, your number of hit-points left is displayed.

MONSTERS AND FIGHTING

When you are entering into a chamber occupied by a monster, the monster may or may not attack you. Then, you have the option of fighting, by entering an F, or running, by entering an R.

Fighting

If you choose to fight, then enter an F. Your character will swing at the monster with his magic sword, always making contact, and damaging it by depleting some of its hit-points. But then the monster will attack you and possibly score a hit, depleting some of your hit-points. There is a chance that the monster will miss you, if you are lucky. You may now continue fighting until the monster is killed, it kills you, or you run out.

Each monster has a different hit-point number, depending on its strength. A weak monster (easy to kill) will have a hit-point value of between 1 and 3. A monster with a hit-point value of 4 or greater is considered strong and more difficult to kill. The stronger the monster, the harder it can hit you. Each of the 37 monsters have two hit-point numbers. The first number is the maximum it can hit you with, at one time, and the second is the number of hit-points required to kill it. The DATA statements in program lines 3720 through 4050 hold the names and hit-points of most of the monsters in the dungeon. This data may be changed, or modified, for different monsters with different strengths. The last four monsters in the data list are the corridor monsters. They are the weakest and easiest to kill.

Each hit on a monster will deplete its hit-point value, until it reaches zero, then it is killed. Each time you kill a monster, you will find a random amount of gold in the chamber, and then the chamber becomes empty.

Running

When fighting a monster, you have the option of running away, by entering an R. This option should be used if your hit-point value is low and you may not survive the next attack. This choice depends on the strength of the monster. Use your own judgment. Entering an R will send you back to the chamber that you previously occupied, but the monster can attack you, with one or two hit-points, as you leave.

Your Strength at Different Levels

The number of hit-points that you deplete from a monster increases with the number of monsters you have killed. So, generally, the more monsters you kill, the easier it will be to kill the next monster that you encounter.

Generally, monsters are more difficult to kill at level one of the dungeon. But if you have killed a large number in finding your way up from level two to level one, then they should be easier to kill, due to your experience. Also, your reward for killing a monster at level one is generally higher than at level two.

CAVERNS

There are several things that can happen to you when you enter into a cavern. Often you will find vials filled with liquids. These liquids can heal wounds, two-thirds of the time, by increasing your hit-point value after you drink them. But sometimes the liquids have no effect, or even decrease your hit-point value slightly. It is recommended that you drink the liquid, if your hit-point value is low.

You may run into giant spiders or the Dark Wizards. They can hit hard and are difficult to kill, so be careful. But fortunately there are the Ancient Wizards that you may encounter. They will increase your hit-point value and give you gold.

Pools of Water

On the lower level of the dungeon (level two), there are pools of water that you may fall into. The following three things can happen when you fall into a pool:

1. You may be attacked by a Gill Monster; and he's not easy to kill.
2. The water will feel warm and soothing; and nothing happens.
3. The water will be steaming hot; and you will lose a random number of gold pieces in the pool.

NORTH-SOUTH AND EAST-WEST CORRIDORS

North-south and east-west corridors may be entered from any direction (through secret doors), but will limit your next move to the direction displayed.

Three things can happen when entering into a corridor:

1. You can activate a teleportation trap and be teleported to an unknown location (at your present level) in the dungeon.
2. You can encounter corridor monsters that may or may not attack you.

3. Or, the corridor can be empty.

There are four types of monsters that you may encounter in the corridors. They are among the weakest of the monsters in the dungeon and can be killed quite easily. They are as follows:

1. Gelatinous Cube
2. Giant Centipede
3. Giant Rat
4. Shadow

No other monsters can appear in the corridors.

WINNING

To win the game you must sucessfully make it up through the two levels and then exit the dungeon.

LOSING

You will lose the game if your hit-point value is depleted to 0. But in some cases (about 50 percent of the time) you will get a second chance. Your hit-points will be restored, and then you will be allowed a random number of moves (based on the number of monsters previously killed) to find your way out. If you die again, you won't get another chance.

GAME RATING

After you complete the game, a game rating is displayed along with the number of gold pieces acquired, the number of monsters killed, and the number of turns (moves) taken. The rating is a number from approximately −600 to +2000, depending on the statistics above. The higher the rating number, the better is the game rating.

Along with the number rating, there is a title rating. The following is a list of ten possible title ratings, and their scores:

−401 or less	Incompetent Serf
−101 to −400	Weakling
−100 to −1	Apprentice
0 to 99	Halfling
100 to 199	Foot Soldier
200 to 599	Warrior
600 to 899	Great Warrior
900 to 1499	Swordsman
1500 to 2499	Magic Swordsman
2500 and above	Dungeon Master

After the game is completed, you may play another game by entering a Y for yes, or end the game by entering an N for no.

THE MONSTER LIST

The following is a list of monsters that appear in the dungeon, with their hit-point values. The first number is used to generate its hit on you. The second number is its strength:

Gill Monster	8	14
Dark Wizard	8	14
Giant Spider	6	12
Large Dragon	6	12
Hideous Ghoul	5	10
Lizard Man	4	8
Manticore	6	12
Purple Worm	6	12
Deadly Cobra	5	10
Mad Elf	5	10
Clay Man	4	8
Hairy Beast	5	10
Mad Dwarf	4	8
Zombie	4	8
Berserker	5	10
Giant Scorpion	6	12
Giant Cockroach	4	8
Doppleganger	5	10
Giant Fire Beetle	1	2
Giant Ant	1	2
Giant Tick	2	4
Mummy	3	6
Nasty Orc	2	4
Skeleton	1	2
Troll	3	6
Goblin	3	6
Vampire Bat	3	6
Creeping Blob	3	6
Mad Dog	2	4
Large Spider	3	6
Black Cat	2	4
Man-Eating Plant	1	2
Hydra	3	6
Gelatinous Cube	2	4
Giant Centipede	1	2
Giant Rat	2	4
Shadow	2	4

Program 32-1. The Dungeon of Danger Program Listing

```
100  HOME
110 : PRINT "THE DUNGEON OF DANGER"
120  PRINT "APPLE II"
130  PRINT "COPYRIGHT (C) 1980 BY HOWARD BERENBON"
140  PRINT
150  PRINT "A FANTASY GAME"
160 BB = 2
170  GOSUB 470
180  HOME : DIM A(9,9,2)
190  PRINT "YOU WILL BE TELEPORTED TO . . . "
200  PRINT
210  PRINT "THE DUNGEON OF DANGER"
220  PRINT :DY = 0:MD = 1
230  GOSUB 5530
240 MA = 0:CA = 0:G = 500:M1 = 1:K = 0:HI = 20 +  INT ( RND (1) * 15 + 1):
     HI =  INT (HI / PL)
250 H1 = HI: PRINT "ENTER YOUR CHARACTER'S NAME?"
260  INPUT A$
270  GOSUB 460
280  PRINT : PRINT "YOU CARRY A MAGIC SWORD"
290  PRINT "AND 500 GOLD PIECES WITH YOU."
300  PRINT "YOUR 'HIT-POINT' VALUE IS ";H1: GOSUB 460
310  PRINT "IF IT REACHES ZERO, YOU WILL DIE"
320  PRINT ". . . . . SO BE CAREFUL"
330  PRINT : GOSUB 460: PRINT A$;" . . . YOU ARE ON YOUR WAY"
340 BB = 5: GOSUB 470
350  GOSUB 500
360  HOME
370  PRINT "YOU HAVE ARRIVED AT . . . ."
380  PRINT
390  PRINT "THE DUNGEON OF DANGER . . . LEVEL 2"
400  PRINT
410  PRINT "YOU WILL ENCOUNTER MONSTERS AND"
420  PRINT "THIEVES, AND GOLD . . . GOOD LUCK"
430 BB = 6
440  GOSUB 470
450  GOTO 1030
460 BB = 1
470  FOR ZZ = 1 TO 909 * BB
480  NEXT ZZ
490  RETURN
500  FOR X = 1 TO 8
510  FOR Y = 1 TO 8
520  FOR Z = 1 TO 2
530 A(X,Y,Z) =  INT ( RND (1) * 7 + 1)
540  NEXT Z
550  NEXT Y
560  NEXT X
570 H =  INT ( RND (1) * 3 + 1)
580  FOR A = 1 TO 2
590  FOR N = 1 TO H
600 X =  INT ( RND (1) * 8 + 1)
610 Y =  INT ( RND (1) * 8 + 1)
```

Program 32-1—cont. The Dungeon of Danger Program Listing

```
620 A(X,Y,A) = 8
630  NEXT N
640  NEXT A
650 S =  INT ( RND (1) * 4 + 1) + 2
660  FOR A = 1 TO 2
670  FOR N = 1 TO S
680 X =  INT ( RND (1) * 8 + 1)
690 Y =  INT ( RND (1) * 8 + 1)
700 A(X,Y,A) = 9
710  NEXT N
720  NEXT A
730  RETURN
740 L1 = L1 - 1
750  PRINT "YOU WALK UP THE STAIRWAY"
760  GOSUB 460
770  PRINT "THE ENCHANTED KEY . . . OPENS THE LOCK"
780  GOSUB 460
790  IF L1 = 0 THEN 890
800 MA = 0:K = 0:K4 =  INT ( RND (1) * 4 + 1) + 1: IF H1 < HI THEN 820
810  GOTO 850
820 H1 = HI
830  PRINT "YOU FEEL STRONGER . . . . .": GOSUB 460
840  PRINT "YOUR 'HIT-POINTS' ARE RESTORED TO ";HI
850  PRINT :CB = CA + K4
860  PRINT "YOU ARE AT . . . . . LEVEL 1"
870 BB = 4: GOSUB 470
880  GOTO 1070
890  PRINT "YOU FOUND YOUR WAY . . . "
900  PRINT ". . . OUT OF THE DUNGEON OF DANGER"
910  PRINT
920  PRINT "YOU HAVE ACQUIRED ";G;" GOLD PIECES"
930  GOSUB 950
940  GOTO 1810
950 GG = G + 1
960 R =  INT ((GG * CA - 7000 + 1) / M1)
970  PRINT
980  PRINT "GAME RATING IS ";R;" = ";: GOSUB 5620
990  PRINT : IF G <  = 0 THEN 3210
1000  PRINT "YOU TOOK ";M1;" TURNS TO FIND THE WAY OUT,"
1010  PRINT "AND KILLED ";CA;" MONSTERS."
1020  RETURN
1030 C =  INT ( RND (1) * 8 + 1)
1040 D =  INT ( RND (1) * 8 + 1)
1050 A(C,D,2) = 1
1060 L1 = 2:K4 =  INT ( RND (1) * 4 + 1) + 1
1070 F$ = " ": HOME
1080 A = A(C,D,L1)
1090  GOSUB 460
1100  ON A GOSUB 2100,4060,3580,3580,2210,2510,2560,2610,2870
1110  IF TE = 1 THEN TE = 0: GOTO 1070
1120  PRINT : IF H1 <  = 0 THEN 1700
1130  IF DY = 1 THEN MD = MD - 1
1140  IF DY = 1 AND MD = 0 THEN 1700
```

Program 32-1—cont. The Dungeon of Danger Program Listing

```
1150  IF F$ = "R" THEN 1070
1160  PRINT A$;",  WHAT IS YOUR ACTION OR MOVE?"
1170  PRINT
1180  PRINT "(N)ORTH, (E)AST, (S)OUTH, (W)EST"
1190  PRINT "(U)P, (M)AP, (G)OLD, (H)IT POINTS"
1200  INPUT M1$
1210 M1 = M1 + 1:TL = 0
1220 C1 = C:D1 = D
1230  IF M1$ = "N" THEN 1320
1240  IF M1$ = "E" THEN 1360
1250  IF M1$ = "S" THEN 1400
1260  IF M1$ = "W" THEN 1440
1270  IF M1$ = "U" THEN 1480
1280  IF M1$ = "M" THEN 1570
1290  IF M1$ = "G" THEN 1600
1300  IF M1$ = "H" THEN 3280
1310  PRINT : GOTO 1120
1320  IF A = 7 THEN 1620
1330  IF (D - 1) = 0 THEN 1880
1340 D = D - 1
1350  GOTO 1070
1360  IF A = 6 THEN 1660
1370  IF (C + 1) = 9 THEN 1930
1380 C = C + 1
1390  GOTO 1070
1400  IF A = 7 THEN 1620
1410  IF (D + 1) = 9 THEN 1950
1420 D = D + 1
1430  GOTO 1070
1440  IF A = 6 THEN 1660
1450  IF (C - 1) = 0 THEN 1970
1460 C = C - 1
1470  GOTO 1070
1480  HOME : IF A <  > 9 THEN 1540
1490  IF K = 1 THEN 740
1500  PRINT
1510  PRINT "YOU CANNOT GO UP THE STAIRWAY"
1520  PRINT "YOU DON'T HAVE THE KEY"
1530  GOSUB 460: PRINT : GOTO 1120
1540  PRINT "YOU ARE NOT AT A STAIRWAY"
1550  GOSUB 460: GOTO 1120
1560  GOTO 1120
1570  HOME : IF MA = 1 THEN 1990
1580  PRINT "YOU DON'T HAVE THE MAP"
1590  PRINT : GOSUB 460: GOTO 1120
1600  HOME : PRINT "YOU HAVE ";G;" GOLD PIECES WITH YOU"
1610  PRINT : GOTO 1120
1620  PRINT
1630  HOME : PRINT "YOU ARE IN AN EAST-WEST CORRIDOR"
1640  PRINT "YOU CAN ONLY GO EAST OR WEST"
1650  PRINT : GOTO 1120
1660  PRINT
1670  HOME : PRINT "YOU ARE IN A NORTH-SOUTH CORRIDOR"
```

Program 32-1—cont. The Dungeon of Danger Program Listing

```
1680  PRINT "YOU CAN ONLY GO NORTH OR SOUTH"
1690  GOTO 1650
1700 BB = 2: GOSUB 470: HOME : IF DY = 1 THEN 5510
1710  PRINT "YOUR 'HIT-POINTS' HAVE BEEN DEPLETED,"
1720  PRINT :G = 0: PRINT "AND UNFORTUNATELY . . . YOU JUST DIED"
1730 BB = 5: GOSUB 470
1740  PRINT :W =  INT ( RND (1) * 6 + 1): IF DY = 0 AND W >  = 3 THEN 5370
1750  HOME : PRINT "YOU LOST ALL YOUR GOLD AND YOU WERE"
1760  PRINT ". . . UNABLE TO MEET THE DEMANDS OF"
1770  PRINT ". . . . . THE DUNGEON OF DANGER"
1780  PRINT : PRINT
1790  PRINT "BETTER LUCK NEXT TIME"
1800  GOSUB 950
1810  PRINT
1820  PRINT "ANOTHER GAME?"
1830  PRINT "ENTER (Y)ES  OR  (N)O"
1840  INPUT F$
1850  IF F$ = "Y" THEN 1870
1860  END
1870  HOME : GOTO 210
1880  HOME : PRINT "YOU ARE AT THE NORTH WALL"
1890  PRINT "YOU CANNOT PASS THROUGH"
1900  PRINT
1910  PRINT "TRY ANOTHER DIRECTION?"
1920  GOTO 1120
1930  HOME : PRINT "YOU ARE AT THE EAST WALL"
1940  GOTO 1890
1950  HOME : PRINT "YOU ARE AT THE SOUTH WALL"
1960  GOTO 1890
1970  HOME : PRINT "YOU ARE AT THE WEST WALL"
1980  GOTO 1890
1990  HOME : PRINT "THE DUNGEON OF DANGER-MAP:  LEV  ";L1
2000  PRINT
2010  FOR Q = 1 TO 8
2020  FOR N = 1 TO 8
2030  IF C = N AND D = Q THEN  PRINT "P1  ";: GOTO 2060
2040 S1 = A(N,Q,L1)
2050  ON S1 GOSUB 2910,2970,2930,2930,2950,2990,3010,3030,3040
2060  NEXT N
2070  PRINT
2080  NEXT Q
2090  GOTO 1120
2100 W =  INT ( RND (1) * 2 + 1): IF W = 2 THEN 2160
2110  PRINT
2120  PRINT "YOU ARE IN A COLD AND DARK"
2130  PRINT " . . . . . EMPTY CHAMBER"
2140  PRINT
2150  RETURN
2160  PRINT
2170  PRINT "YOU ARE IN A DAMP AND MISTY"
2180  PRINT ". . . . . EMPTY CHAMBER"
2190  PRINT
2200  RETURN
```

Program 32-1—cont. The Dungeon of Danger Program Listing

```
2210  HOME : PRINT "THERE IS A THIEF IN THIS CHAMBER"
2220 A(C,D,L1) = 1
2230  GOSUB 460
2240 G4 =  INT ( RND (1) * 500 / L1 + 1): IF (G - G4) < 0 THEN G4 = G
2250 Y =  INT ( RND (1) * 8 + 1)
2260  IF Y <  = 3 THEN 2420
2270  PRINT
2280  PRINT ". . . . . HE SURPRISES YOU"
2290  GOSUB 460
2300  PRINT "AS HE QUICKLY PASSES BY YOU HE"
2310  PRINT "SNATCHES . . . ";G4;" GOLD PIECES": PRINT
2320 G = G - G4
2330  IF MA = 1 THEN  RETURN
2340 MA =  INT ( RND (1) * 4 + 1): IF MA <  = 2 THEN MA = 1
2350  IF MA = 1 THEN 2380
2360  RETURN
2370  GOSUB 460
2380  PRINT "YOU SEARCH THE CHAMBER AND"
2390  GOSUB 460
2400  PRINT "YOU . . . . . FIND A MAP"
2410  RETURN
2420  PRINT : PRINT "YOU SURPRISED THE THIEF . . . ."
2430  GOSUB 460
2440  PRINT "AS HE RUNS OUT HE DROPS . . . ."
2450 G4 =  INT ( RND (1) * 400 / L1 + 1): PRINT " . . . ";G4;" GOLD PIECES."
2460  PRINT "YOU PICK UP THE GOLD PIECES":G = G + G4
2470  PRINT : IF MA = 1 THEN  RETURN
2480 MA =  INT ( RND (1) * 4 + 1): IF MA <  = 2 THEN MA = 1
2490  IF MA = 1 THEN 2380
2500  RETURN
2510  HOME : PRINT
2520  PRINT "YOU ENTER A . . . NORTH-SOUTH CORRIDOR"
2530  PRINT "THRU A . . . . . SECRET DOOR"
2540  PRINT : GOSUB 3240
2550  RETURN
2560  HOME : PRINT
2570  PRINT "YOU ENTER AN . . . EAST-WEST CORRIDOR"
2580  PRINT "THRU A . . . . . SECRET DOOR"
2590  PRINT : GOSUB 3240
2600  RETURN
2610  PRINT "YOU ACTIVATED A . . . TRAP DOOR"
2620  GOSUB 460
2630 TD =  INT ( RND (1) * 4 + 1) * PL: IF TD > 4 THEN  PRINT "YOU FELL THRU . . .":
      GOSUB 460: GOTO 1720
2640  IF TD = 4 THEN 2690
2650  PRINT
2660  PRINT "BUT . . . YOU CAUGHT YOURSELF"
2670  PRINT "FROM FALLING"
2680  RETURN
2690  IF L1 = 2 THEN 2800
2700 L1 = L1 + 1: PRINT :K = 1
2710  PRINT "YOU FELL THRU TO LEVEL 2 . . . AND"
2720 G = 0
```

Program 32-1—cont. The Dungeon of Danger Program Listing

```
2730  GOSUB 460
2740  PRINT
2750  PRINT "YOU . . . . . LOST"
2760  PRINT "ALL OF YOUR GOLD PIECES"
2770  PRINT : IF PT = 1 THEN PT = 0: RETURN
2780  PRINT "BUT . . . YOU STILL HAVE YOUR KEY"
2790  RETURN
2800  PRINT "YOU FELL INTO A DEEP . . . PIT":PT = 1
2810  GOSUB 460
2820  PRINT "LUCKILY . . YOU DIDN'T GET HURT"
2830  PRINT
2840  GOSUB 460
2850  PRINT "BUT IN CLIMBING OUT . . ."
2860  GOTO 2720
2870  PRINT "YOU ARE AT A STAIRWAY"
2880  PRINT " . . . . . GOING UP"
2890  PRINT
2900  RETURN
2910  PRINT "O   ";
2920  RETURN
2930  PRINT "M   ";
2940  RETURN
2950  PRINT "?   ";
2960  RETURN
2970  PRINT "C   ";
2980  RETURN
2990  PRINT "NS  ";
3000  RETURN
3010  PRINT "EW  ";
3020  RETURN
3030  GOTO 2950
3040  PRINT "UP  ";
3050  RETURN
3060 H = 1:O = 9:W = 8
3070 B = 0:E = 5:R = 14
3080 C = 0:PR = 0
3090  GOTO 1030
3100  RETURN
3110  GOSUB 460
3120 K = 1
3130  PRINT : PRINT "YOU LOOK TO THE GROUND . . . . . ."
3140  PRINT "AND FIND THE ENCHANTED KEY"
3150  GOSUB 460
3160  RETURN
3170  GOSUB 3120
3180  GOTO 1230
3190  IF CA = CB THEN 3110
3200  RETURN
3210  PRINT "YOU KILLED ";CA;" MONSTERS "
3220  PRINT ". . . . . IN ";M1;" TURNS."
3230  RETURN
3240  PRINT "THE DOOR CLOSES AND LOCKS BEHIND YOU": GOSUB 460
3250 W =  INT ( RND (1) * 8 + 1): IF W >  = 7 THEN 3300
```

Program 32-1—cont. The Dungeon of Danger Program Listing

```
3260 W =  INT ( RND (1) * 8 + 1): IF W = 8 THEN 3390
3270  RETURN
3280  HOME : PRINT "YOU HAVE ";H1;" 'HIT-POINT(S)' LEFT"
3290  GOTO 1120
3300 W =  INT ( RND (1) * 4 + 1) + 30
3310  FOR AA = 1 TO W
3320  READ MS$,HP,HM
3330  NEXT AA
3340  RESTORE
3350  PRINT
3360  PRINT "THERE IS SOMETHING LURKING"
3370  PRINT "IN THIS CORRIDOR . . .": GOSUB 460
3380  PRINT : GOTO 3680
3390 TE = 1:TL = 1
3400  IF K = 1 THEN 3460
3410 K = 1: PRINT : PRINT "YOU NOTICE A SHINY OBJECT . . . ."
3420  PRINT ". . . . AT YOUR FEET": GOSUB 460
3430  PRINT "YOU PICK IT UP AND FIND THAT . . ."
3440  PRINT "IT IS THE ENCHANTED KEY . . . . . .": GOSUB 460
3450  PRINT : PRINT "BUT YOU WEREN'T CAREFUL . . . .": GOSUB 460
3460  PRINT "YOU ACTIVATED SOME SORT OF TRAP . . .": GOSUB 460
3470 C =  INT ( RND (1) * 8 + 1):D =  INT ( RND (1) * 8 + 1):BB = 5: GOSUB 470: HOME
3480  PRINT "SUDDENLY YOU FEEL DIZZY, AND PASS OUT"
3490  PRINT :BB = 2: GOSUB 470: GOSUB 3540
3500  PRINT "WHEN YOU WAKE UP . . . YOU FIND"
3510  PRINT "THAT YOU WERE . . . . TELEPORTED"
3520  PRINT "TO AN UNKNOWN LOCATION . . . ."
3530 BB = 5: GOSUB 470: RETURN
3540  FOR AA = 1 TO 300
3550  PRINT "*        %";
3560  NEXT AA
3570  GOSUB 460: HOME : RETURN
3580  IF A = 4 THEN 3600
3590 W =  INT ( RND (1) * 15 + 1): GOTO 3610
3600 W =  INT ( RND (1) * 15 + 1) + 15
3610  FOR AA = 1 TO W
3620  READ MS$,HP,HM
3630  NEXT AA
3640  RESTORE
3650  PRINT
3660  PRINT "THERE IS SOMETHING LURKING . . . "
3670  PRINT ". . . . IN THIS CHAMBER . . . .": GOSUB 460
3680  PRINT ". . . . . . . . . . BEWARE": GOSUB 460
3690  PRINT
3700  PRINT "IT IS A . . . . . ";MS$;" . . ": GOSUB 460
3710  GOTO 4510
3720  DATA "LARGE DRAGON",6,12
3730  DATA "HIDEOUS GHOUL",5,10
3740  DATA "LIZARD MAN",4,8
3750  DATA "MANITCORE",6,12
3760  DATA "PURPLE WORM",6,12
3770  DATA "DEADLY COBRA",5,10
3780  DATA "MAD ELF",5,10
```

Program 32-1—cont. The Dungeon of Danger Program Listing

```
3790  DATA "CLAY MAN",4,8
3800  DATA "HAIRY BEAST",5,10
3810  DATA "MAD DWARF",4,8
3820  DATA "ZOMBIE",4,8
3830  DATA "BERSERKER",5,10
3840  DATA "GIANT SCORPION",6,12
3850  DATA "GIANT COCKROACH",4,8
3860  DATA "DOPPLEGANGER",5,10
3870  DATA "GIANT FIRE BEETLE",1,2
3880  DATA "GIANT ANT",1,2
3890  DATA "GIANT TICK",2,4
3900  DATA "MUMMY",3,6
3910  DATA "NASTY ORC",2,4
3920  DATA "SKELETON",1,2
3930  DATA "TROLL",3,6
3940  DATA "GOBLIN",3,6
3950  DATA "VAMPIRE BAT",3,6
3960  DATA "CREEPING BLOB",3,6
3970  DATA "MAD DOG",2,4
3980  DATA "LARGE SPIDER",3,6
3990  DATA "BLACK CAT",2,4
4000  DATA "MAN EATING PLANT",1,2
4010  DATA "HYDRA",3,6
4020  DATA "GELATINOUS CUBE",2,4
4030  DATA "GIANT CENTIPEDE",1,2
4040  DATA "GIANT RAT",2,4
4050  DATA "SHADOW",2,4
4060  PRINT "YOU STUMBLED ONTO . . . . ."
4070  PRINT "A HIDDEN CAVERN": GOSUB 460
4080  PRINT : GOSUB 4210: IF H1 <  = 0 THEN  RETURN
4090 W =  INT ( RND (1) * 9 + 1)
4100  GOSUB 460: IF W > 3 THEN  PRINT : PRINT "THE CAVERN SEEMS EMPTY . . .": RETURN
4110 BB = 2: GOSUB 470: GOSUB 4500
4120  GOSUB 460: PRINT "BUT WAIT . . BEFORE YOU PROCEED": GOSUB 460: PRINT
4130  PRINT "YOU HEAR A NOISE OFF IN THE DISTANCE"
4140 BB = 3: GOSUB 470
4150  PRINT "CAUTIOUSLY YOU WALK TOWARDS THE SOUND"
4160 BB = 3: GOSUB 470:W =  INT ( RND (1) * 4 + 1): IF HI < H1 THEN 4180
4170  IF W = 1 THEN 5040
4180  IF W = 2 THEN 5170
4190  IF W = 4 AND L1 = 2 THEN 5720
4200  GOTO 5230
4210  PRINT : PRINT "YOU LOOK AROUND . . . ": GOSUB 460
4220 V =  INT ( RND (1) * 7 + 1)
4230  IF V >  = 5 THEN 4250
4240  RETURN
4250  PRINT "ON THE GROUND, AT YOUR FEET, IS A VIAL"
4260  PRINT :BB = 2: GOSUB 470
4270  PRINT "YOU PICK UP THE VIAL . . AND SEE THAT"
4280  PRINT "IT CONTAINS . . . A MILKY LIQUID"
4290  PRINT
4300  PRINT "WOULD YOU LIKE A DRINK?"
4310  PRINT "ENTER (Y)ES  OR  (N)O":DL =  INT ( RND (1) * 6 + 1)
```

Program 32-1—cont. The Dungeon of Danger Program Listing

```
 4320  INPUT D$
 4330  IF D$ = "Y" THEN 4350
 4340  RETURN
 4350  PRINT : PRINT "YOU TAKE A DRINK . . .":BB = 2: GOSUB 470: HOME
 4360  IF DL >  = 3 THEN 4440
 4370  IF DL = 2 THEN 4480
 4380 H3 =  INT ( RND (1) * 6 + 1) * PL:H1 = H1 - H3
 4390  PRINT "YOU FEEL A LITTLE FUNNY . . .": GOSUB 460: GOSUB 460
 4400  IF H1 <  = 0 THEN  RETURN
 4410  PRINT : PRINT "IT WAS A BLACK MAGIC POTION . . ."
 4420  PRINT "WHICH DECREASED YOUR 'HIT-POINTS' BY";H3
 4430  RETURN
 4440 H3 =  INT ( RND (1) * 10 / PL + 1) + (6 / PL):H1 = H1 + H3
 4450  PRINT "IT WAS A WHITE MAGIC POTION . . ."
 4460  PRINT "WHICH INCREASED YOUR 'HIT-POINTS' BY ";H3
 4470  RETURN
 4480  PRINT "THE LIQUID HAD NO EFFECT ON YOU"
 4490  RETURN
 4500  GOSUB 460: PRINT : RETURN
 4510  PRINT :W =  INT ( RND (1) * 4 + 1)
 4520  IF W <  = 2 THEN 4540
 4530  GOSUB 460: GOSUB 4780
 4540  IF H1 <  = 0 THEN  RETURN
 4550  PRINT : PRINT "WILL YOU (F)IGHT OR (R)UN ?"
 4560  INPUT F$: HOME
 4570  IF F$ = "F" THEN 4600
 4580  IF F$ = "R" THEN 4700
 4590  GOTO 4540
 4600  HOME : PRINT : GOSUB 460
 4610  PRINT "YOU ATTACK THE . . . ";MS$: GOSUB 460
 4620  PRINT "WITH A SWING OF YOUR SWORD"
 4630 N =  INT ( RND (1) * 5 + 1) +  INT ( RND (1) * CA / 2 + 1):HM = HM - N
 4640  IF HM <  = 0 THEN 4890
 4650  PRINT "YOU DO ";N;" HIT POINT(S) OF DAMAGE"
 4660  PRINT : GOSUB 460
 4670  PRINT "IT HAS . . ";HM;" 'HIT-POINT(S)' LEFT"
 4680  PRINT : GOSUB 460
 4690  GOTO 4530
 4700 W =  INT ( RND (1) * 4 + 1):C = C1:D = D1
 4710  PRINT "YOU QUICKLY RUN OUT . . .": IF TL = 1 THEN 5560
 4720 N =  INT ( RND (1) * 2 + 1):BB = 2: GOSUB 470: IF W >  = 3 THEN 5330
 4730 H1 = H1 - N
 4740  PRINT "AS YOU LEAVE, THE ";MS$;" ATTACKS": GOSUB 460
 4750  IF H1 <  = 0 THEN  RETURN
 4760  PRINT "AND IT DOES ";N;" 'HIT-POINT(S)' OF DAMAGE"
 4770 BB = 3: GOSUB 470: RETURN
 4780  PRINT :W =  INT ( RND (1) * 7 + 1)
 4790  PRINT ". . . . . IT ATTACKS YOU": IF W <  = 2 THEN 5350
 4800 W =  INT ( RND (1) * 6 + 1): IF W >  = 3 THEN 4830
 4810 N =  INT ( RND (1) * HP / L1 + 1) +  INT ( RND (1) * HP / L1 + 1)
 4820  GOTO 4840
 4830 N =  INT ( RND (1) * HP * PL + 1)
 4840  IF HM <  = 2 THEN N = 1
```

Program 32-1—cont. The Dungeon of Danger Program Listing

```
4850 H1 = H1 - N: GOSUB 460: IF H1 < = 0 THEN  RETURN
4860  PRINT "AND IT DOES ";N;" 'HIT-POINT(S)' OF DAMAGE"
4870  PRINT : PRINT "YOU HAVE . . . ";H1;" 'HIT-POINT(S)' LEFT"
4880  PRINT : RETURN
4890  PRINT : GOSUB 460
4900  PRINT "YOU HAVE KILLED THE ";MS$
4910  PRINT
4920  IF A(C,D,L1) > = 6 THEN 4950
4930  IF A(C,D,L1) = 2 THEN 4950
4940 A(C,D,L1) = 1
4950 G8 = 500: IF A(C,D,L1) > = 6 THEN G8 = 250
4960 G4 =  INT ( RND (1) * G8 / L1 + 1) + 75: IF A = 2 THEN G4 = G4 * 2
4970 G = G + G4: GOSUB 460
4980  PRINT "YOU SEARCH THE AREA . . . ."
4990  GOSUB 460: PRINT "AND FIND . . . ";G4;" GOLD PIECES"
5000 CA = CA + 1: IF K = 1 THEN  RETURN
5010  IF L1 = 1 THEN 3190
5020  IF CA = K4 THEN 3110
5030  RETURN
5040  GOSUB 460: GOSUB 460
5050  GOSUB 5290
5060  PRINT "HALT . . . I AM THE ANCIENT WIZARD"
5070  PRINT "I WILL NOT HARM YOU . . . . . .": GOSUB 460: GOSUB 460
5080  PRINT :G4 =  INT ( RND (1) * 300 + 1) + 100:G = G + G4: PRINT
5090  PRINT "I GIVE YOU . . . ";G4;" GOLD PIECES"
5100  PRINT "OUT OF GOOD WILL AND FRIENDSHIP"
5110  PRINT
5120 H4 =  INT ( RND (1) * 10 / PL + 1) + (6 / PL):H1 = H1 + H4
5130  PRINT "ALSO, I WILL INCREASE . . . "
5140  PRINT "YOUR 'HIT-POINTS' BY . . . ";H4
5150  GOSUB 460
5160  RETURN
5170  GOSUB 5290
5180 MS$ = "GIANT SPIDER":HP = 6:HM = 12
5190  PRINT "IT'S A HUGE MAN-SIZED CRAWLING"
5200  PRINT ". . . . . SPIDER . . .": GOSUB 460
5210  PRINT ". . . . . AND . . . . ."
5220  GOTO 4530
5230  GOSUB 5290
5240 MS$ = "DARK WIZARD":HP = 8:HM = 14: HOME
5250  PRINT "DO NOT PASS . . . I AM THE ";MS$: GOSUB 460
5260  PRINT "AND I WILL HACK YOU TO PIECES . . ."
5270 BB = 2: GOSUB 470
5280  GOTO 4530
5290  HOME : PRINT "SUDDENLY . . . SOMETHING JUMPS . . ."
5300  PRINT "IN FRONT OF YOU . . . . . ."
5310 BB = 3: GOSUB 470: HOME
5320  RETURN
5330  GOSUB 460: PRINT "AS YOU LEAVE . . . "
5340  PRINT "THE ";MS$;" ATTACKS . .": GOSUB 460
5350  GOSUB 460: PRINT "BUT . . . . . IT MISSES":BB = 2: GOSUB 470
5360  RETURN
5370 BB = 2: GOSUB 470: GOSUB 3540:DY = 1:H1 = HI
```

Program 32-1—cont. The Dungeon of Danger Program Listing

```
5380  PRINT "YOU HAVE ENTERED . . A ZONE"
5390  PRINT "BETWEEN . . LIFE AND DEATH"
5400  PRINT :BB = 3: GOSUB 470
5410  PRINT : PRINT "I . . . . THE ANCIENT WIZARD"
5420  PRINT "WILL RESTORE YOUR 'HIT-POINTS' TO ";HI
5430  PRINT "AND . . . . YOU HAVE ONE MORE"
5440  PRINT "CHANCE IN THE DUNGEON"
5450  PRINT :MD =  INT ( RND (1) * 15 + 1) * CA + 10:H1 = HI
5460  PRINT "YOU SHALL HAVE ";MD;" MOVES"
5470  PRINT "LEFT TO FIND YOUR WAY OUT"
5480  PRINT "OF THE DUNGEON OF DANGER"
5490 BB = 9: GOSUB 470
5500  GOSUB 3540: GOTO 1110
5510  PRINT A$;", YOU HAVE DEPLETED YOUR MOVES"
5520  GOTO 1720
5530  PRINT "ENTER DIFFICULTY LEVEL?"
5540  PRINT "1=MODERATE  2=DIFFICULT"
5550  INPUT PL: PRINT : RETURN
5560 TL = 0:BB = 2: GOSUB 470
5570  PRINT "YOU REACTIVATED THE TELEPORTATION TRAP"
5580 BB = 2: GOSUB 470: GOSUB 3540
5590  PRINT "YOU END UP BACK IN THE AREA WHERE"
5600  PRINT ". . . YOU LAST TELEPORTED FROM": GOSUB 460
5610 BB = 2: GOSUB 470: RETURN
5620  IF R <  - 400 THEN  PRINT "INCOMPETENT SERF": RETURN
5630  IF R <  - 100 THEN  PRINT "WEAKLING": RETURN
5640  IF R < 0 THEN  PRINT "APPRENTICE": RETURN
5650  IF R < 100 THEN  PRINT "HALFLING": RETURN
5660  IF R < 200 THEN  PRINT "FOOT SOLDIER": RETURN
5670  IF R < 600 THEN  PRINT "WARRIOR": RETURN
5680  IF R < 900 THEN  PRINT "GREAT WARRIOR": RETURN
5690  IF R < 1500 THEN  PRINT "SWORDSMAN": RETURN
5700  IF R < 2500 THEN  PRINT "MAGIC SWORDSMAN": RETURN
5710  IF R >  = 2500 THEN  PRINT "DUNGEON MASTER": RETURN
5720  HOME : PRINT "YOU FALL INTO A DEEP . . DARK": GOSUB 460
5730  PRINT ". . . POOL . . OF MURKY WATER":BB = 4: GOSUB 470
5740 W =  INT ( RND (1) * 6 + 1): PRINT : IF W >  = 5 THEN 5780
5750  IF W >  = 3 THEN 5860
5760  PRINT "IT IS WARM AND SOOTHING . .AND":BB = 2: GOSUB 470
5770  PRINT "YOU CLIMB OUT . . FEELING RELAXED": PRINT : RETURN
5780 MS$ = "GILL MONSTER":HP = 8:HM = 12: HOME
5790  PRINT "THE WATER IS . . . ICY COLD":BB = 5: GOSUB 470: PRINT
5800  PRINT "SUDDENLY . . YOU FEEL SOMETHING WARM"
5810  PRINT " . . . RUB AGAINST YOUR LEGS . . . .":BB = 4: GOSUB 470: PRINT
5820  PRINT "IT THEN SURFACES NEXT TO YOU . . ."
5830  PRINT " AND YOU SEE THAT IT IS A SLIMY . ."
5840  PRINT ". . .  ";MS$;" . . READY TO ATTACK":BB = 2: GOSUB 470
5850  PRINT : PRINT "AS YOU CLIMB OUT . . .": GOSUB 460: GOTO 4530
5860  PRINT "THE WATER IS STEAMING . . . . HOT":BB = 3: GOSUB 470
5870  PRINT : PRINT "AS YOU QUICKLY JUMP OUT . . . ."
5880 G4 =  INT ( RND (1) * 500 + 1) + 100: IF (G - G4) < 0 THEN G4 = G
5890 G = G - G4: PRINT "YOU DROP . . . ";G4;" GOLD PIECES"
5900  PRINT "WHICH FALL INTO THE POOL . . LOST":BB = 5: GOSUB 470: RETURN
```

NOTES

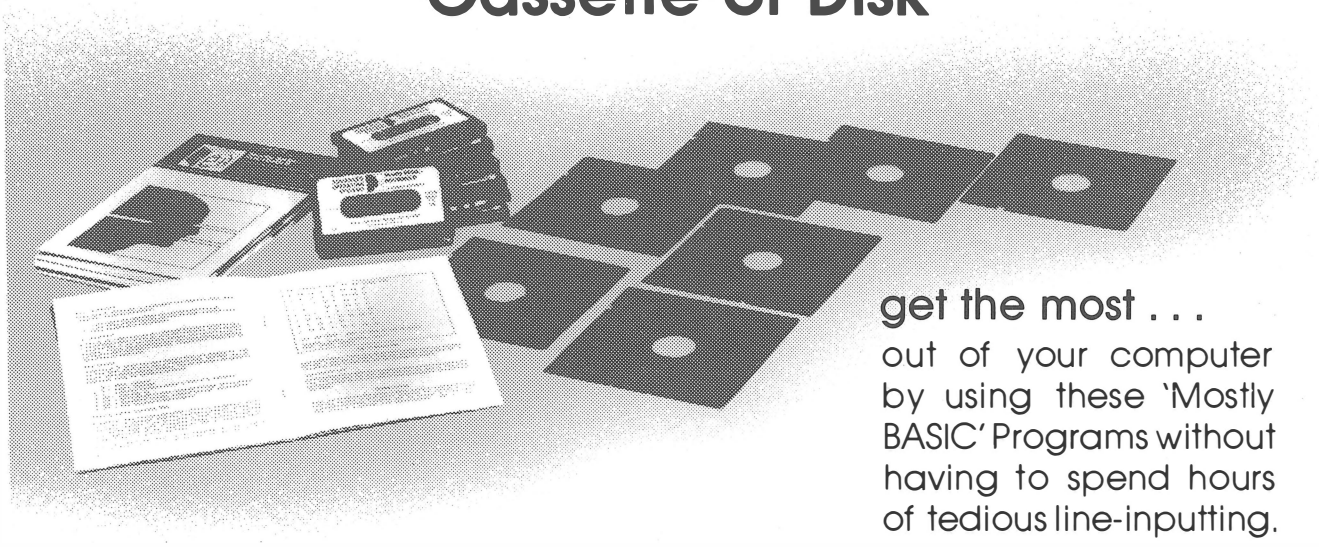
NOTES

NOTES

NOTES

Mostly BASIC

Programs are available now on Cassette or Disk



get the most . . .
out of your computer by using these 'Mostly BASIC' Programs without having to spend hours of tedious line-inputting.

ALL PROGRAMS ARE THOROUGHLY DEBUGGED AND READY TO BOOT!

Look for 'Mostly BASIC' Programs at your local computer dealer or order from Advanced Operating Systems.

PLEASE SHIP ME THE FOLLOWING SOFTWARE:

TRS-80 I & III (CASSETTE ONLY)

	PRODUCT NO.	QUANTITY	PRICE EACH	TOTAL AMOUNT
☐ Mostly BASIC — Educational	26040		$34.95	
☐ Mostly BASIC — Household	26041		$34.95	
☐ Mostly BASIC — Interfacing/Scientific	26042		$34.95	

APPLE II (DISK ONLY)

☐ Mostly BASIC — Educational	26047		$39.95	
☐ Mostly BASIC — Household	26048		$39.95	
☐ Mostly BASIC — Interfacing/Scientific	26049		$39.95	

NAME (print) _____

SIGNATURE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

TELEPHONE(S) _____

SALES TAX (WHERE APPLICABLE) _____
HANDLING 2.00

TOTAL ENCLOSED _____

☐ Check ☐ Money Order
☐ MasterCard ☐ Visa

master charge THE INTERBANK CARD

VISA

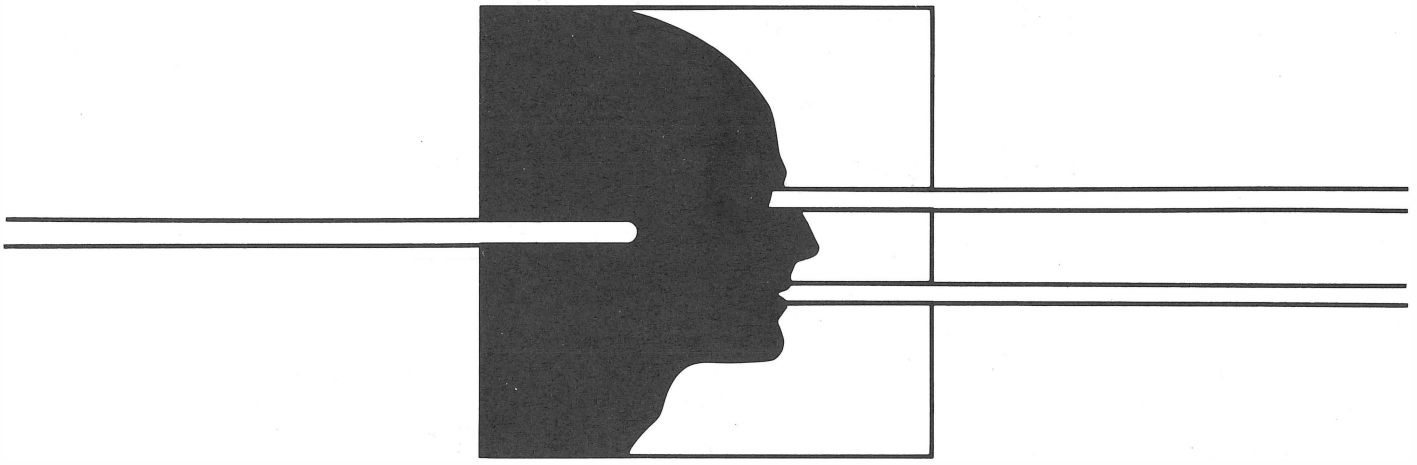
ACCOUNT NO. _____

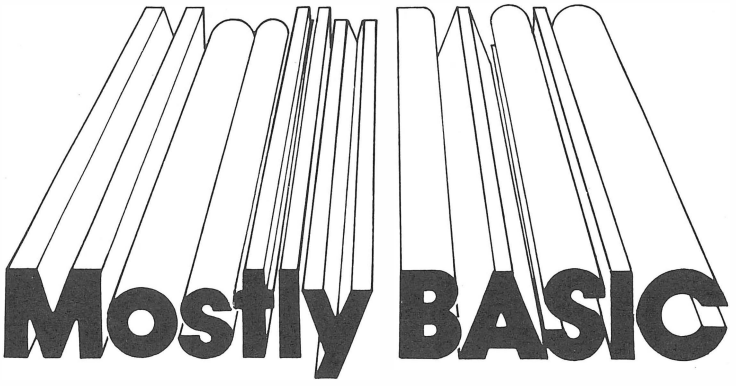
EXPIRES _____ INTERBANK _____

ADVANCED OPERATING SYSTEMS
450 St. John Road Michigan City, IN 46360

Offer good in USA only. Prices subject to change without notice.

X0347





LOOK FOR Mostly BASIC PROGRAMS

AT YOUR LOCAL COMPUTER STORE, OR WRITE:

ADVANCED OPERATING SYSTEMS
450 St. John Road Michigan City, IN 46360
Dealer Inquiries Welcome!

PLACE
STAMP
HERE

ADVANCED OPERATING SYSTEMS
450 St. John Road Michigan City, IN 46360

Mostly BASIC: Applications for Your APPLE® II

This book presents 37 useful programs for educational, domestic, financial, personal, and game use

By
Howard Berenbon

- Is easy to read, even for a layperson, and has programs for everyone
- Contains programs valued to hundreds of dollars
- Has its programs designed to be easy to use and trouble free, even for the beginner—not necessarily the most sophisticated approach that could be used
- Includes unique and innovative fantasy games for teaching history and math
- Gives programs for saving time and money in home applications
- Provides programs for testing your personal abilities, such as memory, eidetic imagery, and ESP
- Will be valuable to educators, hobbyists, small-scale businesspersons, gamesters, homeowners, and small-scale investors

Howard W. Sams & Co., Inc.
4300 W. 62nd Street, Indianapolis, Indiana 46268 USA

$12.95/21864

ISBN: 0-672-21864-X