

PREVIEW: THE NEW  
COMMODORE PLUS/4

# FAMILY COMPUTING™

## Life with *Bachelor* Father and His Computer: Saving Time and Money

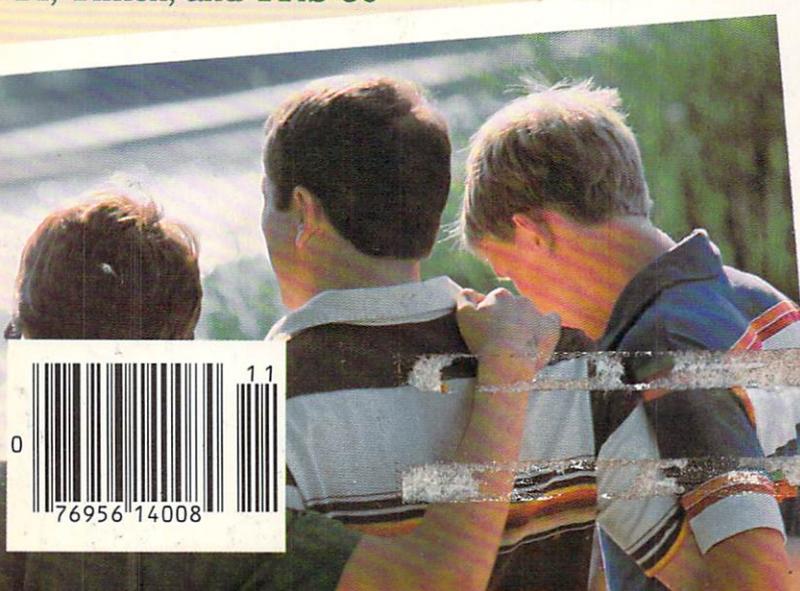


Software to  
Challenge Your  
Children

How to Manage  
Your Money: Q&A  
with Andrew Tobias

Buyer's Guide  
to Monitors

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



# FAMILY COMPUTING

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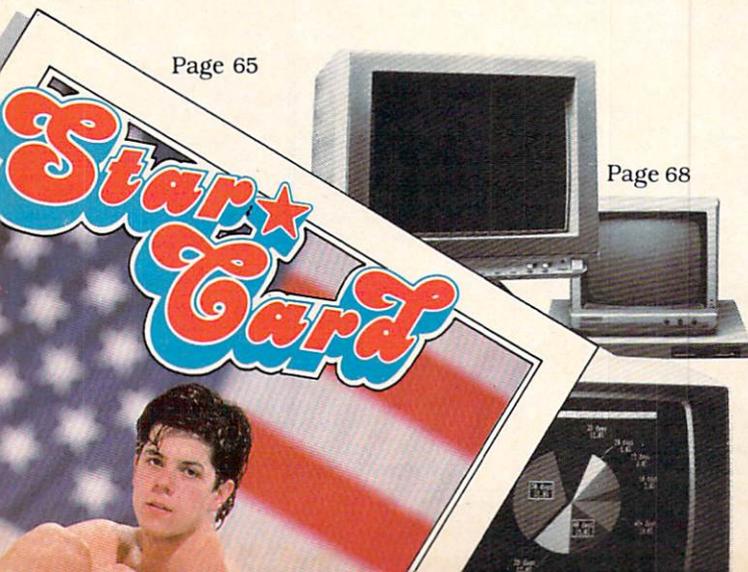
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How about adding a few more? We adapted the *Egg Hunt* to a *Birthday Hunt* for our 13-year-old, substituting gifts, cards, cake, etc. for the eggs.

BETH CLAYTON  
Bondurant, Iowa

EDITOR'S NOTE: Take a look at our review of *Print Shop* in *FAMILY COMPUTING*'s September issue (page 120). And, for information on how to print out your creation, you'll want to watch for our article on graphics software to be published in the December issue. In this issue, check out the *Holiday Update* program on page 76.

### SWEET SOUNDS

In fairness to the consumer, I feel that your "Buyer's Guide to Speech Synthesizers" (August issue) should have included a review of Sweet Micro Systems' *Mockingboard*.

As an owner of one of these synthesizers, I am completely satisfied with its performance. True, a phonic speech method is somewhat difficult to use, but the resulting clarity, expression, vocal deviation, and accu-

racy is well worth the extra time. Besides, it makes the vocabulary virtually endless.

TERRY L. GRAY  
Parachute, Colorado

EDITOR'S NOTE: You're right. We mistakenly overlooked the *Mockingboard*. Because its reputation as a sound synthesizer is so good, we've never tried the speech function! Our apologies.

### SCHOOL CONNECTION

Your magazine is the best! All my friends and I work on Commodore 64s at school, and I have an ADAM at home. *FAMILY COMPUTING* is perfect for us because all of the really great programs are written for the different computers we use. They're so easy to type in, too, because of the excellent way they have been written to save the amount of time we spend typing.

We type in all your programs and show them to our computer teacher. He just loves them and gives us extra credit points! He ordered a subscription to use as a guide to beginning computers next year.

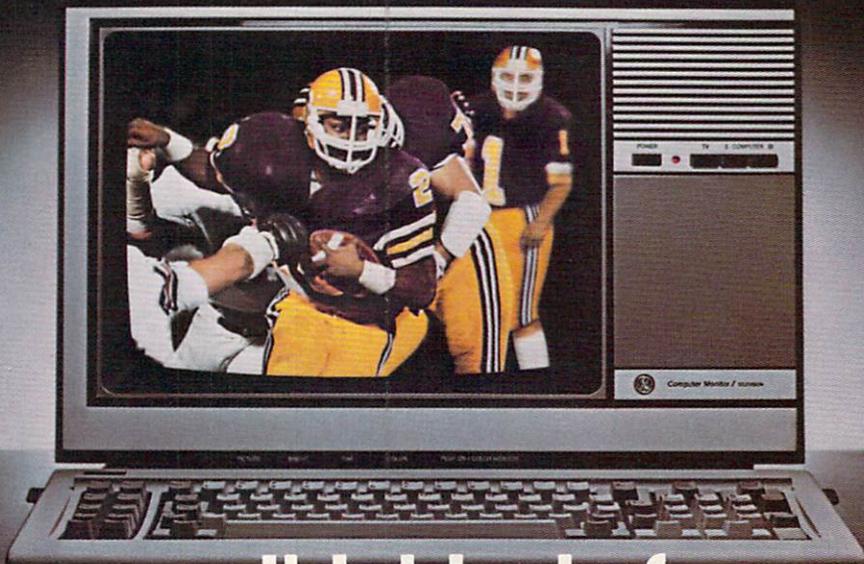
Each month we eagerly await the arrival of your magazine. The programming section is the first thing we turn to, and we devour the products section. It always has lots of awesome programs reviewed, and we save our money to buy the ones you review as the very best.

Your magazine is on the top of the heap right now. Keep it up!

CHRIS ALDRICH, age 12  
BRIAN COWELL, age 12  
BOBBY ANDERSON, age 10  
KEVIN MOE, age 14  
Duluth, Minnesota

I very much enjoyed the Editor's Note in the September issue of *FAMILY COMPUTING* because, as a teacher, September has always meant a new beginning for me, too. Since last September, I have become deeply involved in the computer program at my school. Last spring, I even taught an after-school enrichment program in computers. *FAMILY COMPUTING* was an invaluable source of material for that program.

JOANNE M. CALNAN  
Watertown, Massachusetts



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# COMPUTING CLINIC

## SINGLE- AND DOUBLE-SIDED DISKS • HOT COCO • CARTRIDGES VERSUS DISKS FOR KIDS • HI-RES GRAPHICS

BY JEFFREY BAIRSTOW

### **Will a single-sided disk converted into a double-sided disk hurt the computer, the disk drive, or the disk?**

CHUNG CHOI

*Yorba Linda, California*

I assume you are trying to use both sides of a floppy disk in a computer that has a single-sided disk drive. The second side of a single-sided disk can be used by cutting a new write-protect notch (the small rectangular notch in the side of the disk jacket) and an index hole (the little hole just off center), and flipping the disk over in the drive. This transformation won't hurt the computer or the disk drive, but may damage the disk. It's recommended only as a measure of last resort, or for backups. Single-sided disks are guaranteed to work on only one side; the other side may contain defects that make it impossible to use.

You can also use a single-sided disk in a double-sided drive (such as on the IBM PCjr) without harming anything. But, again, the results may be "iffy."

### **The top of my TRS-80 Color Computer and my Coleco ADAM printer both get hot after a short time of computing. Will this damage anything?**

STEVE BLUM

*Quartz Hill, California*

Most computers do generate some heat in normal operation and are designed to operate this way. A Radio Shack technician suggests, though, that you point a small fan toward the computer's power supply if you notice overheating. It's very important not to cover up any vents on the computer or to pile books or papers on top of the machine. If air cannot circulate around the components inside, heat will build up and could burn out some of your com-

---

JEFFREY BAIRSTOW, a technical journalist who lives in West Redding, Connecticut, was a founder and managing editor of Computer Decisions magazine. He has also taught math and computer science in England. His family, including two preschoolers, uses a variety of computers.

puter's RAM, according to Radio Shack.

### **When buying games and educational software for young children, what are the advantages and disadvantages of disks and cartridges?**

ROBERT J. BOROUGHS

*Reno, Nevada*

In our family, we have a 3-year-old and a 5-year-old who use computers, so my comments are based on their experiences. Both girls prefer to use cartridges because they can insert them directly into the computer (a TI-99/4A) without adult help, and the cartridges are self-loading so the programs can be started easily.

Our older daughter also knows how to use a disk-based computer and can read and type sufficiently well to start a program by herself. Nonetheless, she prefers the cartridges because "they don't mess up." That's to say, errors in typing cause fewer problems. We've never lost a cartridge but we have had disks damaged both electronically and physically.

The major disadvantage to cartridges is that you cannot store data on them, though some cartridge programs allow you to save to cassette or disk.

In all, I'd say that cartridges are distinctly preferable for younger children. The quality of the programs is comparable to disk-based software.

### **Where do programmers get the "I," "J," "K," etc. in statements like: FOR I=1 TO 1000: NEXT I?**

SARAH JONES

*Kankakee, Illinois*

This pair of statements is simply a delay loop that makes the computer count from 1 to 1,000 before going on to the next instruction. "I" is a variable with a beginning value of 1. The NEXT instruction causes "I" to be increased from 1 to 2, and so on. The proper name for this is a FOR . . . NEXT loop, which allows a programmer to specify how many times a series of instructions should be repeated.

The choice of counter ("I" in this case) is often quite arbitrary, so any letter of the alphabet could be used unless that letter is already in use somewhere else in the program.

### **How can I use high-resolution graphics on a Commodore 64?**

DARRELL STRICKLAND

*Maxton, North Carolina*

The Commodore 64 is well-suited to graphics displays. You can use the extended character set that includes built-in graphics characters (the shapes and symbols printed on the front of the keys). For more complex graphics, you can write programs that actually manipulate individual dots on the display screen. This is called "bit-mapped" graphics. And, you can write programs that manipulate sprites.

The extended character set graphics are described in the Commodore 64 manuals, but bit-mapped graphics and sprite manipulation are considerably more difficult. The subject is too complex to go into here; I recommend you read the excellent graphics chapter in *Your Commodore 64*, by John Heilborn and Ron Talbott (Osborne/McGraw-Hill, Berkeley, CA; \$14.95).

### **What binary digits (0s and 1s) represent the characters A-Z and 0-9?**

DAVID YEE

*Cambridge, Massachusetts*

Many books on computer programming list the two most widely used binary representations of letters and digits. The two character sets are ASCII (American Standard Code for Information Interchange) and EBCDIC (Extended Binary Coded Decimal Interchange Code).

Most personal computers use a form of ASCII. EBCDIC is used mainly on IBM mini and mainframe computers. You'll find a full description and listing of both codes in *Webster's NewWorld Dictionary of Computer Terms*, Simon and Schuster (New York), \$5.95. And most microcomputer manuals list that computer's particular ASCII code.



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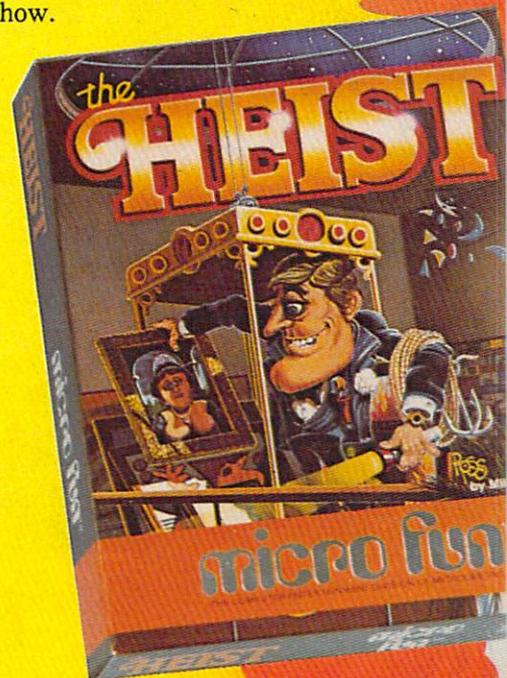
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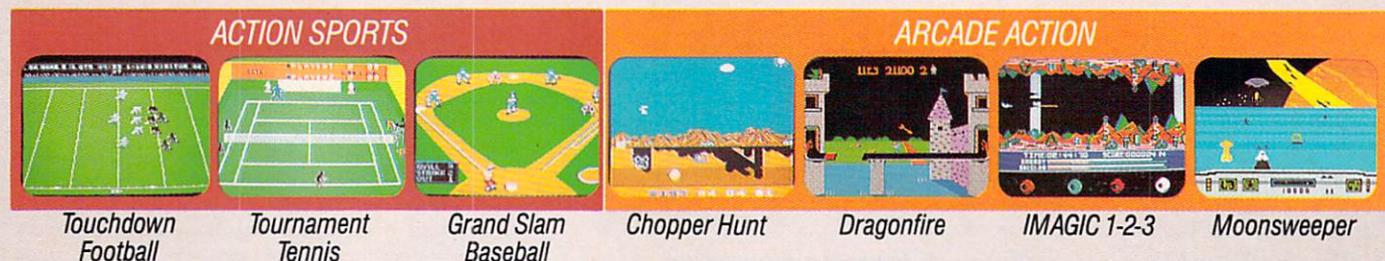
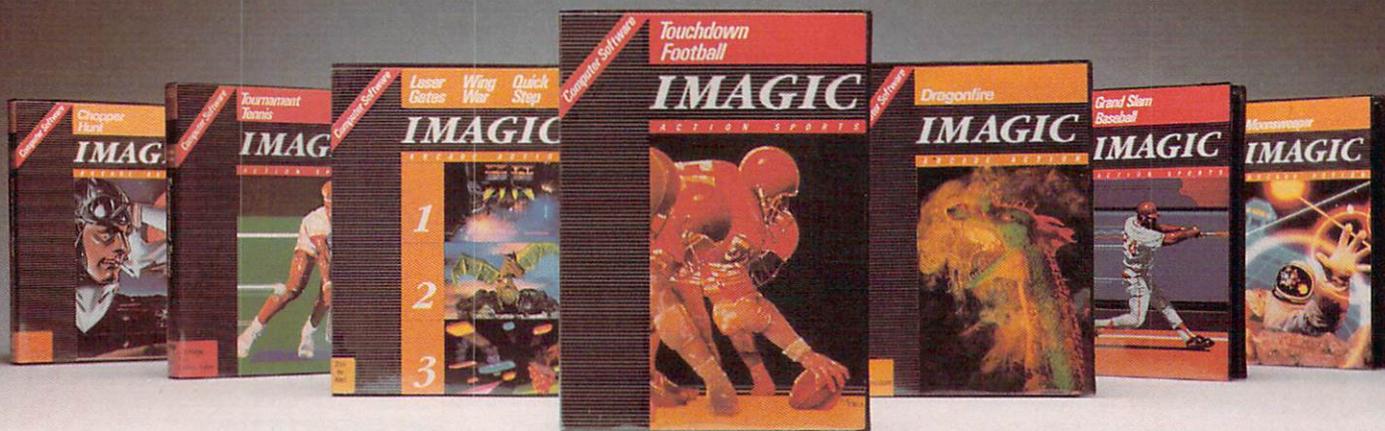
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# IMAGIC

**HOLIDAY UPDATE**

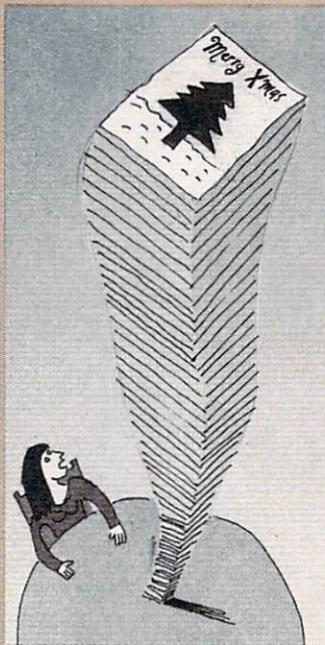
BY JOEY LATIMER

Christmas is just around the corner, but is your stack of unsigned cards still leaning over on your desk like the Tower of Pisa? Do you wring your hands and sigh as you wonder where you'll get the time to jot a personal note in each? After all, you haven't seen the Kendalls or the Smiths in over a year, and they'd love to hear what's new with your family.

Now your computer can help ease your workload with this personalized year-end summary note that can be inserted into your holiday card or mailed separately. All you have to do is hook up your printer, RUN the program, and enter some information.

Each member of your family (12 maximum) will be asked to input their most unusual, difficult, rewarding, and pleasurable experiences of 1984. Then you'll be asked to specify the holiday (Christmas, Chanukah, etc.) and, last of all, to type in the name of the note's recipient. Position your printer to start printing at the top of the page and press "P" to print the note. You can print as many copies as you wish, naming a new recipient each time. When you've finished, press "Q" to quit, and head for the nearest mailbox!

Version notes: As shown



here, *Holiday Update* will center your message vertically on standard 8½-inch × 11-inch paper, which is 66 lines deep. Depending on the number of lines in your message, you may be able to modify the program to use paper of a different length by changing the value of variable "s" (set initially to 66) in line 30. Try changing "s" to 48 so that the program works with 5-inch × 8-inch paper, or experiment with different settings of your own.

The TI-99/4A version of *Holiday Update* is set up to work with a parallel printer. If you have a serial printer, change line 590 to read OPEN #1: "RS232".

**ADAM & Apple/Holiday Update**

```

10 HOME
30 S = 66
40 PRINT "*HOLIDAY UPDATE*"
50 PRINT
60 PRINT "PLEASE ANSWER THE QUESTIONS."
70 PRINT "PRESS <RETURN> AFTER"
80 PRINT "EACH REPLY."
90 PRINT
100 INPUT "WHAT IS YOUR LAST NAME?";NS
110 PRINT
120 PRINT "HOW MANY PEOPLE AND PETS ARE"
130 PRINT "IN THE ";NS;" FAMILY";
140 INPUT HM
150 IF HM > 12 THEN PRINT "I CAN ONLY HANDLE 12 NAMES
.":GOTO 110

```

```

160 DIM P$(HM),L$(HM,4)
170 PRINT
180 PRINT "ENTER THE NAME OF EACH"
190 PRINT NS;" FAMILY MEMBER. IF IT'S"
200 PRINT "A PET, BE SURE TO SAY"
210 PRINT "WHAT KIND (E.G., RAGS THE DOG)."

```

## AUTUMN PROGRAMS

```

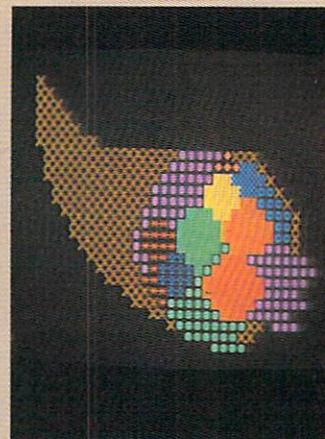
IF IT'S"
160 PRINT "A PET, BE SURE TO SAY WHAT KIND (E.G., RAGS
THE DOG)."
170 PRINT
180 FOR X=1 TO HM
190 PRINT NS;" #";X;
200 INPUT PS(X)
210 NEXT X
220 FOR T=1 TO 4
230 READ TS
240 FOR X=1 TO HM
250 CLS
260 PRINT "IN ONE SCREEN LINE OR LESS, DESCRIBE THE MO
ST ";TS
270 PRINT "THING THAT ";PS(X);" DID IN 1984. PRESS <E
NTER> WHEN DONE."
280 PRINT
290 PRINT PS(X);" ";
300 INPUT LS(X,T)
310 NEXT X,T
320 CLS
330 PRINT "WHAT IS THE HOLIDAY (E.G., CHRISTMAS)?"
340 PRINT
350 INPUT "THE HOLIDAY IS ";HS
360 PRINT
370 INPUT "WHO IS THIS NOTE FOR (E.G., SMITH FAMILY, D
EBBIE)";FS
380 CLS
390 PRINT "WHEN YOUR PRINTER IS READY, PLEASE PRESS AN
Y KEY."
400 KS=INKEY$
410 IF KS="" THEN 400
420 FOR X=1 TO (S-14-HM*4)/2
430 LPRINT
440 NEXT X
450 LPRINT "DEAR ";FS;" ,"
460 LPRINT
470 LPRINT "HERE'S A LIST TO TELL YOU MORE"
480 LPRINT "OF WHAT WE DID IN '84:"
490 LPRINT
500 LPRINT
510 FOR T=1 TO 4
520 FOR X=1 TO HM
530 LPRINT PS(X);" ";LS(X,T)
540 NEXT X,T
550 LPRINT
560 LPRINT
570 LPRINT "HAVE A WONDERFUL ";HS;" HOLIDAY!"
580 LPRINT
590 LPRINT
600 LPRINT "LOVE,"
610 LPRINT
620 LPRINT TAB(3);"THE ";NS;" FAMILY"
630 FOR X=1 TO (S-14-HM*4)/2
640 LPRINT
650 NEXT X
660 CLS
670 PRINT "PRESS <Q> TO QUIT OR <P> TO PRINT ANOTHER N
OTE."
680 KS=INKEY$
690 IF KS="Q" OR KS="q" THEN CLS:END
700 IF KS="P" OR KS="p" THEN CLS:GOTO 370
710 GOTO 680
1000 DATA UNUSUAL,DIFFICULT,REWARDING,PLEASURABLE

```

## CORNUCOPIA

BY JOEY LATIMER

While you're decorating the house this Thanksgiving in preparation for the relatives' arrival, don't overlook your computer! After you've hung the dried corn ears on the front door and created a table centerpiece of pumpkins and gourds, RUN this program and watch that age-old symbol of abundance, the cornucopia, appear on your screen, overflowing with autumn fruits and vegetables!



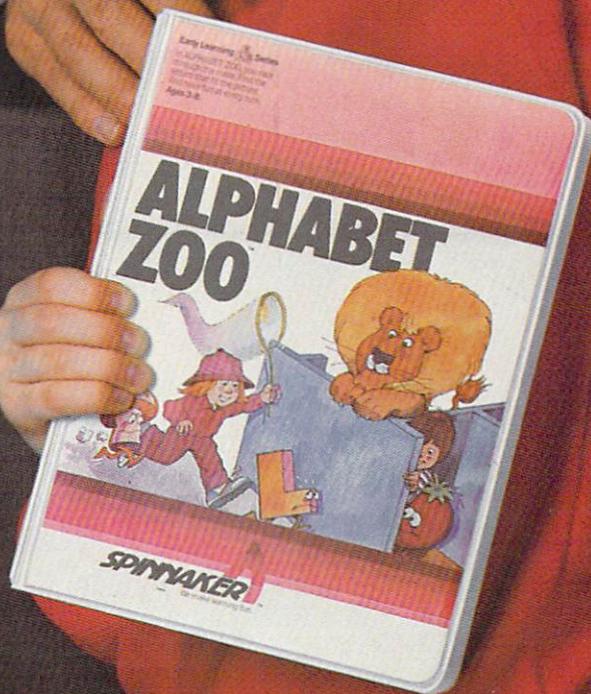
Commodore 64 version of Cornucopia.

### ADAM & Apple/Cornucopia

```

9 REM ---CLEAR SCREEN AND SET FOR GRAPHICS---
10 HOME
20 GR
29 REM --DRAW LARGE, REGULAR AREAS OF PICTURE--
30 FOR X = 1 TO 10
40 READ KO,F,T
50 COLOR= KO
60 FOR RO = F TO T
70 READ A,B
80 HLINE A,B AT RO
90 NEXT RO,X
99 REM --DRAW DETAILED AND IRREGULAR PARTS--
100 FOR X = 1 TO 3
110 READ KO,T
120 COLOR= KO
130 FOR Y = 1 TO T
140 READ CO,RO
150 PLOT CO,RO
160 NEXT Y,X
170 GOTO 170
1000 DATA 13,1,33,3,3,3,4,3,5,3,6,3,7,3,8,3,9
1010 DATA 3,10,4,11,4,12,4,14,4,17,4,26,5,27
1020 DATA 5,28,5,29,6,30,6,31,7,31,7,32,7,32
1030 DATA 8,32,8,32,9,32,9,32,10,31,10,31,11,31
1040 DATA 12,17,13,17,15,17,16,19,18,26
1050 DATA 1,14,34,21,23,20,22,19,22,18,21
1060 DATA 17,19,17,18,16,17,16,17,16,23
1070 DATA 16,23,16,24,16,24,17,25,17,26
1080 DATA 17,26,18,26,18,26,18,25,20,25
1090 DATA 21,24,22,23
1100 DATA 12,14,22,24,26,23,27,23,28,22,29
1110 DATA 22,28,23,27,24,28,24,27,24,25
1120 DATA 3,20,35,31,31,28,31,26,31,24,31
1130 DATA 25,31,25,31,26,30,27,30,27,30
1140 DATA 27,31,27,32,26,31,26,32,27,31,28,30
1150 DATA 29,29,11,18,23,20,21,19,22,18,23,18,23,19
1160 DATA 22,20,21,3,24,26,18,19,17,20,18,19
1170 DATA 13,16,19,25,26,24,27,24,27,25,26
1180 DATA 11,18,20,29,30,28,30,29,30
1190 DATA 9,22,25,27,28,26,29,26,29,27,28
1200 DATA 12,26,31,22,24,21,25,21,25,21,25,22
1210 DATA 24,23,23,2,21,27,27,29,28,27,29,28
1220 DATA 30,30,30,26,31,31,31,28,32,30,33
1230 DATA 33,33,28,34,31,35,29,21,31,21,24
1240 DATA 23,30,23,25,25,31,25,29,26,33,36,28,37
1250 DATA 3,5,35,35,27,36,32,36,30,37,32,38
1260 DATA 9,13,17,27,18,29,20,29,19,31,21,30
1270 DATA 21,32,23,33,22,34,24,35,23,36,21,36
1280 DATA 25,37,16,23

```



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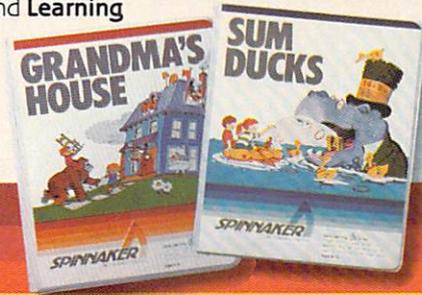
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# THE CASE OF THE MISSING LAPIS LAZULI

## Can You Solve The Mystery?

**PUZZLE BY PETER FAVARO**

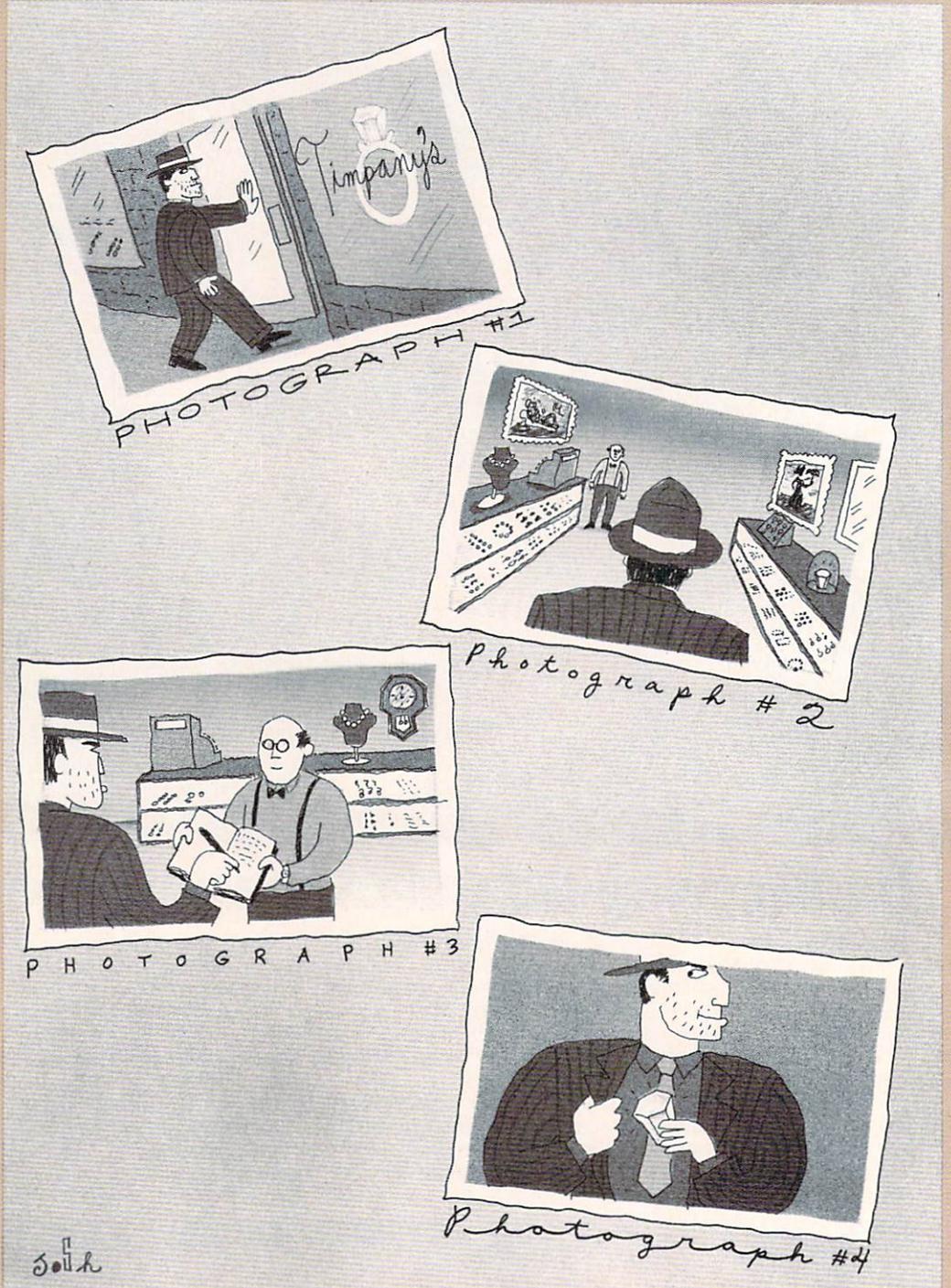
**PROGRAM BY STEVEN C.M. CHEN**

Savoring her latest victory, Lynette Leighton leaned back in her chair long enough for a fresh wisp of perfume to sweeten the air in her musty office. As the saying goes, Lynette had legs that went from here to there and back again. Her large black eyes sparkled as bright as the stolen stones she was hired to recover.

There was a quick knock on the glass door that read "Lynette Leighton, Private Eye—Specializing In Rare Gem Thefts." Lynette's protege, James, walked into the office with his usual aplomb, spilling the contents of his coffee cup all over his shoes. Half out of breath, James said with some urgency that Lynette was being called out of town on another case by a wealthy diamond merchant in Geneva, Switzerland. Lynette nodded toward the folder of photographs on her desk, and asked James if he could manage to close up the Larson case.

"No problem," said James as he deftly caught his cuff link in the drawer of Lynette's desk, cleanly removing his shirt sleeve from his arm and emptying the contents of her desk onto the floor in one swift move.

The Larson case had gone off as smooth as silk. Frank ("Fingers") Larson, alias Louis ("Lefty") Bourgenion, was a high-class jewel thief who had always eluded Lynette. That morn-



ing, shortly after 9 a.m., Lynette had dressed as a wealthy, camera-laden tourist and trailed Fingers. This time she had him nailed, with two crisp shots of Fingers entering

Timpany's jewelry store, one of him signing the guest book with an assumed name, and another of him slipping the flawless 29-carat lapis lazuli into his jacket.

**LATER THAT DAY ...**

When James arrived at the police station with the evidence, Fingers snickered and said, "I got an alibi. See what da clock sez in dese photos? I wuz on a

PETER FAVARO, PH.D., is a contributing editor to FAMILY COMPUTING. His inspiration for this puzzle came from the dinner table stories told by his father, a retired New York City detective. STEVEN C.M. CHEN is a contributing technical editor to FAMILY COMPUTING.

plane goin' to visit my poor sick auntie in Florida and I got da ticket to prove it."

Sure enough, Fingers' story checked out. There was no way he could have been in two places at once. Fingers offered: "Maybe dere's two people in dis world as handsome as me, heh, heh."

The authorities had no choice but to release Fingers in 24 hours, since they hadn't actually caught him with the lapis lazuli in hand. James could hardly fathom the notion that Lynette might have slipped up. He was so stymied he drove directly into an open manhole on his way back from the police station.

Back in the office, James tried reaching Lynette in Geneva—to no avail. By the time she returned the next day, Fingers would be released. This was one case James would have to solve

by himself. His only hope was to reexamine the photographs for some clue that would place Fingers at the scene of the crime at the correct time.

#### HOW TO PLAY

Set your computer to all uppercase letters before running the program. Use your computer as a magnifying glass. First select photograph 1, 2, 3, or 4, and then type in the name of the object you would like to examine more closely.

To examine another object in a photograph, type "E." To select a new photograph, type "S." The computer will supply you with only one piece of evidence that is crucial to solving the mystery.

When you are ready to guess, type "G." If you guess incorrectly, type "H" for help. The solution will appear next month.

#### Base Version (TRS-80 Color Computer)/The Missing Lapis Lazuli

```
10 CLEAR 900: DIM ES(11): WL=32: WX=6: TRU=-1: TL=0: CLS
20 FOR I=1 TO 11: D$="": READ A: FOR J=1 TO A: READ TS
30 C=ASC(LEFT$(TS,1))-64: FOR Z=2 TO LEN(TS)
40 N=ASC(MID$(TS,Z,1))-C: IF N+C<65 THEN 60
50 Y=N+TRU*26*(N<65): GOTO 70
60 Y=N+TRU*33*(N<32)
70 D$=D$+CHR$(Y): NEXT Z: D$=D$+" ": NEXT J
80 ES(I)=LEFT$(D$,LEN(D$)-1): NEXT I
90 CLS: RS="CHOOSE THE PICTURE YOU WOULD"
100 RS=RS+" LIKE TO EXAMINE (1, 2, 3, OR 4). "
110 GOSUB 1000: PRINT: PRINT "NUMBER? ";
120 PS=INKEY$: IF PS<"1" OR PS>"4" THEN 120
130 CLS: NS="PICTURE #": PS=GOSUB 2000: PRINT: PRINT
140 RS="WHAT OBJECT WOULD YOU LIKE TO EXAMINE?"
150 GOSUB 1000: PRINT: INPUT "THE"; SS: IF SS="" THEN 130
160 CLS: IF PS<>CHR$(51) THEN 190
170 IF SS<>ES(5) AND SS<>ES(6) AND SS<>ES(7) THEN 190
180 RS="THE "+SS+" SAYS "+ES(8): GOTO 210
190 I=RND(4)
200 RS=ES(I)+" THE "+SS+"! YOU'D BETTER LOOK ELSEWHERE "
210 GOSUB 1000: GOSUB 3000: RS="PRESS <E> TO EXAMINE"
220 RS=RS+" THIS PHOTO AGAIN; <S> TO SELECT A NEW"
230 RS=RS+" PHOTO; OR <G> TO GUESS.": GOSUB 1000
240 KS=INKEY$: IF KS="S" THEN 90
250 IF KS="E" THEN 130
260 IF KS">"G" THEN 240
270 CLS: RS="WHAT IMPORTANT OBJECT DID JAMES FAIL"
280 RS=RS+" TO TAKE INTO CONSIDERATION?": GOSUB 1000
290 PRINT: INPUT "THE"; TS: IF TS="" THEN 270
300 CLS: IF TS=ES(9) THEN RS=ES(10): GOSUB 1000: END
310 NS="WRONG!": GOSUB 2000: GOSUB 3000
320 RS="PRESS <S> TO SELECT A PHOTO OR"
330 RS=RS+" <H> FOR HELP.": GOSUB 1000
340 KS=INKEY$: IF KS="S" THEN 90
350 IF KS">"H" THEN 340
360 CLS: RS=ES(11): GOSUB 1000: GOSUB 3000
```

```
370 RS="PRESS ANY KEY TO CONTINUE.": GOSUB 1000
380 KS=INKEY$: IF KS="" THEN 380 ELSE 90
1000 IF LEN(RS)<=WL THEN NS=RS: GOSUB 2000: RETURN
1010 J=WL+1: K=1: FOR I=WL+1 TO 2 STEP -1
1020 IF MID$(RS,I,1)=" " THEN K=0: J=I: I=I-1
1030 NEXT I: NS=LEFT$(RS,J-1): GOSUB 2000
1040 RS=RIGHT$(RS,LEN(RS)-J+K): GOTO 1000
2000 IF LEN(NS)=WL THEN PRINT NS: RETURN
2010 PRINT TAB((WL-LEN(NS))/2+TL); NS: RETURN
3000 FOR I=1 TO WX: PRINT: NEXT I: RETURN
4000 DATA 3, THINBCHA, BURGEKCN, TUVION, 4, CWKHUH*V
4010 DATA MABGUVAT, SYBLAR, GHIVBA, 5, MLBH4ER, KHLDEYR
4020 DATA NMCIF, NHWAS, KHTES, 5, PIXUHBSA, FNURSKY
4030 DATA MJBHYQA4G, SUX, CHADPLQLQJ, 1, MPYBPX, 1, DAEXGL
4040 DATA 1, BYTKUVYCVJE, 1, C5=7<1, 1, MZVEEBE, 15
4050 DATA DGSVVIGX, AQIPUP, J=, LIME, GAHRLU, IRW, SMAX
4060 DATA DGMVVS2, FZNK, SATGWL, MBA, KESP, TWFIWE, HIZM
4070 DATA CUHYHUVHG1, 4, MERSYRPG, LAZ, TNBY, IBLNWN7
```

#### Atari/The Missing Lapis Lazuli

```
10 DIM D$(11), ES(245), TS(11), NS(150), PE(12), CL$(1), RS(150), S$(100): CLS=CHR$(125): POKE 82,0: OPEN #1,4,0,"K:"
20 PRINT CLS; : FOR I=1 TO 11: NS="" : READ A: FOR J=1 TO A: READ D$
30 C=ASC(D$)-64: FOR Z=2 TO LEN(D$)
40 N=ASC(D$(Z))-C: IF N+C<65 THEN 60
50 Y=N+26*(N<65): GOTO 70
60 Y=N+33*(N<32)
70 NS(LEN(NS)+1)=CHR$(Y): NEXT Z: NS(LEN(NS)+1)=" ": NEXT J: T=LEN(ES)+1: PE(I)=T
80 ES(T)=NS(1,LEN(NS)-1): NEXT I: PE(12)=LEN(ES)+1
90 PRINT CLS; : RS="CHOOSE THE PICTURE YOU WOULD LIKE TO EXAMINE (1, 2, 3, OR 4). "
100 GOSUB 1000: PRINT: PRINT "NUMBER? ";
110 GET #1, P: P=P-48: IF P<1 OR P>4 THEN 110
120 PRINT CLS; : NS="PICTURE #": NS(10)=STR$(P): GOSUB 2000: PRINT: PRINT
130 RS="WHAT OBJECT WOULD YOU LIKE TO EXAMINE?"
140 GOSUB 1000: PRINT: PRINT "THE"; : INPUT SS: IF SS="" THEN 120
150 PRINT CLS; : IF P<>3 THEN 190
160 IF SS<>ES(PE(5),PE(6)-1) AND SS<>ES(PE(6),PE(7)-1) AND SS<>ES(PE(7),PE(8)-1) THEN 190
170 RS="THE ": RS(5)=SS: RS(LEN(RS)+1)=" SAYS "
180 RS(LEN(RS)+1)=ES(PE(8),PE(9)-1): GOTO 210
190 I=INT(RND(0)*4)+1
200 RS=ES(PE(I),PE(I+1)-1): RS(LEN(RS)+1)=" THE ": RS(LEN(RS)+1)=SS: RS(LEN(RS)+1)="! YOU'D BETTER LOOK ELSEWHERE. "
210 GOSUB 1000: GOSUB 3000: RS="PRESS <E> TO EXAMINE THIS PHOTO AGAIN; <S> TO SELECT A NEW PHOTO"
220 RS(LEN(RS)+1)=""; OR <G> TO GUESS.": GOSUB 1000
230 GET #1, K: IF K=83 THEN 90
240 IF K=69 THEN 120
250 IF K<>71 THEN 230
260 PRINT CLS; : RS="WHAT IMPORTANT OBJECT DID JAMES FAIL TO TAKE INTO CONSIDERATION?": GOSUB 1000
270 PRINT: PRINT "THE"; : INPUT TS: IF TS="" THEN 260
280 PRINT CLS; : IF TS=ES(PE(9),PE(10)-1) THEN RS=ES(PE(10),PE(11)-1): GOSUB 1000: END
290 NS="WRONG!": GOSUB 2000: GOSUB 3000
300 RS="PRESS <S> TO SELECT A PHOTO OR <H> FOR HELP.": GOSUB 1000
310 GET #1, K: IF K=83 THEN 90
320 IF K<>72 THEN 310
330 PRINT CLS; : RS=ES(PE(11),PE(12)-1): GOSUB 1000: GOSUB 3000
340 NS="PRESS ANY KEY TO CONTINUE.": GOSUB 2000
350 GET #1, K: ON K=155 GOTO 350: GOTO 90
1000 IF LEN(RS)<=40 THEN NS=RS: GOSUB 2000: RETURN
1010 J=41: K=1: FOR I=41 TO 2 STEP -1
1020 IF RS(I,I)=" " THEN K=0: J=I: I=I-
```

## PUZZLE

```

1030 NEXT I:R$=R$(J-1):GOSUB 2000
1040 R$=R$(J-K+1,LEN(R$)):GOTO 1000
2000 IF LEN(NS)=40 THEN PRINT NS$:RETURN
2010 POKE 85,INT((40-LEN(NS))/2):PRINT NS$:RETURN
3000 FOR I=1 TO 10:PRINT :NEXT I:RETURN
4000 DATA 3,THINBCHA,BURGEKCN,TUVION,4,CWKHUH*V
4010 DATA MABGUVAT,SYBLAR,GHIVBA,5,MLBH4ER,KHLDETYR
4020 DATA NMCIF,NHWAS,KHTES,5,PIXUHBSA,FNURSKY
4030 DATA MJBHYQA4G,SUX,CHADPLQLQJ,1,MPYBPX,1,DAEXGL
4040 DATA 1,BYTKUVYCVJEJ,1,C5=7<1,1,MZVEEBE,15
4050 DATA DGSVVIGX%,AQIPUP,J=LIME,GAHRLU,IRW,SMAX
4060 DATA DQMVVSV2,FZNK,SATGWL,MBA,KESP,TWFIWE,HIZM
4070 DATA CUHYHUVHG1,4,MERSYRPG,LAZ,TNBY,IBLNWN7

```

### TI-99/4A/The Missing Lapis Lazuli

```

10 RANDOMIZE
20 DIM E$(11)
30 CALL CLEAR
40 FOR I=1 TO 11
50 D$=""
60 READ A
70 FOR J=1 TO A
80 READ T$
90 C=ASC(SEG$(T$,1,1))-64
100 FOR Z=2 TO LEN(T$)
110 N=ASC(SEG$(T$,Z,1))-C
120 IF N+C<65 THEN 150
130 Y=N-26*(N<65)
140 GOTO 160
150 Y=N-33*(N<32)
160 D$=D$&CHR$(Y)
170 NEXT Z
180 D$=D$&" "
190 NEXT J
200 E$(I)=SEG$(D$,1,LEN(D$)-1)
210 NEXT I
220 R$="CHOOSE THE PICTURE YOU WOULD LIKE TO EXAMINE (
1, 2, 3, OR 4). "
230 GOSUB 1000
240 PRINT "NUMBER? ";
250 CALL KEY(3,P,S)
260 IF (P<49)+(P>52) THEN 250
270 R$="PICTURE #"&CHR$(P)
280 GOSUB 1000
290 PRINT : "WHAT OBJECT WOULD YOU LIKE"
300 PRINT TAB(8); "TO EXAMINE?"
310 PRINT
320 INPUT "THE ":S$
330 IF S$="" THEN 270
340 IF P<>51 THEN 380
350 IF (S$<>E$(5))*(S$<>E$(6))*(S$<>E$(7)) THEN 380
360 R$="THE "&S$&" SAYS "&E$(8)
370 GOTO 390
380 R$=E$(INT(RND*4)+1)&" THE "&S$&"! YOU'D BETTER LOO
K ELSEWHERE."
390 GOSUB 1000
400 GOSUB 3000
410 PRINT "PRESS <E> TO EXAMINE THIS": "PHOTO AGAIN; <S
> TO SELECT A": " NEW PHOTO; OR <G> TO GUESS."
420 CALL KEY(3,K,S)
430 IF K=83 THEN 220
440 IF K=69 THEN 270
450 IF K<>71 THEN 420
460 R$="WHAT IMPORTANT OBJECT DID JAMES FAIL TO TAKE I
NTO CONSIDERATION?"
470 GOSUB 1000
480 INPUT "THE ":T$
490 IF T$="" THEN 460
500 IF T$<>E$(9) THEN 540
510 R$=E$(10)
520 GOSUB 1000
530 END

```

```

540 R$="WRONG!"
550 GOSUB 1000
560 GOSUB 3000
570 PRINT "PRESS <S> TO SELECT A PHOTO OR <H> FOR HELP
"
580 CALL KEY(3,K,S)
590 IF K=83 THEN 220
600 IF K<>72 THEN 580
610 R$=E$(11)
620 GOSUB 1000
630 GOSUB 3000
640 PRINT "PRESS ANY KEY TO CONTINUE."
650 CALL KEY(3,K,S)
660 IF S=0 THEN 650 ELSE 220
1000 CALL CLEAR
1010 IF LEN(R$)>28 THEN 1060
1020 N$=R$
1030 GOSUB 2000
1040 PRINT
1050 RETURN
1060 J=29
1070 K=1
1080 FOR I=29 TO 2 STEP -1
1090 IF SEG$(R$,I,1)<>" " THEN 1130
1100 K=0
1110 J=I
1120 I=1
1130 NEXT I
1140 N$=SEG$(R$,1,J-1)
1150 GOSUB 2000
1160 R$=SEG$(R$,J-K+1,LEN(R$)-J+K)
1170 GOTO 1010
2000 PRINT TAB((28-LEN(NS))/2);NS;
2010 IF LEN(NS)=28 THEN 2030
2020 PRINT
2030 RETURN
3000 FOR I=1 TO 7
3010 PRINT
3020 NEXT I
3030 RETURN
4000 DATA 3,THINBCHA,BURGEKCN,TUVION,4,CWKHUH*V
4010 DATA MABGUVAT,SYBLAR,GHIVBA,5,MLBH4ER,KHLDETYR
4020 DATA NMCIF,NHWAS,KHTES,5,PIXUHBSA,FNURSKY
4030 DATA MJBHYQA4G,SUX,CHADPLQLQJ,1,MPYBPX,1,DAEXGL
4040 DATA 1,BYTKUVYCVJEJ,1,C5=7<1,1,MZVEEBE,15
4050 DATA DGSVVIGX%,AQIPUP,J=LIME,GAHRLU,IRW,SMAX
4060 DATA DQMVVSV2,FZNK,SATGWL,MBA,KESP,TWFIWE,HIZM
4070 DATA CUHYHUVHG1,4,MERSYRPG,LAZ,TNBY,IBLNWN7

```

### MODIFICATIONS FOR OTHER COMPUTERS

#### ADAM & Apple/The Missing Lapis Lazuli

Use the base version, with the following alterations:  
Change CLS to HOME in lines 90, 130, 160, 270, 300, and 360.

Change lines 120, 150, 190, 240, 290, 340, and 380 to read as follows:

```

120 GET P$:IF P$<"1" OR P$>"4" THEN 120
150 GOSUB 1000:PRINT:INPUT "THE ";S$:IF S$="" THEN 130
190 I=RND(1)*4+1
240 GET K$:IF K$="S" THEN 90
290 PRINT:INPUT "THE ";T$:IF T$="" THEN 270
340 GET K$:IF K$="S" THEN 90
380 GET K$:GOTO 90

```

Finally, if you have an ADAM, change line 10 to read

```
10 DIM e$(11):wL=31:wx=9:tru=1:tl=1:HOME
```

If you have an Apple, change line 10 to read

```
10 DIM E$(11):wL=40:wx=10:tru=1:tl=1:HOME
```

# WHAT'S IN STORE SOFTWARE GUIDE

## QUICK TAKES ON SOFTWARE— NEW AND NOTEWORTHY

Welcome to FAMILY COMPUTING's Software Guide, the most comprehensive listing available of two dozen of the newest, most noteworthy and/or best programs on the market. Our reviewers include families from all over the country who have judged the software according to the following criteria: long-term benefits and applications, adaptability, and advantages of using a computer for a given task. Programs have been evaluated and rated for their performance in each of the categories listed below. More detailed reviews follow the chart.

Here's a rundown of the rating categories and what they mean: **●** = Overall performance, given the limitations and capacities of the particular computer for which the software is intended. **D** = Documentation, or the instructions and literature that accompany a program. **EH** = Error-handling, the software's capacity to accommodate errors made by the user—an especially important consideration with software for younger users. **PS** = Play system, in the games reviews, the quality of the game design and the game's playability. **GQ** = Graphics quality, also evaluated in light of each particular brand's graphics capabilities. **EU** = Ease of use after the initial learning period, which varies from computer to computer. **V** = Value for money, or how the software measures up to its price.

### HOME BUSINESS/HOME MANAGEMENT

Title Manufacturer Price	Brief description	Hardware/ Equipment required	Backup policy	Ratings					
				●	D	EH	GQ	EU	V
CREATIVE CALC Creative Software 230 E. Caribbean Drive Sunnyvale, CA 94089 (408) 745-1655 \$49.95 © 1984	Chart expenses and budgets for home, small businesses, clubs, etc. with electronic spreadsheet that simulates accountant's ledger book. † —ODISIO	Reviewed on C 64 (d.). Also for Apple II series, 48K (d.); IBM PC/PCjr, 64K (d.).	90-day warranty; \$15 fee thereafter.	★ ★ ★	★ ★ ★	★ ★ ★	N/A	E	★ ★ ★
SKIWRITER II Prentice-Hall Subsidiary Rights Dept. Englewood Cliffs, NJ 07632 (201) 592-2629 \$69.95 © 1984	High-school students, small businesses, home users, can word-process papers, reports, correspondence, even transmit them over telephone lines, using built-in telecommunications program. † —WOODS	Reviewed on C 64 (cart.). Version planned for IBM PCjr. Modem.	90-day warranty.	★ ★ ★	★ ★ ★	★ ★ ★	N/A	E	★ ★ ★
SMARTFILER Coleco Industries Inc. 999 Quaker Lane S. West Hartford, CT 06110 (800) 842-1225 \$24.95 © 1984	File, retrieve, and print up to 180 records of 255 characters in length (more if records are shorter) in electronic file system which lets you sort data in a variety of ways. Merge mailing lists with ADAM's SmartWriter. —DAVENPORT	Coleco ADAM (cass.).	6-month warranty.	★ ★ ★	★ ★ ★	★ ★ ★	N/A	E	★ ★ ★
WOMEN'S WARE Neon Software Co. 55 High St., P.O. Box 1540 Middletown, CT 06457 (203) 346-6322 \$49.95 each; (Freefile, \$79.95) © 1984	Seven home-management programs for recipes, telephone numbers and addresses, budgets, checkbook, appointments, and other filing needs. Uniform design makes programs easy to master. † —RASKIN	IBM PC/PCjr, 128K (d.).	2-year warranty.	★ ★ ★	★ ★ ★	★ ★ ★	N/A	E	★ ★ ★
THE WRITE CHOICE Roger Wagner Publishing, Inc. 10761 Woodside Ave., Suite E Santee, CA 92071 (619) 562-3670 \$44.95 © 1984	Write and edit letters, papers, and reports with elaborate word processor. Includes typing tutorial; utility that analyzes your documents for average word length, number of words used, etc.; and plenty of extra literature regarding writing style. —LINCOLN	Apple II series, 48K (d.).	30-day warranty. User makes backup copy.	★ ★ ★	★ ★ ★	★ ★ ★	N/A	A	★ ★ ★

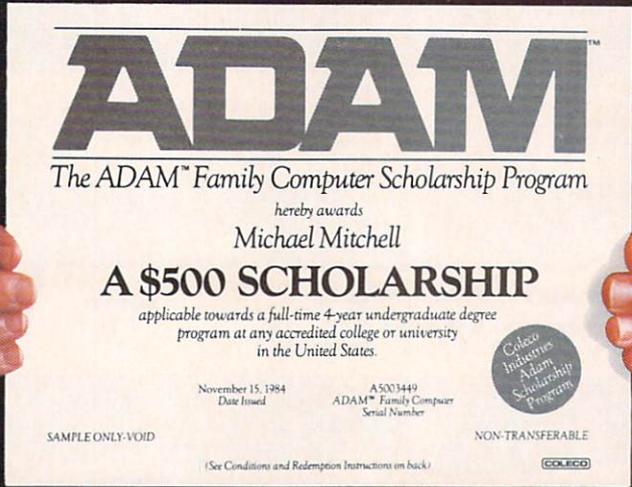
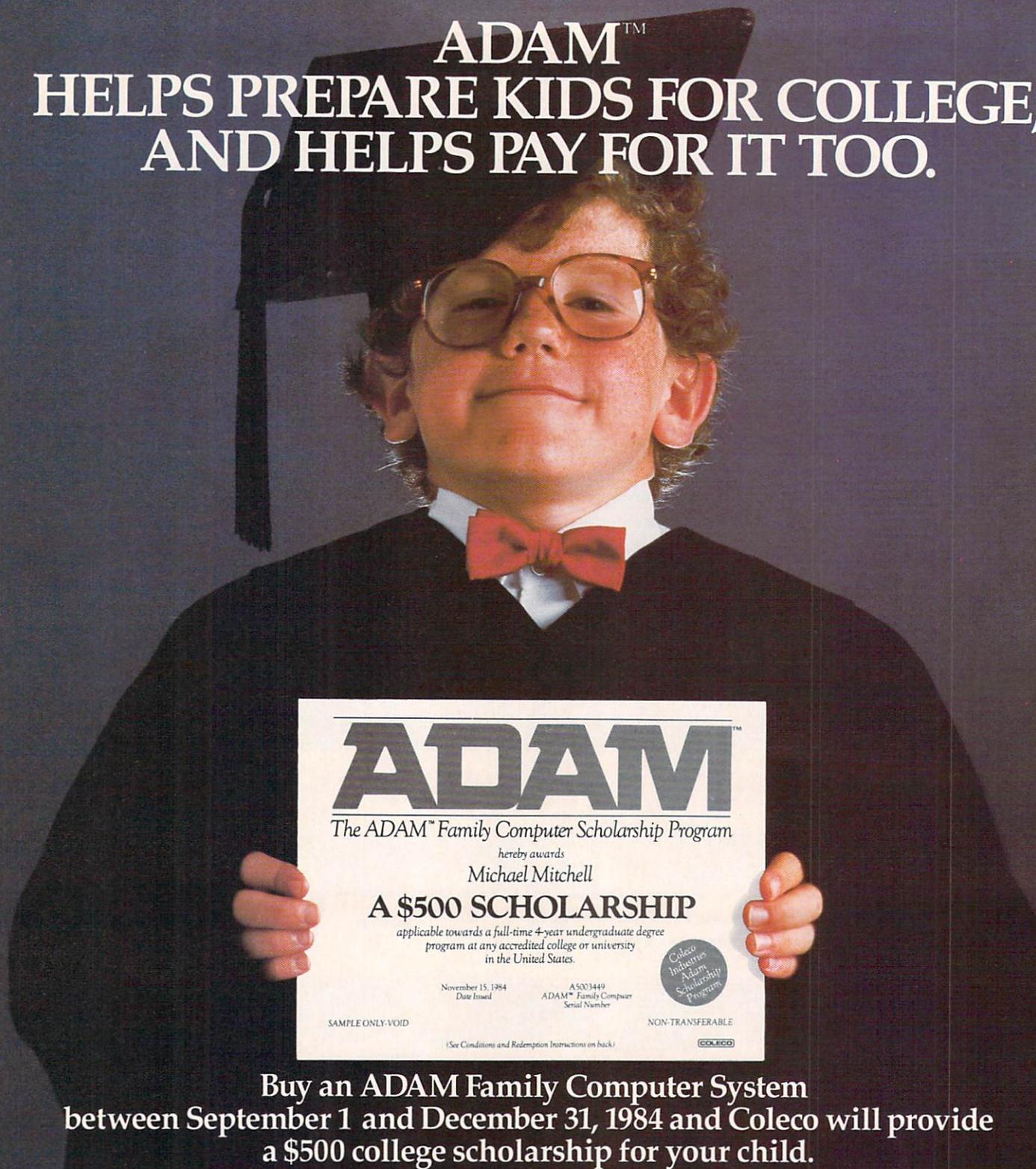
**RATINGS KEY** ● Overall performance; D Documentation; EH Error-handling; GQ Graphics quality; EU Ease of use; V Value for money; ★ Poor; ★★ Average; ★★★ Good; ★★★ Excellent; N/A Not applicable; E Easy; A Average; D Difficult; † Longer review follows chart

**GAMES** REVIEWS BY JAMES DELSON

Title Manufacturer Price	Brief description	Hardware/ Equipment required	Backup policy	Ratings					
				O	D	PS	GQ	EU	V
<b>BOULDER DASH</b> Micro Lab 2699 Skokie Valley Road Highland Park, IL 60035 (312) 433-7550 \$40 (Apple, ADAM) \$35 (C 64) © 1984 Atari and IBM versions from First Star Software.	Move hero through the earth, dig holes, avoid falling boulders and other dangers, seek out jewels in delightful, challenging arcade game, easy enough for novices, but challenging for pros, ages 8+.	C 64 (d.). Also for Apple II series, 48K (d.); ADAM (cart.); Atari Home Computers, 48K (d.); IBM PC/PCjr, 64K (d.). Joysticks.	30-day warranty; \$5 fee thereafter or if user-damaged.	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	A	★ ★ ★
<b>COMPUTER DIPLOMACY</b> Avalon Hill Game Co. 4517 Harford Road Baltimore, MD 21214 (301) 254-9200 \$50 © 1984	Adaptation of great political/strategy board game good for newcomers to such games. Computer controls up to seven opponents and acts as a first-rate bookkeeper, for ages 10+.	IBM PC, 256K (d.).	Lifetime warranty.	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	A	★ ★ ★
<b>DONKEY KONG</b> Atari 1312 Crossman Road Sunnyvale, CA 94089 (408) 745-2000 © 1983 Price not available at press time; consult local stores.	Send Mario the carpenter up into a construction site to rescue his girlfriend from the clutches of Donkey Kong. Dodge rolling barrels, avoid fiery obstacles, collect prizes for hours of fun, for ages 8+.	Reviewed on Atari Home Computers, 48K (d. and cart.). Also available for Apple II/II plus/IIe, 48K (d.); C 64 (d.); IBM PC/PCjr, 64K (d.). Joysticks.	Not available at press time.	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	A	N/A
<b>JACK ATTACK</b> Commodore Business Machines 1200 Wilson Drive West Chester, PA 19380 (215) 431-9100 \$29.95 © 1984	Block, trap, push, and pull Jack to squish the attacking heads that shower from the sky. Easy joystick control appeals to younger kids; 64 levels challenge experts.	C 64 (cart.). Joystick.	Defective cartridges replaced free w/in 90 days; \$15 thereafter or if user-damaged.	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	E	★ ★ ★
<b>MASK OF THE SUN</b> Broderbund Software 17 Paul Drive San Rafael, CA 94903-2101 (415) 479-1170 \$39.95 © 1984	Limited animation sequences, tough puzzles, and a few wild-goose chases make this four-sided super text/graphic adventure game good for group play.	Reviewed on Atari Home Computers, 48K (d.). Also for C 64 (d.); Apple II series, 48K (d.).	Lifetime warranty; \$5 fee if user-damaged.	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	D	★ ★ ★
<b>QUESTRON</b> Strategic Simulations, Inc. 883 Stierlin Road, Bldg. A-200 Mountain View, CA 94043 (415) 964-1353 \$49.95 © 1984	Appointed as protector of a kingdom in peril, you set out, combatting monsters and gaining strength and treasures in solo role-playing game derived from the <i>Ultima</i> series.†	Reviewed on Apple II series, 48K (d.). Also for Atari Home Computers, 40K (d.). Version planned for C 64. Joystick.	30-day warranty; \$10 (plus \$2 shipping) fee thereafter or if user-damaged.	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	A	★ ★ ★
<b>RAILS WEST!</b> Strategic Simulations, Inc. 883 Stierlin Road, Bldg. A-200 Mountain View, CA 94043 (415) 964-1353 \$39.95 © 1984	One to eight human or computer players jockey to become America's greatest 19th-century railroad baron. Difficult but involving challenge requiring up to 50 hours, for ages 12+.	Reviewed on Apple II series, 48K (d.). Also for Atari Home Computers, 40K (d.).	30-day warranty; \$10 (plus \$2 shipping) fee thereafter or if user-damaged.	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	D	★ ★ ★
<b>RALLY SPEEDWAY</b> Adventure International P.O. Box 3435 Longwood, FL 32750 (800) 327-7172 \$49.95 © 1983	One of the most flexible, challenging car-racing games around. Build your own courses, then send car around to test the track. Good for ages 8+.	Atari Home Computers, 16K (cart.). Joystick.	1-year warranty; \$5 fee thereafter.	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	A	★ ★ ★
<b>RUN FOR THE MONEY</b> Scarborough Systems, Inc. 25 N. Broadway Tarrytown, NY 10591 (914) 332-4545 \$39.95 © 1984	Fast, fun, financial-simulation game with arcade elements and amusing graphics in a fanciful setting. Introduces basics of economics while pleasing the whole family. For ages 12+.	Reviewed on IBM PC, 64K (d. w/DOS 1.1 and color card). Also for Apple II series, 64K (d.); Atari Home Computers, 64K (d.); IBM PCjr, 128K (d. w/DOS 1.1). Joysticks.	30-day warranty; \$5 fee thereafter.	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	A	★ ★ ★
<b>SOLO FLIGHT</b> Microprose Software 10616 Beaver Dam Road Hunt Valley, MD 21030 (301) 667-1151 \$34.95 © 1984	Serious flight simulator puts you in the cockpit of a light plane. Take off, navigate, and land successfully. Challenging game tests the skills you've acquired in practice sessions.	Reviewed on Atari Home Computers, 48K (d. or cass.). Also for Apple II series, 48K (d.); C 64 (d. or cass.). Version planned for IBM PC/PCjr, 64K (d.).	90-day warranty; \$10 fee thereafter or if user-damaged.	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	A	★ ★ ★

**RATINGS KEY** O Overall performance; D Documentation; PS Play System; 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

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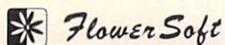
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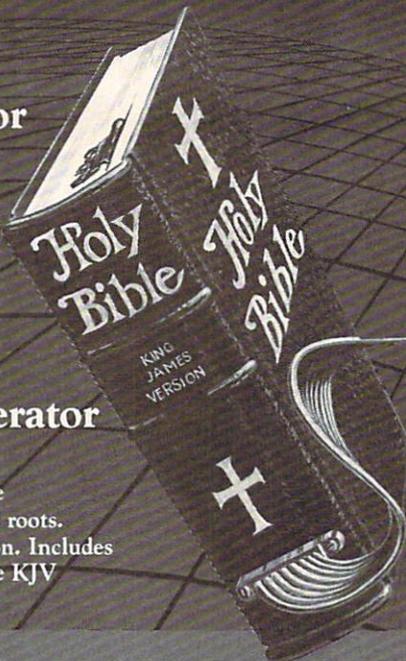
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