

FILL OUT
RUN'S
READER SURVEY

RUN

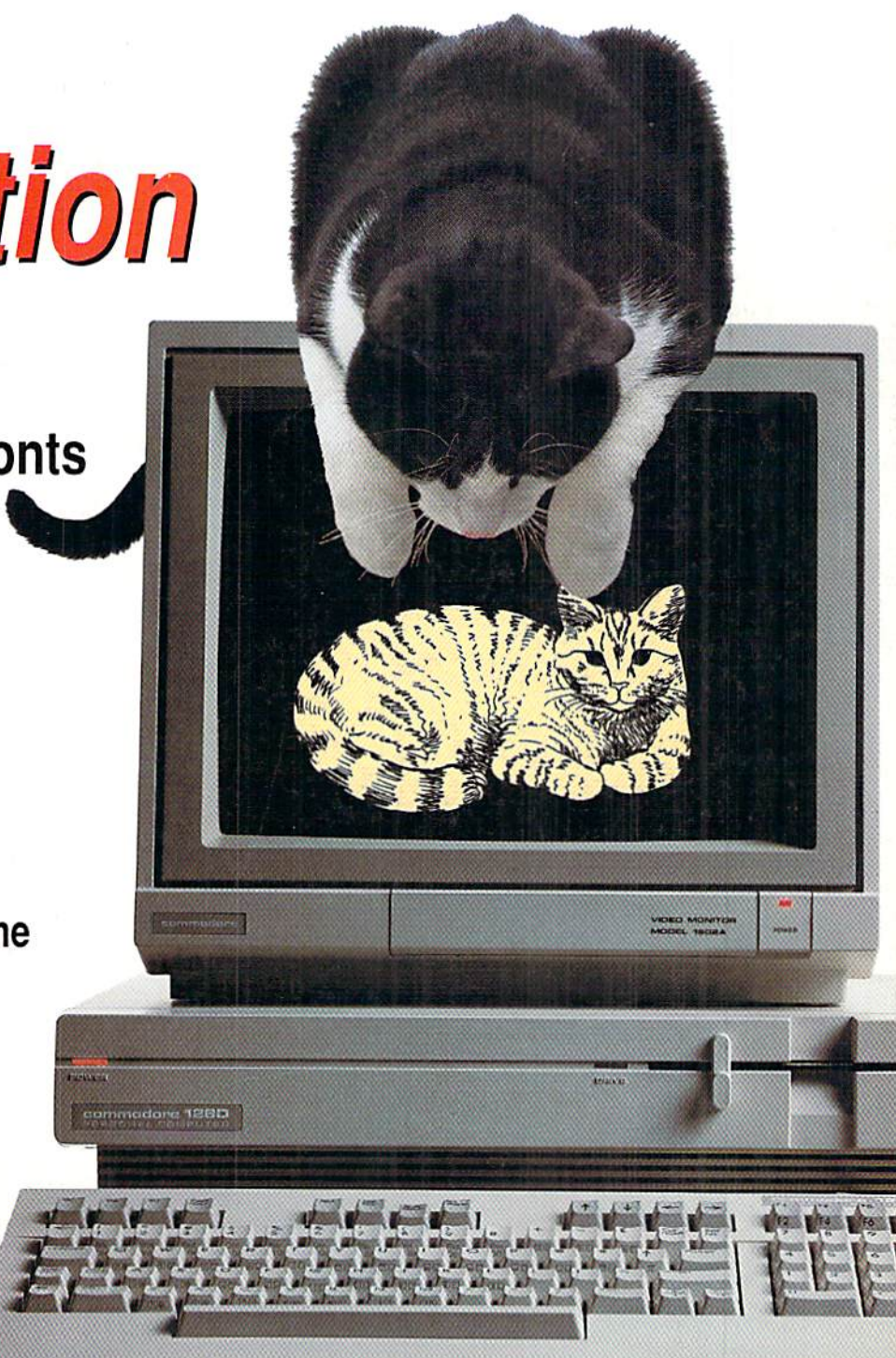
October 1992
An IDG
Communications
Publication

GEOS *Purr-fection*

- ▶ Add Your Favorite Pictures
- ▶ Choose the Right Fonts
- ▶ Discover a New geoPaint Tool
- ▶ Play geoGames

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- Full window color change feature
- Large font buffer allows for bigger fonts

Bonus Utilities

- ScrapCan to copy and paste large scraps with or without color
- PaintCan you to change the ownership of geoPaintdocuments to geoCanvas

User Interface and Window Controls

- Open up to three documents at one time
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- Scroll bars and controls with fast updating
- Windows may be resized individually
- Keyboard shortcuts for all menu items
- Convenient close button on windows

Other Special Features

- Threshold control for better page previews
- Full screen mode for viewing entire screen
- File requestor to access fonts and DA's
- Screen blanking saves wear on monitor
- Menu option to display time and date

Eliminates jagged output • Printing resolution up to 360 x 360 DPI (24 Pin), 240 x 216 DPI (9 Pin) GEOCABLE compatible • Allows multiple copy printing • HQ drivers enhance graphic output

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Perfect Print LQ operates with most Epson and IBM compatible 9 and 24 pin printers, but does not work with laser, ink jet, bubble jet, RS-232 or strictly Commodore compatible printers. Contact CMD for info on specific models.

geoMakeBoot

geoMakeBoot makes booting GEOS from nearly all devices and making back-up copies of the GEOS boot disk easy and convenient. Besides being compatible with virtually all CBM compatible devices, geoMakeBoot also eliminates the need for installing some desk accessories and supports CMD Hard Drives, RAMLink and RAMDrive. geoMakeBoot is simple, inexpensive and easy to use. geoMakeBoot \$12.95 + \$2.00 shipping

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Hi-performance ROM upgrade • Performs all disk accesses up to 15 times faster
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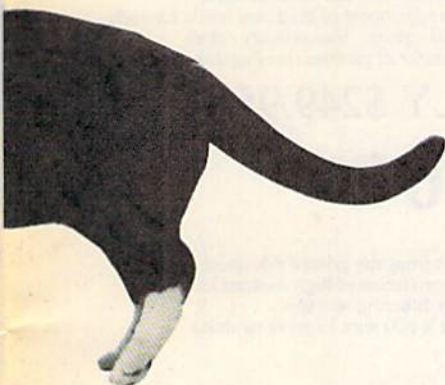
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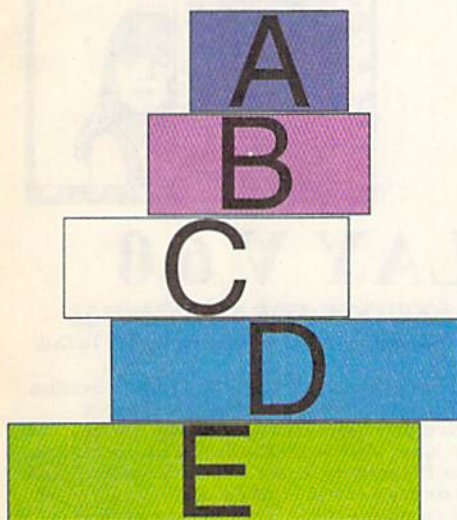
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COVER PHOTOGRAPHED BY ED JUDICE

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RUN READER SURVEY

Please take this opportunity to help us assess your computing needs and plan our future issues.

FROM TIME TO TIME, we ask you, our readers, to complete a survey so we can learn more about your changing computing habits and needs. Can you spare a few minutes to answer the following questions?

It's an opportunity for you to let us know what you think—about the magazine, the Commodore market and your computing preferences. Your opinions are important to us. How helpful is *RUN* to you? What would you like to see changed? What peripherals and applications do you use and what are your purchasing intentions?

Please fill out the following survey, cut it out and send it to:
RUN Survey, RUN Magazine, 80 Elm St., Peterborough, NH 03458. Your answers to these questions *will* make a difference; they will help us fine-tune the contents of upcoming issues, and provide us with valuable information about reader demographics and characteristics.

Thanks for your assistance and your continued interest in *RUN*.

—The *RUN* Editors

1. Which computing system do you currently own/use? (please check all that apply)

C-64 MS-DOS
 C-128 Macintosh
 Amiga
 Other _____

2. How long have you been a Commodore eight-bit user?

1 year or less 1-4 years
 4-8 years Over 8

3. Do you belong to a user's group?

Yes No

4. Do you use GEOS?

Yes No

5. On average, how many program listings do you type in from *RUN* each issue?

0 1 2
 3 4 more than 4

6. Do you access the telecommunications networks?

Yes No

If Yes, which one(s)?

QuantumLink GENie
 CompuServe BBSs
 Other (specify) _____

7. What is your main source of Commodore programs? (check one)

Buy commercially
 Write my own
 Download from networks/BBSs
 Borrow/trade/user's group
 Type in from magazines/books

8. On a scale of 1 to 5 (with 1 being highest and 5 being lowest), please rate your interest level in purchasing the following software products:

Utility GEOS-related
 Games Productivity
 Music Educational

9. Do you plan to upgrade to another computer system in the near future?

Yes No

If Yes, which one, and within what time frame? (check computer and time frame)

MS-DOS Amiga
 Mac Other (specify) _____

6 mo. 12 mo. 18mo.

10. Which peripherals do you currently use with your system? (please check all that apply)

Mouse 5 1/4" disk drive
 1581 Printer
 Joystick Modem

- REU RAMDrive/Link
 Hard drive Handyscanner
 Digitizer Utility cartridge
 Voice synthesizer

11. Your next hardware purchase for your system will be:

- 1541 drive Hard drive
 1571 drive RAMLink/Drive
 1581 drive Monitor
 Mouse Modem
 REU Utility cartridge
 Printer Laser printer
 Power supply

12. How much time per week do you spend using your Commodore?

- 1-5 hours 5-10 Over 10

13. What is your primary use of your Commodore?

- Home finance (budgeting, checkbook management, etc.)
 Games
 Productivity (word processing, database management)
 Programming/Utilities
 Telecommunications
 Business applications
 Desktop Publishing
 Education (home or school)
 Hobby
 Other: _____

14. Please rate your interest level in the following topics by indicating whether RUN should increase or decrease its coverage:

	Circle one	
Programming	more	less
GEOS	more	less
Telecommunications	more	less
C-128	more	less
Utilities	more	less
Business	more	less
Games	more	less
New products	more	less
Applications	more	less
Graphics	more	less
Music/Sound	more	less
Reviews	more	less
Type-in programs	more	less

15. Which columns/articles in the magazine do you find most interesting and useful? (check all that apply)

- RUNning Ruminations
 Mail RUN
 128 Mode
 ProTips
 Commodore Clinic
 Magic
 News and New Products
 GeoWatch
 Software Gallery

- Curtain Call
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 Programs
 Other (please specify)

16. Do you find ReRUN disks to be useful and of interest?

- Useful Not useful
 I'm not familiar with ReRUN

17. On a scale of 1 to 5 (with 1 being the highest and 5 being the lowest) please rate RUN's effectiveness in helping you meet your computer needs. (circle one)

- 1 2 3 4 5

18. GIVE US YOUR ADVICE—
How can the editors of RUN improve the magazine and help you get the most from your Commodore system? What do you like about RUN the most? What do you like the least? If you could change something about the magazine, what would it be? What keeps you coming back to RUN? Please put any comments, opinions, ideas or criticisms here.

Thank you! for taking the time to help us make RUN the best it can be.

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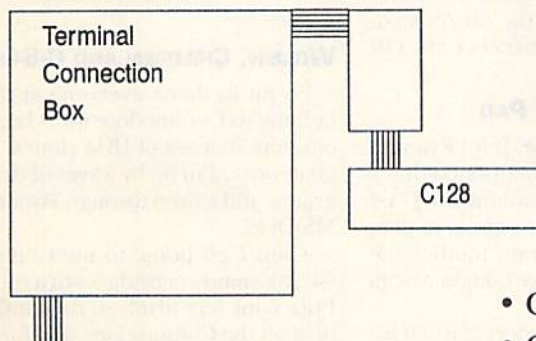
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MAIL RUN

The usual extraordinary and insightful comments, corrections and kudos from the busy desks of RUN readers.

COMMODORE "COMPATIBLE?"

I want to let you know just how valuable *RUN* can be to someone who wants to get the most out of their C-64 or 128. In the March/April '92 Mail *RUN*, Rick De Bruin of Kimberly, WI, responded to another reader who was having problems with his Star NX-1000C printer. When I read his solution (to flip off DIP switches #1 and 5 and use the Epson printer driver), a dozen bells went off in my head.

I own the same printer and, because it's Commodore "compatible," I felt no need to fool around with the DIP switches or experiment with printer drivers other than stock CBM. I assumed that a "compatible" always provided the best possible match between a Commodore computer and printer. Boy, was I wrong.

I went back and tried out all of my old programs that never quite satisfied me in their print quality. In most cases using the Epson emulation gave more features and better print. For example, I can now print color screens frozen with my Final Cartridge III.

I can't believe I had this capability just sitting there for the taking. I was ready to buy a Super Snapshot at \$70 just so I could do that. Now I don't have to.

I knew this printer was great, but now it's fabulous!

—KEVIN GALAZEN
DULUTH, MN

TEN-TON TODDLER TOPPLES TOWER?

I don't believe there's a program called *Tower Toddler*, as cited in the March/April Gold Mine. I think your printer was *RUN*ning a tad too fast. The program you refer to is named *Tower Toppler*.

—DAVID JORDAN
BUDINGEN, GERMANY

MENTAL BLOCKS REPRIEVE

I use my C-128 computer to write letters and play games nearly every day. Although I like serious stuff—utilities and applications—I feel that there is a limit to how many word processors or spreadsheets I can use. On the other hand, I

find that I do enjoy solitaire, Tetris, and Shanghai-type games that are quick to learn, but long on enjoyment.

I concur with your comments about Mental Blocks (March/April Software Gallery) with one exception. The games you evaluated were poor, but my disk included a fourth program, *Fits and Pieces -2D*. This program is very good in my opinion; in fact I prefer it to the original Tetris. If you get a chance, try *Fits and Pieces-2D*.

—DAVID LONGACRE
PITTMAN, NJ

NEW geoJournal ADDRESS

Since I continue to receive inquiries about the geoMetrix GEOS User's Group and its publication *geoJournal*, readers should know the new address:

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—GRADY BROWN
FORMER EDITOR, *geoJOURNAL*
OREGON CITY, OR

C-64/SEGA CONTROL PAD

In your May/June issue, John Ryan reviewed Predator 2. He mentioned that a Nintendo-type control pad for the C-64 would help make the game easier to play. When I bought Tetris for my mother, she said the same thing. So we bought a Sega Genesis control pad.

The pad works fine in port 2; when it's in port 1 the keyboard won't work. Pressing B on the pad is the same as pressing the fire button. I use the pad for all my games that use port 2. The pad does not work with GEOS. You can find the Sega Genesis control pad in any toy store for around \$20.

—JOHN OBESO
PALM COAST, FL

NET NEWS: DON'T FORGET DELPHI

I read with interest your article on "the nets" and thought I should write: *You missed one*. Delphi is my network of choice. I used to belong to Q-Link. GE-

nie didn't work out. And CompuServe... well. Delphi is the place to be.

Delphi isn't as flashy as Q-Link, but its libraries are growing every day. The sysops and SIG managers are some of the best around. Access is easy, help is never far away, and the service sysops can answer a question almost before you finish asking.

CompuServe is a giant, but who wants to be lost in the crowd? Delphi has shopping, airline reservations, an unmatched research section and more special interest groups than a normal person would care to join. Best of all, no other network can touch the price.

Delphi has a unique pricing policy called the 20/20 Advantage Plan. \$20 per month gets you access to everything Delphi offers for 20 hours. Local access from anywhere in the world—almost—and no per-minute charge for "chat."

You should give it a try.

—MARC NORRIS
DELPHI HANDLE: MARCN

WOMEN, CHILDREN AND C-64s FIRST

I want to thank everyone at *RUN* for helping us Commodore users keep afloat out here in a sea of IBM clones. When I go to work, I'm hit by waves of clone programs, and tossed through Windows and MS-DOS.

Then I go home to my Commodore 64. An island—a bridge—in a rough sea. I place my feet firmly in the sand (rug?), turn on the Commodore, and forget that there's a tidalwave fast approaching. Thanks again. Without your anchor, I surely would be drowning in the 486-50MHz whirlpool.

—DANIEL BARRERA
BOISE, ID

FOR THE TECHNICALLY INCLINED

I've been a *RUN* subscriber since you first started publishing the magazine. I've seen a few bits of misinformation over the years, but I don't think any has been quite so glaring as the two items in the May/June issue.

The first is in the sidebar by John ▶



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MAIL RUN

Ryan. It is difficult to believe that anyone would knowingly print that Commodore users are "slaves bound in 1200 baud shackles." Apparently your technical staff is about three years behind the times. The Commodore 64, though it is denied by Commodore, is fully capable of performing at 2400 baud with no external attachments. There are many BBS programs that work very well at 2400 baud, including the one I use, Image. While it is true that SwiftLink by CMD is a useful product, its real use comes in allowing the 64 to perform at rates even higher than 2400.

The second glaring error, actually an omission, occurs on page 26 in the answer given to Frank Gonzales. It is stated that a SCSI drive cannot be connected to a C-64. It then goes on to state that the CMD hard drive can be connected, but fails to mention that the CMD is a SCSI drive and that larger SCSI drives can, indeed, be connected or used to replace the SCSI in the CMD.

—FRED DART
SALEM, UT

While it's true that routines have been developed that allow the Commodore to approximate 2400 baud, the speed is not true, often running a little slower than 2400 baud. That margin of error can cause transmission prob-

lems, particularly when communicating with a system running at the true 2400 baud rate.

A further clarification: In that same article we mentioned that the SwiftLink cartridge is an RS-232 interface, allowing the C-64 to use other RS-232 devices, including printers. There are currently no drivers developed for SwiftLink to support RS-232 printers.

And finally, according to Doug Cotton from Creative Micro Designs, the CMD hard drive has a Commodore serial-to-SCSI interface, which makes it possible to connect additional SCSI drives. Replacing the SCSI drive in the CMD unit, however, is a technically demanding procedure, and not all SCSI drives are compatible. Therefore, you should contact CMD before attempting the procedure.

—EDITORS

A SCATOLOGICAL SUGGESTION

I have seen a lot of changes in your format since I first subscribed to *RUN* many years ago, but let me tell you one thing regarding your paper and trying out different kinds.

At least in my case, I couldn't care less if you sent my copy of *RUN* on toilet paper, just as long as you send me the information. So, I guess what I am saying is that it really does not matter to me the kind of paper you use to print your articles on. It's the information in those ar-

ticles that is most important to me. I suggest you go with the least expensive route to control your overhead.

Also, I just recently subscribed to *Re-RUN* and I am looking forward to my first edition.

—JOHN MARCELLE
MANTEGA, CA

BBR AND PERFECT PRINT

The following might clarify some points made in your May/June issue:

First, Big Blue Reader for the 128 does support the REU, while the C-64 version does not. Second, Perfect Print for GEOS does not work with a standard (1525) Commodore printer, or one in Commodore emulation mode.

—JOHN ELLIOT
TRURO, NOVA SCOTIA

RUN's FGM CONNECTION

In the May/June '92 issue, Mail *RUN* had a letter titled "Fun Graphics Makes Forms." Then, in the July/August issue, you published the same letter with the title "Fun Graphics Success Story."

Was this an editor's mistake, or a subtle way of plugging Fun Graphics Machine?

By the way, would you mind giving a plug to C-64 Alive! out of Sacramento? Just kidding!

—RICHARD CUNNINGHAM
PHOENIX, AZ

One reader wrote in asking, "How much did Fun Graphics Machine pay you to run that story twice?" (We can assure you they didn't pay us nearly what we're worth.)

In fact, Fun Graphics is reportedly a very good product, and we don't mind giving credit where it's due. The duplication, however, was a bona fide editorial blunder.

—EDITORS

User's Group Update

New Listings:

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If you're new, have never been listed in RUN or are changing locations, we want to know! All changes and additions to our User's Group Update should be sent to: User's Group Update, RUN Magazine, 80 Elm St., Peterborough, NH 03458.

RUN AMOK

Drat!—Three errors snuck into our Look and Load program, published in the July/August issue:

1) The checksum value for line 180 was misprinted. The correct value for that line is 11.

2) In line 220, replace the number 156 with 136, which makes the checksum value for that line 101.

3) In line 230, replace the number 150 with 153, which makes the checksum value for that line 159.

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- **PRINTER PORT ADAPTER** by Omnitronix. Avoid obsolescence. Allows you to use any Commodore (C-64) printer on any PC compatible or clone. Does not work with Amiga. **\$34.95**

512K RAM EXPANDERS

By special arrangement with Commodore, we are able to purchase at a fantastic price 400 of the original 512K 1750 RAM expander units for your C64 or C128 computer. Now keep up with the latest technology. Upgrade to 512K with a simple plug-in module. Completely compatible and comes with software. If you have a C64 you will need a heavier power supply (4.3 amp), which we will give you for \$31.00. C128 users do not need this power supply. This is the original Commodore unit with over 800,000 sold..... **\$99.95**
Super 1750 REU CLone (512K). Does not require a larger power supply. **\$142.50**

COMMODORE DIAGNOSTICIAN II

Originally developed as a software package, then converted to a readable format, the Diagnostician has become a fantastic seller. With over 38,000 sold worldwide, Diagnostician II utilizes sophisticated cross-reference grids to locate faulty components (ICs) on all C-64 and C1541 computers (C-128/64 mode). Save money and downtime by promptly locating what chip(s) have failed. (No equipment of any kind needed.) Success rate from diagnosis-to-repair is 98%. Includes basic schematic **\$6.95**
(Available for Amiga computers with 3 1/2" disk at **\$14.95**).

NEW POWER SUPPLIES

- A super-heavy, repairable, "not sealed" C-64 power supply with an output of 4.3 amps (that's over 3x as powerful as the original). Featuring 1 year warranty, ext. fuse, schematics, UL approved **\$37.95**
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6581 SID	
6567 Video	\$9.95
PLA 906114	
All 901/225-6-7-9	EACH
4164 (C-64/RAM)60
C-128 ROMs Upgrade (set 3)24.95
C1571 ROM Upgrade (310654-05)10.95
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#693 C64 to 3 pin RCA (eg. 1084)16.95
1541/1571 Drive Alignment21.95
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Service Manuals for C64, C128, 1802, 1084SP, 154121.95

+ EMERGENCY STARTUP KITS +

Save a lot of time and money by repairing your own Commodore computer. All chips are direct socket plug-ins (no soldering). Each kit includes all you need to "start up"/revive your broken computer. Originally blister packed for the government PXs worldwide, this series is now available to you. Total cost savings per kit far exceeds purchasing chips on an individual basis.

KIT #3 (Part #DIA 15) for C64
Symptoms: No power up • Screen lock up • Flashing colors • Game cartridge problems
Contains: ICs #PLA/82S100/906114, 6526, Commodore Diagnostician, Fuse, Chip Puller, 8 RAMs, Schematic, Utility Cartridge & special diagnostic test diskette with 9 programs
An \$87.50 value for only \$29.95

KIT #4 (Part #DIA 16) for C64
Symptoms: Control Port • Sound • Keyboard • Serial device problems
Contains: ICs #6526, 6581, 8 RAMs, Commodore Diagnostician, Fuse, Chip Puller, Basic Schematic, Utility Cartridge & special diagnostic test diskette with 9 programs
A \$79.80 value for only \$29.95

KIT #5 (Part #DIA 17) for 1541/1571
Symptoms: Drive runs continuously • Motor won't stop • Read errors • No power up
Contains: ICs #6502, 6522, Fuse Chip Puller, Basic Schematic, Commodore Diagnostician & special diagnostic test diskette with 9 programs
An \$70.10 value for only \$29.95

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MAGIC

Give your C-64 double RAMdisk power, experiment with circle patterns on your C-128 screen and create text files of machine language monitor output.

By TIM WALSH

\$5F1 DUAL RAMDISK 64

Even if you don't own a Commodore 1764 or other RAM expansion unit for your C-64, you still have access to a RAM drive. As its name implies, Dual RAMdisk 64 will give your unexpanded C-64 two RAMdisks, each capable of holding programs up to 8K in length, for a total of 16K!

After typing in and saving Dual RAMdisk 64, running it reveals two sets of interrupt-driven commands that remain hidden in the background until needed. SYS 49317 saves a program into the first RAMdisk, while SYS 49335 retrieves it. Similarly, SYS 49359 and SYS 49374, respectively, perform the same functions for the second RAMdisk.

Be certain to save a file to the second RAMdisk before saving one to the first. Otherwise, you might not be able to retrieve a program from the first RAMdisk.

```
Ø REM DUAL RAM DISK 64 - RICHARD PENN
                                :REM*126
1Ø FOR T=49152 TO 49391:READ D:POKE T,D:CK
  =CK+D:NEXT                    :REM*87
2Ø IF CK<>358Ø6 THEN PRINT"ERROR IN DATA..
  .":END                        :REM*23
3Ø PRINTCHR$(147)"DUAL RAM DISK INSTALLED"
  :PRINT:PRINT"SYS 49137 - SAVE 1"
                                :REM*1Ø3
4Ø PRINT"SYS 49335 - LOAD 1":PRINT:PRINT"SYS
  49359 - SAVE 2"              :REM*89
5Ø PRINT"SYS 49374 - LOAD 2":PRINT:PRINT"N
  OTE: ALWAYS SAVE TO RAM 2 FIRST!":REM*7
6Ø DATA 165,46,2Ø1,41,176,65,2Ø1,4Ø,2Ø8,6,
  165,45,2Ø1,1,176,55,165,43,133 :REM*246
7Ø DATA 251,165,44,133,252,165,45,141,252,
  3,165,46,141,253,3,169,Ø,133 :REM*141
8Ø DATA 253,169,224,133,254,16Ø,Ø,177,251,
  145,253,23Ø,253,2Ø8,2,23Ø,254 :REM*129
9Ø DATA 23Ø,251,2Ø8,2,23Ø,252,165,251,197,
  45,2Ø8,234,165,252,197,46,2Ø8 :REM*47
1ØØ DATA 228,96,76,53,164,12Ø,169,Ø,133,25
  1,169,16Ø,133,252,165,43,133 :REM*67
11Ø DATA 253,165,44,133,254,169,53,133,1,1
  6Ø,Ø,177,251,145,253,23Ø,253 :REM*39
12Ø DATA 2Ø8,2,23Ø,254,23Ø,251,2Ø8,2,23Ø,2
  52,165,253,2Ø5,25Ø,3,2Ø8,233 :REM*136
13Ø DATA 165,254,2Ø5,251,3,2Ø8,226,169,55,
  133,1,173,25Ø,3,133,45,173,251:REM*145
14Ø DATA 3,133,46,88,165,55,164,56,133,51,
  132,52,165,45,164,46,133,47 :REM*23Ø
15Ø DATA 132,48,133,49,132,5Ø,96,169,16Ø,1
  41,39,192,169,25Ø,141,27,192 :REM*37
16Ø DATA 169,251,141,32,192,76,Ø,192,169,1
  6Ø,141,82,192,169,25Ø,141,118 :REM*19Ø
17Ø DATA 192,141,134,192,169,251,141,125,1
  92,141,139,192,76,76,192,169 :REM*71
18Ø DATA 224,141,39,192,169,252,141,27,192
  ,169,253,76,177,192,169,224 :REM*197
```

```
19Ø DATA 141,82,192,169,252,141,118,192,14
  1,134,192,169,253,76,198,192 :REM*253
```

—RICHARD PENN, MONTREAL, QUEBEC

\$5F2 CIRCLE FUN 128

Among the C-128's Basic 7.0 graphics commands, Circle is one of the most powerful. Circle Fun 128 is a short program that creates four entertaining, eye-catching displays. Try experimenting with different values in the Circle commands in this program and watch the results.

```
Ø REM CIRCLE FUN 128 - KEN HOKE :REM*191
1Ø COLOR4,1:COLORØ,1:GRAPHIC1,1:COLOR1,2
                                :REM*67
2Ø X=8Ø:Y=51:FORS=3 TO 5 :REM*17
3Ø RT=Ø:RD=5Ø:RS=97:RE=5Ø :REM*1
4Ø FORZ=1 TO 13 :REM*255
5Ø CIRCLE1,X,Y,RD,RD,,,RT,36Ø/S :REM*1Ø2
6Ø RT=RT+9:RD=RD-3.7 :REM*217
7Ø NEXTZ :REM*125
8Ø IF S=3 THEN Y=Y+RS :REM*63
9Ø IFS=4THENY=Y-97:X=X+(RE*3) :REM*49
1ØØ IFS=5THENY=Y+RS :REM*35
11Ø NEXTS :REM*151
12Ø RT=Ø:FOR Z=1 TO 9:CIRCLE1,23Ø,148,2Ø,R
  E,,,RT,1:RT=RT+2Ø:NEXT :REM*169
```

—KENNETH HOKE, LOUISVILLE, KY

\$5F3 MONITOR FILE MAKER 128

Monitor File Maker 128 is an unusual utility that programmers should find helpful. The program runs from within Basic on the C-128, jumps to the built-in machine language monitor, creates a file, then allows you to exit back to Basic. The contents of the file are a word processor-compatible file of the machine language monitor's output.

After running it, enter a filename at the first prompt. Next, enter commands from within the machine language monitor to disassemble or examine files, then press the HOME key and press RETURN. The disk file is closed and you're now ready to load the file into your word processor.

```
Ø REM C-128 MONITOR OUTPUT FILE MAKER - RA
  NDY WINCHESTER :REM*239
1Ø INPUT"FILENAME";F$ :REM*45
2Ø PRINTCHR$(147) :REM*226
3Ø PRINT"(HOME)G FA16F" :REM*246
4Ø PRINT"OPEN 1,"PEEK(186)",2,"+CHR$(34)+F
  $+",S,W"+CHR$(34)+":CMD1:MONITOR"
                                :REM*23
5Ø POKE 2Ø8,3:POKE 842,145:POKE 843,19:POK
  E 844,17 :REM*21
```

—RANDY WINCHESTER, CAMBRIDGE, MA ■

NEWS AND NEW PRODUCTS

Special sneak preview: A new fantasy role-playing game for the 64 that could be the best yet. Plus, a Western clip-art disk and news from CBM.

By JANICE CROTTY

A PROMISING NEW ROLE-PLAYING GAME TO BE RELEASED THIS FALL

LAKEWOOD, CO—A few months ago, two men calling themselves Mad Man Software flew out to show us a piece of software they were putting together with some of their college buddies. Here we go, I thought, another AD&D rip-off. The eternal skeptic, my expectations were not high.



In *Messiah III*, your quest is revealed as you explore the desert planet, Radix.

Fortunately, I was wrong. These guys are professional engineers and, as it turns out, one of the "college buddies" is a National Dungeon Master. They've spent five-and-a-half years planning their massive fantasy role-playing game, *Messiah III: Nemesis*, complete with its own DOS. What they showed us was quite impressive.

The final version will not be available for review until later this fall, but if *Messiah III* lives up to its aspirations, this game could rival the *Ultima* series in scope and overall quality.

Be forewarned: M3 is not intended for the novice FRP gamer. Gene Barker, the chief Mad Man, describes M3 as "quite difficult, designed for the high school intellectual and up." Accordingly, the game will sport an "R" self-rating for violence, nudity and adult situations.

As the name suggests, the series starts midstream. *Messiah III* is the first release of a 5-part series that takes place on a harsh desert world called Radix. Unlike other games, you must explore

Radix and discover your destiny as you go along. The levels are set up in an intricate web, so you're free to make your way about Radix, exploring more than 300 flicker-free color screens and 50 maps.

The massive game (six disk sides) claims the fastest access times and fewest disk swaps of any Commodore FRP to date. On a stock C-64 with a 1541 drive, says Barker, your *maximum* disk access will be only 12 seconds, with most access times under *two* seconds. With a RAMLink, RAMDrive or CMD Hard Drive, disk access becomes instantaneous. Mad Man has been working with CMD to ensure that the game is fully compatible with their products, including Jiffy DOS. What's more, a custom operating system, Mad DOS, stores graphics in a buffer, so there's less need for disk access. Even so, the game promises 200–400 hours of playing time!

Still, I was most impressed by their novel approach to combat. Your character might slip or fumble during a fight, particularly if he or she's a novice. More unique is the AMI—Artificial Monster Intelligence—that endows each monster with a special style to exclude formula combat. Some run away, others have magic, and so on. That challenge, explains Barker, makes sure that combat won't get easier or boring as you and your character gain experience.

Whether or not M3 succeeds will depend on how faithfully they can follow through with the game's promise. We anxiously await the final version, which, again, is planned for later this fall.

For more information, you can contact Mad Man Software at 7610 West 5th Avenue, Suite 200, Lakewood, CO 80226.

WESTERN THEME CLIP ART DISK

DEER PARK, WA—In the past year, virtually every clip art collection to cross my desk has featured cute cartoon characters: the Flintstones, the Simpsons, the Turtles. They may be adorable, and for now they may be popular, but how often can you send out "Cowabunga, Dude!" birthday invitations?

Horse Feathers Graphics of Deer Park, Washington, has put together a versatile and entertaining clip art collection for Print Shop. Western Heritage captures genuine Western images with its 11 fonts (one of them an authentic Indian symbol font), 90 graphics and 42 borders. Detailed instructions help you recreate original wanted posters, and many examples are included with the kit. If you're plan-



The Western Heritage clip art collection features 140 designs and 11 fonts.

ning a barbecue, riding event, rodeo, hay ride or horseshoe tournament, contact Horse Feathers Graphics, North 27310 Short Road, Deer Park, WA 99006.

COMMODORE NAMES NEW VP OF CONSUMER SALES

WEST CHESTER, PA—Commodore recently named David Pleasance vice president of consumer sales in the U.S. He will be responsible for marketing the company's products in the U.S., including our beloved 8-bit machines and their peripherals.

This could mean great things for 8-bit fans, as Pleasance comes from Commodore International's European affiliates, where 8-bit machines are still big business. An enthusiastic supporter of the C-64, Pleasance could prove to be our greatest advocate in years. ■

geoDrawing



By LARRY McCOY

Have you ever wished that you could include a personal drawing in your GEOS documents? I'll show you a simple way to create artwork using geoPaint, and you don't have to be an artist. When you combine my method with a little patience, you will be amazed with the results.

Here are my seven steps to success:

1. Find a snapshot or a picture from a magazine that you can trace using trac-

ing paper. I chose a photo of my cat Rosebud for this demonstration.

2. Tape the picture to a flat surface and lay tracing paper over it. Tape the tracing paper only at the top so you can lift it to check details.

3. Trace the outline first, and then the interior divisions.

4. Trace details last, including only those details that are most telling. As you can see in figure 1, I traced major lines to indicate the face, legs and tail and

added only those stripes that stood out the most. You only need to trace essential details; your further work and the viewer's mind will supply the rest.

5. Copy your tracing onto overhead transparency film using a copier. An office-supply or copy shop can do this for you. If your tracing exceeds the geoPaint screen area, reduce it during the copy process.

6. Load geoPaint and tape the transparency to the appropriate position on



Fig. 1. The initial tracing of Rosebud done directly from the photo onto tracing paper.

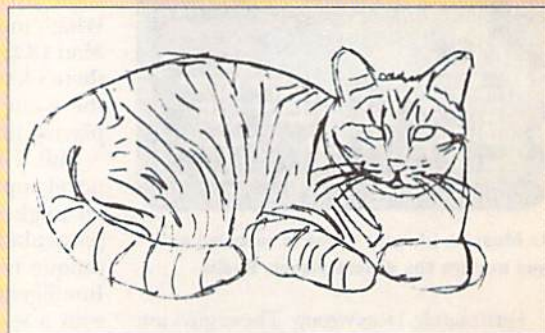


Fig. 2. Next, the tracing is photocopied onto a transparency sheet. (I find it easier to draw on the tracing paper first, rather than directly onto the transparency.)

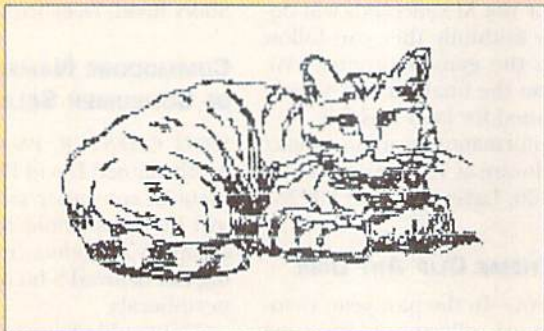


Fig. 3. My first tracing onto the computer. The primary sketch is usually rough and needs refinement.

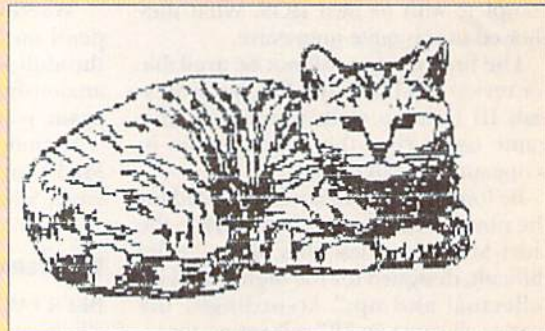


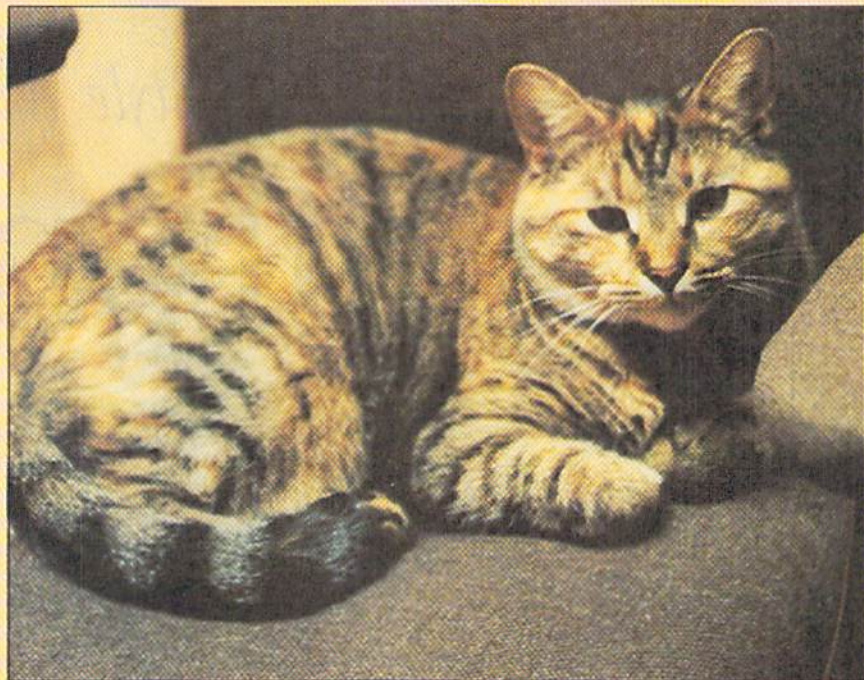
Fig. 4. The drawing has been cleaned up and corrected. After some careful comparison between the drawing and the original, I noted that the ears, eyes, mouth, tail and shadows needed work. (Rosebud agreed.)

Create your
own artwork
for GEOS documents
with these seven
easy steps.

your computer screen. Using the pencil tool, trace the lines. Don't rush, and don't worry if you make a mistake.

7. Refine your drawing with pixel edit mode. I typically put the drawing away for a few days after this step so I can make the final refinements with an objective eye. I often ask a friend to critique it as well. (Of course, Rosebud offered her "unbiased" opinion.)

Make the final changes, and *voilà!* Instant art.



Once your drawing is in geoPaint you can modify it easily and save several different versions. My efforts (Figs. 5-8) show that there are many ways to finish a drawing. Experiment with all of the geoPaint tools, brush shapes and pat-

terns to create your own unique effects. Your GEOS documents will never be the same! ■

Rosebud, and Larry McCoy, live in Hoffman Estates, Illinois.

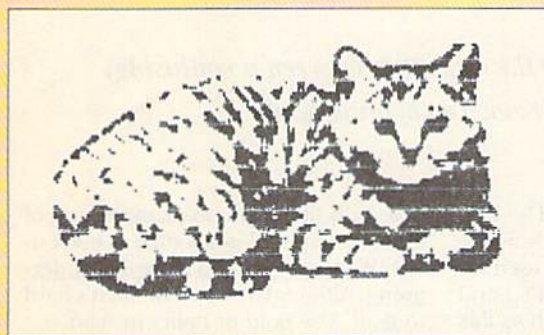


Fig. 5. A simple cut-and-paste using the smoothing option from the Paste dialogue box. This drops the detail and adds contrast to the image. Smooth your pictures when you need them to be crisp (a logo, for example).

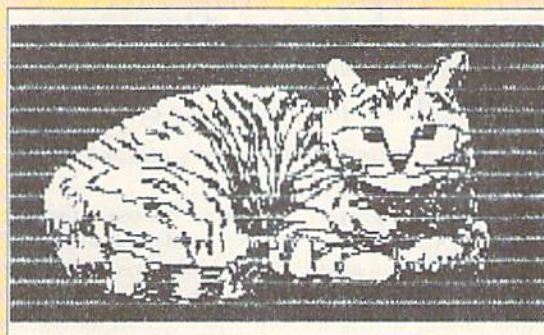


Fig. 6. This effect was accomplished by drawing a box with the line tool to create a rectangle around the image, then filling it with the faucet tool. This "pop-out" effect works well in geoWrite and geoPublish documents.

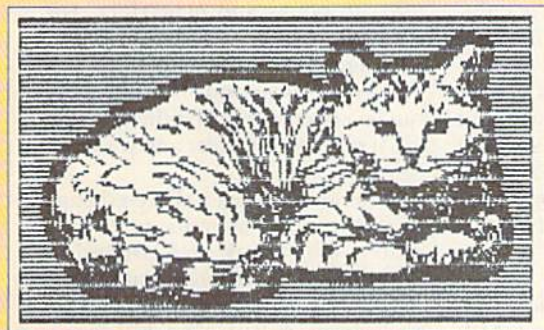


Fig. 7. I created this effect by outlining the cat with the brush tool and filling the outer rectangle with the horizontal line pattern. Since I knew the cat was enclosed with the bold brush line, I could use the faucet tool and fill the rectangle in one step.

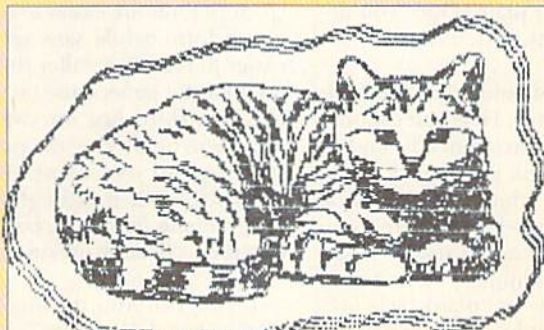


Fig. 8. The three-dotted brush creates a whimsical line around the cat. (Rosebud was so thrilled by this one she ran to the kitchen and demanded sardines for supper.)

Writing In Style With geoFonts

By GERRY DESCOTEAUX

Before laying out a single page, before importing any graphics, sometimes even before importing any text, a desktop publisher has to pick fonts. Selecting a typeface (or typefaces) is the first, most basic decision you have to make. A wise font choice will be readable, eye-pleasing, and will impart a sense of style to

your publication. With GEOS and either geoPaint or geoPublish, you can use fonts to make your documents look more exciting and professional, tailoring key page elements with different sizes and styles of type.

The selection process will take some trial and error, so you'd better be prepared. First, load your work disk with the

files you'll need for your project: applications, printer drivers, the deskTop icon and your choice of fonts. If you own a RAM expansion device, you'll be able to work faster by copying your work disk onto the RAMdisk. Remember to save your data to floppy disks often! Unless your RAM device has a battery back-up (only in RAMLink, RAMDrive and The

Professional Typesetting Advice

Consistently following a few well-thought-out rules can make the difference between a confusing, cluttered page and one that is pleasing to the eye and easy to read. In choosing your typefaces and typestyles, "moderation" is the golden rule.

1. Consistency is essential in giving your document a professional appearance. If you create a regular publication, such as a newsletter or bulletin, make yourself a "style guide" that lists your font, point-size and style selections for titles, subtitles, text, and so on. For example, you could make titles 36-point Peignot bold; headlines, 24-pt. Square bold; captions, 9-pt. Peignot italic; and text, 12-pt. Times plain. Once you decide on your styles, stick to them!

2. Typesetting should guide the reader through the page. Headlines should stand out more than subheads, and so on. When you think you have it right, set it aside for a while and then look again. Do your eyes know where to go first? Is the page easy to read? A type style can lend a feeling to your message (literary elegance or "plain facts" reporting, for example); try to match the style to your message.

3. Overusing typefaces and type styles is the novice's greatest pitfall. Though you're tempted by a wide selection of

typefaces, choose only a few. The best professional publications use only two or three. Typically, one *serif* font is used for text (such as this one, Baskerville) and one *sans serif* font for titles (such as this one, Helvetica). Serifs are the little lines that extend off the extremities of some letters (notice on the T, P and H, for instance); sans serif ("without serifs") fonts do not have these lines (compare T, P, H). Serif fonts are easier to read in paragraph form, while sans serif fonts are easier to read in smaller doses. Choose two fonts for general use on your page—maybe a third just for captions—and vary them by altering the point size and style. Avoid overusing **novelty typefaces**; they might work great for grabbing attention, but will quickly lose their effect by overuse.

4. Don't overdo it using type styles. Use *italics*, **bold**, *outline* and ALL CAPS styles sparingly, to emphasize only the most important page elements. Capitalized and italicized text are more difficult to read, especially in blocks, and should therefore be used only oc-

asionally for emphasis or, in the case of italics, for special items such as book titles. We think you should avoid underlining. Although it's used often, it's hard to read. Use bold or italics instead.

5. "Justified" type (with even line lengths, straight left and right margins) is easier to read and packs more words into your available space. It's used most often in books and magazines. For a more informal, friendly look, use "flush left, ragged right" (straight left margin, uneven right margin). Centered text can be effective, but is difficult to read; use it only occasionally and for titles.

6. Remember that a cluttered page is hard to read. Pay attention to the "white space"—the blank area around and near the text. ~~Avoid cramming in too much text and creating a dull, uninviting space the reader has to plough through.~~ But also be careful to avoid a spacy, stretched-out look. Finding the balance is one of the keys to excellent page design.

—The RUN Editors

*Use different fonts
and font styles to give
your geoPaint and
geoPublish documents
a professional edge.*

Quick Brown Box), anything you have in RAM will be lost if (and when) the power goes off.

UNLIMITED OPTIONS

As in all GEOS-related processes, printing is done in Graphics mode, not Text mode. Therefore, you can use fonts of almost any shape, size and style. Choose the Old-English Dwinelle font for formal invitations; space-styled Cory to advertise the local planetarium; or the traditional Vatican font to lead off your church bulletin. Use a special font for titles and headlines, and a simple font for text. To experiment with the fonts on your work disk, click on the font menu at the top of your deskTop, geoWrite or geoPaint page.

Font size options are limited in geoPaint, though some fonts offer more flexibility than others. For example, Roma offers 9-, 12-, 18- or 24-point sizes, while the Commodore NLQ font comes only in 10 point. GeoPublish gives you maximum control over font size by letting you scale the font from 1 point to 199 points high. Large text, however, often has that jagged, computerized look. You can use the Smooth option to minimize the effect. Or, you can print your document to geoPaint using the Paint Pages printer driver.

When you print with the Paint Pages printer driver, your geoPublish document prints itself to a new geoPaint file, which is automatically saved to disk with the name Page 1. Load the new document into geoPaint and clean up the jagged edges using Pixel Edit mode. For best results, smooth the font in geoPublish, then print it into geoPaint and clean up the edges.

The options available on the style menu (to the right of the font menu) can really add flash to your page. Use the bold or outlined styles to draw the reader's attention to key page elements. Italics will distinguish special text on the

SILVER SCREEN!

This is Wilson. Actually a nice looking text font.

OUTLINE Mode works well...
DOESN'T IT?

**Print your own funny
money with this
engraving type.**

this is neon

In this font the numbers produce their oriental equivalent:

- = ≡ 四 五 六 七 八 九 *

Now in Arabic: ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ •

page, but will make it more difficult to read. On a resume, for example, you might put past job titles in 14-point bold, your dates of employment in 12-point bold italics and the job descriptions in 12-point plain. The outline style is powerful—adding a graphic quality to your page if done properly. But be careful: This style can be overwhelming, and is inappropriate for formal documents. Subscript and superscript can be used for footnotes or mathematical symbols (for example, *Aliens*³).

A combination of styles can provide you with multiple design options. For example, I use Piegnot 18 point throughout my music magazine. For the cover title, I created a fat oval-shaped area with the geoPublish filled circle tool. Inside of it I placed the title "The Back Page" in 18-point Piegnot, bold outlined. The resulting graphic became the magazine's logo. I use it everywhere: on letterheads, advertisements, even as a page footer.

FONT SOURCES

The Geos Power Pak disks have several fonts created by professional designer Susan Lamb. Likewise, the various Font-Pak disks from geoWorks offer a nice assortment. On the geoPublish disk you'll find a number of fonts specifically de-

signed to be used for laser printing. Also check out the Font Libraries in the GEOS Arena of the QuantumLink Software Showcase. Many of these fonts were created by other users who wished for more than the half-dozen fonts packaged with the GEOS system.

If you'd like to try your hand at designing a custom font, get the geoFont Editor, also available on Q-Link. You can customize an existing font or start from scratch and design your own.

My best advice to you is: Experiment! Try different font combinations, then look at their various styles. Figure out which combinations work best for the projects you do, and make notes about what you like.

(For more information about desktop publishing on the Commodore, see "Read All About It" in *RUN*'s July/August 1991 issue.)

The power to unleash creativity has never been more accessible to Commodore enthusiasts than it has since the onslaught of the GEOS generation of productivity software. If you can think it, you can produce it. ■

Gerry Descoteaux lives in New Hampshire. He desktop publishes a regional music newsletter, The Back Page, using GEOS.

Hotkey

Here's a behind-the-scenes programming utility that lets you easily call pop-up accessories from your Basic programs.



By RICHARD PENN

Imagine you're using a word processor and you need to make a calculation, so you click on an on-screen calculator, do the figuring, and resume working. Then the phone rings, and as you're talking, you click on a calendar to confirm an appointment.

If you think creating pop-up accessories such as these is possible only for an expert programmer using machine language, think again: You can easily create them in Basic with Hotkey.

THE LISTINGS

Type in Listing 1, a Basic hex loader, using *RUN's* Checksum on page 47 to catch errors, and save it to disk. Then run it once to create the file Hotkey.ML. This is the Hotkey program. Next, type in and save Listing 2, also a Basic hex loader. Run it once to create the file Calc.ML, the sprite data used by the demo program. Finally, type in Listing 3, the demo program, and save it to the same disk as Hotkey.ML and Calc.ML.

To see Hotkey in action, load and run the demo as you would any Basic program. The demo calculator uses the same keys as a pocket calculator, except to clear the display you press HOME.

THE HOT KEY SETUP

The utility works by setting up the F1 key as a "hot key" within your Basic programs. Pressing F1 puts the Basic program on hold and executes the code for the pop-up desk accessory (such as my calculator). Pressing F1 again returns you to the main program as if you had never left. Think of it as a powerful Go-sub key that jumps to a subroutine with

its own screen, VIC-II chip and variables.

To use Hotkey, add line 60 of the demo to the beginning of your Basic program. Then you will need to add the two commands SYS 49752,LINE and SYS 49877 to your Basic program.

The first enables Hotkey and points to the first line of the desk accessory subroutine (that is, the line that pressing F1 jumps the program to). Place this command near the start of your program.

The second command disables Hotkey. This is an optional command, to be used at your discretion.

PROGRAMMING DESK ACCESSORIES

From the top down, a Basic program with Hotkey desk accessories must be organized as follows: First comes the main application program, along with any subroutines, followed by the desk accessory code, written as a separate program. At the beginning of the main program is the line to load the Hotkey.ML file into memory (line 60 of the demo), followed by the command SYS 49752,LINE (as explained above). The main program should have access to the desk accessory code only through the hot key.

When F1 is pressed, all important information about the main program, such as Basic pointers, variables, screen and color memory, and the VIC-II chip, are saved. Then Basic jumps to the chosen subroutine and executes it. This subroutine has its own variables (2559 bytes stored at memory locations 50689-53247), which are cleared each time you press F1. The display, however, is not cleared, so pop-up tools can be printed over the current screen for a window ef-

fect. The only quirk is that the cursor is positioned one column to the right of the "home" corner.

No screen or sprite changes made by a subroutine called by Hotkey are permanent. The utility remembers where you were, and pressing F1 restores the original program. The only exception is the SID chip, which cannot be peeked, and therefore cannot be saved.

If you want to have several desk accessories, include a menu at the beginning of the hot key subroutine so users can choose the one they want.

When programming pop-up accessories, it's best to write them separately, and merge them with the main program once they're debugged. This is because only the main set of variables is available to the Basic editor. If you press RUN/STOP while a hot key subroutine is running and then type PRINT A, the value of A in the main program, and not the subroutine, will be returned.

Even if you don't want to program your own accessories, use the calculator from the demo in your own programs by including lines 50-90 and 1000-1390.

NEW LOOK AND FEEL

Hotkey gives Basic a new look and feel. Never before could Basic programs be so user-friendly, nor did the programmer have so much power at his fingertips. The click-on accessory possibilities are limited only by your programming prowess, and your imagination. ■

Richard Penn has been a prolific contributor to RUN's Magic column. He lives in Montreal, Quebec.

Listing 1. Hotkey hex loader program. Also available on the September/October ReRUN disk. To order, call 800-824-5499.

```
0 REM THIS CREATES (AND SHOULD      5 OPEN 8,8,8,"HOTKEY.ML,P,W"      10 READ A$:IF A$="-1" THEN CLOS
   NOT BE CALLED) HOTKEY.ML          :REM*37                             E8:PRINT:PRINT"ALL DONE!":EN
   :REM*97                             6 CT=0:PRINT"(SHFT CLR)":REM*56   D                               :REM*129 ▶
```

RUN it right: C-64

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HOTKEY

```

12 PRINT"{HOME}READING LINE "+S      110 DATA 1A8D0203A9C28D0303A2*1      :REM*35
TR$(CT):CT=CT+1                      :REM*141
15 IF LEN(A$)<62 THEN 55                :REM*9
                                         :REM*254
20 B$=MID$(A$,1,20)+MID$(A$,22,      111 DATA F74C31EAA9368501A202*B      :REM*209
20)+MID$(A$,43,20)                   :REM*242
25 FOR I=1 TO 30                       :REM*181
30 C$=MID$(B$, (I*2)-1,2):H$=LEF      112 DATA 85FDA9A385FEA000B1FD*9      :REM*14
T$(C$,1):L$=RIGHT$(C$,1)             :REM*14
                                         :REM*209
35 H=VAL(H$):IF H$>"9" THEN H=A      113 DATA A5FCC903D0E4A90085FB*A      :REM*154
SC(H$)-55                              :REM*85
40 L=VAL(L$):IF L$>"9" THEN L=A      114 DATA E6FEE6FBD002E6FCA5FB*C      :REM*6
SC(L$)-55                              :REM*136
45 BY=H*16+L:PRINT#8,CHRS(BY);       :REM*67
                                         :REM*115
50 NEXT:GOTO 10                        :REM*115
55 IF LEN(A$)<21 THEN B$=A$:GOT      115 DATA 85FDA9A985FEB1FD91FB*E      :REM*20
O 70                                     :REM*184
60 IF LEN(A$)<42 THEN B$=LEFT$(      116 DATA C9DBD0E4A200BDD7AD9D*0      :REM*53
A$,20)+RIGHT$(A$, (LEN(A$)-21      :REM*176
)):GOTO 70                              :REM*188
65 B$=LEFT$(A$,20)+MID$(A$,22,2      117 DATA EAA9838D0203A9A48D03*0      :REM*48
0)+RIGHT$(A$,LEN(A$)-42)              :REM*140
                                         :REM*221
70 FOR I=1 TO LEN(B$)/2                :REM*140
75 C$=MID$(B$, (I*2)-1,2):H$=LEF      118 DATA F18D250308A9002090FF*2      :REM*48
T$(C$,1):L$=RIGHT$(C$,1)             :REM*157
                                         :REM*56
80 H=VAL(H$):IF H$>"9" THEN H=A      119 DATA 788DE9C28EEAC2A9838D*0      :REM*157
SC(H$)-55                              :REM*56
85 L=VAL(L$):IF L$>"9" THEN L=A      120 DATA E7C2A9368501A22DBDFD*A      :REM*165
SC(L$)-55                              :REM*84
90 BY=H*16+L:PRINT#8,CHRS(BY);       :REM*148
                                         :REM*160
95 NEXT:GOTO 10                        :REM*160
100 REM HEX DATA FOR HOTKEY.ML        :REM*83
101 DATA 00C0A202B5009DFDA2E8*E      121 DATA 83A4A9EE85FBA9C285FC*A      :REM*102
0FBD0F6A9FF85FBA90085FCA9F          :REM*226
685FDA9A385FE                         :REM*125
102 DATA A000B1FB91FDE6FDD002*E      122 DATA E6FBD002E6FCA5FDC9FD*0      :REM*125
6FEE6FBD002E6FCA5FB*C910D0E        :REM*13
AA5FCC903D0E4                          :REM*155
103 DATA A90085FBA90485FCA907*8      123 DATA ECC2A5158DEBC2A9008D*E      :REM*242
5FDA9A685FEB1FB91FD*E6FDD000        :REM*126
2E6FEE6FBD002                          :REM*225
104 DATA E6FCA5FBC9E8D0EAA5FC*C      124 DATA EAFP94FF00AAB191B322*2      :REM*242
907D0E4A90085FBA9D8*85FCA9E        :REM*129
F85FDA9A985FE                          :REM*242
105 DATA B1FB91FDE6FDD002E6FE*E      125 DATA 04EA0B00000076A3B3BD*5      :REM*53
6FBD002E6FCA5FBC9E8*D0EAA5F        :REM*75
CC9DBD0E4A200                          :REM*104
106 DATA BD00D09DD7ADE8E02FD0*F      126 DATA 00000000000000000000*0      :REM*27
5BA8E06AEA9368501A2*02BD000A        :REM*104
09500E8E0D9D0                          :REM*225
107 DATA F6A2F3BD00A09500E8E0*F      127 DATA FFFA004F0C5C4ED31703*0      :REM*26
BD0F6A9EB85FBA9A085*FCA9FF8        :REM*87
5FDA90085FEB1                          :REM*189
108 DATA FB91FDE6FDD002E6FEE6*F      128 DATA 02E67BAD0602C93AB00A*C      :REM*123
BD002E6FCA5FBC96DD0*EAA5FCC        :REM*232
9A2D0E4AEFCA2                          :REM*232
109 DATA A93785019AA9F68D2403*A      130 DATA 02E67BAD0602C93AB00A*C      :REM*11
9C18D25030A9138D7702*A90D8D7        :REM*11
802A2C90285C6A9                       :REM*51
000000D61700000                       :REM*35
132 DATA 3C0300000000006006008FA*9
F000000000000010804*0000080
C0004000220000                       :REM*209
133 DATA 00000040000027008500FF*0
000FFFF00000FFFF0000*FFFF0000
000000202034                       :REM*135
134 DATA 393735350030303030FF*0
000FFFF00000FFFF0000*FFFF0000
0000000000000000                   :REM*16
135 DATA 0000FFFF0000FFFF0000*F
FFF00000FFFF0000FFFF*0000FFF
F00000FFFF0000                       :REM*79
136 DATA FFFF0000FFFF0000FFFF*0
000FFFF00000FFFF0000*FFFF0000
0000000000000000                   :REM*101
137 DATA 0000FFFF0000FFFF0000*F
FFF00000FFFF0000FFFF*0000FFF
F00000FFFF0000                       :REM*77
138 DATA FFFF0000FFFF0000FFFF*0
000FFFF00000FFFF0000*FFFF0000
0000000000000000                   :REM*101
139 DATA 0000FFFF0000FFFF0000*F
FFF00000FFFF0000FFFF*0000FFF
F00000FF7DEA00                       :REM*101
140 DATA FF00220EBC817DEA7DEA*0
017C80EBC8185BD0CDB*BA000FF
F7DEA02072021                       :REM*98
141 DATA DAE40D07FF7D78850100*2
2CFE5000A14E164A585*A481F41
78180000000001                       :REM*226
142 DATA 86600000000000E010C74A7*7
9A69C2C9E3532303935*00035000
00000000002E4F                       :REM*222
143 DATA 424A222C382C31000000*0
00000000000000000000*00000000
000000000000                       :REM*30
144 DATA 00000000000000000000*0
00000000000000000000*00000000
000000000000                       :REM*36
145 DATA 00000000000000000000*0
00000000000000000000*00000000
000000000000                       :REM*39
146 DATA 00000000000000000000*0
00000000000000000000*00000000
000000000000                       :REM*4
147 DATA 040A000210000048EB00*0
00000000000000000000*00000000
000000000000                       :REM*8
148 DATA 00A9578D2403A9F18D25*0
3A9008515A964851420*A6A84CA
EA700000000000                       :REM*129
149 DATA 00000000000000000000*0
00000000000000000000*00000000
000000000000                       :REM*27
150 DATA 00000000000000000000*0
00000000000000000000*00000000
000000000000                       :REM*26
151 DATA 8BE383A47CA51AA7E4A7*8
6AECB0000BDA56009F*04746B8
E53A208BDEAC5                          :REM*189
152 DATA 9DF707CAD0F74CDFC1
                                         :REM*123
153 DATA -1                             :REM*11

```

Listing 2. Calculator hex loader program. Also available on the September/October reRUN disk.

```

0 REM THIS LIST 1 CREATES (AND      12 PRINT"{HOME}READING LINE "+S      :REM*209
SHOULD NOT BE CALLED) CALC.ML        :REM*141
                                         :REM*77
5 OPEN 8,8,8,"CALC.ML,P,W"           :REM*254
                                         :REM*75
6 CT=0:PRINT"{SHFT CLR}":REM*56      20 B$=MID$(A$,1,20)+MID$(A$,22,      :REM*242
10 READ A$:IF A$="-1" THEN CLOS      25 FOR I=1 TO 30                       :REM*181
E8:PRINT:PRINT"ALL DONE!":EN      30 C$=MID$(B$, (I*2)-1,2):H$=LEF      :REM*115
D                                     :REM*129
                                         :REM*141
35 H=VAL(H$):IF H$>"9" THEN H=A      :REM*85
SC(H$)-55                              :REM*85
40 L=VAL(L$):IF L$>"9" THEN L=A      :REM*136
SC(L$)-55                              :REM*67
45 BY=H*16+L:PRINT#8,CHRS(BY);       :REM*67
                                         :REM*115
50 NEXT:GOTO 10                        :REM*115
55 IF LEN(A$)<21 THEN B$=A$:GOT      55 IF LEN(A$)<21 THEN B$=A$:GOT

```

HOTKEY

```

O 70 :REM*184
60 IF LEN(A$)<42 THEN B$=LEFT$(
A$,20)+RIGHT$(A$, (LEN(A$)-21
)):GOTO 70 :REM*176
65 B$=LEFT$(A$,20)+MID$(A$,22,2
0)+RIGHT$(A$,LEN(A$)-42)
:REM*140
70 FOR I=1 TO LEN(B$)/2:REM*221
75 C$=MID$(B$, (I*2)-1,2):H$=LEF
T$(C$,1):L$=RIGHT$(C$,1)
:REM*140
80 H=VAL(H$):IF H$>"9" THEN H=A
SC(H$)-55 :REM*56
85 L=VAL(L$):IF L$>"9" THEN L=A
SC(L$)-55 :REM*84
90 BY=H*16+L:PRINT#8,CHR$(BY);
:REM*148
95 NEXT:GOTO 10 :REM*160
100 REM HEX DATA FOR CALC.ML
:REM*226
101 DATA 003E5E5EB05E5EB05E5E*B
0BEBE0AAAAB0AAAAB0*FFFF00
000000000000 :REM*32
102 DATA 00000000000000000000*0
00000000000000000000*00000000
000000000000 :REM*74
103 DATA 0000000000003FAA5E5EAA*5
E5EAA5E5EAAEBEAAAA*AAAAAA
AFFFFF000000 :REM*187
104 DATA 00000000000000000000*0
00000000000000000000*00000000
000000000000 :REM*76
105 DATA 000000000000000000005A*5
E5E5E5E5E5E5E5EBE*BEAAAA
AAAAAAAFFFF :REM*224
106 DATA FF0000000000000000*0
00000000000000000000*00000000
000000000000 :REM*220
107 DATA 00000000000000000000*0
0000005A6AA55E6AA55E*6AA55E6
AABFE6AAAAA6A :REM*78
108 DATA AAAA7FFFF000000000*0
00000000000000000000*00000000
000000000000 :REM*81
109 DATA 00000000000000000000*0
0000000000000000005555*50AAAAB
0AAAAB0AAAAB0 :REM*1
110 DATA 5A5AB05E5EB05E5EB05E*5
EB0BEBE0AAAAB0AAAAB0AAAAB
05A5AB05E5EB0 :REM*237
111 DATA 5E5EB05E5EB0BEBE0AA*A
AB0AAAAB0AAAAB05A5A*B0A5555
555AAAAAAA :REM*226
112 DATA AAAAAAAA5A5A5E5E5E*E
A5E5EEA5E5EEABEBEAA*AAAAAA
AAAAAAA5A :REM*246
113 DATA 5AAA5E5EAA5E5EAA5E5E*A
ABEBEAAAAAAA*AAAAAA5
A5AC055555AA :REM*1
114 DATA AAAAAAAA5555*5
5555555555555555*FFFFFFA
AAAAAAA :REM*206
115 DATA AAAA5A5A5A5E5E5E5E*5
E5E5E5EBEBEAAAA*AAAAAA
AAAAA5A5A5AC0 :REM*200
116 DATA 555556AAAA6AAAA6A*A
AA6555556555556555*565555
56BFFFF6AAAA :REM*147
117 DATA 6AAAA6AAAA6AA5A6A*A
55E6AA55E6AA55E6AAB*FE6AAAA
A6AAAA6AAAA :REM*15
118 DATA 6AA5AA5 :REM*20
119 DATA -1 :REM*230

```

Listing 3. Hotkey demo program. Also available on the September/October ReRUN disk.

```

100 REM HOTKEY DEMO :REM*205
200 : :REM*23
300 REM MAIN PROGRAM :REM*115
400 : :REM*98
500 POKE53280,0:POKE53265,11:POK
E53281,0:PRINT"{SHFT CLR}{4
CRSR DNs}":POKE53265,27
:REM*242
600 POKE147,0:SYS57812"HOTKEY.ML
",8,1:SYS62631 :REM*143
700 POKE147,0:SYS57812"CALC.ML",
8,1:SYS62631 :REM*69
800 : :REM*138
900 SYS49752,1020:REM ENABLE HOT
KEY AND SET LINE TO BRANCH T
O :REM*26
1000 : :REM*158
1100 POKE53269,255:FORT=1TO5:NEX
T:POKE53269,0 :REM*245
1200 A$=CHR$(13)+"{CTRL 2}{14 SP
ACES}H O T K E Y"+CHR$(13)+
CHR$(13)+CHR$(13) :REM*145
1300 A$=A$+"{CTRL 3} THE UTILITY
THAT LETS PROGRAMMERS ADD{
4 SPACES}POP-UP DESK TOOLS"
:REM*231
1400 A$=A$+" TO BASIC PROGRAMS"+
CHR$(13)+CHR$(13)+"{CMD 7}
{4 SPACES}IT'S AS EASY AS "
:REM*145
1500 A$=A$+"WRITING A GOSUB{19 S
PACES}SUBROUTINE"+CHR$(13)+
CHR$(13) :REM*114
1600 B$=CHR$(13)+"{CTRL 8} TO {C
OMD 8}HOTKEY{CTRL 8} BETWEE
N THE APPLICATION AND{3 SPA
CES}THE " :REM*249
1700 B$=B$+"ACCESSORY. {CMD 8}P
RESS <F1>{CTRL 8} AT ANY TI
ME" :REM*71
1800 FORT=1TO11:B$=B$+CHR$(13):N
EXT :REM*64
1900 FORT=1TOLEN(A$):PRINTMID$(A
$,T,1)::FORDL=1TO40:NEXT:NE
XT :REM*1
2000 FORT=1TOLEN(B$):PRINTMID$(B
$,T,1)::FORDL=1TO40:NEXT:NE
XT:GOTO190 :REM*88
2100 END :REM*83
2200 : :REM*23
2300 REM POP-UP CALCULATOR SUBR
OUTINE :REM*156
2400 : :REM*40
2500 V=53248:POKEV+21,0:S=255:F
ORT=2040TO2047:POKET,S:S=S
-1:NEXT :REM*73
2600 FORT=39TO46:POKEV+T,12:NEX
T:POKEV+37,15:POKEV+38,11:
POKEV+28,255 :REM*47
2700 S=0:FORT=0TO6STEP2:POKEV+T
,32+S:S=S+48:NEXT :REM*141
2800 S=0:FORT=8TO14STEP2:POKEV+
T,32+S:S=S+48:NEXT:REM*177
2900 FORT=1TO7STEP2:POKEV+T,98:
NEXT:FORT=9TO15STEP2:POKEV
+T,140:NEXT :REM*120
3000 POKEV+29,255:POKEV+23,255:
POKEV+21,255 :REM*201
3100 PRINT"{HOME}{5 CRSR DNs}":
FORT=1TO7:PRINT"{CRSR RT}{
23 SPACES}":NEXT :REM*14
3200 POKEV+27,255:PRINT"{HOME}{
7 CRSR DNs}"TAB(15)"{CMD
2}C 7 8 9":PRINT :REM*78
3300 PRINTTAB(4)"{CTRL 3}M+ * +
%{3 SPACES}{CMD 2}. 4 5
6":PRINT :REM*231
3400 PRINTTAB(4)"{CTRL 3}MR / -
={3 SPACES}{CMD 2}0 1 2
3" :REM*80
3500 GOSUB1280 :REM*178
3600 RT=V:O1$=OP$ :REM*161
3700 GOSUB1290:V1=V:O2$=OP$
:REM*171
3800 IFO1$="+ THENRT=RT+V1
:REM*144
3900 IFO1$="- THENRT=RT-V1
:REM*233
4000 IFO1$="* THENRT=RT*V1
:REM*229
4100 IFO1$="/ ANDV1=0 THEN1210
:REM*150
4200 IFO1$="/ THENRT=RT/V1
:REM*32
4300 IFLEN(STR$(RT))<12 THEN1230
:REM*219
4400 PRINT"{HOME}{7 CRSR DNs}{2
CRSR RTs}{6 SPACES}ERROR"
:GETA$:IFA$<>"{HOME}"ANDAS
<>"{SHFT CLR}"THEN1210
:REM*137
4500 GOTO1120 :REM*253
4600 PRINT"{HOME}{7 CRSR DNs}{2
CRSR RTs}{11 SPACES}":PRI
NT"{HOME}{7 CRSR DNs}"TAB(
13-LEN(STR$(RT))RT:REM*75
4700 IFO2$<>=" THENO1$=O2$:GOTO
1140 :REM*243
4800 POKE198,0:WAIT198,1:GETA$:
IFA$=" THEN1250 :REM*12
4900 IFA$="+ ORAS$="- ORAS$=" OR
AS$="/ THENO1$=A$:GOTO1140
:REM*176
5000 D$="" :C=0:DP=0:Z=0:GOSUB13
10:GOTO1130 :REM*165
5100 PRINT"{HOME}{7 CRSR DNs}{2
CRSR RTs}{CTRL 7}{10 SPAC
Es}0" :REM*91
5200 D$="" :B$=""{11 SPACES}":C=0
:DP=0:Z=0 :REM*115
5300 POKE198,0:WAIT198,1:GETA$
:REM*156
5400 IFA$="{HOME}"ORAS$="{SHFT C
LR}" THENCLR:GOTO1120
:REM*182
5500 IFZAND(A$="+ ORAS$=" ORAS$
=" ORAS$="/ ORAS$=") THENOP
$=A$:V=VAL(D$):RETURN
:REM*179
5600 IFA$=" ANDDP=0 THENDP=1:GO
SUB1370:GOTO1360 :REM*233
5700 IFASC(A$)<48ORASC(A$)>57OR
C>9 THEN1300 :REM*200
5800 IFA$="0 ANDDP=0 ANDVAL(D$)=
0 THENGOSUB1390:GOTO1300
:REM*43
5900 D$=D$+A$:PRINT"{HOME}{7 CR
SR DNs}"TAB(2)LEFT$(B$,11-
LEN(D$))D$:C=C+1:Z=1:GOTO1
300 :REM*194
6000 IFVAL(D$)=0 THEND$="0":C=1:
Z=1 :REM*248
6100 RETURN :REM*247
6200 PRINT"{HOME}{7 CRSR DNs}{2
CRSR RTs}{10 SPACES}0":Z=
1:RETURN :REM*129

```

Stack 'em 128

Sometimes the simplest things are the hardest to master.

This C-128 strategy game proves the point.



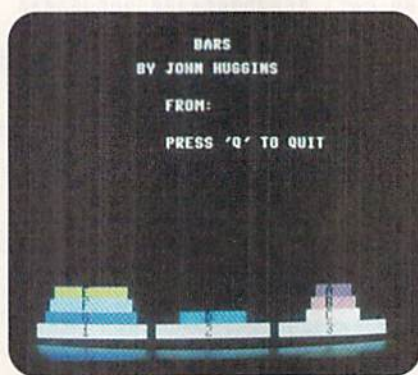
By JOHN HUGGINS

How many times have you seen *Casablanca*? Five, ten times? No matter, good films improve the more you see them. Likewise, great games can be played over and over without getting stale. Through scores of versions for scores of computers, they remain popular. They're classics. This game is a C-128 version of one of those classics: Bars.

You must move the bars one at a time from stack one to stack three in as few moves as you can; 127 being the fewest possible. You can place short bars on top of long bars, but not vice-versa. That's it.

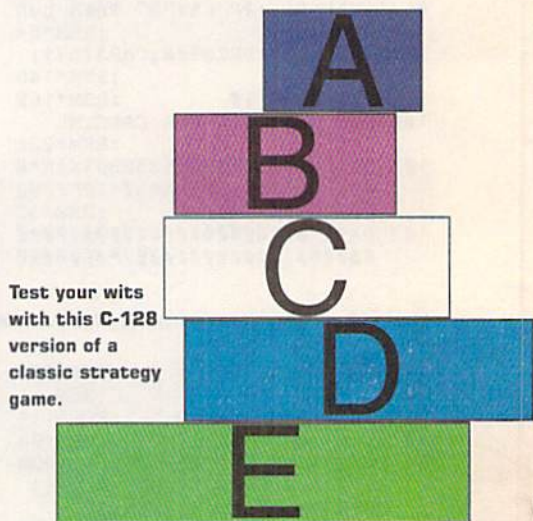
SIMPLE . . . RIGHT?

Not quite. You can "finish" the game hundreds of times without once solving the puzzle. There are thousands of permutations, but there's only one way to do



it right. To end a game, press Q.

Type in Bars from Listing 1 below, using RUN's Checksum program on page 47 to catch any typing errors, and save it to disk. To play, put your C-128 in 40-column mode and type:



Test your wits with this C-128 version of a classic strategy game.

RUN"BAR\$"{RETURN}

The challenge will soon mount up!

John Huggins, a foundry worker in Tempe, Arizona, enjoys poetry, photography and programming his C-128.

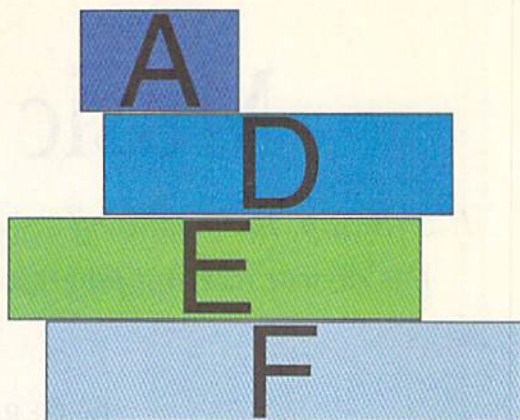
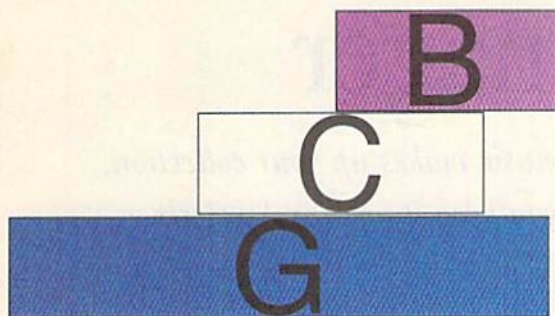
Listing 1. Bars program. Also available on the September/October ReRUN disk. To order, call 800-824-5499.

```

1Ø REM BARS :REM*195 ,,1 :REM*25Ø 33Ø SSHAPEBA$(6),16,184,95,191
3Ø COLORØ,1:COLOR4,1:COLOR1,2 17Ø CHAR1,6,18,"B",1 :REM*234 :REM*13
:REM*18 18Ø SSHAPEBA$(1),16,144,95,151 34Ø COLOR1,2:BOX1,8,192,1Ø3,199
4Ø GRAPHIC1,1 :REM*178 :REM*199 :REM*22Ø
5Ø C$="BARS":Y=1:GOSUB64Ø 19Ø COLOR1,8:BOX1,32,152,79,159 35Ø SSHAPEBS$,8,192,1Ø3,199
:REM*24Ø :REM*172 :REM*33
6Ø C$="BY JOHN HUGGINS":Y=3:GOS 2ØØ CHAR1,6,19,"C",1 :REM*56 36Ø GSHAPEBS$,112,192:GSHAPEBS$
UB64Ø :REM*17 21Ø SSHAPEBA$(2),16,152,95,159 ,216,192 :REM*132
7Ø DIMBA$(6),PI(2,6),CO(6),TP(2 22Ø COLOR1,7:BOX1,28,16Ø,83,167 :REM*137 37Ø CHAR1,6,24,"1",1:CHAR1,19,2
),PO(6),PP(2) :REM*2Ø1 ,,1 :REM*9Ø 4,"2",1:CHAR1,32,24,"3",1
8Ø FORI=ØTO6:PI(Ø,I)=I:PI(1,I)= :REM*11 38Ø CHAR1,15,9,"PRESS 'Q' TO QU
7:PI(2,I)=7:NEXT :REM*241 24Ø SSHAPEBA$(3),16,16Ø,95,167 :REM*174 :REM*195
9Ø PP(Ø)=16:PP(1)=12Ø:PP(2)=224 :REM*136 :REM*175 39Ø COLOR1,2:CHAR1,15,6,"FROM:"
:REM*91 :REM*1Ø4 :REM*127
1ØØ FORI=ØTO6:READPO(I):NEXT:FO 25Ø COLOR1,6:BOX1,24,168,87,175 :REM*1Ø4 4ØØ GETKEYF$:IFF$="Q"THEN59Ø
RI=ØTO6:READCO(I):NEXT :REM*2Ø2 41Ø F=VAL(F$):IFF<1ORF>3THEN4ØØ
:REM*13 26Ø CHAR1,6,21,"E",1 :REM*127 :REM*27
11Ø TP(Ø)=Ø:TP(1)=7:TP(2)=7 27Ø SSHAPEBA$(4),16,168,95,175 :REM*69 42Ø F=F-1:IFTP(F)=7THEN4ØØ
:REM*114 :REM*11 43Ø CHAR1,21,6,F$ :REM*253
12Ø SSHAPEBL$,8,192,1Ø7,199 28Ø COLOR1,15:BOX1,2Ø,176,91,18 :REM*18Ø 44Ø CHAR1,15,7,"TO{2 SPACES}:"
:REM*97 3,,1 :REM*1Ø1 :REM*68
13Ø COLOR1,3:BOX1,4Ø,136,71,143 29Ø CHAR1,6,22,"F",1 :REM*12 45Ø GETKEYT$:IFT$="Q"THEN59Ø
,,1 :REM*2 3ØØ SSHAPEBA$(5),16,176,95,183 :REM*62
14Ø CHAR1,6,17,"A",1 :REM*221 :REM*12 46Ø T=VAL(T$):IFT<1ORT>3THEN45Ø
15Ø SSHAPEBA$(Ø),16,136,95,143 31Ø COLOR1,5:BOX1,16,184,95,191 :REM*227 :REM*62
:REM*198 32Ø CHAR1,6,23,"G",1 :REM*18Ø :REM*227
16Ø COLOR1,9:BOX1,36,144,75,151

```

RUN it right: C-128 in 40-column mode



47	T=T-1:IFT=FTHENCHAR1,15,7," {5 SPACES}":CHAR1,21,6,"": GOTO4	:REM*196 :REM*113	1:GSHAPEBA\$(V1),PP(T),P2:CT =CT+1	:REM*95	60	GRAPHIC,1:COLOR5,2:PRINT" {3 CRSR DNs} YOU DID IT IN"; CT;" MOVES"	:REM*225	
48	IFTP(T)=7THENV2=7:ELSEV2=PI (T,TP(T))	:REM*128	54	PI(F,TP(F))=PI(T,TP(T)-1) =V1	:REM*25	61	PRINT"(CRSR DN)TRY AGAIN?"	:REM*33
49	V1=PI(F,TP(F))	:REM*29	55	TP(F)=TP(F)+1:TP(T)=TP(T)-1	:REM*85	62	GETKEY\$:IFZ\$="Y"THENRUN	:REM*180
50	IFV1>V2THENCHAR1,21,6,"":C HAR1,21,7,"{5 SPACES}":GOTO 4	:REM*156	56	CHAR1,15,7,"{7 SPACES}":CHA R1,21,6,""	:REM*115	63	GRAPHICCLR:END	:REM*61
51	CHAR1,21,7,T\$	:REM*203	57	IFTP(2)=0THENGOTO6	:REM*153	64	C=(40-LEN(C\$))/2	:REM*206
52	CO=CO(V1):P1=PO(TP(F)):P2=P O(TP(T)-1)	:REM*248	58	GOTO39	:REM*154	65	CHAR1,C,Y,C\$	:REM*210
53	COLOR1,CO:GSHAPEBL\$,PP(F),P		59	GRAPHIC,1:COLOR5,2:PRINT" {3 CRSR DNs} SORRY,":GOTO61	:REM*255	66	RETURN	:REM*33
						67	DATA136,144,152,160,168,176 ,184	:REM*206
						68	DATA3,9,8,7,6,15,5	:REM*7

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Music Manager

R & B, rap, Rachmaninoff . . . whatever music makes up your collection, this cassette labeling program will help you keep it neat and orderly.



By GERALD PEPLINSKI

Why did audio cassettes sweep the nation in the past decade? They aren't very durable, it can be a hassle to find a song, and CDs sound much better. Here's why: You can record your own and they're easy to use in the car. In the comfort of your own home, you can tape everything from the Big Band radio hour or that rare Cadillacs LP to your fave Beatles 45s or the latest CD from Skinny Puppy.

But who hasn't fumbled around in a dark glove compartment straining to read illegible labels? (Is that *Chopin* or *Chapman*?) With this program, making neat, easy-to-read cassette labels requires following only a few simple prompts.

Begin by typing in Cassette Labeler using *RUN's* Checksum on page 47 to catch typing errors, then save it to disk. To use it, simply load and run it as you would any other Basic program.

If your tape has the same title for both sides, you can enter a title up to 40 characters (e.g., *The Eagles Greatest Hits - Volume One*). If, on the other hand, you have



Whether you boogie to Bach or waltz to the Wilburys, Cassette Labeler will help you spiff up your music collection.

different titles for the two sides, each can only be up to 20 characters. At the next screen, enter up to 15 songs per side, 18 characters per song (19 on side two). These function keys make it easy:

F1—print
F3—quit

F5—new label
CONTROL—toggle column
HOME—top of the screen
CLR—clear songs, but keep title(s)
RETURN—next line of same column

The cursor, delete and graphics keys work as they normally do, but the quote key doesn't. Don't worry if you type faster than the program—the keyboard buffer will remember your keystrokes. If you press the CONTROL key, however, while the buffer still contains characters, the border will flash until you release it. When this happens, simply wait for a moment and press CONTROL again.

Press F1 to print the label. Divider lines separate side one from side two, dashed lines show where to cut and dotted lines show where to fold. Two labels fit onto one sheet of paper. For added stability, attach your label to the original cardboard insert using a glue stick. ☐

Music lover Gerald Peplinski is a computer consultant in Chicago. He's been a Commodore fan since 1984.

Listing 1. Cassette Labeler program. Also available on the Sept/Oct ReRUN disk. To order, call 1-800-824-5499.

```

10 REM CASSETTE LABEL GENERATOR          SAME TITLE AS THE SECOND S      200 IFCT=4THEN GOSUB 550:GOTO 190
   BY GERALD PEPLINSKI:REM*128          IDE (Y/N)                        :REM*232
20 POKE 53280,0:POKE 53281,12           110 GETA$:IFA$=""THEN 110        :REM*212
                                         :REM*212
30 POKE 650,128                          120 IFA$="{SHFT Y}"THEN A$="Y"    :REM*217
40 POKE 808,239                          :REM*211                         :REM*192
50 PRINT "{COMD 8}{SHFT CLR}{CTR       130 IFA$="{SHFT N}"THEN A$="N"    :REM*217
   L 9}{40 SPACES}"                      :REM*169                         :REM*98
60 PRINT "{CTRL 9}{CRSR UP}{11 S       140 IF(A$<"Y")AND(A$<"N")THEN    :REM*11
   PACES}CASSETTE LABEL MAKER{9        110                              :REM*61
   SPACES}"                               :REM*47
70 PRINT "{CTRL 9}{CRSR UP}{40 S       150 IFA$="Y"THEN GOSUB 1080     :REM*167
   PACES}"                               :REM*147
80 PRINT:PRINT "{CRSR DN}{COMD 2       160 IFA$="N"THEN GOSUB 1240     :REM*113
   )PRINTS CASSETTE LABELS TO B        :REM*110
   E PLACED}"                            :REM*246
90 PRINT "INSIDE CASSETTE STORAG     170 GOSUB 860                    :REM*100
   E BOXES."                             :REM*53
100 PRINT "{2 CRSR DNS}{CTRL 8}W      180 PRINT "{HOME}{3 CRSR DNS}{CR
   ILL THE FIRST SIDE HAVE THE       SR RT}";:RO=0:CO=0:REM*240
                                         190 CT=PEEK(653):IFCT=4ANDPEEK(
                                         198)<>0THEN POKE 53280,3:POKE
                                         53280,0:GOTO 190:REM*222
                                         200 IFCT=4THEN GOSUB 550:GOTO 190
                                         :REM*5
210 GETCH$:IFCH$=""THEN GOSUB 600     :REM*192
   :GOTO 190                             :REM*217
220 CR=ASC(CH$)                          :REM*98
230 IFCR=3THEN 190                      :REM*217
240 IFCR=20ANDCO=0ANDRO=0THEN PR      :REM*11
   INTTAB(19){CRSR UP}";:RO=R
   O-1:CO=18:GOTO 190:REM*57
250 IFCR=20ANDCO=19ANDRO=0THEN PR    :REM*57
   INTTAB(39){CRSR UP}";:RO=R
   O-1:CO=38:GOTO 190:REM*200
260 IFCR=20ANDCO=19ANDRO=0THEN 1     :REM*200
   90:REM*48
270 IFCR=20ANDCO>0THEN PRINT "{CR    :REM*48
   SR LF}{CRSR LF}";:CO=CO-1
   :REM*71
280 IFCR=20THEN 190                    :REM*234
290 IFCR=17ANDRO<14THEN PRINT "{C    :REM*234
   RSR DN}";:RO=RO+1:GOTO 190

```

RUN it right: C-64; 80-column printer capable of underlining



Michael Jackson Thriller	Eagles Greatest Hits V. 2	← CUT
.....	.....	← FOLD
Michael Jackson Thriller	Eagles Greatest Hits V. 2	← FOLD
Vanna Be Startin'	Hotel California	
Baby Be Mine	Heartache Tonight	
The Girl Is Mine	Seven Bridges Road	
Thriller	Victim Of Love	
Beat It	The Sad Cafe	
Billie Jean	Life In Fast Lane	
Human Nature	I Can't Tell You	
Pretty Young Thing	New Kid In Town	
Lady In My Life	The Long Run	
	After The Thrill	

**Now you can
print neat,
easy-to-read
cassette
labels and
bring order to
that pile of
tapes in your
glove
compartment!**

```

:REM*128
30# IFCR=17THEN19# :REM*38
31# IFCR=29ANDCO<38ANDCO<>18THE
  NPRINT"(CRSR RT)";:CO=CO+1:
  GOTO19# :REM*25#
32# IFCR=29ANDCO=18ANDRO<14THEN
  PRINT:PRINT"(CRSR RT)";:RO=
  RO+1:CO=# :REM*20#
33# IFCR=29ANDCO=38ANDRO<14THEN
  PRINT:PRINTTAB(2#);:RO=RO+1
  :CO=19 :REM*#
34# IFCR=29THEN19# :REM*127
35# IFCR=145ANDRO>#THENPRINT"(C
  RSR UP)";:RO=RO-1:GOTO19#
  :REM*20#
36# IFCR=145THEN19# :REM*7
37# IFCR=157ANDCO>#ANDCO<>19AND
  RO>#THENPRINT"(CRSR LF)";:
  CO=CO-1:GOTO19# :REM*141
38# IFCR=157ANDCO=#ANDRO>#THENP
  RINT"(CRSR UP)"TAB(19);:CO=
  18:RO=RO-1:GOTO19# :REM*117
39# IFCR=157ANDCO=19ANDRO>#THEN
  PRINT"(CRSR UP)"TAB(39);:CO
  =38:RO=RO-1:GOTO19# :REM*248
40# IFCR=157THEN19# :REM*91
41# IFCR=19THEN18# :REM*183
42# IFCR=133THEN67# :REM*7#
43# IF((CR=13ORCR=141)ANDRO<14A
  NDRO<18)THENRO=RO+1:CO=#:P
  RINT:PRINT"(CRSR RT)";
  :REM*168
44# IF((CR=13ORCR=141)ANDRO<14A
  NDRO>18)THENPRINT:PRINTTAB(
  2#); :REM*152
45# IF((CR=13ORCR=141)ANDRO<14A
  NDRO>18)THENRO=RO+1:CO=19
  :REM*176
46# IFCR=13ORCR=141THEN19#
  :REM*122
47# IFCR=134THEN161# :REM*183
48# IFCR=135THENRUN :REM*79
49# IFCR=147ANDA$="Y"THENGOSUB1
  17# :GOTO17# :REM*116
50# IFCR=147ANDA$="N"THENGOSUB1
  41# :GOTO17# :REM*52
51# IFCR=148ORCR=34THEN19#
  :REM*53
52# IFCR>=135ANDCR<=14#THEN19#
  :REM*6#
53# IFCO<38ANDCO<>18THENPRINTCH
  $;:CO=CO+1 :REM*74
54# GOTO19# :REM*118
55# IFPEEK(653)=4THEN55#
  :REM*225
56# IFCO<19THENFORX=COTO18:PRIN

```

```

          T"(CRSR RT)";:CO=CO+1:NEXT:
          RETURN :REM*2
57# IF(CO>18ANDRO<14)THENPRINT:
  CO=#:PRINT"{CRSR RT}";:RO=R
  O+1:RETURN :REM*149
58# IF(CO>18ANDRO=14)THENPRINT"
  (HOME){3 CRSR DNS}(CRSR RT)
  ";:RO=#:CO=#:RETURN :REM*4
59# RETURN :REM*222
60# PO=(RO*4#)+1145+CO :REM*128
61# RR=PEEK(PO):OC=PEEK(PO+5427
  2) :REM*143
62# POKEPO+54272,1 :REM*54
63# POKE PO,RR+128 :REM*226
64# FORX=1TO199:NEXT :REM*79
65# POKEPO+54272,OC:POKEPO,RR
  :REM*112
66# RETURN :REM*33
67# OPEN1,4 :REM*247
68# FORX=#TO39:PRINT#1,"-";:NEX
  T:PRINT#1 :REM*126
69# FORY=#TO1:FORX=#TO39:GOSUB8
  #:#:NEXT:PRINT#1:NEXT:PRINT#
  1 :REM*63
70# FORX=#TO39:PRINT#1,"-";:NEX
  T:PRINT#1 :REM*31
71# FORY=#TO1:FORX=#TO39:GOSUB8
  #:#:NEXT:PRINT#1:NEXT :REM*8
72# FORX=#TO39:PRINT#1,"-";:NEX
  T:PRINT#1 :REM*51
73# PRINT#1,CHR$(27)CHR$(45)CHR
  $(1); :REM*132
74# FORY=3TO17:FORX=#TO39:GOSUB
  8#:# :REM*114
75# NEXT:PRINT#1:NEXT :REM*148
76# PRINT#1,CHR$(27)CHR$(45)CHR
  $(#); :REM*246
77# FORX=#TO39:PRINT#1,"-";:NEX
  T :REM*69
78# FORX=1TO9:PRINT#1:NEXT
  :REM*145
79# PRINT#1:CLOSE1:GOTO19#
  :REM*165
80# CH=PEEK(Y*4#X+1#24)
  :REM*111
81# IF(CH>#ANDCH<=31)THENPRINT
  #1,CHR$(CH+64);:RETURN
  :REM*89
82# IF(CH>=32ANDCH<=63)THENPRIN
  T#1,CHR$(CH);:RETURN
  :REM*242
83# IFCH=93THENPRINT#1,CHR$(125
  );:RETURN :REM*228
84# IF(CH>=64ANDCH<=95)THENPRIN
  T#1,CHR$(CH+32);:RETURN
  :REM*198
85# IF(CH>=91ANDCH<=127)THENPRI
  NT#1,CHR$(CH+128);:RETURN
  :REM*212
86# FORX=1144TO17#4STEP4#
  :REM*154
87# POKEX+54272,9:POKEX+54291,9
  :POKEX+54311,9 :REM*119
88# POKEX,93:POKEX+19,93:POKEX+
  39,93 :REM*5#
89# NEXT :REM*255
90# FORX=11#4TO1143 :REM*1#7
91# POKEX+54272,9:POKEX+54912,9
  :REM*44
92# POKEX,64:POKEX+64#,#4
  :REM*11#
93# NEXT:PRINT"{HOME}";:REM*186
94# POKE11#4+54272,9:POKE11#4,1
  12 :REM*139
95# POKE1143+54272,9:POKE1143,1
  1# :REM*167
96# POKE1744+54272,9:POKE1744,1
  09 :REM*124
97# POKE1783+54272,9:POKE1783,1
  25 :REM*22
98# POKE1123+54272,9:POKE1123,1
  14 :REM*112
99# POKE1763+54272,9:POKE1763,1
  13 :REM*181
100# FORX=1TO19:PRINT"(CRSR DN)
  ";:NEXT :REM*91
101# PRINT"(CTRL 7){2 SPACE}CO
  NTROL = TOGGLE COLUMN
  :REM*214
102# PRINT"{2 SPACE}HOME{4 SPA
  CE} = TOP OF SCREEN
  :REM*233
103# PRINT"{2 SPACE}CLR{5 SPAC
  E} = CLEAR SONGS :REM*17#
104# PRINT"{2 SPACE}CURSOR{2 S
  PACE} = UP, DOWN, LEFT, RI
  GHT :REM*1#4
105# PRINT"{2 SPACE}RETURN{2 S
  PACE} = NEXT LINE :REM*2#3
106# PRINT"(CTRL 8){4 SPACE}F1
  =PRINT{3 SPACE}F3=QUIT{3
  SPACE}F5=NEW LABEL{HOME}{
  CTRL 2}"; :REM*142
107# RETURN :REM*184

```

Continued on p. 30.

RUN it right: C-64; 80-column printer capable of underlining

Crypto Puzzler

*Puzzle your family and friends with this program
for creating customized cryptograms.*



By BOB MARKLAND

Covert operations, secret codes and cryptic messages bring out the 007 in all of us, and Crypto Puzzler is just what the CIA ordered. Cryptogram puzzles, where one letter is directly substituted for another, have long been a staple in puzzle magazines. With Crypto Puzzler, you can create cryptograms, solve them on-screen, save them to disk or print them out.

Begin by typing in Listing 1, below, using *RUN*'s Checksum on page 47, then save the program to disk. To use Crypto Puzzler, simply load and run it as you would any other Basic program.

CREATING THE PUZZLES

The first screen asks if you want to load a puzzle. The first time you use the program, you won't have created any puzzles yet, so press N. When the editing screen appears, type in the text for a puzzle. It can be any message up to 239 characters, including spaces. You can use only uppercase letters and standard punctuation. If you make a mistake while typing, use the *INST/DEL* key to remove the error and retype the text. Note: Do not break words at the end of a line. If a word will not fit on a line, add spaces until the cursor scrolls to the next line and begin the word there.

Puzzles can be very simple or quite difficult, depending upon the text. The shorter the text, the more difficult the puzzle. (Normal patterns of letter usage and sentence structure become more apparent as the length increases.) You can use famous quotes, biblical passages, your own secret messages, even text from

a history assignment. If you're a puzzle fan, have someone else create puzzles and save them to disk for you.

When you're satisfied with the text, press F1. The program will encrypt the text and return you to the main menu.

If you choose option 3 from the menu, the program will save the puzzle as a sequential file with the prefix CP. When loading in existing puzzles, do not include this prefix. Be sure to check the disk directory before running the program, because Crypto Puzzler does not have a directory function. If you try to load or save a puzzle name improperly, you will be prompted to enter another name. Puzzles do not have to be saved on the same disk as the program.

ANATOMY OF A CRYPTOGRAM

In a cryptogram, each letter is replaced by another that is picked randomly. For example, the letter Q could be substituted for the letter E, B could replace T, and so on. The puzzle might then display BQRB. Of course, substitutions remain constant throughout the entire puzzle, so if Q equals E in one place, Q will stand for E every time it appears in the puzzle.

If you are solving the puzzle, and think you know one of the substitutions, type it in using the keyboard. For example, if you think R in BQRB is a D, type R=D then press *RETURN* or F1. Crypto Puzzler will place a D in the highlighted area below each R in the puzzle. *This may or may not be correct*; the program won't tell you. If you've made a mistake (as in this example), you can retry simply by typing in


your new guess (R=X). Every occurrence will change to reflect your latest choice.

In the example above, BQRB stands for *TEXT*. But remember, each time Crypto Puzzler encrypts a message, it will use a different substitution pattern.

When you approach a puzzle, look first for obvious clues. For instance, a single-letter word will always be either an A or an I. Hyphenated words, words with an apostrophe, words in quotes and double letters all provide valuable clues. Patterns for words like *the* and *and* may appear frequently. E is the most common letter in the English language, Z is the least common, and all vowels appear frequently.

When all the letters have been properly substituted, Crypto Puzzler will tell you that you have solved the puzzle. If you wish to give up, type ===. The program will display the entire message and return you to the main menu.

Crypto Puzzler has a built-in timer for competition. To compete, you need two players and a referee. The first player solves the puzzle without the other present. Then the second player solves the puzzle. The referee records both times and the faster player wins. Or, print out several copies of a puzzle and have players solve it simultaneously.

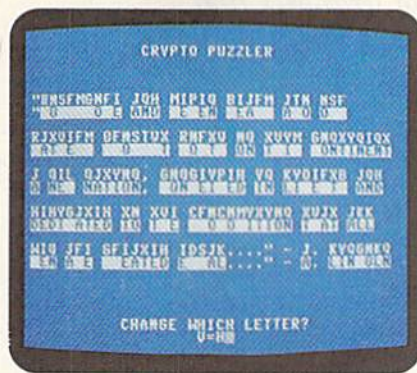
Cryptograms can be useful educational tools, both in the content of the message, and by teaching problem-solving logic skills. (A gold star if you recognized the Gettysburg Address in the photograph on the next page!) 

Bob Markland of Wyoming has been programming computers since the early '80s.

Listing 1. Crypto Puzzle program. Also available on the September/October ReRUN disk. To order, call 800-824-5499.

```
Ø REM: CRYPTO PUZZLER BY: R. M          $(142)CHR$(8):POKE5328Ø,6:ML
ARKLAND                               :REM*154      =828:A=78Ø:XR=781:CO=646:BG=
2Ø :                                   :REM*78      647                               :REM*112    5Ø VP=781:HP=782:SZ=Ø:TC=Ø:Z=Ø:
3Ø PRINT" {SHFT CLR} {CTRL 2}"CHR      4Ø DIMHØ$(24Ø),TES$(24Ø),COS$(24Ø)
),SOL$(24Ø),CC(26),AI(26):S=
6552Ø:QU=212                          :REM*193
M=Ø:I1=61:I2=Ø:W$="WORKING,
```

RUN it right: C-64



Cryptograms bring out the 007 in all of us. Can you decipher this important historical text?

```

PLEASE WAIT...." :REM*78
60 GOSUB1040:POKEVP,7:POKEHP,8:
SYSS:PRINTW$:IFFL=OTHENFL=1:
GOSUB1180 :REM*2
70 GOTO410 :REM*136
80 X=1:Z=5:FORR=1TO6:GOSUB160
:REM*194
90 FORC=1TO40:IFCO$(X)=""THENC=
40:R=6:NEXT:NEXT:RETURN
:REM*3
100 PRINTCO$(X);:X=X+1:NEXT:Z=Z
+3:NEXT:RETURN :REM*166
110 Y=1:Z=6:FORR=1TO6:GOSUB160
:REM*232
120 FORC=1TO40:IFSOL$(Y)=""THEN
POKEQU,.:PRINTNT$;:C=40:R=6
:NEXT:NEXT:RETURN :REM*234
130 POKEQU,.:PRINTRO$;:IFCO$(Y)
=>"ANDCO$(Y)<"@THENPRINT
NT$; :REM*211
140 PRINTSOL$(Y);:Y=Y+1:NEXT:Z=
Z+3 :REM*157
150 NEXT:RETURN :REM*53
160 POKEVP,Z:POKEHP,0:SYSS:REU
RN :REM*7
170 POKE204,0:TC=1 :REM*181
180 POKEBG,PEEK(CO) :REM*193
190 GETKI$:IFKI$=""THEN190
:REM*247
200 POKEA,M:POKEXR,ASC(KI$):SYS
ML:IFPEEK(A)THEN250 :REM*73
210 IFKI$=CHR$(20)ANDTC>1THENHO
$(TC)=""TC=TC-1:GOTO200
:REM*220
220 IFKI$=CHR$(I1)THEN250
:REM*52
230 IFKI$=CHR$(133)ORKI$=CHR$(I
2)THENPRINT" ";:POKE204,1:R
ETURN :REM*64
240 GOTO180 :REM*64
250 IFTC<(LE)THEN180 :REM*241
260 HO$(TC)=KI$ :REM*247
270 PRINTKI$;:TC=TC+1:GOTO180
:REM*252
280 POKEBG,PEEK(53281):POKEQU,0
:PRINT"{CRSR LF}{2 SPACES}{
2 CRSR LFs}";:GOTO180
:REM*215
290 FORR=1TO240:CO$(R)=""SOL$(
R)=""NEXT:FORR=1TOSZ:TE$(R)
=HO$(R):NEXT :REM*67
300 FORR=1TO26:CC(R)=.:AI(R)=.:
NEXT:FORI=1TO26 :REM*13
310 X=INT(RND(0)*26)+1:IFI<26AN
DI=XTHEN310 :REM*62
320 IFCC(X)=0THENAI(I)=X:REM*35
330 IFCC(X)=1THEN310 :REM*9
340 CC(X)=1:NEXT:RETURN :REM*28
350 FORR=1TO26:IFAI(R)=RTHENR=2
6:NEXT:GOTO300 :REM*69
360 NEXT:RETURN :REM*12
370 FORR=1TOSZ:SOL$(R)=""AV$=
TE$(R) :REM*243
380 IFAV$>CHR$(31)ANDAV$<CHR$(6
4)THENSOL$(R)=AV$:CO$(R)=AV
$:GOTO400 :REM*75
390 EN=ASC(AV$)-64:CO$(R)=CHR$(
AI(EN)+64) :REM*176
400 NEXT:RETURN :REM*52
410 SE$="{6 SPACES}PLEASE SELEC
T{6 SPACES}":PA$="" AGAIN"
:REM*143
420 P1$="1.{2 SPACES}PRINT THIS
PUZZLE":P2$="2.{2 SPACES}S
OLVE THIS PUZZLE" :REM*62
430 P3$="3.{2 SPACES}SAVE PUZZL
E TO DISK":P4$="4.{2 SPACES
}CREATE/LOAD NEW PUZZLE"
:REM*200
440 P5$="5.{2 SPACES}QUIT":RO$=
CHR$(18):NT$=CHR$(146) :REM*182
450 POKEVP,7:POKEHP,0:SYSS
:REM*118
460 PRINTTAB(12)"{3 CRSR DNs}LO
AD A PUZZLE?":PRINTTAB(15)"
{CRSR DN}Y -/ - N" :REM*163
470 GETD$:IFD$=""THEN470
:REM*156
480 IFD$="N"THENGOSUB1040:PRINT
:GOTO590 :REM*106
490 IFD$<"Y"THEN470 :REM*99
500 PRINTTAB(7)"{CRSR DN}ENTER
FILENAME (OMIT CP.)" :REM*63
510 POKEVP,16:POKEHP,13:SYSS:LE
=13:M=10:I2=13:GOSUB170:NA=
TC-1 :REM*231
520 NA$=""FORR=1TONA:NA$=NA$+H
O$(R):NEXT :REM*127
530 OPEN15,8,15:OPEN8,8,8,"0:CP
."NA$+",S,R":GET#15,ER
:REM*39
540 IFER<>0ANDER<>63THENCLOSE8:
CLOSE15:GOTO60 :REM*183
550 INPUT#8,SZ:FORR=1TOSZ:INPUT
#8,TE$(R) :REM*169
560 TE$(R)=CHR$(ASC(TE$(R))AND1
27):NEXT:FORR=1TO26:INPUT#8
,AI(R):NEXT :REM*194
570 GET#15,ER:IFERTHENCLOSE8:CL
OSE15:GOTO60 :REM*117
580 CLOSE8:CLOSE15:FORR=1TO240:
CO$(R)=""SOL$(R)=""NEXT:G
OTO640 :REM*6
590 PRINT"ENTER THE DESIRED TE
XT - END WITH {CTRL 9}[F1]{
CTRL 0}" :REM*53
600 PRINT"{CRSR DN}{CTRL 9}{40
COMD Is}{5 CRSR DNs}"
:REM*145
610 PRINT"{40 COMD Is}" :REM*63
620 POKEVP,10:POKEHP,0:SYSS:LE=
239:M=13:I2=0:GOSUB170:SZ=T
C-1 :REM*26
630 POKEVP,20:POKEHP,8:SYSS:PRI
NTW$:GOSUB290 :REM*171
640 GOSUB370:SP=7:GOTO720
:REM*161
650 GOSUB1040:PRINTTAB(5)"CHECK
PRINTER AND ALIGN PAPER"
:REM*85
660 PRINTTAB(9)"{CRSR DN}PRESS
ANY KEY TO PRINT :REM*154
670 GETD$:IFD$=""THEN670
:REM*189
680 OPEN4,4:X=1:FORR=1TO6:FORC=
1TO40 :REM*49
690 IFCO$(X)=""THENC=40:NEXT:R=
6:GOTO710 :REM*93
700 PRINT#4,(CO$(X));:X=X+1:NEX
T:PRINT#4:PRINT#4:PRINT#4
:REM*133
710 NEXT:PRINT#4:PRINT#4:PRINT#
4:CLOSE4:PC=1:SP=6 :REM*119
720 GOSUB1040:PRINTTAB(7)"{2 CR
SR DNs}"SE$:PRINTTAB(SP)"{C
RSR DN}"P1$;:IFPC=1THENPRIN
TPA$; :REM*242
730 PRINT:PRINTTAB(SP)"{CRSR DN
}"P2$:PRINTTAB(SP)"{CRSR DN
}"P3$ :REM*57
740 PRINTTAB(SP)"{CRSR DN}"P4$;
PRINTTAB(SP)"{CRSR DN}"P5$
:REM*99
750 GETD$:IFD$<"1"ORDS">"5"THEN7
50 :REM*80
760 IFD$="1"THEN650 :REM*40
770 IFD$="3"THEN1060 :REM*97
780 IFD$="4"THEN60 :REM*50
790 IFD$="5"THEN1050 :REM*156
800 GOSUB1040:POKEVP,23:POKEHP,
8:SYSS:PRINTW$:PRINTTAB(18)
"{3 SPACES}"; :REM*192
810 GOSUB80:GOSUB110:TI$="000000
0" :REM*213
820 POKEVP,23:POKEHP,5:SYSS:PRI

```

Continued on p. 42.

RUN it right: C-64

PROTIPS

Readers share tips on converting graphics files, autobooting macros and more.

By JANICE CROTTY

WORD WRITER 128 & RAMLINK: If you'd like to use Word Writer 128 with RAMLink, create a 1571 partition and a 1541 partition.

In the 1571 partition, create a boot sector called Loader and make it binary. Then, copy the Word Writer program files and printer files using FCopy. Also copy the dictionary and the program files from side two onto the 1571 partition. (Note: There are two programs called "version," one on each side of the disk. I only use the one from side one and Word Writer runs fine.)

Next, use MCopy to copy the Thesaurus disk to the 1541 partition.

Set RAMLink to #8 using the swap pad. And, using the @CP command, set the partition number to the partition where you put Loader. Boot the program. Word Writer should default to #8, and, because the dictionary is in the 1571 partition, there will be no problem using it.

When you need to use the thesaurus, press ESC, cursor left to DISK COMMANDS and hit RETURN. Cursor up to DOS COMMANDS and press RETURN. At the DOS command prompt, type CP and the number of your thesaurus partition and press RETURN. This will show you 02,PARTITION SELECTED, 0#,00,-PRESS ANY KEY. You can now use the thesaurus.

When you have finished, repeat the procedure of the DOS command and you will return to the 1571 partition.

Plus, with the Autofile program on the RAMLink utilities disk, you can have Word Writer 128 boot on start-up.

—WILLIAM KEMP
WOODSTOCK, ONTARIO

COMMODORE 1351 MOUSE: The Commodore 1351 mouse's proportional mode really speeds up work with GEOS, but the mouse takes up joystick port 1. Luckily, the mouse comes with a built-in joystick mode. To activate the joystick mode, hold down the right mouse button when powering up the computer. Joystick mode lets you use the mouse in place of a joystick with games and other software that don't

support the mouse. It also helps if the proportional mode fails, so you can continue to use your mouse with GEOS by using the GEOS joystick input driver.

—RYAN HIDALGO
GARNERVILLE, NY

POCKET WRITER: Like many Commodore users, I am an avid fan of Pocket Writer. Over the years I have discovered several glitches, however, a few of which I've been able to solve.

First, the manual fails to indicate how to center the enlarged text that you can get by using Pitch 10. Setting margins of 1 and 40 will solve the problem.

Second, I was annoyed to find that, when I tried to center automatic page numbers (",<>"), the number usually appeared too far to the left. To solve the problem, place the <> symbols several spaces to the right.

—ELROY GRANDY
GARNISH, NEWFOUNDLAND

GEOS: Here is a neat trick to try if you don't have a mouse to use with GEOS. Take a joystick that has an auto fire switch, such as the QuickShot II+. Load GEOS, plug the joystick in port 2 and switch on the auto fire. The pointer will move one pixel at a time when you press these keys:

(=up
I=down
J=left
Ø=right

In geoPaint this is a great asset. Unfortunately, though, this feature cannot be used effectively with geoWrite.

—JAMES BAKER
COLORADO SPRINGS, CO

PAPERCLIP III: There is no need to restrict your comments to a single screen line. While I was working recently, two full screens of text didn't print. Indeed, the CHECKMARK CM (comment) directive is in effect until it finds a RETURN (paragraph marker) or a checkmark, so your

nonprintable text can go on and on.

A second PC III tidbit: If you press CONTROL/B while in directory mode, you'll destroy any document currently in memory!

—MICHAEL HABERMANN
BALTIMORE, MD

COMMON SENSE: Do you use macros? Don't you wish the program would default to your macros? It can, if you do the following:

- 1) Program in your macros. (Refer to the manual for instructions.)
- 2) Save your macros on the Common Sense disk with any name you want.
- 3) Using Disk Wedge, scratch the program mac.boot. (Trust me!)
- 4) Rename your macros program as mac.boot. Now you will default to your macros every time.

If you're nervous about scratching mac.boot, save a copy to a backup disk before scratching it.

—RENE CUSSON
CHATHAM, NEW BRUNSWICK

BIG BLUE READER: For clip art conversions between Commodore format and MS-DOS format, I have found IConvert and Big Blue Reader an excellent combination, as Allie Hunter wrote in Pro-Tips in September/October '91. But the MS-DOS to CBM conversion need not be as difficult as Allie describes. Big Blue Reader will save files in the PRG format—you don't have to go through the complicated "erase SEQ file and unerase PRG file" routine.

When converting files to CBM format, Big Blue Reader gives you two choices. To the first, "Translate to Commodore ASCII?", answer no, because a graphic file is not in PET-ASCII. If you answer no to the second question, "Retain same filename?", you will be prompted for a filename for each graphic before it is written to disk. Type FILENAME,P and the graphic file will be saved in the PRG format. Typing FILENAME without the ,P will default the save to a sequential format.

—JOHN SCUDDER
CENTER HARBOR, NH ■

128 MODE

Discover the Print Using command's versatility and power—
one of the best-kept secrets in C-128 Basic programming.

By MARK JORDAN

THE EASIEST OF ALL Basic commands to learn to use is Print. In fact, it's *so* easy to use, even seasoned programmers may forget that it has a sophisticated younger sibling: Print Using. But, why bother learning a new command when you've already got one that does its job quite well? I mean, what *can't* Print do?

By itself, lots. The Print command has to labor to format columns of text or numbers, especially numbers. To print a neat column of dollars and cents using Print, you have to do something like this:

```
PRINT LEFT$ ("
"+STR$(ABS (NUMBER) ) )
+" . "+STR$(NUMBER-ABS (NUMBER) )
```

Whereas Print Using would handle the same situation like this:

```
PRINT USING "####.##";(NUMBER)
```

Print Using can float a dollar sign alongside the number (or move it to the left position), place commas in specified locations, use dots (periods) as column leaders (e.g., Smith.....\$347.21), incorporate strings readily (centered, left- or right-justified) and more.

The main reason Print Using gets overlooked is because it's just about the most poorly documented command in the *User's Guide*. I'll try to remedy that right now.

PUTTING PRINT USING TO WORK

The big difference between Print and Print Using is what's called the "format list." This is nothing more than the pre-defined output pattern you want. Let's dissect the following statement piece by piece and have a look.

```
PRINT USING "#####" ; 135
```

1. The first word, PRINT, is the same as in the plain ol' Print statement.

2. Between the keywords PRINT and USING you have the opportunity to direct your results to a file if you want to, such as a printer file or disk file. You do this the same way you direct output to any device, with the pound sign and a logical file number. Thus, in PRINT #2, USING the output is sent to file 2.

3. Next comes the keyword USING.

4. An opening quote and the format list come next. The list must be within quotes unless you predefine a string as your format list. If you use a string, your format list might take the form: PRINT USING F\$; 135.

5. Whether you elect to predefine the format list, or define it within the Print Using statement, it's what's between the buns (i.e., quotes) that matters. In our model, the list consists of five pound signs (#####). These tell the computer the printing column width is five characters wide. If you're printing numbers, Print Using will right-justify the output, printing two spaces then the number 135. This way numbers are always conveniently lined up on the right. We'll discuss the format list more in a minute.

6. The end-quote. No surprise; it terminates the format list.

7. The semicolon is needed to separate the format list from the print list—a necessary formality.

8. The print list. Here's what you want printed. The example above shows a single item, the number 135, but the list can be as many items as you wish, both text and numeric values, constants and variables. Your only grammatical requirement is to separate each with a comma:

```
PRINT USING "#####" ; 135,NM
```

Each succeeding column begins where the preceding one ends. Therefore, if you set your format list five places wide (five pound signs) your output columns will begin every five spaces. Thus if NM above equaled 15893, the output would look like this: 13515893. To correct this problem and keep columns separate, you simply widen the format list.

DIGGING DEEPER

That's a quick overview. Now let's dig deeper into that format list. Besides the pound sign, eight other symbols are at your disposal to alter how Print Using handles the print list.

Pound (#) As mentioned, this simply reserves a place for output.

Plus (+) Placing a plus sign at the beginning of your format list will cause all positive numbers to be preceded by a

plus (+). Placing the plus sign at the end of the format list will cause a plus sign to print after positive numbers.

Minus (-) This works like the above, only it attaches minus signs to negative numbers. (When this is used, positive numbers do not receive plus signs.)

Decimal (.) Placing a period in your format list determines how many digits to the right of the period you want displayed. For example, PRINT USING "####.##" ; MONEY would produce 78.00 if MONEY equaled 78. This is handy for printing a column of financial values (dollars and cents).

Dollar (\$) This symbol (that favorite of Americans everywhere) will automatically output a dollar sign with all numeric values. You can have a floating dollar sign (one that always appears immediately to the left of the number) by placing it in the second place (like this: "\$####.##"). Locating it elsewhere forces it to appear where you place it.

Comma (,) The comma simply allows you to force a comma wherever you want in the format field. Therefore, to put it between the hundreds and thousands place, you'd place it between the third and fourth pound signs to the left of the decimal, as in "###,###.##".

Up-Arrows (^) Four up-arrows in the format field will cause the result to be printed in scientific notation.

Equal (=) This symbol plus the next one deal only with string output. The equal sign causes the text to be centered within the format field.

Greater than (>) This symbol causes text to be right-justified rather than its default of left-justified.

SOME QUIRKS & PUDEF

Print Using has some quirks you need to be aware of. Symbols placed between the quotes in the format list count toward the column width, not *just* pound signs.

Fractions are automatically rounded.

Unlike Print, you can't use the semicolon to keep the cursor in place.

If your output exceeds the places reserved in the format list, you'll see stars (asterisks, actually). With text strings, the string is truncated—that is, chopped off ▶

—when it exceeds the column width.

A related command, PUDEF, lets you change the filler character (which defaults to a blank space) to whatever you want. This allows for neat lists with periods between columns. Here's a sample:

```
PUDEF "." :PRINT USING
"#####. ##"; NAMES$, AMOUNT
```

If NAMES="Bob" and AMOUNT = 13.72 the output would look like this:

```
BOB...13.72
```

PUDEF also allows you to change the comma character, the decimal point, and the dollar sign. See the program below (and your *User's Guide*) for more details on the use of PUDEF.

It's tough in this limited space to say all I'd like to about Print Using. The short program below should serve to illustrate further the value of this overachieving but underrated command. **R**

Mark Jordan is RUN's untiring 128 Mode columnist and a high school English teacher. He lives in Goshen, Indiana.

Listing 1. Print Using example program. Also available on the September/October ReRUN disk.

```
10 REM CLEAR THEN SET EVERYTHIN FT I}{SHFT N}{SHFT T}'S UGLY (T)-PAID(T) :REM*152
G TO UPPERCASE/LOWERCASE OUTPUT" :REM*169 160 NEXT :REM*35
:REM*37 90 SLEEP4 :REM*8 170 REM USE A PERIOD FOR LEADER :REM*123
20 PRINT "{SHFT CLR}"CHR$(14) 100 PRINT USING CENTER$;"{CRSR DN}{SHFT N}OW WATCH {SHFT P 180 A=A+1:IFA=1THEN PUDEF"." :GO
:REM*97 }{SHFT R}{SHFT I}{SHFT N}{S TO90 :REM*100
30 REM CREATE A FORMAT STRING W HFT T}{SHFT SPACE}{SHFT U}{ 190 REM TRY A DASH OF DASH :REM*73
HICH CENTERS ON A 40-COLUMN SHFT S}{SHFT I}{SHFT N}{SHF 200 IFA=2THEN PUDEF"-":GOTO90
SCREEN :REM*73 T G} WORK" :REM*205 :REM*242
40 CENTER$="":FORT=2TO40:CENTE 110 REM USE PRINT USING FOR A H EADER :REM*195 210 DATA MILF,25,13.62,ROSIE,2
R$=CENTER$+"#":NEXT :REM*35 120 PRINT USING "#####";"{ SHFT N}AME","{SHFT D}UES"," {SHFT A}MT PAID","{SHFT A}M 220 DATA SHERRY,1500,1500,JANE
50 REM READ IN AND PRINT WITH P RINT :REM*241 T {SHFT D}UE" :REM*92 :REM*138
60 FORT=1 TO 6:READ NAMES$(T),OW 130 REM DO IT :REM*75 140 FORT=1 TO 6 :REM*14
ED(T),PAID(T):PRINTNAMES$(T), 150 PRINT USING "#$,###.##";NA 170 REM NOTE IT'S CENTERED :REM*57
OWED(T),PAID(T):NEXT:REM*239 ME$(T),OWED(T),PAID(T),OWED :REM*138
70 REM NOTE IT'S CENTERED :REM*57
80 PRINT USING CENTER$;"{SHFT A }BOVE IS {SHFT P}{SHFT R}{SH
```

From p. 25.

```
1080 PRINT"{SHFT CLR}" :REM*81 $=G$ :REM*35 10-(LEN(T1$)/2)):PRINT" ";
1090 PRINT"{CRSR DN}{CTRL 8}ENT 1270 GOSUB1550 :REM*64 :NEXT :REM*84
ER THE FIRST LINE OF THE T 1280 IFLEN(T1$)>19THENPRINT"(CR 1430 PRINTT1$ :REM*253
ITLE :REM*201 SR DN){CTRL 3}TITLE TOO LO 1440 PRINT"{CRSR UP}{20 CRSR RT
) :REM*114 NG. TRY AGAIN.{CRSR DN}":G 1450 IFLEN(T3$)<19THENFORX=1TO(
) :REM*114 OTO1240 :REM*250 10-(LEN(T3$)/2)):PRINT" ";
1110 G$="":INPUTG$:GOSUB1550:T1 1290 PRINT"{CRSR DN}{CTRL 2}ENT 1460 PRINTT3$; :REM*76
$=G$ :REM*154 ER THE SECOND LINE OF THE :NEXT :REM*14
1120 IFLEN(T1$)>40THENPRINT"(CT 1300 PRINT"FOR SIDE 1 (UP TO 19 1470 PRINT"{HOME}{CRSR DN}";
RL 3){CRSR DN}TITLE TOO LO 1310 G$="":INPUTG$:GOSUB1550:T2 :REM*231 :REM*45
NG. TRY AGAIN.{CRSR DN}":G 1320 IFLEN(T2$)>19THENPRINT"(CR 1480 IFLEN(T2$)<19THENFORX=1TO(
OTO1090 :REM*82 SR DN){CTRL 3}TITLE TOO LO 1490 PRINTT2$ :REM*49
1130 PRINT"{CRSR DN}{CTRL 8}ENT 1330 PRINT"(CRSR DN){CTRL 2}{CO 1500 PRINT"{CRSR UP}{20 CRSR RT
ER THE SECOND LINE OF THE 1340 G$="":INPUTG$:GOSUB1550:T3 :REM*15 1510 IFLEN(T4$)<19THENFORX=1TO(
TITLE :REM*144 OF THE TITLE :REM*15 :NEXT :REM*171
1140 PRINT"(UP TO 40 CHARACTERS 1350 G$="":INPUTG$:GOSUB1550:T4 :REM*43 1520 PRINTT4$; :REM*141
) :REM*42 $=G$ :REM*173 1530 PRINT"{HOME}{CTRL 2}";
1150 G$="":INPUTG$:GOSUB1550:T2 1360 IFLEN(T3$)>19THENPRINT"(CR 1540 RETURN :REM*148
$=G$ :REM*71 SR DN){CTRL 3}TITLE TOO LO 1550 IFG$=""THENRETURN :REM*198
1160 IFLEN(T2$)>40THENPRINT"(CR 1370 PRINT"FOR SIDE 2 (UP TO 19 1560 TP$="":FORX=1TOLEN(G$)
SR DN){CTRL 3}TITLE TOO LO 1380 PRINT"FOR SIDE 2 (UP TO 19 1570 TC=ASC(MID$(G$,X,1)) :REM*94
NG. TRY AGAIN.{CRSR DN}":G 1390 G$="":INPUTG$:GOSUB1550:T4 :REM*67 1580 IF(TC>=32ANDTC<=95)OR(TC>=
OTO1130 :REM*134 $=G$ :REM*106 1590 NEXT:G$=TP$ :REM*66 192ANDTC<=222)THENTP$=TP$+
1170 PRINT"{SHFT CLR}{CTRL 7}"; 1400 IFLEN(T4$)>19THENPRINT"(CR 1600 RETURN :REM*200 MID$(G$,X,1) :REM*8
:REM*185 SR DN){CTRL 3}TITLE TOO LO 1610 PRINT"{HOME} :REM*103 :REM*66
1180 IFLEN(T1$)<40THENFORX=1TO( 1410 PRINT"{SHFT CLR}{CTRL 7}"; :REM*62 1620 FORX=1TO21:PRINT:NEXT
20-(LEN(T1$)/2)):PRINT" "; 1420 IFLEN(T1$)<19THENFORX=1TO( 1630 POKE808,237 :REM*247
:NEXT :REM*120
1190 PRINTT1$ :REM*13
1200 IFLEN(T1$)=40THENPRINT"(HO 1430 PRINT"(CRSR DN){COMD 6}ENT 1580 IF(TC>=32ANDTC<=95)OR(TC>=
ME){CRSR DN}"; :REM*204 ER THE SECOND LINE OF THE 1590 NEXT:G$=TP$ :REM*66 192ANDTC<=222)THENTP$=TP$+
1210 IFLEN(T2$)<40THENFORX=1TO( 1380 PRINT"FOR SIDE 2 (UP TO 19 1590 NEXT:G$=TP$ :REM*66 192ANDTC<=222)THENTP$=TP$+
20-(LEN(T2$)/2)):PRINT" "; 1390 G$="":INPUTG$:GOSUB1550:T4 :REM*106 1600 RETURN :REM*200 MID$(G$,X,1) :REM*8
:NEXT :REM*52 $=G$ :REM*106 1610 PRINT"{HOME} :REM*103 :REM*66
1220 PRINTT2$ :REM*44 1400 IFLEN(T4$)>19THENPRINT"(CR 1620 FORX=1TO21:PRINT:NEXT :REM*62
1230 RETURN :REM*89 SR DN){CTRL 3}TITLE TOO LO 1630 POKE808,237 :REM*247
1240 PRINT"{SHFT CLR}{CRSR DN}{ 1410 PRINT"{SHFT CLR}{CTRL 7}"; :REM*62
CTRL 2}ENTER THE FIRST LIN 1420 IFLEN(T1$)<19THENFORX=1TO(
E OF THE TITLE" :REM*161
1250 PRINT"FOR SIDE 1 (UP TO 19 1410 PRINT"{SHFT CLR}{CTRL 7}"; :REM*62
CHARACTERS) :REM*213
1260 G$="":INPUTG$:GOSUB1550:T1
```


GEOWATCH

NewTools, a popular geoPaint accessory is now even better.

By FOSTER McCOWAN

WITH ALL OF GEOPAINT'S bells and whistles, it seemed that users would never need another graphics package. Sixteen tools and shapes, countless fills and brush variations, text capabilities—what *more* could you want? David Ferguson knows.

Ferguson is one of the talented independent programmers who have started their own small companies to augment the modest corporate support for Commodore GEOS. Through Quincy Softworks, he has turned out some magnificent programs, including Multi-Print Labeler, geoStamp and DweezilDisks I and II.

DweezilDisk I, a disk of geoPaint enhancements, is chock full of applications, desk accessories, and associated files that run on both the C-64 and C-128. This time, geoWatch focuses on the disk's greatly improved version of the NewTools program, a desk accessory for modifying and manipulating geoPaint graphics that is available on Quantum-Link. The impetus for the NewTools revision came from the original version's incredible popularity there—over 2000 copies were downloaded in its first few weeks on the network!

NewTools 2 offers nine basic tools, most of which have the ability to change graphics in four different directions. They provide capabilities never before possible on a Commodore. (See the figures for illustrations of each.) The nine NT2 tools are:

Skew—Shifts each row of pixels in the image one column to the right or left, from the top or bottom.

Slant—Shifts each column of pixels in the image one row up or down, starting from the left or right side.

Arrow—Transforms the image into an arrow that points left, right, up or down.

Rotate—Rotates a graphic 45 degrees up-left, down-left, up-right or down-right.

Double—Increases the image's size by a factor of two.

Triple—Increases the size by a factor of three.

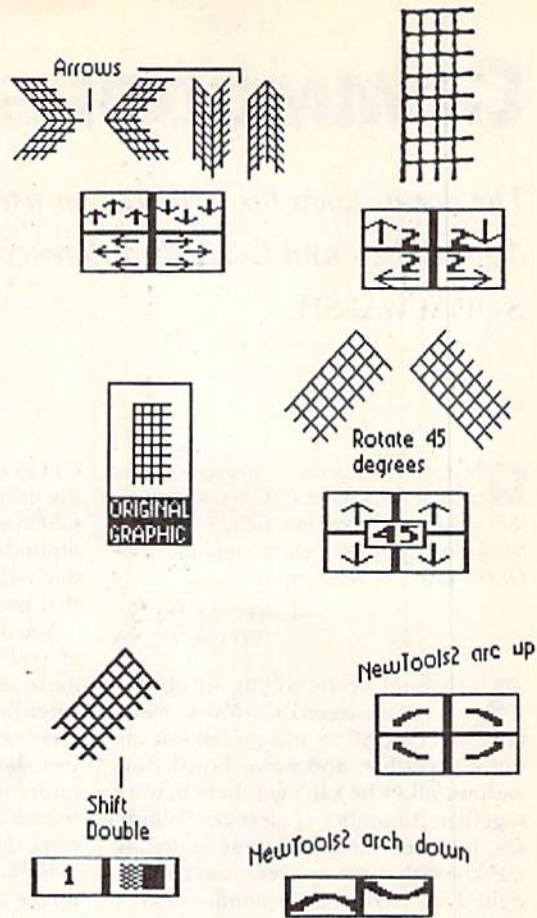
Arc—Curves the image in one of four directions.

Arching—Curves the image into a symmetrical upward or downward arch.

Shift Right—Increases print density by copying each column of an image one pixel to the right. This is useful for fine-tuning a graphic that's been rotated with the 45-degree tool, because some density is lost during rotation.

The new tools are each aptly represented by an icon in the familiar point-and-click interface. The NT2 toolbar runs along the bottom edge of the geoPaint screen (as it appears below), completely covering the color palette, page indicator and pattern selector. NT2 is used with completed geoPaint images, so although the geoPaint toolbar is visible, none of its tools will work while NT2 is running. And, like most other well written GEOS programs, NT2 provides lots of keyboard shortcuts.

So, what do you do with all these features? If you don't immediately see any possibilities, try this: Curve some text with the arcing tool. Then turn it into a photo scrap and import it into geoPublish to use as a professional-looking text effect for fly-



Above figures: A graphic image (center) is manipulated using NewTools 2. At bottom of page, the NewTools 2 toolbar as it appears on the geoPaint screen.

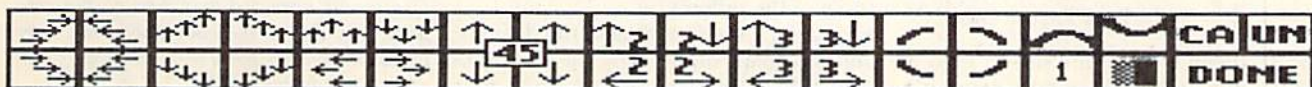
ers or newsletters. Or, print your geoPublish document to geoPaint and manipulate entire segments of it there.

At \$17.95, DweezilDisk I is a bargain, particularly when you consider that the disk also offers Create Patt, an excellent fill-pattern creator that lets you save patterns for later use; PattDa, which loads pattern files into memory; AutoPattA, an autoexec routine that loads a predetermined pattern file into memory when you boot GEOS; AutoPattB, an autoexec that lets you select a pattern upon booting; plus more than 90 files of 32 patterns each to help you get started.

David Ferguson, known as DiBieF on Q-Link, accepts questions and comments by E-mail. ■

Foster McCowan is a C-64 GEOS lover who hails from the great state of Texas.

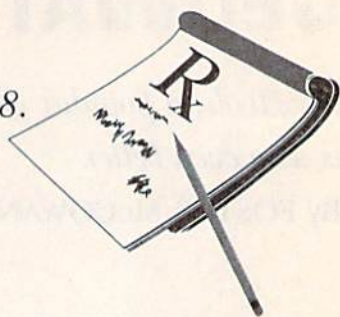
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COMMODORE CLINIC

The doctor takes his medicine on using geoPublish with GEOS 128. Also, C-128 and C-128D differences and a printer predicament.

By TIM WALSH



Q In your most recent Commodore Clinic column (July/August '92), you mention that geoPublish requires GEOS 64. Not true—my copy of geoPublish works fine with GEOS 128 2.0. What gives?

—LAWRENCE PALLEN
PITTSBURG, PA

A The mail keeps rolling in on this one! For the record, GeoWorks maintains that GEOS 128 and geoPublish are not compatible; and we've heard from various folks who can't get them to work together. A number of alert geoPublishers, however, wasted no time in letting me know that my answer wasn't watertight. I received several voluminous, fact-filled letters that could easily qualify as crash courses in 128 geoPublishing!

With due credit to my learned readers, here's the straight scoop. Early versions of geoPublish, now long out of production, were unquestionably incompatible with GEOS 128. Later versions of geoPublish, however, seem to work fine in 40-column 128 mode on the C-128, unless—to further complicate matters—you have the earliest version of GEOS 128 (1.0); it won't work with geoPublish.

If that's not confusing enough, bear in mind that if your copy of geoPublish is initialized with GEOS 64, it won't work with GEOS 128. All complications aside, if you have a new copy of geoPublish and a new copy of GEOS 128 2.0, the two programs should get along.

Q I have used GEOS 64 2.0 for months and enjoy it immensely. I can't get the program to print correctly, however. I have a C-64, a 1541 and a Xetec SuperGraphics Jr. printer interface, which I use with a Star Gemini 10X printer.

The printer and printer interface combination seems to work fine with other software packages. (In fact, I used them to print this letter.) Please let me know what I'm doing wrong with GEOS.

—DAVID MARTINEZ
EAST PATCHOQUE, NY

A It's been a long time since I used a Gemini 10X printer, but I know it's

GEOS compatible because it was one of my primary printers back in 1986 when GEOS was released. Although the 10X is limited in print speed and options by today's standards, it's a rugged machine that produces decent output.

You didn't mention which printer driver you selected from within GEOS, so make certain you're using the right one. After booting up GEOS, select the Preferences option from the deskTop. There you should see the Gemini 10X driver under the printer options. Make that selection and save your preferences to your work disk.

For GEOS work, it's a little tricky setting up the printer interface to work just right. GeoWorks recommends setting DIP switches 1-4 to the off position on the Gemini 10X. You can set the switch settings on any model Xetec printer interface to either Transparent or Semi-Transparent mode, and try printing from both geoPaint or geoWrite. Rest assured that unless there's a hardware glitch, your Gemini printer will work fine with GEOS.

Q I've been a Commodore 128 user for a long time and I recently purchased a Commodore 128D. What are the differences between the two computers? Also, I would like to know if there's an alignment kit that contains the tools needed to align Commodore 1541 and 1571 disk drives.

In the near future, I plan to purchase a video monitor, a modem and a printer. I basically use just utilities, and occasionally play games. Would you please tell me which combination of the three above items would be best for the hardware that I already own?

—JOHN STRUNCK
WACO, TX

A To address your first question, there are both cosmetic and internal differences between the C-128 and the C-128D. For the benefit of Commodore users who are unfamiliar with the computers, I'll give a brief description of some of the differences.

For starters, the C-128 lacks the detachable keyboard enjoyed by the C-128D. Also, the C-128D has a built-in 1571 disk

drive, whereas the standard ("flat") 128 has to rely on external drives. The other major difference in appearance is the C-128's external, rather than internal, power supply.

Inside the computers, the differences continue. All C-128Ds, and a few of the later model C-128s, are equipped with 64K of video RAM, which make them more versatile for programs that can take advantage of that RAM, such as the graphics program Basic 8. Also, the C-128D's internal 1571 disk drive has upgraded ROMs that work better than those in the original 1571.

Since we're on the subject of disk drives, your second question is a little bit misleading. There are no "tools" required to align the drives beyond the old Phillips screwdriver that you'll find in the kitchen drawer. The procedure is explained in detail in the 1571 Alignment kit originally sold by Free Spirit Software. It comes with a program for making the job easy to accomplish.

Regarding your question about purchases: For a video monitor I recommend the Commodore 1084, which comes with all the cables needed to connect to the C-64, C-128 or Amiga. For a good 1200-baud modem, the Commodore 1670 modem is a safe choice; it plugs directly into the user port on both the C-64 and C-128.

As far as choosing a good printer, I suggest that before you make a decision you check out the reviews I've written for the Curtain Call column in the last few issues of RUN. The newer Panasonic, Star Micronics and Seikosha printers I've examined all offer excellent-quality output and are all fine choices. You need to consider the price differences weighed against the features you want. ■

Do you have a problem with or question about your Commodore computer system, software or programming? Just send your questions to Commodore Clinic, RUN Magazine, 80 Elm St., Peterborough, NH 03458. Queries are answered only through this column, and due to the volume of mail, only questions likely to appeal to the majority of our readers can be published.

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From p.27.

```

830 NT" {5 SPACES}CHANGE WHICH L
      ETTER?{5 SPACES}" :REM*159
830 POKEVP, 24:POKEHP, 8:SYSS:PRI
      NTTAB(18)" {3 SPACES}";
      :REM*27
840 GOSUB1020 :REM*121
850 IF (LEN(EQ$) < 3)OR (MID$(EQ$,
      2,1) <> "=") THEN820 :REM*249
860 IFEQ$="==" THENPC=0:SP=7:FO
      RR=1TOSZ:SOL$(R)=TE$(R):NEX
      T:GOSUB110:GOTO930 :REM*216
870 IFLEFT$(EQ$,1)="" ORRIGHT$(
      EQ$,1)="" THEN820 :REM*144
880 POKEVP, 23:POKEHP, 8:SYSS:PRI
      NTTAB(18)" {3 SPACES}";
      :REM*86
890 FORR=1TOSZ:IFLEFT$(EQ$,1)=C
      O$(R) THENSOL$(R)=RIGHT$(EQ$
      ,1) :REM*61
900 NEXT:GOSUB110 :REM*242
910 MM=0:FORR=1TOSZ:IFSOL$(R) <>
      TE$(R) THENMM=1:R=SZ:REM*115
920 NEXT:IFMM=1 THEN820 :REM*130
930 POKEVP, 23:POKEHP, 10:SYSS:PR
      INT" {20 SPACES}":PRINTTAB(1
      7)" {6 SPACES}"; :REM*108
940 IFEQ$="==" THENPOKEVP, 23:PO
      KEHP, 8:SYSS:PRINTW$:GOTO980
      :REM*104
950 POKEVP, 22:POKEHP, 12:SYSS:PR
      INT"CONGRATULATIONS,"
      :REM*93
960 PRINT"YOU SOLVED THE PUZZLE
      IN "; :REM*115
970 PRINTMID$(TI$,3,2)" MIN. "M
      ID$(TI$,5,2)" SEC.";:REM*92
980 GOSUB370:POKEVP, 24:POKEHP, 7
      :SYSS:PRINT"PRESS ANY KEY T
      O CONTINUE"; :REM*119
990 POKE198,0:IFEQ$ <> "==" THEN8
      YS679 :REM*217
1000 GETD$:IFD$="" THEN1000 :REM*58
1010 PC=0:SP=7:GOTO720 :REM*98
1020 POKEVP, 24:POKEHP, 18:SYSS
      :REM*128
1030 LE=3:I2=13:M=8:GOSUB170:EQ
      $="" :FORR=1TOTC-1:EQ$=EQ$+
      HO$(R):NEXT:RETURN:REM*113
1040 PRINT" {SHFT CLR} {CRSR DN}"
      TAB(12)"CRYPTO PUZZLER{4 C
      RSR DNS}":RETURN :REM*44
1050 PRINT" {SHFT CLR}":POKE5328
      0,14:POKECO,14:END :REM*74
1060 GOSUB1040:PRINTTAB(8)" {2 C
      RSR DNS}ENTER FILENAME (OM
      IT CP.)" :REM*223
1070 PRINTTAB(12)"1-13 CHARACTE
      RS" :REM*239
1080 POKEVP, 11:POKEHP, 13:SYSS:L
      E=13:M=10:I2=13:GOSUB170:N
      A=TC-1 :REM*137
1090 NA$="" :FORR=1TONA:NA$=NA$+
      HO$(R):NEXT :REM*130
1100 OPEN15,8,15:OPEN8,8,8,"0:C
      P." +NA$+" ,S,W":GET#15,ER
      :REM*69
1110 IFERTHENCLOSE8:CLOSE15:GOT
      O1000 :REM*212
1120 PRINT#8,SZ:FORR=1TOSZ
      :REM*51
1130 SV$=CHR$(ASC(TEXT$(R))OR12
      8) :REM*215
1140 PRINT#8,SV$:NEXT :REM*119
1150 FORR=1TO26:PRINT#8,AI(R):N
      EXT:PRINT#8,CHR$(13)
      :REM*42
1160 GET#15,ER:IFERTHENCLOSE8:C
      LOSE15:GOTO1000 :REM*63
1170 CLOSE8:CLOSE15:SP=7:GOTO72
      0 :REM*194
1180 FORR=MLTOML+60:READDT:POKE
      R,DT:NEXT: :REM*92
1190 FORJ=679TO693:READK:POKEJ,
      K:NEXT:RETURN :REM*123
1200 DATA 106,144,11,224,32,144
      ,7,224,48,176,3,24,144,39,
      106,144,11,224,48,144
      :REM*146
1210 DATA 7,224,58,176,3,24,144
      ,25,106,144,11,224,58,144,
      7,224,65,176,3,24,144
      :REM*103
1220 DATA 11,106,144,12,224,65,
      144,8,224,91,176,4,169,1,2
      4,96,169,0,24,96 :REM*222
1230 : :REM*13
1240 DATA 172,32,208,202,142,32
      ,208,165,198,240,248,140,3
      2,208,96 :REM*252
    
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SOFTWARE GALLERY

Are repackaged software bundles really a bargain? Reviews of three high-profile collections. Plus GEOS games and Hangman's Hazard.

By JOHN RYAN

FREE SPIRIT GRAPHICS COLLECTION B

A Good Bargain Despite Weak Documentation

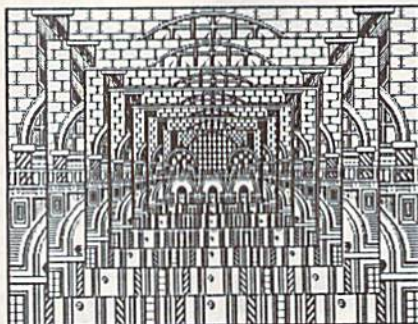
As this market slims down, more and more companies are cleaning out their surplus software, rebundling it and calling it "bargain collections." How worthy are these collections of your precious buying dollars?

This first from Briwall, a collection of Free Spirit Software's graphics utilities, is really not bad. We're not talking sprite or character editors here, and we're not referring to paint programs. The Free Spirit Graphics Collection contains five programs that let you convert graphics files from one format to another, construct eye-catching computer presentations, manage graphic screen dumps and manipulate high-resolution graphics from just about any paint program.

Billboard Maker is unique in that it enlarges your existing graphics to poster size (or tabletop size!) with less distortion and jagginess than you'd expect with low-resolution graphics. Its special routines print the results in strips that are easily linked together. The program supports framing, picture cropping, several flip and invert operations and text overlays. It can import files from Doodle, Koala Pad, Flexidraw, Animation Station, Super Sketch, Blazing Paddles, Print Shop or Computer Eyes formats.

For all its power and versatility, getting around the program takes work, not because of any programming flaws, but simply because the manual is so poor. In fact, all five programs in this collection suffer from poor documentation. Still, if you rely on signs, posters or banners to get your point across, Billboard Maker could be your program of choice.

Screen F/X, the most ambitious program in the collection, is an all-in-one presentation manager—sort of multimedia for those with champagne taste and a beer budget. Screen F/X is a script-based special effects generator that can handle an almost unlimited number of



Free Spirit's Billboard Maker lets you blow up artwork to poster size.

effects. Using your text, and graphics generated by Print Shop, Newsroom or a paint program, Screen F/X will present the material using a variety of fades, wipes, tumbles, background effects and even simulated animation effects.

Screen F/X is actually a three-program set: F/X Editor, where you build your scripts; F/X Processor, where you build the screens; and F/X Executor, a runtime program, which means that you can send your presentation disks out to people who don't have the F/X program.

Again, while F/X is probably the most powerful C-64 product of its kind, its manual is woefully inadequate, rendering the advanced features effectively unachievable for the graphics novice.

The third program in the Free Spirit Graphics Collection, Icon Factory, is an image conversion program that lets you use Newsroom, Print Shop or Print Master files with popular paint programs, such as Doodle, Koala and Super Sketch. It not only converts files to work with the

other programs, but also merges and overlays files with one another. With Icon Factory, you can create a drawing with Doodle, then overlay a Newsroom graphic over the drawing. It even expands clip art into full-sized pictures. Be forewarned, however, that expanding operations can be fairly time-consuming.

Photo Finish is an interesting program if you like to print your graphics handiwork. It goes well beyond the simple screen dump; it handles high-resolution, multicolor and grey-scale pictures, as well as graphics from Print Shop, Newsroom and Print Master. Some of the print tests I ran looked almost as good on paper as they did on my monitor.

Finally, we come to Grafix-Link, a conversion utility for translating graphics files to and from the GEOS format. You can load from and save to geoPaint, Billboard Maker, Doodle, Flexidraw and Computer Eyes files. Likewise, you can load Newsroom photos, Print Master and limited Print Shop graphics. If you are a geoPaint user and have been stifled by an inability to view other graphics formats, then Grafix-Link is a must-have.

The programs in this collection are useful, powerful and relatively unique. The documentation is frustrating, but, if you've been looking for utilities like these, then patience and a little trial and error will get you up and running.

(\$39.95/C-64. Briwall, 56 Noble St., Kutztown, PA 19530)

COSMI'S 20 SOLID GOLD ENTERTAINMENT HITS C-

The Oldies in This Collection Weren't All Chart-Busters

Many vendors rereleasing their old products have taken to labeling them with ostentatious titles that begin with "solid gold" or "golden oldies." For me, these titles raise a red flag. In software as in life, I find that braggarts rarely live up to their self-styled images.

Cosmi has put together two such packages. Their entertainment collection, Top

SOFTWARE REPORT CARD

Outstanding	A
Good	B
Just Okay	C
Less Than Okay	D
Crummy	F

20 Solid Gold, trots out 20 games that were rightly put out to pasture some time ago. Some of these games sold fairly well when they were first released. Most, however, did not.

How, then, does Cosmi justify the "Solid Gold" title? Good Question.

The most successful game in the collection is Paul Norman's *Forbidden Forest*, which was immensely popular when it was released several years ago. Norman's musical genius, as well as the graphics and animation, were considered amazing . . . at the time.

Forbidden Forest pits you, a lone archer, against an onslaught of nasty creatures as you move through a quasi-3D background. There are seven playing levels and three difficulty levels to keep you engaged for a long while. Although *Forbidden Forest* can be a bit gory (as your on-screen character is often torn to bloody pieces), the game is a classic.

The sequel, which is also included, doesn't quite live up to its predecessor's legacy. The archer in *Beyond Forbidden Forest* is much larger than the original, and the scrolling screens allow your character to move in and out of the scenery—something Cosmi calls 4D Omnivi-



The best Cosmi's multigame disk has to offer is *Forbidden Forest*—good, but outdated.

sion. The pretentious opening credits and blaring soundtrack are tedious.

From there, the pickings in *Top 20 Solid Gold* are slim. The three auto racing games weren't much fun even when they were first released. In fact, the graphics for both *Motor Mania* and *Talledega* are so antiquated, I was awestruck to remember I was once fascinated by them.

There are several games in this collection that you might recognize, such as *Chernobyl*, the nuclear reactor simulation. *Solid Gold* also includes a decent chess simulation called *Grand Master Chess*, as well as a mildly amusing

arcade game called *High Noon*.

I'm afraid the remaining games range from the simply ridiculous to the downright boring. But then, what did I expect from games with titles like *Potty Pigeon*, *Fearless Fred* and *Psycastris*?

Cosmi doesn't really have a history of mega-hits on which to rest its laurels. Companies like *Electronic Arts* and *Accolade* may have dozens of oldies that would be perfect candidates for a hits collection, but not Cosmi. (Put *Archon*, *Seven Cities of Gold*, *Mule* and *Wasteland* together and watch the copies fly!) *Forbidden Forest* and *Beyond Forbidden Forest* may be worth the \$13 you'll pay, but I'd rather plunk that money down toward something more up-to-date.

(\$13/C-64. Cosmi, 431 N. Figueroa St., Wilmington, CA 90744)

TOP 20 SOFTWARE TOOLS.....C

Inexpensive, but Hardly the 20 Best Productivity Tools Available

The second well-advertised collection offered by Cosmi covers the productivity arena. Cosmi apparently felt the need to ▶

SPECIAL GEOS REPORT: PRODUCTIVITY BASHERS, PART 2

Another Less-Than-Businesslike Peek at GEOS Gameware

Since last highlighting productivity-bashing geoGames in the September/October '91 geoWatch column, my gaming scouts have reported a substantial increase in frivolity among onceserious geoUsers. Therefore, I decided to continue with another batch of delightfully distracting games.

I'll start with *RUN's* own **geoYahtzee**. This program by Joe Buckley takes all the work (rolling, scoring, adding) out of the popular dice game. It also offers mouse control and both gray-scale and color graphics. I rate *geoYahtzee* in the B+ range, only because it doesn't supply a one-player option. Other than that, it rates a big A!

I once boasted I could easily win at Ed Pflager's *GEOSTacToe*. Now I've found the even more devilish **3-D Tic Tac Toe** by Marc Brouillette. This captivating game has a 4 x 4 x 4 grid plus three difficulty levels, and lets you play against either a person or the comput-

er. Of course, I selected Expert mode; after several hours I hadn't won a single game!. A+++, Mr. Brouillette!

Next up is **geoUno**, a computer version of the favorite card game. Although I can't claim an honest win against my *geoUno* opponents, I did waste a satisfying afternoon. (Of course, that's the whole point!)

Want to add a little fantasy to your reverie? Become a law-enforcement or criminal superstar in **B.A.D.G.E.**, a role-playing game by D.M. Wolfe. Rather than supplying the scenario, this *geoWrite* file provides everything you need to construct your own world of law and disorder.

Quadran, by the fantastically fiendish Davey 4, is an "off-screen" chess/tic-tac-toe combination that's bound to please. Converted to *geoPaint*, this file provides instructions and a score card, and actually prints out a gameboard in either black-and-white or color. Use what you find around the house (paperclips, toothpaste caps, pocket change) for playing pieces, and you and a friend can avoid working for hours.

If you prefer toys, try a one-note-at-a-time piano. **C64Piano** is a Basic program that can be run from GEOS, then,

with *RBoot* on your workdisk, returns you to where you started on the desk-Top with a single keystroke.

Last but not least, **geoWar** from Lysle Shields is a colorful mouse-controlled computer version of *Risk* that pits you against up to five human or computer players for control of the world. One particularly interesting option is the neutral computer opponent, whose countries will fall easily before your rolling thunder.

All the games I've mentioned here are available from bulletin boards and telecommunications networks, such as *QuantumLink*, the Commodore-specific network. To find the files on *Q-Link*, go to the Software Libraries in the Software Showcase department, use the Search option for *GEOS Software*, and type in the name of each file.

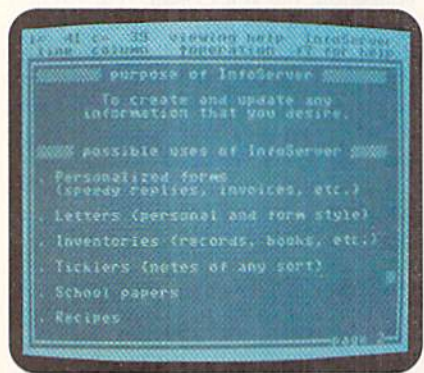
All the games can be accessed from inside the *GEOS* environment and will return you there when you're done playing. If you use a RAM disk, place your favorite games on it, along with other frequently used files and *RBoot*.

Now, roll up your sleeves and prepare for some serious frivolity!

—Gerry Descoteaux

address those of us who bought our computers to word process and manage home finances. To that end (or maybe some other, less altruistic end) Cosmi put together Top 20 Software Tools.

As with Cosmi's Solid Gold, I'm befuddled by this collection's title: *Top 20*. Top 20 as compared to what? By no stretch of the imagination are the programs on this disk comparable to others currently available. In fact, most of them are slow-loading, Basic (thus a bit kludgy) and omit features that I would expect to find



Cosmi's Top 20 Software Tools will cheaply expand your productivity library.

even in a public domain release.

Swift Word, for example, is anything but swift. (It took over a minute to load a three-page document.) Its editing features are basic and the on-disk documentation is atrocious. (To wit: "The cursor is moved on the electronic sheet either during typing, as described below, or with the cursor movement keys, which move it one character at a time left or right, one line at a time up and down, jump it to the top of the page—then to the top of preceding page....")

Next is a collection of programs under the title of Swift Server. Among them you'll find Date Server, an electronic appointment book and calendar. This no-frills program lets you enter comments on any day of any year. Again, this Basic program is rather slow, and I was thrown out to Direct mode when I accidentally tried to print a calendar without having the printer on.

Thankfully, Swift Data Base is easy to use and relatively fast, especially when compared to the other programs on the disk. Even so, this primitive database provides only eight fields, no arithmetic functions and limited search functions. Swift Data Base is more like a computerized 3 x 5 card file than a conventional database. You cannot customize the data screens, nor can you divide or separate fields with keyboard character graphics. Records are limited to 200 per file. Infor-

mation is presented in a linear fashion. If you're looking for a quick and extremely simple database, then Swift Data Base may be a good deal. But, again I will stress, this is a no-frills program.

The fastest program in this package has to be the spreadsheet, and it offers most of the features you'd expect to find in a 40-column spreadsheet. There are over 6,600 cells available, plus you can split the screen, jump to any cell, set the column length of each cell and easily edit data. Swift Spread Sheet supports a wide variety of formulas and macros.

The fare is a bit better in the creativity area, where you'll find sprite, character and sound editors that are easy to use and relatively fast. While not quite as sophisticated as Ultra Sprite or Ultra Font, the graphics editors offer all the features you need to create sprites and alternate character sets.

On the same tack, the music composer and sound editors are relatively easy to use and nice to experiment with. A bare-bones painting program is also included, along with utilities to create graphics screens, draw banner-sized letters, and create animated screens using sprite and character sets.

The remaining programs are "desktop" utilities designed to be TSR (Terminate and Stay Resident) programs. Among them are a calculator, a digital clock, a note pad and an automatic phone dialer. I get the feeling that these desktop utilities were designed to be resident with the programs in the Top 20 collection and not other commercial programs. While I could move the memory locations of the desktop utilities, I could not get the utilities to work with several of my favorite programs, including Run Script 128 and Run Shell.

At the heart of any review, I have to ask: Is it worth the money? Well, maybe. If you're new to Commodore computing or decidedly software-poor, then these programs will cheaply put you on the road to a more productive life. How fast you'll move down that road, however, is another matter.

(\$13/C-64. Cosmi, 431 N. Figueroa St., Wilmington, CA 90744)

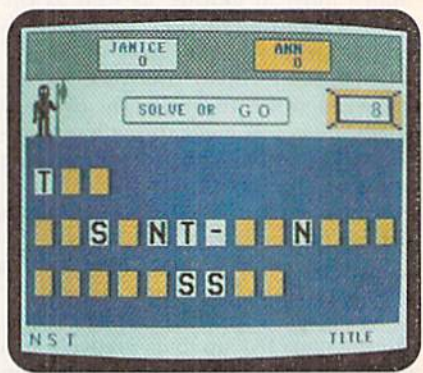
HANGMAN'S HAZARD.....B-

This Wheel of Fortune Clone Is Well Done, but Not Unique

Hangman's Hazard is a variation on the classic hangman game everybody played in grade school. This version has a small twist on the usual theme: Two to four players have been imprisoned in a

dungeon. To gain freedom you must acquire at least 60 points or win the majority of the ten rounds of play. If you lose, you fall victim to the "twist" I mentioned (as in "twisting in the wind").

I got the distinct impression that Hangman Hazard's creators, Darkside Software (whose name seems somehow apropos), put more creativity into the game's opening visuals than they did the game itself. Admittedly, the animation is nifty, detailing a gloomy dungeon and a hangman marching his prisoners to the



Hangman's Hazard mixes Wheel of Fortune with traditional Hangman.

gallows, but from here the graphics quality slips several notches.

The bulk of game-play takes place on a screen not dissimilar to many PD hangman games I've seen. As play begins, you are presented with a series of blank rectangular spaces that represent the letters of the puzzle. Pressing the space bar determines the points for correctly guessed letters, or whether you'll lose a turn or all your points. Working against a timer, you select a consonant. If a match is found, the letter will appear in the square and points are awarded. The same player continues until a wrong letter is selected. You can attempt to solve the puzzle at any time during your turn. The winner of each round gains all the points for that round and moves closer to freedom on the dungeon screen. (If you tire of the macabre graphics, a single keypress will quickly return you to the game.)

With over 3000 word puzzles, it's more likely you'll run out of interest before you run out of challenges. The game is fast, it plays smoothly and serves up some good brain teasers. All in all, however, it's really nothing more than another Wheel of Fortune clone. You can download similar games from any bulletin board system—free of charge.

(\$19.95/C-64. Darkside Software, 501 Miramar Lane, Palm Beach Gardens, FL 33410) ■

RUN'S CHECKSUM PROGRAM AND TYPING HINTS

By BOB KODADEK AND THE RUN EDITORIAL STAFF

CHECKSUM IS A PROGRAM that proofreads your typing when you enter a listing from the magazine. It assigns a numerical value to each character that you type, adds up the values of the line you typed and displays the sum. (Checksum, therefore, means that it *checks* your typing by *summing* the characters.) It also verifies that you have typed the characters in the proper order. (Checksum won't tell you if you miss a line of code entirely, so verify that yourself.)

Checksum runs in the background when you type in lines of programming code. Whenever you type a line and press RETURN, the Checksum will display a value. Compare that value to the value published next to the line of code in the magazine (eg., :REM*123). If the numbers match, you've typed the line correctly. Simple.

TYPING IN CHECKSUM AND OTHER GOOD ADVICE

First, type in Checksum carefully from Listing 1 below. Be sure to press RETURN after every line to enter it into memory. Once you have typed the program, save it. In fact, save it a few times while you're typing, just to be safe. (This is good advice whenever you type in a program. I usually change the name each time I save; for example, Supergame1, Supergame2, and so on.)

Double check your work, making sure that you've typed in every line, and you've pressed RETURN after every line you've typed. If you make errors when typing in Checksum, a test run of Checksum will tell you which line is incorrect. (This safety feature works only in the Checksum program itself. It does not apply to any other listings in the magazine.) Whenever you find a typing error (in any program listing), fix it, press RETURN to enter the change, *save the program again*, and try another run. Repeat as often as necessary.

Important tip: Don't get discouraged if the program won't run. Be patient. Be thorough. It will work eventually.

You'll know your Checksum is ready when you see the line

```
TO TOGGLE ON OR OFF, SYS(number)
```

USING CHECKSUM AND EVEN MORE GOOD ADVICE

When you're ready to type in your first listing from the magazine, load and run Checksum. Make a note of the number that is displayed on the screen (49152 for the C-64; 3328 for the C-128). To activate and deactivate Checksum, type SYS followed by that number, then press RETURN. You need to have Checksum active whenever you're typing in a listing. Checksum must be deactivated, however, when you run the new program.

The next step is typing in a new program listing as it appears in the magazine. As you begin, you'll notice that at the end of each line is a colon, followed by the letters REM, an asterisk and a 1-3 digit number, like this:

```
:REM*123
```

Don't type any of this in: It's simply the Checksum value. Stop typing before the colon and press RETURN. If you've typed the line correctly, the number displayed on the screen will match the Checksum value. If the numbers don't match, you've made a mistake. Check the line carefully, make your changes and press RETURN. The computer won't know you've made a change unless you press RETURN to enter it.

A few type-in hints: The Checksum does not verify blank spaces in the program lines unless they are within quotation marks, because adding or omitting such spaces will not affect the operation of the program. The exception to this is hexadecimal Data statements. These are the Data statements, such as this one, that don't have commas:

```
100 DATA 12345678901234567890*12345678901234567890*123
45678901234567890*
```

In statements such as these, you must have one space between the word DATA and the numbers that follow. Checksum will not catch that error.

One other common mistake is to type in the spaces that fall under the line number. In the example above you should not put a carriage return or spaces between the 3 and the 4 where the line breaks.

WHAT THE HECK ARE CURLY BRACES?

As you type, you will undoubtedly be confused the first time you see curly braces {}. These braces mean "perform the function explained within." For example, {22 SPACES} means that you need to press the space bar 22 times. Don't type the braces. Other common examples are:

{SHIFT CLR}—hold down the SHIFT key and press the CLR-HOME key.

{2 CRSR DNs}—tap the cursor down key twice.

{CTRL 1}—hold the CONTROL key and press the 1 key.

{COMD T}—hold down the COMMODORE key and press the T key.

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

KEEP YOUR CHIN UP—ALL YOU NEED IS PATIENCE

Continue typing in your program, saving often and checking each checksum value with the one in the magazine, until you've finished the listing. Phew! So now you're ready to run your program, right? Not quite. First, save it. Second, deactivate Checksum by typing SYS followed by 49152 for the C-64 or 3328 for the C-128.

Now you can run. Don't be discouraged if you still get an error. It happens. There are only two errors that Checksum won't catch (omitting a line and the Data statement spaces). Use Checksum faithfully. Be patient. Be thorough. It will work eventually. R

Listing 1. RUN'S Checksum program.

```
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 200,4,162,13,160,67,142,4,3,140,903
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 232,200,240,189,0,2,240,42,201,32,1386
260 DATA 200,4,164,180,240,3,2,201,34,200,6,1276
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 105,0,133,168,136,200,239,232,200,209,1638
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 0,160,0,32,240,255,169,42,200,198,1304
```

CURTAIN CALL

RUN's column where worthy products step into the spotlight and take a bow.

The Panasonic KX-P2180

Attractive and of high quality, Panasonic's KX-P2180 printer boasts enhancements that set it apart from other 9-pin printers.

It offers a 4K print buffer that's expandable to 32K, 240 character per second printing in Micron Draft mode, two other draft modes and six near-letter-quality print styles. Sharp, well-defined graphics printing is available in seven basic graphics modes, ranging from 60 to 240 dots per inch. It features exceptional paper-handling: Its well-designed paper guide makes printing labels and business envelopes a breeze, and jamming continuous form paper is a thing of the past.

The KX-P2180's true claim to fame, however, is its exceptionally quiet operation. While even experienced printer users might think that stuffing a printer's chassis with sound-muffling material might be all that's needed to quiet a printer, advanced techniques are used on the KX-P2180.

Rather than using heat-retaining insulation and sound deadening materials, selecting the Super Quiet mode from the KX-P2180's control panel activates a process that prints each line in multiple light passes. While this slows down output considerably, it's great for late-night printing when other family members are asleep, because the printing process indeed becomes whisper-quiet.

Those accustomed to the control panels found on other popular Panasonic printers in recent years, such as the KX-P1124 and KX-P1182, will be right at home with the 2180's EZ Set Operator Panel. Once you read the manual and take a few minutes to think through the process, the multifunction buttons and five-by-four grid of lights on the panel make mode selections simple.

If you select the printer's numerous modes from software or your computer's Direct mode, rather than through the control panel, you'll see that there are two printer emulation modes: Epson FX-850 and IBM Proprinter III. By setting the printer to either mode, then selecting the appropriate printer driver from



within your software, you have access to the bold, italics, and graphic printing options available from each mode.

In a side-by-side comparison of the Panasonic KX-P2180 and the printer we featured last issue, the Star Micronics NX-2430, I find both printers first-rate for characters and graphics. The Star is faster at graphics, but the Panasonic has it beat for quietness and cost (\$299.95).

The Panasonic KX-P2180 is a fine choice for any Commodore owner. Especially attractive is the fact that it will work well with your Commodore and virtually any other computer you may have at home or the office. ■

—Tim Walsh

Panasonic Computer
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While the Panasonic KX-P2180's print quality and paper-handling features are top notch, its whisper-quiet print mode is its surest claim to fame.

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Panasonic **KX-P1180i**

- Enhanced 9-Pin Printer
- 240 CPS Draft
- 48 CPS NLO
- EZ-Set Operator Panel
- 2-Year Warranty



\$142⁹⁵

Panasonic

1180i	\$142.95
2180 Quiet Series	\$149.95
2123 Quiet Series	\$225.95
1123	\$185.95
1124i	\$265.95
2624 Quiet Series	\$349.95
1654	\$529.95
4410 Laser	\$589.95
4430 Laser	\$829.95
4450 Laser	\$1069.95
4455 ps Laser	\$1649.95

brother **HJ-100i**

- 83 CPS LQ mode-10cpi
- AC adapter standard
- Ni-Cad battery optional
- Ink life 700,000 (LQ) 1.4 million (NLO)
- Weighs under 5 lbs



\$279⁹⁵

PRINTERS

Citizen

200GX	\$149.95
200GX Color	\$179.95
GSX-130	\$209.95
GSX-130 Color	\$229.95*
GSX-230	\$CALL
GSX-230 Color	\$CALL
GSX-140 Plus	\$269.95*
GSX-140 Plus Free Color	\$269.95*
GSX-240	\$299.95
GSX-240 Color	\$329.95
GSX-145	\$379.95
200GX-15	\$319.95
PN-48 Notebook Printer	\$309.95

*Quantities Limited

Okidata

184 Turbo	\$215.95
380	\$214.95
320	\$299.95
320i	\$299.95
321	\$425.95
390 Plus	\$425.95
391 Plus	\$585.95
393 Plus	\$929.95
393C (color)	\$969.95
3410	\$1199.95
Laser 400	\$569.95
Laser 800	\$889.95
Laser 810	\$1025.95
Laser 830 Post Script	\$1259.95
Laser 840 Post Script	\$1569.95

CITIZEN **GSX-240 NEW!**

- 300 CPS Draft
- 80 CPS Letter Quality
- Ultra Quiet 43 dBA
- High resolution 360 dpi graphics



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Brother

M1309	\$149.95
M1324L	\$249.95
M1809	\$295.95
M1824L	\$389.95
M1909	\$409.95
M1924L	\$539.95
M2518	\$775.95
M4309 800 CPS	\$1549.95
HL10V Laser	\$1199.95*
HJ-100i Ink Jet	\$279.95

CITIZEN **200GX Color**

- Color/9-wire Printer
- 240 CPS Draft
- 240x216 dpi
- 5 resident fonts
- 2-Year Warranty



\$179⁹⁵

Epson

LX-810	\$159.95
AP-3250	\$214.95
LO-570	\$264.95
FX-1050	\$395.95
LO-870	\$439.95
LO-1070	\$379.95
LO-1170	\$595.95
LO-2550	\$899.95
ES 300C Scanner	\$799.95
EPL 8000	\$1329.95

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- IBM Compatible
- 80386 Processor 40MHz
- 4M RAM
- 101 Keyboard
- 1.2 MB 5 1/4 Floppy
- 1 Par. 2 Serial Ports
- IDE/Floppy Controller



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*Monitor Separate

PC LOGIC 24 EX External Modem

- 2400 BPS
- 3 Year Warrnaty
- Quicklink Software

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Monitors

Magnavox:

CM9039	\$214.95
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Modems

PC Logic:

24 EX	\$59.95
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Accessories

Diskettes:

5 1/4 Disk Notcher	\$5.95
Xidex 5 1/4 DSSD	\$4.95
Xidex 3 1/2 DSSD	\$9.95

Surge Protectors:

QVS PP-102	\$15.95
QVS PP-112	\$15.95
QVS PP-106	\$22.95

Printer Interfaces:

Xetec Jr.	\$38.95
Xetec Supergraphics	\$55.95

Printer Paper:

1000 sheet laser	\$19.95
Address Labels	\$9.95

Drive Maintenance:

5 1/4 Drive Cleaner	\$4.95
3 1/2 Drive Cleaner	\$4.95

VIP 486DX/50 COMPUTER

- IBM Compatible
- 80486 Processor 50 MHz
- 4M RAM
- IDE/Floppy Controller
- 101 Keyboard
- 1.2MB 5 1/4 Floppy
- 1 Par. 2 Serial Ports



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*Monitor Separate

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- 640 x 480
- .39 Dot Pitch
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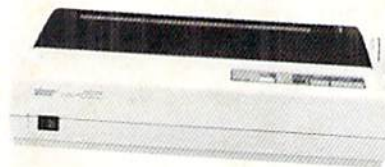
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star
THE COMPUTER PRINTER



OTHER STAR PRINTERS

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NX-2420 Rainbow	A51047	\$284.95
NX-1020 Rainbow	A51027	\$179.95
LaserPrinter 4	A57934	\$799.00

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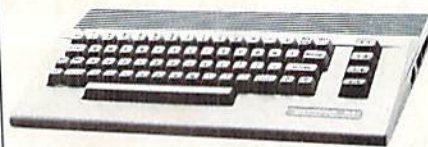
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