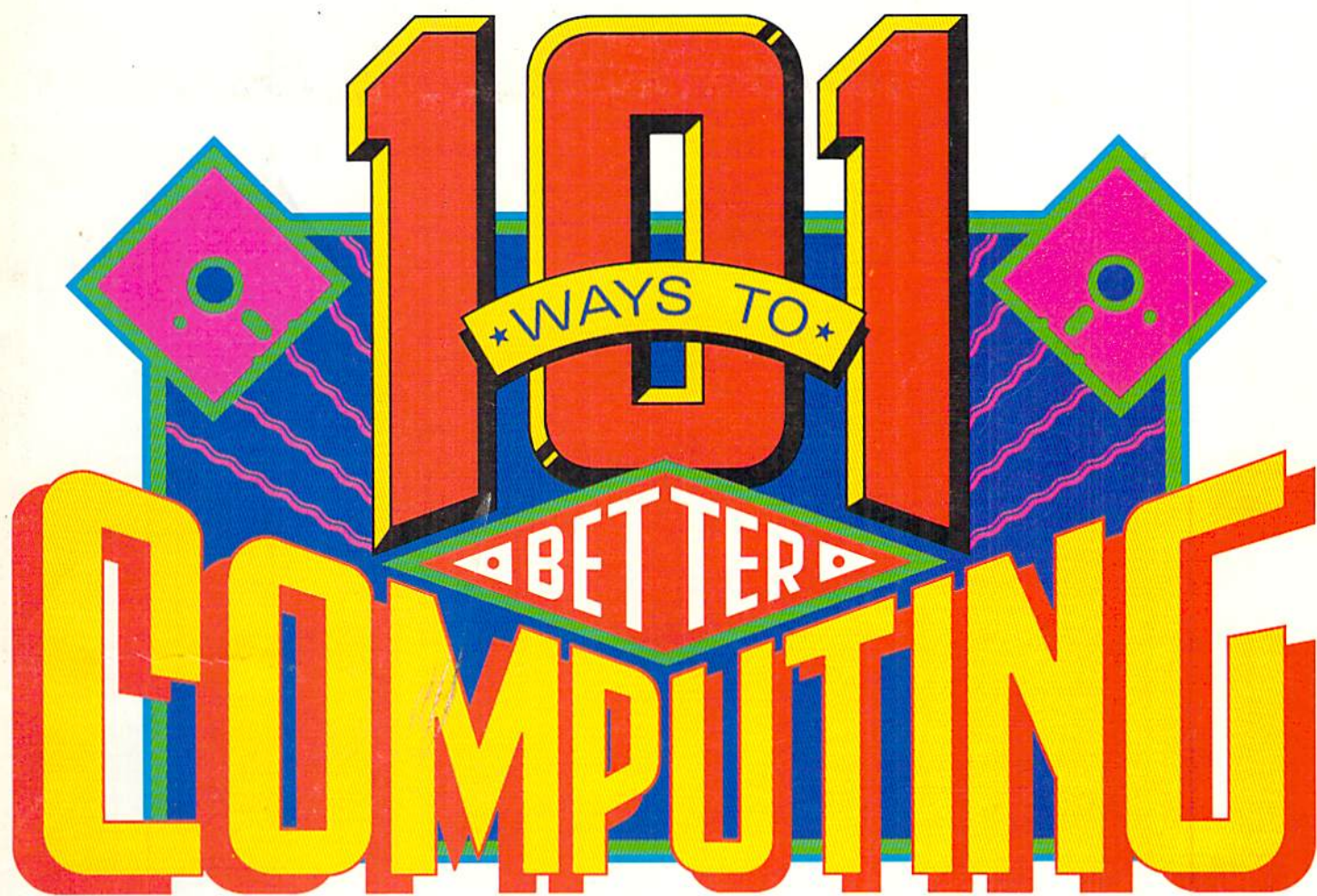


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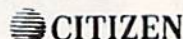


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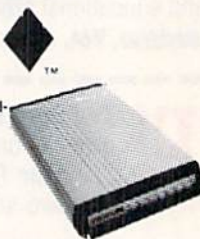
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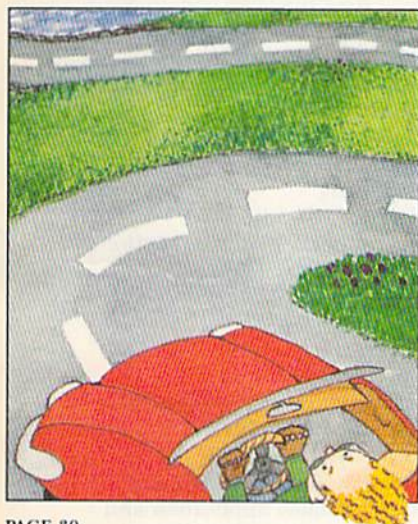
PAGE 18



## FEATURES

- 18 101 WAYS TO BETTER COMPUTING** *by the RUN Staff*  
Give yourself a pat on the back for the good computing techniques you already use. Now discover other ways you can improve your computing savvy.
- \*22 RUN COPY 128** *by Ed Parry*  
Copy files quickly and easily between any two C-128-compatible disk drives.
- \*26 BASIC TAKES THE WRAP** *by Howard I. Goldman*  
Make your screen text displays look professional with this C-64 word-wrapping routine.
- 28 A BOOSTER SHOT FOR GEOS** *by Mark Jordan*  
Inject Berkeley Softworks' new GEORAM expansion unit into your C-64 or C-128 to give GEOS a boost in speed.
- \*30 DODGE 'EM** *by Tony Brantner*  
Watch out for that cruising crash car! Your defensive driving skills will be tested to the limit in this fast-action C-64 arcade game.

## DEPARTMENTS



PAGE 30

COVER ILLUSTRATED BY JACK TOM

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- 4 RUNNING RUMINATIONS**  
Celebrating the Commodore as a great game machine, while acknowledging its other benefits. Also, *RUN* wants to know what productivity software secrets *you* know that you'd like to share with your fellow Commodore users.
- 6 MAGIC**  
The number-one column of hints and tips for performing Commodore computing wizardry. This month: scrolling raster stripes, generating magic number squares and salvaging disks.
- 9 MAIL RUN**  
*RUN* takes a few knocks while defending the freedom of the press. Plus, a reader wants to know why others spend time typing in listings.
- 10 NEWS AND NEW PRODUCTS**  
Recent developments and releases in the world of Commodore computing. A mixed bag of new products, including education, applications, a utility—even ways to make money with your computer.
- 12 SOFTWARE GALLERY** *Reviews of:*
  - Mean Streets
  - Sgt. Slaughter's Mat Wars
  - A Newbery Adventure: A Wrinkle in Time
  - Remote Control
  - Ballistix
  - Nightmare
  - Knights of Legend
  - Sentinel Worlds I: Future Magic
  - Double Dragon II: The Revenge
- 32 GOLD MINE** *by Louis F. Sander*  
Get the edge over your gaming competitors with tips guaranteed to turn you into a winner.
- 36 128 MODE** *by Mark Jordan*  
Take a look at the disk, programming and graphics utilities and productivity programs from the underground software market that are available for your C-128.
- 38 COMMODORE CLINIC** *by Ellen Rule*  
Answers to your questions about Commodore computing.
- 44 RUN'S CHECKSUM PROGRAM**  
Run it right the first time.
- 48 COMING ATTRACTIONS: LIST OF ADVERTISERS**

\* If you'd rather spend your valuable time using the programs in this issue instead of typing them, they are available on ReRUN disk. To order, see the card facing page 16.

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# *RUNNING* *RUMINATIONS*

The battle has been raging since the dawn of time.

Productivity vs. games. Data processing vs. arcade excitement. Keyboard vs. joystick. Business vs. entertainment. Practical vs. enjoyable. IBM vs. CBM. Dollars vs. cents.

Ever since MiCro-Magnon man dragged home his first computer, he has had to justify its use to his fellow cave-dwellers. The first micro-man stated, "I'll use this machine for inventory control of my dinosaur bone collection, or to make cave art, or to record the history of man, or to study fossil remains."

Notice that he didn't mention games. He probably would have been banished to the farthest reaches of the cave.

Like our first computer-literate ancestor, modern software gatherers are reluctant to admit to using home computers to play games. Who are we kidding? A mega-dollar industry has been built up around game playing. Obviously, somebody is playing games.

After two million years, man has invented few machines that can be used for both productivity and entertainment. The home computer is one of these. The same machine that allows you to enjoy adventure-game excitement can also be used to generate a budget.

To deny either the great game-playing or productivity benefits of the Commodore computer is folly. The early Commodore ads of the 80s espoused the dual benefits of a machine that lets you do work *and* have a lot of fun. This strategy obviously helped to sell millions of computers.

*RUN* has always been dedicated to exploring the variety of applications of Commodore computers. The needs and interests of programmers and application users are addressed in the Magic column each month. Gamesters have the Gold Mine column.

Now may be the appropriate time to resurrect an idea we've toyed with in the past: We'd like to devote a section in each issue of the magazine to reader-submitted hints on using commercially available productivity software. It would address the needs of those users interested only in productivity. Remember, no game or programming tips! We just want your insights on using commercially available application and utility software—word processors, spreadsheets, databases and other commercial applications and utilities. Send us undocumented information—the shorter the better—that will help others use productivity software more quickly, easily and efficiently.

For instance, what program(s) would you recommend to a beginning computerist? What software purchases will help save you money? What database is best for easily adding more information or changing records? What terminal programs will support most major protocols? What about tips using GEOS?

Here's your chance to share your hard-earned secrets with other Commodore users. Not since the Stone Age has there existed such an opportunity to fill an information gap in the Commodore community. Let's make it work.

*Send your hints on using productivity software to:*

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*Due to the volume we anticipate, we will not be able to acknowledge receipt or rejection of your tips. Each accepted submission will receive a nominal payment.*



**Dennis Brisson**  
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# MAGIC

Scrolling raster stripes, magic number squares, and a program to conquer disk-error problems.

By TIM WALSH

## \$593 RASTER STRIPES 64

Raster Stripes 64, a unique raster interrupt, uses scrolling stripes to animate the C-64's screen without affecting the operation of most Basic programs. When adding the raster routine to your own programs, you may change the default gray colors of the scrolling color stripes. Use this command:

```
SYS 49196,C1,C2,C3,C4
```

where C1, C2, C3 and C4 are the value (0-15) colors of the four stripes.

POKE 56591,81 turns on the raster's movement and POKE 56591,80 turns it off. To change the speed and direction of the stripes, enter POKE 56580,X. A value of X greater than 99 makes the stripes scroll down and values less than 99 make them scroll up.

```
Ø REM RASTER STRIPES 64 - JEFFREY PANICI
:REM*63
1Ø FORT=49152 TO 49273:READ D:POKE T,D:NEX
T :REM*196
2Ø DATA 72,138,72,152,72,164,2,2ØØ,192,16,
2Ø8,2,16Ø,Ø,132,2,185,28,192 :REM*176
3Ø DATA 141,33,2Ø8,141,33,2Ø8,76,81,254,1,
3,6,14,1,3,6,14,1,3,6,14,1,3,6 :REM*36
4Ø DATA 14,32,155,183,134,251,32,155,183,1
34,252,32,155,183,134,253,32 :REM*153
5Ø DATA 155,183,134,254,165,251,141,28,192
,141,32,192,141,36,192,141,4Ø :REM*253
6Ø DATA 192,165,252,141,29,192,141,33,192,
141,37,192,141,41,192,165,253 :REM*63
7Ø DATA 141,3Ø,192,141,34,192,141,38,192,1
41,42,192,165,254,141,31,192 :REM*2Ø
8Ø DATA 141,35,192,141,39,192,141,43,192,9
6,153 :REM*239
9Ø POKE 53281,..:POKE 2,..:POKE 792,..:POKE 7
93,192 :REM*43
1ØØ SYS 49196,1,11,12,15 :REM*228
11Ø POKE 5658Ø,1ØØ:POKE 56581,1:POKE 56582
,..:POKE 56583,.. :REM*155
12Ø POKE 56589,13Ø:POKE 5659Ø,17:POKE 5659
1,81 :REM*24
13Ø PRINTCHR$(147)"(CTRL 8)THIS PROCESS GI
VES A 3-D EFFECT" :REM*11
14Ø PRINT"WHEN TEXT IS ADDED TO THE SCREEN
!" :REM*16
```

—JEFFREY D. PANICI, SANDWICH, IL

## \$594 MAGIC SQUARE 128

Here's a unique trick for the C-128's 80-column screen. When you run Magic Square 128, enter an odd number

from 3 to 9. A square made up of numbers in rows and columns will appear, with the number you chose determining the size of the matrix (e.g., entering 3 will make a square three numbers across and three down). It's called Magic Square 128 because the sums of all rows and columns and both diagonals are the same! Study the Basic listing to unlock the key to this bit of Magic.

```
Ø REM MAGIC SQUARE 128 - HENRY LANGSTON
:REM*141
1Ø FAST:SCNCLR:X=INT(RND(Ø)*9):CHAR,28,8,"
M A G I C{2 SPACES}S Q U A R E S":CHAR,
22,16,"SELECT SQUARE SIZE":CHAR,22,18,"
ENTER AN ODD NUMBER FROM 3 TO 9":REM*8Ø
2Ø CHAR,22,2Ø,"EVEN NUMBERS GO TO NEXT OD
D NUMBER":GETKEY$:N=VAL(N$):IF N<3ORN>
9 THEN 1Ø:ELSE SCNCLR:IF N=INT(N/2)*2 T
HEN N=N+1 :REM*242
3Ø WINDOW 41-N*2,12-N,79,24:C=INT(N/2)+1:R
=1:FORL=1TON*N:S(C,R)=L+X:IF L/N=INT(L/
N)THEN R=R+1:GOTO4Ø:ELSE C=C+1:R=R-1:IF
C=N+1THEN C=1:ELSE IF R=ØTHEN R=N
:REM*1Ø6
4Ø NEXT:FORL=1TON:FORK= 1 TO N: IF S(K,L)<
1Ø THENPRINT" "; :REM*232
5Ø PRINTS(K,L);:NEXT:PRINT:PRINT:NEXT:WIND
OWØ,Ø,79,24:CHAR,29,24,"PRESS A KEY FOR
REPLAY":GETKEY I$:GOTO1Ø :REM*48
```

—HENRY LANGSTON, KISSIMMEE, FL

## \$595 DISK SALVAGE 64

Bad disk errors are troublesome at best, and potentially destructive to data, programs and anything else saved to a disk containing them. One or more bad sectors are usually the cause. But then, what can you do about it?

The answer is Disk Salvage 64. This C-64 program checks every track and sector on any 1541- or 1571-formatted disk to find any errors. All bad sectors are allocated so that further disk damage won't occur. Once it's finished, you can copy most files onto a new work disk, using a copy utility, and the original error-prone disk can then be reformatted.

```
Ø REM DISK SALVAGE 64 - SAUL BETESH:REM*8Ø
1Ø C$=CHR$(147):PRINTC$"INSERT A DISK AND
PRESS A KEY" :REM*164
2Ø GETA$:IF A$=""THEN 2Ø :REM*212
3Ø DIM ET(1ØØ),ES(1ØØ),EM(1ØØ) :REM*177
4Ø X=1:PRINTC$ :REM*226
5Ø OPEN15,8,15,"U;":OPEN 2,8,2,"#" :REM*21
6Ø GOSUB 19Ø:IF EF THEN END :REM*249
7Ø FOR T= 1 TO 35:FOR S= Ø TO 2Ø+2*(T>17)+
(T>24)+(T>3Ø) :REM*219▶
```



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IDGG/Peterborough, publisher of *RUN*, is the licensed North American distributor of GEOBASIC. GEOBASIC software ©1990 Berkeley Softworks. Portions of GEOBASIC manual ©1990 Berkeley Softworks. GEOBASIC is a 40 column program that runs in 64 mode on the 64 or 128. GEOS is required to operate GEOBASIC.

**GEOBASIC**  
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## 1-800-343-0728

## MAGIC

```

80 PRINT C$"TRACK"T"SECTOR"S"ERRORS"X-1
:REM*247
90 PRINT#15,"U1:"2;0;T;S:GOSUB 190 :REM*82
100 IF EF=0 THEN 140 :REM*154
110 PRINT#15,"B-F:"0;T;S :REM*249
120 PRINT#15,"B-A:"0,T,S :REM*90
130 ET(X)=T:ES(X)=S:EN(X)=ER:X=X+1 :REM*6
140 NEXT:NEXT:CLOSE15 :REM*160
150 PRINTC$;"ERRORS FOUND = "X-1:PRINT
:REM*80
160 FOR J = 1 TO X-1 :REM*24
170 PRINT"ERROR="EN(J)"T="ET(J)"S="ES(J)
:REM*170
180 NEXT:END :REM*41
190 INPUT#15, ER, E$, E1, E2 :REM*217
200 EF=1+(ER=0 OR ER=65 OR ER=73) :REM*247
210 RETURN :REM*97

```

—SAUL BETESH, KINGSTON, ONTARIO, CANADA

### \$596 FILE SLICER 64/128

File Slicer 64/128 divides large text files downloaded from bulletin boards and on-line services into smaller segments so that they can be loaded into a word processor. It works on both the 64 and 128 with any Commodore disk drive and possesses superb accuracy even when used with massive (500-plus disk blocks) text files.

When you run the program, you'll be prompted for the name of the file to be "sliced," followed by the filenames for the new files that File Slicer creates. You'll then be asked for the total number of disk blocks in each segmented file. When the process begins, the segmented filenames automatically have the letters A, B, C, and so on appended to them. Be certain beforehand that there's sufficient room on your disk for the new files.

```

0 REM FILE SLICER 64/128 - JEFFREY PANICI
:REM*38
10 PRINT CHR$(147)"FILE SLICER 64/128"
:REM*254
20 PRINT"{2 CRSR DNs}":POKE 19,3:INPUT"FILE
E TO READ:";F$ :REM*74
30 PRINT"{CRSR DN}":INPUT"NEW FILENAME:";N
$:IFLEN(N$)>14 THEN GOTO 0 :REM*138
40 PRINT:INPUT"{CRSR DN}BLOCK'S PER FILE:"
;B$:B=VAL(B$):POKE 19,..:PRINT"{2 CRSR D
Ns}" :REM*231
50 N=.:OPEN 8,8,8,F$+" ,S,R":GOSUB 120
:REM*40
60 OPEN 2,8,2,N$+" ." +CHR$(N+65)+" ,S,W":PRI
NT"{CRSR DN}WRITING ... "+N$+" ." +CHR$(N
+65) :REM*31
70 FOR X=1 TO 254*B :REM*112
80 GET#8,A$:IF ST=64 THEN CLOSE8:CLOSE2:PR
INT"{2 CRSR DNs}DONE.":END :REM*165
90 PRINT#2,A$ :REM*240
100 NEXT :REM*230
110 N=N+1:CLOSE 2:GOTO 60 :REM*240
120 OPEN15,8,15:INPUT#15,E,E$:IF E=. THEN
RETURN :REM*199
130 PRINT E,E$,E:CLOSE 8:END :REM*226

```

—JEFFREY D. PANICI, SANDWICH, IL ■

# MAIL RUN

*RUN takes a few knocks while defending freedom of the press.*

## FORERUNNER

I was a *Commodore Magazine* subscriber until it merged with *RUN*. I'm pleased to see that your Magic column is similar to *Commodore's* Tips and Tricks column. I was even more impressed to see that you also included Louis F. Sander's gaming tips column, Gold Mine.

—RYAN OWENS  
CINCINNATI, OH

*RUN's Magic column was actually the forerunner of the two Commodore Magazine columns you mentioned, Ryan. Both programming tricks and game tips were included, and Lou Sander was the column's original author. We're glad you enjoy RUN.*

—EDITORS

## WHY DO THEY DO IT?

Being retired, I'm on a tight budget, so I really couldn't afford a subscription to *RUN's* ReRUN disk, but the time it takes me to type in one or two listings from the magazine I could spend working part time. Then, I'd have the money for the subscription in a week or two.

I still buy *RUN* magazine for the features ReRUN doesn't have, like Magic and Commodore Clinic, articles, reviews and, of course, Mail RUN.

I'm curious, though, to know how many of your readers actually spend time typing in listings.

—F. E. BARKER  
MIMS, FLORIDA

*We invite readers' responses to these comments. According to our most recent editorial survey, 80 percent of RUN readers have typed in program listings from the magazine. We assume that a large percentage of those who don't enter program listings avail themselves of the ReRUN disk.*

—EDITORS

## THAT'S THE WAY THE COOKIE CRUMBLES

There has been a small mixup. We sent you a UPC label-maker program some time ago. In the News and New

Products column in February, it was described as a software release, but we are not a software company! We are a bakery that uses a C-128 to help us run our business.

We sent you the program in response to other users wanting productivity software for the C-128. Our intention was simply for *RUN* to publish the listing.

—ROBERT PISKAC, JR.  
CLEVELAND, OH

*Gee, Bob, the information you sent us made us think that your program was a new product. Unfortunately, it's too long to publish in RUN, and the subject matter is a little esoteric for our readers.*

*But, why do you call your bakery Piskac Bakery Software?*

*Since your bakery is now known to 200,000 readers with sweet teeth, how about sending the RUN editorial staff a couple of dozen of your fresh pastries?*

—EDITORS

## FREEDOM OF THE PRESS?

You proved again that freedom of the press is enjoyed by those who own the presses.

Some Mail RUN readers may not recognize that you set up a Mail RUN contributor (see "Commodore vs. the Clones," Mail RUN, December 1989) to make him the main target of their responses. You used your freedom of the press to suggest not only that other readers respond, but even suggested the tack they might take.

However, his points are well taken and correct. Look to your own pages for substantiation. What products are advertised more prominently than others—productivity software or games and entertainment software?

The majority of Commodore software in your pages, as well as in mail order house catalogs, is games and entertainment software.

Commodore is getting out of the C-64/128 business. Why? Because games don't pay the bills.

Your attempt to use smoke and mirrors and to lead the discussion away

from his main points failed to work on all your readers.

—BOB JACKSON  
PROTEM, MO

*You misunderstand the purpose of this column, Bob. We invite readers to share their opinions and comments, however unenlightened, with other readers, just as you are doing. But, when someone insults hundreds of thousands of Commodore owners and a significant part of the computer industry, we suppose he should expect to dodge a few arrows.*

—EDITORS

## LONG LIVE THE C-64 AND C-128

I'm disappointed that Commodore's management has decided not to continue supporting its C-64 and 128 computers. I'm appalled that they're relinquishing their leading position in the home computer market. It seems that Commodore's executives are the company's own worst enemies.

—S. W. HALL  
GREENVILLE, SC

*While Commodore has stopped production of the C-128, company officials state that they will continue supporting the C-64. RUN will continue to support both machines.*

—EDITORS

## WHO CARES?

*RUN* is beginning to sound like a broken record. Every month brings a new editorial bemoaning Commodore's abandonment of the C-128 for the Amiga line, and a host of letters from readers wringing their hands over the lack of support from the big "C." Who really cares? What audience are you targeting anyway? It seems logical that those who shell out \$2.95 for your magazine already believe the 8-bit machine is the greatest thing since sex, so why do they need a pep talk on the subject?

—EUGENE PEETE  
HAMBURG, WEST GERMANY ■

# NEWS AND NEW PRODUCTS

Come to grips with your joystick; print labels from predesigned layouts; and debug your programs.

By HAROLD R. BJORNSEN

## GET A GRIP ON YOUR JOYSTICK

WARWICK, RI—Duggan DeZign (300 Quaker Lane, Suite 7, Warwick, RI 02886) introduces the **Stik-Gripper**, an adjustable steel clamp that secures your joystick to a tabletop, thus simulating a real arcade game and leaving one hand free for keyboard operation. Included pads and caps protect the table and joystick. It's available for \$18.95.

Check Reader Service number 400.

## TAKE A TIP FROM LOU

BLUE RIDGE SUMMIT, PA—*Lou Sander's Gold Mine: Game Tips for Commodore Users* features 1200 tips and tricks for more than 500 computer games. These "gold nuggets" help the gamer master every type of game, from Break-thru and Defender of the Crown to Gunship and Legacy of the Ancients. The large-format book is available in hardcover (\$28.95) and paperback (\$19.95) from Tab Books, Inc., Blue Ridge Summit, PA 17294.

Check Reader Service number 405.

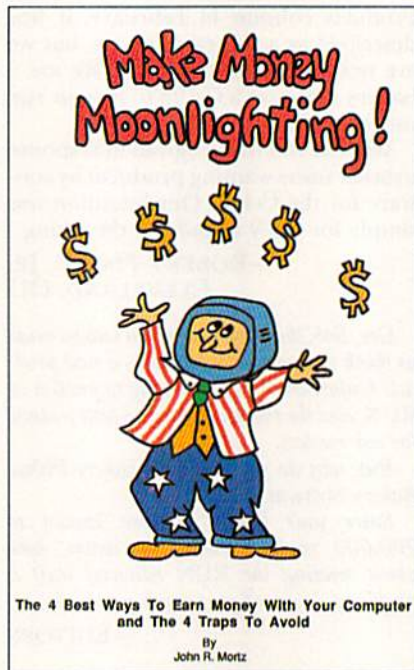
## ROCKYSOFT DEBUGGER

LANGTON, ONTARIO, CANADA—**Diamond Symbolic Debugger**, a C-128 programmer's utility, has 70 commands to help you debug machine language programs produced by other assemblers, Pascal or C compilers. Also included are an assembler and disassembler; six Disk, two Print and 11 Execute commands; and eight commands to display or modify memory. The \$29.95 package is available from RockySoft, PO Box 113, Langton, Ontario, Canada NOE 1G0.

Check Reader Service number 403.

## MOONLIGHTING

PASADENA, CA—*Make Money Moonlighting! The 4 Best Ways To Earn Money with Your Computer and the 4 Traps To Avoid* is for Commodore owners who want to start a business with their computers. It contains business development information and describes



This 121-page book shows you how to make money in word processing, desktop publishing, shareware development and computer consulting.

methods for starting those businesses. Checklists include analyzing competitors and implementing the best marketing ideas. The book is available from The American Institute of Computer Technology, 30 N. Raymond Ave., Suite 714, Pasadena, CA 91103. \$9.95 plus \$2.50 s/h.

Check Reader Service number 401.

## FASTER THAN A SPEEDING ELECTRON

NEWARK, NJ—Bell Laboratory researchers have unveiled a prototype computer that uses light instead of electrical impulses to process data.

Within a decade, it could lead to the development of light-based supercomputers operating up to 10,000 times faster than current machines, said Brian Monahan, a spokesman for Bell Labs.

The prototype data processor—an as-

sembly of lasers, lenses and prisms in a two-foot-square box—is the first to transmit information with light rather than electricity. The technique could allow a much greater flow of data. Scientists believe it can eventually be reduced to the size of today's microchips.

Unlike current computer chips, information would pass not just from a chip's edges but also from its surface. Bell Labs physicist David Miller likened the development to a Manhattan island in New York City where cars suddenly weren't limited to bridges and tunnels, but could leave through the air, much like a flying DeLorean.

## LABELS GALORE

PITTSBURGH—**Label Maker**, a C-64 program for making labels, has been released by Keystone Software (PO Box 8369, Pittsburgh, PA 15218). There are predesigned layouts for 11 different types of labels, such as those for file folders, hand-fed and continuous envelopes, disks and rotary file cards. You can also create labels of your own design, using the font and color capabilities of your printer or interface. It retails for \$29.95.

Check Reader Service number 402.

## LEARN TO THINK

PLEASANTVILLE, NY—In **Safari Search**, an educational package for the C-64, school children from grade 2 through high school develop their inference skills. They can work with 12 activities involving searching for one or two animals on a five-by-five grid. The program helps students to gather and record information, apply what they've learned, analyze situations and evaluate options.

Included are a video to help students develop thinking skills, a teacher's guide and a bonus lesson plan. Sunburst Communications, 39 Washington Ave., Pleasantville, NY 10570. Prices are \$65 for the single package and \$195 for the 10-disk lab pack.

Check Reader Service number 407. ■

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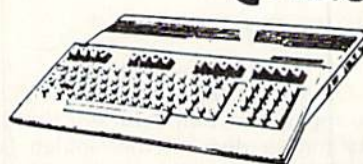
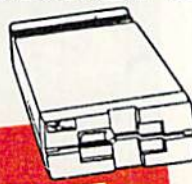
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# SOFTWARE GALLERY

From the ring to the streets, from dreams to TV, this month's roundup of reviews ranges far and wide.

By BETH S. JALA

## MEAN STREETS ..... A-

*Magnum, P.I.  
Of the Future*

On a Saturday evening in 2033, for no apparent reason, Professor Carl Linsky took a dive off the Golden Gate Bridge. A few nights later, Linsky's blonde, blue-eyed daughter shows up at your office. Convinced that her father did not commit suicide, she hires you (a.k.a. Tex Murphy, private investigator) to find the professor's murderer. For \$10,000 and the chance to spend your evenings with the curvaceous Ms. Linsky, you set out to discover the truth.

After inserting the destination code into the navigational computer, you travel between various California locations aboard your Lotus speeder (flying car). From the cockpit, you can contact your secretary or informant, check your inventory, save or load any of ten games, as well as control your speeder and get a view of what lies ahead. Although you'll find the Lotus much easier to maneuver than most flight simulators, you might prefer to choose the foolproof Autopilot mode.

At some places, you receive pertinent textual clues or notification that you are following a "red herring." At others, you may question, bribe or threaten people you meet to get information (e.g., destination coordinates). Each of these interactive screens contains a digitized photo of a character, overlapping an attractive drawing of his or her neighborhood.

All requests must be typed in. The game doesn't tolerate mistakes or incomplete names. Thankfully, however, the joystick is used for searching rooms. Employing a multi-menu system, the flick of a handle or the press of a button lets you discover clues, gather objects, uncover traps and shut down security systems. Items can be stored without limit, and many may be sold to raise bribe money.

Occasionally, you'll have to fight a gun battle in order to arrive at your destination. Defeating your opponents



Looking for clues is the name of the game in Mean Streets.

and crossing over to safety uses up a lot of ammunition. Be sure to carefully examine rooms for additional rounds. Otherwise, you'll have to fly to bounty areas and defeat more formidable enemies to earn extra bullets.

Gun fights lack variety and appear to occur where they do for no particular

reason. After a while, these and the flight simulation sections become tedious, as does the amount of disk swapping necessary to load the various screens.

These minor annoyances aside, Mean Streets offers great depth of game play and enough mystery and mayhem to keep amateur sleuths on edge for quite some time. (Access Software, 545 West 500 South, Suite 130, Bountiful, UT 84010. C-64/\$39.95.)

—LEN POGGIALI  
SYRACUSE, NY

## SGT. SLAUGHTER'S MAT WARS ..... B

*Will You Make It  
To the Big Time in  
Vegas or Atlantic City?*

Over the last five years, Mindscape has released a series of excellent wrestling-related games. Although the company's latest grappling software, Sgt. Slaughter's Mat Wars, also has some very attractive features, many players will probably find it to be far more frustrating than its predecessors.

The title character is G. I. Joe's most famous friend. He serves both as master of ceremonies and referee throughout the program.

You begin by evaluating five managers and choosing the one whose negotiation skills will be most helpful later in the game. Then it's on to an auction house, where you bid on and buy the contract of an up-and-coming young wrestler.

The next phase of the program takes place in an old, run-down arena. Here your joystick-controlled man furiously battles other grapplers both within and outside of the ropes. Conquering them transports you to a more prestigious stadium, where similar success earns a shot at the championship in the glamorous Coliseum.

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### D Poor.

This program has some problems. There are better on the market.

### E Failure.

Many problems; should be deep-sixed!

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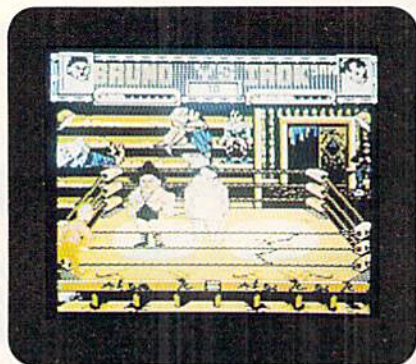
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## SOFTWARE GALLERY

fixing certain bouts, and recoup some bribe money by setting up and winning side bets.

Employing an innovative control system, you start out with four different wrestling moves at your command. By successfully using them to stun his opponent, your man reaches a new ability level, with its own unique set of maneuvers.

Complementing the program's impressive repertoire of attack moves are superb graphics and animation. Each



**Fight your way out of the back-alley dive in Sgt. Slaughter's Mat Wars.**

scene is colorful and skillfully drawn, and the ring warriors' movements are fluid and lifelike.

On the other hand, the software suffers from periods of relatively long dead time as data is loaded from disk. For instance, the minimum wait between two bouts is more than a minute and a half.

Also, the game is very tough to beat, so much so that many novice players will suffer through a seemingly endless series of defeats before enjoying any success.

As a result, Sgt. Slaughter's Mat Wars might not be for everyone. But it will probably be the program of choice for those wrestling fans who are up to an extremely challenging test of their electronic grappling skills. (*Mindscape, Inc.*, 3444 Dundee Rd., Northbrook, IL 60062. C-64/\$29.95.)

—WALT LATOCHA  
OAK PARK, IL

### **A NEWBERY ADVENTURE: A WRINKLE IN TIME** ..... **B-**

#### *Computerizing a Literary Experience*

What child can resist a story in which the characters are named Mrs. Whatsit, the Man with the Red Eyes, and IT? These are some inhabitants of Madeline

L'Engle's highly regarded (and best-known) novel, *A Wrinkle in Time*. An excellent piece of children's literature and part of the core curriculum for many U.S. school districts, it now also provides the content for an educational program geared to grades four through eight.

In the story, Meg Murry and her young brother, Charles Wallace, aided by three supernatural beings who take the form of eccentric old ladies, travel through the universe in search of the children's missing scientist father. They land on a planet of mindless conformity, where Charles submits to the control of an evil disembodied brain called IT. Meg rescues Charles, and the children return home.

The Sunburst program reinforces vocabulary and comprehension skills in an interactive format that provides students with two activities. The first tests their understanding of vocabulary words that appear in the novel; the second asks students to choose options that reflect the actual sequence of events in an adventure.

One nine-year-old devotee of this novel happily pronounced as "gross" the colorful graphics that accompany each vocabulary exercise and each scene in the adventure—a high honor, indeed. Wavy, colored lines scroll across the screen when the characters "tesser" (travel through space).

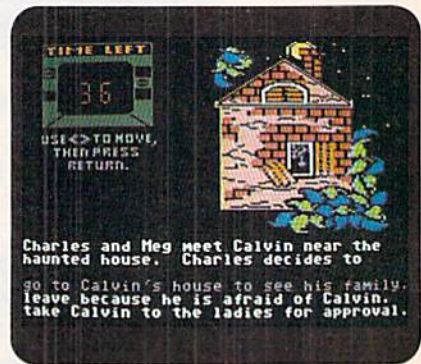
Teachers can modify the adventure section of the program by extending or compressing the number of choices allowed to successfully complete it. The difficulty level in the vocabulary exercises can also be adapted to student needs. Level 1 is multiple choice, 2 is fill-in-the-blank with a hint, and 3 is fill-in-the-blank with no hint. In each case, students are presented with ten statements relating to the story, and these vary each time the option is used.

The Multiple Choice option seems appropriate and likely to be effective. The Fill-in-the-Blank options are problematic, however; without a word list, students can guess appropriate words for the context of the sentence and still be "wrong." Unless they memorize the book, it seems unfair to expect students to guess, for example, that "compulsion" fits the sentence "Our journey begins after Calvin has a strong feeling that he must go to the haunted house. He follows his \_\_\_\_\_." My guess was "intuition."

The Teacher's Guide includes program objectives, a vocabulary list, a direct adventure path and several student worksheets. Although it suggests that students write definitions of words or

look them up in the dictionary, no definitions or pronunciations are given for the teacher. Nor are teachers provided with the sentences in the novel that actually use each of the tested words—information that would be useful for truly teaching vocabulary in relation to context.

This program cannot stand alone—it would not be effective without the novel. However, it's certainly a welcome, albeit incomplete, supplement for a unit on *A Wrinkle in Time*. Although



**The multiple choice aspect of A Wrinkle in Time.**

both the adventure and the vocabulary exercises are limited, they should reinforce the concept of plot sequence and encourage reluctant readers to complete the novel. Students who have read the novel carefully will enjoy completing the adventure. (*Sunburst Communications*, 39 Washington Ave., Pleasantville, NY 10570. C-64/single package, \$65; 10-disk lab pack, \$195.)

—SHARON G. WEINER  
CHICAGO, IL

### **REMOTE CONTROL** ..... **B-**

#### *Try Your Talent At TV Trivia*

Die-hard fans of MTV's game show, Remote Control, can thank Hi Tech Expressions for creating a successful computer version of this popular TV trivia contest.

Up to three players can compete against one another, or the program will provide competent computer opponents as needed. You select your on-screen persona from a yearbook that features eight characters, ranging from an all-American girl to an unshaven "burn-out."

The main part of the game consists of two rounds of questions. The nine categories per round focus, for exam-





ple, on specific shows (e.g., "Happy Days"), types of programs (e.g., "Re-runs") and educational skills. Examples of the last are "Brady Physics," which poses science questions involving characters from The Brady Bunch series, and "Shakespeare TV," which presents clues in the language of the Bard.

You choose questions from a nine-channel, TV-screen gameboard. Eight of the channels contain three questions of increasing value. The ninth hides a surprise, such as advice from Ranger



You have various choices when selecting your character in Remote Control.

Bob or tips from "Home Shopping Zone," which costs you ten points. Whenever a new category is selected, the emcee appears and delivers a witty remark. Make a mistake, and he's ready with an insult.

After a question flashes across the screen, the first player to "buzz" is allowed 20 seconds to type an answer. If it's wrong, the others are given a chance. The person responding correctly chooses the next question, and so on until none remain. Replies are "buzzed in" via separate keys, spaced far apart on the keyboard to facilitate play by three individuals.

A Snack Break—food falling on the contestants from above—occurs between rounds. The low scorer is eliminated during the second round. The two remaining players compete in the "Think Real Fast" game, where they have 30 seconds to answer as many questions as possible, each one worth 25 points. The person with the highest score wins at the end of the round.

Remote Control's many virtues include colorful, animated graphics, enough questions to last for a fairly long time and a good-natured sense of humor. On the down side, the game sometimes crashes while loading new questions. Although scores are tallied correctly, the wrong person is occasionally declared winner. The program's

greatest drawback is the lack of a penalty for incorrect replies. This leads to a lot of wild guessing.

If you're tired of music videos, but your taste for tasteless trivia is unquenchable, shut off MTV, turn on your computer and play Remote Control. (*Hi Tech Expressions, 584 Broadway, New York, NY 10012. C-64/\$14.95.*)

—LEN POGGIALI  
SYRACUSE, NY

## BALLISTIX ..... B-

### *Certainly a Different Way To Play Ball!*

Ballistix's package indicates that the game resembles soccer and pinball. However, players will probably notice its marked similarity to the youthful sport of shooting marbles.

A game begins with a large black ball appearing on a rectangular field. Using a movable, joystick-controlled cannon, you shoot silver pellets at the ball to nudge it away from your goal and toward your opponent's goal.

Complicating matters are all sorts of obstacles and objects that materialize on the game's 64 levels. In addition to barriers, bumpers, ramps and tunnels, there are arrows in the floors that accelerate the black ball up to extraordinary velocities, as well as magnets that drag it away from your control. And inadvertently guiding the sphere into an on-screen acid pool causes the ball to rapidly melt away.

In two-player competition, you strive against a human opponent, who controls his or her own cannon. In one-player games, only your gun appears as you battle against gravitational forces that constantly draw the ball toward the goal you defend.

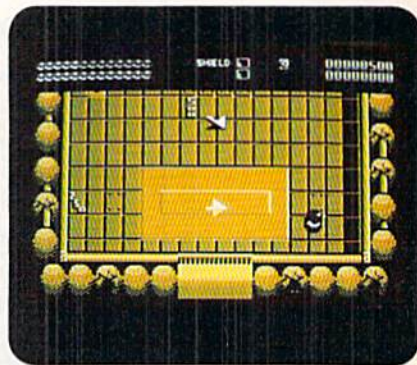
The program encourages customized play by allowing for the adjustment of eight different factors. You can, for instance, select the starting level for a gaming session and also determine how far pellets will travel before they fade from the screen.

Unfortunately, the game's documentation is too brief, requiring quite a bit of experimentation to determine just what the software is capable of. I especially missed explanations of the effects that some on-screen objects have on gameplay.

Also, some players will be annoyed by the program's suspensions of the laws of physics. For example, although striking a sphere left of center causes it to roll to the right in the real world,

such a blow in Ballistix often moves the ball in the opposite direction. This confusing lack of realism tends to reward tactics that emphasize fusillades of pellets rather than precise single shots.

Compensating for the problems are nicely done sound effects and terrific graphics and animation. They make for an exciting experience. In fact, it is Ballistix's sensory frills that are its major attraction. For some, that might be sufficient justification to purchase this high-tech version of an enjoyable child-



Remember: arrows on Ballistix's playing field accelerate the black ball!

hood pastime. (*Psygnosis, PO Box 483, Addison, IL 60101. C-64/\$29.95.*)

—WALT LATOCHA  
OAK PARK, IL

## FRIGHTMARE ..... C+

### *Dreams and Nightmares And Trance States, Oh My!*

It's midnight and you're here, where bad dreams become visions of terror and nightmares turn into "frightmares!" Instinct urges you to flee the horrors of this twisted landscape. But, why be in such a hurry to get out? Why not climb those vines, swing over that nasty looking werewolf, pick up those bullets, and "go for it!"

As fate would have it, just when you decide actually to seek out your worst nightmare, it suddenly becomes most elusive. Hordes of zombies, ghosts, serpents and other baddies can't wait to extinguish your five dream lives and send you back to wakefulness. To top it off, you discover that your current bad dream is merely the lowest rung on a hierarchy of truly nightmarish proportions. Yet to be achieved are 14 levels of Dream (like Cruel, Terrible and Murderous); then, you can tackle the next six dream states (Vision, Trance and

*Continued on page 40.*

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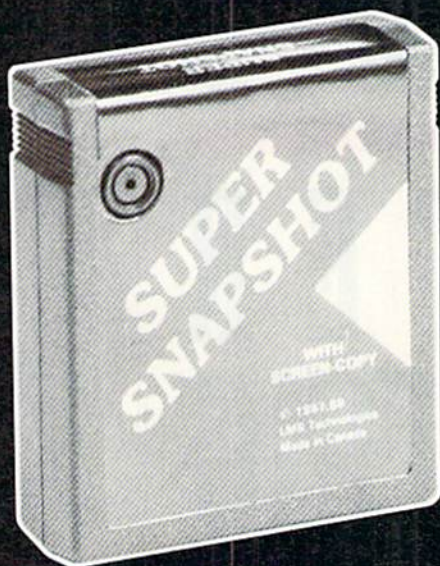
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# 101 WAYS

TO

# BETTER COMPUTING

*Discover these time-tested tips  
to save minutes and money  
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pleasure a hundredfold.*

By RUN EDITORS



## SETTING THE STAGE

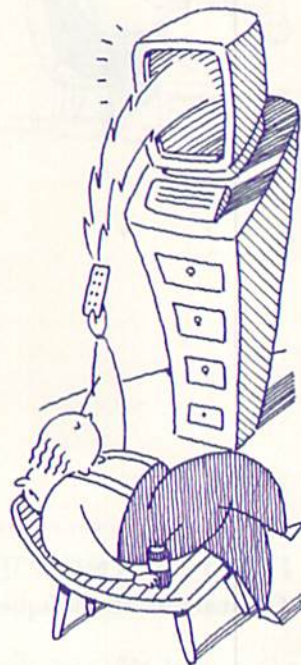
(Or, advice on arranging your equipment.)

- ▶ The type of flooring you use in your computer room is important to the life of your equipment. Cushioned vinyl or carpeting made of low- or non-static material are good bets. Alternatively, you can install a static mat under the computer zone or locate antistatic buttons or conductive foam pads on the furniture.
- ▶ Don't put your power supply on the floor, especially if it's carpeted.
- ▶ Set up your computer equipment so air can flow around it (including underneath); never block any vents. Overheating reduces a computer chip's life.
- ▶ If you must do your computer work in a confined space, set up a fan so that it moves air over your equipment.
- ▶ If you put rubber feet or wooden blocks under your Commodore for air flow, make sure you provide support for your modem or anything else that attaches to the user port to prevent strain on the connectors.
- ▶ Don't prop up your computer equipment with metal; it can generate a magnetic field that may destroy data or interfere with your machine.
- ▶ Keep your power supply as far away from your monitor as possible to minimize interference.
- ▶ Locate proper lighting at your computer work area if overhead lighting is insufficient or unavailable.
- ▶ Eliminate the sources of glare on your computer screen. For example, never position your screen directly in front of a window.
- ▶ Move computer hardware away from windows to prevent exposure to direct sunlight, temperature fluctuations and weather elements.
- ▶ Keep your disks away from the electromagnetic radiation of a motor or TV tube; also keep them away from refrigerators, stereos, telephones, vacuum cleaners and metallic objects.
- ▶ Keep cables and equipment away from any sources of stray electrical signals, such as motors or transformers.
- ▶ Arrange cords, cables and other plugs so that you can't trip over them and accidentally unplug the computer.
- ▶ Tie up unused monitor, drive or printer cables with rubber bands or twist ties.
- ▶ Label each cable to help simplify identifying the tangle of wires and connectors behind your computer. You'll appreciate this the next time you have to unplug your disk drive or interface.
- ▶ Label the sockets that correspond to each cable. Attempting to plug, for example, a power supply input into a monitor socket could prove disastrous.
- ▶ Use a separate, private line for your modem—don't connect it to an extension jack of your house phone.
- ▶ Isolate your system with a power strip that has its own switch and fuse.
- ▶ Use a mousepad with your mouse.

## WHY DIDN'T I THINK OF THAT?

(Or, commonsense computing shortcuts and care.)

- ▶ Consider joining or starting a user's group to exchange Commodore information.
- ▶ When transporting your disk drive, insert an old disk or cardboard head protector into it. Then place the drive in its original box or pack it firmly with styrofoam popcorn in another.
- ▶ Let any disk that has been exposed to cold temperatures warm slowly to room temperature. Wait at least one day before using it. If you record on a cold disk, you may not be able to read it when it's warm.
- ▶ Loading problems can occur when high humidity causes the interior of your disk envelopes to become slightly damp. Reduce this problem by storing your disks with a desiccant bag or capsule (such as those packed with vitamins).
- ▶ Seal printer ribbons, disks and other accessories in moisture-proof packaging to keep them from drying out or being contaminated by dust. Store disks upright, at moderate room temperature, and protect them from light.
- ▶ Generally, anything that puts pressure on a disk's surface may damage it (writing on a disk label with a ballpoint pen, for example).
- ▶ If you have a lot of files on a disk, print out a directory and tape or glue it to the disk sleeve. Then you'll know, at a glance, what files are on your disk.
- ▶ Employ a color-coded system if you use a lot of disks.
- ▶ Turn a radio on and place it first on the left side of your monitor and then on the right. Put your disk drive on the side of the monitor that appears to pick up the least interference.
- ▶ To avoid having static electricity destroy a joystick port, put a piece of black electrical tape over the ports. It will insulate them against static charges, won't gum up the ports and can easily be removed to plug in a joystick. Also, remember to keep fingers and foreign objects away from all ports.
- ▶ If new equipment is going to fail, it will usually happen early in its life. So, make it a practice to "burn in" new equipment: Leave it powered up round-the-clock for about 72 hours after assembly to see whether it continues to function normally. If it doesn't, you can get it replaced while it's still under warranty.
- ▶ If your keyboard gets wet, turn off the power, unplug the machine, and let it dry for at least 24 hours.
- ▶ Do not simultaneously power up several machines or pieces of equipment; this can cause a brief but harmful power surge. Turn on your peripherals, then your computer; reverse the action to shut down your system.
- ▶ Don't plug in or unplug a printer or disk drive, either at the computer or the peripheral, while the peripheral is on.
- ▶ Make sure all plugs are firmly implanted and have no pressure on them. A plug that is in crooked may make a poor contact or cause a short.
- ▶ Never unplug anything from any port, especially the expansion or user port, while your computer is on.
- ▶ If you have problems running a program, try unplugging your joystick or other input device, plug-in cartridges, interfaces and all unnecessary peripherals. This may solve the problem.
- ▶ Read your computer and peripheral manuals; the 64 or 128 *Programmer's Reference Guide* can also come in handy. Become familiar with them and your system. You'll be able to pinpoint problems quickly and avoid a great deal of frustration.
- ▶ Take frequent breaks from computing to avoid visual and muscle fatigue.
- ▶ Use a comfortable chair that helps you maintain good posture when computing.
- ▶ Each time you use a program, adjust the monitor screen's color to your specifications to make it easier on your eyes.
- ▶ Use anti-fog/anti-static eye-glass spray to help keep your monitor screen dust free.



## THINGS YOUR MOTHER ALWAYS TOLD YOU

(Or, housekeeping hints.)

- ▶ Keep your computer desk and work area clean and organized.
- ▶ Don't eat, drink or smoke around your equipment.
- ▶ Handle the keys gently. Press them down; don't hit them.
- ▶ Don't keep your computer system in the kitchen, where grease, smoke and steam can affect it.
- ▶ Before typing on your computer, wash your hands if they're greasy or covered with newsprint.
- ▶ Don't let young children play unsupervised with your equipment. ▶

- ▶ Keep pets away from your computer.
- ▶ Try to take at least one computer course (adult ed, college level, for beginners only, etc.) to learn the fundamentals of computing.
- ▶ Share your knowledge with others interested in learning more about computers.
- ▶ Keep complete and accurate receipts and records of model and serial numbers and dates of purchase for all your computer hardware and software.
- ▶ Always make backups of your master and work disks.
- ▶ Heed the warnings on the backs of disk sleeves: Do not bend, drop, fold, freeze, heat, throw, spill on or sneeze on, scratch or magnetize. In other words, handle carefully and insert and remove from the drive carefully.
- ▶ Make sure write-protect tabs are securely in place; otherwise, they can become lodged in your disk drive.
- ▶ Never touch a disk's magnetic surface.
- ▶ Do not place disks on your monitor or disk drive when in operation.
- ▶ Don't distribute backup copies of commercial software to user's groups, friends, neighbors, etc.—it's immoral and illegal.
- ▶ Cover your equipment when not in use to avoid dust buildup.
- ▶ Dust your workstation carefully and frequently.
- ▶ Frequently clean your mouse according to the instructions in its user's manual.
- ▶ Make it a habit to discharge yourself of static prior to touching any equipment.



- ▶ Unplug all computer accessories and the telephone line from the modem whenever a thunderstorm is approaching or lightning is nearby.
- ▶ Don't forget to unplug your telephone line from the modem when not in use.



### A PENNY SAVED

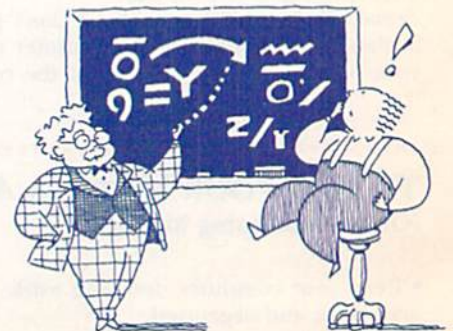
(Or, guidelines to reducing computing costs.)

- ▶ Check with other software owners about the programs you're interested in before purchasing them yourself. Alternatively, see if you can try a demo of the program at your local computer store before buying.
- ▶ Before buying a non-Commodore printer, ask the salesperson, or preferably a printer technician, if the machine is fully compatible with your Commodore.
- ▶ Although printer ribbon re-inking may be a way to save money, it could also ruin your print head if the re-inker contains abrasive particles. Make sure you only use ink that is specifically made for a dot-matrix head because it has lubricant in it to reduce wear.
- ▶ Print on both sides of your computer paper.
- ▶ Buy good quality disks; that is to say, those with a clear or colored reinforcement ring in the exposed part of the disk around the center hole. Disks without this protective ring may not last as long. Pennies-apiece disks will cost you in the long run.
- ▶ Commercial disk storage boxes are expensive and quickly become full. An old shoe box works just as well.
- ▶ Just as with light bulbs, turning off your monitor and computer when not in use will extend their life expectancies.
- ▶ Try to make long-distance calls to BBSs during the evening and on weekends, when telephone rates are lower.

### I DIDN'T KNOW THAT!

(Or, insights and unique solutions.)

- ▶ Owners of 1571 disk drives should never close the drive door without a disk or insert in the drive. With nothing in the drive, the heads will come into contact with each other and damage may result.
- ▶ Initialize the disk (OPEN 15,8,15, "10":CLOSE 15) after using commercial programs that involve a lot of access to your 1541. This will center the disk drive's head.
- ▶ Don't leave disks in a 1581 drive when you turn the power on or off. Auto-booting 1581 disks (with the 1581 as a primary drive) can be done after the computer is on by pressing the reset switch or typing "BOOT".
- ▶ C-128D owners using second drives must have the drive turned on in order for their modem to work.
- ▶ Don't use the flip sides of one-sided disks; they are unreliable.
- ▶ Unplug your power supply when you're not using your computer. Turn-



ing off the computer does not turn off the supply; it still generates heat even when the computer is off.

▶ To slow down a scrolling listing or di-

rectory, press the control key on the C-64 and the Commodore key on the C-128.

▶ It's a bad habit to advance the printer by hand when it's turned on.

▶ To prevent mineral deposits on your system, use distilled water in any ultrasonic humidifier that happens to be situated anywhere near computer equipment or accessories.

**ZEN AND THE ART OF TYPING**

(Or, how to enter errorless listings.)

▶ Enter one line at a time and check for errors before entering the next line.

▶ Use a guide, such as a sheet of Post-it paper, under each line as you go along to help you keep your place.

▶ Double-check all numbers.

▶ Look for missing characters, missing parts of a line, or missing lines.

▶ Familiarize yourself with the different types of errors an incorrectly typed listing can generate.

▶ Refer to *RUN's* "Troubleshooting Troublesome Type-Ins" in the May 1989 issue, and also to our Checksum program, which is published monthly.

▶ Give your disks meaningful and unique ID characters (the two-digit identifier placed in the upper-right corner of the disk directory).

▶ Put a menu program on each disk you create to facilitate accessing programs.

▶ Place a write-protect tab on a source disk if you're copy-

ing from it to a destination disk. It will protect against accidentally erasing the disk's contents.

▶ Frequently save listings as you type them in. Save files on the C-64 with SAVE "filename",8. Save files on the C-128 with DSAVE "filename".

▶ Familiarize yourself with abbreviations for Basic commands. You can then type in *RUN's* listings much more rapidly.

▶ Check all your Data statements for errors if you get an Out of Data message.

▶ Try to establish a system for naming your files. For example, use all lowercase and a suffix (like the date) to help you identify them later.

▶ Get in the habit of not using spaces within filenames. It makes it easier to send files via telecommunications.

▶ When loading a file, be sure to type in the filename exactly, including spaces and punctuation, just as it appears in the directory. If you

type it incorrectly, you'll encounter a File Not Found error message.

▶ To access your disk directory on the C-64, first type LOAD"\$",8 and press return. Then type in LIST at the Ready prompt. To load a C-64 program from the directory, cursor up to the filename, type LOAD beside it, cursor over to the space following the quote after the filename, type ,8: and press return. Then, enter RUN:.

To get to the directory on your C-128 in either 40- or 80-Column mode, simply press the F3 key. To load in a program from the directory, move the cursor up beside the file you want to load. Type D followed by the shifted L key over the first two spaces in that line, move the cursor over beyond the filename (without erasing it) and press colon and return. At the Ready prompt, type RUN and a colon and press return. This is a great time-saver.

▶ Save and verify a program before running it.



**LET YOUR FINGERS DO THE WALKING**

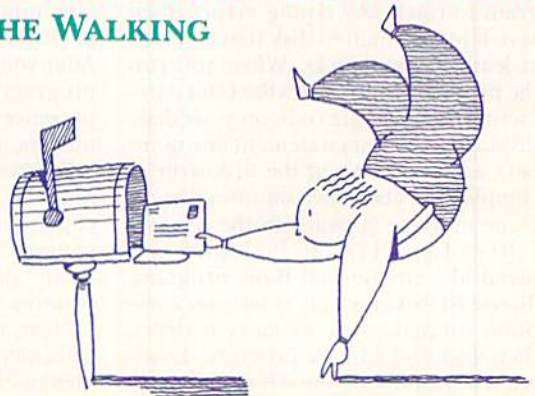
(Or, how to order by mail.)

▶ Try to buy from mail order firms that specialize in Commodore products. If that isn't possible, buy from those that sell only computer products.

▶ If you call a mail-order house, ask for a delivery price and date of arrival.

▶ Provide a complete description of what you want.

▶ Don't send cash through the mail.



Readers: If you have ways to better computing of your own that you'd like to share with others, send them in. We'll publish them in a future issue of *RUN*.—Eds. ■

# RUN Copy 128

*Try this speedy and friendly file copier that works with any two C-128-compatible disk drives.*

By ED PARRY

**R**UN Copy 128 is a C-128 multi-file/multidrive file copier that works with any two C-128-compatible disk drives. It operates just like its C-64 counterpart (published as "Friendly File Copier," *RUN*, November 1989), with the following exceptions:

1. RUN Copy 128 can copy 100, not 200, files at one time.

2. RUN Copy 128 automatically detects 40- or 80-Column mode and reacts accordingly.

3. The escape key replaces the left-arrow key for resetting the program at any input prompt.

4. File copying, with either a 1571 or 1581 disk drive, is several times faster than with RUN Copy 64, because those drives use fast serial input/output in 128 mode.

5. A bell indicates copy completion and any problems.

If you're unfamiliar with RUN Copy 64, here's everything you need to know to get the C-128 version of the program up and running.

## PRELIMINARIES

Type in Listing 1, called RUN Copy 128.Bas, using *RUN*'s Checksum program to catch any typing errors, then save it to a formatted disk that contains at least 50 free blocks. When you run the program, it translates the Data statements into machine code on your disk, displaying the Data statement line numbers as it goes. When the disk-write is complete, in about five minutes, the All Done message appears on the screen.

RUN Copy 128 can be loaded and saved like any normal Basic program. To use RUN Copy 128, reset your computer (to make sure memory is clear), then load and run the program. Loading is fast, and soon the self-explanatory main screen appears, showing fields



RUN Copy 128's main screen display.

such as filename, file type, file size, files chosen to copy, and files actually copied. The screen also offers the three options explained below.

## THE COPY FILES OPTION

Copy Files, the main RUN Copy 128 option, is invoked by pressing the C key. When the program prompts you for the source and destination drive numbers, specify each by using the cursor-right key to increase the default number or the cursor-down key to decrease it, and then pressing the return key to enter your choice. You can input any numbers from 6 (for a hard drive or RAM disk program) through 30. After you've pressed the return key, the program automatically checks for the presence of each drive and, if one is missing, displays an error message.

When it has identified acceptable drive numbers, the program asks you for a copy pattern. Any standard directory pattern is acceptable, with the default being \* (all files). Examples of acceptable patterns are shown in Table 1.

Next, the program reads the source directory, displays the first matching filename and asks if you want that file copied. Press Y to place the filename in

the program's internal list of files to be copied, or N to exclude the filename from the list. Pressing A aborts the copy option and resets the program.

Once you've specified the files, copying begins. RUN Copy 128 uses the standard disk read/write routines, so you can copy files easily from any standard Commodore disk drive to any other.

During copying, the R/W field indicators flash back and forth to indicate which phase, read or write, the program is in. In addition, the # field shows the file number currently being copied, the To Copy field shows the total number of files to be copied, and the Copied field shows the number of files already done. The Copy Complete message appears when the entire process is finished.

You can abort a copy operation at any time by holding down the run-stop key. It may take several seconds for the abort to occur, so keep holding the key down until you see the Copy Aborted message.

Utilities, such as JiffyDOS, that speed up disk read/write operations work well with RUN Copy 128.

## THE DISK COMMAND OPTION

This option lets you issue standard disk commands, so you can scratch files, format disks, validate disks, and so forth, from RUN Copy 128. Several examples of acceptable disk commands appear in Table 2. If you need further help, see the section on disk commands in your drive manual.

Press the @ key to activate the Disk Command option. Then use the cursor and return keys to specify the number of the drive that should receive the command. Here again, acceptable numbers range from 6 through 30.

The program verifies the presence of the drive and then prompts you for the command. Type it and press return.

RUN it right: C-128; any two disk drives




After execution, the program displays the disk status as returned by the drive.

### THE DIRECTORY COMMANDS OPTION

The third RUN Copy 128 option, for displaying disk directories, is activated much like the Disk Command wedge. Specify a drive device number with the cursor and return keys; then, at the \$0> prompt, enter any valid directory pattern (see Table 1) or press return to show the entire directory.

In addition to the normal directory information, RUN Copy 128 shows how many files are in the list. At the Pause message, press any key to return to the main screen.

If you have two disk drives, you'll find RUN Copy a handy utility. 

*Ed Parry, author of EBBS bulletin board software, writes programs and articles for a variety of publications.*

**Table 1. Examples of acceptable copy patterns.**

Command	Pattern
*	All files in the directory
*=P	PRG files only
*=S	SEQ files only
A*	Files whose names start with A

**Table 2. Examples of acceptable disk commands.**

Command	Function
>i0	Initializes a disk (loads the BAM)
>v0	Validates (cleans up) a disk
>n0:target disk,RC	Formats a disk as the target, with an ID of RC
>n0:erase disk	Erases a formatted disk
>u0>m0	Puts a 1571 drive in 1541 mode
>u0>m1	Puts a 1571 drive in 1571 mode
>s0:filename	Scratches a file

**Listing 1. RUN Copy 128.Bas program. (Available on ReRun disk. See order card facing page 16.)**

```

Ø REM LISTING 1 CREATES (AND SH      Ø)+RIGHT$(A$,LEN(A$)-42)      E291C2Ø328E2Ø      :REM*41
OULD NOT BE CALLED) RUNCOPY 1      :REM*14Ø      1Ø7 DATA 7DFF2Ø4E4F542Ø5Ø5245*5
28      :REM*234      7Ø FOR I=1 TO LEN(B$)/2:REM*221      3454E542EØ5Ø7ØØ386Ø*AØØØ8C2
5 OPEN 8,8,8,"RUNCOPY 128,P,W"      75 C$=MID$(B$, (I*2)-1,2):H$=LEF      81CAØØØ84F42Ø      :REM*175
      :REM*172      T$(C$,1):L$=RIGHT$(C$,1)      1Ø8 DATA 7DFF122Ø929DØØA9Ø185*F
6 CT=Ø:PRINT"{SHFT CLR}":REM*56      :REM*14Ø      42ØE4FFFØF7C914DØ1C*AC281CF
1Ø READ A$:IF A$="-1" THEN CLOS      8Ø H=VAL(H$):IF H$>"9" THEN H=A      :REM*54
E8:PRINT:PRINT"ALL DONE1":EN      SC(H$)-55      :REM*56      1Ø9 DATA 85F42Ø7DFF2Ø9D9D2Ø9D*1
D      :REM*129      85 L=VAL(L$):IF L$>"9" THEN L=A      22Ø929DØØ4CD81CC9ØD*FØ11C91
12 PRINT"{HOME}READING LINE "+S      SC(L$)-55      :REM*84      BDØØ34C331CAC      :REM*172
TR$(CT):CT=CT+1      :REM*141      9Ø BY=H*16+L:PRINT#8,CHR$(BY);      11Ø DATA 281CCØ1EFØC52Ø2DC7AC*2
15 IF LEN(A$)<62 THEN 55      :REM*148      81C99B129C8C9ØDDØA8*A9ØØ85F
      :REM*254      95 NEXT:GOTO 1Ø      :REM*16Ø      4A92Ø4C2DC7A9      :REM*68
2Ø B$=MID$(A$,1,2Ø)+MID$(A$,22,      1ØØ REM MACHINE LANGUAGE FOR RU      111 DATA Ø12Ø461FAE2B1CA9ØØ2Ø*3
2Ø) +MID$(A$,43,2Ø)      :REM*242      NCOPY 128      :REM*219      28EA92Ø2Ø2DC72ØE4FF*FØFBC9Ø
25 FOR I=1 TO 3Ø      :REM*181      1Ø1 DATA Ø11C211CBAØ49E2Ø3732*3      DDØØEA9ØØ2Ø46      :REM*122
3Ø C$=MID$(B$, (I*2)-1,2):H$=LEF      Ø343A8AF43132382Ø42*592Ø454      112 DATA 1FAD2B1C8D291C4C6D1C*C
T$(C$,1):L$=RIGHT$(C$,1)      42Ø5Ø41525259      :REM*Ø      91BDØØ34C331CC91DDØØ*ØCAD2B1
      :REM*2Ø9      1Ø2 DATA AD4341ØØØØØØØØ4C331C*Ø      CC91EFØD7EE2B      :REM*185
35 H=VAL(H$):IF H$>"9" THEN H=A      ØØØØ8Ø8Ø9ØØØØØØØØØØ*ØØØØA9Ø      113 DATA 1CDØCØC911DØØCAD2B1C*C
SC(H$)-55      :REM*85      Ø85F485F3A9Ø8      :REM*151      9Ø6FØC7CE2B1CDØBØ4C*2A1DA9Ø
4Ø L=VAL(L$):IF L$>"9" THEN L=A      1Ø3 DATA 8D291CA9ØØ8D2ØDØ8D21*D      12Ø6B1FAE2A1C      :REM*221
SC(L$)-55      :REM*136      Ø8D2D1CA9Ø52Ø2DC7A5*D7FØ182      114 DATA A9ØØ2Ø328EA92Ø2Ø2DC7*2
45 BY=H*16+L:PRINT#8,CHR$(BY);      ØB3772Ø7DFF93      :REM*234      ØE4FFFØFBC9ØDDØØEA9*ØØ2Ø6B1
      :REM*67      1Ø4 DATA 1313ØØ18A2Ø1AØ142ØFØ*F      FAD2A1C8D291C      :REM*133
5Ø NEXT:GOTO 1Ø      :REM*115      F2Ø7DFF1B54ØØ4C9Ø2Ø*A9ØF2ØC
55 IF LEN(A$)<21 THEN B$=A$:GOT      3FFA9ØØ2ØBDFF      :REM*157      115 DATA 4C6D1CC91BDØØ34C331C*C
O 7Ø      :REM*184      1Ø5 DATA A2ØØ2Ø68FFA9ØFAE291C*A      91DDØØCAD2A1CC91EFØØ*D7EE2A1
6Ø IF LEN(A$)<42 THEN B$=LEFT$(      ØØF2ØBAFF2ØCØFFA9ØF*2ØC3FFA      :REM*18      CDØCØC911DØØC
A$,2Ø)+RIGHT$(A$, (LEN(A$)-21      59Ø8D2C1CDØØ5      :REM*165      116 DATA AD2A1CC9Ø6FØC7CE2A1C*D
)):GOTO 7Ø      :REM*176      1Ø6 DATA 182Ø2A2Ø6Ø2Ø2A2Ø2Ø7D*F      ØBØ4C7D1DA9Ø12ØB51F*AE291CA
65 B$=LEFT$(A$,2Ø)+MID$(A$,22,2      F9EC4524956452Ø232Ø*ØØA9ØØA      :REM*169      9ØØ2Ø328EA92Ø      :REM*169
117 DATA 2Ø2DC72ØE4FFFØFBC9ØD*Ø

```



C2F24202A1DB0F3AD2B*1CCD2A1 CD025207DFF9E :REM*253	920E4FF8DC529A000EE*271CB9B 12991FBC8C015 :REM*56	8C015D0F618A5FD6915*85FD900 2E6FE20DB1E20 :REM*246
187 DATA C4524956452023275320*4 3414E27542042452054*4845205 3414D452E0500 :REM*128	197 DATA D0F618A5FB691585FB90*0 2E6FC20E4FFD0FB20E4*FF20E4F FF0034CE226A9 :REM*72	207 DATA F11E20B51E20931EA940*A 230A03A8D93298E9429*8C9529A 000B9B3299975 :REM*100
188 DATA 4CF025202A20207DFF9F*C 34F505920D041545445*524E209 E24303A052A00 :REM*245	198 DATA 0020111F20CCFFA90220*C 3FFAD271CC901B0034C*331CA2A FA02B86FB84FC :REM*233	208 DATA 29999629C8C010D0F2A9*2 C997529999629B9B329*C899752 9999629C8A92C :REM*71
189 DATA A924A230A03A8DAE298E*A F298CB029A92A8DB129*A00120C 91CADB129C90D :REM*171	199 DATA A900201B1EA2E3A03386*F D84FEA900206E1EA000*8C2E1C8 C2F1C8C301CB1 :REM*247	209 DATA 997529999629C8A95299*7 529A957999629A914A2*75A0292 0BDFFA2002068 :REM*0
190 DATA D0034C331C202A20207D*F F9ED2454144494E4720*D34F555 2434520C44952 :REM*214	200 DATA FB99B129C8C015D0F618*A 5FB691585FB9002E6FC*20DB1E2 0F11E20B51E20 :REM*201	210 DATA FFA902AE2A1CA820BAFF*2 0C0FFA917A293A02920*BDFFA20 02068FFA903AE :REM*120
191 DATA 4543544F52590500A901*2 0111FA2AFA02B86FB84*FC18AD2 81C6903A2AEA0 :REM*136	201 DATA 931E202A20207DFF9FC3*4 F505920544849532046*494C452 09E28592F4E2F :REM*78	211 DATA 2B1CA00120BAFF20C0FF*A 90020401E20452020E1*FFD007A 9018D2D1CD00D :REM*236
192 DATA 2920BDFFA2002068FFA9*0 2AE2A1CA00020BAFF20*C0FF900 8A90220C3FF4C :REM*30	202 DATA 41293F05201220929D00*2 0E4FFF0FBC959D027A9*01206E1 EA000B9B12991 :REM*202	212 DATA 206A20A90120401EAD2C*1 CF0E420CCFFA90220C3*FFA9032 0C3FFA9002011 :REM*168
193 DATA 331CA0008C271CA20220*C 6FFA00020E4FFC8C022*D0F8A90 D202DC720E4FF :REM*21	203 DATA FDC8C015D0F618A5FD69*1 585FD9002E6FEAD271C*CD2E1CF 0194C9827C94E :REM*240	213 DATA 1FA901201B1EAD301CCD*2 F1CF0034C4A28A900200*8B1F202 A20AD2D1CF01E :REM*39
194 DATA 8DB12920E4FF8DB229A0*0 2A9A099B129C8C012D0*F820E4F FA690D05BC922 :REM*46	204 DATA D00BAD271CCD2E1CF00A*4 C9827C941D0BD4C331C*AD2F1CD 0034C331C202A :REM*66	214 DATA 207DFF129EC34F505920*C 1424F52544544210792*050020E 1FFF0FB4C2F24 :REM*86
195 DATA D0F5A00220E4FF99B129*C 8A690D04AC922D0F188*A9A099B 12920E4FFC920 :REM*68	205 DATA 20207DFF12C3CFD0D9C9*C EC79200A2E3A03386FD*84FEA20 08E2E1CA0008C :REM*228	215 DATA 207DFF129FC34F505920*C 34F4D504C4554452107*9205004 C2F24 :REM*82
196 DATA F0F98DC32920E4FF8DC4*2	206 DATA 311C8C321CB1FD99B129*C	216 DATA -1 :REM*74 ■

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# Basic Takes the Wrap

*Take command of your screen displays with this word-wrapping routine.*



By HOWARD I. GOLDMAN

**T**he first command a beginning Basic programmer learns is Print. Yet, even if you have years of experience, setting up an attractive screen display can be a chore. You must keep track of line lengths yourself, since Basic provides none of the automatic parsing (word-wrapping) you take for granted in your favorite word processor. And arranging text with graphics can cause endless frustration.

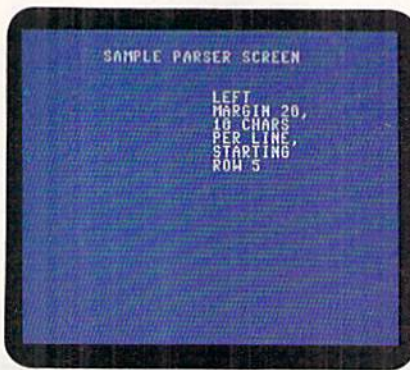
Things are easier with Parser, a short (141-byte) machine language routine that takes much of the hassle out of managing text displays. It automatically word-wraps while printing text strings to the screen, so you don't have to break messages into several lines of Print statements. Better yet, it lets you specify an exact display format, so that you can easily integrate text with character graphics.

Parser is intended for use in your own programs, not on its own. Hence, when merging it into another program, you'll probably need to renumber Parser's lines.

The program in Listing 1 is a Basic loader that reads the machine code in its Data statements and pokes the code into memory. The first step you should take is to type in the loader, using RUN's Checksum program to detect any typing errors; then save it to disk before running it.

By default, the machine code is placed starting at memory location 49152. However, you can put it at any address where you're sure you have 141 bytes of memory free (the cassette buffer, or the free area at 679, for example). All you have to do is change the value of SA in line 20.

Once you've run the loader, Parser is ready to use in either Immediate or



**The Parser program gives you flexibility in formatting text displays.**

Program mode. The syntax is:

```
SYS SA,<text$>,<left margin>,<characters per line>,<starting row>
```

## THE PARAMETERS

All of Parser's parameters may be either literal constants or expressions (using variables and numeric or string functions). An explanation of each parameter follows.

SA is Parser's starting address in memory (the value assigned to variable SA in the loader program).

TEXT\$, the message to be printed, can be any string expression—a string variable, a literal string enclosed in quotes, or a combination of both concatenated with a plus sign. A combination expression might look like:

```
F$+T$+"PRESS ANY KEY"
```

The complete expression may contain no more than 254 characters.

The left-margin value specifies the starting column for each line of text and ranges from 0 to 39. This parameter is useful for positioning a block of text to the right of a character graphic. If the graphic extends to, say, column

14, you might set the left margin of the text to column 16.

The characters-per-line value, which also ranges from 0 to 39, specifies the maximum number of characters allowed on each line. (Of course, the number of characters actually printed on a line depends on how the words wrap.) This parameter provides an indirect way to set a right margin, enabling you to position a block of text on the left side of the screen.

Finally, the starting-row value, ranging from 0 to 24, lets you position the text vertically. Note that Parser outputs a carriage return after printing the string, so, if your text prints down to the last screen line, the screen will scroll.

## PROGRAM NOTES

I've made Parser as compatible as possible with other machine language routines you may use in your programs. It's relocatable, as I have mentioned, and it doesn't touch zero-page locations 251–254, which are used by many machine language programs.

Because of the C-64's 40-column screen width, the total of the left-margin and characters-per-line values you specify cannot exceed 39. You cannot, for example, specify a left margin of 10 with 32 characters per line. Basic will return an Illegal Quantity error if you exceed the limit.

Make certain that the value you supply for characters-per-line is greater than the length of the longest word in the string. If, for example, you specify a line length of 11, and there's a 15-letter word in the string, Parser will go berserk and fall into an endless printing loop.

## 80-COLUMN PRINTERS

With a couple of modifications, Parser can be used to send output to a

RUN it right: C-64


printer. Use the statement:

```
POKE SA+73,32:POKE SA+48,81
```

where, again, SA is Parser's starting address in memory. This statement provides a maximum left-margin plus line-length total of 79, instead of the 39-character screen limit.

Open a file to the printer and redirect output there with the CMD statement before calling Parser; then close the output channel when you're finished. The statement:

```
POKE SA+73,29:POKE SA+48,41
```

will reset Parser for screen printing. 

*Howard I. Goldman, a self-taught Basic and assembly language programmer, is also a serious performing musician.*

**Listing 1. Parser loader program. (Available on ReRun disk. See order card facing page 16.)**

```
1Ø REM PARSER PROGRAM LISTING 1      24,165,176,1Ø1,165,2Ø1,41,14
      :REM*211                          4,5,162,14,1Ø8,Ø :REM*132
2Ø SA=49152:REM{2 SPACES}STARTI 9Ø DATA 3,16Ø,Ø,132,155,132,156
  NG ADDRESS :REM*224                  ,166,146,24,32,24Ø,255,166,1
3Ø FORJ=ØTO14Ø:READB:POKESA+J,B      76,24Ø,8,169,29 :REM*22
  :NEXT :REM*165 1ØØ DATA 32,21Ø,255,2Ø2,2Ø8,25Ø
4Ø PRINTCHR$(147) :REM*254            ,24,165,156,1Ø1,165,233,1,1
5Ø SYS SA,"LEFT MARGIN 2Ø, 1Ø C      97,15Ø,144,12,23Ø :REM*94
  HARS{3 SPACES}PER LINE, STAR 11Ø DATA 155,165,156,164,15Ø,2Ø
  TING ROW 5",2Ø,1Ø,5 :REM*211        Ø,132,156,168,2Ø8,15,168,2Ø
6Ø DATA 32,253,174,32,158,173,3      Ø,2ØØ,136,177 :REM*18
  2,163,182,134,158,132,159,13 12Ø DATA 158,2Ø1,32,2Ø8,249,165
  3,15Ø,198,15Ø,32 :REM*226          ,156,132,156,168,177,158,32
7Ø DATA 253,174,32,158,183,134,     ,21Ø,255,2ØØ,196 :REM*27
  176,32,253,174,32,158,183,23 13Ø DATA 156,2Ø8,246,2ØØ,132,15
  2,134,165,32,253 :REM*85          6,169,141,32,21Ø,255,166,15
8Ø DATA 174,32,158,183,134,146,     5,24Ø,184,96 :REM*147 ■
```

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# A Booster Shot for GEOS

*GEORAM, the latest addition to the GEOS family, will give you the speed you need with either GEOS 64 or 128.*



By MARK JORDAN

Anyone who has ever used GEOS knows that speed, or the lack thereof, is that system's greatest weakness. Yet there was a glimmer of hope when the 1700 series RAM expansion units (REUs) was announced by Commodore and supported by GEOS. The 1764, a 256K unit for the 64, and the 1750, a 512K unit for 128 owners, offered Commodore computerists the opportunity to run GEOS at processor speed. The results were dramatic.

The marriage of GEOS to an REU was blissful. Sadly, a lot of Commodore users never got the chance to witness such a wedding. The chip wars began, Commodore stopped making REUs, and celibacy became the technical norm. So, word that Berkeley Softworks was producing a memory expansion unit for GEOS was, well, a little like news that a whole bunch of potential brides were moving to Bachelorville!

Before describing all of GEORAM's charms, let's be clear on what it is. On the hardware side is a 512K memory expander card—about the size and shape of an eight-track tape cartridge—for use *only* with GEOS. It works on either a C-64 or C-128, is inexpensively priced (\$124.95), plugs into your Commodore's cartridge port, and is *available*. On the software side is a new system disk (2.0r) that, thanks to its creation of a pseudo disk drive, performs speedy operations. Unfortunately for those who do not own GEOS, GEORAM is only for GEOS operation.

## TESTING TELLS ALL

Now for those charms: speed, speed and more speed. Berkeley advertises an increase to 35 times the disk transfer speed with GEORAM, and that's a fact. As for overall operating speed, I did a series of benchmark tests with GEOS 128 and averaged the results: GEOS ran 3.5 times faster with GEORAM. Re-

member, however, that while using GEOS, you're doing more than just accessing the drive. For example, drawing bitmapped screens is a fairly slow, non-disk-access process that frequently occurs with GEOS and which GEORAM won't do much for. Still, you've taken a mini-quantum leap in computing power whenever you speed up anything 350 percent.

The acceleration commences at the deskTop. With GEORAM in place, as soon as you boot up GEOS and start paging through your icons, you'll notice the dramatic effects. Flip a page in 1.25 seconds, compared with 6.5 seconds to do the same with only a 1571 drive—a 50 percent increase.

Desk accessories are also accelerated. One of the most crucial, Photo Manager, is so sluggish without RAM expansion that some computerists forego using graphics in their geoPublish documents. It simply isn't worth the 12.73 seconds it takes from the time you select Photo Manager until the first photo appears. With GEORAM, it happens in a mere 2.85 seconds.

I also found there were excellent time gains in running GEOS applications, particularly geoPublish and geoPaint. Without GEORAM, it took me 32 seconds to redraw a geoPublish screen that included a bitmap, text, foreground graphics, special text, and so on. With GEORAM, that time was cut in half. Scrolling from the left side of the screen to the right took 101 seconds without and 40 seconds with.

You'll see the greatest speed improvements while moving about the screen in geoPaint. Without GEORAM, it takes over three seconds to go from point A to point B; it's less than a second with GEORAM. The speedup is more dramatic the first time you move across the screen because geoPaint spends time re-allotting disk space as you increase the size of your drawing.

With GEORAM, all applications get a tremendous speed boost when dealing with files—whether saving, copying or loading them. For instance, by double-clicking a geoWrite text file from the deskTop, I was ready to type in a mere 5.7 seconds. Compare that with the in-terminable 24.4 seconds required to do the same when limited to a 1571 drive.

## THE RAM, THE SHADOW AND OTHER GOODIES

These speed increases are largely due to the creation of that pseudo disk drive I mentioned earlier. GEOS treats the GEORAM unit as if it's a real drive, but its limitations are electronic rather than mechanical. When you use GEORAM, you can assume, for all practical purposes, that you're reading and writing to a real disk drive. It's as easy as that.

There are a number of other efficiencies with this new system software that accompanies GEORAM. For one thing, Shadow mode increases speed in the physical drives. In this mode, GEORAM keeps a copy of files in RAM and doesn't access the drive when it doesn't need to. Another feature speeds up directories on 1581 drives by keeping the directory in RAM, a big page-flipping time-saver if you have a fairly full 1581 disk in the drive.

GEORAM also has some special goodies for the C-64 owner. First and foremost, GEORAM is 512K, not 256K as is the 1764. That means you can have an entire double-sided disk's contents in RAM. Second, GEORAM doesn't require a new power supply. A third advantage is that you can almost instantaneously re-enter GEOS from Basic. On a C-128, by using the reset switch, you can sometimes even successfully re-enter after a crash.

## SAY IT AIN'T SO!

The drawbacks to GEORAM are few. With its circuit board sticking out of the

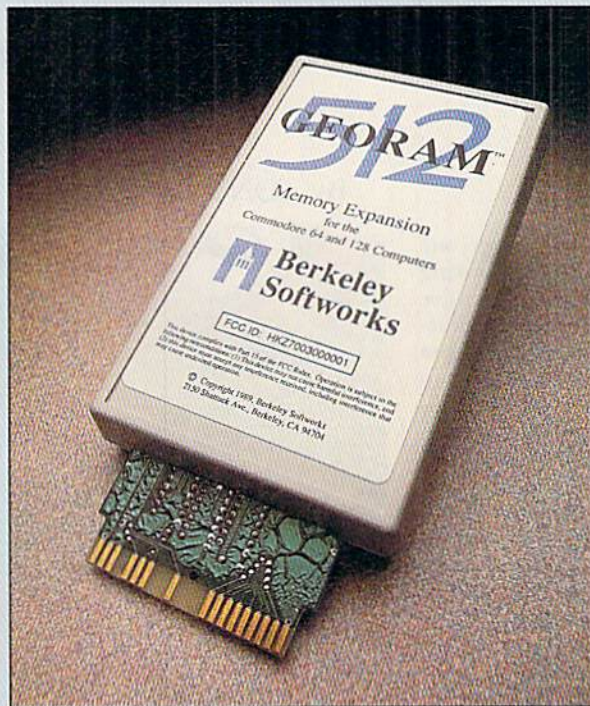
plastic case by almost an inch, the unit seems a bit unfinished. It looks something like an electronic turtle with its head sticking out. Once pushed into place, however, the board is hidden. Also, GEORAM is a space hog, taking up about an inch more room than an REU at the rear of the computer. If you've got a wall right behind your computer, be prepared for "computer shove-out shock."

Another disadvantage is that GEORAM is a tad slower than the REU, but the difference is negligible in most cases. This relative slowness is due to the fact that GEORAM doesn't use direct memory access (DMA) chips like those in the REU, and this is also the reason that GEORAM cannot be used as a RAM expander outside of GEOS.

Ironically, using any RAM expansion entails some sacrifice in efficiency. Because RAM is erased every time you power down, you must re-copy your data into and back out of RAM every time you use GEOS. That takes time and some getting used to. It's also quite possible to absentmindedly copy the contents of your RAM disk to your physical disk when you mean to do just the opposite. The result is a loss of data.

With that said, I wouldn't be without RAM expansion. In choosing between GEORAM and a 1764 or 1750 REU, I'd purchase GEORAM because it's less expensive, has a full 512K of RAM, even for the C-64, and it's probably the only one available. If you use GEOS and you don't have an REU already, dial 1-800-888-0848 (extension 1744) now; or write Berkeley Softworks at 2150 Shattuck Ave., Berkeley, CA 94704. It's time to introduce your Commodore to a frisky young filly named GEORAM. ■

*Mark Jordan, author of RUN's 128 Mode column and long-time GEOS enthusiast, is a high school English teacher by profession.*



**GEORAM may look a bit like a turtle, but it's fast as a jackrabbit.**



**GEORAM plugs into the expansion port of your computer—and protrudes considerably.**

# Dodge 'Em

Only your defensive driving skills will avert  
a disastrous head-on crash.



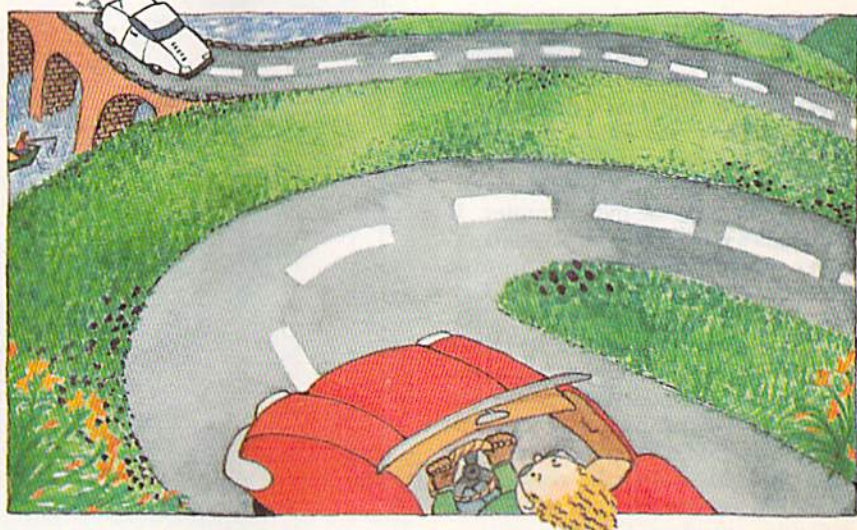
By TONY BRANTNER

**E**ver have days when everyone on the road seems to be looking for an accident? Your defensive driving skills get lots of practice, don't they? In Ram Rod, those skills are put to the test as you try to remove the dotted lines from the middle of the road while dodging a computer controlled crash car. One or two people can play at a choice of three difficulty levels.

The game screen shows four concentric rings of highway, each marked with a dotted line. Breaks in the rings enable you to drive from one road into another. The red car, which is controlled by a joystick in port 2, belongs to player 1; the green car in the two-player version belongs to player 2 and is controlled by a joystick in port 1; the computer's car is white. Running scores are displayed in the center of the screen.

At the start of each game, you can adjust the difficulty level, displayed at the top-left of the screen, by pressing F1. To change the number of players, shown at the top-right of the screen, press F3. F5 starts the action.

A game lasts five rounds, with each player having one turn per round. When you press the firebutton to begin your turn, your car starts traveling



counterclockwise around the course, while the white crash car moves clockwise. Since you have no brakes, you must rely on acceleration and steering to avoid the crash car and burn up dots. Use the firebutton as a gas pedal, and, when you reach an opening, use the joystick to change lanes.

You receive ten points for each dot you erase, and your turn ends when you clear all the dots from the course or collide with the computer's car.

Using *RUN's* Checksum program, type in Listing 1 and save a copy to disk. Then run the program to write Ram Rod to your disk. Although it's written entirely in machine language, Ram Rod can then be loaded and run like any Basic program. R

*Tony Brantner, a carpenter by trade, is also a self-taught computer programmer who appreciates the C-64 for its excellent graphics potential.*

**Listing 1. Ram Rod creator program. (Available on ReRun disk. See order card facing page 16.)**

```
Ø REM THIS LISTING CREATES (AND :REM*254 :REM*67
SHOULD NOT BE CALLED) RAMROD 2Ø B$=MID$(A$,1,2Ø)+MID$(A$,22, :REM*115
64 :REM*22 2Ø)+MID$(A$,43,2Ø) :REM*242 5Ø NEXT:GOTO 1Ø :REM*115
5 OPEN 8,8,8,"RAMROD64,P,W" 25 FOR I=1 TO 3Ø :REM*181 55 IF LEN(A$)<21 THEN B$=A$:GOT
:REM*49 3Ø C$=MID$(B$, (I*2)-1,2):H$=LEF :REM*184
6 CT=Ø:PRINT"(SHFT CLR)":REM*56 T$(C$,1):L$=RIGHT$(C$,1) 6Ø IF LEN(A$)<42 THEN B$=LEFT$(
1Ø READ A$:IF A$="-1" THEN CLOS :REM*2Ø9 :REM*176
E8:PRINT:PRINT"ALL DONE!":EN :REM*85 :REM*14Ø
D :REM*129 35 H=VAL(H$):IF H$>"9" THEN H=A :REM*14Ø
12 PRINT"(HOME)READING LINE "+S :REM*85 :REM*136 75 C$=MID$(B$, (I*2)-1,2):H$=LEF
TR$(CT):CT=CT+1 :REM*141 4Ø L=VAL(L$):IF L$>"9" THEN L=A :REM*14Ø
15 IF LEN(A$)<62 THEN 55 45 BY=H*16+L:PRINT#8,CHR$(BY); 7Ø FOR I=1 TO LEN(B$)/2:REM*221
```

RUN it right: C-64; one or two joysticks



```

T$(C$,1):L$=RIGHT$(C$,1)      118 DATA 02A00F1820F0FFA991A0*0 4D0EE60A4FE88A94391*3B88D0F
:REM*140                          D201EAB60A9418D0BD4*A904850   B60A2A2A90420 :REM*199
80 H=VAL(H$):IF H$>"9" THEN H=A 4A20AA0148C00 :REM*169          DATA 870CA2B5A90420870CA2*5
SC(H$)-55 :REM*56                119 DATA D48C20D0A90320390A18*9 AA90620870CA26DA906*863B853
85 L=VAL(L$):IF L$>"9" THEN L=A 86914A8CAD0EDC604D0*E5A90008 CA204A010A92D :REM*87
SC(L$)-55 :REM*84                D0BD48D20D060 :REM*12          140 DATA 913B888810FAA95020A0*0
90 BY=H*16+L:PRINT#8,CHR$(BY); 120 DATA 1865A2C5A20DFC60A201*B CCAD0EE6018653B853B*A53C690
:REM*148                          DA90E290118690D9DF8*078A0AA   0853C600FF000 :REM*75
95 NEXT:GOTO 10 :REM*160          8BD9F0E9901D0 :REM*244          141 DATA 010100FF000000FF00007*0
100 REM C64 RAM ROD ML :REM*19    121 DATA BDA10E9900D0CA10E3AD*A 30101FF020509060028*0078002
101 DATA 01080B080A009E323036*3 40E0A0DA30E8D10D060*989DA70   000000000000 :REM*186
1000000007EB91F0E99*4003881   E0A187DA70E0A :REM*157          DATA 00F0000000014001A0A00*0
00F7A018B9C10C :REM*121         122 DATA A8A90680504BD9F0ED90A*0 C322F51617181D9C9B9*A981716
102 DATA 9900D48810F7A9008D15*D DD010BDA10ED9220DD0*08BDA30   151A9B9C9D925 :REM*47
08D17D08D1BD08D1CD0*8D1DD08   ED93A0DF0008C8 :REM*11          143 DATA 354555253545550D1D2D*3
D20D08D21D0A9 :REM*167         123 DATA C604D0E34CB10AA9109D*A 50EB9520D9DAB0EBCA7*0E20E00
103 DATA B7A00D201EAB20B90B20*6 ADEA50EF00160 :REM*255          DATA 01959595959595617181*B
E0C20680BAD5704290F*A888B9B   124 DATA A00FB09F0ED9DA0CD010*B 9C9D9959595959551*6171A9B
80C8506AD7604 :REM*141          DA10ED9EA0CD008BDA3*0ED9FA0   9C92535450D1D :REM*37
104 DATA 290F850520D909A9008D*9 CF0068810E54C :REM*185          DATA 2DB1B1B1B1B1354555*1
E0EA900A00E999F0E88*10FAA9D   125 DATA DD0A18BDA90E7DBB0C29*0 D2D3DB1B1B1B1B10*00000010
98D9F0EA9C08D :REM*28          39DA90EBCA90E18BD9F*0E79AC0   10100000000000 :REM*130
105 DATA A10EA5A22903A8B9DE0C*8 C9D9F0E18BDA1 :REM*159          DATA 00000000010101000000*0
DA00E8CAC0EA5A2293C*18695C8   126 DATA 0E79B00C9DA10EBDA30E*7 00000001020302010000*0102030
DA20EA9028DAA :REM*211         9B40C9DA30E60A90085*3BA9048   20100001020302 :REM*43
106 DATA 0E20410AAC9E0EB9BD0C*8 53C38AD9F0EE9 :REM*198          DATA 0101020302010046312D*5
D27D0A9018D28D0A903*8D15D0B   127 DATA 2E4A4A4AA8A92820A00C*8 34554204C4556454C2*2046332
900DC2910D0F9 :REM*97          8D0F838ADA10EE91485*FBADA30   D53455420504C :REM*24
107 DATA AD1ED0E603AC9E0EB900*D EE9004A66FB46 :REM*49          DATA 4159455253202046352D*4
C4A4A4A4A2901AABDBF*0C8D08D   128 DATA FB46FBA4FBB13BC92DD0*3 24547494E0053434F52*4520053
48A2503D04BA2 :REM*91          3A920913BA2F5A905AC*9E0EF00   0303030005052 :REM*232
108 DATA 00ADA50EF00620A50A4C*0 4A21DA906863B :REM*34          DATA 45535320535041434542*4
B09AC9E0EADA90E4AB0*13B900D   129 DATA 853CA00238B13B6900C9*3 152009E524F554E4420*2005310
CA0014A9005A0 :REM*140         A9002A930913B8810F1*A2408E0   0088E930D2020 :REM*116
109 DATA 034AB015206B0A4C0B09*B 4D4E88E04D4EE :REM*216          DATA 20202020202020209ABC12*2
00DC4A4AA0024A90F0*A00004A9   DATA AD0E60A217A0011820F0*F 092D020122092D0BC12*2092D0D
0EB20B10A20FE :REM*206         FEE8602A96AA00D201E*ABA9032   020BC122092D0 :REM*188
110 DATA 0AADAD0EC990D006200C*0 0390A20E4FFC9 :REM*208          DATA 20122092D0BC122092D0*0
A4CBA09A5032506D02C*A201ADA   131 DATA 85D00EAC5704A23420AF*0 D20994C4556454C2005*31201FA
60EF00620A50A :REM*8          B8C57044C680BC986D0*0EAC760   C122092D0BB12 :REM*74
111 DATA 4C4D09A0FFADAC0ECDAB*0 4A23320AF0B8C :REM*6          DATA 2092D0AC122092D0A7BB*A
ED00620B10A4C4D0990*02A0011   132 DATA 76044C680BC987D0BEEA2*1 C122092D0BB122092BA*AC12209
8986DAA0E2903 :REM*58          0A0C8A9048899 :REM*88          2BA209F504C41 :REM*6
112 DATA A8206B0A20410AA9418D*0 133 DATA 79D89941D99909DA99D1*D 59455253200531000000*0
BD4A20320D009AD1ED0*D0034CB   AD0F1A97985A7A90485*A8A9258   0000000FCFC00000 :REM*4
608A2808E12D4 :REM*44          5FEA91285FDA9 :REM*21          00000000000000000000*0
113 DATA E88E12D4A00008C0BD498*2 134 DATA 058504A5A7853BA5A885*3 00000000000000000000*0
9078D27D08D28D00A0A*0A0A8D0   BA4FEA949913B20630C*A955913   000000000000 :REM*30
FD4A90220390A :REM*146         BA92820A00CA6 :REM*176          155 DATA 00000000000000000000*0
114 DATA C8C02190E6206E0CEB9E*0 135 DATA FDA000A942913BA4FE91*3 0003330003FF0003330*0003000
EAD900EC505B0034C65*08ACAF0   BA92820A00CCAD0EEA4*FEA94B9   0030000030000 :REM*121
7C8C036B0068C :REM*241         13B20630CA94A :REM*35          156 DATA 3330003FF00033300000*0
115 DATA AF074C6008A9008D15D0*8 136 DATA 913B18A5A7695285A7A5*A 00000000000000000000*0
5C6A217A00D1820F0FF*EE8602A   8690085A838A5FEE904*85FE38A   00000000000000000000*0
99DA00D201EAB :REM*50          5FDE90485FDC6 :REM*2          00000000000000000000*0
116 DATA A90320390A20E4FFC920*D 137 DATA 04D0A6A20C20FFE9A20D*2 00000000000000000000*0
0E24C3A08A000C8D0FD*CAD0FA6   0FFE9A98B853BA90485*3CA9148   00000000000000000000*0
0A217A0101820 :REM*38          504A000A92091 :REM*32          00000000000000 :REM*19
117 DATA F0FFA9ACA00D201EABAD*B 138 DATA 3BC8913BA92820A00CC6*0 158 DATA 00 :REM*19
D0CA20C20FB09A505C9*029015A   20DADBE0C8D86 :REM*80          159 DATA -1 :REM*13 ■

```

# GOLD MINE

*Fight or flight, bobble or bounce; these tips have bite, bring trouble and trounce!*

By LOUIS F. SANDER

**AFTER BURNER:** To get through level 3, put your plane in the lower-right corner of the screen. Enemies won't hit you. To refuel, aim for the lights near the tanker's engine. To destroy the fortress on level 7, shoot out the engines.

—SCOTT DEYOUNG  
GRAND RAPIDS, MI

**BATMAN: THE CAPED CRUSADER:** Duck when you're up against toy penquins or soldiers. Their bullets won't hit you. You can't climb ladders that are facing you. Climb ladders positioned sideways.

You can usually get an enemy off the screen by high-kicking him repeatedly. On a roof, high-kick your man while facing the edge; he might fall.

—DARRELL BUCKHAULTS  
ADDRESS UNKNOWN

**BUBBLE BOBBLE:** In some circumstances, a valuable door will appear. This screen, containing a cute character and some diamonds, is worth 400,000 points or more. For the door to appear, you must have the red tennis shoe from the first level, and you must keep it to level 20. If you get an umbrella between levels 15 and 20, the door will appear on the next screen past number 20.

Often, another shoe on levels 17 and 33 gives your brontosaurus more speed but doesn't count toward the door. If the shoe doesn't appear on the first screen, press Q to quit, then restart the game until it does.

While it's possible to get over a million points without a door, I doubt if you'll reach two million without it. As long as you keep the original shoe, doors normally appear on levels 20, 30, 40, and so on.

Avoid umbrellas in early levels, since they take you past the levels that can give you bonuses and lots of points. An umbrella on level 11 will take you past 13, a particularly tricky level. Umbrellas past 15 are usually helpful.

Yellow, green or pink bottles place some items on the screen, each worth

500 points. Pick them all up to get an extra 100,000 points. On some levels, notably 2, 14, 15, 20 and 25, it seems impossible to get them all.

The red ring allows extra points for running, the pink one for jumping and the blue for blowing bubbles.

The red lamp gives rapid firing power, which continues to the next screens if you don't get hit, and extra points for running. The yellow one allows rapid firing.

When the letters spell EXTEND, you get an extra man. Don't take risks to get letters, though, because the extra man isn't worth losing a man and all your extra powers.

—MARY WILSON  
CLEARWATER, FL

**F-14 TOMCAT:** This helps you land safely on a carrier: Line up with the carrier, bring thrust to one-third full power, dive to 100 feet. When the stern of the carrier goes by, gently lower your nose. After touchdown, turn off your engines.

—JAMES ANTHONY FOGARTY  
VIRGINIA BEACH, VA

**FLIGHT SIMULATOR II:** In Editor mode, change the plane's acceleration number to 65535 after take-off to improve its ability to perform stunts. The plane will accelerate to 4000 rpm, using no fuel as far as I can tell.

—BRETT DE JONG  
FORT DEPOSIT, AL

**INDIANA JONES AND THE LAST CRUSADE:** In the first level, climb down the first rope and stop just before reaching the ledge. Wait for the man to shoot, then continue down. Go to the right until you reach the rope at the end of the first tunnel. Wait for the guy to climb down the rope and back up, then grab the torch and follow him up. Continue to the next level. Walk to the right, then jump onto the first rope. Climb down and jump onto the second

rope. Climb until you can't go further, then jump to the left. You should hit the top of the platform and jump all the way to the bottom. Continue to the left and up the castle wall. In the third level, the diary is on the bottom-left corner of the airship. The exit is in the middle of the right side. Get the diary and exit the airship. In the final level, speed is the key to success. Jump over the blades and jump from tile to tile, remembering the letters on the tiles, since you'll repeat the process later with false tiles. Jump onto the correct tiles and get the grail.

—BRUCE STUART  
HEALDSBURG, CA

**JORDAN VS. BIRD:** On dunks like Kiss the Rim, pull down while in the air. On the Two-Hand Hammer and similar dunks, pull diagonally left and down.

—BIFF TANNEN  
HILL VALLEY, CA

**PLATOON:** Find the secret explosives to destroy the bridge. Then find a flashlight and map in one of the houses. Now go to the largest hut. Go right until you find a door in the floor. Stand on it and press the firebutton. It leads to the underground tunnels.

—CHRIS DENICOLA  
HAZLETON, PA

**QIX:** To pass a level quickly and easily, draw little boxes leading towards the top. When the Sparx come, draw a line out to the side. When you reach the top, the Qix will have to move to one side of the screen. The other side will be colored in.

—RYAN ONEGLIA  
LITCHFIELD, CT

**ROCKET RANGER:** When you catch up with the zeppelin, earn her trust by saying: You'll never believe me; I'm only here to help; I want to help you; Let's start again. On the sequence with both of you in the electric chair, say: Okay, ▶

## G O L D M I N E

I'll talk; Let me go first; Let the girl go, then I'll talk.

—CAMERON FRYE  
CHICAGO, IL

**POOL OF RADIANCE:** To double your experience, boot the game and load a saved game. Remove all the characters from your party, then turn the computer off and back on. Reboot the game, but don't load the saved game; just add the characters back to the party. When you begin adventuring, you'll start at the beginning of the game, but with all your previous supplies and experience. Go through the easy stuff again, doubling your experience and the important items you found the first time. Repeat this as often as you want.

When you find an item to copy, copy your Save disk or make another Save disk. Remove from the group the person with the item you want copied. Add him back to your party and trade the item(s) or money to the other characters. Now put the copy you made back into the drive. Remove the character

who previously had the item(s) or money. Put the original disk back into the drive and add the character to the party. He'll have all the equipment he had before, and the other characters will have the equipment he traded them. Do this as many times as you like.

—SCOTT CONSTANTINE  
AURORA, CO

**SIMCITY:** To build land in the water, first build power lines and/or roads out into the water where you want the land to be. Set fire to all the roads and power lines you built in the water; then bulldoze over the fires. You'll then have islands ready to accept your building.

—ANDREW ORTHMANN  
LA CENTER, WA

**TETRIS:** At level 9, the pieces drop quickly. If you've mastered that level, you probably had the music on. For a real challenge, select FX instead of MUSIC. The pieces will drop faster. Make

the pieces drop slower by "rubbing" them against the sides of the board.

—MIKE POLLOCK  
ARNOLD, MD

**ROBOCOP:** On level 5, climb halfway up the stairs, then shoot the Thugs on the next floor.

—JASON HAMMETT  
ADDRESS UNKNOWN ■

*To submit your own C-64 or C-128 game tips for consideration, send them to Gold Mine, PO Box 101011, Pittsburgh, PA 15237. Put your name, complete address and Social Security number on every sheet of paper you send, and please use 8 1/2-by-11-inch paper. Also be sure to state which Commodore computer your tip is for. Neatness and clarity count. RUN pays \$5 per submission upon publication.*

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# 128 MODE

Explore some of the best among highly useful programs that are off the beaten software track.

By MARK JORDAN

**QUESTION: WHAT'S THE BEST-KEPT secret in Commodore-land?** Answer: "Smallware," my term for software that often isn't available across the counter. It's a mix of public domain, shareware and inexpensive commercial software that's written by hackers, true believers and obscure programming geniuses.

This month we'll take a look at some of the best smallware that has surfaced since the 128 hit the scene. The addresses given are the most up-to-date I could find. You'll need to write the authors for price and availability.

## DISK UTILITIES

**Disk Whiz**, by Kevin Hisel (2024 Greendale, Champaign, IL 61821), is the public domain disk utility program to have, in the opinion of almost everyone I talked to while researching this article. And I agree. It's not only fast, but also extremely attractive and intuitive in use, two qualities many smallware projects lack. Disk Whiz lets you run, print (to screen or printer), copy, rename and scratch files with ease.

It works with the 1581, knows how to handle subdirectories and reprograms the numeric keypad so you can jump nimbly about the screen. If you could place this program on all your disks and autoboot to it, you'd have one mean startup kit. I highly recommend Disk Whiz.

Speaking of autobooting, I also recommend **Autoboot Manager**, assembled by Victor Singleton (CIS #74676, 323 or Peregrine on QuantumLink). This is a compilation of programs from Kevin Hisel, Fred Bowen and Terry Ryan, three 128 programmers *extraordinaire*. Autoboot Manager enables you to create boot disks that will set their own screen colors, create a text message, boot from 64 mode, call a short machine language program, show a directory, validate a disk, and so on. It's great for creating a personalized disk. And here's the good news—it supports the 1581.

**Nerd Copy**, by Ed Parry (8711 Langdon Ave. #8, Sepulveda, CA 91343),

may be the world's fastest-loading file copier for the 128, and it works with the 1581, 1571 and 1541. It loads in one second (I'm not exaggerating) and copies files about as fast as any program on the market.

**Disk Doctor**, by Kevin Hisel, and **Disk Noser**, by Ed Parry (see addresses above), are useful programs that allow you to edit your disks, sector by sector. Both have lots of options and power, though I think Disk Doctor's Hunt option, which lets you search through an entire disk for a string of characters, makes it the superior program.

## PRODUCTIVITY PROGRAMS

I'm a teacher, and I've seen a lot of gradebook programs, but **Grade\*Star**, by Tom Sipe, is tops. It's available on Loadstar-128 disk #2, from Softdisk Publishing, 606 Common St., Shreveport, LA 71101; phone 318-221-8718.

Although **PenPal**, by Steve Boerner (PO Box 364, Brockport, NY 14420), dates all the way back to 1986, it's still a dandy little compiled Basic database, with an attractive and intuitive interface. Its chief drawback is that it works only in 1541 mode.

**Ultraterm 2.01**, also by Steve Boerner, is a program I don't have, since I don't telecompute, but all my telecomputing buddies tell me this one is a beauty. Having seen Steve's work on PenPal, I trust they are right.

I also recommend **TDMO2.0**, by Rick Matthewson (4 Rose Rd., Rochester, NY 14624). Aside from the horrendous name of this program (sorry, but I like to be able to pronounce names), this text manager is excellent. It's designed to create or edit files for sending via modem, but I found it useful for doing various other things, such as 1581 partitions, SEQ/PRG capabilities, PET/ASCII translation, printing from RAM or the disk, and so on.

## PROGRAMMING UTILITIES

**ML.Aid**, by Joseph Caffrey (79 Kellers Lane, Plymouth, PA 18651), is a handy-dandy machine language routine that allows you to scroll up and

down your 80-column Basic program lines while you edit. In addition, you can search for and replace variables or text within those lines. I love this one and use it whenever I develop Basic programs.

When you want to incorporate the 1351 mouse into your own programs, don't overlook **m.1351.128.bin**, a little machine language program by Hedley Davis and Fred Bowen that comes with the 1351. It's easy as pie to install (just put it on your disk, BLoad it, and SYS 6144). Sprite 1 becomes your pointer. Why re-invent the wheel when m.1351.128.bin (another ugly name) is as round as a 5/4-inch floppy.

## GRAPHICS UTILITIES

**Gas! 128**, by Bruce Bowden (3110-B Lawndale, Greensboro, NC 27408), is a graphics utility that specializes in 40-column wizardry. It is option-laden (sprites-to-graphic screens, 4-bit color shifts, vertical and horizontal compression, and much more) and works with Koala and Doodle! files. Moreover, it will compress files for quicker saving and loading times.

A simple graphics charmer is **Mac-view 128D**, by Bryan Williams (Rt. 4, Box 35, Princeton, KY 42445). Its one and only use is to show converted Macintosh files on the 80-column screen.

## A PLUG FOR THE BOSS

Serious 128 bargain-hunters need look no further than the 128 disks *RUN* magazine offers. These are the cream of the smallware crop. For productivity, **Super Starter Pak** contains seven 128-specific programs of extremely high quality: RUN Script 128, RUN File 128, RUN Calc 128, RUN Term 128, RUN Paint, RUN Shell, and Label Base. For entertainment, **Fun Pak 128** offers eight excellent games, four of which are 80-column goodies. The best is Bloodstar, a sophisticated strategy conquest.

Naturally, this article barely scratches the surface of the smallware mother lode. Write to me c/o *RUN* and tell me of any you use that make your computing life happy. ■

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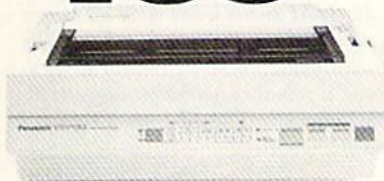
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# COMMODORE CLINIC

*Correcting vertical screen bounces and what to do with a defective 1351 mouse.*

By ELLEN RULE

**Q** Over the years, I've used a 1660 modem to access other modems and BBSs, but when I try to make a 1660 answer (pick up), I'm stumped. Will it answer, and if not, how can a call be received?

—TED CHIDESTER  
SANTA FE, NM

**A** First, to receive a call from another computer, set the Answer/Ori-ginate switch on the left side of the modem to A for Answer. Set the calling modem to Originate. Next, the telecommunications software must have an answer function programmed into it, along with commands that your modem understands.

The Common Sense Terminal Program that comes with the C-1660 has 1660-compatible answer capabilities. Its Ring message indicates that someone is calling you. Press the control and A keys at the same time (control/A) to answer a call. Press control/H to hang up. These features are not unique to the Common Sense program; many other commercial and public domain terminal programs have answer capabilities. The members of the BBSs that you access will probably be glad to share the name of their favorite telecommunications program.

If you want to program the modem yourself, the 1660 manual lists a series of steps required to answer a call. With a C-64 or 128:

1. Set the answer/originate switch to A (Answer).

2. To automatically answer, first detect if the phone is ringing by entering:

```
IF (PEEK(56577) AND 8)=0 THEN  
PRINT "RINGING"
```

then program the phone to be off the hook with:

```
OH=56577:HI=32:LO=255-32:  
POKE(OH+2),(PEEK(OH+2) OR HI):  
POKE OH,(PEEK(OH) AND LO)
```

3. Program the phone to hang up when you're done with:

```
POKE OH,(PEEK(OH) OR HI)
```

By monitoring the carrier-detect line

in unattended Auto Answer mode, the computer can be programmed to hang up after losing a carrier. The Basic code for this is:

```
OH=56577:  
IF ((PEEK(OH) AND 16)=16) THEN  
PRINT "NO CARRIER":  
IF ((PEEK(OH) AND 16)=0) THEN  
PRINT "CARRIER DETECTED"
```

**Q** My 1351 mouse won't move the cursor up and down the screen. It fails after being used about an hour. I clean it regularly, and a visual examination suggests it's okay mechanically. Should I get it repaired or junk it?

—DAVE H. SHADE  
COLUMBUS, NM

**A** It will cost as much to repair your mouse as to buy a new one. If your mouse is defective, you may order replacement parts from an electronics supply house. A problem that develops an hour or so after being used often points to heat buildup. However, your problem is probably related to the computer chip that receives and interprets the mouse's signals. Try a different mouse; if the same problem occurs, have a technician run diagnostics on your computer to determine if a CIA chip or some other component is faulty.

**Q** I use my C-64 with a TV as monitor. The TV screen bounces up and down. What can I do to correct this? I've connected it to a different TV with no luck. I tried it with a monitor at the store where I purchased my 64, and it worked fine.

—JOHN F. MASON, JR.  
BALTIMORE, MD

**A** You've made a good start with your troubleshooting techniques, narrowing the problem to environmental influences or faulty RF modulation. You've confirmed that the VIC chip is producing a good video signal, but haven't tested the signal after it's been modulated (within the 64) with an RF signal before it's sent to the TV.

There are some tricks you can try to determine if your C-64 is producing a defective RF signal. Try another 64 with your TV. If the problem recurs, something magnetic or electrical in the area may be interfering with the RF transmission. If this is the case, move the power supplies for your computer and drive away from the TV, without tangling the cables. Try a different TV/game switch to rule out a defect in that component. On the other hand, if a different C-64 works fine in your environment, then your 64's RF modulator is the likely culprit, and you should get it fixed.

**Q** I want to learn more about my C-128, write my own programs, use Peek, Poke and CHR\$ commands, use not only Basic but also machine language, and even use a modem. But most magazine articles are over my head—I can only guess at the meaning of the computer lingo. Can you help me?

—RALPH STRACHAN  
SANTA CRUZ, CA

**A** I credit much of what I know about computers to reading magazines such as *RUN*, and to fellow user-group members who helped me interpret what I read. Your local user group might offer beginners' classes or phone numbers staffed by knowledgeable members.

Another learning tool for a beginner is QuantumLink, the Commodore Information Network. This commercial bulletin board service (BBS) is accessed via modem and Q-Link software, which you can get by calling Q-Link's customer service at 1-800-392-8200. Or, purchase the 1660 modem offered by *RUN* (call 1-800-343-0728), which comes with Q-Link software. Once online with Q-Link, it's easy to choose your activities from the menus using the 64's cursor and function keys. Other users and Q-Guides are available to answer your questions, or you can leave questions in the message areas.

Also read the manual that came with your computer, and check out your local library and bookstores. ■



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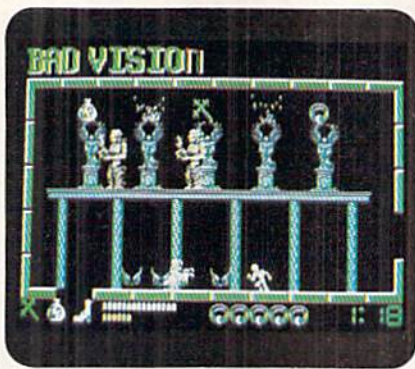
## SOFTWARE GALLERY

From page 16.

Frightmare, to name a few of them).

Positively packed with temples, tunnels, graveyards, pyramids and other fearful features, Nightmaresville encompasses more than 80 single-screen rooms, each sprinkled with goodies to aid your dream quest. Besides revolvers and bullets, you'll find powerful one-shot artifacts, like watches that slow time and wings that boost jumps, plus old standbys, like holy water and crosses. Movable teleporters offer quick getaways, rings confer extra lives and picking up a chalice produces an immediate status boost. Mainly, however, you score dream points by destroying monsters. Since the latter are replenished and goodies are not, the trick in each room is to maximize level gains and reach an exit that's well stocked for the next chamber's challenges.

No dream, even a really bad one, lasts forever. Each time you enter a new room, the game clock advances six minutes. Come 8:12 AM, it's morning, and you must awaken. With skill and a bit of luck, your performance will rate place-



Just one of many dream states in **Frightmare**.

ment on the Top Five Dreamers roster. Hopefully, you won't be too sleepy to remember your achievement, because this roster is not maintained on disk.

Frightmare delivers good artwork and decent sound, but animation and control of your action figure qualify as barely adequate. The limited run-and-jump repertoire, aside from a magnetic stick-on look, makes getting into each room's puzzles more work than it

should be. Along with no save-game feature or option to set the starting room, the result is more repetition than many players will tolerate. Fortunately, restarts are speedy, and the controls are learnable. If you don't mind numerous throwaway sessions, you could be in for many sleepless nights of Frightmarish fantasy. (*Avantage/Accolade*, 550 S. Winchester Blvd., Suite 200, San Jose, CA 95128. C-64/\$14.95.)

—JEFF HURLBURT  
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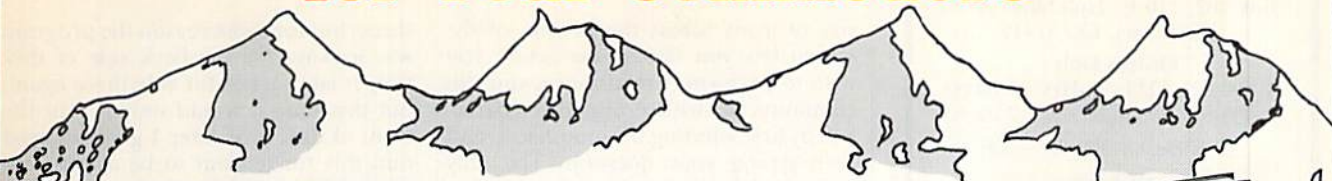
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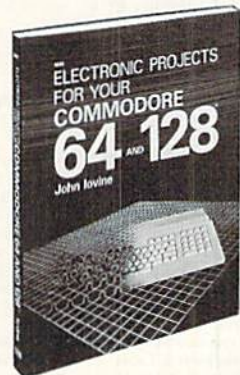
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## SOFTWARE GALLERY

ries of icons across the bottom of the screen lets you choose the action you wish to perform. For instance, you can communicate with non-player characters by first selecting the mouth icon and then typing your question. The only problem I had with this system is that the keys tend to repeat unpredictably, and the delete key won't erase them.

Knights of Legend offers a wide variety of magic spells, with the name of each based on the Elven language and consisting of five parts. You can build new spells by piecing together the proper syllables.

Unfortunately, Knights of Legend doesn't let you pool your characters' wealth. However, items can be transferred among your characters so you can always buy an expensive weapon with one character's gold, and then transfer it to a poorer character.

Despite the drawbacks mentioned above, Knights of Legend is a first-rate role-playing game, with images that, like most Origin games, show careful attention to detail. It comes with four double-sided, unprotected disks, a quick reference card, a map of Ashtalarea and an informative and entertaining handbook. (Origin Systems, Inc., 110 Wild Basin Rd., Suite 330, Austin, TX 78746. C-64/\$49.95.)

—BOB GUERRA

### SENTINEL WORLDS I: FUTURE MAGIC ..... A—

Someone is destroying cargo ships in the Caldorre System. Seventeen ships and many lives have been lost.

As commander of a Federation interceptor-class vessel, you and your crew of four have just undergone a grueling training program to prepare for your mission to find out what's going on and put a stop to it.

All the elements of a good role-playing game are here: You'll travel in space, decide whether to blast other ships, touch down on the planet, communicate with people on the street, discover deserted outposts, learn the politics and culture of Caldorre and explore its underground tunnels.

I had a few minutes of frustration loading the program: One disk is labeled "This Side: GAME DISK, Reverse Side: DATA DISK." The other disk is labeled "This Side: MAP DISK, Reverse Side: SAVE DISK." The first message you see after booting is "Insert Side Three." Normally, the front side of the second disk would be considered side

three, but for some reason the program was looking for the back side of disk two. It later asked for side three again, but this time it would only accept the front of disk two! After I got it figured out, this turned out to be a most engaging and exciting game.

The graphics of the crew members, the planet surface and the underground are highly realistic, although the representation of your ship is a little primitive.

A very enjoyable and extensive game, SW1 should provide many hours of excitement and suspense for RPG lovers. (Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. C-64/\$34.95.)

—ART LEWIS KIMBALL

### DOUBLE DRAGON II: THE REVENGE ..... A—

Alas, the joy of brothers Billy and Jimmy Lee proves fleeting. The nefarious Shadow Boss, Willy, has risen from the dead, and his first vile act was the murder of Billy's sweetheart, Marian.

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Unfortunately, your opponents are not above using dynamite, shovels and even a ball and chain. However, you can turn the tables on your foes by seizing some of their weapons. This aspect, along with the ability to move in more than two directions, puts the software far ahead of similar contests.

DD II's graphics are generally of very high quality; however, they are, at times, marred by flickering. Also, while the control system is good, the instructions that explain it are a bit too brief. (You can overcome this by not moving forward after eliminating the game's first two nasties; you'll be able to practice all your moves in peace.)

Although it's challenging, Double Dragon II can also be very enjoyable. (Mastertronic, 18001 Cowan St., Irvine, CA 92714. C-64/\$34.99.)

—WALT LATOCHA ■

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# RUN'S CHECKSUM & PROGRAM TYPING HINTS

TYPE IN RUN'S CHECKSUM, which serves for both the C-64 and for the C-128 in either 40- or 80-Column mode, and save it to disk before running it. When typing in a program from RUN, first load and run RUN's latest version of the Checksum program, which contains a new feature explained below. The screen will display a SYS number (49152 for the C-64; 3328 for the C-128) that deactivates and reactivates the Checksum. Always disable RUN's Checksum before attempting to run another program. Note: You can abbreviate Basic keywords; spaces affect the checksum only when within quotes; and the order of characters affects the checksum.

When you press return after typing in a program line, a one-, two-, or three-digit number from 0 to 255 appears in the home position. If this number matches the checksum value in the program listing, the line as you typed it is correct. If the number that appears doesn't match the checksum value, compare the line with the magazine listing to find your error. Then move the cursor back up to the line and make your corrections. Now, after you press return, the correct checksum value should appear. Continue entering the listing until all the lines have been correctly typed. Then deactivate RUN's Checksum, using the appropriate SYS number, and save the finished program.

We sometimes get letters and phone calls from new readers who have typed in the Checksum program for the first time. They are confused by the "Out of Data Error in Line 30" message that appears when they try to run the Checksum program. Understandably, they compare line 30 of the listing with line 30 as they typed it in, and cannot find anything wrong. The message unintentionally misleads them into thinking the error is in line 30, whereas the typing mistake is actually somewhere in one of the Data statements in lines 190-350.

So, we've added a new feature to the Checksum program that alerts readers to the number of the Data statement line in the Checksum program where an error has actually been made. **Note that this feature works only on the Checksum program itself, and not on any other program listing in RUN.**

After you've entered and saved the Checksum program to disk, run it. If you've made any errors in any of the Data statements, the program will give you a specific line number. Find the mistake, correct it, press return, save the program and run it again. Repeat this procedure until the Checksum program runs flawlessly.

## CONTROL CHARACTERS DEMYSTIFIED

All the graphics and control characters in the listings in RUN have been translated into understandable key combinations. They are the instructions you see inside the curly braces. For example, {SHIFT L} means you hold down the shift key while you press the L key once. You do *not* type in the curly braces. What appears on the screen will look quite different from what is designated inside the braces. Here are some more examples:

{22 SPACES}—press the space bar 22 times.  
{SHIFT CLR}—hold down the shift key and press the clr-home key once.  
{2 CRSR DNs}—press the cursor-down key twice.  
{CTRL I}—hold down the control key and press the I key.  
{COMD T}—hold down the Commodore logo key and press the T key.

{5 LB.s}—press the British pound key (£, not #) five times.

Refer to the following paragraphs for any other Error messages you get from running any program listing in RUN.

## OTHER ERROR MESSAGES

Having heard from many users over the years about their difficulties with typing in listings, we've identified a few recurring problems that plague many people but are easy to fix. So read on and see if your problem is one of these.

- You get an "Out of Data in Line xxx" message. This means that a program line was reading from Data statements and reached the end of the data before it was done reading. There are two possible problems.

One might be with the program line that reads the data, usually a For-Next loop. Make sure you have the proper values for the loop, because if, for example, the listing has a loop of 0 to 150, and you've typed 0 to 160, you'll get the Out of Data message. If the loop is

correct, then the problem lies in the Data statements themselves. One possibility is that you omitted a whole line of data. That's easy enough to find and correct. It's more likely that you've skipped one or more individual data items or typed in a period instead of a comma, which causes two data values to be read as one number. Check your typing carefully against the listing. Using RUN's Checksum program when you type in listings from the magazine should help in this case.

- You get an "Illegal Quantity Error in Line xxx" message. This means you've read a number from a Data statement and tried to poke it into a memory address. The error occurs because the number is larger than 255 (the largest value a memory address can contain), which means that somewhere in your Data statements you've made an error by typing in a number larger than 255. Again, this is easy to check for and correct. First look in your Data statements for a number larger than 255. You might have added an extra digit, or perhaps you ran two numbers together (23456 instead of 234,56).

- You get a "Syntax Error in Line xxx" message. This could be almost anything. What it tells you is that there is something wrong in the indicated line. Usually you've misspelled a Basic keyword or omitted some required character. List the line and examine it carefully.

- You get an "Error in Data" message. This occurs in programs that add up all the data as read, and, when finished, compares that sum with what it should be if the data were typed in correctly. If it isn't the same, it means an error somewhere in typing the Data statements. Go back and check the data carefully. Correct the mistake(s), save the new version and try again.

- Finally, we urge everyone who intends to type in one of our listings to use RUN's Checksum program, which will help you avoid every mistake we've mentioned above, except that it won't detect the omission of a line. ☐

**Listing. RUN's Checksum program. This program is available on RUN's BBS for users to download.**

```
10 REM RUN'S CHECKSUM 64/128 - BOB KODADEK
20 MO=128:SA=3328:IF PEEK(40960) THEN MO=64:SA=49152
30 I=0:CK=0:CH=0:LN=190
40 FOR K=0 TO 16
50 FOR J=1 TO 10:READ B:IF B>255 THEN GOTO 170
60 CH=CH+B:POKE SA+I,B:I=I+1:NEXT
70 READ LC
80 IF LC<>CH THEN GOTO 170
90 CH=0:LN=LN+10
100 NEXT K
110 POKESA+110,240:POKESA+111,38:POKESA+140,234
120 PRINTCHR$(147)STR$(MO) " RUN CHECKSUM":PRINT
130 PRINT"TO TOGGLE ON OR OFF, SYS"SA:IF MO=128 THEN 1
60
140 POKESA+13,124:POKESA+15,165:POKESA+25,124:POKESA+2
6,165
150 POKESA+39,20:POKESA+41,21:POKESA+123,205:POKESA+12
4,189
160 POKESA+4,INT(SA/256):SYS SA:NEW
170 PRINT"YOU HAVE A DATA ERROR IN LINE ";LN;"!":END
180 REM DO NOT CHANGE THESE DATA STATEMENTS!
190 DATA 120,162,24,160,13,173,4,3,201,24,884
200 DATA 208,4,162,13,160,67,142,4,3,140,903
210 DATA 5,3,88,96,32,13,67,152,72,169,697
220 DATA 0,141,0,255,133,176,133,180,166,22,1206
230 DATA 164,23,134,167,132,168,170,189,0,2,1149
240 DATA 240,58,201,48,144,7,201,58,176,3,1136
250 DATA 232,208,240,189,0,2,240,42,201,32,1386
260 DATA 208,4,164,180,240,31,201,34,208,6,1276
270 DATA 165,180,73,1,133,180,230,176,164,176,1478
280 DATA 165,167,24,125,0,2,133,167,165,168,1116
290 DATA 105,0,133,168,136,208,239,232,208,209,1638
300 DATA 169,42,32,210,255,165,167,69,168,170,1447
310 DATA 169,0,32,50,142,169,32,32,210,255,1091
320 DATA 32,210,255,169,13,32,210,255,104,168,1448
330 DATA 96,104,170,24,32,240,255,104,168,96,1289
340 DATA 56,32,240,255,138,72,152,72,24,162,1203
350 DATA 0,160,0,32,240,255,169,42,208,198,1304
```

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30 Computer Shoppe of Alabama . . . . .	43	GEOBASIC . . . . .	8
166 Creative Micro Design . . . . .	CII	Voice Master Jr. . . . .	46
158 Entertainment On-Line . . . . .	43	Class Ads . . . . .	45-47
61 Lance Haffner Games . . . . .	25	245 Software Discounters . . . . .	34
66 Loadstar . . . . .	1	245 Software Discounters . . . . .	35
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47 Microcomputer Games . . . . .	CIV	* SOGWAP Software . . . . .	33
* Montgomery Grant . . . . .	11	65 T&L Enterprises . . . . .	42
221 P.A.V.Y. Software . . . . .	27	* Tab Books, Inc. . . . .	41
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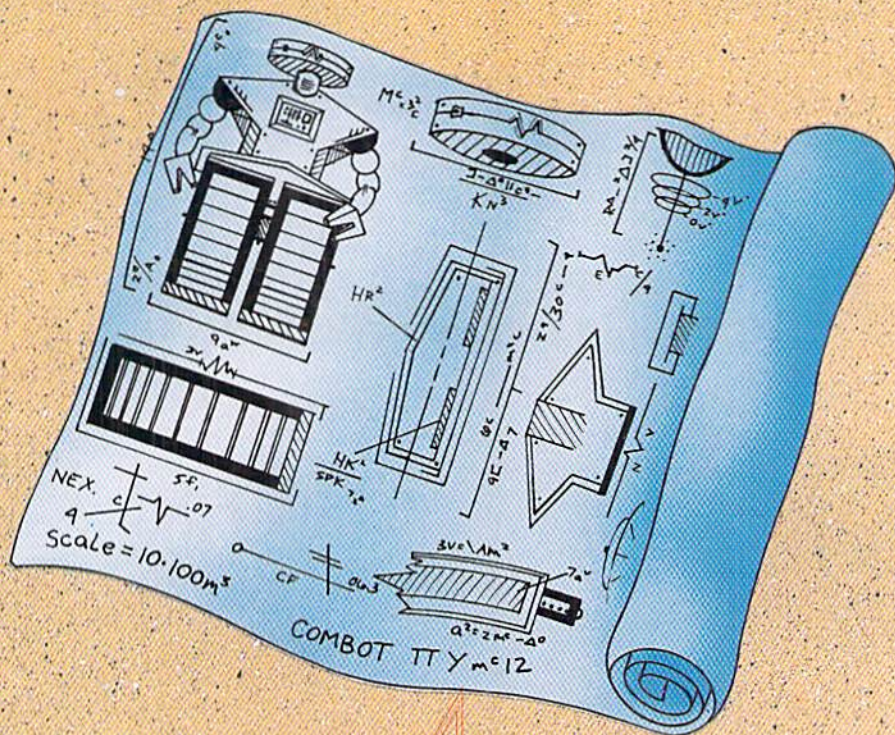
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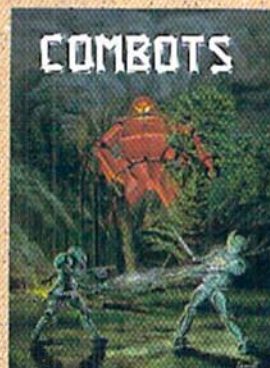
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