

Buyers' Guide to  
**MODEMS**

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# FAMILY COMPUTING

**THE COMPUTER:  
New Tool for  
the Garden**

**A Guide to  
Telecomputing**

**Games: Arcade  
vs. Adventure**

**Cooking  
and Nutrition  
Software**



# FAMILY COMPUTING™

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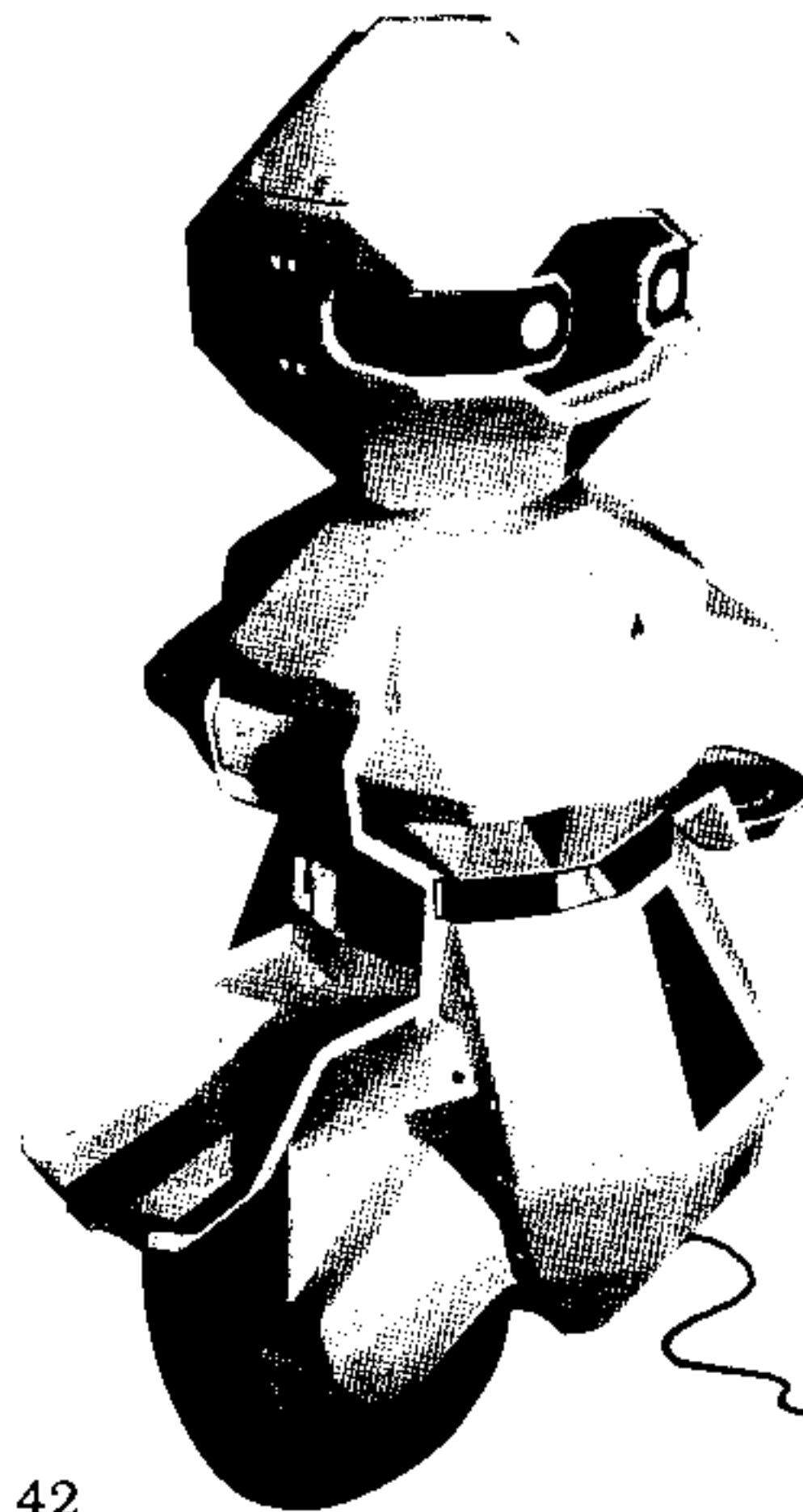
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# LETTERS

## SUPPORT FOR TI

We are an elementary school with TI-99/4As. Please, please continue to have programs and information on TI equipment. Our students thoroughly enjoyed *Pulse Rate*, *Jack-O'-Lantern*, and *Trick or Treat* in your October 1983 issue.

P.J. REED  
Wynford South School  
Nevada, OH

I am a home-schooling mother and am delighted with your programs for preschoolers. I have just sent off for a subscription to FAMILY COMPUTING because I found myself buying each issue at the bookstore. Keep up the good work, and please don't forget the many TI users.

MRS. ELEANOR TORRES  
Slidell, LA

EDITOR'S NOTE: *In order to serve the needs of all our readers, FAMILY COMPUTING will continue to publish information and programs for TI users.*

## A FAN CLUB?

I have read FAMILY COMPUTING for two

months now. I think it's great. I have been thinking about this for a while: I think you should have a FAMILY COMPUTING fan club. It could cost 50 cents (or more if you want). You could advertise in the next issue. I would send you some information and some very good programs.

BERNIE MUDRA, age 10  
Addison, IL

EDITOR'S NOTE: *Thanks for your suggestion and your offer. Although we're not about to start a fan club, we'd certainly love more devoted fans like yourself!*

## TEACHER'S PET PUBLICATION

My compliments to you on a very fine publication. I am a professor of continuing and vocational education with emphasis in home economics, and I have found your magazine to be especially appropriate for teachers in the field. I have recommended FAMILY COMPUTING as the best for them if they can purchase only one magazine. We are using the IBM PC, so I

especially liked your modifications for beginner programs.

BEATRICE PETRICH, Professor  
University of Wisconsin  
Madison, WI

## A DIFFERENCE OF OPINION

In your Computing Clinic (November 1983), Mr. Koetke informed your readers that, with the exception of the short leader, there is no difference between computer cassettes and audio cassettes. Unfortunately, I have to disagree with his opinion! There is a serious difference between audio cassettes and Maxell's data cassettes.

In addition to having a short leader and shorter length than the typical audio cassettes, our data cassettes are of moderate output to ensure the proper sensitivity. They are a low-noise tape with a cassette shell that has been designed specifically for computer-data application. The tape is also drop-out free.

CARL LINDQUIST  
Advertising Manager  
Maxell Corporation of America  
Moonachie, NJ

### COCO'S "NO WEAKLING"

I was disappointed that "Popular Word Processing Programs by Computer" (December 1983) failed to mention either *Telewriter 64* or *Super Color Writer* for the CoCo (TRS-80 Color Computer). I understand that these are both full-featured word processors and are reasonably priced. Both offer a variety of screen formats. It seems a shame that people should be left with the impression that CoCo is a weakling in the word-processing department if it isn't true.

Mr. McWilliams's article ("The Layman's Guide to Word Processing") was generally well written and very informative. I appreciate the impossibility of covering EVERYTHING in such an article, and I am not a CoCo owner myself, but I feel CoCo got less than its due.

I read your magazine from cover to cover and was favorably impressed. The articles on Roberta Williams, "Things Computer People Seldom Tell You," and Home Business were among my favorites.

BILL BUCHANAN  
Alberta, Canada

EDITOR'S NOTE: You're right, unfortunately. It's impossible to cover EVERYTHING. We tried to cover the

most popular and most established programs for each computer. We'd also like to point out that Peter McWilliams deserves your praise for his informative article. However, he did not write the software guide that followed it and therefore does not deserve any criticism leveled at it.

### GENEALOGY GUIDANCE

I read your article "Castles, Cathedrals, and Computers" in your November 1983 issue. I really enjoyed it, as I have been putting together our family histories. I have been wondering about the different programs available for genealogy to store information.

Which program do you recommend as being the easiest and simplest while still having all the necessary information? Does Atari have any programs available?

Several of us in this area are interested in some programs to store our information. Please advise us where to get a copy of *Genealogical Computing Newsletter*.

MARGERY K. ADAMS  
Oberlin, KS

EDITOR'S NOTE: The *Genealogical Computing Newsletter* we received lists

one program for the Atari 800. Titled *Genealogy I and II*, the \$69 program is available from Ronan, 5509 Camber Dr., San Diego, CA 92117. The *Genealogical Computing Newsletter* regularly reviews and rates new programs. Its address is: *Data Transfer Assn.*, 5102 Pomeroy Dr., Fairfax, VA 22032.

### LANCELOT TO THE RESCUE

I am writing to let you know how much help Mr. Lance Paavola was. I tried to program the *Christmas Tree* into my TI-99/4A and had problems getting it to work. I told Mr. Paavola what happened, and he told me how to correct the problem. He said to call back if I came across any other errors. Again, he came to the rescue, and now the program works great. I am now a joyful reader of your magazine. I am also giving it as a gift to my wife for Christmas.

TIMOTHY GUY  
Winter Springs, FL

FAMILY COMPUTING looks forward to letters from all our readers. Please direct your correspondence to: Letters to the Editor, FAMILY COMPUTING, 730 Broadway, New York, NY 10003. Include your name, address, and phone number. We reserve the right to edit your letters for length and clarity.

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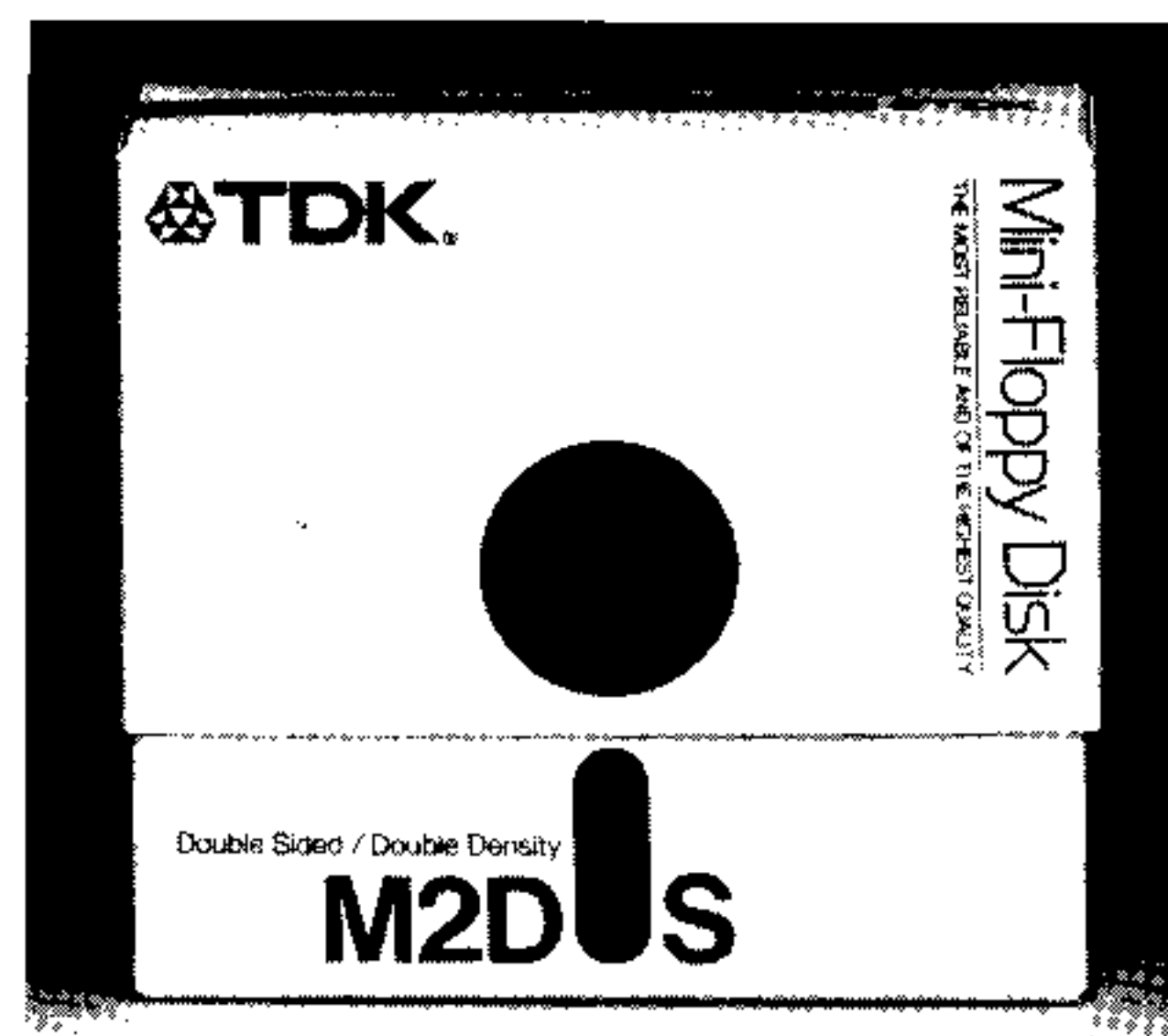
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# HOME-SCHOOL CONNECTION

clamoring to get in."

Nemecek believes the kids in his district are taking to typing because they're thinking ahead. Whether they go on to college—as do 75 percent of the students in the district—or take a job, the students know they'll need keyboarding skills to survive. "They take it simply because they want the skills. They're very practical," Nemecek says.

But students everywhere aren't so enthusiastic about a skill some view as less than glamorous. Janet Oneto, of Scotts Valley, California, wanted her kids to learn how to type before taking computer courses and found that her children weren't thrilled at the prospect, complaining that typing classes are notoriously boring. Her 12-year-old son, Bobby, was especially hard to convince.

"My son kind of gave me flak," Oneto said. "He didn't want to [take

the course]. It was just not the 'in' thing to do."

On this issue, however, Oneto insisted. She had taken typing classes in the 1960s, and they had helped her immensely in her job at a bank. But Oneto says she and her fellow classmates had learned the skill for reasons very different from those of her children.

"I learned how to type because I thought it would help me get by in the business world," she says. "I'm having my kids learn it because computers are going to be a part of their lives and I think it's just going to save them time in the long run."

## LIVING ROOM LEARNING

Not all students are learning to type in classroom settings. Software packages for learning and practicing typing skills have been on the market for more than a year. [For infor-

mation on available software, see accompanying chart.] Enthusiastic supporters say that arcade-style typing games eliminate the drudgery of lessons by turning them into a fast-action sport.

Jim Hauser is the designer of one of the most successful games, *Type Attack*. A former physics instructor at California Polytechnic State University in San Luis Obispo, he was trying to learn to type when he dreamed up the idea. In his game, the letters of the alphabet soar down the computer screen like alien invaders, vulnerable only to those who can type in the proper keys before the letters plummet to the bottom.

Hauser sees *Type Attack* as an educational device. It's an important link, he says, between the innocent thrills of a computer game and the hard-earned rewards of study. He designed the game to prove a point: "If

## THE ABCs OF TYPING PROGRAMS

The following chart highlights a selection of programs designed to improve keyboard command for aspiring typists of all ages and skill levels. Another option is *Type Test*, a reader-written program for the TRS-80 Model III, included in FAMILY COMPUTING's January issue.

Name of Program	Description	Publisher	Hardware Requirements	Price
MASTERTYPE	Diffuse approaching missiles by typing "enemy" words correctly in this arcade-style program. (See Software Guide, p. 120, for more on <i>Master-Type</i> .)	Scarborough Systems 25 N. Broadway Tarrytown, NY 10591 (914) 332-4545	Apple II/II plus/IIe/III w/ emulator, 48K (disk), and Applesoft ROM; Atari 400/800/1200XL, 16K (cartridge), 32K (cassette); Commodore 64 (disk and cartridge); IBM PC (disk)	\$39.95; \$49.95 for IBM PC
TOUCH TYPING TUTOR	Start from scratch or brush up on your skills. Features an on-screen keyboard and introduces keys in color.	Taylor-made Software P.O. Box 5574 Lincoln, NB 68505 (402) 488-0196	Commodore 64 (disk and cassette); VIC-20, 8K (cassette)	\$19.95 for cassette; \$29.95 for disk
TOUCH TYPING TUTOR	Develop lightning-fast keyboard fingers with this drill-and-practice program designed for the TI-99/4A keyboard. Includes lessons and drills.	Texas Instruments P.O. Box 53 Lubbock, TX 79408 (800) TI-CARES	TI-99/4A, 32K (disk)	\$39.95
TYPE AND LEARN	Improve your command of the keyboard as you learn about computers in this drill-and-practice program that features computer-related words and paragraphs. Beginner through advanced levels.	Simsoft P.O. Box 7095 Port Huron, MI 48301 (313) 984-1570	IBM PC w/PC DOS (disk); TI-99/4A, 64K (disk)	\$49.95
TYPE ATTACK	Learn a lesson from Lexicon, a distant planet whose expert-typist inhabitants defeated the armies of letters and words that are now plummeting toward the earth! Your only effective weapon is your typing skill in this arcade-style program.	Sirius Software 10364 Rockingham Dr. Sacramento, CA 95827 (916) 366-1195	Apple II/II plus/IIe/III w/ emulator, 48K (disk); Atari 800/1200XL, 48K (disk); Commodore VIC- 20, 5K (cartridge), C 64 (disk); IBM PC, PCjr, 64K (disk)	\$39.95
TYPING TUTOR	Learn the keyboard and track speed and accuracy via a no-nonsense approach. Beginner through advanced levels.	Tandy/Radio Shack 1800 One Tandy Center Fort Worth, TX 76102 (817) 390-3011	TRS-80 Color Computer, 16K (program pack)	\$29.95
TYPING TUTOR II	Choose beginner, intermediate, or advanced levels, learn new letters or test speed on long passages. (See Software Guide, p. 120, for more on <i>Typing Tutor II</i> .)	Microsoft 10700 Northrup Way Bellevue, WA 98004 (206) 828-8080	Apple II/II plus/IIe, 48K (disk)	\$24.95
TYPING TUTOR III	Train for keyboard use and see a graphic illustration of your progress in this program designed for the serious computerist. Also includes "Letter Invaders," a shoot-'em-up game mode that breaks up the routine of lessons and speed tests.	Simon & Schuster Electronic Publishing 1230 Ave. of the Americas New York, NY 10020 (212) 245-6400	Apple II/II plus/IIe, 48K (disk); IBM PC and PCjr, 64K (disk); versions are planned for Commodore 64 and ADAM	\$49.95

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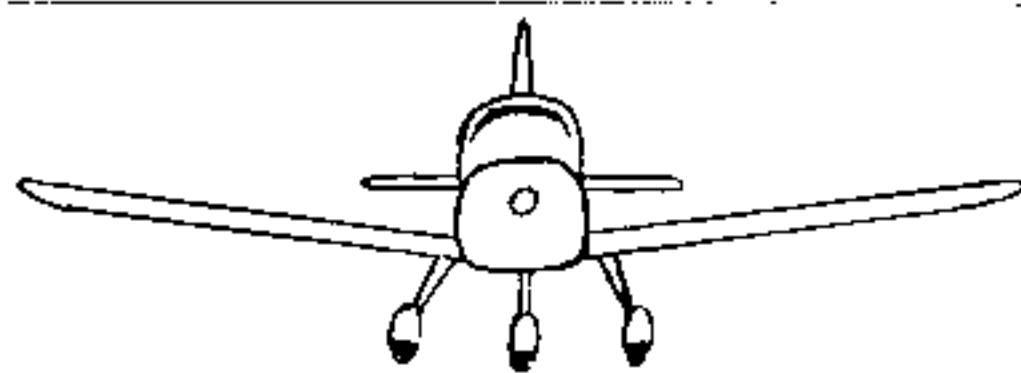
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#### TEXAS INSTRUMENT'S 99/4A



#### FLIGHT SIMULATOR

Learn to fly with the Dow-4 Gazelle, a realistic IFR simulation of a typical 4-place private plane. It is not a game. A manual with 30 pages of text plus 7 figures helps the novice learn to fly. Experienced pilots will enjoy flying the ILS approach. Response time under 1 sec average. Display shows full panel (10 dials and 11 lights) and indicates position of runway for landing. Realistic sound effects. See reviews in Jan 83 99'er and Jun 83 AOPA Pilot. Requires joystick. Cassette. \$30.

#### EDITOR/ASSEMBLER

The Dow E/A turns your TI into an assembly language machine. For use with TI's Mini Memory Module. Fast and convenient. Allows use of entire RAM. Manual includes sample program with detailed explanations. See review in Aug 83 99'er. Cassette. \$25.

#### ASSEMBLY LANGUAGE PRIMER

Teaches TI assembly language in step by step fashion for Basic programmers. Explains concepts in detail with many examples. This is what you have been waiting for if you haven't been able to understand the TI Editor/Assembler manual. \$20

(Dow E/A and PRIMER \$40)

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## GAMES

### REDEFINING THE FIELD

Occasionally, a new arcade game comes along that is worth special mention; one that represents another step in an evolutionary ladder. These games redefine the field and make all the best competition obsolete. *River Raid* (Activision), *Spelunker* (MicroGraphicImage), and *Dino Eggs* (MicroFun) are three such clever, exciting games. They provide the usual thrills and side effects of their genre: that horrible/wonderful elation that comes with staying alive into another round of play, the stress that causes all but the most self-controlled of us to snap at anyone who breaks our concentration.

*River Raid* provides the immediate arcade experience. There's no other shoot-'em-up available that draws the newcomer in so abruptly. And it's carefully designed so that the better you get, the more difficult the challenge of making it up the river. [See my interview with Carol Shaw, the game's designer, p. 68.]

*Dino Eggs* and *Spelunker* are two ladder games that take the genre 10 steps forward. In the former, a delightful sense of humor highlights your mad attempt to rescue dinosaurs from a medieval plague. The clever animation and details, such as having to avoid the gigantic foot of a mother dinosaur, make it seem as if you're participating in a Fred Flintstone cartoon. *Spelunker's* approximately 30 screens, and the variety of actions required of players (jumping, climbing, planting dynamite) demand that you're always on your toes. There's always something happening here.

These games are state-of-the-art great values. But in a field where innovation is so rapid that games are outdated before they ever reach the market, who knows where they'll be next year?

### CLOSER TO MY DEFINITION OF FUN

Agreed, many arcade games, with their sharp graphics, are cute as all get out. They can offer hours of fun. But the same goes for *Conqueror* (Computer Software Associates; see Software Reviews, page 126), which has no graphics at all except for the lists of your holdings. (You play the part of a medieval monarch.) C.S.A.'s strategy program provides the opportunity to bring the family together for an evening of learning and exciting role-playing.

It's a thrill to see your score grow

higher and higher as you reach new levels and previously uncharted screens in arcade games. But, frequently it's the same thing over and over. And if you master the game, that's it. Having lost its challenge, it'll end up in the drawer forever.

In *Conqueror*, or any number of other strategy games, however, you are called upon to use the thought processes involved in real life. I've found that the fun involved in this kind of use of the gray matter takes a lot longer to wear off.

By all means, arcade games do have their place. They're an unbeatable form of entertainment and relaxation, and I'll go into them more next month by surveying what's available in arcade adaptations for the home. But strategy, adventure, and hybrid games enhance the entertainment by taking it all one step further into the imagination, an unusual realm of experience, a marvelous world of fantasy, and closer to my definition of fun. **FC**

### MANUFACTURERS MENTIONED:

**Activision**, 2350 Bayshore Frontage Rd., Mountain View, CA 94043; (415) 960-0410. *River Raid* available for Atari 400/800/1200XL, 16K (cartridge).

**Computer Software Associates**, 44 Oak St., The Silk Mill, Newton Upper Falls, MA 02164; (617) 527-7510. *Conqueror* available for Commodore VIC-20, 16K (cassette).

**MicroFun**, a division of Micro Lab, 2699 Skokie Valley Rd., Highland Park, IL 60035; (312) 433-7550. *Dino Eggs* available for Apple II/II plus/IIe, 48K (disk).

**MicroGraphicImage**, 12640 E. Northwest Hwy., Suite 410, Dallas, TX 75228; (214) 341-3791. *Spelunker* available for Atari 400/600XL/800/1200XL, 48K (disk).

**Muse Software**, 347 N. Charles St., Baltimore, MD 21201; (301) 659-7212. *Castle Wolfenstein* available for Apple II/II plus/IIe, 48K (disk); Atari 400/800/1200XL, 32K (disk); Commodore 64 (disk).

**Strategic Simulations**, 883 Stierlin Rd., Bldg. A-200, Mountain View, CA 94043; (415) 964-1353. *Broad-sides* available for Apple II/II plus/IIe, 48K (disk).

For t  
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sette and can be transferred to a disk. While they do not allow you to save incoming data to disk, these programs have been well received by users.

Atari, Inc. says it is now sending off its new Atari 1030 modem, which comes with built-in *ModemLink* software. The 1030 modem is also compatible with Atari's *TeleLink* software, which comes on a cartridge. Neither the *Modem-Link* nor *TeleLink* software allows you to receive and save files.

### MORE NOTEWORTHY PROGRAMS


There is, of course, a landslide of third-party software as developers try to cash in on the telecomputing boom. Much of it does nothing that the free *MODEM* program doesn't do, but there are some noteworthy gems.

When shopping for communications software, you should look for two main things. First, the program should be easy to use. This is true of all software, but since telecommunicating can be complex, it is even more important. Do you need a Ph.D. from Harvard to figure the program out? Let a dealer run you through the program to check. Make sure the documentation has a good index, so that you can find information in a hurry while you're online. A good program will let you jump around from menu to menu, from command to command, quickly and easily.

Second, the program should have a good error-checking routine. The best is the above-mentioned Christensen protocol. Also check for XON and XOFF codes. These tell the sending computer to start sending data and to stop when the buffer is full. When data has been saved and the buffer is empty, XON will restart the process.

Some programs allow you to save files, a nice feature. Others provide "macros," where you can store phone numbers and modem settings for people you call often. And some programs have a built-in mechanism that allows you to automatically log-on to information services. One of the better programs around, *Modem 80* (The Alternate Source), for TRS-80 Models I, III, and 4 (in Model III mode), works well, is very flexible, and costs no more than a game—\$39.95.

The best communications program for the Atari is *Teletalk* (Datasoft, \$49). The new version of this disk-based program allows users to "download" programs from bulletin boards, may incorporate the Christensen protocol, according to sources. A Commodore version is also in the works.

The program many refer to as "the best" is *ASCII Express, The Professional* (for Apple II/II plus/IIe/III w/ emulator). This program is high-powered, designed primarily for professional use, but is finding its way into more and more homes. Southwestern Data Systems, the publisher, also markets *Z-Term The Professional* and *P-Term The Professional* (both for the Apple). These programs are for more specialized needs, such as handling CP/M or Pascal code. 

## 30 LEADING COMMUNICATIONS PROGRAMS

PROGRAM (COMPANY)	COMPUTER	AUTO-DIAL	MACROS	ERROR CHECKING	MAX. BAUD RATE	\$
ACE MAIL	TRS 80 I/III	Y	N	Y	1200	119
ACE MAIL	IBM PC	Y	N	Y	1200	139
ACE MAIL	TRS 80 I/III	Y	N	Y	300	79
ACE MAIL (Ace Computer)	IBM PC	Y	N	N	300	99
APPLE-LINK (Computer Applications)	APPLE II	N	N	Y	300	59
ASCII EXPRESS II	APPLE II	N	N	Y	300	79
PROFES-SIONAL (Southwestern Data Systems)	APPLE II	Y	Y	Y	to 9600	129
CROSSTALK (Microstuf)	CP/M MP/M MS-DOS	Y	Y	Y	300/1200	195
DATA CAPTURE IIe (Southeastern Software)	APPLE IIe	Y	Y	N	300/1200	90
DATALINK (Swiftly Software)	ATARI	Y	Y	Y	300	39
DATALINK (Link Systems)	APPLE II IBM PC	Y Y	Y Y	Y Y	1200 to 9600	99 199
I/TERM (Infosoft Syst.)	CP/M	N	N	N	1200	95
LOGON (Ferox Micro-Systems)	TRS-80 II APPLE II/III IBM PC	Y	Y	Y	1200	150
MICROLINK II (Digital Marketing)	CP/M CP/M-86 MS-DOS	Y	Y	Y	1200	99
MICRO-TERMINAL (Microcom)	APPLE II IBM PC	Y Y	Y Y	Y Y	1200 1200	84 99
MODEM 80 (The Alternate Source)	TRS-80 I/III	Y	Y	Y	1200	39
P-TERM (Southwestern Data)	APPLE II	Y	Y	Y	300/1200	129
POST-TERM (Phil. Consulting)	TRS-80 I/II/III/4	Y	Y	N	300/1200	134
SMARTCOM I (Hayes)	APPLE II/III	Y	Y	Y	300	119
SMARTCOM II (Hayes)	IBM PC	Y	Y	Y	1200	149
TELELINK** (Atari Inc.)	ATARI	N	N	N	300	29
TELETALK (Datasoft)	ATARI	N	N	Y	1200	49
TELETARI (Don't Ask Software)	ATARI	Y	Y	N	to 9600	39
TERM 64* (Commodore)	COMMODORE 64	Y	N	N	300	9
TERMINAL (Texas Instruments)	EMULATOR II TI	Y	N	Y	300	24
VICTERM* (Commodore)	COMMODORE VIC-20	N	N	N	300	9
VIDEOTEXT PLUS (Tandy)	TRS-80 I/III/4	Y	N	Y	300	49
Z-TERM THE PRO (Southwestern Data)	APPLE II	Y	Y	Y	300/1200	149

\* Cannot transfer files  
\* Cartridge

## DESIRABLE FEATURES IN A MODEM

1. Direct-connect
2. 300 baud (minimum)
3. Full- and half-duplex
4. Originate/answer
5. Auto-dial/Auto-answer
6. Bell 103 standard (for 300 baud); Bell 212A standard (for 1,200 baud)
7. Software included
8. FCC approved

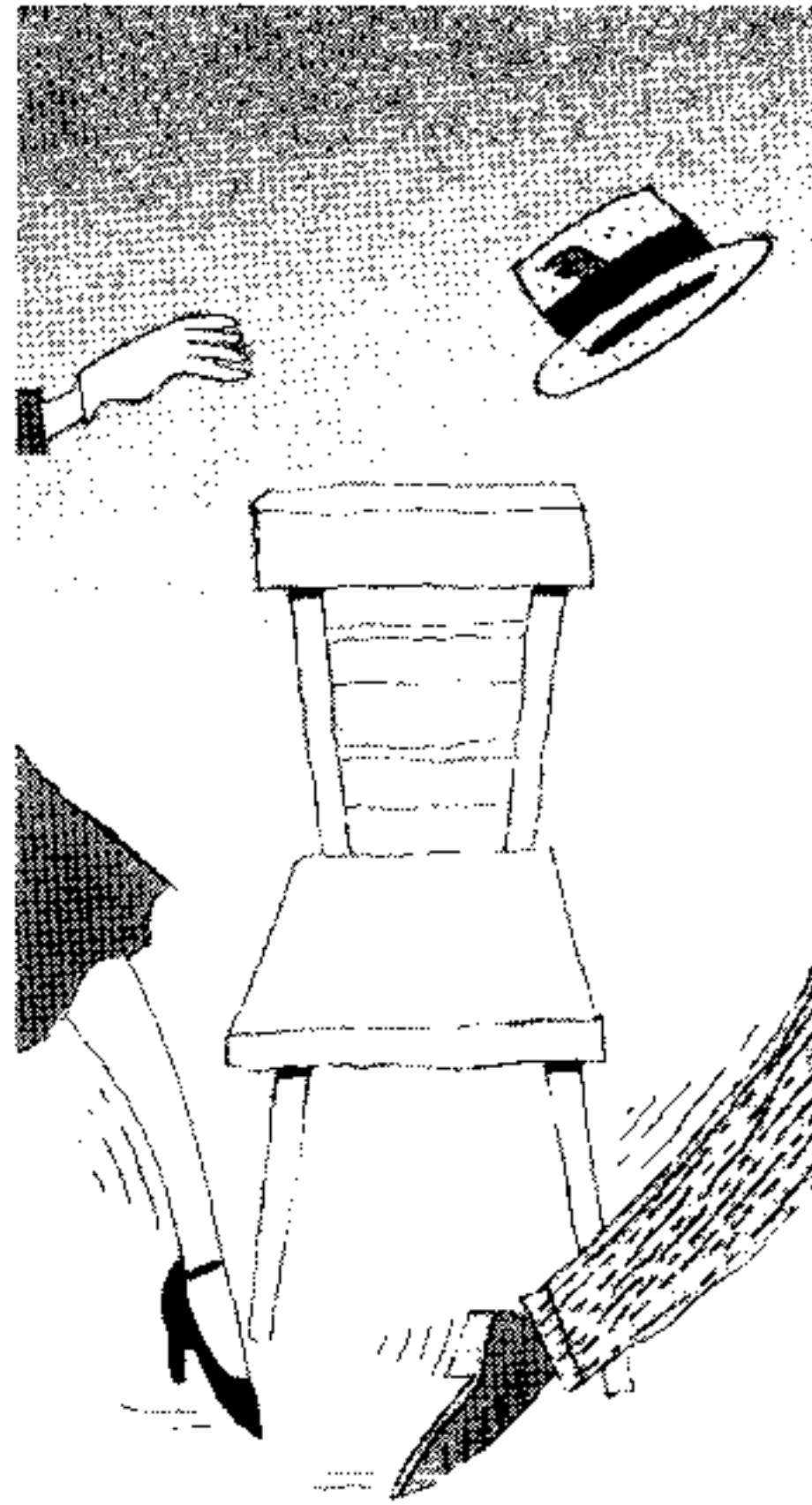


# MUSICAL CHAIRS

BY JOEY LATIMER

Here's a perfect rainy day activity for kids. Now your computer can lead an old-fashioned game of *Musical Chairs*!

First set up a circle of chairs, facing outwards, one short the total number of players. An old nursery rhyme will play as soon as you run the program, while the players should begin to march around the outside of the circle. When the music suddenly stops, each player should jump into a chair. The player left standing is out of the game. Remove another chair, press the RETURN or ENTER key for the music to start up again, and enjoy an afternoon of endless surprise!



## TRS-80 Color Computer/*Musical Chairs*

```

50 CLS
60 PRINT "MUSICAL CHAIRS PROGRAM"
70 PRINT
80 PRINT "PRESSING <ENTER>"
90 PRINT "STARTS THE MUSIC. THE"
100 PRINT "MUSIC MAY STOP AT ANY"
110 PRINT "TIME."
120 PRINT
130 INPUT "READY? PRESS <ENTER>";R$
150 T=INT(RND(57))+15
160 RESTORE
170 C=0
180 CLS
190 IF C>=T THEN 370
200 IF C<24 THEN 240
210 RESTORE
220 T=T-C
230 C=0
240 CLS(RND(9)-1)
270 READ PTCH,DRTN
280 SOUND PTCH,DRTN
340 C=C+1
350 GOTO 190
370 CLS
390 PRINT "REMOVE A CHAIR. THEN"
400 PRINT "PRESS <ENTER> TO"
410 INPUT "START THE MUSIC AGAIN.";R$
430 GOTO 150
1000 DATA 204,6,210,2,204,4,197,4,193,4,197,4
1010 DATA 204,8,185,4,193,4,197,8,193,4,197,4
1020 DATA 204,8,204,6,210,2,204,4,197,4,193,4
1030 DATA 197,4,204,8,185,8,204,8,193,4,176,12
    
```

## Apple/*Musical Chairs*

```

10 FOR X=1 TO 77
20 READ Y
30 IF X>48 THEN POKE 719+X,Y
40 NEXT X
50 HOME
    
```

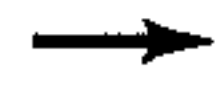
```

60 PRINT "MUSICAL CHAIRS PROGRAM"
70 PRINT
80 PRINT "PRESSING <RETURN>"
90 PRINT "STARTS THE MUSIC. THE"
100 PRINT "MUSIC MAY STOP AT ANY"
110 PRINT "TIME."
120 PRINT
130 INPUT "READY? PRESS <RETURN>";R$
150 T=INT(RND(1)*57)+15
160 RESTORE
170 C=0
180 GR
190 IF C>=T THEN 360
200 IF C<24 THEN 240
210 RESTORE
220 T=T-C
230 C=0
240 COLOR=INT(RND(1)*16)
250 PLOT INT(RND(1)*39),INT(RND(1)*39)
270 READ PTCH,DURN
280 POKE 8,PTCH
290 POKE 6,DURN
300 CALL 768
340 C=C+1
350 GOTO 190
360 TEXT
370 HOME
390 PRINT "REMOVE A CHAIR. THEN"
400 PRINT "PRESS <RETURN> TO"
410 INPUT "START THE MUSIC AGAIN";R$
430 GOTO 150
1000 DATA 140,106,124,32,140,74,160,74,170,74,160,74
1010 DATA 140,128,185,74,170,74,160,128,170,72,160,72
1020 DATA 140,128,140,106,124,32,140,74,160,74,170,74
1030 DATA 160,74,140,128,185,74,140,128,170,74,215,25
5
2000 DATA 165,8,74,133,9,164,8,173,48,192,136
2010 DATA 234,234,208,251,165,7,56,229,9,133
2020 DATA 7,176,237,198,6,208,233,96
    
```

## Atari/*Musical Chairs*

```

10 DIM R$(1)
50 PRINT CHR$(125)
60 PRINT "MUSICAL CHAIRS PROGRAM"
70 PRINT
80 PRINT "PRESSING <RETURN>"
90 PRINT "STARTS THE MUSIC. THE"
100 PRINT "MUSIC MAY STOP AT ANY"
110 PRINT "TIME."
120 PRINT
130 PRINT "READY? PRESS <RETURN>";
140 INPUT R$
150 T=INT(RND(1)*57)+15
160 RESTORE
170 C=0
180 PRINT CHR$(125)
190 IF C>=T THEN 360
200 IF C<24 THEN 240
210 RESTORE
220 T=T-C
230 C=0
240 SETCOLOR 4,INT(RND(1)*15),10
250 SETCOLOR 2,INT(RND(1)*15),10
270 READ PTCH,DUR
280 SOUND 0,PTCH,10,15
300 FOR DE=1 TO DUR
310 NEXT DE
320 SOUND 0,0,0,0
340 C=C+1
350 GOTO 190
360 SETCOLOR 2,11,4
370 SETCOLOR 4,11,10
390 PRINT "REMOVE A CHAIR. THEN"
400 PRINT "PRESS <RETURN> TO"
    
```



## SPRING PROGRAMS

```
410 PRINT "START THE MUSIC AGAIN";
420 INPUT R$
430 GOTO 150
1000 DATA 81,125,72,42,81,83,91,83,96,83,91,83
1010 DATA 81,167,108,83,96,83,91,167,96,83,91,83
1020 DATA 81,167,81,125,72,42,81,83,91,83,96,83
1030 DATA 91,83,81,167,108,167,81,167,96,83,121,333
```

### Commodore 64/Musical Chairs

```
10 POKE 54296,15
20 POKE 54277,72
30 POKE 54278,132
40 POKE 54276,33
50 PRINT CHR$(147)
60 PRINT "MUSICAL CHAIRS PROGRAM"
70 PRINT
80 PRINT "PRESSING <RETURN>"
90 PRINT "STARTS THE MUSIC. THE"
100 PRINT "MUSIC MAY STOP AT ANY"
110 PRINT "TIME."
120 PRINT
130 INPUT "READY? PRESS <RETURN>";R$
150 T=INT(RND(1)*57)+15
160 RESTORE
170 C=0
180 PRINT CHR$(147)
190 IF C>=T THEN 370
200 IF C<24 THEN 240
210 RESTORE
220 T=T-C
230 C=0
240 POKE 53280,INT(RND(0)*15)+1
250 POKE 53281,INT(RND(0)*15)+1
270 READ HF,LF,DUR
280 POKE 54273,HF
290 POKE 54272,LF
300 FOR DE=1 TO DUR
310 NEXT DE
320 POKE 54272,0
330 POKE 54273,0
340 C=C+1
350 GOTO 190
370 POKE 53281,6
390 PRINT"REMOVE A CHAIR. THEN"
400 PRINT"PRESS <RETURN> TO"
410 INPUT"START THE MUSIC AGAIN.";R$
430 GOTO 150
1000 DATA 25,30,183,28,49,62,25,30,125,22,96,125,21,31
,125,22,96,125
1010 DATA 25,30,250,18,209,125,21,31,125,22,96,250,21,
31,125,22,96,125
1020 DATA 25,30,250,25,30,183,28,49,63,25,30,125,22,96
,125,21,31,125
1030 DATA 22,96,125,25,30,250,18,209,250,25,30,250,21,
31,125,16,195,500
```

### IBM PC/Musical Chairs

```
50 CLS
60 PRINT "MUSICAL CHAIRS PROGRAM"
70 PRINT
80 PRINT "Pressing <RETURN>"
90 PRINT "starts the music. The"
100 PRINT "music may stop at any"
110 PRINT "time."
120 PRINT
130 INPUT "Ready? Press <RETURN>";R$
150 T=INT(RND(1)*57)+15
160 RESTORE
170 C=0
180 CLS
190 IF C>=T THEN 360
```

```
200 IF C<24 THEN 240
210 RESTORE
220 T=T-C
230 C=0
240 COLOR 1,INT(RND(1)*8),INT(RND(1)*16)
250 CLS
270 READ PTCH,DRTN
280 SOUND PTCH,DRTN
340 C=C+1
350 GOTO 190
360 COLOR 7,0,0
370 CLS
390 PRINT "Remove a chair. Then"
400 PRINT "press <RETURN> to"
410 INPUT "start the music again.";R$
430 GOTO 150
1000 DATA 392,6,440,2,392,4,350,4,330,4,350,4
1010 DATA 392,8,294,4,330,4,350,8,330,4,350,4
1020 DATA 392,8,392,6,440,2,392,4,350,4,330,4
1030 DATA 350,4,392,8,294,8,392,8,330,4,262,12
```

### TI-99/4A/Musical Chairs

```
10 RANDOMIZE
50 CALL CLEAR
60 PRINT "MUSICAL CHAIRS PROGRAM"
70 PRINT
80 PRINT "Pressing <ENTER>"
90 PRINT "starts the music. The"
100 PRINT "music may stop at any"
110 PRINT "time."
120 PRINT
130 PRINT "Ready? Press <ENTER>";
140 INPUT R$
150 T=INT(RND*57)+15
160 RESTORE
170 C=0
180 CALL CLEAR
190 IF C>=T THEN 360
200 IF C<24 THEN 240
210 RESTORE
220 T=T-C
230 C=0
240 CALL COLOR(1,INT(RND*16)+1,INT(RND*16)+1)
270 READ PTCH,DRTN
280 CALL SOUND(DRTN,PTCH,10)
340 C=C+1
350 GOTO 190
360 CALL COLOR(1,2,1)
390 PRINT "Remove a chair. Then"
400 PRINT "Press <ENTER> to"
410 PRINT "start the music again.";
420 INPUT R$
430 GOTO 150
1000 DATA 784,300,880,100,784,200,698,200,659,200
1010 DATA 698,200,784,400,587,200,659,200,698,400
1020 DATA 659,200,698,200,784,400,784,300,880,100
1030 DATA 784,200,698,200,659,200,698,200,784,400
1040 DATA 587,400,784,400,659,200,523,600
```

### Timex Sinclair 2068/Musical Chairs

```
10 RANDOMIZE
50 CLS
60 PRINT "MUSICAL CHAIRS PROGRAM"
70 PRINT
80 PRINT "PRESSING <ENTER>"
90 PRINT "STARTS THE MUSIC. THE"
100 PRINT "MUSIC MAY STOP AT ANY"
110 PRINT "TIME."
120 PRINT
```

## SPRING PROGRAMS

```
130 INPUT "READY? PRESS <ENTER>";RS
150 LET T=INT(RND*57)+15
160 RESTORE
170 LET C=0
180 CLS
190 IF C>=T THEN GOTO 360
200 IF C<24 THEN GOTO 240
210 RESTORE
220 LET T=T-C
230 LET C=0
240 BORDER INT(RND*8)
250 PAPER INT(RND*8)
260 CLS
270 READ PTCH,DRTN
280 BEEP DRTN,PTCH
340 LET C=C+1
350 GOTO 190
360 BORDER 7
370 PAPER 7
380 CLS
390 PRINT "REMOVE A CHAIR. THEN"
400 PRINT "PRESS <ENTER> TO"
410 PRINT "START THE MUSIC AGAIN.";RS
420 INPUT RS
430 GOTO 150
1000 DATA 7,.3,9,.1,7,.2,5,.2,4,.2,5,.2,7,.4
1010 DATA 2,.2,4,.2,5,.4,4,.2,5,.2,7,.4
1020 DATA 7,.3,9,.1,7,.2,5,.2,4,.2,5,.2,7,.4
1030 DATA 2,.4,7,.4,4,.2,0,.6
```

### VIC-20/Musical Chairs

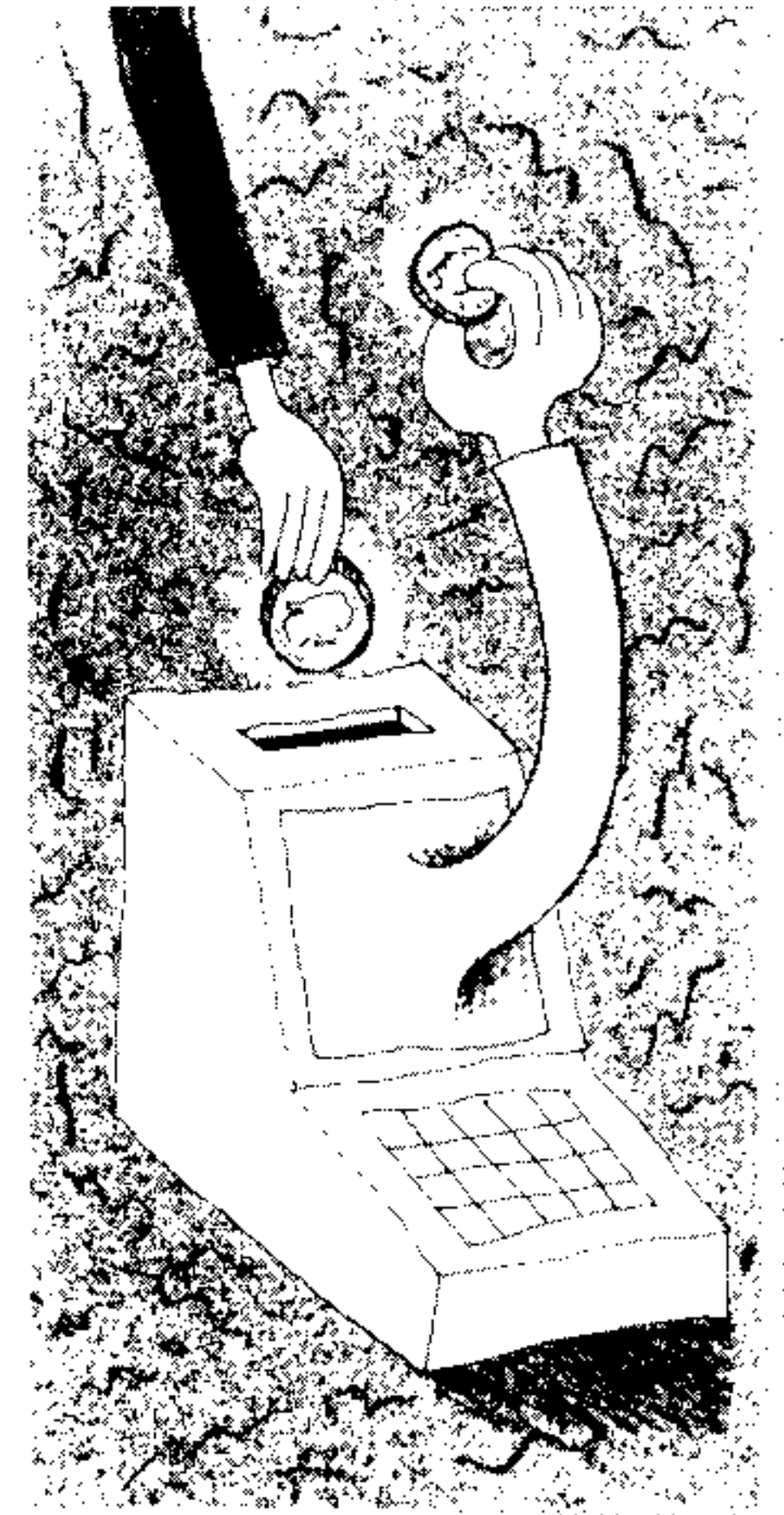
```
10 POKE 36878,15
50 PRINT CHR$(147)
60 PRINT "MUSICAL CHAIRS PROGRAM"
70 PRINT
80 PRINT "PRESSING <RETURN>"
90 PRINT "STARTS THE MUSIC. THE"
100 PRINT "MUSIC MAY STOP AT ANY"
110 PRINT "TIME."
120 PRINT
130 INPUT "READY? PRESS <RETURN>";RS
150 T=INT(RND(1)*57)+15
160 RESTORE
170 C=0
180 PRINT CHR$(147)
190 IF C>=T THEN 360
200 IF C<24 THEN 240
210 RESTORE
220 T=T-C
230 C=0
240 POKE 36879,INT(RND(0)*255)+1
270 READ PTCH,DRTN
280 POKE 36875,PTCH
300 FOR DE=1 TO DRTN
310 NEXT DE
320 POKE 36875,0
340 C=C+1
350 GOTO 190
360 POKE 36879,27
390 PRINT "REMOVE A CHAIR. THEN"
400 PRINT "PRESS <RETURN> TO"
410 INPUT "START THE MUSIC AGAIN.";RS
430 GOTO 150
1000 DATA 215,183,219,62,215,125,209,125,207,125,209
1010 DATA 125,215,250,201,125,207,125,209,250,207,125
1020 DATA 209,125,215,250,215,183,219,63,215,125,209
1030 DATA 125,207,125,209,125,215,250,201,250,215,250
1040 DATA 207,125,195,500
```

## KIDS' ALLOWANCE PLANNER

BY JOEY LATIMER

Every time you walk past the toy store, does your heart ache for that special something in the window? Are your cries of "Can you ple-e-ase buy it for me, Mom?" falling on deaf ears? Is your birthday too far off to wait, and is Christmas even further?

Well, you'll just have to buy it with your allowance. If your reply is "What allowance? I've spent it all!" then this budget program is for you! It will ask you for your current savings and the cost of your planned purchase(s), then tell you how much money you'll have left. And if you're over budget, it will estimate when in the future you can afford your purchase(s), based on the sum of your weekly allowance and/or any other weekly earnings you might have.



### ADAM & Apple/Kids' Allowance Planner

```
20 DIM T$(100),C(100)
40 HOME
50 PRINT "PRESS <RETURN>"
60 PRINT "AFTER EACH REPLY."
70 PRINT
80 PRINT "WHAT IS YOUR NAME?";
90 INPUT N$
100 HOME
110 PRINT "ALL RIGHT ";N$;" "
120 PRINT "LET'S TALK MONEY!"
130 PRINT
140 PRINT "IN DOLLARS AND CENTS,"
150 PRINT "HOW MUCH MONEY DO YOU"
160 PRINT "HAVE IN YOUR SAVINGS?"
170 PRINT "FOR EXAMPLE, $? 31.50"
180 PRINT "$";
190 INPUT S
210 PRINT
220 PRINT "HOW MUCH ALLOWANCE"
230 PRINT "DO YOU GET EACH WEEK?"
240 PRINT "$";
250 INPUT A
270 PRINT
280 PRINT "HOW MUCH OTHER MONEY"
290 PRINT "DO YOU EARN EACH WEEK?"
300 PRINT "$";
310 INPUT E
330 X = 0
340 M = 0
350 HOME
360 PRINT "O.K., ";N$;" "
370 PRINT "YOU HAVE $";S - M
380 PRINT
```

## SPRING PROGRAMS

```
700 CLS
710 PRINT "AFTER BUYING ..."
720 PRINT
730 PRINT "ITEM", "COST"
740 PRINT "-----", "-----"
750 FOR J=1 TO X
760 IF J/14>INT(J/14) THEN 800
770 PRINT " (PRESS <ENTER> ...)"
780 INPUT RS
790 CLS
800 PRINT T$(J),C(J)
810 NEXT J
820 PRINT
830 PRINT "YOU'LL HAVE"
840 PRINT "$";S-M;" LEFT."
850 PRINT
860 PRINT "DO YOU WANT TO BUY"
870 PRINT "SOMETHING ELSE? (Y/N)"
880 INPUT RS
890 IF RS="Y" THEN 350
900 IF RS<>"N" THEN 880
910 PRINT
920 PRINT "YOU HAD $";S;"."
930 PRINT "YOU SPENT $";M;"."
940 PRINT "LEAVING $";S-M;"."
```

### TI-99/4A/Kids' Allowance Planner

```
20 DIM T$(100),C(100)
40 CALL CLEAR
50 PRINT "PRESS <ENTER>"
60 PRINT "AFTER EACH REPLY."
70 PRINT
80 PRINT "WHAT IS YOUR NAME";
90 INPUT NS
100 CALL CLEAR
110 PRINT "ALL RIGHT ";NS;"."
120 PRINT "LET'S TALK MONEY!"
130 PRINT
140 PRINT "IN DOLLARS AND CENTS,"
150 PRINT "HOW MUCH MONEY DO YOU"
160 PRINT "HAVE IN YOUR SAVINGS?"
170 PRINT "FOR EXAMPLE, $? 31.50"
180 PRINT "$";
190 INPUT S
210 PRINT
220 PRINT "HOW MUCH ALLOWANCE"
230 PRINT "DO YOU GET EACH WEEK?"
240 PRINT "$";
250 INPUT A
270 PRINT
280 PRINT "HOW MUCH OTHER MONEY"
290 PRINT "DO YOU EARN EACH WEEK?"
300 PRINT "$";
310 INPUT E
330 X=0
340 M=0
350 CALL CLEAR
360 PRINT "O.K., ";NS;"."
370 PRINT "YOU HAVE $";S-M
380 PRINT
390 PRINT "WHAT DO YOU WANT"
400 PRINT "TO BUY?"
410 INPUT B$
430 PRINT
440 PRINT "HOW MUCH DOES IT COST?"
450 PRINT "$";
460 INPUT P
480 PRINT
490 IF P+M<=S THEN 650
500 PRINT "SORRY, ";NS
510 PRINT "YOU DON'T HAVE ENOUGH"
520 PRINT "MONEY TO BUY THAT."
530 IF A+E<=0 THEN 850
540 W=(P-(S-M))/(A+E)
550 IF W=INT(W) THEN 570
```

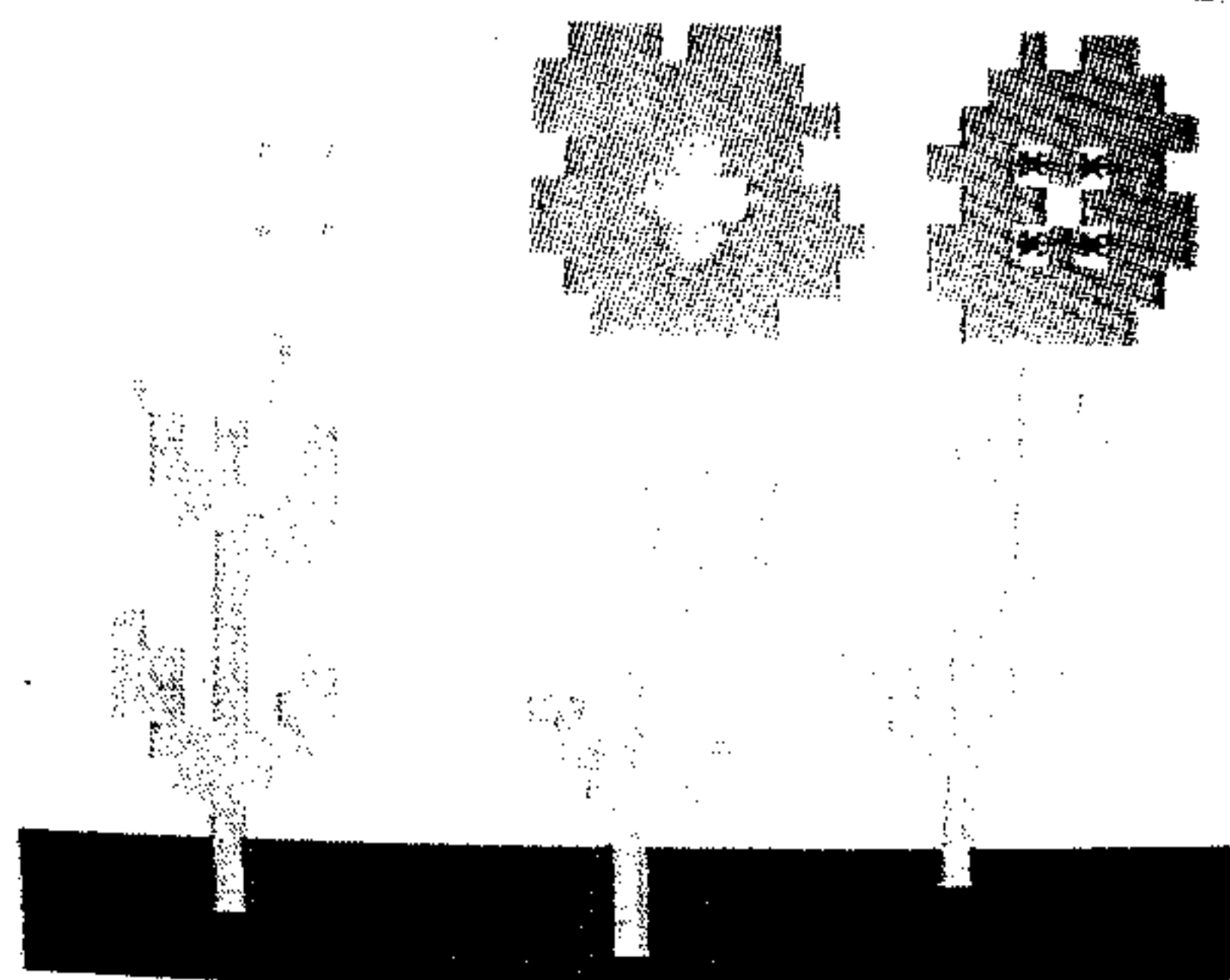
```
560 W=INT(W)+1
570 PRINT "BUT IF YOU SAVE $";A+E
580 PRINT "EACH WEEK YOU CAN BUY"
590 PRINT "IT IN ";W;" WEEKS."
600 PRINT
610 PRINT "WANT TO START AGAIN";
620 INPUT RS
630 IF RS="Y" THEN 330
640 GOTO 850
650 X=X+1
670 T$(X)=B$
680 C(X)=P
690 M=M+P
700 CALL CLEAR
710 PRINT "AFTER BUYING ..."
720 PRINT
730 PRINT "ITEM", "COST"
740 PRINT "-----", "-----"
750 FOR J=1 TO X
760 IF J/12>INT(J/12) THEN 800
770 PRINT " (PRESS <ENTER> ...)"
780 INPUT RS
790 CALL CLEAR
800 PRINT T$(J),C(J)
810 NEXT J
820 PRINT
830 PRINT "YOU'LL HAVE"
840 PRINT "$";S-M;" LEFT"
850 PRINT
860 PRINT "DO YOU WANT TO BUY"
870 PRINT "SOMETHING ELSE? (Y/N)"
880 INPUT RS
890 IF RS="Y" THEN 350
900 IF RS<>"N" THEN 880
910 PRINT
920 PRINT "YOU HAD $";S
930 PRINT "YOU SPENT $";M
940 PRINT "YOU'VE GOT $";S-M
```

### Timex Sinclair 1000 w/16K RAM Pack, 1500 & 2068/Kids' Allowance Planner

```
10 FAST
20 DIM T$(100,15)
30 DIM C(100)
40 CLS
50 PRINT "PRESS <ENTER>"
60 PRINT "AFTER EACH REPLY."
70 PRINT
80 PRINT "WHAT IS YOUR NAME?"
90 INPUT NS
100 CLS
110 PRINT "ALL RIGHT, ";NS;"."
120 PRINT "TIME TO TALK MONEY."
130 PRINT
140 PRINT "IN DOLLARS AND CENTS,"
150 PRINT "HOW MUCH MONEY DO YOU"
160 PRINT "HAVE IN YOUR SAVINGS?"
180 PRINT "$";
190 INPUT S
200 PRINT S
210 PRINT
220 PRINT "HOW MUCH ALLOWANCE"
230 PRINT "DO YOU GET EACH WEEK?"
240 PRINT "$";
250 INPUT A
260 PRINT A
270 PRINT
280 PRINT "HOW MUCH OTHER MONEY"
290 PRINT "DO YOU EARN EACH WEEK?"
300 PRINT "$";
310 INPUT E
320 PRINT E
330 LET X=0
340 LET M=0
350 CLS
```

# FIRST BLOOM

BY JOEY LATIMER



As the last snow melts, announcing the arrival of spring, it's time to don your rubber boots and set off for a walk in the woods in search of the first budding crocuses. If the near-

est woods are 50 miles away, don't despair. There's a green thumb right in your house, in an unexpected place. Discover the *First Blooms* of spring—in your computer!

## Apple/First Bloom

```

10 HOME:GR:POKE -16302,1
20 DIM F(100),T(100),F2(100),T2(30)
30 FOR X = 1 TO 14:READ F(X),T(X):NEXT X
40 FOR X = 1 TO 14:READ F2(X),T2(X):NEXT X
50 COLOR= 12
60 FOR Y = 40 TO 47:HLIN 0,39 AT Y:NEXT Y
70 FOR X = 6 TO 34 STEP 14
80 OFF = OFF + 1
90 FOR Y = 41 TO 3 STEP - 1
100 PLOT X,Y + OFF
110 NEXT Y
120 NEXT X
130 OFF = 0:C = 1
140 FOR X = 0 TO 28 STEP 14
150 OFF = OFF + 1
160 FOR Y = 27 TO 33
170 HLIN F(C) + X,T(C) + X AT Y + OFF
180 HLIN F(C + 1) + X,T(C + 1) + X AT Y + OFF
190 HLIN F2(C) + X,T2(C) + X AT Y - 12 + OFF
200 HLIN F2(C + 1) + X,T2(C + 1) + X AT Y - 12 + OFF
210 C = C + 2
220 NEXT Y
230 C = 1
240 NEXT X
250 FOR X = 1 TO 16:READ F(X),T(X),F2(X),T2(X):NEXT X
260 FOR Y = 15 TO 0 STEP -1
270 OFF = 0
280 FOR X = 0 TO 26 STEP 13
290 COLOR= 11:IF X = 13 THEN COLOR= 13
300 IF X = 26 THEN COLOR= 3
310 HLIN F(Y + 1) + X,T(Y + 1) + X AT Y + OFF
320 HLIN F2(Y + 1) + X,T2(Y + 1) + X AT Y + OFF
330 NEXT X
340 OFF = OFF + 1
350 NEXT Y
360 FOR X = 1 TO 27 STEP 13
370 COLOR= 8:IF X = 14 THEN COLOR= 2
380 IF X = 27 THEN COLOR= 13

```

```

390 PLOT X + 5,3:PLOT X + 5,7
400 PLOT X + 9,3:PLOT X + 9,7
410 PLOT X + 7,5
420 NEXT X
430 GOTO 430
1000 DATA 1,11,11,11,1,2,10,11,1,3,9,11,2,4,8,10,2,4
1010 DATA 8,10,3,5,7,9,4,5,7,8,1,1,6,7,1,3,5,6,1,5
1020 DATA 11,11,2,5,10,11,5,5,9,11,5,6,8,11,6,6,7,11
1030 DATA 5,6,10,12,4,7,9,12,3,7,9,13,3,8,9,13,3,8
1040 DATA 9,13,3,8,9,13,3,8,9,13,4,8,9,12,6,8,9,12
1050 DATA 5,8,9,11,4,8,9,12,4,8,9,13,4,8,9,13,4,8
1060 DATA 9,13,4,8,9,12,4,7,9,1

```

## Atari/First Bloom

```

10 GRAPHICS 3+16
20 COLOR 2
30 READ CO,RO,N
40 IF CO=-1 THEN 80
50 PLOT CO,RO
60 DRAWTO N,RO
70 GOTO 30
80 READ KO
90 IF KO=-1 THEN 90
100 COLOR KO
110 GOTO 30
1000 DATA 6,22,6,19,22,19,6,21,6,19,21,19,30,21,30
1010 DATA 6,20,6,19,20,19,30,20,30,5,19,7,18,19,21
1020 DATA 30,19,30,4,18,8,17,18,19,21,18,22,29,18,30
1030 DATA 3,17,4,6,17,6,8,17,9,16,17,17,19,17,19
1040 DATA 28,17,32,3,16,4,6,16,6,8,16,9,19,16,19
1050 DATA 27,16,28,30,16,30,32,16,33,3,15,3
1060 DATA 6,15,6,8,15,9,20,15,20,30,15,30,6,14,6
1070 DATA 21,14,21,31,14,31,6,13,8,20,13,23,32,13,32
1080 DATA 5,12,6,8,12,9,19,12,24,32,12,32,4,11,6
1090 DATA 9,11,9,19,11,19,21,11,21,24,11,24,31,11,33
1100 DATA 4,10,4,6,10,6,9,10,9,21,10,21,30,10,30
1110 DATA 32,10,34,3,9,3,7,9,7,21,9,21,32,9,32
1120 DATA 34,9,34,8,8,8,21,8,21,32,8,32,-1,-1,-1,1
1130 DATA 5,7,10,4,6,11,3,5,12,3,4,13,3,3,13,4,2,12
1140 DATA 5,1,11,6,0,10,-1,-1,-1,0,7,4,7,-1,-1,-1,3
1150 DATA 6,3,6,8,3,8,6,5,6,8,5,8
1160 DATA 18,7,23,17,6,25,16,5,26,16,4,25,17,3,24
1170 DATA 16,2,25,16,1,24,17,0,19,21,0,23,-1,-1,-1
1180 DATA 0,21,4,21,-1,-1,-1,1,20,3,20,22,3,22
1190 DATA 20,5,20,22,5,22,30,7,35,29,6,36
1200 DATA 29,5,37,30,4,37,29,3,36,29,2,37,31,1,36
1210 DATA 32,0,32,34,0,36,-1,-1,-1,0,33,4,33
1220 DATA -1,-1,-1,3,32,3,32,34,3,34,32,5,32
1230 DATA 34,5,34,-1,-1,-1,-1

```

## Commodore 64/First Bloom

```

10 PRINT CHR$(147)
20 POKE 53280,15
30 POKE 53281,15
40 READ B,CH,KO
50 IF B=-1 THEN 50
60 FOR Z=1 TO B
70 READ X,Y
80 FOR P=X TO Y
90 POKE P,CH
100 POKE P+54272,KO
110 NEXT P
120 NEXT Z
130 GOTO 40
1000 DATA 1,160,9,1864,2024,63,160,5,1963,1963,1910
1010 DATA 1910,1923,1923,1870,1870,1883,1883,1894,1894
1020 DATA 1830,1830,1843,1843,1854,1854,1789,1791,1802
1030 DATA 1805,1814,1814,1748,1752,1761,1763,1765,1766
1040 DATA 1773,1774,1707,1708,1710,1710,1712,1713,1720
1050 DATA 1721,1723,1723,1732,1736,1667,1668,1670,1670
1060 DATA 1673,1673,1683,1683,1691,1692,1694,1694,1696
1070 DATA 1697,1627,1627,1630,1630,1644,1644,1654,1654

```

```

1080 DATA 1590,1590,1605,1605,1615,1615,1550,1552,1564
1090 DATA 1567,1576,1576,1509,1510,1511,1513,1523,1528
1100 DATA 1536,1536,1468,1470,1473,1473,1483,1483,1485
1110 DATA 1485,1488,1488,1495,1497,1428,1428,1430,1430
1120 DATA 1433,1433,1445,1445,1454,1454,1456,1458,1387
1130 DATA 1387,1391,1391,1405,1405,1416,1416,1418,1418
1140 DATA 1352,1352,1365,1365,1376,1376,8,160,7,1310
1150 DATA 1314,1268,1275,1227,1236,1187,1197,1147,1157
1160 DATA 1108,1116,1069,1075,1030,1034,1,81,1,1192
1170 DATA 1192,4,42,8,1151,1151,1153,1153,1231,1231
1180 DATA 1233,1233,9,160,4,1322,1327,1281,1289,1240
1190 DATA 1250,1200,1209,1161,1168,1120,1129,1080,1088
1200 DATA 1041,1043,1045,1047,1,81,1,1205,1205,4,42,14
1210 DATA 1165,1165,1204,1204,1245,1245,1206,1206,9
1220 DATA 160,10,1334,1339,1293,1300,1253,1261,1214
1230 DATA 1221,1173,1180,1134,1141,1095,1100,1056,1056
1240 DATA 1058,1059,1,81,1,1217,1217,4,42,2,1176,1176
1250 DATA 1178,1178,1256,1256,1258,1258,-1,-1,-1

```

### IBM PC/First Bloom

```

10 SCREEN 1
20 KEY OFF
30 CLS
40 COLOR 7,0
50 FOR I=1 TO 4
60 READ X1,Y1,X2,Y2,Z
70 LINE (X1+FL*100,Y1+FL*10)-(X2+FL*100,Y2+FL*10),Z,BF
80 NEXT I
90 FL=FL+1
100 IF FL>2 THEN 130
110 RESTORE 1000
120 GOTO 50
130 FL=0
140 FOR X=1 TO 2
150 READ X1,Y1,X2,Y2
160 FOR I=1 TO 5
170 LINE (X1+FL*100,Y1+FL*10-I)-(X2+FL*100,Y2+FL*10-I)
180 NEXT I
190 FL=FL+1
200 IF FL<3 THEN 160
210 FL=0
220 NEXT X
230 T1=5
240 T2=10
250 FOR X=RND*5 TO RND*20+50 STEP 4
260 FOR Y=RND*5 TO RND*20+15 STEP 4
270 X1=T1+X
280 Y1=T2+Y
290 S=INT(RND*4)+1
300 LINE(X1,Y1)-(X1+S,Y1+S),BF
310 NEXT Y
320 NEXT X
330 T1=T1+100
340 T2=T2+10
350 IF T1<241 THEN 250
360 R=3
370 C=3
380 LOCATE R,C
390 PRINT CHR$(1)
400 LOCATE R+2,C
410 PRINT CHR$(1)
420 LOCATE R+2,C+2
430 PRINT CHR$(1)
440 LOCATE R,C+2
450 PRINT CHR$(1)
460 R=R+1
470 C=C+13
480 IF R<6 THEN 380
490 LOCATE 1,15
500 PRINT "SPRINGING UP"
510 GOTO 510
1000 DATA 0,160,320,200,1,24,128,40,160,3
1010 DATA 28,100,36,128,1,32,10,35,128,1
1020 DATA 35,80,50,30,32,70,10,12

```

### TI-99/4A/First Bloom

```

10 CALL CLEAR
20 CALL SCREEN(5)
30 FS="FFFFFFFFFFFFFFF"
40 FOR X=1 TO 5
50 READ C
60 CALL CHAR(C,FS)
70 NEXT X
80 FOR X=1 TO 7
90 READ CS,F,B
100 CALL COLOR(CS,F,B)
110 NEXT X
120 FOR RO=21 TO 24
130 CALL HCHAR(RO,1,96,31)
140 NEXT RO
150 READ RO,CO
160 IF RO=-1 THEN 190
170 CALL HCHAR(RO,CO,104)
180 GOTO 150
190 READ RO,CO,CH,REP
200 IF CH=-1 THEN 200
210 CALL HCHAR(RO,CO,CH,REP)
220 GOTO 190
1000 DATA 96,104,112,120,128,2,16,4,3,2,8,9,11,11,10,3
1010 DATA 3,11,7,7,12,12,12,13,14,14,23,14,22,4,22,14
1020 DATA 22,26,21,4,21,14,21,26,20,4,20,14,20,26,19,4
1030 DATA 19,13,19,14,19,15,19,16,19,26,18,3,18,4,18,5
1040 DATA 18,6,18,12,18,13,18,14,18,16,18,17,18,25,18
1050 DATA 26,17,2,17,3,17,4,17,5,17,6,17,11,17,12,17
1060 DATA 14,17,24,17,25,17,26,17,27,17,28,16,2,16,4
1070 DATA 16,6,16,15,16,23,16,24,16,26,16,28,16,29
1080 DATA 15,2,15,4,15,16,15,26,14,4,14,5,14,6,14,17
1090 DATA 14,27,13,3,13,4,13,6,13,7,13,16,13,17,13,18
1100 DATA 13,19,13,28,13,29,12,2,12,3,12,4,12,7,12,15
1110 DATA 12,16,12,17,12,18,12,19,12,27,12,28,12,29,12
1120 DATA 30,11,2,11,4,11,7,11,15,11,17,11,19,11,26,11
1130 DATA 28,11,30,10,5,10,17,10,28,9,6,-1,-1
1140 DATA 9,15,120,4,9,26,128,4,8,4,112,5,8,14,120,7,8
1150 DATA 25,128,6,7,3,112,7,7,13,120,9,7,25,128,7,6,2
1160 DATA 112,9,6,5,42,1,6,7,42,1,6,13,120,9,6,16,42,1
1170 DATA 6,18,42,1,6,24,128,8,6,27,42,1,6,29,42,1,5,2
1180 DATA 112,9,5,6,48,1,5,14,120,7,5,17,48,1,5,24,128
1190 DATA 8,5,28,48,1,4,2,112,9,4,5,42,1,4,7,42,1,4,13
1200 DATA 120,9,4,16,42,1,4,18,42,1,4,24,128,8,4,27,42
1210 DATA 1,4,29,42,1,3,3,112,7,3,14,120,8,3,25,128,7
1220 DATA 2,4,112,5,2,15,120,6,2,25,128,6,1,5,112,3,1
1230 DATA 16,120,4,1,26,128,4,-1,-1,-1,-1

```

### Timex Sinclair 1000 w/16K RAM Pack & Timex Sinclair 1500/First Bloom

```

10 FAST
20 DIM D$(22,32)
30 LET D$(1)="...PIIIID...PIII.IID..PI.IIID"
40 LET D$(2)="..PI.....ID...I...I.II..I.I...I"
50 LET D$(3)="..I..B..B..I...I.P.P..I..I..D.OI."
60 LET D$(4)="..I...B...I....I.P..I...I...D..I"
70 LET D$(5)="..I..B..B..I...I.P.P..I...I.D.D.I"
80 LET D$(6)="..BII.....I...BI.....I..I.....IA"
90 LET D$(7)="...BIIIIIA...BIIIIIA..BIIIIIA."
100 LET D$(8)="...E..E.....N.....N....."
110 LET D$(9)="...EPGA.....PJ.....N.E..."
120 LET D$(10)="...CCM..N.....LDN..E...N.NCA..."
130 LET D$(11)="...CMCC.....CCGCA...CCM..."
140 LET D$(12)="...N.....LGC.....N..."
150 LET D$(13)="...N..N.....E.....PJ..."
160 LET D$(14)="...NE.N.E.....PGA.....N..."
170 LET D$(15)="...NE.N.E.....N.....N.GC..."
180 LET D$(16)="...CENGA...CCM.N.....CMNCA..."
190 LET D$(17)="...CME.....BMN.PL...BM..."
200 LET D$(18)="...N.....BMCC.....N..."
210 LET D$(19)="...N.....N.....N..."
220 LET D$(20)=D$(19)
230 LET D$(21)=D$(20)
240 LET D$(22)="...N....."

```

# GHOSTS IN THE NIGHT

**PUZZLE BY STEPHEN SHORB**  
**PROGRAM BY PETER COCKCROFT**

You've had a hard time sleeping ever since you moved into the old Calthrop Manor on the north side of town. It's strange, but when the clock strikes midnight, you get the uneasy feeling that the manor comes to life with people of a bygone era. Even more peculiar is that many of the events you've witnessed during your insomniac wanderings through the manor seem to match those narrated in an old diary you recently found on the grounds.

Old timers in town have told you that the Calthrops were prominent members of Sodaville, U.S.A., society a century ago, and that they had two beautiful daughters who were courted by many suitors. The diary you've found belongs to one of their daughters, named Vanessa. It mentions a mysterious suitor referred to only as "S." Curious about their love affair, you get up one night and go into the ballroom, where the diary begins, in an effort to follow the ghost of Vanessa.

When you run *Mystery Manor*, the computer will tell you the actions, dates, and names of the ghosts in

*STEPHEN SHORB is not the mysterious suitor named 'S,' but he wishes he were a Victorian squire, and has crowded his manor (a one-bedroom apartment in San Francisco) with Victorian artifacts including a statue of Disraeli. He graduated Phi Beta Kappa from the University of California at Berkeley with a degree in Victorian Literature.*

*PETER COCKCROFT attends Stuyvesant High School in New York City and is president of his own mail-order software business. He is the author of last month's Reader-Written program.*

each room. To move from room to room, type in the room number (digits only) as it appears on the accompanying floor plan. You can move from one room to another only if they're connected by a doorway.

To retrace Vanessa's steps, use the diary as a key. Find the room that exactly matches each day's entry. No two entries refer to the same room. Each time you enter a room counts as a move. After 10 moves, the computer will inform you whether or not you have accurately retraced Vanessa's steps. To begin again, type the number "0," press the RETURN or ENTER key, and you will find yourself back in the ballroom.

The last page in the diary has been ripped out. It is up to you to figure out Vanessa Calthrop's whereabouts on that day, and in so doing, discover the true identity of "S" and whether Vanessa followed him to a happy or a tragic ending.

**January 2, 1884**—Today was my debut into society. One of my suitors, Sidney, is a rancher and is quite romantic in spite of his years. He said, "I would only court a young woman in the lap of nature under the magnolias, at the first blooming of spring." (My!) I countered that an old family tradition mandates that all Calthrop women must receive their very first suitor in the most formal room of the mansion. Mother interjected that our family doesn't follow the standard etiquette in one respect: After all, we have breakfast in the parlor!

Sebastian, another suitor, is a visiting English cavalry officer, who said he would rather meet his destiny in a rose garden than

in a battlefield. Septimus, a third suitor, is a big game hunter with a scholarly streak, who brought me a book of poetry to add to our library, which he admires so much.

Dearest sister, Amanda, whispered that she'd gladly dismiss all her suitors for just one of mine. Fortunately, Aunt Emily, who always acts as chaperone when gentlemen come to call on me, was sick in bed and could not overhear that remark! Who will be the first to call on me?

**February 2, 1884**—Tea with my first gentleman caller, Sebastian. Father invited him to the smoking room, then to see the gun room (two exclusively male domains in the manor), but Sebastian declined in order to be with me. We sat on an uncomfortably stiff, velvet settee. Sebastian is as bright and impressive as the medals on his uniform. Even Aunt Emily was sorry to see him depart, but not as sorry as I.

**March 21, 1884**—Today a new season arrived, and with it a new suitor: Sidney. Aunt Emily nearly choked when he compared the magnolia blossoms around us to the "soft pink" of my cheeks. I fear my pink would fade if he were not to call again.

**April 12, 1884**—Spent the day with my third suitor, Septimus, in his favorite spot at the manor. At first he was quite distracted, his nose buried in his surroundings. He did compliment my brown eyes, explaining he dislikes blue "ever since the Union blue-coats burned my house during the Civil War." Aunt Emily was taken aback by his sudden change of

mood, but I found it rather exciting.

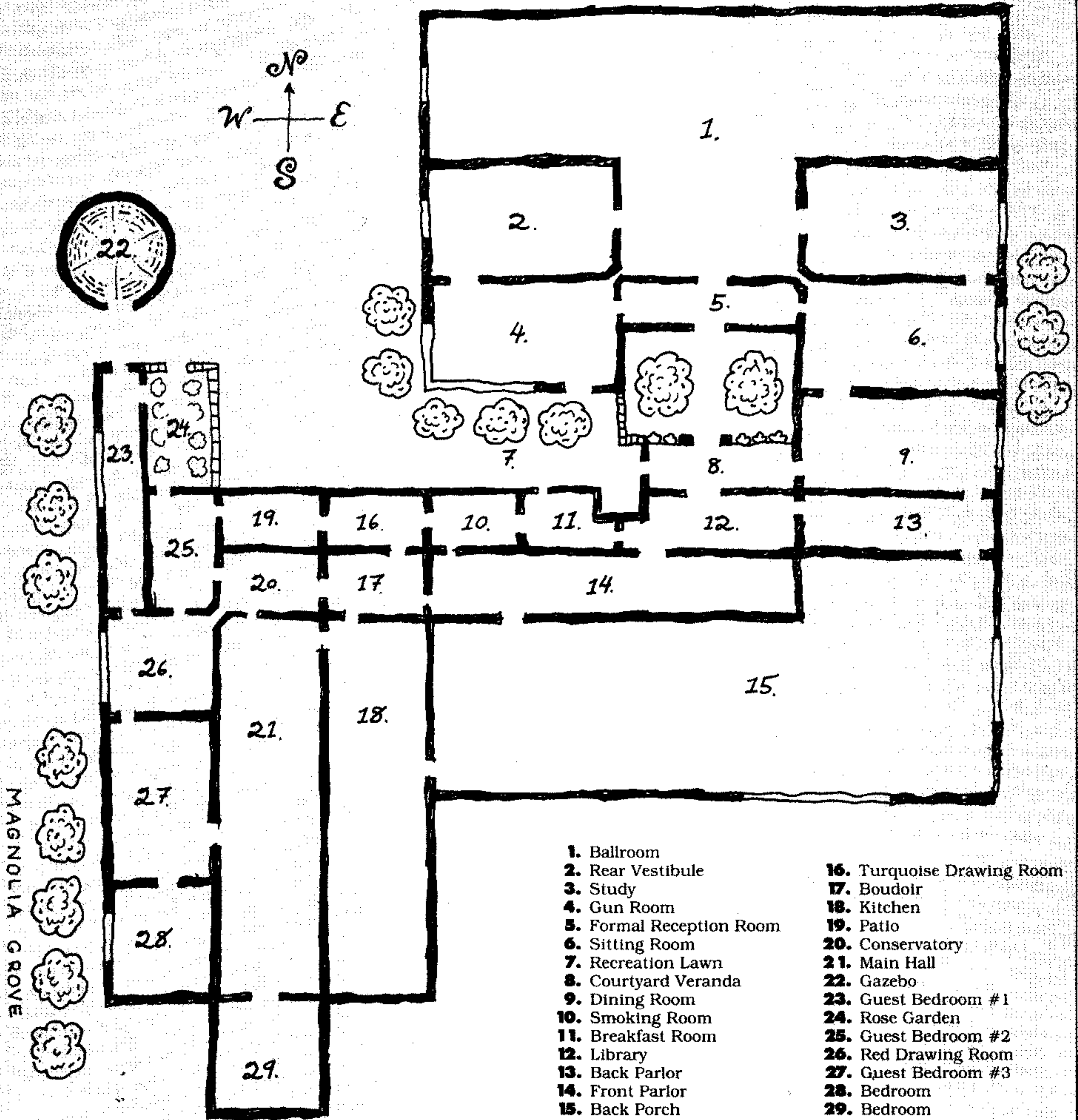
**August 2, 1884**—Breakfast began with Aunt Emily's account to my mother of every word my suitors said. Thank heavens Amanda was not there to become jealous—Amanda refuses to be in the same room as Aunt Emily, since they always quarrel. Little does Mother know I have already chosen the one suitor to whom I would give my heart and soul. (For caution's sake, I refer to him only as S hereafter.) My heart leapt when in the morning mail I discovered an invitation to me from S for a secret nighttime meeting. Oh, joy!

**September 30, 1884**—Oh, misery! My reply to S was read by my sister before I sent it off! When I refused to tell her who S was, she flung my hairbrush at me and nearly broke my mirror. She cried, "I must know . . . for I love him as much as you!" When I asked her to which S she referred, she, too, was silent.

**October 12, 1884**—My meeting with S was aborted! I arrived at our appointed place only to discover Amanda there instead! She explained that she came to discover S's identity, but her plan obviously backfired, because her presence frightened him away. Our discussion added more heat to the already hot environment.

**November 23, 1884**—From the holiday buffet table, Septimus, Sebastian, Sidney, and the family (save for Aunt Emily who was abed with dropsy) watched the last radiance of the setting sun dip below the snow drifts. S's at-

# Calthrop Manor



titude towards me was very cold. Is he bitter over what happened in October? He must know I did not wish Amanda to interrupt our tryst. To make matters worse, I noticed Amanda was in unusually buoyant spirits. After S retired to his bedroom next door, I

pondered over whether I had lost him forever.

**November 24, 1884**—  
The three S's spent the day packing, and vacated their bed chambers by evening. Not long after, a servant noticed that Amanda and her belongings had van-

ished. Mother has collapsed in a faint. Amanda has clearly run off with one of my three beaus. If it should be my S I think I shall suffer worse than a fainting spell. I now find myself writing this in S's empty room. The clock on the mantel will soon strike

midnight. The magnolia branches are scraping against the window as a new sleet storm wages outside. I have just found an envelope addressed to me from S. My hand shakes as I prepare to open it. But no matter what it says, I will follow him.



# PUZZLE

```

3000 DATA 1,1234678,2,2,18,1,11,185,1,3
3010 DATA 165,1,2,185,1,3,16,1,4,175,3
3020 DATA 3,156,1,4,185,1,6,14,4,5,152
3030 DATA 5,4,157,1,5,154,5,5,152,5,6
3040 DATA 154,4,7,147,6,6,14,4,7,13,7
3050 DATA 8,1234678,8,7,14,6,8,1234678
3060 DATA 9,10,16,10,9,1,11,10,48,12,9
3070 DATA 1,13,8,1234678,14,9,1,15,10,5,17,9,9,18
4000 DATA 0203040506,0104,0106,01020507,01040608
4010 DATA 01030509,040811222324,05070912,060813
4020 DATA 161114,071012,08111314,091215
4030 DATA 10121517,131418,191710,14161820
4040 DATA 151721,2516,25172126,18202729
4050 DATA 232407,22242607,23252207,24192026,23252027
4060 DATA 262128,27,21
5000 DATA January 2,11,February 2,35,MARCH 21,74
5010 DATA April 12,154,AUGUST 2,206,SEPTEMBER 30,299
5020 DATA October 12,410,NOVEMBER 23,686,NOVEMBER 24,539
5030 DATA November 25,494,February 12,794
6000 DATA Vanessa,Mother,Father,Amanda,Aunt Emily,Sidney,Septimus,Sebastian,Nobody
7000 DATA Courtship,Debut party,Ice skating,Jealous Quarrel
7010 DATA Reads invitation,Secret meeting,Frozen pie fight
7020 DATA Hula-hoop contest,Brunch party,Lovers united!
7030 DATA Finds note: "If you love me meet me right outside."
7040 DATA Eloping on horse,Finds two moving tickets,Turkey feast
7050 DATA Finds two plane tickets,Construction,Snoring,Nothing

```

## Commodore 64/Mystery Manor

```

10 DIM ROOMS(29,2),ADJS(29),DTE$(11),GU(12),PEOPLES(9),ACT$(18),G(12)
80 FOR I=1 TO 29:READ ROOMS(I,0),ROOMS(I,1),ROOMS(I,2):NEXT I
90 FOR I=1 TO 29:READ ADJS(I):NEXT I
100 FOR I=1 TO 11:READ DTE$(I),GU(I):NEXT I
110 FOR I=1 TO 9:READ PEOPLES(I):NEXT I
120 FOR I=1 TO 18:READ ACT$(I):NEXT I
130 G(1)=1:R=1:C=1:FLAG=0
140 PRINT CHR$(147)
150 NS="YOU'RE IN LOCATION #"+STR$(R):GOSUB 2000
160 NS="DATE: "+DTE$(VAL(ROOMS(R,0)))+", 1884":GOSUB 2000
170 PRINT "GHOSTS PRESENT:":FOR I=1 TO LEN(ROOMS(R,1)):PRINT I;"-";PEOPLES(VAL(MID$(ROOMS(R,1),I,1))):NEXT I
190 PRINT "ACTION TAKING PLACE:":NS=" "+ACT$(VAL(ROOMS(R,2))):GOSUB 2000
200 IF C=10 THEN 300
210 NS="WHICH LOCATION COMES NEXT (0 RESTARTS)":GOSUB 2000:INPUT NR
220 IF NR=0 THEN 130
230 IF NR=R OR NR>29 THEN 140
240 FOR I=1 TO C:IF NR=G(I) THEN PRINT "YOU'VE BEEN THERE!":GOTO 210
250 NEXT I:LE=0
260 FOR I=1 TO LEN(ADJS(R)):IF NR=VAL(MID$(ADJS(R),I*2-1,2)) THEN LE=1
270 NEXT I
280 IF LE=0 THEN NS="YOU CAN'T GET THERE FROM HERE!":GOSUB 2000:GOTO 210
290 C=C+1:G(C)=NR:R=NR:GOTO 140
300 NS="YOU'VE MADE TEN MOVES. PRESS ANY KEY TO CONTINUE.":GOSUB 2000
310 GET K$:IF K$="" THEN 310
320 PRINT CHR$(147):PRINT "YOUR SEQUENCE WAS:":PRINT
330 FOR I=1 TO 10:PRINT G(I);:FLAG=FLAG+(G(I)<>INT(SQR(GU(I)-10))):NEXT I:PRINT

```

```

340 IF FLAG<>0 THEN G$="SORRY! ":N$="NOT "
350 IF FLAG=0 THEN G$="CONGRATULATIONS! ":N$=""
360 PRINT:N$=G$+"YOU HAVE "+N$+"FOLLOWED VANESSA'S STEPS.":GOSUB 2000
370 IF N$="" THEN END
380 FOR DELAY=1 TO 3000:NEXT DELAY:GOTO 130
2000 IF LEN(N$)<40 THEN PRINT N$:RETURN
2010 FOR I=1 TO 40:IF ASC(MID$(N$,I,1))=32 THEN J=I-1
2020 NEXT I:PRINT LEFT$(N$,J):N$=RIGHT$(N$,LEN(N$)-J-1):GOTO 2000
3000 DATA 1,1234678,2,2,18,1,11,185,1,3
3010 DATA 165,1,2,185,1,3,16,1,4,175,3
3020 DATA 3,156,1,4,185,1,6,14,4,5,152
3030 DATA 5,4,157,1,5,154,5,5,152,5,6
3040 DATA 154,4,7,147,6,6,14,4,7,13,7
3050 DATA 8,1234678,8,7,14,6,8,1234678
3060 DATA 9,10,16,10,9,1,11,10,48,12,9
3070 DATA 1,13,8,1234678,14,9,1,15,10,5,17,9,9,18
4000 DATA 0203040506,0104,0106,01020507,01040608
4010 DATA 01030509,040811222324,05070912,060813
4020 DATA 161114,071012,08111314,091215
4030 DATA 10121517,131418,191710,14161820
4040 DATA 151721,2516,25172126,18202729
4050 DATA 232407,22242607,23252207,24192026,23252027
4060 DATA 262128,27,21
5000 DATA JANUARY 2,11,FEBRUARY 2,35,MARCH 21,74
5010 DATA APRIL 12,154,AUGUST 2,206,SEPTEMBER 30,299
5020 DATA OCTOBER 12,410,NOVEMBER 23,686,NOVEMBER 24,539
5030 DATA NOVEMBER 25,494,FEBRUARY 12,794
6000 DATA VANESSA,MOTHER,FATHER,AMANDA,AUNT EMILY,SIDNEY,SEPTIMUS,SEBASTIAN
6010 DATA NOBODY
7000 DATA COURTSHIP,DEBUT PARTY,ICE SKATING,JEALOUS QUARREL
7010 DATA READS INVITATION,SECRET MEETING,FROZEN PIE FIGHT
7020 DATA HULA-HOOP CONTEST,BRUNCH PARTY,LOVERS UNITED!
7030 DATA FINDS NOTE - "IF YOU LOVE ME -- MEET ME RIGHT OUTSIDE."
7040 DATA ELOPING ON HORSE,FINDS TWO MOVIE TICKETS,TURKEY FEAST
7050 DATA FINDS TWO PLANE TICKETS,CONSTRUCTION,SNORING,NOTHING

```

## TI-99/4A w/TI Extended BASIC/Mystery Manor

```

10 DIM ROOMS(29,2),ADJS(29),DTE$(11),GU(12),PEOPLES(9),ACT$(18),G(12)
80 FOR I=1 TO 29 :: READ ROOMS(I,0),ROOMS(I,1),ROOMS(I,2):: NEXT I
90 FOR I=1 TO 29 :: READ ADJS(I):: NEXT I
100 FOR I=1 TO 11 :: READ DTE$(I),GU(I):: NEXT I
110 FOR I=1 TO 9 :: READ PEOPLES(I):: NEXT I
120 FOR I=1 TO 18 :: READ ACT$(I):: NEXT I
130 G(1)=1 :: R=1 :: C=1 :: FLAG=0
140 CALL CLEAR
150 NS="You're in Location #"+STR$(R):: GOSUB 2000 :: NS="Date: "+DTE$(VAL(ROOMS(R,0)))+", 1884" :: GOSUB 2000
170 PRINT "Ghosts present:" :: FOR I=1 TO LEN(ROOMS(R,1)):: PRINT I;"-";PEOPLES(VAL(MID$(ROOMS(R,1),I,1))):NEXT I
190 PRINT "Action taking place:" :: NS=" "+ACT$(VAL(ROOMS(R,2))):GOSUB 2000
200 IF C=10 THEN 300
210 NS="Which Location comes next (0 restarts)" :: GOSUB 2000 :: INPUT NR
220 IF NR=0 THEN 130
230 IF NR=R OR NR>29 THEN 140
240 FOR I=1 TO C :: IF NR=G(I) THEN NS="You've already been there!" :: GOSUB 2000 :: GOTO 210

```

**PUZZLE**

```

250 NEXT I :: LE=0
260 FOR I=1 TO (LEN(ADJ$(R)))/2 :: IF NR=VAL(SEG$(ADJ$(R),I*2-1,2)) THEN LE=1
270 NEXT I
280 IF LE=0 THEN N$="You can't get there from here!" :
: GOSUB 2000 :: GOTO 210
290 C=C+1 :: G(C)=NR :: R=NR :: GOTO 140
300 N$="You've made ten moves. Press any key to continue." :: GOSUB 2000
310 CALL KEY(O,K,S):: IF S=0 THEN 310
320 CALL CLEAR :: PRINT "Your sequence was:" :: PRINT
330 FOR I=1 TO 10 :: PRINT G(I):: FLAG=FLAG+(G(I)<>INT(SQR(GU(I)-10))): NEXT I
: PRINT
340 IF FLAG<>0 THEN G$="Sorry! " :: NOS$="not "
350 IF FLAG=0 THEN G$="Congratulations! " :: NOS$=""
360 PRINT :: N$=G$&"You have "&NOS$&"followed vanessa's steps." :: GOSUB 2000
370 IF NOS$="" THEN END
380 FOR DELAY=1 TO 3000 :: NEXT DELAY :: GOTO 130
2000 IF LEN(N$)<28 THEN PRINT N$ :: RETURN
2010 FOR I=1 TO 28 :: IF ASC(SEG$(N$,I,1))=32 THEN J=I-1
2020 NEXT I :: PRINT SEG$(N$,1,J):: N$=SEG$(N$,J+1,LEN(N$)): GOTO 2000
3000 DATA 1,1234678,2,2,18,1,11,185,1,3
3010 DATA 165,1,2,185,1,3,16,1,4,175,3
3020 DATA 3,156,1,4,185,1,6,14,4,5,152
3030 DATA 5,4,157,1,5,154,5,5,152,5,6
3040 DATA 154,4,7,147,6,6,14,4,7,13,7
3050 DATA 8,1234678,8,7,14,6,8,1234678
3060 DATA 9,10,16,10,9,1,11,10,48,12,9
3070 DATA 1,13,8,1234678,14,9,1,15,10,5,17,9,9,18
4000 DATA 0203040506,0104,0106,01020507,01040608
4010 DATA 01030509,040811222324,05070912,060813
4020 DATA 161114,071012,08111314,091215
4030 DATA 10121517,131418,191710,14161820
4040 DATA 151721,2516,25172126,18202729
    
```

```

4050 DATA 232407,22242607,23252207,24192026,23252027
4060 DATA 262128,27,21
5000 DATA January 2,11,February 2,35,March 21,74
5010 DATA April 12,154,August 2,206,September 30,299
5020 DATA October 12,410,November 23,686,November 24,539
5030 DATA November 25,494,February 12,794
6000 DATA Vanessa,Mother,Father,Amanda,Aunt Emily,Sidney,Septimus,Sebastian,Nobody
7000 DATA Courtship,Debut party,Ice skating,Jealous quarrel
7010 DATA Reads invitation,Secret meeting,Frozen pie fight
7020 DATA Hula-hoop contest,Brunch party,Lovers united!
7030 DATA Finds note -"If you love me -- meet me right outside."
7040 DATA Eloping on horse,Finds two movie tickets,Turkey feast
7050 DATA Finds two plane tickets,Construction,Snoring,Nothing
    
```

**Timex Sinclair 2068/Mystery Manor**

```

10 DIM R$(29,11)
20 DIM J$(29,10)
30 DIM D$(11,17)
40 DIM G(12)
50 DIM P$(9,10)
60 DIM A$(18,54)
70 DIM S(12)
80 FOR I=1 TO 29:READ R$(I,1 TO 2),R$(I,3 TO 9),R$(I,10 TO 11):NEXT I
90 FOR I=1 TO 29:READ J$(I,1 TO 10):NEXT I
100 FOR I=1 TO 11:READ H$:LET D$(I)=H$+" , 1984":READ G(I):NEXT I
110 FOR I=1 TO 9:READ P$(I,1 TO 10):NEXT I
120 FOR I=1 TO 18:READ A$(I):NEXT I
130 LET S(1)=1:LET R=1:LET C=1:LET FLAG=0
140 CLS
150 LET N$="YOU'RE IN LOCATION #+STR$(R):GOSUB 1000:LET N$="DATE: "+D$(VAL(R$(R,1 TO 2))):GOSUB 1000
160 PRINT "GHOSTS PRESENT:" :FOR I=3 TO 9:IF R$(R,I)="0" THEN GOTO 180
170 PRINT I;"- ";P$(VAL(R$(R,I)))
180 NEXT I
190 PRINT "ACTION TAKING PLACE:" :LET N$=" "+A$(VAL(R$(R,10 TO 11))):GOSUB 1000
200 IF C=10 THEN GOTO 300
210 LET N$="WHICH LOCATION COMES NEXT (0 RESTARTS)":GOSUB 1000:INPUT NR
220 IF NR=0 THEN GOTO 130
230 IF NR=R OR NR>29 THEN GOTO 140
240 FOR I=1 TO C:IF NR=S(I) THEN LET N$="YOU'VE ALREADY BEEN THERE!":GOSUB 1000:GOTO 210
250 NEXT I:LET LE=0
260 FOR I=1 TO 5:IF J$(R,I*2-1 TO I*2)<>" " THEN IF NR=VAL(J$(R,I*2-1 TO I*2)) THEN LET LE=1
270 NEXT I
280 IF LE=0 THEN LET N$="YOU CAN'T GET THERE FROM HERE!":GOSUB 1000:GOTO 210
290 LET C=C+1:LET S(C)=NR:LET R=NR:GOTO 140
300 LET N$="YOU'VE MADE TEN MOVES. PRESS ANY KEY TO CONTINUE.":GOSUB 1000
310 IF INKEY$="" THEN GOTO 310
320 CLS:PRINT "YOUR SEQUENCE WAS:" :PRINT
330 FOR I=1 TO 10:PRINT S(I)::LET FLAG=FLAG+(S(I)<>INT(SQR(G(I)-10))):NEXT I:PRINT
340 IF FLAG<>0 THEN LET Q$="SORRY! " :LET Z$="NOT "
350 IF FLAG=0 THEN LET Q$="CONGRATULATIONS! " :LET Z$=""
360 PRINT:LET N$=Q$+"YOU HAVE "+Z$+"FOLLOWED VANESSA'S STEPS.":GOSUB 1000
    
```

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CONQUEROR Computer Software Assoc. The Silk Mill, 44 Oak St. Newton Upper Falls, MA 02164 (617) 527-7510 \$24.95 ©1983	Vie with up to 14 opponents for land, resources, warriors, and, ultimately, imperial control over medieval Europe and Asia Minor in flexible, exciting war game good for ages 12+. —DELSON	Commodore VIC-20, 16K (cassette).	Defective cassettes replaced free w/in 90 days; backup copy available for \$5.	★ ★ ★	★ ★ ★	★	n/a	A	★ ★ ★
FORTRESS Strategic Simulations, Inc. 883 Sterlin Rd. Bldg. A-200 Mountain View, CA 94043 (415) 964-1353 \$34.95 ©1983	Place castles on a 6×6 square board. Attempt to monopolize the field in competition with pre-programmed opponents that "learn" as play proceeds in Othello-like game good for ages 8+. —DELSON	Apple II/II plus/IIe/III w/emulator, 48K (disk). Also available for Atari 400/800/1200XL, 48K (disk).	Full refund w/in 14 days; defective disks replaced free w/in 30 days, \$10 fee thereafter.	★ ★ ★	★ ★ ★	★ ★	★ ★	A	★ ★ ★
MAJOR LEAGUE HOCKEY Thorn EMI 1370 Ave. of the Americas New York, NY 10019 (212) 977-8990 \$39.95 ©1983	Skate against human opponents or take on one of the computer's three skill levels in nonstop action game, good for ages 10+. Some may find the puck too hard to follow. —DELSON	Atari 400/800/1200XL, 16K (cartridge); joystick required.	Defective cartridges replaced through dealer.	★ ★ ★	★ ★ ★	★ ★	★ ★	D	★ ★ ★
MOTOR MANIA United Microware Industries, Inc. P.O. Box 1649 Orange, CA 92666 (714) 639-9396 \$35 ©1982	Steer high-performance racing car around hazards, altering speed to suit road conditions and refueling at gas stations, while scoring points for everything you do properly. Ten skill levels make this ideal for ages 7+. —DELSON	Commodore 64 (cassette); joystick required.	Defective material replaced free w/in 90 days; backup copy available for \$5.	★ ★ ★	★ ★ ★	★ ★	★ ★	A	★ ★ ★
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**RATINGS KEY** O Overall performance; D Documentation; EH Error-handling; GQ Graphics quality; EU Ease of use; V Value for money; ★ Poor; ★★ Average; ★★★ Good; ★★★★★ Excellent; n/a Not applicable; E Easy; A Average; D Difficult; † Longer review follows chart