

Buyer's Guide to
PORTABLES

FAMILY COMPUTING

\$2.50

Celebrate! Let Your Computer Plan the Party

Software for
Making Music

10 Ways Your
Computer Can
Earn Its Keep

INSIDE

Original Programs
for ADAM, Apple,
Atari, Commodore 64
& VIC-20, IBM,
TI, Timex and
TRS-80



FAMILY COMPUTING

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Your computer can be the perfect party-planning assistant. Using our easy-to-follow steps, it's (almost) as simple as A, B, C

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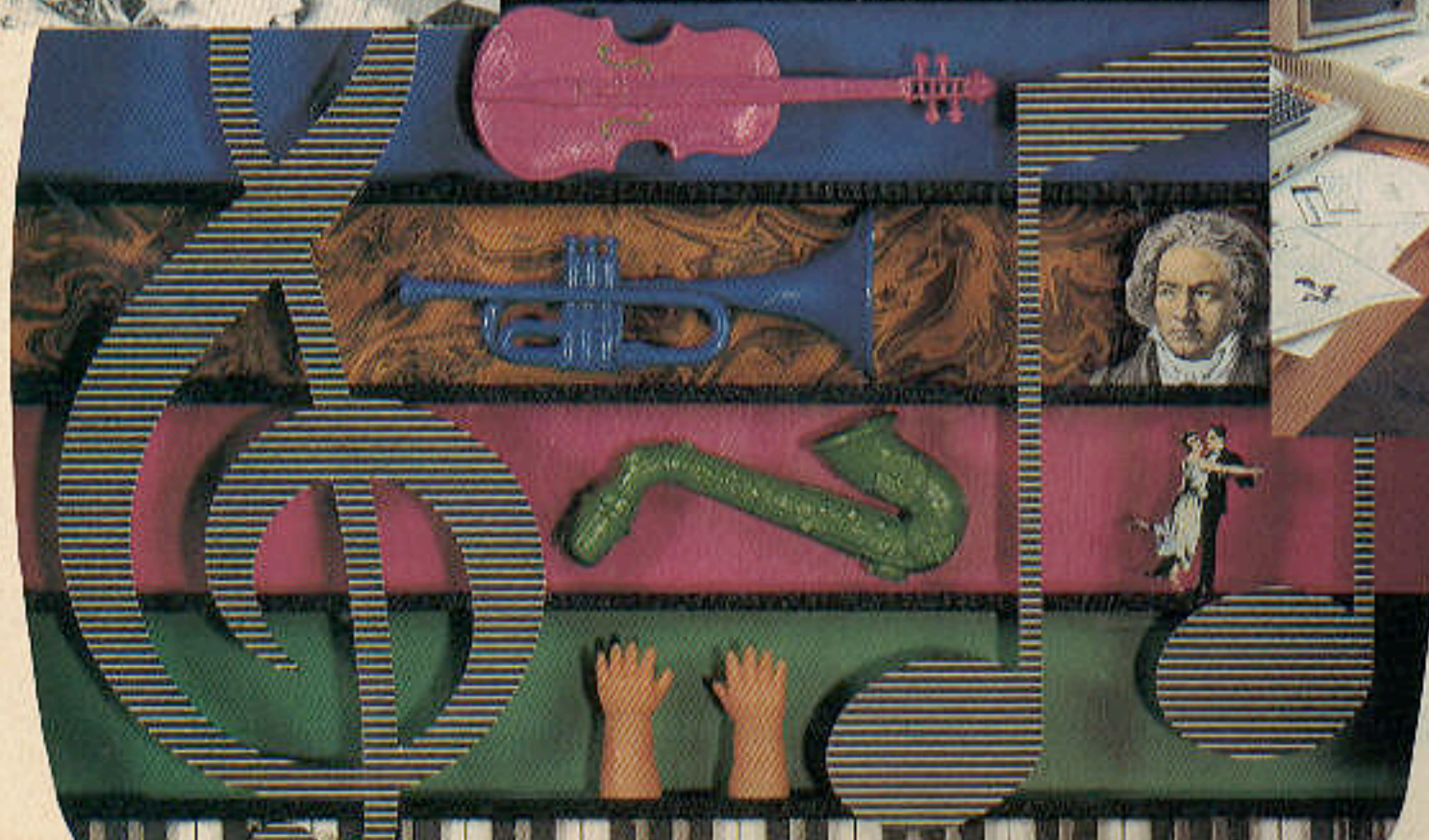
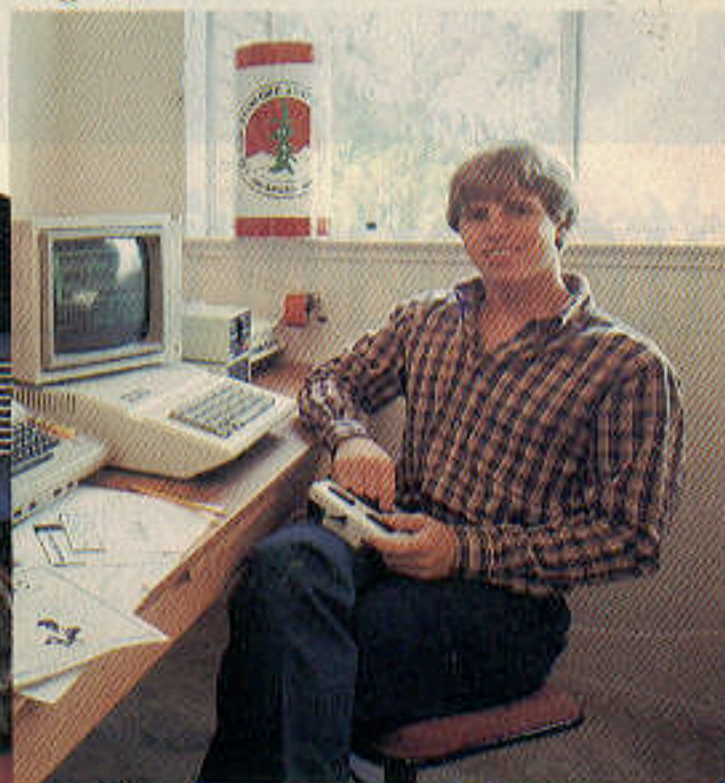
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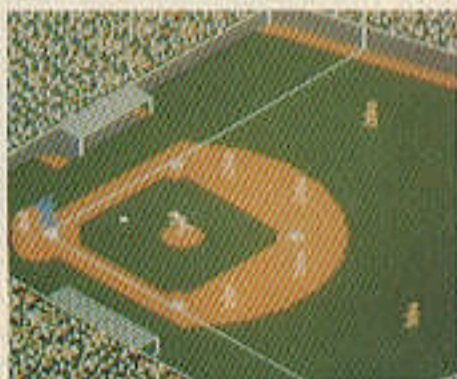
Sorry, we goofed. Inside, we've provided a few corrections for programs from previous issues.

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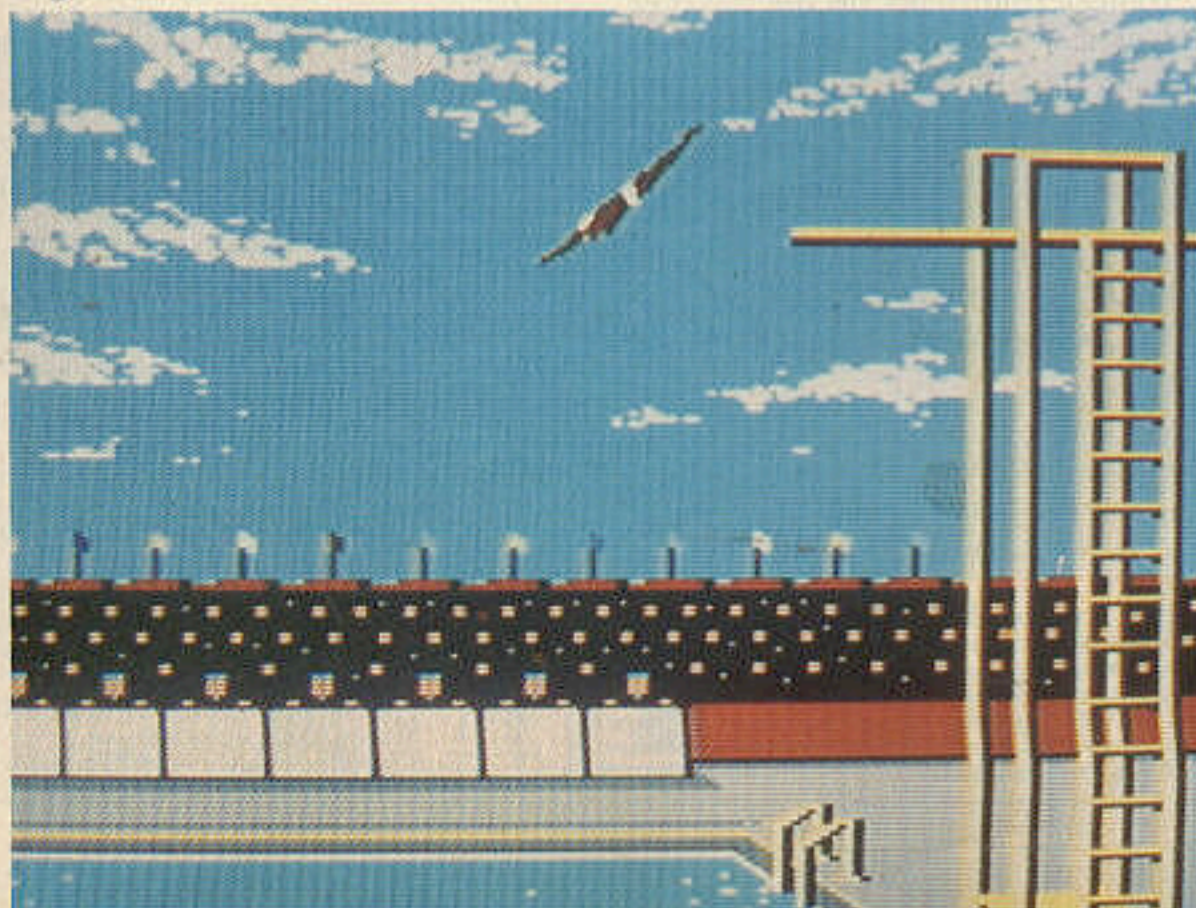
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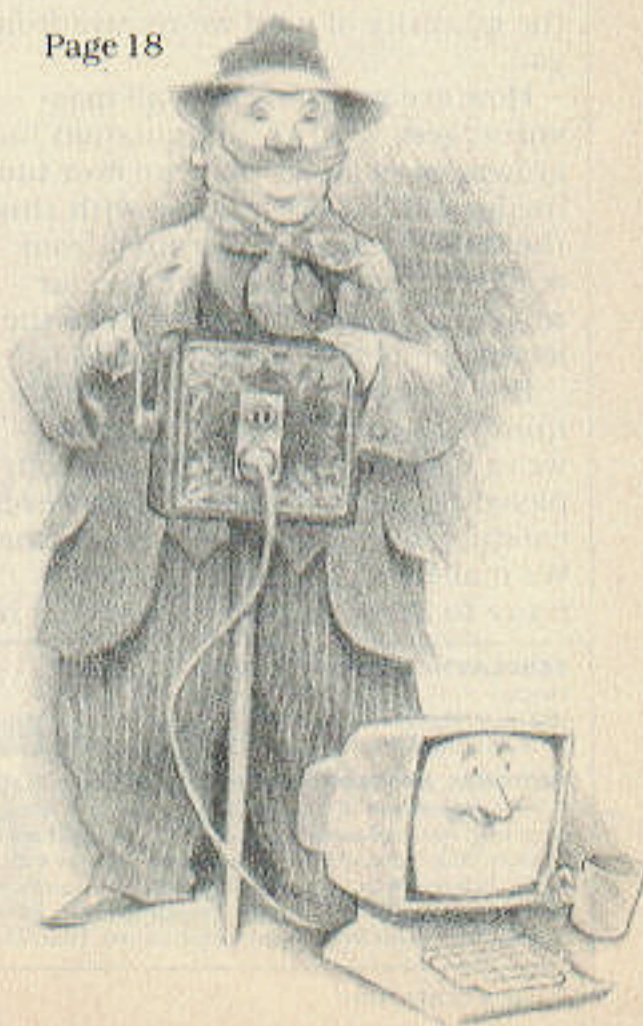
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LETTERS

FAN-FARE

My friend Raymond Kim and I own Apple IIe computers. We each have a subscription to your magazine and are avid readers. We love your articles and memorize each page. We enjoy your programs and What's In Store articles. Your Software Guide is very informative and we stand by it in purchasing new software. We will continue to read your understandable magazine and will definitely renew our subscriptions.

JOSEPH RUSSO, 12
RAYMOND KIM, 12
Colonia, New Jersey

SEEKING SAT SOFTWARE

Thank you for your article "The TI-99/4A Lives" (*Behind the Screens*, April 1984). I own a TI and would like to know if any software companies are planning to make a program for the Scholastic Aptitude Test (SAT) in the near future.

RICHARD BENNET
Southgate, Michigan

EDITOR'S NOTE: We know of no SAT programs currently available for the TI. However, there are other word-skill programs for the TI that can help you prepare. Watch for our article about SAT software in the upcoming September issue.

A SPECIAL VALENTINE

Please consider this letter one of your "Valentines" from a family of appreciative readers!

Your programs are terrific—short enough for children or hurried homemakers to still have time to use and enjoy. Thanks also for the excellent articles in Home-School Connection. As an enthusiastic parent helping with computer labs at the schools of my three sons, these articles will continue to be shared with others in our district.

I also greatly appreciate the Home Business ideas, since using a computer from your home, especially for part-time work, is important to many mothers who don't want to leave smaller children alone or with sitters.

My only suggestion is that you allow more empty space at the center of the program pages. I always cut these programs out and put them in a notebook with other programs I collect.

Your magazine truly does care

about how a family could use, and benefit from, a home computer. A magazine with your viewpoint is needed.

MRS. CAROL FREED
Bend, Oregon

AN INSPIRING IDEA

After I read your article about Users' Groups in the March issue, I suggested the idea to our grade-school principal. He liked the idea. We got it off the ground starting with 32 members. Thank you so much for the article.

JAMES L. KINNAIRD, 12
Randlett, Oklahoma

ROOKIE SEEKS READER AID

I am a new owner of a TRS-80 Color Computer 2 with 16K nonextended BASIC. I also am a producer in a nonautomated insurance agency. I am interested in coming up with a program to rate automobile insurance on my CoCo, and possibly on Radio Shack's Pocket Computer as well. If any of your readers have written such a program I would be happy to hear from them.

Let me also say that I enjoy your fine magazine. You have been a great help to this computer "rookie."

MARK ROSS
Batavia, New York

EDITOR'S NOTE: If any readers have developed such a program, please write to "Rookie" Mark, c/o FAMILY COMPUTING, 730 Broadway, New York, NY 10003.

EXPLORING A NEW ENVIRONMENT

Thank you for being a true guide as my family and I explore the maze of our new environment with computers. It is as if you knew my questions as I discovered them.

Working with my children's school, their Franklin computers, and the Logo language, your February issue on Logo was a much-appreciated aid. Your Winter Programs were great fun. Over the holidays, my children derived great pleasure and satisfaction from typing in programs from previous issues. The programs encourage my children in their learning and enjoyment of their Commodore 64.

My husband and I have used your magazine as a guide to new software. We avidly read the articles on

new products and tables of comparisons. You have aided us in our purchasing choices and have added to our awareness of the new world of consumer merchandise for computer owners.

I am most impressed with the ability of your magazine to cover such a wide variety of topics so well.

MRS. JAMES A. ATHERTON
Bothell, Washington

WANTED: AN EASTER BUNNY

Like so many of your readers, I have devoured each issue from cover to cover. However, one of the first things I do (when the issue arrives) is race to our Apple IIe and type in the graphics program. *Jack-o'-Lantern* and *Christmas Tree* were our favorites. I was very disappointed when the April and May issues had no graphics program. My 4-year-old is still anxiously awaiting the "Easter bunny."

MRS. CHARLES F. STEWART
Santa Paula, California

EDITOR'S NOTE: Sorry we missed the Easter bunny. Check out this month's graphics program—the Liberty Bell.

THANKS FOR TIMEX PROGRAMS

Congratulations on a splendid publication and for including the Timex Sinclair 2068 in your interesting programming section. Hopefully, you will be able to sustain your quality level and will continue to include the 2068 in future issues.

DON MILLIRONS
Oklahoma City, Oklahoma

AN AWESOME COMPLIMENT

You are AWESOME! I am 12 and have been programming for almost two years on my TRS-80 Model III. I have read or subscribed to about every computer magazine and I think yours is the best by far.

Thanks a heap.

LANCE KELLEY, 12
Falls Church, Virginia

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.

BEHIND THE SCREENS

symptom of stress—muscle tension—on your screen. *Relax* is intended to transform your computer into a biofeedback unit that signals you as you become more relaxed. It comes complete with a sensor headband, control unit, relaxation tape, and workbook.

Some professionals are skeptical of these new devices, especially if your stress may have been heightened by high technology itself. "I'm wary of technological solutions to technological problems," says Craig Brod, the author of *Technostress*, a book that explores stress effects caused by computers.

"Stress is not bad," says Brod. "It alerts us that something is wrong. It provides a valuable signal, sometimes suggesting that you may need a change in lifestyle. Sometimes a walk in the park is a better cure than another session with your computer."
—ROBIN RASKIN

Patients' Gazette

How do you make kids feel at home when they're in a hospital? Give them a computer.

Children in the pediatric/adolescent unit at St. Joseph Hospital in Chicago, Illinois, share a Texas Instruments 99/4A computer system on a portable cart. They use it to publish a newspaper in which they share their reactions to the hospital, and let each other know what to expect from the unfamiliar tests and procedures they're undergoing.

Anne, a teenage patient, described her experience: "The IVP was not as bad as I thought it would be. I got dye injected into me because they needed it to see my organs better. The bad thing is that I was not allowed to eat breakfast and had a complete liquid dinner. . . . You may not need an ultrasound, but then again, you might. If you do, then ask them to see your insides. It is neat."

Sandra Elser Ciminero, St. Joseph's Child Life Specialist, says, "The computer is so popular that some patients have said they wanted to stay longer in order to play with it." While most hospital high technology is unfamiliar and frightening, she says the kids are already comfortable with computers.

Most of the children in St. Joseph's use the computer at some point, Ciminero says. Some use it to program in BASIC or Logo; others

play games. Some elementary-school children keep up with their classmates by using the hospital's library of English and arithmetic software.

Lenny, 13, wrote: "This is my first experience in a hospital, except when I was born, of course. . . . I have never thought that while in a hospital I would be writing for a newspaper. How excellent!"

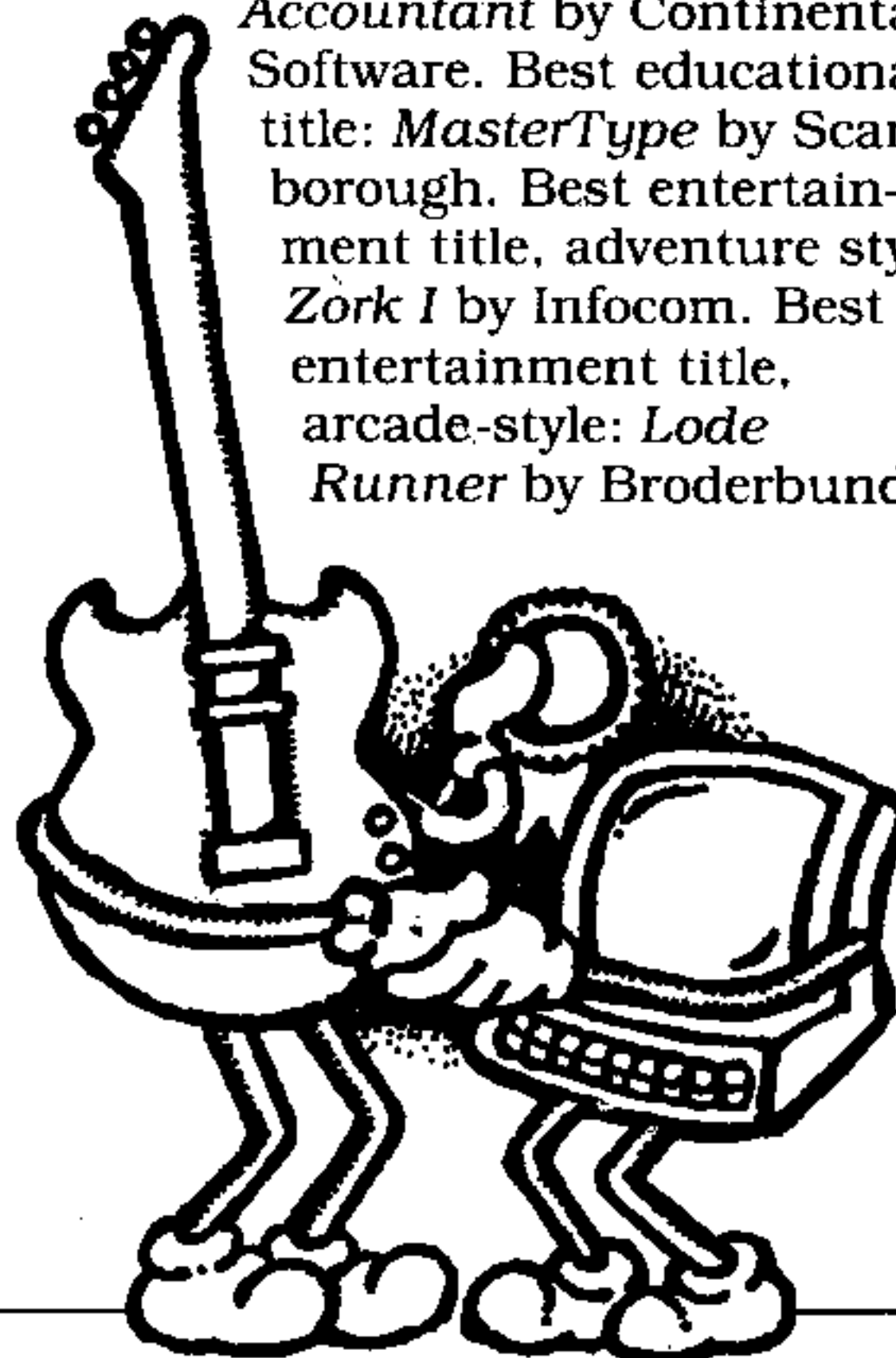


Home computers are making children in one Chicago hospital feel at home.

The Envelope, Please . . .

Billboard Magazine, the leading music industry publication, now covers software, too. The magazine handed out its 2nd annual Computer Software/Video Game awards at a bash in San Francisco recently. Here are this year's software winners:

Best use of graphics and sound: *Flight Simulator II* by subLOGIC. Best packaging, advertising, and in-store promotion by a computer software manufacturer: A tie between Electronic Arts and Infocom. Best home management/personal productivity title: *The Home Accountant* by Continental Software. Best educational title: *MasterType* by Scarborough. Best entertainment title, adventure style: *Zork I* by Infocom. Best entertainment title, arcade-style: *Lode Runner* by Broderbund.



More on TI-99/4A Support

For all of you who've asked, here's an update on support for the Texas Instruments 99/4A home computer:

Membership in the International 99/4 Users' Group, a clearinghouse for 99/4A information, is \$16 a year. For information, write to Box 67, Bethany, OK 73008.

CorComp Inc., the company planning a 99/4A-compatible computer, can be reached by writing to: 23461 Ridge Route Drive, Suite H, Laguna Hills, CA 92653. TI Extended BASIC is now available from Triton Products Co., P.O. Box 8123, San Francisco, CA 94128. The price is \$99.95. Triton also sells other TI software.

The company will be distributing a comprehensive 99/4A hardware and software catalog originally developed by March Direct Marketing. There will be no charge for the catalog.

In April, we reported that Percom Data Corp. of Dallas, Texas, was selling a TI-99/4A disk drive. They have since discontinued it.

Additional information on TI hardware and software sources appeared in *FAMILY COMPUTING's* June 1984 Computing Clinic. We will, of course, continue to print programs for the 99/4A.

Nibbles

Drill and Practice: School-board members believe that's the best primary use for computers in the schools, according to a recent national survey by the *American School Board Journal* and Virginia Tech. Next came programming. "Introducing new material" finished last. Asked to grade the quality of their own districts' computer instruction, the median response of the 4,000 board members was C+.

Jobhunter's Computer: Subscribers to *The Source*, a national data base, can now get employment advice electronically by using a file compiled by management consultant Albert Henderson. It includes tips, examples, and information on planning a job hunt, writing resumes, answering ads, and interviewing. (Access "A Jobhunter's Computer" by typing PUBLIC 126 at Command Level.) ☐

MUSICMAKERS IN BRIEF

Title	Manufacturer Address Telephone	Hardware needed	Program type	Screen display	Docu- mentation	Recom- mendation
EARLY GAMES MUSIC \$29.95	Counterpoint Software 4005 W. 65th St. Shelard Plaza N., Suite 140 Minneapolis, MN 55426 (612) 544-4720	Tested on Apple II/II plus/IIe. 48K (disk). Also available for Atari Home Computers; Commodore 64; IBM PC/PCjr.	Limited music- maker and tutorial	Keyboard, musical staff, kaleidoscope	Limited	Limited ability to save music. Other choices better for children. Apple owners look elsewhere.
FUN WITH MUSIC \$39.95	Epyx Computer Software 1043 Kiel Court Sunnyvale, CA 94089 (408) 745-0700	VIC-20 (cartridge).	Limited musicmaker, arcade game added	Musical staff	Limited	Better VIC-20 software available. Easy enough for very young children.
"MELODY MAKER" \$39.95	Microzine Vol. 1, No. 2 Scholastic Wizware 730 Broadway New York, NY 10003 (212) 505-3000	Apple II/II plus/IIe, 48K (disk).	Limited musicmaker	Musical staff, colorful bar- graphs	Excellent	Good beginning program, best buy for children ages 10 and up.
MULTISOUND SYNTHESIZER \$19.95	Broderbund Software 17 Paul Drive San Rafael, CA 94903 (415) 479-1170	VIC-20 (cassette).	Musicmaker	None	Fair	Most versatile VIC program for playing music on keyboard.
MUSICALC 1 \$49.95	Waveform Corp. 1912 Bonita Bay Berkeley, CA 94704 (415) 841-9866	Commodore 64 (disk).	Complex music synthesizer	Grids, synthesizer controls	Excellent	Best synthesizer available for Commodore 64.
MUSIC CON- STRUCTION SET \$40	Electronic Arts 2755 Campus Drive San Mateo, CA 94403 (415) 571-7171	Tested on Apple II/II plus/IIe. 48K (disk). Also available for Atari Home Computers and Commodore 64.	Musicmaker	Musical staff	Good	Good and powerful, but entering music with joystick may be tedious.
MUSIC GAMES \$29.95	Howard W. Sams & Co. 4300 West 62nd St. Indianapolis, IN 46206 (317) 298-5400	Apple II/II plus/IIe, 48K (disk).	Music games and drill	Keyboard musical staff	Fair	Consider after "Melody Maker." Supplements early music education.
MUSICMAKER \$24.95	Triton Products Co. P.O. Box 8123 San Francisco, CA 94128 (800) 227-6900	T1-99/4A (cartridge).	Musicmaker	Musical staff	Fair	Good for TI owners.
ORCHESTRA 90 \$79.95	Radio Shack 1800 One Tandy Center Fort Worth, TX 76102 (817) 390-3944	TRS-80 Models I/III/ 4, 16K (cassette). Transfer program to disk.	Musicmaking utility	Sound codes	Very good	Difficult to use but has good sound quality. Amplifier and speaker (or headphones) required.
SONGWRITER \$39.95	Scarborough Systems 25 N. Broadway Tarrytown, NY 10591 (914) 332-4545	Tested on Apple II/II plus/IIe. 48K (disk). Also available for Atari Home Computers; Commodore 64; IBM PC.	Musicmaker	Player piano scroll	Excellent	Excellent for beginners and up.
STUDIO 64 \$39.95	EnTech P.O. Box 185 Sun Valley, CA 91353 (213) 768-6646	Commodore 64 (disk and cassette).	Musicmaker	Musical staff	Poor	Less comprehensive than <i>MusiCalc</i> . Good musical score display.
SYNTH 77 \$27.95 cassette \$30.95 disk	Computerware Box 668 Encinitas, CA 92024 (619) 436-3512	TRS-80 Color Computer (disk and cassette).	Musicmaker	Keyboard with sound controls	Good	Good for CoCo owners.
SYNTH- SOUND 64 \$32.95	HesWare 150 N. Hill Drive Brisbane, CA 94005 (415) 468-4111	Commodore 64 (disk).	Music synthesizer and sound-effects generator	Complex electronic panel	Excellent (technical manual on synthesized sound)	Primarily for technically- oriented user.
VIC MUSIC COMPOSER \$39.95	Thorn EMI Computer Software, Inc. 3187 C Airway Ave. Costa Mesa, CA 90210 (714) 751-3778	VIC-20, 5K (cartridge).	Musicmaker	Music score	Poor	Use joysticks to enter notes. Not as easy as <i>MultiSound Synthesizer</i> .
VIRTUOSO \$6.95	William D. Maples 688 Moore St. Lakewood, CO 80215	TS 1000/1500 (cassette).	Musicmaker	None	Poor	Difficult note- entering process, but one of few music programs for TS 1000/ 1500.
WHEN I'M 64 \$29.95	Alien Group 27 W. 23rd St. New York, NY 10010 (212) 741-1770	Commodore 64 (disk or cassette).	Musicmaker	Singing head	Good	Take a look—an interesting novelty item.

an enormous amount to offer in terms of enjoyment and learning about musical notation and concepts.

OTHER MUSICMAKERS

Besides these three highly recommended music software packages, a number of other programs we reviewed deserve mention.

Not a great deal of musicmaking software exists for either the TI-99/4, the TRS-80 Models I/III/4, or the Color Computer. Of the programs we encountered for the TI, **Music Maker** stands out. It allows you to compose music two ways. Using the arrow keys, either pick up notes and move them onto a standard music score, or try the less time-consuming method of drawing a line that traces the music's pitch. If the lines go up, the music gets higher. You can use three different kinds of voices and save your work.

Synther 77 lets TRS-80 Color Computer owners take advantage of their machine's fine music capabilities in an easy-to-use synthesizer program. A complete list of features enable you to simulate different instruments by altering characteristics of each sound and changing key and pitch. A reasonably clear screen layout and thorough documentation help to simplify an otherwise complex program.

Orchestra 90 is a music synthesizer for composing music on the TRS-80 Models I/III/4. To get sound you'll need to hook up a stereo amplifier. Though difficult to use, its six-octave, three-, four-, or five-voice range is quite good. As in all software purchases, the same rule applies: If you can, try this program in the store before you buy it to make sure it's something you want to spend the time trying to master.

VIC-20 owners have a number of strong packages to choose from. Of these, **Multi-Sound Synthesizer** is the most versatile and the best VIC value. It lets you compose and save works of up to 255 notes in length. You can "play" the top two rows of your VIC keyboard, sounding notes in one of five octaves. Flavor your creations with a percussion background for a musical style like the waltz or tango. Other assorted noises and sounds can also be included. The one shortcoming of this easy-to-use program is its lack of on-screen display.

Other noteworthy programs for the VIC include **VIC Music Composer**, in which you manipulate notes and place them on the on-screen score, and **Fun With Music**, in which you play the number keys as if they were on an organ keyboard. The *VIC Music Composer* takes full advantage of the computer's three voices. You can vary scales and tempos, and save and rework your creations. Although not as versatile as *Music Composer*, *Fun With Music* is much easier to use. Both programs provide stimulating opportunities to learn about music.

(Editor's Note: Although not in the same league as any of the other programs men-

tioned here, **Virtuoso** is an admirable attempt at bringing music within the grasp of Timex Sinclair 1000/1500 owners. Entering notes is a lengthy process. Confusing documentation does not make using the program any easier. But, we do think this is about the best Timex Sinclair owners will do in the commercially available music software department.)

Two additional programs for the Commodore 64 also deserve mention. **Synthesound 64** is a complex, technical program that would be useful for someone working in advanced synthesized music. Creating, saving, and revising compositions is a complicated process, but one that can teach hardier souls a great deal about the technical details of Commodore 64 sound. **Studio 64** is a simpler package that turns the computer into a keyboard instrument. You can vary the sound of the music so that it resembles different instruments such as a violin or organ. Though it's a solid program, *Studio 64's* scanty documentation provides little more than the bare necessities for operating the program.

Perhaps the most unusual program we saw was **When I'm 64** (Commodore 64), in which an animated "talking head" sings along with preprogrammed music (one selection of which may be inappropriate for young listeners). Equipped with the Voice Box (\$129 from the same company), your little fellow can sing preprogrammed words or ones you type in phonetically yourself. Create faces or shapes of any sort and adjust them to move in time with songs you've composed. In a class by itself, this music program may even draw some attention away from that piano-playing life of the party.

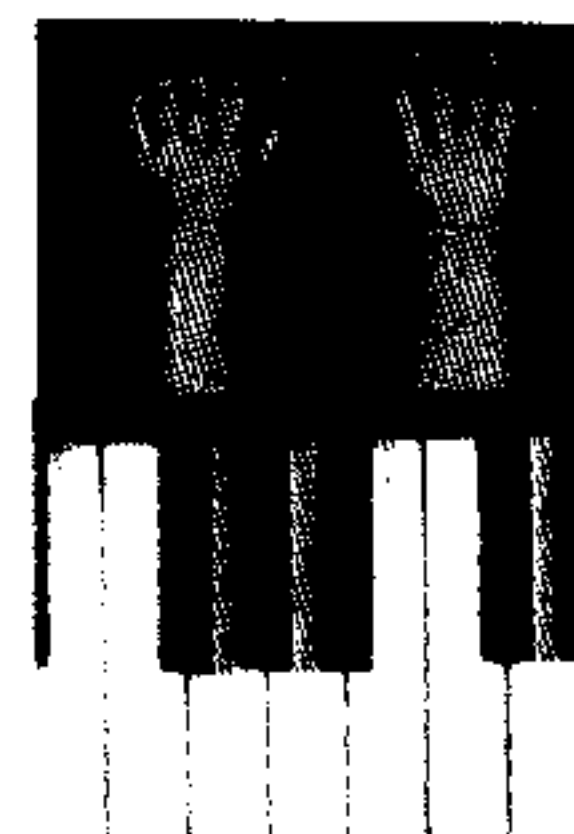
SOUR NOTES

We looked at more than 40 commercially available pieces of musicmaking software. While many were high quality and would make a decent addition to your software library, an almost equal number are not recommended for the home user.

For one thing, packages may sound appealing and relatively straightforward, but they frequently involve complicated note entry. Perhaps the melody saving is clumsy or the program lacks the important ability to save anything.

Commodore's *Music Machine*, for instance, may have represented a breakthrough once, but now it's obsolete. You can vary the sound's voice, octave, and other characteristics, but you can't save or edit your efforts.

In the past year or two, music software's come a long way and it's getting better and better. It won't ever replace the faithful old family upright, but powered with friendlier, more inviting, and more versatile music software, the computer is a great alternative to those infernal piano lessons. It can add exciting new dimensions to musicmaking in your home. ☐



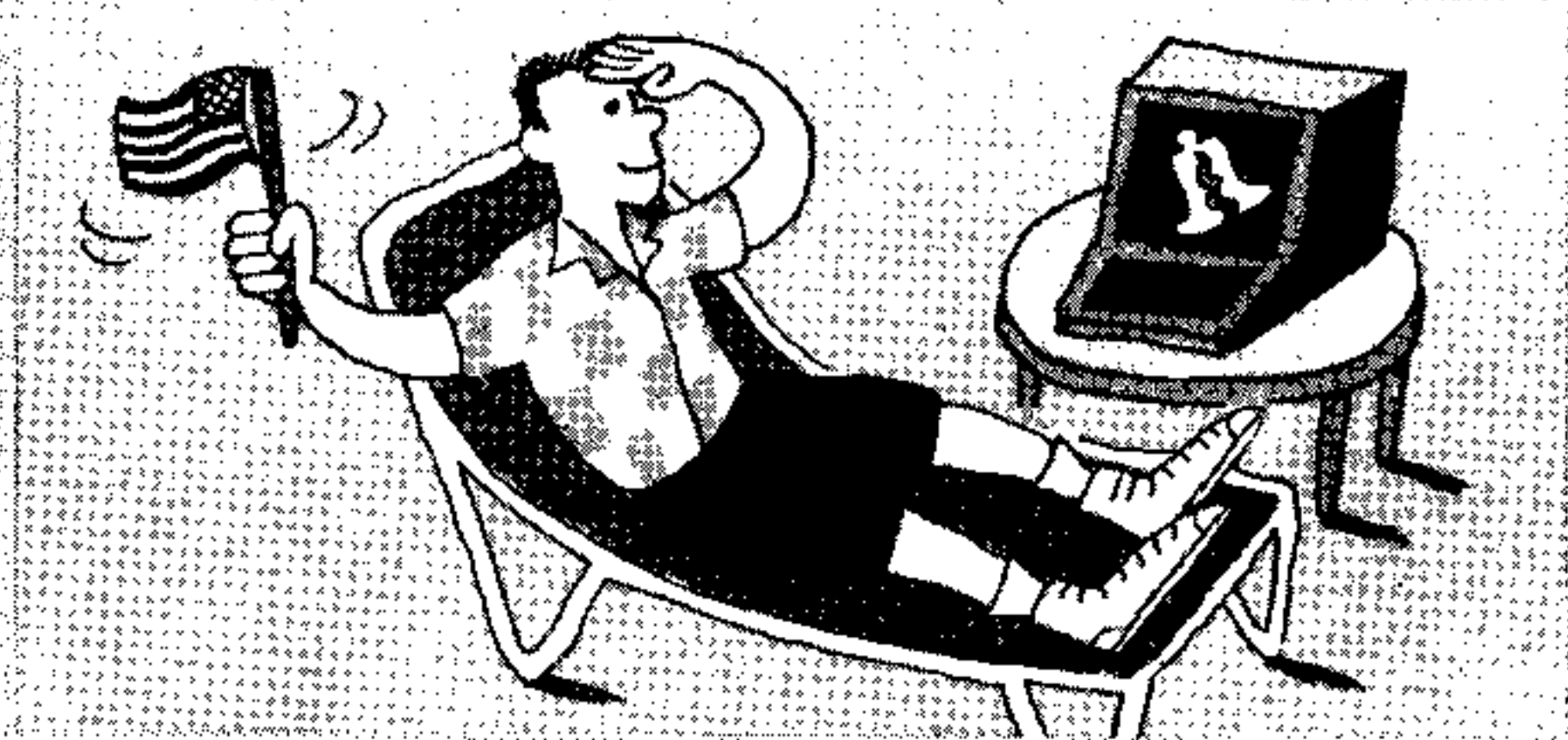
MUSIC SOFTWARE WON'T REPLACE THE FAITHFUL OLD FAMILY UPRIGHT.

LIBERTY BELL

BY JOEY LATIMER

Since July 8, 1835, when the Liberty Bell cracked, it has been silent though not forgotten. Now its tolling can be heard again across the country with this program which displays the famous Liberty Bell on your computer screen!

Long after the last firework has faded and everyone has packed up their picnic baskets and gone home, you can continue to celebrate the 4th by listening to the endless ringing of the *Liberty Bell* right in your own living room!



ADAM/Liberty Bell

```

9 REM --INITIALIZE--
10 a=5
20 n=1
30 HOME
40 GR
49 REM --DRAW BELL--
50 COLOR= 3
60 FOR co=2 TO 37
70 READ y
80 VLIN 0,y AT co
90 NEXT co
100 COLOR= 10
110 PLOT 17,3
120 PLOT 22,3
130 COLOR= 13
140 FOR ro=4 TO 32
150 READ x,y
160 HLIN x,y AT ro
170 NEXT ro
179 REM --SWING CLAPPER--
180 FOR q=1 TO 170
190 COLOR= 5
200 PLOT a,34
210 FOR t=1 TO 60
220 NEXT t
230 IF q/31<>INT(q/31) THEN 260
239 REM --RING BELL--
240 PRINT CHR$(7);
250 n=-n
260 IF q<>155 THEN 340
269 REM --BREAK BELL--
270 COLOR= 9
280 FOR ro=32 TO 21 STEP -1
290 READ co
300 PLOT co,ro
310 FOR c=1 TO 12
320 NEXT c
330 NEXT ro
340 COLOR= 0
350 IF q<>170 THEN PLOT a,34
360 a=atn
    
```

```

370 NEXT q
380 FOR x=1 TO 500
390 NEXT x
400 PRINT TAB(2);"Press any key to begin again."
409 REM --WAIT FOR KEYPRESS--
410 GET k$
420 RUN
1000 DATA 9,9,9,9,9,9,9,9,7,6,5,4,3,3,3,3,3,3,3,3
1010 DATA 3,3,3,3,4,5,6,7,9,9,9,9,9,9,9,16,23,15
1020 DATA 24,14,25,13,26,12,27,12,27,11,28,11,28
1030 DATA 11,28,11,28,11,28,11,28,10,29,10,29,10
1040 DATA 29,10,29,9,30,9,30,8,31,8,31,7,32,7,32
1050 DATA 6,33,6,33,5,34,4,35,3,36,3,36,3,36,20,20
1060 DATA 20,19,18,17,16,16,15,15,15,15
    
```

Apple/Liberty Bell

```

9 REM --INITIALIZE--
10 A=5
20 N=1
30 HOME
40 GR
49 REM --DRAW BELL--
50 COLOR= 8
60 FOR CO=2 TO 37
70 READ Y
80 VLIN 0,Y AT CO
90 NEXT CO
100 COLOR= 10
110 PLOT 17,3
120 PLOT 22,3
130 COLOR= 13
140 FOR RO=4 TO 32
150 READ X,Y
160 HLIN X,Y AT RO
170 NEXT RO
179 REM --SWING CLAPPER--
180 FOR Q=1 TO 170
190 COLOR= 5
200 PLOT A,34
210 FOR T=1 TO 20
220 NEXT T
230 IF Q/31<>INT(Q/31) THEN 260
239 REM --RING BELL--
240 PRINT CHR$(7)
250 N=-N
260 IF Q<>155 THEN 350
269 REM --BREAK BELL--
270 COLOR= 9
280 FOR RO=32 TO 21 STEP -1
290 READ CO
300 PLOT CO,RO
310 FOR C=1 TO 12
320 Z = PEEK(-16336)
330 NEXT C
340 NEXT RO
350 COLOR= 0
360 IF Q<>170 THEN PLOT A,34
370 A=A+N
380 NEXT Q
390 FOR X=1 TO 500
400 NEXT X
410 PRINT TAB(7);"PRESS ANY KEY TO BEGIN AGAIN."
419 REM --WAIT FOR KEYPRESS--
420 GET K$
430 RUN
1000 DATA 9,9,9,9,9,9,9,9,7,6,5,4,3,3,3,3,3,3,3,3
1010 DATA 3,3,3,3,3,3,4,5,6,7,9,9,9,9,9,9,9,9,9,9
1020 DATA 16,23,15,24,14,25,13,26,12,27,12,27
1030 DATA 11,28,11,28,11,28,11,28,11,28,11,28
1040 DATA 10,29,10,29,10,29,10,29,9,30,9,30
1050 DATA 8,31,8,31,7,32,7,32,6,33,6,33,5,34
1060 DATA 4,35,3,36,3,36,3,36,20,20,20,19,18
1070 DATA 17,16,16,15,15,15,15
    
```


BEGINNER PROGRAMS

```

70 N=1
80 POKE C+3,25
90 PRINT CHR$(147)
99 REM --DRAW BELL--
100 FOR CO=1 TO 20
110 READ Y
120 FOR RO=0 TO Y
130 POKE SB+CO+D*RO,160
140 POKE CB+CO+D*RO,0
150 NEXT RO
160 NEXT CO
170 FOR RO=3 TO 17
180 READ X,Y
190 FOR CO=X TO Y
200 POKE SB+CO+D*RO,160
210 POKE CB+CO+D*RO,7
220 NEXT CO
230 NEXT RO
240 POKE 7733,160
250 POKE 7736,160
260 POKE 38453,0
270 POKE 38456,0
279 REM --SWING CLAPPER--
280 FOR Q=1 TO 93
290 POKE A+C,0
300 POKE A,81
310 FOR T=1 TO 50
320 NEXT T
330 IF Q/17<>INT(Q/17) THEN 420
339 REM --RING BELL--
340 FOR V=15 TO 0 STEP -1
350 FOR T=1 TO 30
360 NEXT T
370 POKE 36878,V
380 POKE 36874,239
390 NEXT V
400 POKE 36874,0
410 N=-N
420 IF Q<>85 THEN 540
429 REM --BREAK BELL--
430 POKE 36878,15
440 FOR RO=17 TO 10 STEP -1
450 READ CO
460 POKE SB+CO+D*RO,102
470 X=X+10
480 POKE 36877,X+150
490 FOR T=1 TO 20
500 NEXT T
510 POKE 36877,0
520 POKE CB+CO+D*RO,0
530 NEXT RO
540 IF Q<>93 THEN POKE A,32
550 A=A+N
560 NEXT Q
570 FOR T=1 TO 1500
580 NEXT T
590 POKE 214,20
600 PRINT
610 PRINT CHR$(144);" PLEASE PRESS ANY KEY.";
619 REM --WAIT FOR KEYPRESS--
620 GET KS
630 IF KS="" THEN 620
640 RUN
1000 DATA 3,3,3,3,3,2,1,1,1,1,1,1,1,1,2,3,3,3,3,3
1010 DATA 8,13,7,14,6,15,5,16,5,16,5,16,5,16
1020 DATA 4,17,4,17,4,17,3,18,2,19
1030 DATA 1,20,1,20,1,20,11,11,11,10,9,8,8,8

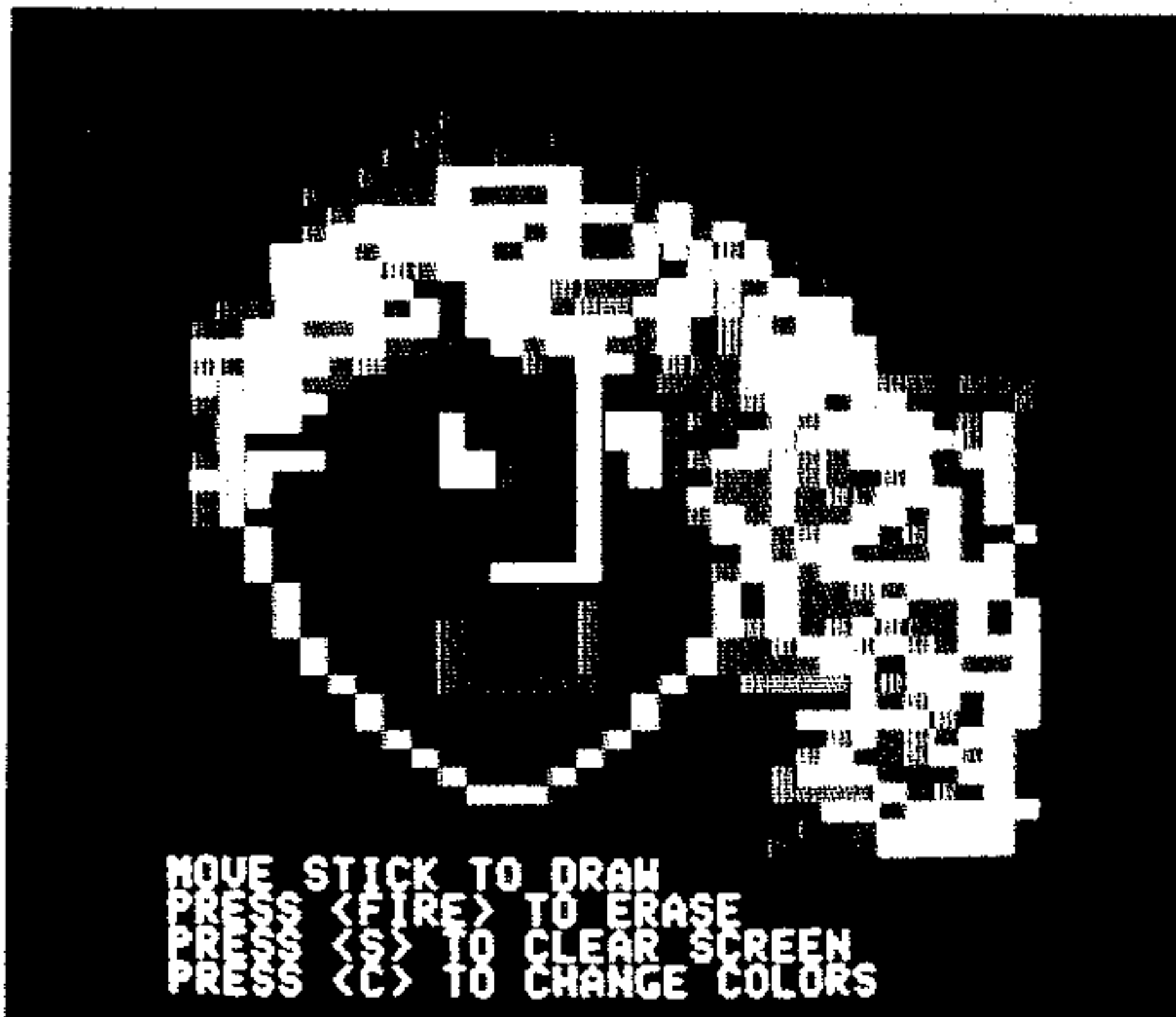
```

SOLUTION TO LAST MONTH'S PUZZLE

You may have noticed that three of the chefs always give you the same wrong telephone number. If you look at the numbers on a telephone, you will see that each digit (except for 1 and 0) is accompanied by letters of the alphabet. Wrong numbers spell the names of guilty chefs. For example, the wrong number 945-4356 tells you that W-I-L-H-E-L-M stole your recipe.

PORTRAIT

BY JOEY LATIMER



If you've always wanted to be a Rembrandt, but can't stand the smell of turpentine, then this program may be just the thing for you! *Portrait* draws the outline of a face and leaves the rest up to you.

Set your computer to all uppercase letters before running the program (except for the TI-99/4A). First choose the color of your "brush" (this applies only to computers with built-in color capabilities) by pressing the "C" key. When you've selected a color, type "F" and the face outline will appear on your screen.

You can draw either with a joystick or by using your keyboard (type "D" and use the direction keys previously indicated on the screen). To erase, type "E" and again use your direction keys. Or, hold down the fire button on your joystick. You can change "brush" colors at any point by pressing the "C" key.

To clear your drawing from the screen press the "S" key. When you're finished, type "Q" for quit.

If you wish to draw on a blank screen, don't type "F" for face outline at the beginning.

ADAM/Portrait

```

10 DIM j(8),xt(8),yt(8)
20 REM --PRINT INSTRUCTIONS--
20 HOME
30 PRINT " PLEASE PLUG CONTROLLER INTO"
40 PRINT " PORT #1. USE KEYPAD FOR INPUT."
50 PRINT TAB(36);"PRESS ANY KEY TO BEGIN."
60 GET r$
70 HOME
80 HGR
90 FOR i = 1 TO 8
100 READ j(i),xt(i),yt(i)
110 NEXT i
120 READ x,y,nc,s
130 VTAB 22
140 PRINT "USE STICK TO DRAW <FIRE>=ERASE";
150 PRINT " 1=CHANGE COLOR 3=DRAW FACE"
160 PRINT " 7=QUIT";SPC(9);"9=CLEAR SCREEN"
170 IF s = 1 THEN HCOLOR= 0:HPLLOT hc,hr
180 HCOLOR= nc
190 HPLLOT x,y
200 hc = x
210 hr = y

```

BEGINNER PROGRAMS

```

240 IF C$="J" THEN XS=STICK(0):YS=STICK(1)
250 RESTORE 1020
260 READ X,Y,NC,S
270 CLS
280 LOCATE 23,2
290 IF C$="K" THEN PRINT "D=DRAW";SPC(17);"E=ERASE":GO
TO 310
300 PRINT "MOVE STICK TO DRAW";SPC(5);"<FIRE>=ERASE"
310 PRINT "C=CHANGE COLOR";SPC(9);"F=DRAW FACE";
320 LOCATE 25,2
330 PRINT "Q=QUIT";SPC(17);"S=CLEAR SCREEN";
339 REM --ERASE AND PLOT PIXEL--
340 IF S=1 THEN PRESET(HC,HR),0
350 PSET(X,Y),NC
360 HC=X
370 HR=Y
379 REM --READ KEYBOARD--
380 KS=INKEY$
390 IF KS="" THEN IF C$="K" THEN 380 ELSE 460
400 IF KS="E" THEN S=1 ELSE IF KS="D" THEN S=2
410 IF KS="S" THEN 250
420 IF KS="C" THEN NC=NC+1
430 IF NC>3 THEN NC=1
440 IF KS="F" THEN 600
450 IF KS="Q" THEN CLS:END
460 IF C$="K" THEN 540
469 REM --READ JOYSTICK--
470 FB=STRIG(1)
480 XC=STICK(0)
490 YC=STICK(1)
500 IF FB=-1 THEN S=1 ELSE S=2
510 IF XC<XS-15 THEN X=X-1 ELSE IF XC>XS+15 THEN X=X+1
520 IF YC<YS-15 THEN Y=Y-1 ELSE IF YC>YS+15 THEN Y=Y+1
530 GOTO 570
540 FOR I=1 TO 8
550 IF KS=KTS(I) THEN X=X+XT(I):Y=Y+YT(I):I=8
560 NEXT I
570 IF X>319 THEN X=0 ELSE IF X<0 THEN X=319
580 IF Y>175 THEN Y=0 ELSE IF Y<0 THEN Y=175
590 GOTO 340
599 REM --DRAW FACE--
600 PSET(159,147),NC
610 FOR I=1/30 TO 8*ATN(1) STEP 1/30
620 LINE -(SIN(I)*50+159,COS(I)*60+87),NC
630 NEXT I
640 GOTO 350
1000 DATA 77,-1,1,44,0,1,46,1,1,74,-1,0
1010 DATA 76,1,0,85,-1,-1,73,0,-1,79,1,-1
1020 DATA 159,87,1,2

```

TI-99/4A/Portrait

```

9 REM --Make sure the ALPHA LOCK key is UP before typ
ing in or running program--
10 DIM XT(8),YT(8),JI(8),KI(8),KC(9),KB(8)
19 REM --Print instructions--
20 CALL CLEAR
30 PRINT "Do you want to use the","<k>eyboard or <j>oy
stick?"
40 CALL KEY(0,C,P)
50 IF (C<>106)*(C<>107)THEN 40
60 CALL CLEAR
70 IF C=107 THEN 100
80 PRINT TAB(4);"Please plug in your",TAB(10);"joystic
k."
90 GOTO 140
100 PRINT "Here are your drawing keys:"
110 PRINT TAB(28),TAB(10);"u i o"
120 PRINT TAB(10);"j l"
130 PRINT TAB(10);"m , ."
140 PRINT TAB(28),TAB(3);"Press any key to begin."
150 CALL KEY(0,K,P)
160 IF P=0 THEN 150
170 CALL CLEAR
179 REM --In line 180, all the F's must be capitals--
180 AS="FFFFFFFFFFFFFFFF"

```

```

190 FOR I=1 TO 9
200 READ KC(I),D,E
210 CALL CHAR(KC(I),AS)
220 CALL COLOR(D,E,E)
230 NEXT I
240 FOR I=1 TO 8
250 READ XT(I),YT(I),JI(I),KI(I),KB(I)
260 NEXT I
270 RESTORE 1060
280 READ X,Y,NC,S
290 CALL CLEAR
300 CALL SCREEN(16)
310 IF C=106 THEN 340
320 PRINT "d=draw";TAB(17);"e=erase"
330 GOTO 350
340 PRINT "fire=erase";TAB(17);"stick=draw"
350 PRINT "c=change color f=draw face"
360 PRINT "s=clear screen q=quit"
369 REM --Erase and plot blocks--
370 IF S=2 THEN 390
380 CALL HCHAR(HR,HC,64)
390 CALL HCHAR(Y,X,KC(NC))
400 HC=X
410 HR=Y
419 REM --Read keyboard--
420 CALL KEY(0,K,P)
430 IF (P=0)*(C=107)THEN 420
440 IF (P=0)*(C=106)THEN 620
450 IF K<>101 THEN 480
460 S=1
470 GOTO 610
480 IF K<>100 THEN 510
490 S=2
500 GOTO 610
510 IF K=115 THEN 270
520 IF K<>99 THEN 570
530 NC=NC+1
540 IF NC<10 THEN 610
550 NC=2
560 GOTO 610
570 IF K=102 THEN 890
580 IF K<>113 THEN 610
590 CALL CLEAR
600 END
610 IF C=107 THEN 740
619 REM --Read joystick--
620 CALL JOYST(1,M,N)
630 FOR I=1 TO 8
640 IF (M<>JI(I))+(N<>KI(I))THEN 680
650 X=X+XT(I)
660 Y=Y+YT(I)
670 I=8
680 NEXT I
690 CALL KEY(1,B,P)
700 S=2
710 IF B<>18 THEN 800
720 S=1
730 GOTO 800
740 FOR I=1 TO 8
750 IF K<>KB(I)THEN 790
760 X=X+XT(I)
770 Y=Y+YT(I)
780 I=8
790 NEXT I
800 IF X<33 THEN 820
810 X=1
820 IF X>0 THEN 840
830 X=32
840 IF Y<21 THEN 860
850 Y=1
860 IF Y>0 THEN 370
870 Y=20
880 GOTO 370
889 REM --Draw face--
890 FOR I=1/8 TO 4.1*TAN(1)STEP 1/8
900 XF=INT(SIN(I)*5.6)+16
910 YF=INT(COS(I)*7.5)+10

```

BEGINNER PROGRAMS

```
920 CALL HCHAR(YF,XF,KC(NC))
930 NEXT I
940 CALL HCHAR(6,20,64)
950 CALL HCHAR(13,11,64)
960 CALL HCHAR(16,19,64)
970 GOTO 390
1000 DATA 64,5,16,72,6,2,80,7,5,88,8,7,144,15,11
1010 DATA 152,16,13,40,2,9,48,3,8,120,12,6
1020 DATA 0,-1,0,4,105,1,-1,4,4,111
1030 DATA 1,0,4,0,108,1,1,4,-4,46
1040 DATA 0,1,0,-4,44,-1,1,-4,-4,109
1050 DATA -1,0,-4,0,106,-1,-1,-4,4,117
1060 DATA 16,11,2,2
```

Timex Sinclair 1000 w/16K RAM Pack & Timex Sinclair 1500/Portrait

```
10 DIM K$(8,1)
20 DIM Q(8)
30 DIM R(8)
40 SLOW
49 REM --PRINT INSTRUCTIONS--
50 PRINT TAB 3;"HERE ARE YOUR DRAWING KEYS:"
60 PRINT AT 3,12;"U I 0"
70 PRINT AT 4,12;"J L"
80 PRINT AT 5,12;"M M ."
90 PRINT AT 7,2;"PLEASE PRESS ANY KEY TO BEGIN."
100 IF INKEY$="" THEN GOTO 100
110 FAST
120 CLS
130 LET DS="M,0,-1,..,1,-1,L,1,0,0,1,1,I,0,1,U,-1,1,J,-1,0,N,-1,-1,"
140 LET P1=1
150 LET P2=1
160 FOR I=1 TO 8
170 GOSUB 1000
180 LET K$(I, TO 1)=NS
190 GOSUB 1000
200 LET Q(I)=VAL NS
210 GOSUB 1000
220 LET R(I)=VAL NS
230 NEXT I
240 LET X=32
250 LET Y=22
260 LET S=2
270 SLOW
280 PRINT AT 19,1;"D=DRAW";AT 19,9;"E=ERASE";AT 19,18;"F=FACE";AT 19,26;"Q=QUIT";AT 20,9;"S=SCALE"
289 REM --ERASE AND PLOT PIXEL--
290 IF S=1 THEN UNPLOT HC,HR
300 PLOT X,Y
310 LET HC=X
320 LET HR=Y
339 REM --READ KEYBOARD--
330 LET CS=INKEY$
340 IF CS="" THEN GOTO 330
350 IF CS<>"S" THEN GOTO 380
360 CLS
370 GOTO 240
380 IF CS="E" THEN LET S=1
390 IF CS="D" THEN LET S=2
400 IF CS="F" THEN GOTO 530
410 IF CS="Q" THEN STOP
420 FOR I=1 TO 8
430 IF CS<>K$(I, TO 1) THEN GOTO 470
440 LET X=X+Q(I)
450 LET Y=Y+R(I)
460 LET I=8
470 NEXT I
480 IF X>63 THEN LET X=0
490 IF X<0 THEN LET X=63
500 IF Y>43 THEN LET Y=6
520 IF Y<6 THEN Y=43
510 GOTO 290
529 REM --DRAW FACE--
```

```
540 FOR I=1/16 TO 4.1*TAN (1) STEP 1/16
550 PLOT INT(SIN (I)*11.5+32),INT(COS (I)*14+22)
560 NEXT I
570 SLOW
580 GOTO 300
1000 IF DS(P1)="" THEN GOTO 1030
1010 LET P1=P1+1
1020 GOTO 1000
1030 LET NS=DS(P2 TO P1-1)
1040 LET P1=P1+1
1050 LET P2=P1
1060 RETURN
```

TRS-80 Color Computer w/Extended Color BASIC/Portrait

```
10 DIM KTS(8),XT(8),YT(8)
20 H=1
29 REM --PRINT INSTRUCTIONS--
30 CLS
40 PRINT "DO YOU WANT TO USE THE"
50 PRINT "<K>EYBOARD OR <J>OYSTICK?"
60 CS=INKEYS
70 IF CS<>"K" AND CS<>"J" THEN 60 ELSE CLS
80 IF CS="J" THEN PRINT "PLEASE PLUG YOUR JOYSTICK INTO"
"THE RIGHT JOYSTICK PORT.":GOTO 130
90 PRINT TAB(3);"HERE ARE YOUR DRAWING KEYS:"
100 PRINT TAB(44);"U I 0"
110 PRINT TAB(12);"J L"
120 PRINT TAB(12);"M ."
130 PRINT TAB(43);"COMMANDS:"
140 IF CS="J" THEN PRINT TAB(40);"MOVE STICK TO DRAW";TAB(40);"<FIRE> TO ERASE":GOTO 160
150 PRINT TAB(32);"D=DRAW";TAB(18);"E=ERASE"
160 PRINT "C=CHANGE COLOR";TAB(18);"F=DRAW FACE"
170 PRINT "Q=QUIT";TAB(18);"S=CLEAR SCREEN";
180 PRINT TAB(45);"H=HELP"
190 PRINT TAB(36);"PRESS ANY KEY TO ";
199 REM --ERASE AND PLOT PIXEL--
200 IF H=2 THEN PRINT "CONTINUE." ELSE PRINT "BEGIN."
210 KS=INKEYS
220 IF KS="" THEN 210 ELSE CLS
230 PMODE 3,1
240 SCREEN 1,0
250 IF H=2 THEN 330
260 FOR I=1 TO 8
270 READ K,XT(I),YT(I)
280 KTS(I)=CHR$(K)
290 NEXT I
300 READ X,Y,NC,S,H
310 COLOR 1,2
320 PCLS
330 IF S=1 THEN PSET(HC,HR,2)
340 PSET(X,Y,NC)
350 HC=X
360 HR=Y
369 REM --READ KEYBOARD--
370 KS=INKEYS
380 IF KS="" THEN 470
390 IF KS="E" THEN S=1 ELSE IF KS="D" THEN S=2
400 IF KS="F" THEN 600
410 IF KS="S" THEN RESTORE:GOTO 260
420 IF KS="C" THEN NC=NC+1
430 IF NC>4 THEN NC=1
440 IF NC=2 THEN NC=3
450 IF KS="Q" THEN CLS:END
460 IF KS="H" THEN IF CS="J" THEN 130 ELSE 90
470 IF CS="K" THEN 540
479 REM --READ JOYSTICK--
480 IF PEEK(65280)=126 OR PEEK(65280)=254 THEN S=1 ELSE S=2
490 XC=JOYSTK(0)
500 YC=JOYSTK(1)
510 IF XC<10 THEN X=X-1 ELSE IF XC>52 THEN X=X+1
520 IF YC<10 THEN Y=Y-1 ELSE IF YC>52 THEN Y=Y+1
530 GOTO 570
```

BEDTIME STORIES A New Twist On An Old Pastime

BY ED GRAHAM III

From age 4 until age 7, I could not go to sleep without my father sitting on the edge of my bed and telling me a helicopter rescue story.

As I lay in bed, I would stare up into the darkness of the mattress of the upper bunk. That darkness was my mind's CRT. Everything my father said was visualized in vivid colors.

Now, years later, I am a father myself. When our family purchased a TI-99/4A, I knew I wanted to

ED GRAHAM III, 31, is an assistant manager for Seabek Products, Inc. He and his wife, Lynda, live in Houston, Texas, with their four kids.

write a program for my kids. I had a driving force within me: I wanted to pass along something that my father had given me a long time ago—a window to creative thinking. So I started to write my *Helicopter Game*.

Now, at night, just before bedtime, I watch silently as my kids play my game. I watch their faces, not the computer screen. Every time they move the helicopter off the launchpad, I see a different type of determination on their faces. They have decided upon a mission: the rescue of a little boy or a little girl. Their minds are working



Ed, in front of scenes from Texas' past, which his sister, Pam, painted.

and their eyes are peering into the screen looking for unexpected dangers, just as I watched for them in the darkness of the mattress of the top bunk.

HOW TO PLAY

Helicopter Game can be played with a joystick or using the keyboard. When using the keyboard, press "E" for up; "X" for down; "S" for left; and "D" for right. To halt your flight, press the ENTER key.

(When using a joystick, press the fire button.)

The object of the game is to leave the launchpad, fly left, reenter the screen on the right, and return to the launchpad in as short a time as possible. Time elapsed is recorded in the lower right-hand corner. Do not crash into the sun, the hot-air balloons, your launchpad, or the screen's top and bottom borders. There are three levels of difficulty to choose from.

PHOTOGRAPH BY EDWARD GRAHAM, JR.

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TI-99/4A w/TI Extended BASIC/Helicopter Game (keyboard version)

```

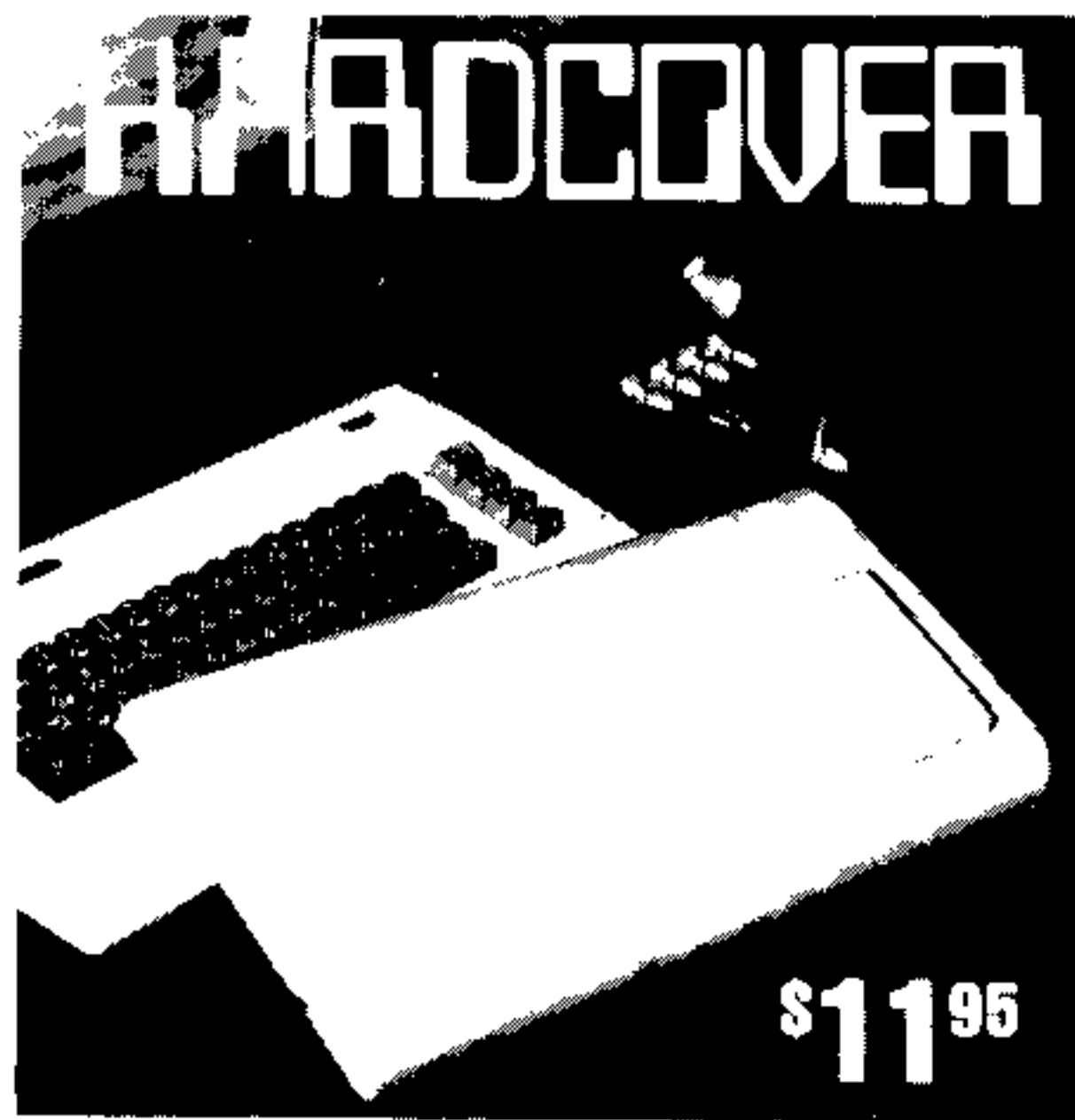
9 REM DEPRESS <ALPHA LOCK> BEFORE TYPING THE PROGRAM
10 CALL CLEAR :: RANDOMIZE
20 AS=RPTS("O",16):: BS=RPTS("10",8)
30 CALL CHAR(96,"000000FE10101010385C7F7C384482"&AS&"00808F80808000")
40 CALL CHAR(100,BS&AS&AS&AS)
50 CALL CHAR(104,"030F1F1F3F3F3F3F1F1F0F030A0A0403C0FD8F8F8FCFCFCFC8F8F8F0C0505020C0")
60 CALL CHAR(108,"3C7EFFFFFFF7E3C"&AS&AS&AS)
70 PRINT :: PRINT "GOOD LUCK!" :: PRINT "PRESS ANY KEY TO CONTINUE." :: BS=1E99
80 CALL KEY(O,K,S):: IF S=0 THEN 80
90 CALL CLEAR :: DISPLAY AT(12,1):"CHOOSE A DIFFICULTY LEVEL" :: DISPLAY AT(14,12):"(1-3)"
100 DISPLAY AT(17,1):"(1) BEGINNER" :: DISPLAY AT(18,1):"(2) FAIR" :: DISPLAY AT(19,1):"(3) ADVANCED"
110 CALL KEY(O,K,S):: IF S=0 OR K<49 OR K>51 THEN 110 ELSE LVL=K-48
120 INPUT "PRESS <ENTER> WHEN READY.":RS
130 CALL SCREEN(5):: CALL MAGNIFY(4)
140 CALL CLEAR :: CALL HCHAR(1,1,95,32):: CALL HCHAR(2,3,1,95,32)
150 B=INT(RND*200)+1 :: C=INT(RND*15)+1
160 CALL SPRITE(#9,108,10,64,B,0,C)
170 FOR Z=1 TO 8 :: READ A,B,C,D :: CALL SPRITE(#Z,A,B,C,D):: NEXT Z
180 J=INT(RND*8)-4 :: FOR Q=4 TO 8 :: CALL MOTION(#Q,0,J):: NEXT Q
190 CALL KEY(O,Q,A):: IF A=0 THEN 250
200 IF Q=101 OR Q=69 THEN X=X-LVL
210 IF Q=115 OR Q=83 THEN Y=Y-LVL
220 IF Q=120 OR Q=88 THEN X=X+LVL
230 IF Q=100 OR Q=68 THEN Y=Y+LVL
240 IF Q=13 THEN X,Y=0

```

```

250 CALL MOTION(#1,X,Y):: CALL COINC(ALL,Z):: IF Z=-1 THEN 330
260 CALL POSITION(#1,J,K):: IF J<10 OR J>154 THEN 330 :: IF K<16 THEN FLAG=1
270 CALL COINC(#1,156,180,4,PAD):: IF FLAG=1 AND PAD=-1 THEN 300
280 SCORE=SCORE+1 :: DISPLAY AT(24,24):SCORE
290 GOTO 190
300 CALL MOTION(#1,0,0):: IF SCORE<BS THEN BS=SCORE
310 CALL SOUND(4250,110,1,440,1,880,1):: CALL HCHAR(1,1,32,32):: DISPLAY AT(1,7):"CONGRATULATIONS!" :: DISPLAY AT(2,7):"YOUR SCORE: ";SCORE
320 DISPLAY AT(4,7):"BEST SCORE: ";BS :: GOTO 360
330 CALL MOTION(#1,0,0):: CALL COLOR(#1,16)
340 CALL SOUND(4250,-5,1):: DISPLAY AT(11,10):"C R A S H"
350 FOR DEL=1 TO 900 :: NEXT DEL :: CALL DELSPRITE(#1) :: DISPLAY AT(12,5):"YOU ARE VAPORIZED ..."
360 FOR DEL=1 TO 500 :: NEXT DEL
370 DISPLAY AT(24,1)BEEP:"PLAY AGAIN? (Y OR N)"
380 ACCEPT AT(24,22):XS
390 CALL DELSPRITE(ALL):: IF XS=CHRS(110)THEN 450
400 CALL CLEAR :: RESTORE :: X,Y,SCORE,FLAG=0
410 DISPLAY AT(10,2):"DO YOU WANT TO PLAY AT THE" :: DISPLAY AT(11,1)BEEP:"SAME SKILL LEVEL? (Y OR N)"
420 ACCEPT AT(11,28):XS
430 IF XS=CHRS(121)THEN 140 ELSE 90
440 IMAGE YOUR BEST SCORE WAS ###.
450 DISPLAY AT(10,1)ERASE ALL BEEP:"I ENJOYED OUR TIME TOGETHER." :: IF BS<>1E99 THEN DISPLAY AT(12,3):USING 440:BS
460 DISPLAY AT(14,9):"HAPPY FLYING!"
470 END
1000 DATA 96,2,153,180,100,2,160,164,100,2,160,204
1010 DATA 104,3,120,110,104,7,30,45,104,2,110,195
1020 DATA 104,16,100,20,104,12,20,220

```



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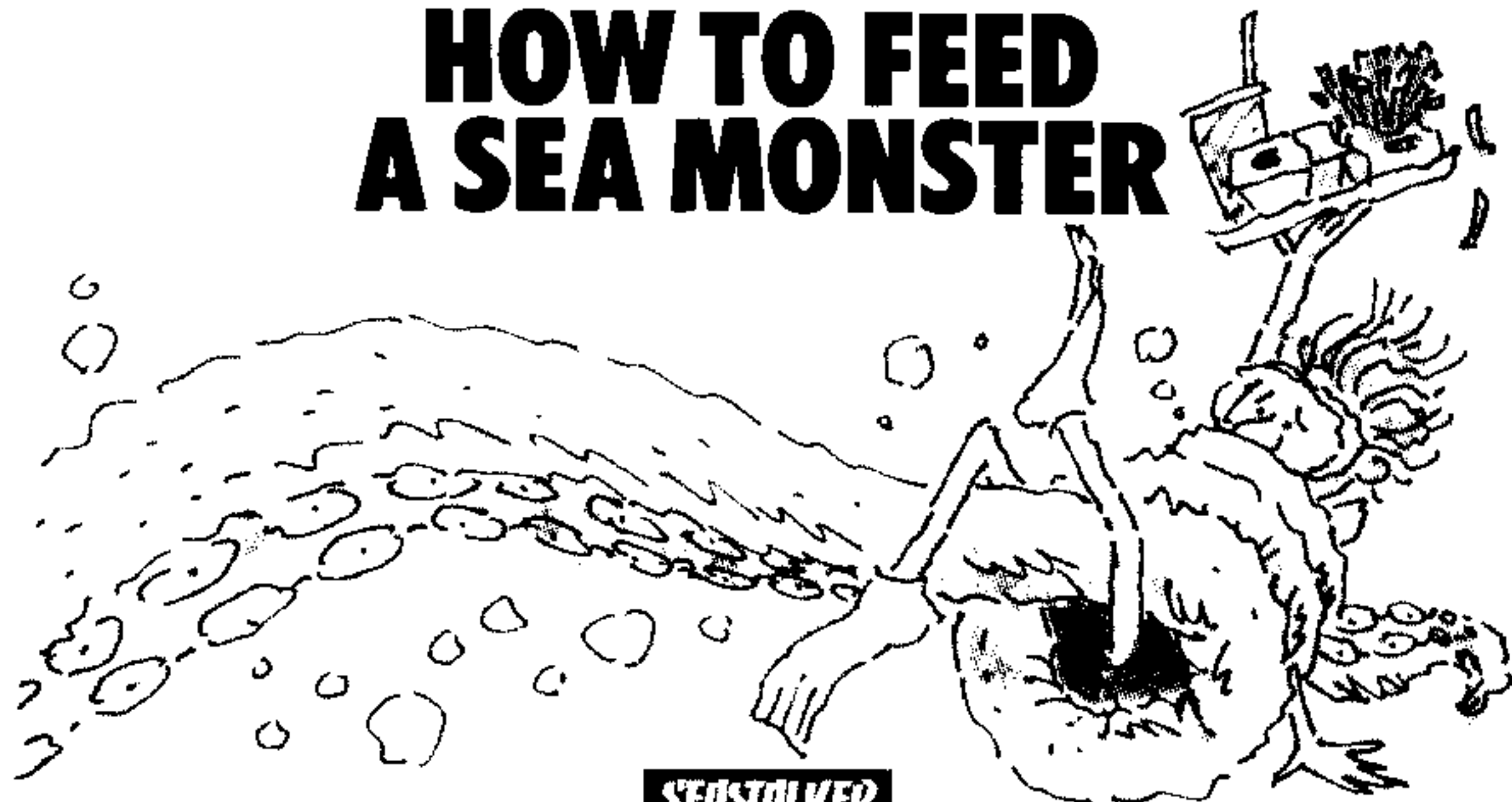
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```

9 REM RELEASE <ALPHA LOCK> AFTER TYPING THE PROGRAM.
10 CALL CLEAR :: RANDOMIZE
20 AS=RPTS("0",16):: BS=RPTS("10",8)
30 CALL CHAR(96,"000000FE10101010385C7F7C384482"&AS&"00808F80808000")
40 CALL CHAR(100,BS&AS&AS&AS)
50 CALL CHAR(104,"030F1F1F3F3F3F3F1F1F0F030A0A0403C0F0F8F8FCFCFCFCF8F8F0C0505020C0")
60 CALL CHAR(108,"3C7EFFFFFFFFF7E3C"&AS&AS&AS)
70 PRINT :: PRINT "GOOD LUCK!" :: PRINT "PRESS ANY KEY TO CONTINUE." :: BS=1E99
80 CALL KEY(O,K,S):: IF S=0 THEN 80
90 CALL CLEAR :: DISPLAY AT(12,1):"CHOOSE A DIFFICULTY LEVEL" :: DISPLAY AT(14,12):"(1-3)"
100 DISPLAY AT(17,1):"(1) BEGINNER" :: DISPLAY AT(18,1):"(2) FAIR" :: DISPLAY AT(19,1):"(3) ADVANCED"
110 CALL KEY(O,K,S):: IF S=0 OR K<49 OR K>51 THEN 110 ELSE LVL=K-48
120 INPUT "PRESS <ENTER> WHEN READY.":RS
130 CALL SCREEN(5):: CALL MAGNIFY(4)
140 CALL CLEAR :: CALL HCHAR(1,1,95,32):: CALL HCHAR(2,3,1,95,32)
150 B=INT(RND*200)+1 :: C=INT(RND*15)+1
160 CALL SPRITE(#9,108,10,64,B,0,C)
170 FOR Z=1 TO 8 :: READ A,B,C,D :: CALL SPRITE(#Z,A,B,C,D):: NEXT Z
180 J=INT(RND*8)-4 :: FOR Q=4 TO 8 :: CALL MOTION(#Q,0,J):: NEXT Q
190 CALL JOYST(1,U,V)
200 X=X-SGN(V)*LVL
210 Y=Y+SGN(U)*LVL
220 CALL KEY(1,K,S):: IF S<>0 THEN X,Y=0
230 CALL MOTION(#1,X,Y):: CALL COINC(ALL,Z):: IF Z=-1 THEN 310
240 CALL POSITION(#1,J,K):: IF J<10 OR J>154 THEN 310 :: IF K<16 THEN FLAG=1
250 CALL COINC(#1,156,180,4,PAD):: IF FLAG=1 AND PAD=-1 THEN 280
260 SCORE=SCORE+1 :: DISPLAY AT(24,24):SCORE
270 GOTO 190
280 CALL MOTION(#1,0,0):: IF SCORE<BS THEN BS=SCORE
290 CALL SOUND(4250,110,1,440,1,880,1):: CALL HCHAR(1,1,32,32):: DISPLAY AT(1,7):"CONGRATULATIONS!" :: DISPLAY AT(2,7):"YOUR SCORE: ";SCORE
300 DISPLAY AT(4,7):"BEST SCORE: ";BS :: GOTO 340
310 CALL MOTION(#1,0,0):: CALL COLOR(#1,16)
320 CALL SOUND(4250,-5,1):: DISPLAY AT(11,10):"C R A S H"
330 FOR DEL=1 TO 900 :: NEXT DEL :: CALL DELSPRITE(#1) :: DISPLAY AT(12,5):"YOU ARE VAPORIZED ..."
340 FOR DEL=1 TO 500 :: NEXT DEL
350 DISPLAY AT(24,1)BEEP:"PLAY AGAIN? (Y OR N)"
360 ACCEPT AT(24,22):XS
370 CALL DELSPRITE(ALL):: IF XS=CHR$(110)THEN 430
380 CALL CLEAR :: RESTORE :: X,Y,SCORE,FLAG=0
390 DISPLAY AT(10,2):"DO YOU WANT TO PLAY AT THE" :: DISPLAY AT(11,1)BEEP:"SAME SKILL LEVEL? (Y OR N)"
400 ACCEPT AT(11,28):XS
410 IF XS=CHR$(121)THEN 140 ELSE 90
420 IMAGE YOUR BEST SCORE WAS ###.
430 DISPLAY AT(10,1)ERASE ALL BEEP:"I ENJOYED OUR TIME TOGETHER." :: IF BS<>1E99 THEN DISPLAY AT(12,3):USING 420:BS
440 DISPLAY AT(14,9):"HAPPY FLYING!"
450 END
1000 DATA 96,2,153,180,100,2,160,164,100,2,160,204
1010 DATA 104,3,120,110,104,7,30,45,104,2,110,195
1020 DATA 104,16,100,20,104,12,20,220
    
```

PROGRAMMING P.S.

Corrections to previous months' programs—and enhancements suggested by our readers

CORRECTIONS...

VIC-20 Color Computer w/Extended Color BASIC Starbyline (May, pages 58-59)

This program is incorrect because of errors that occurred in the editing. The program treats every 100th year, for example, as having 365 days, but the year 2000 (and every other year that is evenly divisible by 400) will be a leap year. To correct these problems, add line 545

545 NEXT J

and change lines 210, 350-390, 540, 550, 570-590, 610, and 650 to read as follows:

210 L1=ABS(D(3)/4-INT(D(3)/4)) AND (D(3)/100<INT(D(3)/100) OR D(3)/400=INT(D(3)/400)):IF L1=0 AND L2=1 THEN PRINT "NOT A LEAP YEAR":SOUND 200,1:PRINT:LF=0:GOTO 110

350 LY=ABS(D(4)*2 AND (D(5)/4=INT(D(5)/4) AND D(5)/10<INT(D(5)/100) OR D(5)/400=INT(D(5)/400))

360 FOR J=0 TO C+(D(4))*LY+ABS(D(4)*2)*8 STEP 8

370 LINE (J,15)-(J,175):PSET

380 NEXT J

390 LINE (D,96)-(C+(D(4))*LY+ABS(D(4)*2)*8,96):PSET

540 FOR X=D(3) TO D(5)-1:IF X/4=INT(X/4) AND (X/100<INT(X/100) OR X/400=INT(X/400)) THEN J=J+1

550 IF D(1)=1 THEN 570 ELSE FOR X=1 TO D(1)-1

570 J=J-D(2)+1

580 IF D(1)>2 THEN J=J-L1

590 IF D(4)=1 THEN 610 ELSE FOR X=1 TO D(4)-1

610 IF D(4)>2 THEN J=J+LY

650 FOR X=0 TO 8*(C+(D(4))*LY+ABS(D(4)*2))

We apologize to the program's author and to our readers.

VIC-20/Phone Cost Monitor (May, pages 72, 74)

Due to a printer's error, one letter in line 730 was illegible. The line should read as follows:

730 IF FL = 0 AND MIN >= 60 AND SEC = 1 THEN CO = CO+A

...AND ENHANCEMENTS

We encourage you to try translating our programs for other computers—especially the reader-written programs which appear each month for only one computer. If you're willing, we'll publish your name and address here so that other owners of your brand of computer can write you (with a stamped, self-addressed envelope, of course) for copies of your translation.

TIPS TO THE TYPIST

1. When you type program lines into your computer,

be sure to copy them exactly as written. Numbers, punctuation marks, and spaces are very important!

2. Remember to press RETURN or ENTER after every completed program line.

3. Run the program when you finish typing it in by typing RUN and pressing the RETURN or ENTER key. If the computer gives you an error message,

don't panic. Mistakes can be fixed. List the program by typing the word LIST and

pressing the RETURN or ENTER key and double-check each line. A foolproof way to correct a mistake is to type in the entire line again (including its line number). When you list the program again, you should find the new line in place of the old.

4. If you need more help, read the programming guide written for your computer. It will answer questions that can't possibly be covered here.

5. When all else fails, turn off the computer and relax.

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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 in the Module. Manual includes sample program with detailed explanations. See reviews in "The Best Texas Instruments Software" by the editors of Consumer Guide and in Aug 83 Home Computer Magazine. Cassette. \$25.
(Dow E/A and PRIMER \$40)

This is a typical customer comment: "Your Editor Assembler and Primer are just great! They have helped me get off the ground in my efforts to learn to program my TI99/4A, was getting nowhere until you came along!" Other customers have said that the Primer enabled them to understand a different introductory assembly language text they had previously purchased.



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 "The Best Texas Instruments Software" by the editors of Consumer Guide, in Jan 83 Home Computer Magazine, and Jun 83 AOPA Pilot. Requires joystick. Cassette. \$30.

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dor's home planet!

Weather Command is probably most appropriate for children over 12 years old. The documentation isn't as thorough as it might have been, so the package is likely to appeal most to those who already know a bit about weather. One of the standard children's books on weather may make it a bit easier and entertaining for young, novice meteorologists.

—TONY MORRIS

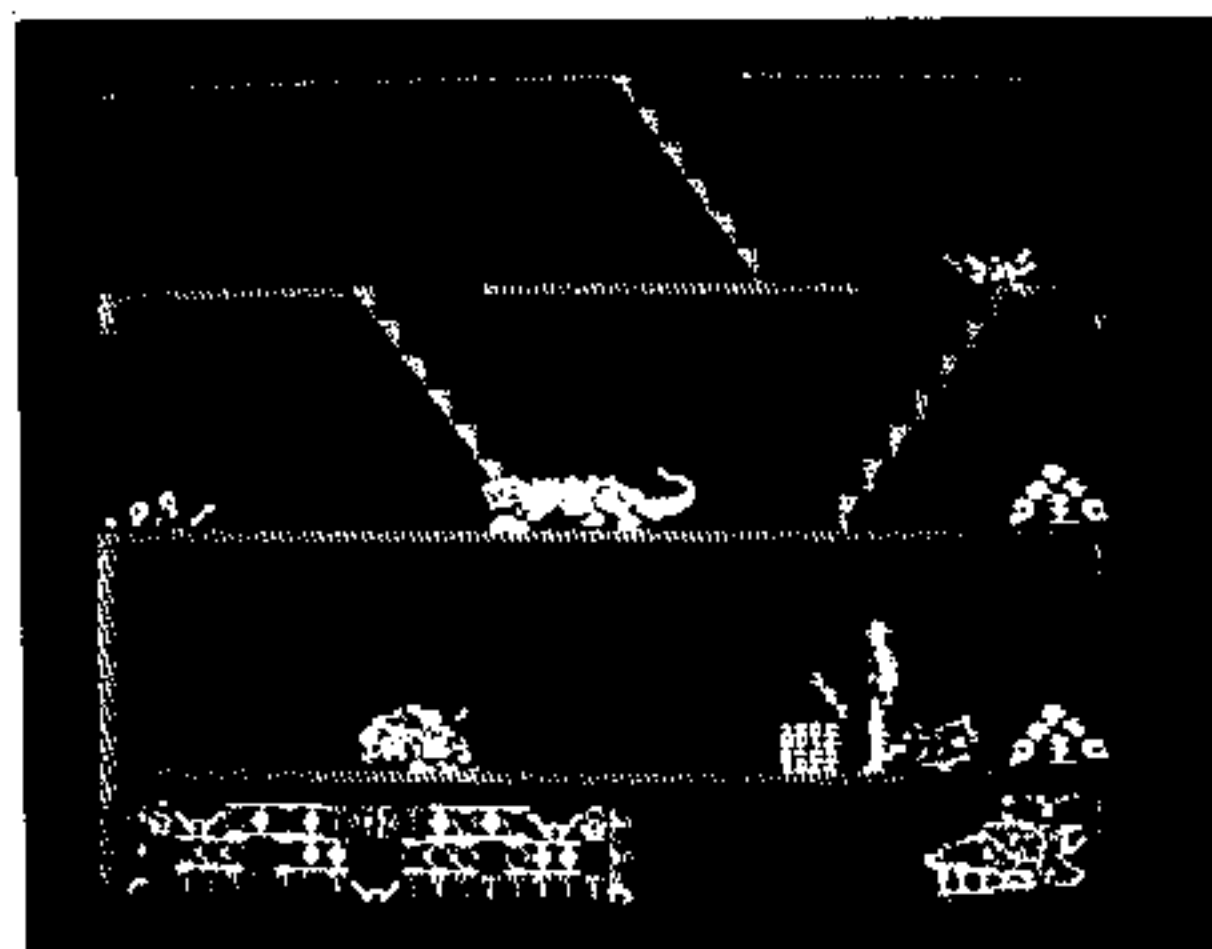
GAMES

Aztec

HARDWARE REQUIREMENTS: Apple II/II plus/IIe, 48K (disk). Also for Commodore 64. Version planned for Atari.

MANUFACTURER: Datamost Inc.

PRICE: \$39.95



So you couldn't make it to see *Indiana Jones and the Temple of Doom*, and the video store's fresh out of *Raiders of the Lost Ark*? You might want to look into *Aztec*, an action/animation adventure game with the most exciting, true-to-life treasure hunting this side of the silver screen.

Though difficult to learn, *Aztec's* play system has one of the most complete control panels for human movement and action I've seen. Your character can walk, run, jump, kneel, crawl, stop, turn right or left, climb, place and light dynamite, open and look into boxes, take their contents, and fight with a pistol or machete (by lunging, slashing, moving right and left, or spinning around in place). It may take a while to master the commands, each triggered by a single key press, but getting there's fun as you pick up ways to map your path through a vast underground labyrinth in search of a golden idol.

In addition to the terrific command system, *Aztec* boasts eight lev-

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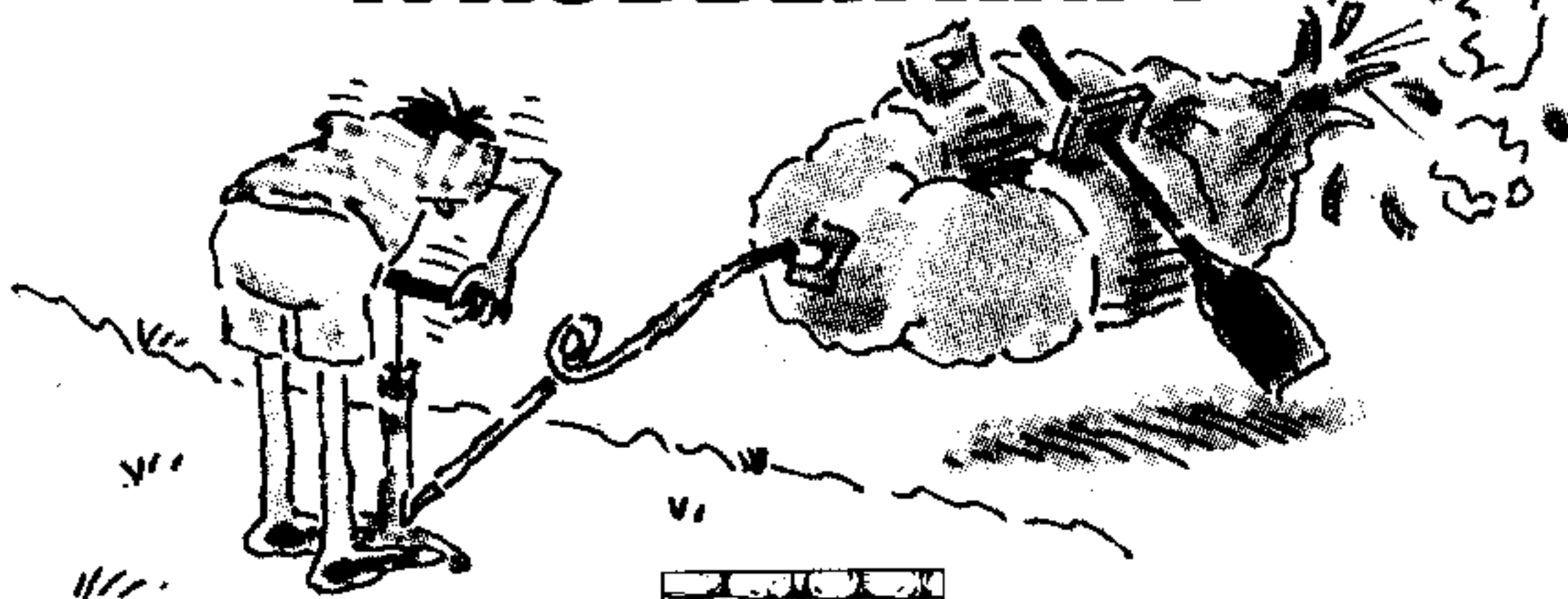
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There's no telling what will happen next in ZORK I—because, like all of Infocom's interactive fiction, ZORK's



designed so that whatever you choose to do makes the next thing happen. And you won't run out of things to do, either. The underground empire of ZORK is so huge, your adventure can last for weeks or even months.

So if you want the closest thing on a disk to really exploring an underground world, get ZORK I*. But brace yourself for the action—it'll blow you away!

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get too far away. This suspenseful sleuth adventure's suitable for ages 8 and up with parental guidance, 12 and up without it. —JAMES DELSON

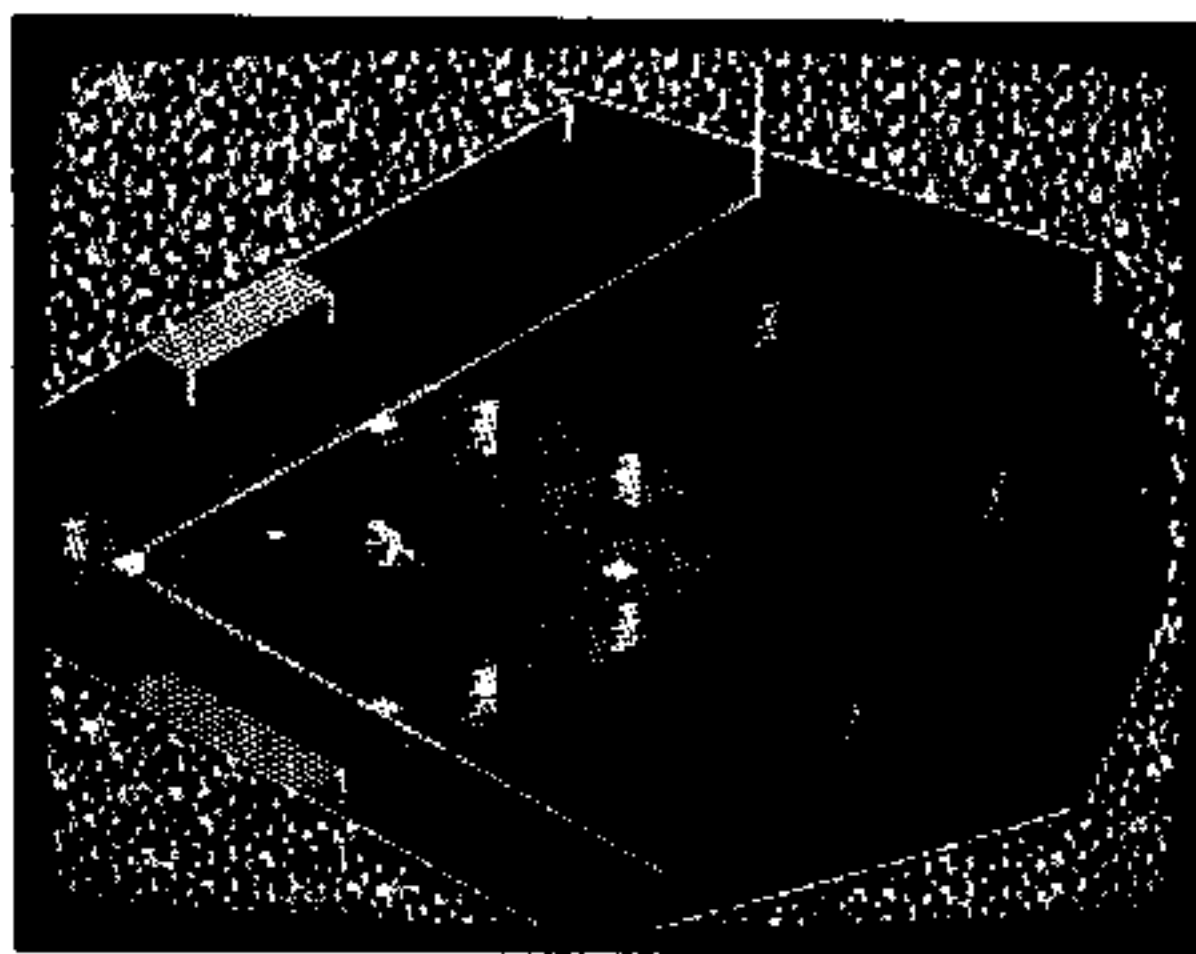
Star League Baseball

HARDWARE REQUIREMENTS: Atari 400/800/XL series, 32K (disk or cassette). Also for Commodore 64. Joystick required. Version planned for Apple.

MANUFACTURER: Gamestar

PRICE: \$31.95 (Atari); \$29.95 (C 64)

Pitchers, batters, and baseball fans of all ages will find this delightful and highly playable arcade/strategy game a lasting entertainment value. Solitaire and two-player versions allow for numerous options. Put together a team from a variety of pitchers and different types of batters (steady hitters versus sluggers). In the field, the joystick control allows the pitcher to throw sizzling fastballs, slow sliders, screwballs, knuckle balls, and more. After the ball's hit, the control switches over to the fielders who catch fly balls and field grounders, and throw to



specified bases.

At bat, you can bunt, hit away, even try to sacrifice. Practice in the pregame warmup helps a great deal. Once on base, the excitement starts. Good players can steal successive bases and, with luck, even go for home (an infrequent occurrence in the real thing, I'm told). Unlike other baseball programs, the nonstop action here makes for exciting play throughout the game.

Baseball fans and nonsportspeople alike found *Star League Baseball* an absorbing and thoroughly entertaining game. Multiplayer games were popular, with three-person

teams taking turns batting and pitching. We even improvised a World Series, which went on for some five hours of exciting play.

This program is exceptionally good for ages 8 and up, though those with good reflexes tended to do better at bat, and those with an eye for strategy were more proficient on the pitcher's mound. —JAMES DELSON

Operation Whirlwind

HARDWARE REQUIREMENTS: Atari 400/800/XL series, 48K (disk). Joystick required. Version planned for Commodore 64.

MANUFACTURER: Broderbund Software
PRICE: \$39.95

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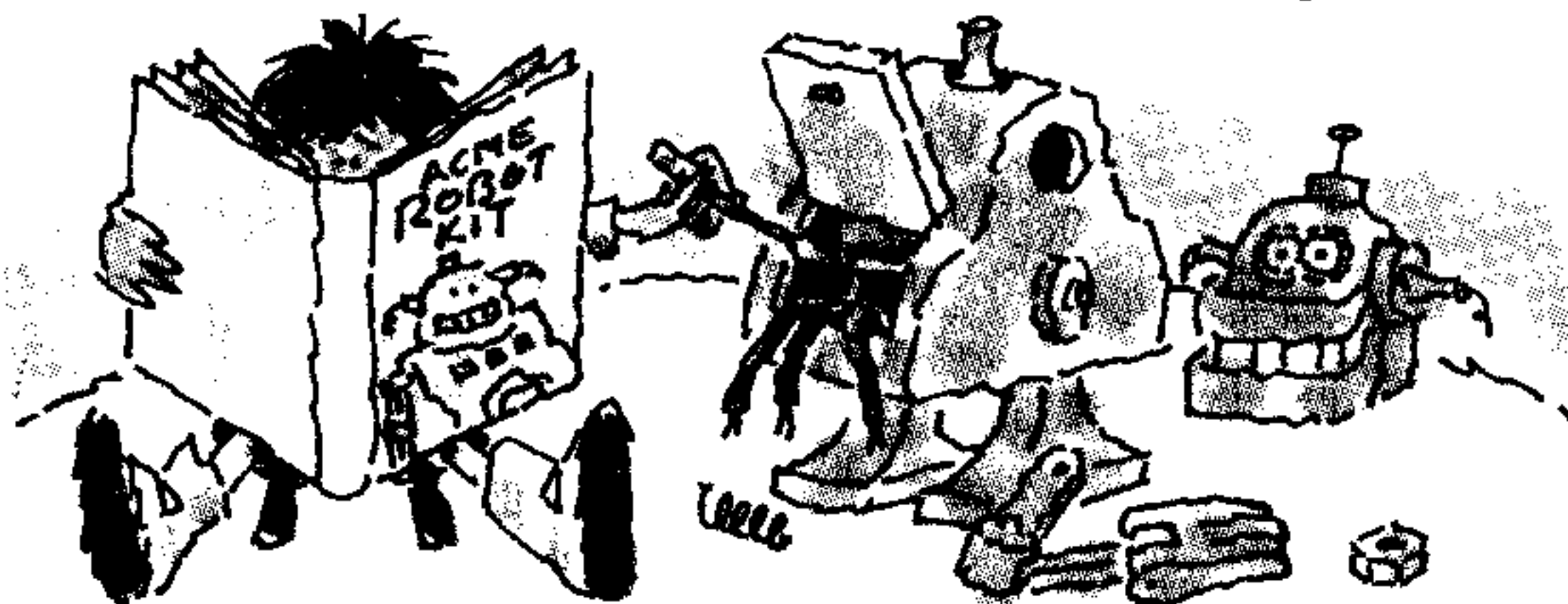
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so that whatever you choose to do affects what will happen next. And there'll be plenty happening—it's an adventure filled with everything from dread diseases to mutant monsters, and it can last for weeks or even months.

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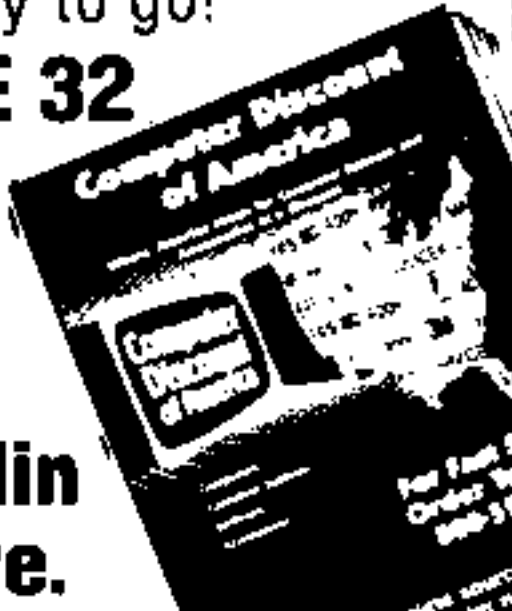
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