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March 1988

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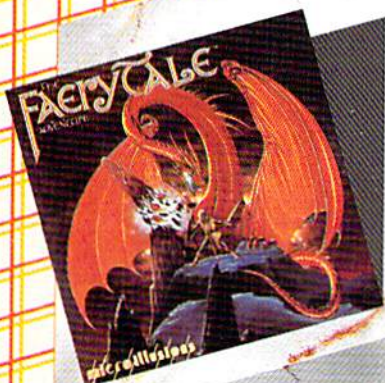
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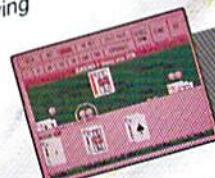


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WE JUST FRONT PAGE

SNOOPS & SCOOPS

STOCKS PLUMMET IN RECORD TRADING

In the past few days, a major index for the stock market has fallen more than 100 points. This is the first time since the 1920s that the Dow Jones Industrial Average has lost more than 100 points in a single day. The market's decline was caused by a combination of factors, including a sharp rise in interest rates and a general loss of confidence in the economy.



Analysts predict that the market will continue to decline in the near future, and investors are advised to take precautions.

Television Highlights

12:00 PM NEWSWEEK
The latest news from around the world, including reports on the stock market crash and the latest in sports.

1:00 PM THE NEWS
A comprehensive look at the day's events, including a special report on the market's performance.

2:00 PM THE NEWS
Continuation of the news program, with a focus on the latest developments in the stock market.

3:00 PM THE NEWS
Final news segment of the day, including a preview of the evening's entertainment.

4:00 PM THE NEWS
Late evening news, featuring a detailed analysis of the market's future prospects.

5:00 PM THE NEWS
Nightly news program, concluding the day's coverage with a look at the global situation.

6:00 PM THE NEWS
Early morning news, providing a first look at the day's headlines.

7:00 PM THE NEWS
Midday news, including a special feature on the impact of the market crash on everyday life.

8:00 PM THE NEWS
Evening news, featuring a detailed report on the latest in science and technology.

9:00 PM THE NEWS
Late evening news, including a preview of the upcoming week's events.

10:00 PM THE NEWS
Final news segment of the night, with a look at the day's closing news.

11:00 PM THE NEWS
Midnight news, providing a final look at the day's events.

12:00 AM THE NEWS
Early morning news, concluding the night's coverage with a look at the day's headlines.

VANISHING TIMES

A Berkeley Software Publication

Vol. XLIV Number 4567

EARTH TO BEGIN SPINNING IN OPPOSITE DIRECTION



A shocked consortium of scientists confirmed the world's worst suspicions Tuesday, when they announced that the Earth was indeed slowing down. They expect the planet to grind to a halt early Thursday, reversing its direction and getting back up to speed by Monday night.

Although the research was startling, the scientists urged people not to panic.

"I suppose I'd lock all the breakables in your cabinets," offers Dr. Lee Llevano, "but outside of that, I'd just tell people to hold on and enjoy the ride."

Apparently we're in for quite a ride. Dr. Dennis Rowland demonstrated the effect of the sudden

reversal by dropping a raw egg into a MixMaster blender set on "puree."

"If we assume people have the consistency of this egg," Rowland asserted, "I think it's safe to say that the effect of this phenomenon will leave them in a state somewhat similar to finely ground beef."

Asked if there were anything the public could do to prepare for the

"I'd just tell people to hold on and enjoy the ride!"

catastrophe, Dr. Rowland thought a while and offered, "I always recommend fastening your seat belt. It just makes so much sense, don't you think?"

Analyst Staci Glovsky was less distressed with the news, asking "What's the big deal? Jeez, you guys are acting like a bunch of

Continued Page 8

inches.

Anderson was booked on felony charges of dog munching, poodle endangerment and assaulting a canine with intent to commit relish. He was later released on his own recognizance. The man who offered him the poodle has also been charged with attempting to apply mustard to a mutt, a misdemeanor in Alameda County.

"It's a smear tactic," yelled Rob Siegel, the man still being sought by police. "Sure it was my mustard, but that doesn't prove a thing. Besides, they have to prove with

Continued Page 4



Television Highlights

This week, you can expect to find some of the best programs right on your own TV set at home. Following are some of the highlights:

- Monday:**
- (4) 6:30 I LOVE LUCY
Lucy and Ethel teach a pilot to get Lucy into Ricky's show at the club. (R)
 - (7) 8:30 WILD KINGDOM
Mackin sits in a studio left and sound, while Jim makes his life for some important animal.
 - (2) 7:30 LAWRENCE WELK IN BULGARIA
The famed band leader takes you then 60 minutes of musical merriment, all the time wondering why he is in Bulgaria.
 - (5) 9:30 BRUCE LEE IN REVENGE OF THE MEATBALL
Epic hero Bruce Lee punches his way through pasta, and rescues a pizza from 600 Neapolitan Ninjas.
 - (1) 6:30 I LOVE LUCY
Lucy and Ethel teach a pilot to get Lucy into Ricky's show at the club. (R)
 - (4) 8:30 Gilligan's Island
Gilligan and the Skipper finally wine up and figure out that Ginger and Mary Anne must be getting awfully lonely right about now, and go for it. (Continued Page 4)
- Tuesday:**
- Wednesday:**

Weather

Local weather: Look for clouds throughout the morning, burning off near midday. Temperatures should soar to the mid 200's by late afternoon with heavy electrical activity and thunderstorms appearing around, oh, say

Continued Page 2

MAN BITES POODLE!



BERKELEY — Dozens of citizens watched in horror today as a man, who described himself as an animal lover, actually bit a miniature teacup poodle.

Donald Anderson, of Studio City, California, dismissed the incident as a case of mistaken identity.

"Somebody asked me if I wanted a dog with mustard, and since it was close to lunchtime anyway, I just took a bite without looking."

The dog, responding to the name "Knockwurst," then gave out a yelp that bystanders recalled as sounding like "a cross between a gun shot and

"Sure it was my mustard, but that doesn't prove a thing!"

an air raid siren." In the process, the pinched pooch set a world record in the long jump of thirty feet, two

ED'S WEEKLY

The views and news of Ed.
December 3

Reporting To The Beauty of Andorra



Andorra is a small, mountainous country in the Pyrenees between France and Spain. It is a tiny nation with a population of about 50,000. The country is known for its beautiful scenery and its unique culture. It is a popular destination for tourists looking for a peaceful and scenic getaway.

Local weather: Look for clouds throughout the morning, burning off near midday. Temperatures should soar to the mid 200's by late afternoon with heavy electrical activity and thunderstorms appearing around, oh, say

Continued Page 11

More people reading stuff like this!

A poll conducted by Berkeley Software, Inc. showed that more people are reading stuff like this than ever before. This is a testament to the popularity of our content and the interest in our reports.

Continued Page 12

Text can be printed in every font available through GEOS. These documents were printed on an Apple Laser Writer

IT MADE GE NEWS.

These days, the biggest story in the news is geoPublish. The page-making program for GEOS-equipped 64's and 128's that replaces lifeless layouts with page after page of powerful, punchy professionalism.

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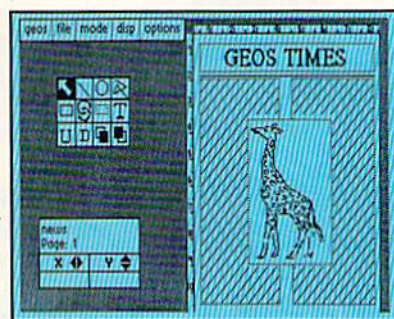
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F E A T U R E S



COVER ILLUSTRATION BY BETH KROMMES

DESKTOP PUBLISHING WITH THE C-64 by Susan Lamb60

Set up a publishing partnership with your C-64 and turn out attractive documents—from newsletters to greeting cards.

WATCH OUT, MAC! by Rebecca Begley64

New desktop publishing packages for the C-64 and C-128 challenge Macintosh and IBM programs in capability, at a fraction of the price.

GEONEWSLETTER by Susan Lamb68

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* HOME INVENTORY by Ian Adam74

In case of fire or theft, an up-to-date list of your possessions, generated by our C-64/C-128 program, can help minimize your loss.

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Geography students and trivia freaks alike can improve their knowledge with this C-64/C-128 quiz program about the 50 states.

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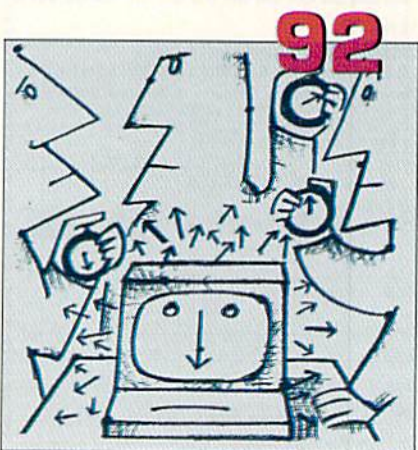
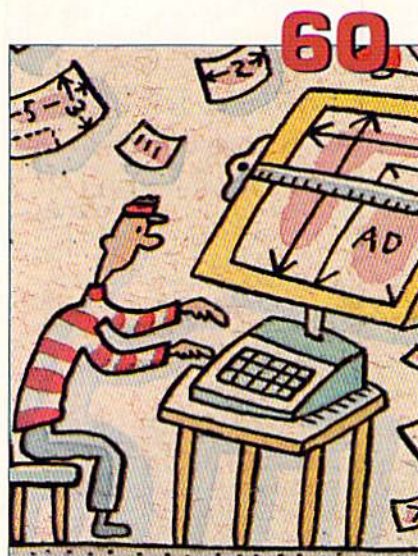
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* THIS ARTICLE CONTAINS A PROGRAM LISTING. THE PROGRAM WILL ALSO BE AVAILABLE ON THE MARCH-APRIL 1988 RERUN DISK. TO ORDER, SEE THE AD ON PAGE 81.



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MANAGING EDITOR
SWAIN PRATT

REVIEW EDITOR
BETH JALA

COPY EDITOR
PEG LE PAGE

NEW PRODUCTS EDITOR
HAROLD R. BJORNSEN

TECHNICAL MANAGER
LOU WALLACE

TECHNICAL EDITOR
TIMOTHY WALSH

ASSOCIATE EDITORS
ROBERT KODADEK; ROBERT ROCKEFELLER

ART DIRECTOR
ROSSLYN A. FRICK

ASSISTANT ART DIRECTOR
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DESIGNERS
ANNE DILLON
ROGER GOODE

PRODUCTION/ADVERTISING SUPERVISOR
RUTH BENEDICT

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SALES REPRESENTATIVES
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ADVERTISING COORDINATOR
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SALES MANAGER
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DANNA CARNEY

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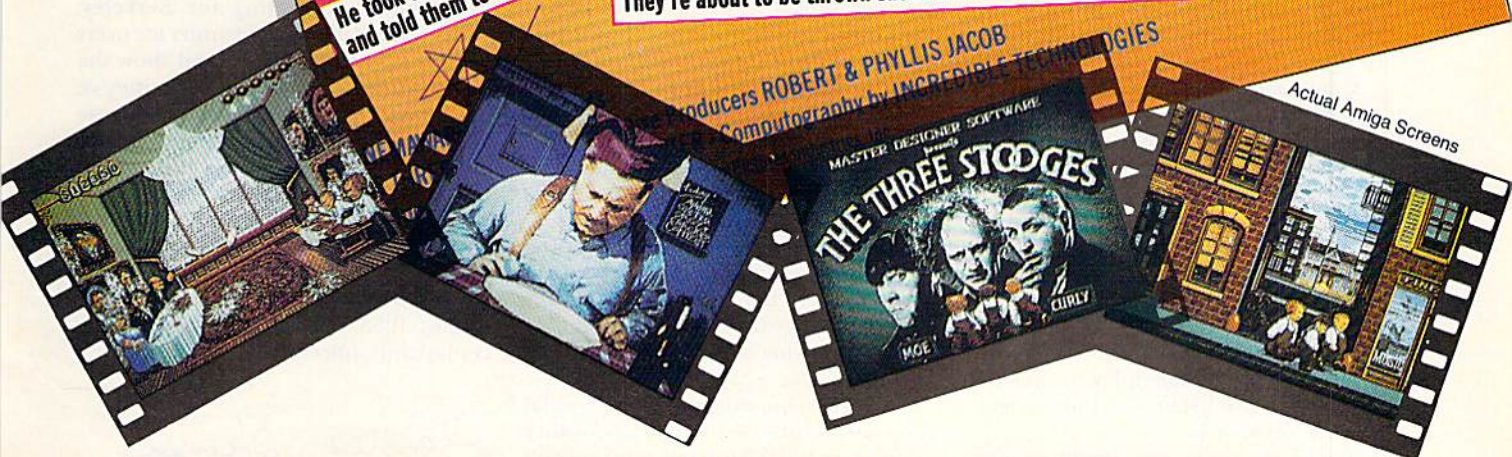


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RUNNING RUMINATIONS

When you bought your C-64, did you ever imagine that one day you would be able to do desktop publishing? Believe it!

DESKTOP PUBLISHING— BOON OR BANE?

Have you ever looked wistfully at the desktop publishing power of the Mac or IBM PC and wished it was available for the 64?

Those days of unfulfilled yearning by Commodore owners may be over at last with the emergence of the most current crop of desktop publishing software. The latest 64 software gives the machine capabilities that approach those of the more highly touted PCs.

Even so, the Commodore 64/128 is still a rudimentary desktop publishing machine that requires your time and patience to obtain the desired results. But, for a fraction of the cost, you can have multi-column, multi-page output, boasting a variety of font sizes and styles. Desktop publishing software takes you one step beyond word processing and allows you to live up your documents with wraparound text, illustrations, clip art, borders and other graphics.

With a laser printer, you can produce a resolution of 300 dots per inch, which approaches professional-quality output. But, as one of our authors in this month's issue notes, if you don't need to be so fancy, then you can get by with a dot matrix printer. We suspect that for most of our readers, this is the way they will want to go—at least until the price of laser printers comes down dramatically.

Generating documents, newsletters or flyers with your C-64 affords you quick turnaround time, low production costs and minimal staff. This last point is particularly appealing. Desktop publishing allows a one-computer-user operation to produce a document that previously would have taken several specifically skilled individuals or departments to handle. As an individual computer user, you can be writer, editor, typesetter, designer, layout person, printer and publisher—all without leaving the keyboard.

There are some who might be horrified at this prospect. Putting desktop publishing in the hands of the "un-

skilled" is like putting a scalpel in the hands of a novice and telling him to perform brain surgery. At least this is the analogy used by one reader (a commercial artist) who wrote to me about desktop publishing.

"What desktop publishing is doing," he went on to say, "is setting a new low standard for the trade. People who have never had work professionally designed or typeset are accepting this standard (300 dpi) without anything to compare it to. I'm amazed that you, being publishers, would promote this sort of nonsense."

As publishers, we do not use desktop publishing (although there are at least two other publications in the Commodore market that are done this way). We employ artists—both in-house and on a free-lance basis—to produce our magazine each month.

As Commodore computer users, we are intrigued by this innovative new application. Occasionally, we'll use desktop publishing to spice up a report to our boss with a chart or graph or two. Or create our own greeting card or jazz up a newsletter.

It appears that the artist community (notwithstanding the commercial artist above) is embracing this new technology. Many are incorporating it into their professions, where applicable. Some graphic artists have struck out on their own to set up their own businesses using this technology. Magazines devoted to this topic feature articles about design tips, layout, fonts, the best paper or printer to use, point sizes and typefaces—written by graphic artists, desktop publishing consultants or others familiar with the subject.

Desktop publishing is also sweeping the computer industry, as industry analysts predict a booming market for this new technology that promises to enable everyone to become his or her own publisher.

As in the computer industry, special skills are required to become a publisher or an artist. So desktop publishing won't magically transform every publisher into an artist, or artist into a publisher.

But it will help the non-artistic achieve results never before possible.

DESKTOP PUBLISHING CONTEST

How does your desktop publishing output stack up against that of other Commodore users? It may be better than you think. To find out for sure, why not enter the GEOS Desktop Publishing Contest?

Berkeley Softworks, the California-based manufacturer of the GEOS operating system and applications for the C-64 and C-128, has announced its GEOS Publishing Contest, which is open to all GEOS users.

The contest offers prizes in four categories in the divisions of both dot matrix printers and laser printers. The categories are Flyer (such as one-page ads, handbills, etc.); Newsletter (multi-page brochures); Poster (of sizes 200 percent larger than the original; laser printer only); and Open Design (best new uses).

Three prizes will be awarded for each of the seven areas for a total of 21 winners. Prize winners will share in a variety of winnings, including Commodore peripherals, Berkeley Softworks' software and subscriptions to *RUN* and QuantumLink.

Over a half million people own GEOS, according to Lee Llevano, vice-president of marketing for Berkeley. "This contest is an opportunity for users to let their creativity flow and show the world some of the great work they've been doing. Because contestants can use any of their GEOS-based products, and in particular geoPublish, we're expecting some fantastic entries."

The *RUN* magazine staff will judge the entries and Berkeley Softworks will award the prizes. The contest ends June 30, 1988, and the prizes will be distributed by August 1988. For more details, see the contest announcement on page 102.

Dennis Brisson

Dennis Brisson
Editor-in-Chief

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MAGIC

Turn your Qwerty keyboard into a Dvorak layout; get a sharper, clearer picture with your 1902A; type in a high-speed, screen-scroll routine.

Compiled by TIM WALSH

\$475 BOTTOM-LINE PRINTER

Getting any character to print in the bottom right-most corner of your display without the screen scrolling is no small task. My trick takes care of that problem. To make the trick work in 80-Column mode, change 35 to 75 in line 20.

```
0 REM BOTTOM LINE PRINTER - JOSEPH CHARNET
SKI :REM*110
10 PRINT "{SHFT CLR}";:FOR I=1 TO 24:PRINT:NEXT
T :REM*43
20 FOR J=1 TO 35:PRINT "{SHFT C}";:NEXT :REM*9
30 PRINT "MAGC{CRSR LF}{SHFT INST}I{HOME}"
:REM*152
—JOSEPH CHARNETSKI, DALLAS, PA
```

\$476 BRILLIANT BORDERS 64

If you change the C-64's border colors fast enough, you'll get some eye-catching results. Here's an interrupt-driven program I call Brilliant Borders 64, which cycles the border colors 60 times a second without interfering with other programs. To adjust the color-cycle rate, enter POKE 56325, followed by a number between 0 and 255.

You can get even more dramatic effects to enhance menus and prompts by entering POKE 56325, 10.

```
0 REM BRILLIANT BORDERS 64 - NATHAN JOHNSTON
N :REM*171
10 FOR I=1 TO 46:READ A:POKE 49151+I,A:NEXT
:REM*222 ▶
```

TRICK OF THE MONTH

\$477 64 HIGH-SPEED SCROLL

Regardless of whether you write spreadsheets or arcade programs, you can benefit from a high-speed screen-scroll routine that doesn't interfere with the operation of other programs.

As a horizontal screen scroll, 64 High-Speed Scroll lets you create animated title screens and menus. It uses the syntax, SYS 828,SC,C,L,D, where SC is the first screen line location (1024 to 2048) to be scrolled. Variable C represents the color memory location, L is the number of lines to be scroll-counted from the first line (1 to 25) and D is the direction of the scrolling effect.

Because it's a machine language routine, it offers rapid scrolling speed, and its location in memory doesn't interfere with the operation of Basic programs. Just give the program and its accompanying demo a try, and we think you'll find it one of the fastest-scrolling routines you've seen for the C-64.

```
0 REM 64 SCROLL ROUTINE - BRET TIMMINS
:REM*63
10 FORT=828 TO 980:READ D:POKE D,C+D:NEXT
T :REM*68
20 IF C<>22315 THEN PRINT "ERROR IN DATA STATE
MENTS":END :REM*11
30 PRINT "FORMAT:SYS 828,SC,C,L,D" :REM*33
40 DATA 32,203,3,132,251,133,252,32,203,3,
132,253,133,254,32,203,3 :REM*3
50 DATA 140,171,2,32,203,3,140,172,2,173,1
72,2,240,44,162,0,160 :REM*59
60 DATA 0,177,251,72,177,253,72,200,177,25
```

```
3,72,177,251,136,145,251,104 :REM*161
70 DATA 145,253,200,192,40,208,239,136,104
,145,253,104,145,251,32,177,3 :REM*123
80 DATA 232,236,171,2,208,215,96,162,0,160
,39,177,253,72,177,251,72 :REM*120
90 DATA 136,177,253,72,177,251,200,145,251
,104,145,253,136,16,241,200,104 :REM*207
100 DATA 145,251,104,145,253,32,177,3,232,
236,171,2,208,217,96,24,165 :REM*222
110 DATA 251,105,40,133,251,165,252,105,0,
133,252,165,253,105,40,133,253 :REM*151
120 DATA 165,254,105,0,133,254,96,32,253,1
74,32,138,173,32,247,183,96 :REM*118
```

```
0 REM SCROLL DEMO - BRET TIMMINS :REM*36
10 POKE 53281,0:PRINT CHR$(147); :REM*240
20 FORT=0 TO 11:PRINT CHR$(158);"TRY TO KEE
P YOUR EYE ON THIS{2 SPACES}" :REM*27
30 PRINT CHR$(30);"SCROLLING DEMONSTRATION.
{2 SPACES}GOOD LUCK! ":NEXT :REM*137
40 R=INT(RND(0)*23):RD=INT(RND(0)*2)
:REM*137
50 SC=1024+40*R:C=SC+54272:L=1:D=RD
:REM*161
60 FORT=0 TO 39 :REM*58
70 SYS 828,SC,C,L,D:SYS 828,SC+40,C+40,L,ABS
(1-D) :REM*137
80 NEXT:GOTO 40 :REM*165
```

—BRET M. TIMMINS, SANDY, UT

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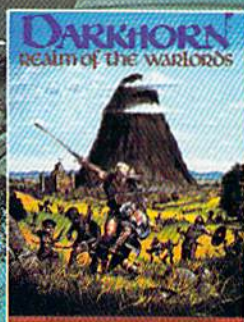
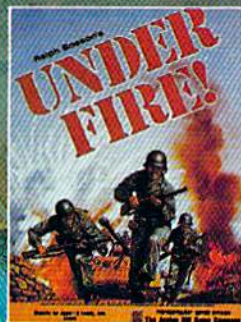
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MAGIC

```
20 DATA 173,20,3,141,0,193,173,21,3,141,1,
    193,120,169,192,141,21,3,169,40 :REM*84
30 DATA 141,20,3,88,96,120,173,0,193,141,2
    0,3,173,1,193,141,21,3,88,96,238
    :REM*139
40 DATA 32,208,108,0,193 :REM*10
```

—NATHAN JOHNSON, BRIER, WA

\$478 A BETTER WAY TO SAVE

Like any good programmer, I periodically save whatever program I'm working on. Of course, the 1541 and early 1571s suffered from a Save with Replace bug, which means that if you're a C-64 user, you avoid the SAVE "@0:filename", 8 syntax at all costs. So, rather than perform the time-consuming task of scratching and then saving a file, I save the file each time as "filename 1.0", "filename 1.1", "filename 1.2", and so forth.

If I make a major revision, I save the file with a higher number, such as "filename 3.0", to distinguish it from earlier versions. When the program is complete, I save it as "filename". I then enter: LOAD "\$filename???", 8. Next, I list the directory. If I want to delete all those earlier versions, I enter:

```
OPEN 15,8,15,"S0:filename????":CLOSE 15
```

My disk is then cleared of all the earlier, unfinished versions, with, of course, the finished version preserved.

—MICHAEL ROSS, LYNCHBURG, VA

\$479 TABLES WRITE PROTECTION

Who says you need a write-protect tab to keep your disks write-protected? My program, Tableless Write Protection, does the same thing on both the C-128 and C-64, without those sticky little annoyances.

```
0 REM TABLES WRITE PROTECT - JOSEPH CHARN
    ETSKI :REM*65
10 PRINT "{SHIFT CLR}WRITE PROTECTOR":INPUT"
    {CRSR DN}0=OFF 1=ON ";P$:N=65:IFP$="1"
    HENN=80 :REM*233
20 OPEN1,8,15,"I0:":OPEN3,8,3,"#":PRINT#1,
    "U1"3;0;18;0 :REM*13
30 FORL=2 TO166 STEP 164:PRINT#1,"B-P"3;L:
    PRINT#3,CHR$(N);:NEXT :REM*237
40 IFN=65 THEN FORM=1TO2:PRINT#1,"M-W"CHR$
    (M)CHR$(M-5*(M>1))CHR$(1)CHR$(N):NEXT
    :REM*52
50 PRINT#1,"U2"3;0;18;0:CLOSE3:PRINT#1,"UJ
    ":FORZ=1TO1000:NEXT:CLOSE1 :REM*210
```

—JOSEPH CHARNETSKI, DALLAS, PA

\$47A TWINKLE, TWINKLE, LITTLE TAB 64

It should come as no surprise to anyone that the C-64's Basic 2.0 doesn't provide a vertical tab command for vertically positioning the cursor on the screen. I've written Tabs with a Twinkle 64 to provide that much-needed vertical tab command and an optional horizontal tab command. The program returns a Syntax error when maximum values are exceeded. The command's syntax appears as:

```
SYS VT, ROW, (COLUMN)
```

where the horizontal column is optional. While 49152 is the default address, the code is relocatable to other locations.

Tabs with a Twinkle 64 earned its name because it also contains a sample program that places twinkling stars around the screen.

```
0 REM TABS WITH A TWINKLE 64 - FRANK VAN D
    EVENTER :REM*240
10 REM FORMAT: SYS VT,ROW [,COLUMN]:ROW =
    0 TO 24: COLUMN = 0 TO 39 (OPTIONAL)
    :REM*9
20 VT=49152 :REM*55
30 FORX=0TO45:READA:POKEVT+X,A:NEXT:REM*68
40 DATA 169,1,133,190,32,253,174,32,158,17
    3,32,170,177,198,190,48,13,132 :REM*211
50 DATA 191,32,121,0,240,4,201,58,208,232,
    160,0,192,40,176,9,166,191,224 :REM*108
60 DATA 25,176,3,76,240,255,76,8,175
    :REM*191
100 N=4:REM TWINKLE DEMO - TRY CHANGING TH
    E VALUE OF N :REM*98
110 X=RND(-TI):PRINT "{SHIFT CLR}{CTRL 2}":P
    OKE53280,0:POKE53281,0 :REM*108
120 DIM P$(N):P$(0)="*":FOR X=1TON:P$(X)="
    {9 CRSR RTs} {9 CRSR RTs} {9 CRSR RTs}
    } :NEXT :REM*246
130 A=23:B=40:FOR X=1TO2 STEP0 :REM*32
140 SYS VT,RND(X)*A+X,RND(X)*B :REM*149
150 PRINT P$(RND(X)*N); :REM*217
160 NEXT :REM*35
```

—FRANK VAN DEVENTER, GROSSE POINTE FARMS, MI

\$47B TABS WITH A TWINKLE 128

No, C-128 owners, you weren't forgotten. Like the C-64, Basic 7.0 on the C-128 also lacks a vertical tab command. Implementing a C-128 Tabs with a Twinkle is much easier because no machine language routines are necessary.

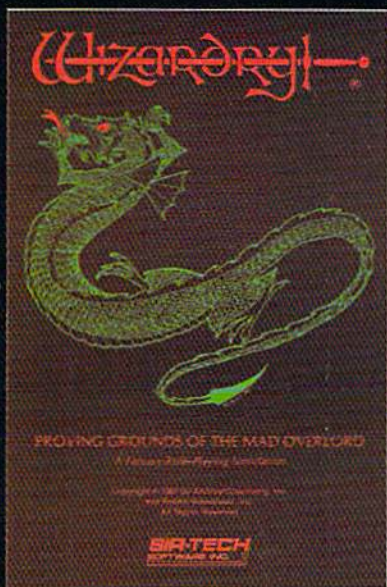
The program is the same as above, except line 20 has been changed to VT=DEC("FFF0"), lines 30 through 60 have been deleted and P\$(X) now equals "".

Use a value of 39 for B in line 130 for 40-Column mode, and if you're using 80-Column mode, change it to 79.

```
0 REM TABS WITH A TWINKLE 128 - FRANK VAN
    DEVENTER :REM*216
10 REM FORMAT: SYS VT,ROW [,COLUMN]:ROW =
    0 TO 24: COLUMN = 0 TO 39 (OPTIONAL)
    :REM*9
20 VT=DEC("FFF0") :REM*193
100 N= 4:REM TWINKLE DEMO - TRY CHANGING T
    HE VALUE OF N :REM*98
110 X=RND(-TI):PRINT "{SHIFT CLR}{CTRL 2}":P
    OKE53280,0:POKE53281,0 :REM*108
120 DIM P$(N):P$(0)="*":FOR X=1TON:P$(X)="
    " :NEXT :REM*134
130 A=23:B=39:FOR X=1TO2 STEP0:REM USE B=7
    9 FOR 80 COLUMN MODE :REM*180
140 SYS VT,0,RND(X)*A+X,RND(X)*B :REM*57
150 PRINT P$(RND(X)*N); :REM*217
160 NEXT :REM*35
```

—FRANK VAN DEVENTER, GROSSE POINTE FARMS, MI ▶

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\$47C DVORAK KEYBOARD 64

Nearly every home computer keyboard uses the Qwerty key configuration, which is inconvenient for those accustomed to typing with a Dvorak keyboard. Dvorak Keyboard 64 alters your C-64 keyboard to the Dvorak configuration.

Pressing run-stop/restore brings back the standard Qwerty keyboard. To re-enable the Dvorak keyboard after pressing run-stop/restore, enter POKE 1,53. Even if you're not a Dvorak-keyboard user, give my program a try. Who knows, you might prefer it to the Qwerty configuration!

```

0 REM C-64 DVORAK KEYBOARD - RICHARD PENN
                                :REM*46
10 A=88:B=255:C=56334:D=65535:POKE1,55:POK
   EC,PEEK(C)AND(B-1)          :REM*84
20 POKE A+7,0:POKEA+8,160:POKEA+2,B:POKEA+
   3,B:POKEA,B:POKEA+1,B:SYS41919 :REM*227
30 POKED,PEEK(D):POKEC,PEEK(C)OR1:POKEC-9,
   56:POKE1,53                 :REM*30
40 FORT=60289 TO 60352:READD:POKET,D:CK=CK
   +D:NEXT                     :REM*12
50 IF CK <> 3990THENPRINT"ERROR IN DATA.":
   END                          :REM*154
60 PRINTCHR$(147):PRINTTAB(9)"/ , . P Y F
   G C R L ; =":PRINT         :REM*77
70 PRINTTAB(9)"A O E U I D H T N S -":PRIN
   T:PRINTTAB(9)" ' Q J K X B M W V Z"
                                :REM*105
80 DATA 20,13,29,136,133,134,135,17,51,44,
   65,52,39,79,46,1,53,80,69,54 :REM*91
90 DATA 74,85,89,81,55,70,73,56,88,68,71,7
   5,57,67,72,48,77,84,82,66,43,76:REM*153
100 DATA 78,45,86,83,59,87,92,61,45,19,1,6
   1,94,90,49,95,4,50,32,2,47,3 :REM*16

```

—RICHARD PENN, MONTREAL, QUEBEC, CANADA

\$47D EFFECTIVE JOYSTICK

Surprisingly, short and effective joystick routines written in machine language for the C-64 are few and far between. My All-Purpose 64 Joystick routine provides programmers with a byte-size program that can be easily implemented into games and other programs.

Summoned with SYS 830, the All-Purpose 64 Joystick routine scans computer location 900 until a value ranging from 1 to 5 is detected, indicating either that the joystick was moved or the fire-button was pressed.

To help illustrate the effectiveness of the joystick routine, I included a short game (use a joystick in port 2) for you to fill in the entire screen with blocks of reversed space characters. It's frustrating, because the block tends to disappear as the screen becomes filled, and fun, as you try to beat your best time. When you've either filled in the screen or given up, press the fire-button to clear the screen and start again.

```

0 REM 64 JOYSTICK CONTROL - JAMES MCCONNELL
   L                            :REM*211
10 PRINT" {SHT CLR} ":POKE53281,1:POKE53280
   ,1:X=20:Y=13:Z=1024:A=160:B=40:C=32:GOS
   UB000                       :REM*125
20 POKEZ+X+B*Y,A               :REM*56
30 SYS830: ON PEEK(900) GOTO 50,60,80,100,
   120                          :REM*10

```

```

40 GOTO20                      :REM*164
50 POKE53281,INT(RND(1)*12)+1:POKE53280,IN
   T(RND(1)*14)+1:PRINTCHR$(147):GOTO 20
                                :REM*165
60 Y=Y+1:IFY>24THENY=24       :REM*11
70 GOTO20                      :REM*194
80 X=X-1:IFX<.THENX=.         :REM*189
90 GOTO20                      :REM*214
100 Y=Y-1:IFY<.THENY=.        :REM*145
110 GOTO20                     :REM*234
120 X=X+1:IF X>39 THENX=39    :REM*55
130 GOTO20                     :REM*254
800 FORI=830 TO 890: READD:POKEI,D:NEXT:RE
   TURN                        :REM*55
810 DATA 169,0,141,132,3,173,0,220,41,31,2
   01,15,240,17,201,29,240,19,201,27,240
                                :REM*71
820 DATA 21,201,30,240,23,201,23,240,25,96
   ,169,1,141,132,3,96,169,2,141,132,3
                                :REM*40
830 DATA 96,169,3,141,132,3,96,169,4,141,1
   32,3,96,169,5,141,132,3,96 :REM*63

```

—JAMES F. MCCONNELL, MARATHON, NY

\$47E CLR-BOTTOM KEY

Like many Commodore users, I've often wished there was a key with an effect like that of the clr-home key, except moving the cursor to the bottom of the screen, rather than to the top. Then, when I want to list a program, the first 25 lines would scroll by slowly while I hold down the control key, instead of scrolling by quickly to fill the screen.

My desire for such a key resulted in Clear-Bottom Key, a short C-64 program written entirely in machine language. After you load and run this program, pressing the F1 key instantly moves the cursor to the lower-left corner of the screen while leaving the screen display undisturbed.

Should you want to move the cursor to that same location and clear the screen in the process, simply press F3. The program is designed to be run before you begin programming, so you'll be able to access it at any time.

```

0 REM 64 CLEAR TO BOTTOM - KENNY LAWSON
                                :REM*72
10 SA=679:FORX=SA TO SA+39:READA:CK=CK+A:P
   OKE X,A:NEXT                :REM*226
20 IF CK<>4369THENPRINT"ERROR IN DATA":END
                                :REM*38
30 SYSSA:PRINTCHR$(147)"F1 - MOVES CURSOR
   TO BOTTOM"                   :REM*244
35 PRINT"F3 - CLEARS & MOVES CURSOR TO BOT
   TOM"                         :REM*66
40 DATA 120,169,180,141,20,3,169,2,141,21,
   3,88,96,165,203,201,4,240,10,201:REM*65
50 DATA 5,240,3,76,49,234,32,68,229,24,162
   ,24,160,0,32,240,255,76,49,234 :REM*139

```

—KENNY LAWSON, INDIANAPOLIS, IN

\$47F FASTER HIGH-TO-LOW BYTE

As most programmers and programmers-to-be already know, many C-64 and C-128 programs use algorithms re-

Continued on p. 20.

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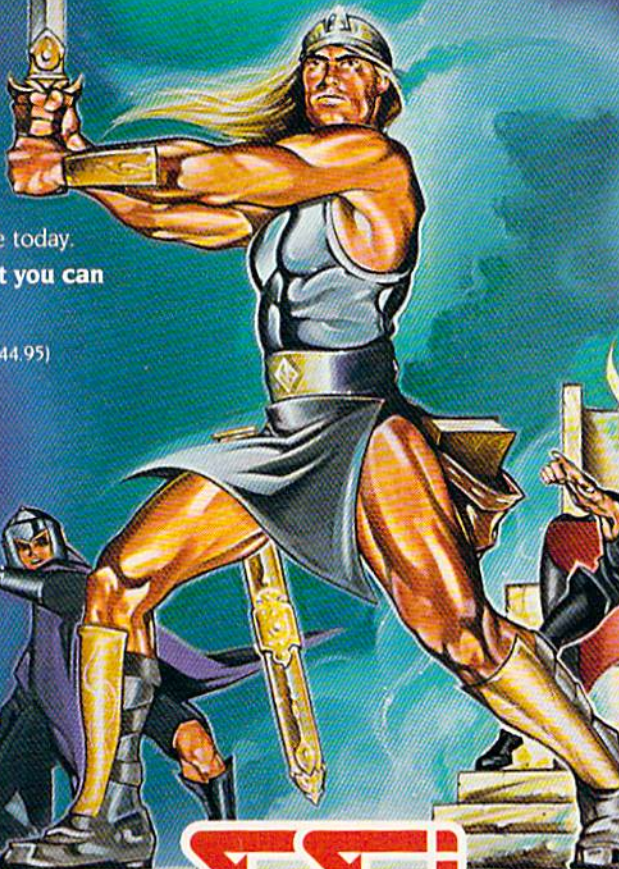
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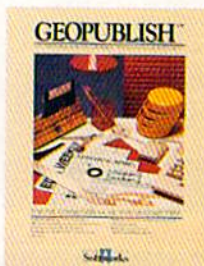
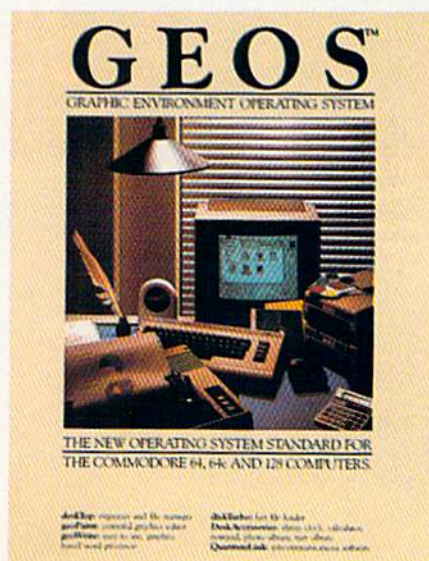
Time Warps Discovered

With GEOS, everything speeds up. Including you. Because the system is incredibly fast and ridiculously easy to learn: GEOS shows you options, you point at what you want and click your mouse.

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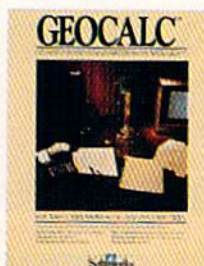
Now, once you know that, you know how every other GEOS application works, too. Like geoWrite, which lets you punch up paragraphs with five different fonts. Or geoPaint, which dresses up diagrams with an arsenal of artistic appliances. Both are built

right into the GEOS disk. And when you put them together with geoWrite Workshop's LaserWriter compatibility, every new GEOS document comes out looking like an old master.



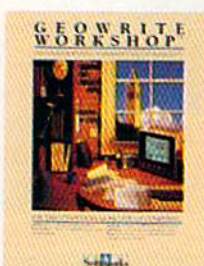
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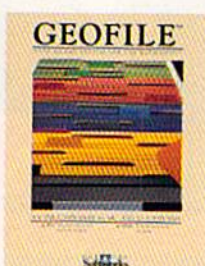
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The GEOS-compatible, number-crunching spreadsheet for tracking and analyzing numerical data. Create your own formulas, perform calculations for anything from simple geometry to "what if" cost projections.



GEOWRITE WORKSHOP

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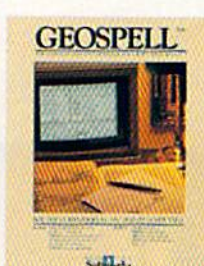
GEOFILE

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Avoid Old Age Forever!

But how does all this affect your Commodore's future? Well, it means you don't ever have to worry about it becoming obsolete, because there are all kinds

of GEOS applications for almost every purpose.

You can finally get organized with geoFile, the database that searches, finds and lists almost anything that you want to search, find and list. You can manipulate mathematics or figure out financial formulas with geoCalc. If writing's your style, geoWrite Workshop can help you hammer out any kind of report. And geoPublish is the desktop publishing program that is still making headlines throughout the entire industry.

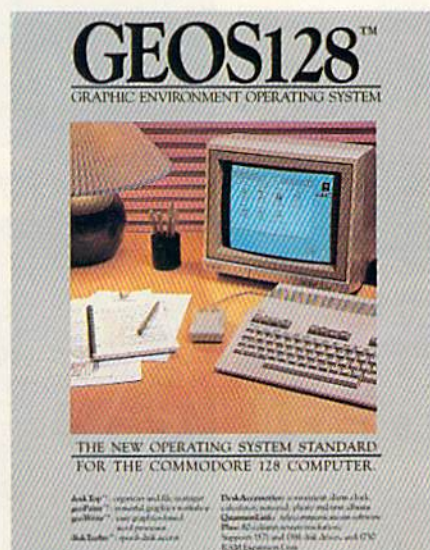
Of course, that's merely a sampling of what the GEOS environment has to offer. Because even as you read this, legions of our engineers are hard at work, developing even more GEOS applications for even more uses.

All of which means you get a whole lot more out of your Commodore than you ever bargained for. And while that may not actually keep your Commodore from getting older, that's certainly something it could live with for a long, long time.



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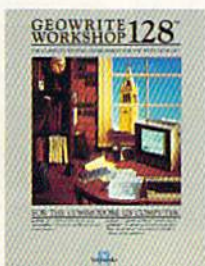
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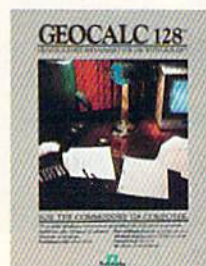
GEOFILE 128

NEW The GEOS-compatible database manager that sorts, edits and prioritizes whatever data you feed it. You fill out the "input form," specify your command, and geoFile takes it from there. 128 version features full 80 column screen. Due soon!



GEOWRITE WORKSHOP 128

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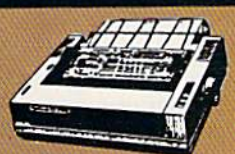
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From p. 14.

quiring that the addresses of memory locations be converted from a low-byte/high-byte configuration to high-byte/low-byte. The most common equation used on both computers to perform this conversion is:

HB=INT(LOC/256):LB=LOC-(HB*256)

However, the C-64 and C-128 will perform the byte conversion almost 10 percent faster if you use this equation:

HB=INT(LOC/256):LB=LOC and 255

To prove it, type in and run the following program, which displays the amount of time, in jiffies (1/60th second), required to perform 1000 calculations, using both the above methods.

```
0 REM FASTER HI-BYTE TO LO-BYTE - ARIEL SA
  LOMON                                :REM*66
10 TI$="00000000":FORI= 0 TO 999      :REM*52
20 HB=INT(I/256):LB=I-(HB*256):NEXT
                                           :REM*135
30 T1=TI:PRINT"OLD METHOD OF CALCULATIONS
  TOOK"TI"JIFFIES."                    :REM*205
40 TI$="00000000":FORI= 0 TO 999      :REM*202
50 HB=INT(I/256):LB=I AND 255:NEXT:REM*235
60 T2=TI:PRINT"NEW METHOD OF CALCULATIONS
  TOOK"TI"JIFFIES."                    :REM*24
70 PRINT"NEW METHOD IS"ABS(T2/T1-1)*100"%
  FASTER                                :REM*23
```

—ARIEL SALOMON, RICHMOND, CA

\$480 ATTENTION: C-128/1902A OWNERS!

If you use a Commodore 1902A video monitor with your C-128, here's a way to get a clearer and cleaner screen image by increasing the resolution of 80-Column mode:

POKE 54784,9:POKE54785,232

Since I'm a confirmed RUN Script 128 user, I found the default resolution a little hard on my eyes after an hour or so. So now I include the above Pokes within the boot programs of all my 80-column programs.

—JOHN RYAN, BILOXI, MS

\$481 PERPETUAL 64 MEMORY DISPLAY

Here's a little interrupt-driven wedge that keeps track of how many free bytes of RAM are available in your computer while you run other C-64 programs. A hexadecimal number displayed in the upper-left corner of the screen is continually updated as the program in memory is altered by either the input or deletion of data. You'll find my program especially helpful when you're using large programs, such as databases, to prevent Out of Memory errors.

```
0 REM RAM DISPLAY - DOROTHY ZACHARY
                                           :REM*244
10 FOR AD=49152 TO 49259:READ DA:POKEAD,DA
  :CK=CK+DA:NEXT                        :REM*242
11 IFCK<>9682THENPRINT"ERROR IN DATA":END
                                           :REM*61
12 SYS49247:NEW                          :REM*114
20 DATA 56,165,52,229,50,170,74,74,74,74,1
  68,185,78,192,141,0,4,169,1,141:REM*200
30 DATA 0,216,138,41,15,168,185,78,192,141
  ,1,4,169,1,141,1,216,56,165,51 :REM*46
40 DATA 229,49,170,74,74,74,168,185,78,
```

```
192,141,2,4,169,1,141,2,216,138 :REM*65
50 DATA 41,15,168,185,78,192,141,3,4,169,1
  ,141,3,216,76,49,234,0,48,49,50:REM*183
60 DATA 51,52,53,54,55,56,57,1,2,3,4,5,6,0
  ,120,169,192,141,21,3,169,0,141:REM*197
70 DATA 20,3,88,96                      :REM*217
```

—DOROTHY L. ZACHARY, RICHARDSON, TX

\$482 C-128 SPECIAL INPUT

It's unfortunate that Basic 7.0 on the C-128 doesn't accept strings containing commas or semi-colons. For example, in the Basic 7.0 program below:

```
100 PRINT "PLEASE ENTER DATE:": INPUT DT$
110 PRINT DT$
```

when the "Please enter date:" prompt appears, and you enter: July 4, 1988, the program will print an ?Extra Ignored message to the screen. The ?Extra Ignored error was generated by the colon in line 100, so the date (which is INPUT DT\$ following the colon) wasn't printed to the screen. My program cures this problem by installing a small wedge in memory that would allow line 110 to print the date.

While my program includes a demonstration showing how it works, incorporating it into programs of your own design is clearly outlined by examining the listing. Programmers can use the routine to make bullet-proof input routines for C-128 databases, spreadsheets and any other programs that require the input of data.

```
0 REM SPECIAL C-128 INPUT - JERRY SPICER
                                           :REM*166
10 FORX=4864 TO 4893:READ D:POKE X,D:NEXT:
  GOTO110                                :REM*31
20 DATA 169,0,160,0,153,0,2,200,192,30,208
  ,248,32,147,79,160,0,185,0,2 :REM*150
30 DATA 153,0,20,201,0,200,208,245,96,1
                                           :REM*54
40 :                                     :REM*98
50 REM SUBROUTINE STARTS LINE 60 :REM*103
60 NMS$="":SYS4864                       :REM*15
70 FORX=5120 TO 5149:X$=CHR$(PEEK(X))
                                           :REM*195
80 NM$=NM$+X$:NEXT                      :REM*57
90 RETURN                                :REM*232
100 REM SAMPLE PROGRAM                  :REM*180
110 REM START YOUR PROGRAM HERE :REM*240
120 PRINT"ENTER NM$ INCLUDING COMMAS & COL
  ONS: ";:GOSUB 60                      :REM*5
130 PRINT"NM$= "NM$                    :REM*213
140 GOTO 110                            :REM*200
```

—JERRY SPICER, AMES, IA

\$483 YET ANOTHER USE FOR RUN SCRIPT

If you're one of the fortunate users of the latest 2.56 version of RUN Script 64 or 128 found in RUN's Productivity Pak III, you also have access to a phenomenal disk cataloger.

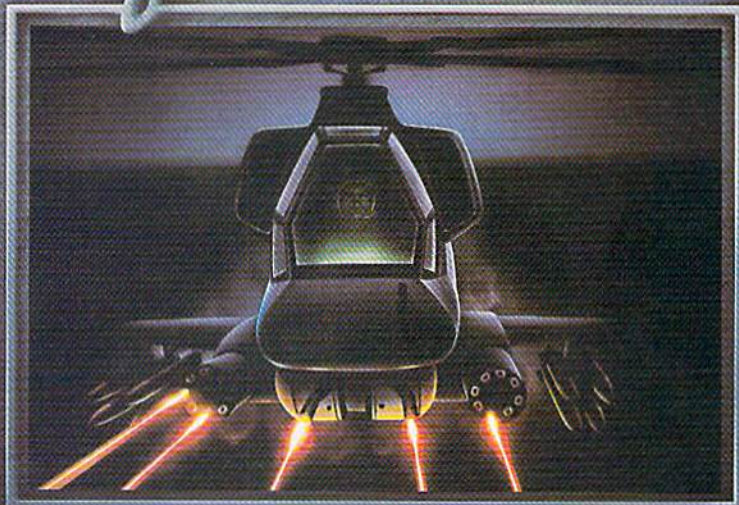
Once you've filled up several disks with word processing files, programs, and those invaluable Magic tricks, simply boot up a copy of RUN Script 2.56, load in the directory (F1,\$,\$) from the first disk that you want to catalog and press the restore key. Your directory is now contained in RUN Script's text area.

If you want to remove the numbers that signify the number of disk blocks that each file occupies, cursor down through

"You're pond scum, McGibbits!"

THE MAD LEADER

Infiltrator II



by Chris Gray

Fly your Gizmo™ DHX-1 Attack Chopper to three totally new, totally challenging ground missions. Can you hack it, Johnny "Jimbo" McGibbits?

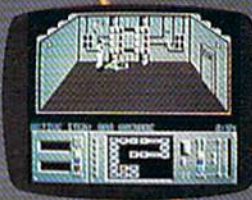


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Step into Jimbo Baby's boots and get back into the action—where action means neutralizing a deadly nerve gas, nullifying a few neutron bombs and subtracting one



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MAGIC

the document and manually remove them. To remove the PRG-, SEQ- or USR-file identifiers following each filename, use RUN Script's Search with Replace feature: Press F4 twice in rapid succession and, at the Search for? prompt, enter "prg", "seq" or "usr" (note the space in front of each file identifier). Then press return at the Replace with? prompt. This exercise in Search with Replace instantly removes the identifier from each filename.

Now, position your cursor after each filename and enter any notes pertaining to the file, such as whether it is a program, one of RUN's Magic tricks, or a word processing, spreadsheet or database file.

At this point, remove the Blocks Free statement at the end of the directory and save this list of filenames to disk. Finally, you should print out a copy to keep with the disk. Place your printer into Compressed mode (137 characters per inch) and place the command.pw137 at the beginning of the document. Keeping the printout compressed in this manner allows all but the longest of file notes to occupy only one line each. Slip the printout into the disk protector along with the disk for safe keeping and future reference. There you have it; a complete, easy-to-use disk cataloger!

—TIM WALSH, RUN STAFF

\$484 RUN's CHECKSUM ENHANCEMENT

I've developed a modification to RUN's Checksum program that prints the checksum number in the upper left-hand corner (home position) of the screen. This works in 64 mode and in 128 mode on both 40- and 80-column screens. Moreover, the current cursor location is restored after the checksum is printed to the screen, so your cursor is right where it should be to enter the next line of the program listing.

Just add lines 31-33 and 180-190 to the original RUN's Checksum listing, and be sure to save it to disk before running.

```

Ø REM CHECKSUM IN HOME POSITION - BOB KODA
DEK                                     :REM*2Ø5
31 FOR P=I TO I+28:READ BY:CS=CS+BY:POKE S
   A+P,BY:NEXT                         :REM*3Ø
32 IF CS<>37ØØ THEN PRINT"DATA ERROR IN LI
   NES 18Ø-19Ø":END                   :REM*67
33 POKE SA+11Ø,24Ø:POKE SA+111,38:POKE SA+
   14Ø,234                             :REM*222
18Ø DATA 1Ø4,17Ø,24,32,24Ø,255,1Ø4,168,96,
   56,32,24Ø,255,138,72,152,72       :REM*16
19Ø DATA 24,162,Ø,16Ø,Ø,32,24Ø,255,169,42,
   2Ø8,198                             :REM*212

```

—BOB KODADEK, ASTON, PA ■

Magic is the original column of reader-submitted hints and tips. Each month we present brief, useful computer tricks to help you get the most out of your Commodore system—whether you're a beginning or advanced computerist, a C-64 or C-128 owner. Magic is a forum for RUN's imaginative and inventive readers to share their programming tips, brief software or hardware modifications, shortcuts or items of general interest. If you have an idea to make computing easier, faster, more exciting and enjoyable, send it to:

Magic
RUN Magazine
80 Elm St.
Peterborough, NH 03458

RUN pays \$10 to \$40 for each trick published in the column. A payment of \$50 and a Magic Contributor T-shirt is awarded for the Trick of the Month. To be eligible, the Trick of the Month must be for the C-64 or the C-64 and C-128. Tricks for C-128 mode only are not eligible for Trick of the Month.

If you'd like a copy of the latest edition of RUN's Magic Trick Writer's Guide, send your request with a self-addressed, stamped, business-size envelope; you'll receive a copy in two or three weeks.

MEGA-MAGIC

Make your menu displays and introductions light up the screen.

DISPLAY FRAME ANIMATION

Become the envy of budding and experienced programmers alike with this title animation program. By rapidly cycling through a series of character colors, Display Frame Animation makes your menus and introductions come alive with neon screen animation rarely seen outside of commercial entertainment software.

As written, Display Frame Animation displays a default greeting, but you can substitute your own words in variable FL\$(x), where x is the number of lines down from the top of the display title.

While the default colors in line 60060 already create a colorful animated border, you can substitute red, orange and yellow to produce a glowing neon effect. To increase or decrease the speed of color cycling, change the value of FZ in line 60230.

Once you've typed in Display Frame Animation and saved it to disk, you can add it as a subroutine to your own

programs. Just follow these steps:

1. Load your program into the computer.
2. In Direct mode, type:

```

L = PEEK(45) + PEEK(46)*256 - 2:POKE44,L:256:POKE43,
L - PEEK(44)*256 <return>

```

3. Now load Display Frame Animation and enter:

```

POKE43,1:POKE44,8 <return>

```

4. Finally, remove the REM in front of the Return statement in line 60250. [R]

—JOSEPH R. CHARNETSKI, DALLAS, PA

Listing 1. Display Frame Animation program.

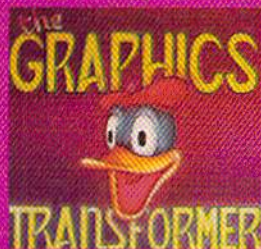
```

6ØØØØ REM 64/128 TITLE ANIMATOR - JOE CHAR
NETSKI                                     :REM*8 ►

```

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THE GRAPHICS TRANSFORMER - \$34.95
(C-64/C-128)
★★★★★ (Megagalactic Software Weekly)

THE GRAPHICS TRANSFORMER is the greatest graphics utility since the release of OMNI-PAINT. It allows you to quickly and easily convert between ALL of the popular drawing programs (over 25 supported), and does other neat things as well. I highly recommend it to all software consumers.



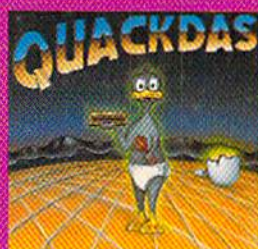
LEXCHECK - \$29.95
(Amiga)
\$ \$ \$ \$ \$ (Business Software & Galaxian Report)

[LexCheck] will help you do [everything] that you need to do with your [word processing] programs. It will [rapidly spellcheck] all of your documents [with its 100,000 word dictionary]. I would [buy two of them] if I were you.



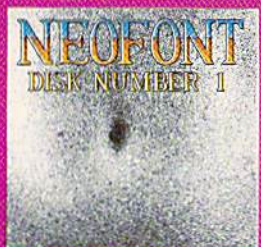
MOVING PICTURES - \$29.95
(C-64/C-128)
★★★★★ (Transmission - The Intelligence Journal)

Chris Zamara & Nick Sullivan (of Transactor Magazine, Earth) did it again with the most comprehensive animation program yet available for any silicon based unit. Unfortunately, you don't have to be intelligent to use it.



QUACKDAS - \$39.95
(C-64/C-128 mode/1541/1571 mode)
★★★★★ (Operating Systems & Intergalactic Insight)

Finally a cartridge that speeds up SAVE's as well as LOAD's (fast format, included FREE!). QUACKDAS comes complete and ready to use with its blinding speed, built in DOS wedge, sector editor, and a token disk copier! Definitely something to write home about.



NEOFONT - \$29.95
(D-64/C-128/GEOS compatible)
+ + + + + (Crabnebula Computer Art & Design)

NEOFONT is the most artistic and well designed collection of fonts for the GEOS operating system. It contains over 23 different fonts, that are simply sublime. Do yourself a favor, and appreciate some REAL art.



1541 AUNTIE BUMP BOARD - \$49.95
(C1541 compatible)
★★★★★ (Boyt Magazine)

It's surprising that the generic mortal species hadn't come up with a device to ELIMINATE the damaging knock on the 1541 disk drive before now. After looking at the circuit board, I've come to the conclusion that they did it almost as good as the Vorkons could've.



ENTROPY - \$29.95
(Amiga/C-64/C-128 compatible)
? ? ? ? ? (The Hitchhiker's Guide to Galaxian Software)

an interesting implementation of an adventure game. It's hard to believe that so many abstract perversions can be contained in one place. ENTROPY is destined to become another milestone in the realm of interactive fiction.



THE MANDELBROT POSTER - \$9.95
(compatible)
★★★★★ (Fractagalactic & Surfer Weekly)

what can you say about a software company that markets posters. The fabled Mandelbrot Set is now captured on paper (where available - some restrictions might apply), using the highest resolution ever experienced to date.

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CDA

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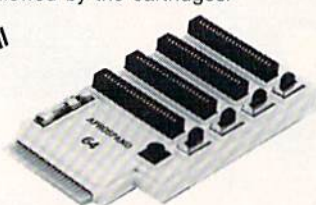
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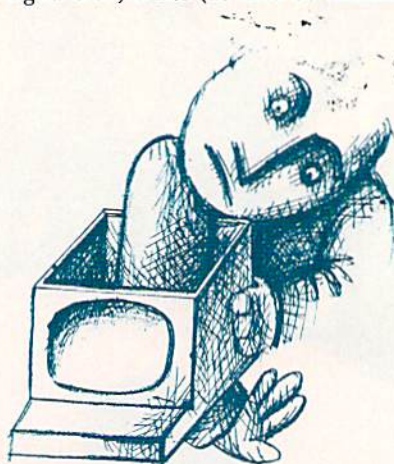
MEGA - MAGIC

```

60010 FD=8:DIM FL$(FD) :REM*216
60020 FL$(1)="MAGICAL DISPLAY" :REM*82
60030 FL$(4)="DISPLAY FRAME ANIMATOR" :REM*147
60040 FL$(6)=" BY JOE CHARNETSKI :REM*231
60060 FC$(1)="{CTRL 4}":FC$(2)="{CTRL 5}":
FC$(3)="{CTRL 7}" :REM*215
60070 FORI=1TOFD:FS=LEN(FL$(I)):IFFH<FSTHE
NFH=FS :REM*85
60080 NEXT: FH=FH+4:FV=INT((25-FD-2)/2) :REM*104
60090 FOR I=1TO(40-FH)/2:FX$=FX$+"{CRSR RT
}:NEXT :REM*81
60100 IFFV>2THENFORI=1TOFV-1:FY$=FY$+"{CRS
R DN}":NEXT :REM*177
60110 FORI=1TO3:READF1,F2,F3,F4 :REM*113
60120 FORJ=1TOFH:F5$(I)=F5$(I)+CHR$(F1) :REM*200
60130 F7$(I)=F7$(I)+CHR$(F3)+"{2 CRSR LFs}
":NEXT :REM*125
60140 FORJ=1TOFD+2:F6$(I)=F6$(I)+"{CRSR DN
}{CRSR LF}"+CHR$(F2) :REM*203
60150 F8$(I)=F8$(I)+"{CRSR UP}"+CHR$(F4)+"
{CRSR LF}":NEXT:NEXT :REM*23
60160 FORI=1TO3:FA$(I)="{HOME}"+FY$+FX$+FC
$(I)+F5$(I)+F6$(I) :REM*170
60170 FB$(I)="{CRSR DN}{CRSR LF}"+F7$(I)+"
{CRSR RT}"+F8$(I):NEXT :REM*94
60180 : :REM*165
60190 POKE53280,2:POKE53281,0 :REM*141
60200 PRINT"{SHFT CLR}{CRSR DN}{COMD 8}"FY
$ :REM*60
60210 FORI=1TOFD:PRINTTAB(20-LEN(FL$(I))/2
)FL$(I):NEXT :REM*217
60220 FORI= 1 TO 3:PRINTFA$(I)FB$(I) :REM*71
60230 FORFZ=1TO25:NEXT:NEXT :REM*183
60240 GETA$:IFA$=""GOTO60220 :REM*149
60250 PRINT"{SHFT CLR}{CTRL 2}":REM RETURN :REM*170
60260 DATA 164,167,163,165,175,170,183,181
,185,182,184,161 :REM*194 ■

```

RUN it right: C-64; C-128 (40- and 80-Column modes)



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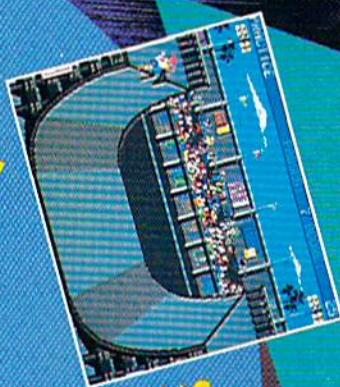


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NEWS AND NEW PRODUCTS

Check out the new Star Trek graphics adventure, career possibilities in computers, and an unusual contest at the Computer Museum in Boston.

Compiled by HAROLD R. BJORNSEN

BOLDLY GO...

NEW YORK—Simon & Schuster Software (One Gulf + Western Plaza, New York, NY 10023) has released *Star Trek: The Rebel Universe*, the company's third in its series of *Star Trek* graphics adventures for the C-64.

The United Federation of Planets is faced with its greatest challenge ever. An insidious mind-control scheme by Klingon forces is turning loyal Federation members into violent rebels. It is your five-year mission to lead the crew of the starship *Enterprise* through the perilous Quarantine Zone, where you'll encounter hostile Klingons, Romulans and rebel Federation vessels. If you fail to stop this rebellion, you will suffer the penalty of eternal exile for the *Enterprise* and its crew. The future of the Federation lies in your hands for \$29.95. Joy-stick required.

Check Reader Service number 400.

MODEMPTION

ALBANY, OR—The SupraModem 2400, a new modem for the C-64 from Supra Corp. (1133 Commercial Way, Al-

bany, OR 97321), supports asynchronous operation at 300, 1200 and 2400 baud. The unit features 100 percent AT command compatibility, autoanswer/autodial (tone or pulse) and a programmable volume speaker. An operator's manual, quick-reference card, power adapter and telephone cable are included, and an RS-232C interface and cable are required for operation. It's available for \$179.95.

Check Reader Service number 401.

COMPUTER CAREER CONSULTANT

BLUE RIDGE SUMMIT, PA—*The Complete Computer Career Guide* assesses 25 major computer career options, ranging from data entry operator to hardware designer.

Based on interviews with workers in the computer field, the 256-page book examines real-life job requirements, benefits and drawbacks. Coverage includes job descriptions, educational and experience requirements, salary ranges, advancement opportunities, travel requirements, job environment, working

hours, personality requirements and where to get started on a successful job search. With 39 illustrations, the book is available in paperback (\$12.60) and hardcover (\$18.95) from Tab Books, PO Box 40, Blue Ridge Summit, PA 17214.

Check Reader Service number 407.

CONNECTIONS

CLEVELAND—Micro Development (PO Box 5872, Cleveland, OH 44101) has developed a serial data link cable that lets you connect two C-64 user ports together for telecommunications projects, interactive games or anything requiring the use of two computers. Installation and programming instructions are included with the ten-foot cable for the price of \$25, and longer cables are available.

Check Reader Service number 402.

HOT SHOT PLUS

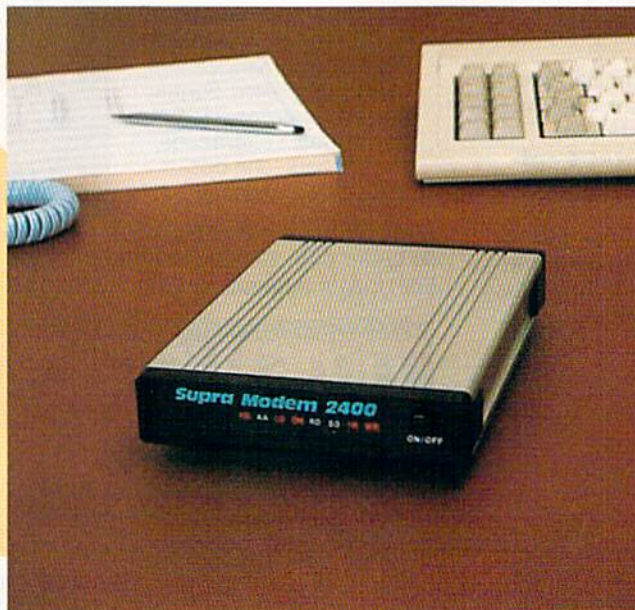
SEATTLE—The Hot Shot Plus, a graphics printer interface for the C-64 and C-128, comes with an internal 8K RAM that you can expand to 64K RAM. Two sets of DIP switches let you select and control the interface's functions. Six Near Letter Quality fonts are built into the unit's 32K ROM, and you can design additional fonts. A disk of fonts is included in the package. You can convert standard graphics printouts into double or quadruple density graphics suitable for pasteup or reproduction. Hot Shot Plus is available for \$99.95 from Omnitronix, 760 Harrison St., Seattle, WA 98109.

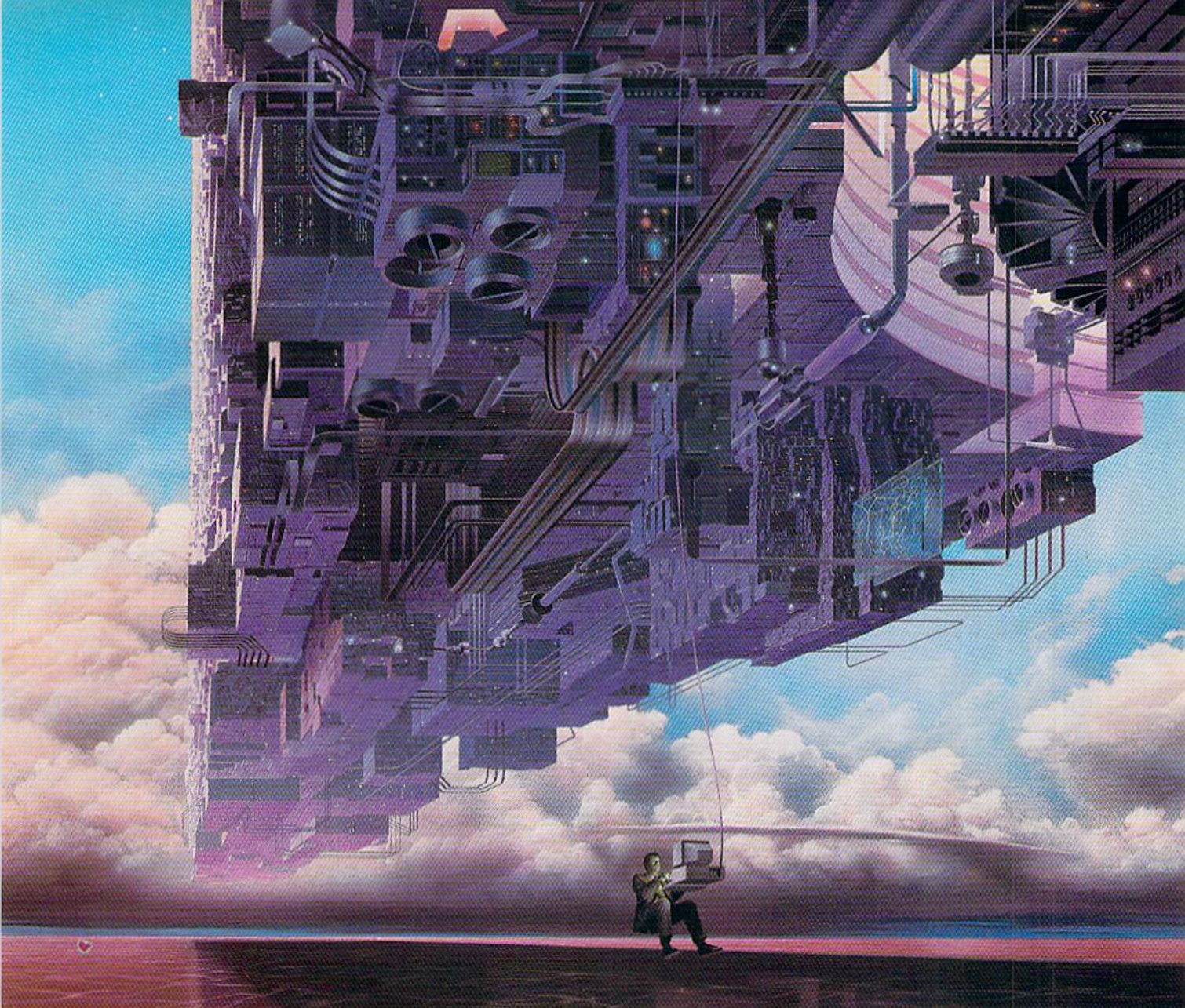
Check Reader Service number 405.

EASY DISK MANAGEMENT

INDIANAPOLIS—Howard W. Sams & Co. (4300 West 62nd St., Indianapolis, IN 46268) has published *Hard Disk Management Techniques*. Each technique is explained to help experienced business professionals become proficient in managing their hard disk environment. Among the topics the 250-page tutorial covers are hard disks and DOS.

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NEW PRODUCTS

and maintenance, setting up and organizing a hard disk, and hard disk managers. Each technique explained is based on the author's own consulting experience with Fortune 500 companies. The book is available for \$19.95.

Check Reader Service number 406.

WINNERS ANNOUNCED IN BEANTOWN

BOSTON—The Computer Museum (Museum Wharf, 300 Congress St., Boston, MA 02210), the only museum in the world devoted entirely to computers and their impact on society, has announced the winners of the Second International Core Wars Tournament. The contest involves two programs that are battling for supremacy within a single computer.

Robert Reed, 39, a computer programmer from Windsor Locks, Connecticut, won first place with his program, Ferret, which was made up of only 12 instructions. His strategy was to make his program as small a target as possible. "I also tried to make the most efficient use of my instruction set," he said.

Plague, the second-place program written by Ron Paludan of Tucson, Arizona, involved 18 instructions and two programs running at the same time. Said Mark Clarkson, director of the International Core Wars Society, "One [program] tried to cause uncontrolled growth in the opponent program, while the other tried to kill those infected by the first program."

Interest in Core Wars, a computer game, evolved into the annual contest after its author, A.K. Dewdney, described it in his May 1984 "Computer Recreations" column in *Scientific American*.

COLOREZ

KUTZTOWN, PA—Briwall (PO Box 129, Kutztown, PA 19530) is distributing Colorez 128, a graphics utility that turns your 40-column graphics pictures into hi-res, 16-color graphics on your 80-column RGBI screen. The program features an icon-driven menu for use with your joystick or mouse, and you can create title screens, graphs and diagrams for your own programs. The program is compatible with all Basic, compiled Basic and machine language programs, including Basic 8. It's available for the C-128 for \$14.95.

Check Reader Service number 408.

30 CUBIC INCHES

SUNNYVALE, CA—The Avatex 1200e, a 1200/300-baud stand-alone modem from Elec & Eltek (1230 Oakmead Parkway, Suite 310, Sunnyvale, CA 94086) includes such functions as manual/automatic originate/answer, call progress option, Bell and CCITT (international) operation at both 300 and 1200 baud and DIP switches for permanent option settings. The modem is for home, school or portable-computer use. The 5- by 6- by 1-inch modem is available for \$99 and requires an RS-232 interface connected to your C-64 or C-128.

Check Reader Service number 404.

SEE WHAT'S IN YOUR DRIVE

FREEHOLD, NJ—The NoLabelSystem, a computer-disk identification system, eliminates label usage entirely, with a replaceable card containing disk information that's inserted into a thin, clear-plastic window pocket affixed to the disk. The kit includes 100 plastic pockets that attach to 5¼- and 3½-inch disks, ▶

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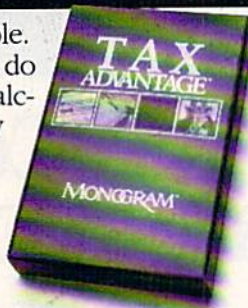
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NEW PRODUCTS

100 white insert cards and 100 color-coded insert cards, together with instructions. It's available for \$22.45 from Weber & Sons, 3468 Highway 9, Freehold, NJ 07728.

Check Reader Service number 403.

GO OFFLINE FOR A CHANGE

LOS ANGELES—Spectrum Electronic Network (PO Box 4903, Panorama City, CA 91412), an "offline" national bulletin board system on disk for the C-64,

has released an enhanced 4.04 operating system. The upgraded software also supports full-color text displays and new E-mail editing capabilities.

New forums have been added to Spectrum's Fall 1987 lineup: Online! is devoted to telecomputing and Art Gallery is a forum on C-64 graphics. A GEOS forum is in development.

The company's Freeware Library has also expanded the number of public domain programs in the categories of arcade and adventure games, program-

mer's utilities, home, business and educational applications.

New subscribers pay a one-time fee of \$16.95 for the operating system and support utilities, and a two-month subscription is included at no cost.

Check Reader Service number 410.

OUTRAGEOUS PAGES

SAN MATEO, CA—Outrageous Pages, a paint and graphics/layout program for the C-64, lets you create and design newsletters, calendars, certificates, signs, flyers, invitations—almost anything that takes the printed word or graphics—for your school, church group or home business. The package has 50 fonts and a library of 80 art pieces, and autoflow margins lets you flow text around or within artwork. A number of on-disk templates for production of materials like newsletters, coupons, place cards and name tags are also included. Available for \$49.95 from Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404.

Check Reader Service number 409.

HARD TO BELIEVE

REDWOOD CITY, CA—What do teenage boys between the ages of 12 and 18 do with their computers? That's what Epyx, a technology-based consumer entertainment products firm, wanted to know, so they took a survey.

Unlike Ferris Bueller, who used his computer to change his number of school absences from nine to two on his principal's database, it turned out that 76 percent burned the midnight oil doing their homework. The Epyx Teen Survey also found that 56 percent used their computers to do programming and 43 percent said they wrote letters. Of those who responded, 87 percent also played computer games.

NAME CHANGE

BERKELEY, CA—Brian Dougherty, chairman and CEO of Berkeley Software, developer of the GEOS operating system, has recently announced that the name of the company's product, Writer's Workshop, has been changed to GeoWrite Workshop.

GeoWrite Workshop, initially introduced in 1986, includes geoWrite 2.1, a word processor; geoMerge, a mail-merge program; Text Grabber, which converts documents from other word processors to GEOS format; and geoLaser, which lets you use the Apple LaserWriter laser printer. ■

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Torchbearer

Years ago, Talis Vaultheart, a powerful and evil wizard, stole the Torch of Truth and hid it somewhere within the many sanctuaries and dungeons of Pastoria. With the people thus blinded, Vaultheart began to take the land. The time has come to take it back!

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Torchbearer is a challenging, graphic adventure game for the C64. \$29.95.

1541/1571 Drive Alignment

"...excellent, efficient program that can help you save both money and downtime."
Compute!'s Gazette, Dec., 1987

1541/1571 Drive Alignment reports the alignment condition of the disk drive as you perform adjustments. On screen help is available while the program is running. Includes features for speed adjustment and stop adjustment. Complete instruction manual on aligning both 1541 and 1571 drives. Even includes instructions on how to load alignment program when nothing else will load! Works on the C64, SX64, C128 in either 64 or 128 mode, 1541, 1571 in either 1541 or 1571 mode! Autoboots to all modes. Second drive fully supported. Program disk, calibration disk and instruction manual only \$4.95!

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Super 81 Utilities is a complete utilities package for the 1581 disk drive and C128 computer. Among the many Super 81 Utilities features are:

- Copy whole disks from 1541 or 1571 format to 1581 partitions
- Copy 1541 or 1571 files to 1581 disks
- Copy 1581 files to 1571 disks
- Backup 1581 disks or files with 1 or 2 1581's
- 1581 Disk Editor, Drive Monitor, RAM Writer
- Supplied on both 3 1/2" and 5 1/4" diskettes so that it will load on either the 1571 or 1581 drive
- Perform many CP/M and MS-DOS utility functions
- Perform numerous DOS functions such as rename a disk, rename a file, scratch or unscratch files, lock or unlock files, create auto-boot and much more!

Super 81 Utilities uses an option window to display all choices available at any given time. A full featured disk utilities system for the 1581 for only \$39.95!

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- Menu-driven
- Change THIS TO THAT — search for all instances of specified string and replace with second specified string
- And much, much more!

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MAIL RUN

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VIDEO UPGRADE FOR THE C-128

Thank you for the excellent and enthusiastic review of Basic 8.0 in last November's issue. I have been using this programming/graphics language for some months and totally agree with John Premack's praise. However, he did make an omission that may confuse C-128 owners who want to upgrade their video RAM to take advantage of a full 64K of video data. Premack correctly identifies the needed chips as 4464s, but fails to mention that they must have the correct speed rating. The 4464 comes in a variety of ratings, and only those rated at 120ns work correctly with the C-128.

Because I want to see a lot of 128 owners do this upgrade—to encourage software houses to write new programs in Basic 8.0—I am making available, for \$12.90 including postage, the correct upgrade RAMs, sockets and installation instructions. Send a check to me at the address below, and I'll send you one of my kits.

The article correctly advises that only those handy with a soldering iron should attempt this upgrade. All others should take the chips to an authorized Commodore service center and let them do the installation.

—HOWARD L. HERMAN
229 EAST 28TH ST.
NEW YORK, NY 10016

We appreciate your kind words for RUN and your offer to other readers. Readers should note that this modification does void the warranty on the computer. Those who are interested in the upgrade and aren't handy with a soldering iron can find a list of Commodore-authorized service centers in the RUN Special Issue #4 (1988).

—EDITORS

STRAIGHTENING THE FAMILY TREE

I'd like to clarify an issue raised by Christine and John Adamec in their generally favorable review of our geneal-

ogical software, Arbor-Aide, which appeared in last December's "All in the Family Tree" article. They indicated that by typing in an ancestor's name wrong, a user could make our copy-protection scheme destroy ancestor information files. This is simply not true.

Without going into detail, suffice it to say that our mild form of copy protection is not the danger and impediment the authors presented it to be. It doesn't make disk drives knock, it never destroys disks, and the user can make an unlimited number of backup disks. Further, should an Arbor-Aide disk ever fail, for any reason, we'll supply a replacement disk, free of charge. We're committed to service to our customers and are always available to provide assistance, even in areas not directly involved with our software.

Our thanks to the Adamecs for a much-needed article that should prove most valuable to those considering the purchase of genealogical software.

—DANIEL G. RITZINGER
SOFTWARE SOLUTIONS
7378 ZURAWSKI COURT
CUSTER, WI 54423
715-592-3594

WHOSE FAVORITE SON?

Concerning the item in last November's News and New Products on Strategic Simulations' game called President Elect—1988 Edition, I must say I agree that George Bush would handily defeat Albert Gore. However, Gore is a Democrat from Tennessee, not Kentucky.

—GLENN STEIN
NASHVILLE, TN

Oops! on SSI's part, because they said Kentucky in their press release. Shame on us, because we New Hampshire people are in the midst of primary fever, and we didn't catch the error.

—EDITORS

FOGGY ISSUE

In last December's Mail RUN, a letter from James Peebles mentioned a com-

pany called First Osborne Group that distributes CP/M software for the C-128. However, no address was given. Would you please tell me how to contact them for a list of their software and prices?

—RANDY L. MILLER
SHELBY, NC

Glad to, but first of all, First Osborne Group (FOG) isn't a company; it's a nationwide user's group that was started for Osborne computer users and has since expanded its support to users of various CP/M-running machines. You can contact them at PO Box 3474, Daly City, CA 94015; 415-733-2933.

—EDITORS

DOS SHELL SHINE

Thanks to Tim Walsh for his sidebar on the C-128 DOS Shell with John Ryan's "64 DOS Shell" article in November; I've never really understood the Shell until now. While working with the Customizer program in Magic trick \$442 of that issue, I accidentally scratched the program, but the Shell enabled me to recover it. Little things like that really make my day shine!

—J. A. SMITH
BYFIELD, MA

IMPROMPTU REVIEWS

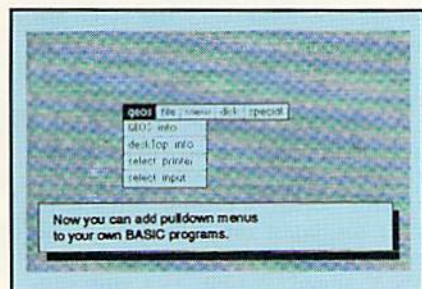
I agree with Leo L. Dush in last October's Mail RUN that Bob Guerra was overly negative with regard to Fontmaster 128 in his August article, "What's Write for You?" As I write this letter, using FM 128, I look at the top of my monitor screen and can't understand how anyone could be confused by the information provided there.

I do agree with Guerra about the word wrap. In spite of Dush's remark, FM 128 doesn't have true word wrap in the Edit mode on the screen. It does, of course, perform word wraps when it prints.

Dush's statement that Xetec was coming out with a spelling checker for FM 128 was correct. I've just sent them \$10 for their SpellMaster disk, and the price includes an updated version of FM 128 itself. ▶

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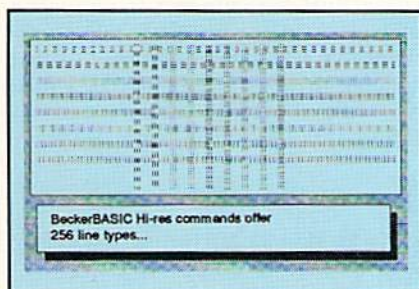
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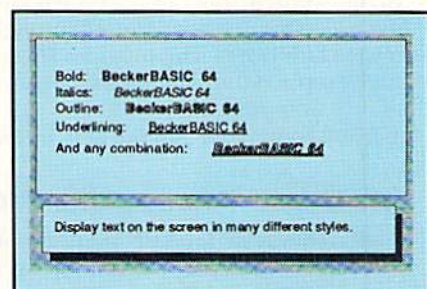
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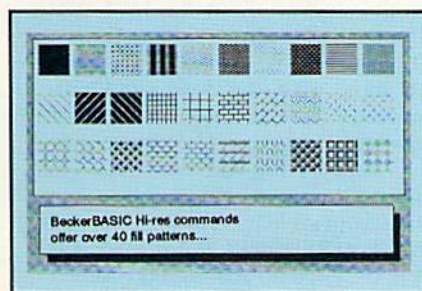
Packed with over 50 commands for easy disk access. Load and save blocks of memory or selected lines of your program. You can even PEEK and POKE into your



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10 commands can be used for easier cursor control. Turn the cursor on and off. Set how quickly it flashes. Set it to any location on the screen.

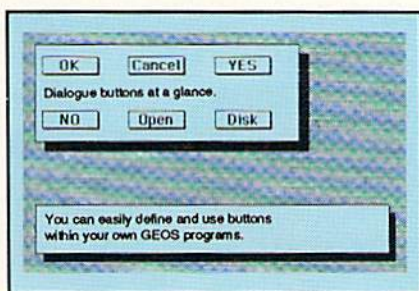
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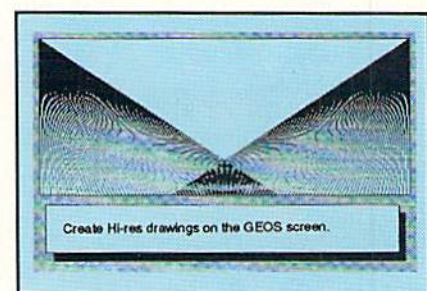
18 commands alone are dedicated to creating sound. Set ring modulation, change the filter, alter the waveform and set the envelope.

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MAIL RUN

One point I feel that Guerra should have emphasized is that with FM 128, two disk drives can be used to their full potential. I've configured my FM 128 setup as unit 1 so all files are loaded and saved through my 1581 disk drive (device 9), while all fonts, character sets and the program itself are accessed through my 1571 (device 8). This provides a beautiful setup and fully eliminates the chore of disk swapping.

I find Fontmaster 128 the best, by far,

of the numerous word processors I own.

On another subject, I read with interest Tim Walsh's reviews of database programs in "Database Decision" last October. One point he failed to mention with regard to Data Manager 128 is its lack of dual drive support. In more than one place in the manual, Timeworks states that DM 128 "is designed so that a single drive is as efficient as a dual drive." Frankly, I find this a cop-out. DM 128 would certainly be faster and more

efficient if Timeworks had provided a dual drive option.

—ROBERT L. ARCENEAUX
LISBON, PORTUGAL

PRODUCTIVITY PLUS

There are those who say "you just can't win," but I say "with RUN, you just can't lose!" Last year I bought Productivity Pak II for the upgrade on Mike Konshak's Datafile series. So what did I get? Datafile—plus a bunch of other useful programs, including RUN Script. This year I ordered Productivity Pak III to get the latest on RUN Script and found RUN Calc, RUN Investor and RUN Notepad, as well. As I said, with RUN, you can't lose.

—L. M. LABAR
BETHLEHEM, PA

RUNNING AROUND THE WORLD

It's time again for RUNning Around the World, Mail RUN's listing of readers who'd like pen pals on computing subjects. This feature appears every few months, and since the last time, ten more readers in the U.S. and other countries have asked to have their names included.

If you'd like your name listed in a future RUNning Around the World, send it and your address, along with the type of Commodore you have and your particular areas of computing interest, to Mail RUN, at the address listed at the end of this page. Just be sure your writing is legible.

UNITED STATES

Don Hertz
1206 Killarney
Greenville, IL 62246
C-64; games

Dee Ewing
PO Box 12076
Springfield, IL 62791-2076
SX-64, C-128; business applications,
telecommunications, public
domain software

Regina K. Staton
224 Sycamore St.
Jackson, KY 41339
C-64; everything from word
processors to games

Marge Wieman
PO Box 189
Trout Lake, MI 49793
C-64, C-128; word processing,
graphics

Alana Herbert
1374 Clarkson/Clayton Center
Suite 105
Ellisville, MO 63011
C-64; telecommunications, graphics

Fletcher Erickson
4926 Leighton
Lincoln, NE 68504
C-64; games, telecommunications,
programming

Eric Mauser
8278 Oswego Rd.
Liverpool, NY 13090
C-64, C-128; telecommunications

COSTA RICA

Marvin Vega
PO Box 516
Tibas, San Jose
Costa Rica
Games, graphics; can correspond in
English, Spanish and French

FRANCE

Etienne Schneider
5, Rue des Sapins
67760 Gamsheim
France
C-64

MEXICO

Cecilia Osuna Bermúdez
Calle 25 Av. 18-19 #227
Guaymas, Sonora
Mexico 85400
C-128; CPM, programming, games

PERU

Fabio G. Coppola-Di-Canzano
La Floresta N.277
Lima 41
Peru
C-64; everything having to do with
computing

TRAPPING THE SAVE-WITH-REPLACE BUG

I'm beginning to shop around for a second disk drive, so I read with interest Tim Walsh's review of the Excel 2001 in "A 1571 Clone Is Here!" last December. However, what interested me even more was the sidebar about the 1571 ROM. Let me tell you why...

I've been a C-64 owner for a long time and have used the Save-with-Replace command without any problem—until a couple of days ago. I was quite proud of myself, having just made the final modifications to the first program I ever wrote from scratch. As usual, I just typed DSAVE"@REPORT" and turned everything off to go do something else.

When I came back and tried to use my program, I was, to say the least, surprised. What I loaded and ran wasn't the final version of the program, but the previous version. I pulled up the directory and, of all things, there were two versions listed: REPORT and @REPORT! It looked like the legendary bug had, for the first time, bitten me.

As I suspected, the @REPORT file, containing the final version of my program, wouldn't load unless I used the wild card (DLOAD"?REPORT"). After I saved the program under a different filename, I scratched the @REPORT file the same way (SCRATCH"?REPORT").

—ERIC R. PICKELL
CRYSTAL LAKE, IL

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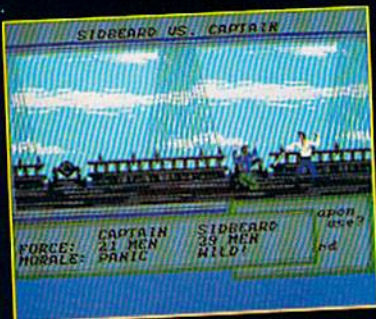
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Compiled by BETH S. JALA

AIRBORNE RANGER A+

We're Looking for a Few Good Rangers

Load your weapon, strap on your helmet and check your parachute, because, as a member of the U.S. Army's elite Airborne Rangers, you're about to engage in battle. It takes a skilled warrior just to make it through the Rangers' grueling basic training, so consider yourself lucky—the folks at MicroProse have done the dirty work for you.

Airborne Ranger is a role-playing game in which the player is thrust into the position of a commando who must carry out a solo mission behind enemy lines. Success requires strategy, keen reflexes and an ability to make quick tactical decisions.

Those skills are employed in 12 distinct missions (each offering user-definable difficulty levels) that take place in three different climates. Each task has a particular goal—like freeing hostages or destroying a munitions depot—and some are inherently more arduous than others.

During the first phase of each mission, you have an overhead view of your airplane flying over enemy territory. Steering the plane left or right to avoid obstacles like enemy emplacements, ditches and trees, you drop three supply pods. These are filled with weapons and first-aid materials that you'll later try to retrieve. You then jump from the plane and maneuver your parachute for a safe landing.

After your ranger hits the ground, the screen changes to show a similar, but greatly enlarged, overhead view of the mission zone. Hitting the run-stop key at any time during the mission freezes the game and returns you to the original view. This is a good way to see where you are in relation to your surroundings, although it won't indicate the location of enemy troops.

Using your assault rifle, bayonet, time bombs, anti-tank rockets and hand grenades, you must fight (or sneak) your way past those troops. You can replenish your ammunition by finding the air-dropped supply pods; but, you can only pick them up as you go because you aren't able to carry everything at once.

You control your ranger using both keyboard and joystick. The keyboard (with cardboard overlays) lets you walk, run, crawl, choose a weapon or apply first aid. With the joystick, you can move your ranger or aim his weapon, and the fire-button lets him use that weapon. Throughout the mission, on-screen indicators show the weapon in use, ammunition remaining, degree of fatigue, number of untreated wounds and time left to complete the task.

A mission can end in one of three ways: your ranger could be killed, captured or accomplish his task and be airlifted back to base. If a ranger makes it home, he's promoted and available for future tours of duty.

Points are awarded for destroying enemy troops and

emplacements and achieving mission objectives. Those earned points can be accumulated and saved to disk, enabling Airborne Ranger to be played one game at a time or as an ongoing adventure (until a ranger is killed in action).

Either approach reveals outstanding graphics and animation. Images of soldiers, ditches, rocks, trees, tents and barbed wire are all clear and distinguishable. Soldiers move realistically, and you can even hear the footsteps of enemy troops as they approach. Both joystick and keyboard control are totally accurate.

Attention to detail is equally impressive. Fire a rocket or toss a grenade and watch the explosion send debris flying in all directions, leaving nothing but rubble. Fire your gun at an enemy soldier and the sound attracts his comrades. Try to walk through a brick wall and your ranger will be stopped cold, but move past a bush and you can almost see its branches bend.

Details like that make Airborne Ranger a joy to play and, along with its design, should ensure many, many hours of entertainment. It combines arcade action and strategy in just the right doses. Your ranger might have the quickest trigger finger and deadliest aim in the world, but he'll also need good military strategy to survive.

It would be a mistake to plan that strategy without first reading Airborne Ranger's instruction manual. Although it comes with quick-start instructions for those who like to feel their way through computer games, the manual is a real treat and shouldn't be overlooked. The documentation ►

REPORT CARD

A Superb!

An exceptional program that outshines all others.

B Good.

One of the better programs available in its category.
A worthy addition to your software library.

C Average.

Lives up to its billing. No major hassles, headaches or disappointments here.

D Poor.

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

E Failure.

Many problems; should be deep-sixed!

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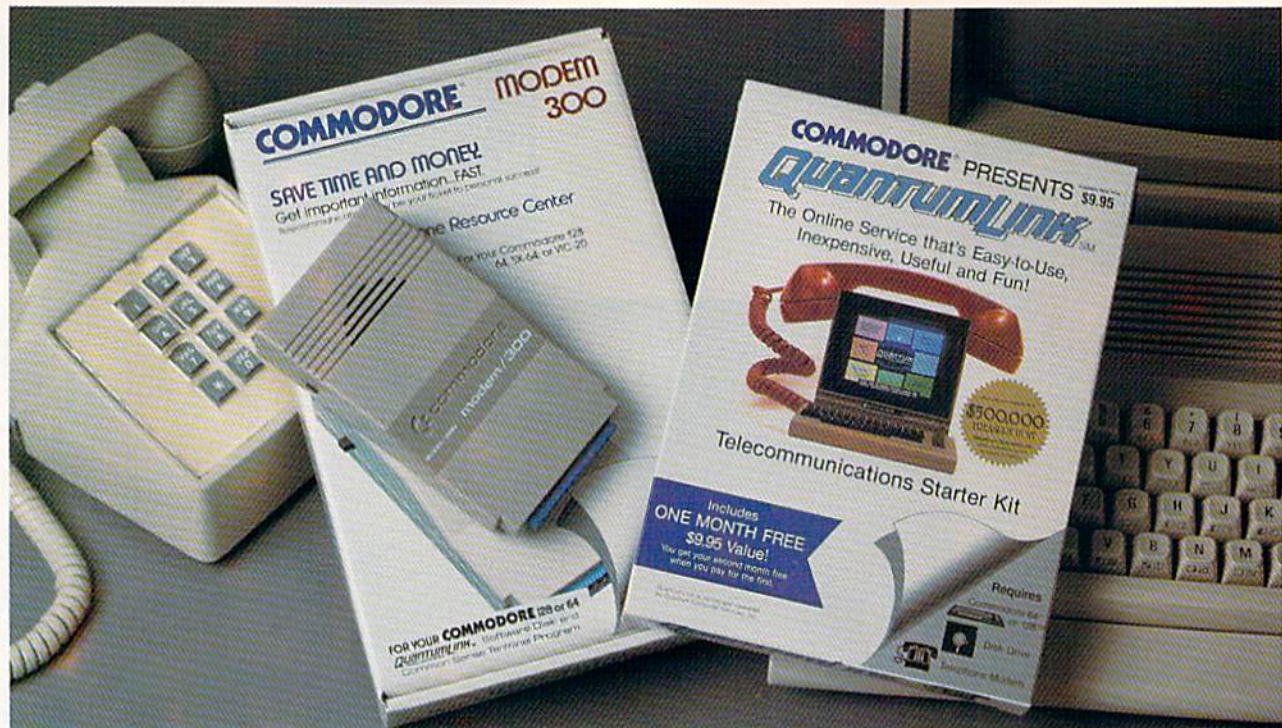


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The Commodore Connection.

is simple to follow and understand, yet describes just about every aspect of the game, including tactical tips for each mission. Also included is a very interesting narrative on Ranger history, weapons and training and some notes from the program designers explaining how Airborne Ranger was created.

This program is easily one of the best action/strategy games ever produced for the C-64. MicroProse has come up with a most intriguing, entertaining and enjoyable software program. (MicroProse Software, Inc., 120 Lakefront Drive, Hunt Valley, MD 21030. C-64/\$34.95.)

—SCOTT WASSER
WILKES-BARRE, PA

B-24 B+ *Real-Time Flying Action Set Against a WWII Backdrop*

B-24 is SSI's first attempt at a different type of war strategy game, namely, a flight/combat simulator. I think you'll find it's something much more than the usual flight simulator, strategy or arcade game.

As commander of the lead B-24 Liberator bomber, you're in charge of a formation of up to 40 planes. Your group, the 460th Bombardment, is to fly 19 missions over the Ploesti, Romania, oil refineries. Your performance is judged against World War II history—if you reduce oil production levels below those accomplished by the allies, you're told by how many days you might have shortened the war, how many lives you might have saved, and so on.

You pick the target—there are 11 sites at Ploesti, one at Campina and two practice targets at Mostar and Bucharest. You're then given weather conditions, bombing altitude, number of planes ready, production levels, where and when to join your fighter escorts, and so forth. After you decide how much fuel to take and how many bombs, it's just a matter of flying the B-24—easier said than done.

Flying is a combination keyboard/joystick operation. The joystick controls banking left and right, climbing and diving. The keyboard directs the flaps, engine speed, landing gear, bomb bay doors, dropping bombs, feathering engines, pausing the game, calling for navigational, fuel and formation information, accelerating game time by increments of two (up to 60 times the normal speed), aborting a mission and bailing out.

On screen, you have an overhead view of the plane—unlike typical flight simulators that give you a view from within the cockpit—and a ten-square-mile area of the map.



Make sure you reach your assigned altitude and meet up with your escort squadron in SSI's B-24.

You're also shown altitude, vertical speed, heading, flap settings, landing gear status, engine speed, horizon indicator, pitch, banking, bomb sights, target location numbers and when bomb bay doors are open. Flying the plane is tricky and only gets harder if you have damage.

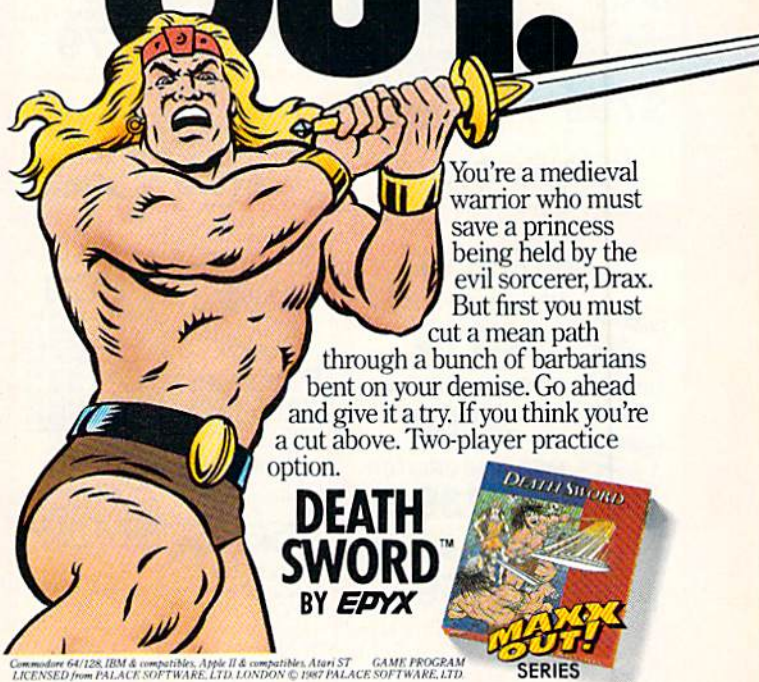
Once you take off, you must reach a certain altitude and air speed in order for the rest of the formation to join up with you. When they do, you have to fly to a given location in a certain time to meet up with the flight-out escort. After climbing to the assigned bombing altitude, you must then get to the next escort rendezvous point, all the while maintaining the proper air speed, avoiding areas that have flak, and occasionally running into enemy fighters.

At about 15 miles away from the target, you have to adjust your course to get as close on line as possible, which is very difficult. Near the target, you open the bomb bay doors, start taking flak, drop the bombs and get out of there! Then, it's a matter of rejoining your fighter escort at the right time and location, making your way back to the base and landing the plane—again, easier said than accomplished.

Along the way, there's a lot that can go wrong. Taking damage from flak, enemy fighters or simple mechanical failure can result in oil or fuel leaks, supercharger failure, engine, flap or landing gear loss. Or, you may lose navigation, bombing and landing instruments, not to mention that the engines have a tendency to overheat or that you could simply run out of fuel.

B-24 is a very complicated, involving game. The ability to speed up game time is handy, especially when you're flying ▶

CUT OUT.



You're a medieval warrior who must save a princess being held by the evil sorcerer, Drax. But first you must cut a mean path through a bunch of barbarians bent on your demise. Go ahead and give it a try. If you think you're a cut above. Two-player practice option.

DEATH SWORD™
BY EPYX



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Circle 98 on Reader Service card.

SOFTWARE GALLERY

in a straight line without much action. However, when things do start happening—which is usually all at once—it's a very long game. You should fly half a dozen practice missions before you try the main game. Once you know what you're doing, each mission takes about 30 minutes, and you don't get a score until you fly 19 missions.

As with most SSI games, you can adjust the factors that make things easier, more difficult or more historical—all of which affect your efficiency ratings, which in turn affect your bombing accuracy and results. The game is rated as introductory, but I think it's more difficult than that. Real flight simulator buffs might find the B-24 a bit clumsy and awkward, but that's probably a reflection of the plane, which was often referred to as "Consolidated's folly." The overhead perspective is also different, but there's plenty of excitement to make up for that. SSI war-gamer buffs will find B-24 very light on strategy and fairly fast paced.

There are no dog fights, no machine guns, and most of the action is reactive. You adjust course and engine speed and wait until something goes wrong or until you have to adjust again or drop bombs. Ninety percent of your time is spent getting to exactly the right place at the right time at the right altitude at the right air speed. Bombings and landings are tough: the rest takes practice and a little luck.

B-24 is a very good game. You'll find yourself cursing the flak, the superchargers and the weather. You'll cheer when the escorts arrive or shoot down enemy fighters for you. You'll start praying that you'll have enough fuel to make it back and find yourself trying to coast those last few miles rather than bailing out. And you'll break out in a cold sweat as you get closer and closer to the target, your finger poised over the button, ready to drop the bombs. (*Strategic Simulations, Inc., 1046 N. Rengstorff Ave., Mountain View, CA 94043. C-64/\$34.95.*)

—GUY WRIGHT
AMIGA WORLD STAFF

LADDERS TO LEARNING: SORTING, TRIANGLES, BONES AND JOINTS B+

*Circle or Square? Scalene or Isosceles?
Lumbar or Tibia?*

McGraw-Hill (Australia)'s Ladders to Learning educational series offers a well-designed, entertaining approach to tutorial and drill programs. The series encompasses 73 disks that cover a broad base of topics for varying age groups—everything from spatial concepts and introductory

learning skills for younger children to memory and library skills for older students. Specific subjects like math, science, English, history and geography are also offered. The three disks I reviewed include sorting shapes and colors for children ages three through six, triangles for students ten to 13 years old, and bones and joints for the ten-plus age group.

The first aspect of the lessons that will probably strike you, as it did me, is the excellent use of graphics and color. Simple illustrations are clearly presented for younger children, while more complicated diagrams are outstanding in their detail for older students.

At the opening screen, each disk gives you a choice of two learning sections—a tutorial section and a game (drill) section. The tutorials are versatile and well-suited to their intended age range. The lessons flow smoothly from basic information to the more complex stages within each subject. For example, the triangles program starts out with a picture of a sailboat and a cartoon character to catch the ten-year-old's attention, and promptly engrosses the 13-year-old by illustrating how the boat can be divided up into various kinds of triangles. It's amazing to me how the program does this without losing the focus for either age.

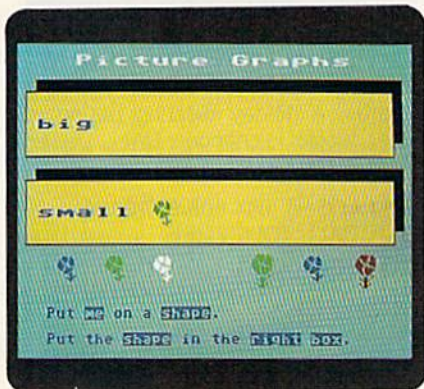
To draw the students' concentration into the bones and joints program, the authors present information in various type fonts. In this session, options progress from introductory lessons on bone and joint functions to more difficult exercises on names of bones (ordinarily learned in high school and college).

CHILL OUT.



Two supercool spies straight from the Joke and Dagger Department of MAD™ Magazine. It's a slippery, sloshy race for time through bobbing icebergs and chilly booby traps. For only one spy gets to sit in the single-seat escape rocket. And the other? That's one spy who won't be coming in out of the cold. Two-player option.

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BY EPYX**



Children can identify with the colorful shapes and pictures in the Ladders to Learning Sorting disk.

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The direct-connect® Hayes and Commodore® 1670 compatible 1200 Baud modem for ONLY \$89.95

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The next question is: "Which modem is best for me?" Let us first say that almost all modems (and services) are set up to communicate in one of three speeds; 300, 1200 and 2400 Baud. If you look around you will find that there is a flood of 300 baud modems on the market and sometimes at very low prices. The reason is simple, they are being dumped because most computer users prefer 1200 Baud. (1200 Baud is about 4 times as fast which means you spend about 1/4 the time and money getting the data you want and more time enjoying it.)

You may also be wondering about getting a 2400 Baud modem. 2400's are great (and quite expensive), only if you have a dedicated, data-grade phone line. Here's why. The regular phone system doesn't have the signal clarity and bandwidth to support more than about 1200 baud and as a result, 2400 Baud modems will usually run at either 1200 or, on a real bad line, 300 Baud. They adapt to the worst-case line conditions and will slow transmission accordingly. Why buy a 2400 Baud modem for a lot more money when it's going to transmit at 1200 Baud most of the time anyway? (Kind of like buying a sports car then always running at lower speed).

You will also notice a few very cheap 1200s on the market at "too good to be true prices". They are. The reason is that they are either not truly Hayes and/or

Commodore 1670 compatible therefore not usable in all situations and with all services. The Aproték Minimodem-C™ is both Hayes and Commodore 1670 compatible and 1200 baud. Why not get a modem that will satisfy your present AND future needs by going directly to an inexpensive Aproték Minimodem-C™ especially when we have it on sale?

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Circle 79 on Reader Service card.

SOFTWARE GALLERY

The sorting disk is *not* a substitute babysitter for youngsters: It contains an instructional section that stresses parental interaction in the child's learning process. Lining up shapes and colors helps develop eye-hand coordination. Besides being applicable for shape recognition, sorting can be used as a counting, spelling and reading aid. (If any of these disks are used as spelling aids, watch for the European spellings that occasionally pop up—like *armour* and *metre*—in the older students' disks.)

The younger children's drill in the sorting program is an appealing little maze game, where the child must sort out the shapes before the Shape Muncher or Shape Painter can get to them first. Ample time is given for this task.

By neatly tabulating results for the student, the triangles drill section teaches organization of numerical calculations. The more sophisticated drill in the bones and joints program questions students with appropriate pictures, then awards points for correct answers. From there, it further determines if they can keep their points by leading them to sites that offer more points or questions. I found the drill sections of all the disks to be at the appropriate level of the age group involved.

The sorting disk can be operated either through the keyboard or with a joystick, but I suggest a joystick for the younger child (it shouldn't be *required*, as stated on the packaging). The programs for the older students use the keyboard only. The one or two keystrokes needed to operate them are easily learned and remain consistent.

Music is played at all levels—a happy tune or a ringing bell for right answers, and an amusing series of three deep, bass tones for a wrong answer. The right answer is provided after two wrong tries. A strong point of the triangles program is that it displays the mathematical method of obtaining the correct answer. This is a wonderful addition because I often find that math software doesn't provide this, which is frustrating to the student.

The software is fully compatible with Epyx's Fast Load cartridge and is not copy protected. I found a few inconsistencies, however, that keep me from assigning a grade of A to these disks. On the sorting disk, the opening screen contains a blinking ball next to the menu of activities. I'd like to see on-screen or packaging instructions to plug the joystick into port #2 or to use the cursor and return key to move the ball.

On the triangles disk, there are a few instances where numbers don't line up correctly in a column: 9 lined up under the 1 in 17 instead of under the 7. Also, the term *breadth* is used when introducing the formula for the area of a triangle, but later changed to *height*, which is correct. And just once, in the older disk, I caught use of the word *revise* instead of *review* when asking the student which activity he or she would like to move on to. However, these are minor flaws, and I believe

that the programs represent an excellent value for the price. (McGraw-Hill, Australia; distributed by Combase, Inc., 333 Sibley St., Suite 890, St. Paul, MN 55101. C-64/\$19.95 each.)

—EDITH CHASEN
WOODHAVEN, NY

THOUGHTFORM, VERSION 1.81 A

A Useful Application for People Who Need To Organize Their Writing

A good computer application program should save you time, provide information and be easy to use. That is what Thoughtform, a C-64 outline processor, promises and delivers. If you plan to write a thesis, term paper, short paper or an outline for an oral presentation, this program can be of help.

Thoughtform is a machine language program that comes with its own fastload utility. After you've loaded the 104 block program, you're presented with the initial menu and can choose to start a new file, read an existing file or browse. (Each file is stored on your own formatted disk.)

Suppose, for example, you've done some research and prepared your ideas. It's time to start a new file. You first type in the title—called the summit line—then your main ideas and supportive facts, both called headlines. You create an outline by using control/R and moving the support facts under the main ideas. Next, if you want to reorganize your

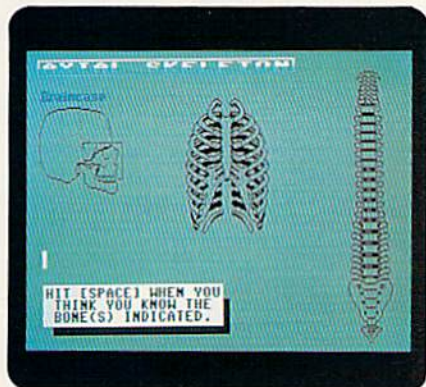
BUG OUT.

The nearby electro-chemical plant is pumping out radioactive repellent. If you're to save your world, you better get off your web and find the parts you need to become Spiderdroid, a deadly, hyper-mobile fighting machine. But watch out for the stingers, rock hoppers, and big borers. What's wrong? Is something bugging you?

SPIDERBOT™
BY Epyx



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The rib bone's connected to the... fill in the blank with the Ladders to Learning Bones and Joints disk.

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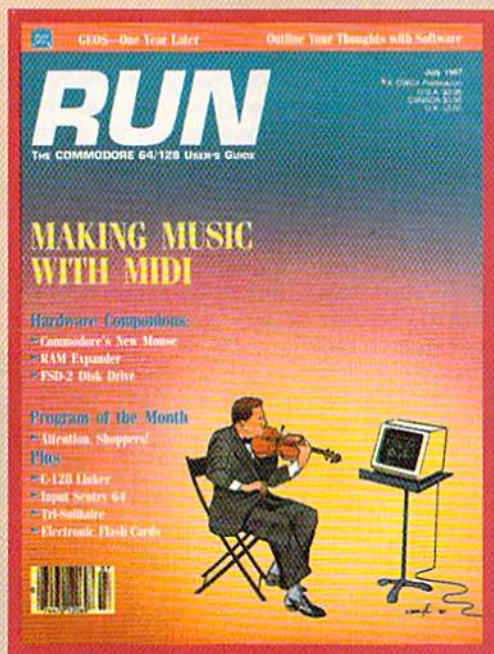
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SOFTWARE GALLERY

ideas further, use block copy, block move and block delete. Finally, you can add blocks of text in sentence format.

Plus (+) denotes headlines with supportive facts below. The degree of indentation denotes the relative importance of any headline in the outline. Minus (-) headlines have no further supportive facts. Blocks of text can be inserted below plus or minus headlines; they're denoted on the screen with vertical lines bounding them on left and right. You can continue adding main ideas, supportive facts and text blocks until you're satisfied with your outline.

Thoughtform is a well-conceived program. You can add, change or move any lines on the screen singly or in blocks, and you'll find some unique features, such as letting you add blocks of descriptive text and view only the plus lines on the screen.

Thoughtform also uses an unusual filing concept. When you're working with a previously created file, the plus statements load first. This lets you review your main ideas. You can then expand your on-screen outline to its full size. You should first practice this with the impressive demo file on the disk.

The cursor keys work in their normal fashion, and the control key combinations are easy to understand. If you forget any combination, the help screens, which appear as windows, are only a few keystrokes away.

For final documentation editing, you can easily transfer your outline from Thoughtform to your word processor format by using the Export program provided on the master disk. This will also back up your master file to the same or another disk.

Printing options include three sectional headers and/or footers. Your printouts, which look quite professional, can be in outline, engineering or plain format. The operation section found in the accompanying manual is clear and

+ The New Toys for 1987

- By Saul Cohen

+ Introduction

The purpose of this paper is to present facts about the latest in toys on the market. These toys fall into the several categories listed below.

+ General Facts

- Toys encourage imagination
- Toys teach motor, thinking, counting, and reasoning skills.
- Toys have controlled consequences

A portion of a Thoughtform outline as it would look on the screen.

informative, as is the entire text. There's even a section that describes outline terminology.

Thoughtform has already worked its way into my utilities. I think it's an efficient way to organize materials. For this reason and for Thoughtform's ease of use, I recommend it. (Steven J. Gollery, 45828 Emerson St., Hemet, CA 92344. C-64/\$29.95.)

—SAUL COHEN
AMBLER, PA

VEGAS GAMBLER B

C'mon, Lady Luck! This One's for Real!

At first, I wasn't under the impression that Vegas Gambler was as realistic a casino game as it claimed. After all, my

\$500 bankroll had ballooned to \$3920 at the blackjack table and roulette wheel.

But, it's realistic enough to make you want just one more crack at beating the odds. By the time I left Vegas, my balloon had burst. The "no money—no gambling" screen appeared showing a man with his trouser pockets turned inside out. The casino asked if I would like to float a loan to continue gambling.

Vegas Gambler is yet another trip to the casino for the C-64. Although its four games are made for one player, this is a realistic visit to the slots and tables; sometimes to the point of being just a little *too* genuine.

For example, you must drop dollars into the poker and slot machines by using a gloved-hand pointer, guided with the joystick. If the coin isn't lined up just right with the slot, it falls off the screen. It's a cute touch, but when working with a joystick, this gimmick wears thin. Fortunately, you need only feed the machine once to set the bet, and clicking the fire-button lets the current bet ride. If you want to change the bet, you start at zero and drop coins again.

When one dollar is bet on the slot machine, winning combinations pay off only on the middle of the three lines. With a three-dollar bet, you win when the combinations appear on any of the three horizontal lines. Betting five dollars will result in payoffs if combinations appear on the diagonals.

The poker machine starts with five cards down. A bet of one to five dollars turns them face up—there's that ▶

FALL OUT.



It's nuclear winter all year round. As Tal, the futuristic warrior in the year 2500 A.D., you'll need to collect the ancient flying armor that will make the difference between life and half-life. Watch out for the giant sloths, vicious subhumans and mutant aliens. They've had a hard winter.

RAD WARRIOR™ BY EPYX



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gloved hand again! You decide which cards, if any, to keep. Jacks or better pay off one-to-one; other hands pay correspondingly higher odds.

Blackjack is played using four decks of cards. Pressing the F1 key before the beginning of a hand shows how many of each kind of card have been dealt up to that point—a handy feature for cardsharks trying to perfect their counting system.

The minimum bet is two dollars; the maximum is \$200 per hand. The bet is adjusted by moving the cursor over one of two chips representing two- and ten-dollar increments in the bet. Several play options are provided, including letting two cards of equal value split into separate hands; taking insurance against the dealer having blackjack when an ace is showing; doubling the original bet; and taking one additional card to add to the one showing.

In roulette, all bets are placed using the gloved-hand cursor. Each bet requires going to the chip pile, picking up a chip, moving to the table and dropping the chip. Chip values can be set individually in one-dollar increments. Thus, you might have a stack worth \$20 on the "red," and another worth five dollars on number 24.

Up to 50 chips can be on the table, as long as their total value doesn't exceed \$200. There are many betting options: red or black; odd or even; individual numbers (including 0 and 00); low numbers (between 1 and 18); high numbers (between 19 and 36); corners (chips placed at the intersection of four adjacent numbers); and so on.

You'll enter the next game with the same bankroll with which you left the last game. Big bankrolls can be saved to the game disk and loaded at the beginning of the next session.

Vegas Gambler isn't copy protected in the usual sense of the term. After about five plays in the casino, a message appears on the screen asking the player to find a certain number located next to a letter on a card that came with the game. Once answered, the game continues uninterrupted for the remainder of the session.

That system allows easy backup of the game disk, but it can be a nuisance, particularly if you've misplaced the card. Best fold it in half and keep it in the disk jacket.

Even with the minor annoyances of the copy-protection card and the need to do everything by moving a gloved hand with the joystick, Vegas Gambler offers entertaining sessions with four popular casino games. (Logical Design Works, Inc., 780 Montague Expressway, #403, San Jose, CA 95131. C-64/\$29.95.)

—LONNIE BROWN
LAKELAND, FL

PAPERBOY B-

Arcade Action Makes the Grade on Your C-64

Paperboy is the kind of program that leaves a jaded computer software reviewer like me scratching his head. The problem is that when Paperboy is judged according to the criteria reviewers use to evaluate entertainment software, it comes up short in many areas. However, it is so outstanding in one respect that it makes you want to forget everything else: Paperboy is one of the most addictive computer games since Pac-Man.

Forget about sophisticated game-play scenarios and state-of-the-art graphics or animation. Paperboy doesn't offer

anything special in those areas. If you're the average computer game player, however, it will give you hours and hours of entertainment for your software dollar.

One of the nicest things about it is that it's incredibly simple to learn. Your joystick-controlled, bicycle-riding paperboy makes his daily rounds on suburban streets. You score points by firing your newspapers into subscribers' paper boxes while avoiding obstacles like vicious dogs, oncoming cars and kamikaze skateboarders.

Paperboy features screen animation that scrolls from top to bottom. Your view is from three-quarters overhead and, because the background (streets, houses, and so on) runs diagonally on the screen, you get a pseudo three-dimensional effect.

Although the joystick controls only four different movements, each is crucial to the game. Eye-hand coordination is very important. To be successful, you must learn when to go left or right, to ride on the street or on the sidewalk, and to vary your pace so that the paperboy is accelerating or decelerating at the right times.

The designers of Paperboy deserve credit for producing one of the few C-64 games that takes advantage of the C-128's auto-booting capabilities, although there's no mention of it in the instructions. It takes only seconds, not minutes, to load.

Paperboy's other attributes include a wonderful musical score, good graphics and clever introductory and exit screens that depict a newspaper with changing headlines. After a good performance, for example, you're greeted with a headline that ▶

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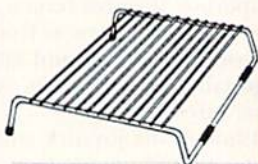


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SOFTWARE GALLERY

displays the proclamation: "Amazing Paperboy Delivers."

However, other features are conspicuous by their absence. It only offers one difficulty level and no play options, features you usually find in games of this genre. Also, while the graphics and animation are generally good, screens occasionally flicker, characters sometimes appear to pass through one another and the bottom half of the on-screen running score is cut off.

Also, record-breaking scores can't be permanently registered; the number of remaining lives isn't shown on the screen; and the instruction sheet is incredibly uninformative.

Under normal circumstances, those shortcomings would be considered serious, and they'd be reason enough to give a low rating to most computer entertainment software. However, Paperboy is so habit-forming that these problems are surprisingly easy to overlook. (*Mindscape, Inc., 3444 Dundee Rd., Northbrook, IL 60062. C-64/\$34.95.*)

—SCOTT WASSER
WILKES-BARRE, PA

RAINY DAY GAMES C

*Concentrate on Going Fishing or Playing
With the Old Maid*

As illustrated by the Trivial Pursuit craze and the proliferation of home video machines, items from the past and high-tech equipment both have prominent places in popular culture. Rainy Day Games combines these two seemingly contradictory elements by translating three time-honored games for children into a computerized setting.

The software is for ages four and over. It provides for keyboard or joystick control, on/off sound, three difficulty levels and the saving of selected options to disk.

A character named Ted Bear stars in each of the program's three games. In the version of Old Maid, a child has an animated monkey turn over one of Ted's cards. Unless it happens to be the Old Maid, the selected card is removed from the screen along with its match from the youngster's hand. Then it is Ted's turn to have the monkey pick from the child's cards. The game ends when only the Old Maid remains on the screen.

In Go Fish, the monkey shows a player-selected card to Ted. If Ted holds its mate, both playing pieces disappear. If not, the child is dealt a new card. The player receives another turn if his or her choice duplicates a card from either Ted or an on-screen deck; otherwise Ted takes control. The game ends when the player or Ted runs out of cards. The winner is whoever has made the most matches.

Unlike the other two contests, Concentration lets up to three players vie with each other and the computer. Its goal is the matching of two cards that are chosen during each turn. Screens with either 14, 30 or 50 cards are available. Once again, Ted Bear strives to best his human competition. Concentration ends when all of the playing pieces have been paired.

The greatest shortcoming of Rainy Day Games is its lack of variety. The sound effects, for example, are essentially the same throughout the program. Also, the same card faces not only appear in all sessions of Old Maid, but many of them also turn up in every round of Concentration and Go Fish as well. In fact, the only graphics that work exceptionally well are animations of Ted Bear and the monkey; without them, there is little to distinguish the software from card-

board versions. (*Baudville, 1001 Medical Park Drive SE, Grand Rapids, MI 49506. C-64/\$29.95.*)

—MARILOU LATOCHA
OAK PARK, IL

SANXION B-

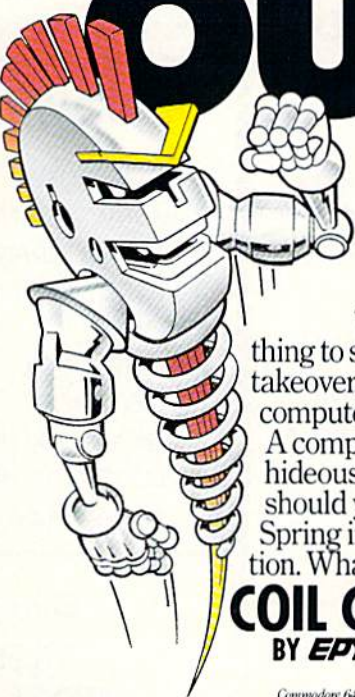
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SOFTWARE GALLERY

backdrop, you soon encounter flights of bobbing and weaving enemy ships; slower moving, practically indestructible, boulders; and occasional drones, which zip into view from behind! Anything you kill adds points to your score, but the big payoff comes for getting to the ReGen station before the on-screen countdown timer reaches zero.

Sanxion offers a plethora of colorful, interesting backgrounds, smooth animation and good sound. Besides rapid acceleration and deceleration, responsive controls permit up/down movement, and you see simultaneous side and top views of the action.

Fun to play? Well, that depends upon whether or not you need to believe that there is a reasonable chance of winning (there isn't) or are satisfied with staging a high-score competition when scores aren't saved to disk.

Unfair, yet sinfully addictive, Sanxion is just perfect for the hotshot stick ace who boasts "I can beat any game!" (Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. C-64/\$19.95.)

—JEFF HURLBURT
HOUSTON, TX

WARGAME CONSTRUCTION SET C+

Test Your Combative Creativity

Maybe you want to design the ultimate space war game, but you're a far cry from being a top-notch programmer. You feel that on the surface, war games and simulations don't seem quite as programming intensive as arcade games, but there's still a lot going on behind those keys, and it would take forever to learn how to write one. But not with Wargame Construction Set.

The idea is for you to tackle the hard part, designing, while letting Wargame Construction Set take care of the basic war-game programming features. The Set also comes with eight battles—five solo and three two-player games—that are good stand-alones and should keep you going for quite a while, even if you never design your own.

The Set's Editor lets you design every aspect of a game, as long as you stick to the basic game system: Observation, Fire, Movement, Enemy Fire, Friendly Fire, Enemy Movement, Friendly Movement, Victory and Save Game phases. This is probably the easiest system to learn, but not the easiest to win. Features of the Editor include printing the map, choosing the scale of the game (tactical, operational or strategic) and allowing for artillery fire.

In the Draw Map section of the Editor, you can draw roads, rivers, bridges (intact or blown), buildings, forests (sparsely or densely wooded), mines (visible or hidden) and victory squares, where extra points are awarded for occupying them during the Victory phase.

The Edit Unit sections (one for friendly and one for enemy units) let you adjust features like firepower, defense, movement points, strength, range, type of vehicles, ammunition and manpower. You can even have sounds change as artillery fire goes from small to heavy. If you finish with that unit and don't want to customize further, you can duplicate units. In the Deploy Unit section, you place the pieces on the map where you'd like them to start the game.

You're given an extra attribute when designing an enemy unit in a solo game—aggression. You choose a value from zero (the unit won't move) to seven (the unit counterattacks).

You'll soon appreciate how complicated war games can

be. There are dozens of subtle and not so subtle balances in any game. You'll end up revising, playing, revising and playing over and over again.

Along with the great features, there are a few flaws in Wargame Construction Set. The play system is a bit restrictive: it's good for beginner and intermediate level games, but not advanced simulations. The product states that you can design anything from catapults and castles to lasers and space battles, but your aliens and siege engines all end up looking like soldiers and tanks. The scale adjustments suffer the same way; Indians or armies still look like soldiers and tanks.

Other minor blemishes include the number of disk swaps you have to make to create, edit, save and play games. The system is unclear, so best go through a very small test run before you spend nine hours designing a masterpiece, only to find out that you didn't save it correctly. And, even though there are dozens of options and things to tinker with, you'll soon wish there were more.

On the positive side, yes, you can plan and enjoy your own game simulations. The editing system, while involved, is fairly easy to learn. And as mentioned before, the games on the flip side of the disk are good.

In sum, Wargame Construction Set is a remarkable piece of software, but war game manufacturers shouldn't have too much to worry about. (Strategic Simulations, Inc., 1046 N. Rengstorff Ave., Mountain View, CA 94043. C-64/\$29.95.)

—GUY WRIGHT
AMIGAWORLD STAFF ■

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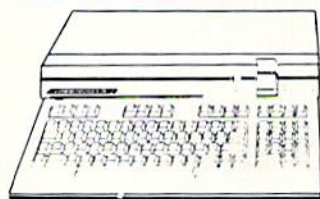


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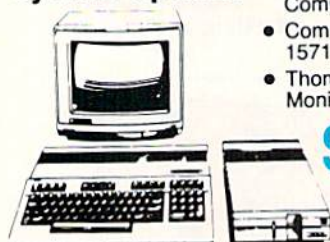


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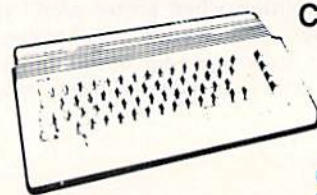
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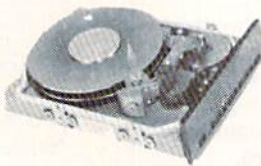
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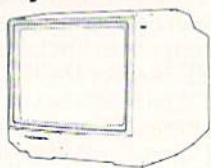
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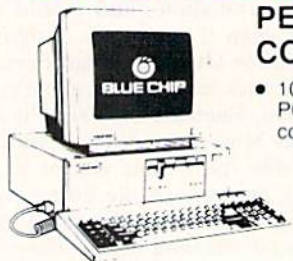
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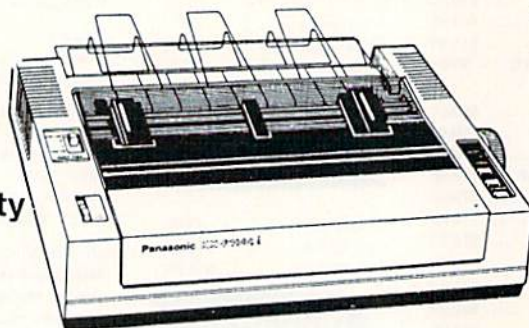
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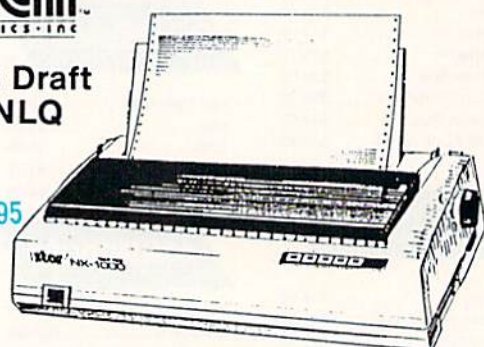


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Mark "Mac" Bowser,
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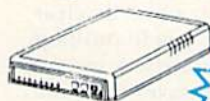
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Desktop Publishing With the **C-64**

By SUSAN LAMB

Discover
how you
can
produce
your own
documents
with a
Commodore
system.



WHEN THE CONCEPT of desktop publishing first surfaced, many people saw its primary purpose to be the largely in-house production of business publications, an undertaking normally requiring sizable investments in equipment and software. But that picture has changed.

Now, with a low-priced Commodore 64 or 128 system, including a good printer, almost anyone can become a desktop publisher. Whether you produce a newsletter or a book of poems, an ad, a flyer or a greeting card, the computer enables you to communicate in an interesting and original way. And you can do it all yourself, acting as editor, designer, typesetter, proofreader and production chief.

CREATIVE EXPRESSION ON A DESKTOP

An aspiring desktop publisher can turn out printed material for personal use or actually create a small business on a shoestring. Although using an expensive and sophisticated IBM or Macintosh system may be faster, the C-64 or 128 owner can produce documents that look just as professional. All it takes is patience and work, and you can produce—for yourself or for others—inexpensive, camera-ready layouts for advertisements, flyers, newsletters, catalogs or other printed material. Printing your own sta-

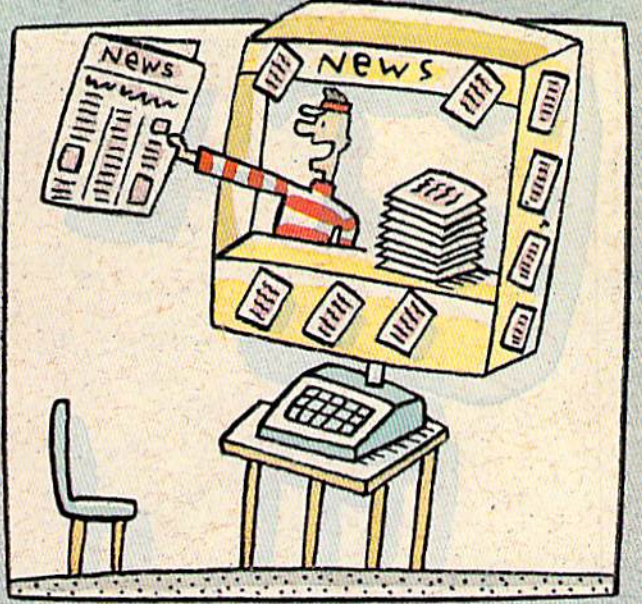
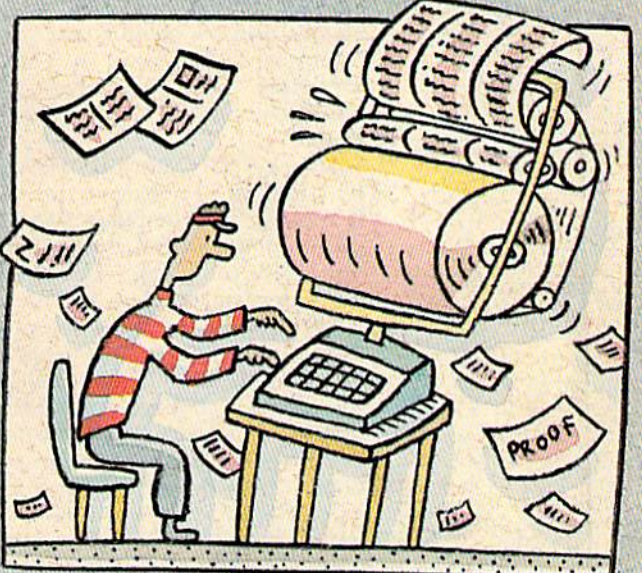
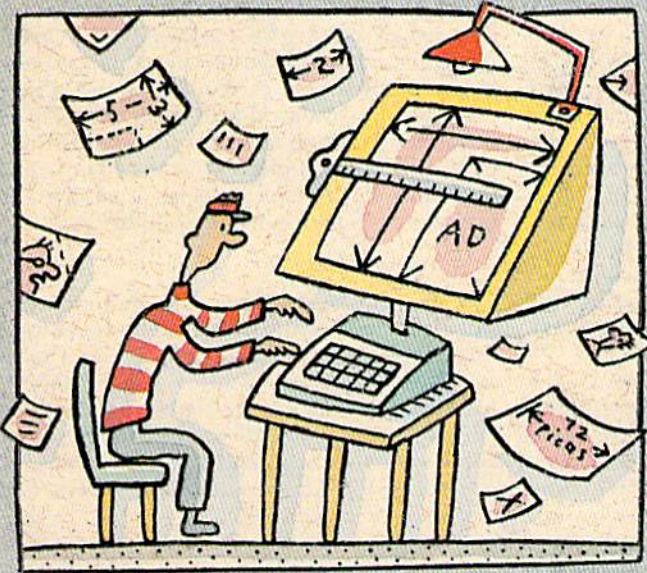
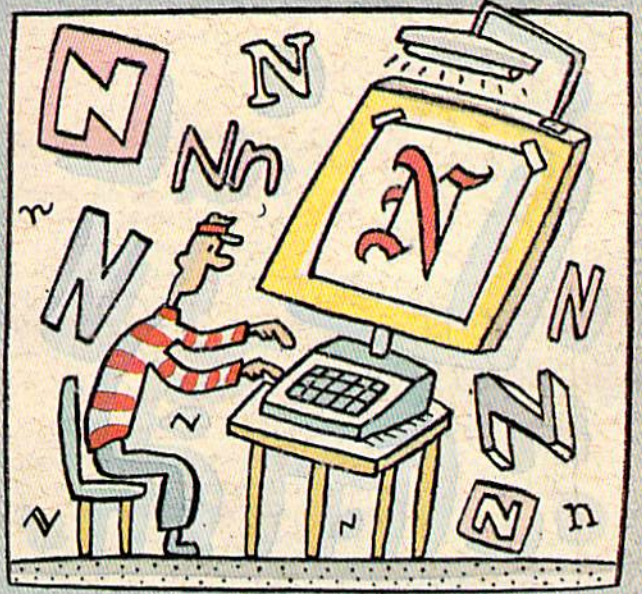
tionery and keeping your books with the computer further reduces start-up costs.

In addition to cost savings, publishing with the computer is very time effective. Instead of waiting for the material to come back from the typesetter, the artist or the printer, and then having to send it back because something's wrong, you are in complete control. You can correct, change, redesign or update your documents at your own pace, and use the time saved to be more productive.

HARDWARE

By starting your desktop publishing business with hardware you already own, plus some new software, you can save substantially on start-up costs. A basic system consists of the computer, disk drive, printer and software. If you don't have and can't afford a monitor, a TV will do, although it's far less satisfactory. I've found that a monochrome monitor is best, since its clear delineation of the pixels enables you to position the drawing tools far more accurately. A second disk drive, if you can manage it, saves time and makes file handling easier.

Once you start making profits with your basic system, you can afford to add new hardware and software. For example, a RAM expansion unit is almost a necessity when using the GEOS pro- ▶



Letterheads
are simple
once you
have a
logo
designed.

gram, geoPublish, and it can support more sophisticated software in the future. The Commodore 1351 mouse is also especially useful with GEOS, making it obvious that GEOS was meant to operate this way. It gives you accurate, fast, one-hand operation that makes using a joystick seem awkward by comparison. Finally, to add a photographic capability, you might consider investing in a video digitizing system.

SOFTWARE

People have actually been doing desktop publishing with the C-64 since before the term was coined. Programs such as Doodle!, KoalaPaint, and Flexidraw allowed the combining of text and graphics, wherewith rudimentary flyers, cards and even newsletters could be produced with a little initiative. User-friendly Print Shop and PrintMaster simplified the production of various printing projects and planted the publishing seed in many of us. The Newsroom allowed the creation of a real newspaper, with hundreds of clip art graphics to illustrate news stories.

Then Berkeley Softworks came out with GEOS for the C-64 and changed the way many of us were using our computers. We now had icons, pull-down menus and a new, friendly operating system. We could easily create documents combining text and graphics. We could actually "set" our words in different typefaces and sizes. A new direction of productivity opened up.

Now, with advancing technology, more new software is becoming available to create professional-looking documents with the inexpensive Commodore systems. Berkeley Softworks' geoPublish is giving desktop publishers the same type of proficiency and power that Macintosh owners enjoy. Other advancements allow the conversion of text created by incompatible word processors so that it can be used in a publication

created by a single program. Graphics created by various software programs can also be converted for use in others, and clip art is becoming widely available so that non-artists can publish impressive documents painlessly.

CREATING LOGOS AND LETTERHEADS

Almost any small business needs a logo for letterheads, business cards, business forms and ads. Now, with the many fonts available, you can quickly try out different logo concepts, easily changing these quick "electronic sketches" until you've designed just what the client wants. By going through newspapers and magazines, you can develop a file of well-designed, creative logos for inspiration in doing your own.

Letterheads are simple once you have a logo designed. Besides the logo and address lines, you might include a line with a company motto or a sentence describing the business. When designing logos and letterheads for business stationery, forms and business cards, it's a good idea to make the artwork proportionately larger, so the detail is clear when the print shop reduces it to the final size. Many printers, by the way, offer the beginning small-business owner a package deal of stationery, envelopes and business cards.

BUSINESS FORMS

A small-business owner can save money and still create professional-looking business forms through the use of desktop publishing. Use the stock forms available at office supply stores as patterns, re-arranging the elements to suit your particular needs. The form can then be personalized with your logo and company name, and you can print copies as needed. If you need hundreds of copies, you can print out a stock form to use as camera-ready art for the print shop, but you can produce even fairly large quantities quickly and cheaply by employing a good

Table 1. Programs and manufacturers.

Commodore
1200 Wilson Drive
West Chester, PA 19380

GEOS
Berkeley Softworks
2150 Shattuck Ave.
Berkeley, CA 94704

The Print Shop
Broderbund
17 Paul Drive
San Rafael, CA 94903

PrintMaster
Unison World
2150 Shattuck Ave.
Berkeley, CA 94704

The Newsroom
Springboard
7807 Creekridge Circle
Minneapolis, MN 55435

Flexidraw
Inkwell Systems
5710 Ruffin Rd.
San Diego, CA 92123

Doodle!
Crystal Rose Software
109 South Los Robles
Pasadena, CA 91101

KoalaPaint
Koala Technologies
269 Mt. Herman Rd.
Scotts Valley, CA 95066

photocopy machine. I have even printed business cards (a dozen or so to a page) on cover stock and cut them apart with a paper cutter.

CREATING ADVERTISEMENTS

You can use your computer to create ads for your own business or that of other small-business owners, or to run in your own small newspaper or newsletter. If you have a publication that reaches enough people, local businesses and individuals will be anxious to advertise with you. Also, magazines and newspapers may offer discounts for camera-ready art you produce yourself.

Two mistakes I've observed in computer-produced ads, especially small ones, are mixing fonts and including too much (therefore too small) copy. You'll get more variety and clarity for the reader by choosing one font with several sizes and style options. Try to develop a critical eye by collecting and analyzing good and bad examples of ads. This becomes important when you want to sell ads in your own newspaper or shopper. Re-do a prospective customer's ad running in a local publication, improving it every way you can. Then, when you present the layout to him, exactly the way it will look in your publication, the ad can sell itself.

DESKTOP PUBLISHING PROJECTS

There are many other kinds of things you can publish with your Commodore system: reports, manuals, brochures, catalogs, booklets, flyers, greeting cards and much more—even T-shirts and bumper stickers! Space in this introduction to the topic prohibits exploring all of these in detail, but from the hints above and those to follow, you can perhaps be encouraged to experiment; then, having gained experience, use your ingenuity and imagination to create what you want or need.

In an accompanying article, I've outlined the step-by-step process of producing a newsletter with Berkeley Softworks' GEOS. You might generalize much of what is said there and apply it to publishing other kinds of materials. Also see the bibliography in Table 2 of this article for a selection of books on desktop publishing.

TO SPEED YOU ON YOUR WAY

If you're really serious about desktop publishing, make it your responsibility to turn out the best product possible. Use a dictionary and thesaurus. Proofread carefully before the final printing. Look for well-designed pieces in periodicals and re-do them for practice. Continually observe and collect samples of what you want to create. This was the best advice given to me while studying commercial art in college. The files I've collected over the years have proven invaluable in forming ideas for new projects. Now I'm putting ideas in computer files to use with future projects.

Desktop publishing can be an enjoyable and profitable way to put your computer to use. With

sufficient time and energy invested, it can be a full-time business. A year and a half ago, thinking my C-64 was on the way out, I thought that buying one of the expensive systems was the only way I could produce what I wanted. But with all the recent advances in software and hardware, I'm expanding my present C-128 system and getting very satisfactory results. I think you, too, may find that desktop publishing with the C-64 or 128 can prove to be exciting and promising. ■

Susan Lamb is a freelance commercial artist and painter—and an avid desktop publisher.

Table 2. Selected bibliography.

Designing with Type

James Craig
Watson-Guptill Publications
New York, 1971

Desktop Publishing

Frederic E. Davis, John A. Barry
and Michael Wiesenbergl
Dow Jones-Irwin
Homewood, Illinois, 1986

Desktop Publishing

Jonathan Price and Carlene Schnabel
Ballantine Books
New York, 1987

Desktop Publishing

Ritvo and Kearsley
Park Row Press
La Jolla, California, 1987

Desktop Publishing From A to Z

Bill Grout, Irene Athanasopoulos
and Rebecca Kutlin
Osborne McGraw-Hill
Berkeley, California, 1986

A Desktop Publisher's Guide To Pasteup

Tony Middleton
PLUSware, Inc.
Colorado Springs, Colorado, 1987

Editing by Design

Jan V. White
R. R. Bowker Company, 1984

Production for the Graphic Designer

James Craig
Watson-Guptill Publications
New York, 1974

Continually
observe
and collect
samples of
what you
want to
create.



Watch Out, *Mac!*

By REBECCA BEGLEY

A wave of software has arrived to spur desktop publishing for the C-64.

BY NOW, JUST ABOUT EVERYONE has heard of desktop publishing, but many are still not quite sure what it is.

In traditional publishing, the production stage comprises six distinct phases. In the first, pages are designed or laid out. The layout artists decide what elements will be on a page and where to place them. The second phase is the actual production of these elements, from phototypesetting text to procuring graphics. In the third phase, galleys are proofread for errors, or typos, and corrected. In the fourth phase, the separate graphic and typographic elements are pasted onto a board, following the designer's layout.

In the last two phases, the text and graphics on the boards are proofread for content, positioning, headers and footers and cleanliness of the pages. Finally, once approved, the pages go to the printer to be printed and bound and packaged for shipping.

In desktop publishing, you use a computer and peripherals to combine the first five phases in such a way that you reduce costs drastically, shorten production time and complete all phases

but the actual printing yourself.

With a desktop publishing program, you first produce a layout structure, usually using boxes, or windows, on the monitor screen for positioning, along with headers and footers. Text and graphics are then transferred or "imported" from word processor and graphics files and "pasted" into the appropriate windows. The pages are then output to a dot matrix or laser printer, bypassing the need for galley proofs, because type and graphics both can be reformatted or repositioned as required.

The three packages reviewed here—geoPublish by Berkeley Softworks, Personal Newsletter by Softsync and Electronic Arts' Outrageous Pages—may not yet have quite the professional capacity of the better-known software for the Macintosh or IBM PCs (which cost between \$400 and \$1000), but each has a lot to offer at a fraction of the cost. Two more software packages, The Timeworks' Desktop Publisher and PaperClip Publisher from Electronic Arts, are mentioned in the sidebar to this article, but were not yet available for review.

GeoPublish

Of the three software packages I used, geoPublish most resembles professional desktop publishing programs. While it offers great power and versatility for its relatively low price, be prepared to spend some time learning how to use it effectively. While many of the program's features are self-explanatory, especially to those familiar with the GEOS system of icons and pull-down menus, other things must be looked up,

and Berkeley's manual is often inadequate as a quick, easy reference. Many of the toolbox icons are not immediately recognizable, and although they may be referred to many times in the text, they may be labeled only once and not even referenced as such in the index.

The equipment needed to use geoPublish, besides a C-64 and disk drive, are a mouse (preferred) or joystick; Berkeley Softwork's file-

conversion program, Text Grabber, to convert your word processing files to geoWrite format; Graphics Grabber, for converting Print Shop, PrintMaster and Newsroom graphics files; and the GEOS system disk.

In addition, the publishers recommend you have a RAM expansion unit, geoWrite Workshop (originally called Writer's Workshop), a GEOS-supported printer, an interface card or geoPrint Cable and a second disk drive. If you're in a tight economic situation, rest assured that, with a little planning and lots of patience, geoPublish can be effective without the extra RAM or second drive. However, if you want your type to look professional, Berkeley strongly recommends you get geoWrite.

GeoPublish has three modes: Master, Layout and Graphics. The Master mode lets you create one or two master pages, that is, the elements that will be on every page, such as margins, headers, footers and graphics. You can form your own pages or select some from the library provided on the geoPublish disk (for either 60-, 72- or 80-dpi printers).

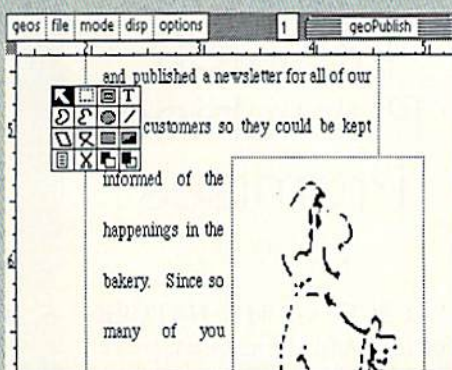
The Layout mode lets you specify more detailed layout features, transfer text and graphics and, if necessary, change the layout. The Graphics mode lets you add graphics (with some features that would be nice in geoPaint, such as the "spline" and "polygon" tools) and headline or caption text.

Bit-map graphics can be created using geoPaint or can be imported from other graphics programs such as The Print Shop. Bit-mapped graphics can be re-sized, stretched or smoothed out. They may also be flipped or rotated, centered in a region and made either transparent (non-destructive to other graphics) or opaque.

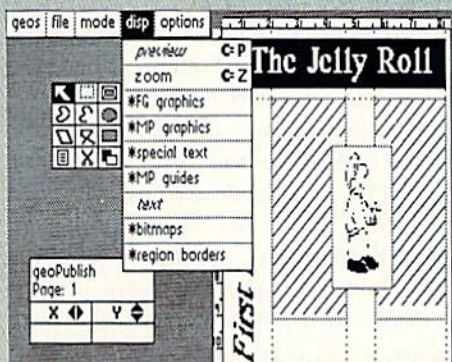
In addition, a laser printer may be used for output. The cheapest and easiest way is through QuantumLink, which has offered a laser printing service to geoWrite users for some time. Although the geoLaser application was not available in the review package, it should be available in subsequent versions, and I've always been satisfied with the laser printing service available through Q-link.

With some practice and some (unnecessarily

inconvenient) flipping back and forth through the manual, geoPublish can be a powerful and effective semi-professional publishing tool and a bargain at the price of \$69.95. In addition, Berkeley Softworks offers excellent customer support with a customer service number during office hours (Pacific Time) or after hours through Q-Link.



Using Zoom mode in geoPublish makes the page appear as it will when it's printed out.



Display Pull Down Menu shows the different options that can be seen on the screen at any time.

Personal Newsletter

Softsync's Personal Newsletter, which operates in C-64 mode, requires one disk drive (a second is supported), a joystick or mouse, a printer and the GEOS system disk. It requires a little less disk space, and some of the features (such as scrolling) work a little faster than geoPublish. Personal Newsletter comes with clip art on the system disk and an extra clip-art library disk. GeoPaint files can also be used as imported graphics. The man-

ual is more clearly structured than Berkeley's.

However, Personal Newsletter lacks some of the significant features of geoPublish. Although text is more easily entered directly onto a Personal Newsletter page, there is no way to transfer text from a word processing file. Entering text directly on the page eliminates a step but does not allow as great a versatility in restructuring a layout. Also, Personal Newsletter does not have ►



The Future: Desktop Publishing Promises

BECAUSE OF THE NATURE of the publishing beast, we're putting this article together at the same time various manufacturers are planning new desktop publishing programs. Stay tuned for future News and New Products announcements or Software Gallery reviews of the two products described below.

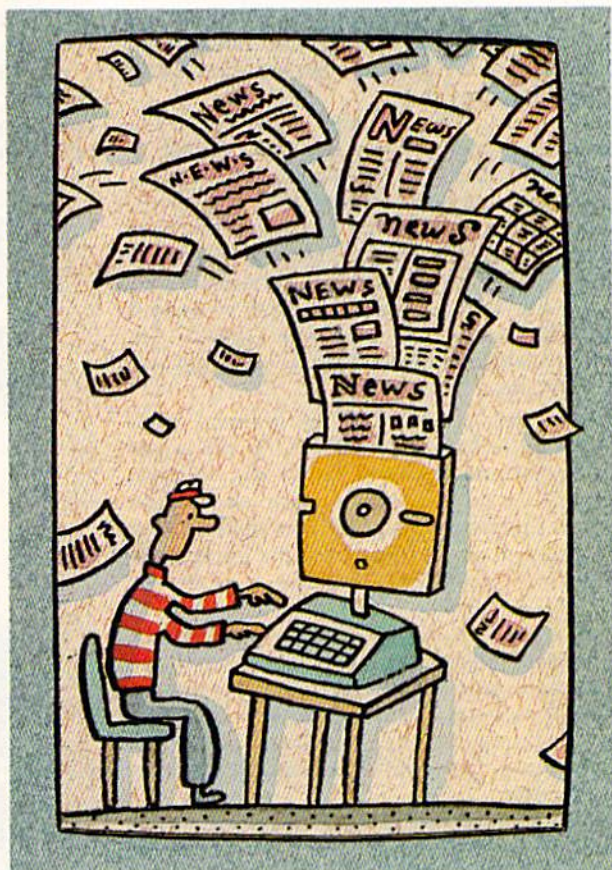
According to the folks at Timeworks, their Desktop Publisher will include a WYSIWYG display; that is, what you see on the screen is what you get on your printout. You'll be able to choose from built-in patterns and brushes, design your own illustrations, or import from other drawing programs. Repositioning graphics will be done with a mouse or joystick.

Type sizes are to range from nine to 36 points, with optional styles like serif, sans serif, italic, bold, underline, reverse and so on. The Timeworks' Desktop Publisher is going to have a built-in word processor, along with the ability to import text from Timeworks' own and other commercially available programs. Automatic text flow, word wrap and kerning promise to give your document a professional look.

Another WYSIWYG program should be available from Electronic Arts. PaperClip Publisher is being planned to support PaperClip, Paperback Writer, Bank Street Writer, Word Writer and other word processing formats, along with graphics formats from Doodle!, Newsroom, Outrageous Pages, Certificate Maker and The Print Shop. Drawing functions should include freehand, airbrush, built-in brush and two levels of magnification. Bold, italic, shadow, outline, backslant, mirror, sub-/superscript and reverse highlight the list of planned text enhancements.

When looking toward page layout, you should be able to spill text and paint graphics into a box, link or unlink text boxes, move boxes around, move graphics within a box, size a box to reformat text or graphics, and more. In addition, you'll be able to choose from five box-border styles and 26 background patterns, define internal box margins and justify text.

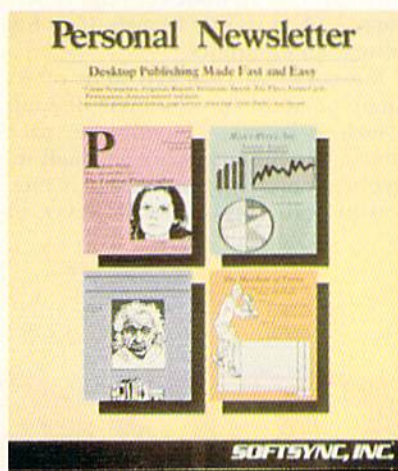
If, as and when the promised programs come to light, aspiring desktop publishers should have quite a crop to choose from! ☐



direct graphics capabilities like drawing lines or ellipses. All graphics must be imported, with the exception of boxes. Windows in Personal Newsletter are created much as they are in geoPaint, except that the borders are printed whether you want them or not.

Personal Newsletter is strong in its ability to import graphics. It has three utilities for this purpose: Import, Scraper and Convert. Import moves graphics files such as digitized art or Commodore graphics files into geoPaint. Scraper creates a file that can be directly loaded into a photo album without using geoPaint, and Convert lets you import graphics from Print Shop clip art disks. It does not, however, have the rescaling options available on geoPublish.

Especially since Personal Newsletter requires GEOS to run, the fact that it's \$20 less than geoPublish seems insignificant considering the features it lacks and the support and upgrades one receives with Berkeley's GEOS products. But if you're looking for something that will print out a finished product with little time and effort,



Personal Newsletter seems like a reliable, easy-to-learn product.

Outrageous Pages

Outrageous Pages is produced by Electronic Arts. It does not promote itself as desktop publishing software, but the company does promise to produce graphic art "to rival what professionals create" and to print quality text. Like Personal Newsletter, it comes with its own clip art (called "cutouts"). It also has 60 widely varying fonts and a utility for creating your own.

Outrageous Pages does not require, nor is it compatible with, GEOS. For that reason, it's an alternative for those who don't own or don't wish to use GEOS products. It employs the keyboard, a joystick or a mouse as input devices, and, like GEOS, it has icons and pull-down menus. Its manual is relatively easy to comprehend, and, like geoPublish and Personal Newsletter, it has a tutorial that guides you step by step through its various processes. Unlike its counterparts, the Outrageous Pages manual lacks an index (this reviewer's pet peeve), but the table of contents is fairly straightforward.

Outrageous's Image Editor has some of the same photo-editing features as geoPaint, such as re-sizing, flipping, zooming and rotating and, in addition, has templates for calendars, invitations and certificates. The Editor allows for both direct entry of text and graphics (using a window system much like geoPublish's and Personal Newsletter's), as well as having importing capabilities. Image Editor also strays a bit from the newsletter emphasis.

Outrageous Pages does not support laser printing and is only minimally helpful in directing you toward the correct printer driver unless

yours happens to be one of the 12 printers represented. Because it's limited to dot matrix or near-letter-quality output, it cannot be considered a near-professional desktop publishing package. On the other hand, Outrageous Pages ►

Table 1. Manufacturers and prices of software reviewed.

geoPublish

Berkeley Softworks
2150 Shattuck Ave.
Berkeley, CA 94704
415-644-0890
\$69.95

Personal Newsletter

Softsync, Inc.
16 Madison Ave.
New York, NY 10016
212-685-2080
\$49.95

Outrageous Pages

Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
415-578-0316
\$49.95



is inexpensive (\$49.95) and doesn't require any other software. And, as its title implies, it's a fun approach to text and graphics.

None of the packages reviewed here offers features found on more professional desktop publishers, such as kerning (varying the space between letters), varying line space in small increments, hyphenation and measurement in metric, as well as in points and picas. However, in

their relatively short lifespan, the GEOS products in particular have a history of upgrades suggesting that geoPublish might not be far behind the desktop publishing pack. ■

Rebecca Begley is a copy writer and graphic designer for an advertising agency that uses a desktop publishing system. She also works her C-64 hard at freelance writing.

geo Newsletter

By SUSAN LAMB

Here's a
step-by-step
guide
to creating
a newsletter
with
GEOS.



THE MENTION OF DESKTOP PUBLISHING makes many people think of newsletters, and usually the image is of a rather crude, amateurish publication. But with recent developments in software, desktop publishing can lead to professional-looking results. Whatever the content of your newsletter, typesetting makes for easier and more pleasant reading than a typewritten product.

Best of all, with the low-priced C-64, 1541 disk drive, dot matrix printer, 1351 mouse and GEOS software, almost anyone can produce a newsletter. With this combination emphasizing economy, I've achieved excellent results and overcome my financial limitations. Once you learn the techniques and gain experience, you can add hardware or software and possibly use your knowledge to publish newsletters for profit.

GEOPAINT VERSUS GEOWRITE

Choosing between the GEOS programs geoPaint and geoWrite depends on the form and size of your newsletter. GeoWrite allows you to type a lot of copy with ease, but doesn't let you place graphics at will. If you are creating newsletters with geoWrite, I'd recommend purchasing geoWrite Workshop (formerly called Writer's Workshop), which incorporates geoWrite and

several other programs to give you much greater flexibility.

Personally, I prefer to use geoPaint for newsletters, because it makes it possible to place graphics images anywhere on the page and combine them with text. It may take longer at first, but once a format has been established and templates have been created, fitting in the text is faster and easier.

THE BEGINNING PUBLISHER: STEP-BY-STEP PRODUCTION

Staring at a blank page and wondering where and how to start can be very intimidating when planning a newsletter. Assuming that your text is written and you're familiar with GEOS, I'll walk you through the following seven steps: rough layout and dummy; banner and masthead; page templates; fitting copy and typeface selection; graphics; printing; and distribution.

ROUGH LAYOUT AND DUMMY

I've found that the easiest and most accurate way to plan each page is to lay out the elements on graph paper, created with GEOS and a printer. I employ the larger grid in the lower-left corner of the fill patterns and fill each draw-

ing window on a page. This corresponds to graph paper that is 10 squares to the inch. The page lacks one pixel in both width and length, but it's not enough to worry about. Printing out this page gives you the sheets you can use to accurately plan each newsletter page.

If you find that this graph paper is too dark to make your layout, the grid can be lightened with "fill" set on a screen pattern. The fill crosshair must be put precisely on any line of the grid. Some lines may not become screened the first time, so put the crosshair on each solid line and click the mouse button. Then print the graph paper using an older, lighter ribbon. If this grid is too small for you, make up a page of square inches or half inches.

Once you've done the rough layouts for all the pages, you tape or paste them together to form a dummy. This shows the entire newsletter, how the pages relate to one another and how it'll be folded for mailing. If it's a self-mailer, the dummy illustrates where the address appears so that it opens right-side up.

If you make the dummy from the paper you'll use in the final printing, it'll give you an idea of the bulk and weight of the finished piece, which are important considerations when figuring mailing costs.

BANNER AND MASTHEAD

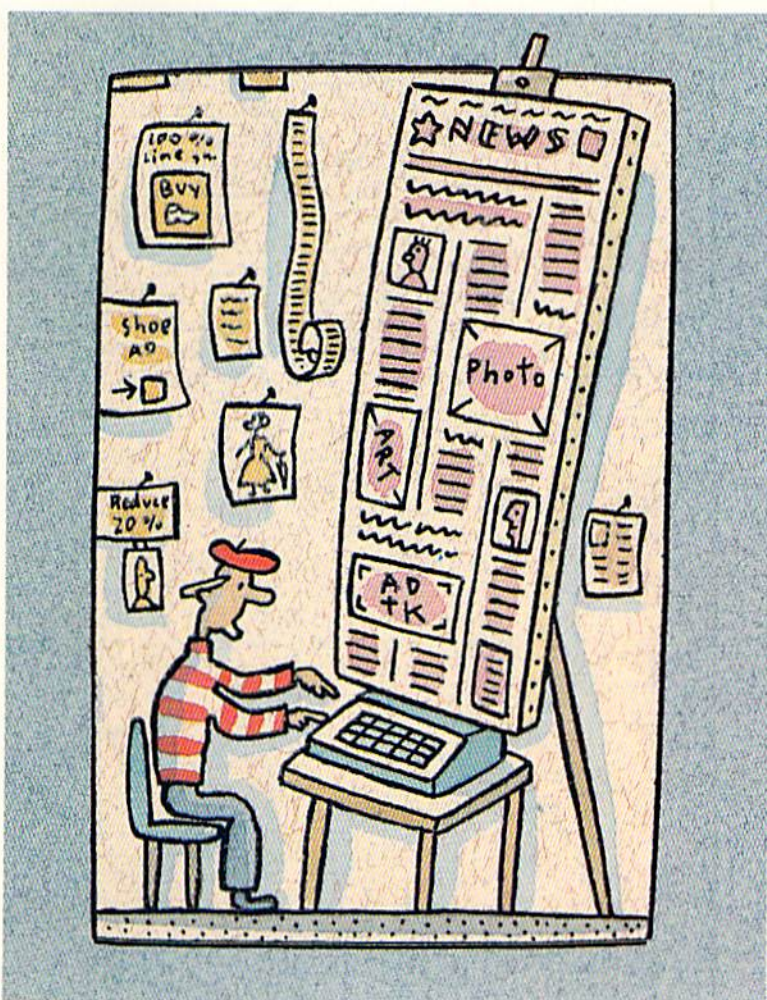
The banner, the title or identification of the newsletter, usually appears across the top of the first page. However, I've seen banners effectively placed vertically on either side of the page or along the bottom. Indicate, with a box or lines around the banner, the separation from the copy. In addition to the name, which is usually in larger or bolder type, the date and issue number, you might want to include some artwork or a slogan.

The masthead is a small box, usually on an inside page, that contains the names of the publisher, editor and any staff members or contributors. Don't forget to include the publication's address and any subscription information here. These two elements, along with the self-mailer address area, should have the same format for each issue and can be integrated into the page templates.

PAGE TEMPLATES

In geoPaint, every time you create a page with various elements, you have a template that can be saved and used again. The banner, masthead, address area, page numbers, department headings, editorial area, even a classified advertising section can be included in the template.

For a simple newsletter, three templates should cover all the pages: one for the front page with banner, one for inner pages of text and graphics, and one for the back page if it's to be a self-mailer. More complicated templates can be created if you've established departments that will have the same headings but different information in each issue.



I make templates by taking a page of the graph paper and eliminating the grid according to my rough layout. I use the solid box, set on white, and erase the grid up to the lines that form the template. Columns can be indicated with permanent lines or lines that can be erased after text and graphics are inserted. By experimenting, you'll find out just where to place the crosshairs for a text or edit box.

Keep templates on a storage disk and make copies whenever you begin a new issue. If you're publishing newsletters for a number of clients, make a variety of templates to keep the newsletters separate and individual. The original creation of the templates is time consuming, but the time saved when putting the newsletter together more than makes up for it.

TYPEFACE SELECTION

To make your communication appealing, the text must not only be interesting, but also easy to read. This is particularly important when using fonts printed on a dot matrix printer. Before deciding on a font, check readability by printing out sections of copy in different sizes. Your choice can be improved by setting the type in ►

If you absolutely can't draw, the solution may be clip art.

bold or by using the next larger point size.

A newsletter publisher can do a lot with the typefaces provided on the original GEOS program disk. They include two Gothic (sans serif) fonts, a Roman (serif) font, Computer style and Old English. These can be varied with bold, italic, outline and reverse. Although these basics are enough to get started, the additional 20 fonts included in Fontpack 1 can greatly expand your creative options. However, it's important not to mix too many fonts in your newsletter. For a clearer design, it's better to use one font or at least closely related fonts. Headlines will get more attention if set in a more elaborate or unusual font.

A serif typeface is best for the body of your newsletter. The serifs, little strokes at the top and bottom of each letter, move the eye from one letter to the next, which makes the words easier to read. Also, keep in mind that some people have trouble reading very small text.

Print out columns of the copy using the font. Measure the width of the column on your template to determine the width of the text blocks. Leave enough of a margin between columns so that it doesn't look crowded. The copy can be

typed directly onto the page template in a text box, making sure it fits into your layout. Or, it can be set in geoWrite and moved to the template on text scraps. Experimentation will help devise the best method for your purpose.

GRAPHICS AND ILLUSTRATIONS

Even the decidedly non-artistic can achieve satisfactory results when creating graphics for a newsletter. The tools in geoPaint help you generate simple graphics even if you can't draw a straight line. Actually, drawing a straight line with a computer is easy; it's the curves that are difficult.

Other than the circle, geoPaint has no way to handle curved lines, so they must be drawn free-hand. I have drawn with a mouse, joystick, graphics tablet and light pen, yet I always end up doing many corrections in Pixel Edit. I have much more success by first using other graphics software that more deftly handles curved lines, and then converting the art to geoPaint for finishing.

Depending on the TV or monitor you're using, you might be creating with an image that's vertically elongated, so that it looks squashed when printed. I solve this problem by adjusting the monitor. I draw a circle and then adjust the picture until it looks perfectly round. This leaves black space at the top and bottom of the screen, but I find it far less distracting than the elongation.

When using GEOS 128 in 80 columns, this problem defies rectification. I usually draw in 40-Column mode and switch to 80 columns when composing a page and moving elements via text or photo scraps. The larger, full-page-wide scraps save a lot of time and let you see so much more of the document at once.

If you absolutely can't draw, yet want to include graphics in a newsletter, the solution may be clip art, so called because it's patterned after the books of camera-ready art that are commonly used by newspapers and advertising artists. The piece of art selected is clipped out and used as is or altered to fit a particular size or purpose. Computer art isn't actually clipped, but moved as a file to your document. With GEOS, it's moved by way of a photo scrap.

There are clip art collections from The Print Shop, PrintMaster, Newsroom, Flexidraw and others. The first three can be converted to geoPaint by using the Graphics Grabber on the GEOS Desktop 1 disk.

I've created a clip art collection especially for GEOS that I call Graphic Idea Files. After the text is set into the templates, I go through all my clip art files and select graphics appropriate to the subject and put them into a Photo Album using the Photo Manager. To avoid sizing problems, it's a good idea to alter the artwork to fit the template before putting it in the Photo Album. Use a ruler to ensure that artwork fits into the spaces indicated on the templates. If you want to include text within graphics or have text fit closely around the art, it can be set and placed where desired, becoming part of the graphics.

Table 1. Clip art collections.

The Print Shop Graphics Libraries
Broderbund Software
17 Paul Drive
San Rafael, CA 94903
415-492-3200

PrintMaster Art Galleries
Unison World, Inc.
2150 Shattuck Ave.
Berkeley, CA 94704
415-848-6666

Newsroom Clip Art
Springboard Software
7807 Creekridge Circle
Minneapolis, MN 55435
612-944-3915

Flexidraw Graphics Galleria
Inkwell Systems
PO Box 85152 MB290
San Diego, CA 92138
619-268-8792

Graphic Idea Files
Lamb Art & Design
1764 Avenue B
Yuma, AZ 85364
602-782-3053



Table 2. Research aids.

Eighteen Ways to Evaluate a Newsletter Idea Before You Publish and Ten Key Steps in Starting a Newsletter

Steve Sahlein

Promotion and Marketing

51 Villa Rd.

Larchmont, NY 10538

Oxbridge Directory of Newsletters

Oxbridge Communications

150 Fifth Ave.

New York, NY 10011

Lists more than 13,000 newsletters of various types.

Editing Your Newsletter: A Guide to Writing, Design and Production

Mark Beach

Coast to Coast Books, 1982

A no-nonsense, basic guide.

The Graphic Designers Handbook

Alastair Campbell

QED Publishing, 1983

Fundamental graphic design help.

Publishing Newsletters

Howard Penn Hudson

Charles Scribner and Sons, 1982

Excellent guide to the newsletter business.

After the copy is set on the template, take the Photo Album and strip in the graphics with the Photo Manager.

Graphs and charts are an effective way of adding illustrations to an otherwise uninteresting newsletter full of comparative figures. There are software programs that accurately produce graphs, but they must be made compatible with the GEOS format. In making up a newsletter with geoPaint or geoWrite, it's just as easy to plot the figures yourself. What I do is make a template the size of a drawing window—this can be changed or updated with each issue. You'll probably be using the same types of figures each week or month, so taking the time to make the templates is worthwhile. For most situations, the graphs don't need to be extremely accurate—their main purpose is to show comparisons of different figures or up and down trends.

Circle graphs, or pie charts, are used to illustrate a percentage of a whole figure, such as a budget. Rather than thinking of the circle as 360 degrees, I prefer to think of it as 100 percent. Therefore, half the circle is 50 percent, a quarter is 25 percent, and so on. Using the line tool, I created a template and broke the circle into portions as small as two and one-half percent. As long as your pie chart is fairly accurate and the figures add up to 100 percent, it'll serve the purpose for your newsletter.

Bar charts and line graphs show trends and comparisons from month to month or year to year. Several categories can be on one graph as long as you use different patterns or line widths to differentiate them. If you aren't experienced at making up graphs from scratch, I suggest studying newspaper examples to see which ones would suit your purposes, and then duplicate them for your newsletter.

PRINTING

A geoLaser printout is the ideal reproduction, but good results can also be achieved on a dot matrix printer. Each page is printed for use as

camera-ready art—that is, ready to be copied. Use a good black ribbon on clean white paper and touch up any streaks with a black felt pen. The final printed newsletter will only look as good as your original artwork.

Whether you have the newsletter reproduced by a print shop or simply run off photocopies yourself depends on your budget and how many copies you need. If you need a large number of copies, it's best to go to a print shop that offers photo-offset printing. Check with local printers as to their artwork requirements and what services they offer. Your newsletter can be printed on 11 x 17-inch sheets, folded in half and stapled in the middle. Colored paper and ink are available, as well as services for binding and stapling.

DISTRIBUTION

There are many ways to distribute your newsletter. If it's for a club or organization, you need the names of members for your mailing list. Other options include buying selected mailing lists or advertising in magazines and periodicals of similar interest. In a small classified ad, you could offer free information for subscribing to your newsletter, or offer a free sample copy. Selling single copies for a nominal fee will cover mailing costs and add to your mailing list. For a large distribution, check with the Post Office for bulk mailing information and rates.

THE EXPERIENCED PUBLISHER

I've presented you with the basic information you need to produce a simple newsletter using GEOS. There are many books available that explore newsletter publishing in greater detail, but you might also make a practice of collecting newsletters to analyze their different elements and formats. Reading sample newsletters, both good and bad, can give you a lot of practical knowledge for producing your own. A serious newsletter publisher takes the time to research the subject and the techniques involved in producing something people will want to read. ■

Readingsample newsletters can give you a lot of practical knowledge.



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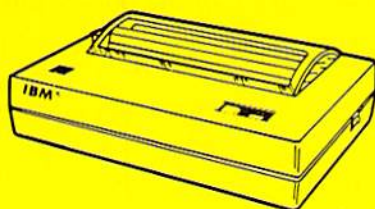
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Home Inventory

Protect yourself against loss with a description of the possessions in your home, their location and value.

By IAN ADAM

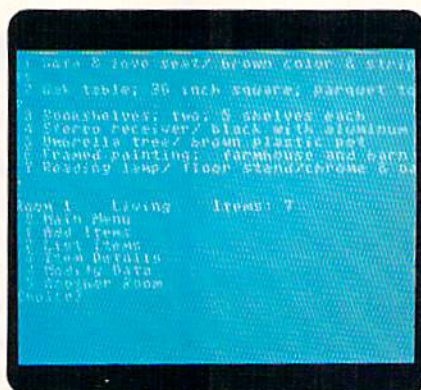
When fire or theft strikes your home, nothing can make up for the feelings of disruption and violation of privacy it evokes, but at least, you reassure yourself, insurance will help cover the financial loss. However, if you've ever made a claim for lost property, you know what a frustrating experience it can be. Even if you can recall everything that was lost and describe it in some detail, you're still likely to have arguments over quality, condition and such. What's more, without hard identification such as serial numbers and dimensions, it's nearly impossible for the police to recover and return belongings.

You can avoid a lot of these problems by using my Home Inventory program to prepare a thorough list of your possessions in advance. Such a list can help you decide how much insurance you need, then speed and strengthen any claim you may have to make, as well as assist the police in recovering your possessions if theft is involved.

TWO VERSIONS

Listing 1 and Listing 2 are Home Inventory programs for the C-64 and C-128, respectively. Both versions, written in Basic, are straightforward to type in. Use the appropriate version of RUN's Checksum program to type in the proper listing for your computer; then save it to disk before running it. I'd suggest you devote a fresh disk to this application, including the program itself, plus the inventory files you'll input. In that way, everything will be handy when you want to work on your inventory.

The C-128 version has a number of more sophisticated features than the 64 version. First, it supports the 80-column screen, allowing you to see more information while you type. Second, it uses



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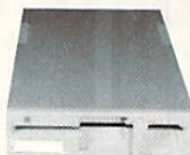
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Circle 206 on Reader Service card.

HOME INVENTORY

disk (option 2) and ending the program (option 0) will erase the data you have in memory. For this reason, if you select one of these options, you'll be asked to confirm your intention before the program will execute the option. Assuming you have a copy of the data on disk, press Y and return to tell the program to proceed.

COMPILING YOUR INVENTORY

After you've finished creating a file or loading one from disk, choose main menu option 3, Work on Data, and the program shows you the list of rooms and the number of items described for each. To select a room to work on, type either its number or defined name. After you select a room, you get a second menu. To add items, choose option 1.

(If you're opening a new room, give it a name, then start entering items at the prompt, thus bypassing the second menu.)

This is where you must be thorough. Scour the real room carefully and enter all items of any value (small items may be grouped as one entry). For each item, enter a complete description, including make and model, size, color, current condition, and so forth. You're allowed up to two screen lines per item—80 characters on the C-64 or 160 characters on the C-128.

The only limitation on your input, since this is Basic, is that you use no commas or colons; I find that semi-colons and slashes make quite adequate separators, anyway. You can get around this constraint if you must by starting your input with a quotation mark, but this makes the description more difficult to edit.

Next, enter any unique identifying characteristics, such as serial number, unusual dimensions or scratches, that would help establish the item as yours in court.

The remaining data to be entered includes the approximate age of the item, in years, the price you originally paid for it and its present value. Your insurance company will need this information in handling your claim.

There are two approaches to present value. Traditionally, you'd enter the depreciated value—that is, the amount the item would probably fetch when sold used. An item that's been in use for a few years and is still in fairly good shape might be valued at about half its new cost, for example. If you have a replacement-cost endorsement in your insurance policy, the present value is defined as the cost of a new, comparable item. In your inventory, use whichever

method your insurance calls for—just be consistent.

When you're finished with a room, enter Q in place of the item description to return to the main menu. You can always come back later and add more items, until the room is full.

REVIEWING YOUR DATA

If you want to make additions or alterations to data you've already entered, type in the room number or name, then choose the option you want from the data revision menu that then appears on the screen. Option 1 is for adding items, while option 2 displays the descriptions of all items currently in the room. The items scroll by fast, so you may want to slow or stop the listing with the keys appropriate to your computer (CTRL on the 64 and the Commodore key on the 128). Press return at the end to get back to the revision menu.

To see more details on a specific item, choose option 3 in the revision menu and enter the item number. To get back to the revision menu, enter 0 for the item number.

If you want to change some information on an item, choose the revision menu's option 4, Modify Data, and enter the item number. After the program lists the present data for that item, type in any changes you want to make; press return for data to be left unchanged. When finished, enter 0 as the item number to get back to the revision menu.

Once you've made all the changes you want to the current room, choose option 5 to move to another room or option 0 to return to the main menu.

SAVING TO DISK

While building your inventory, be sure to save the file to disk frequently, so you won't lose a lot of work to a computer failure or power glitch. To save an inventory file, choose option 4 from the main menu. When you're asked for the filename, just press return to save the file under its current name. If you want to change the filename, type in the one you want, and the name will be changed accordingly. If you type in a name you've used before on the disk, the program will tell you the file exists and ask if you want to replace it. If so, press Y and return to erase the old file and save the new one in its place. Otherwise, enter N and try again, using a different filename.

PRINTED REPORTS

After you have your inventory on disk, you can use option 5 in the main menu to prepare printed reports of var-

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ious kinds. When you select this option, the program first asks if you want the printout to start with room 1. If so, press return; if not, press the number of the room you want it to start with. Then the program asks if you want the printout to end with the last room in your file. If so, press return; if not, press the number of the last room you want included. After indicating your choices, you'll get the print menu.

There are many combinations of printers and interfaces in Commodoreland, and I've written Home Inventory to support as many of them as possible. If you encounter difficulties, such as double-spacing or funny graphics characters, try changing the secondary address, using option 4 in the print menu (see below). The manual for your printer or interface will suggest what value to use to get upper- and lowercase letters, with line feeds.

Home Inventory can generate various kinds of reports. A Summary Data report gives the number of items in each room, their total cost and present value, and the total data for the specified range of rooms. This type of report is helpful for deciding in advance how much insurance you need.

The Short ID, Age and Cost report is a table of short descriptions and full financial data for all items. In building this table, you may have to trim down some descriptions and IDs, because only 46 and 15 characters, respectively, are allowed for them. Don't worry; brief descriptions are plenty for the aim of this report, which is to help you assess your detailed insurance needs and review your growing estate.

When you select the Full Descriptions and IDs report, financial data on individual items is left out and only the detailed descriptions, identifying characteristics and room summaries are printed. This report is for the police to use in identifying and recovering your possessions.

A Full Report includes the full description and ID for each item, along with its age and financial data. This printout allows two lines for long descriptions and IDs. This is the most complete printout, and is the one you should save for your own records.

When your printer has finished, the program returns to the main menu.

FINAL TIPS

When you've completed your inventory, make a backup, including both the program and your data files, as an archival copy. In addition, order up a printout of the full report, put it in an

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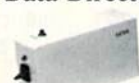
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Circle 192 on Reader Service card.

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HOME INVENTORY

envelope, label it and store it in a safe place, away from home. It won't do you any good if it's been burned in the fire or stolen in the robbery. Good locations include a safe deposit box or your lawyer's or insurance agent's office.

You may be tempted to put off preparing a home inventory, because it takes time and a good deal of concentration. However, let me assure you, it's a lot more difficult to do when you don't have the items in front of you. Type in

this program and compile your home inventory soon! 

Ian Adam is an engineer who has written several programs for RUN, including Handy Window and Snowflake.

Listing 1. Home Inventory 84 program.

```

0 REM HOME INVENTORY 64 - IAN A 340 INPUT#1,NR$(I),IR(I):REM*69 710 PRINT"THE ROOM THEY ARE KEP
DAM :REM*240 350 FOR J=1 TO IR(I) :REM*241 T IN." :REM*165
10 NF$="NONE" :REM*254 360 INPUT#1,IT$(I,J),ID$(I,J),A 720 GOSUB 740:GOTO 20 :REM*81
20 PRINT"{SHFT CLR}{CRSR DN} * 730 : :REM*23
HOME INVENTORY BY IAN ADAM" :REM*117 370 NEXT:IF J>NI THEN IR(I)=NI 740 INPUT"{CRSR DN}MAXIMUM # OF
:REM*117 380 NEXT :REM*188 ROOMS";I :REM*238
30 PRINT"{2 CRSR DNs}" :REM*30 390 GOSUB 520:GOSUB 1650:GOTO 2 :REM*69
40 PRINT"FILE NAME:",NF$ :REM*255 400 : :REM*203 750 INPUT"MAXIMUM ITEMS PER ROO
:REM*244 410 PRINT"PRESS RETURN FOR: "NF M";J :REM*69
50 PRINT"TOTAL ROOMS{3 SPACES}" :REM*208 420 D$="S,W" :REM*182 760 NR=I:NI=J :REM*87
, NR :REM*208 430 GOSUB 560:IF A>19 THEN RETU 770 IF A>I THEN I=A :REM*54
60 PRINT"ITEMS PER ROOM",NI :REM*203 440 PRINT#1,NR:PRINT#1,NI:B$=" 780 IF B>J THEN J=B :REM*80
:REM*203 450 FOR I=1 TO NR :REM*249 790 DIM IT$(I,J),ID$(I,J),AG(I,
70 PRINT"ITEMS ENTERED ",CI :REM*205 460 PRINT#1,B$+NR$(I):PRINT#1,I R(I) :REM*233
:REM*205 470 FOR J=1 TO IR(I) :REM*74 800 RETURN :REM*173
80 PRINT"{2 CRSR DNs}THE MAIN M 480 PRINT#1,B$+IT$(I,J):PRINT#1 ,B$+ID$(I,J) :REM*105 810 : :REM*103
ENU{CRSR DN}" :REM*47 490 PRINT#1,AG(I,J):PRINT#1,NV( 820 GOSUB 1200 :REM*111
90 SA=7:K=198:M$(0)="END" :REM*174 500 NEXT:NEXT :REM*116 830 INPUT"WORK ON WHICH ROOM (Q
:REM*68 510 : :REM*58 840 A=VAL(A$):IF A THEN 880 :REM*185
100 M$(1)="CREATE FILE":REM*234 520 CLOSE1:INPUT#2,A,B$:CLOSE2 :REM*139
110 M$(2)="GET FILE FROM DISK" :REM*210 530 IF A>19 THEN PRINT"PROBLEM: 850 FOR I=1 TO NR :REM*159
:REM*138 540 RETURN :REM*168 860 IF A$=NR$(I) THEN A=I :REM*235
120 M$(3)="WORK ON DATA" :REM*174 550 : :REM*40 870 NEXT :REM*213
130 M$(4)="SAVE TO DISK" :REM*27 560 INPUT"FILE NAME";NF$ :REM*143
140 M$(5)="PRINTED REPORT" :REM*191 570 DF$=LEFT$(NF$,12)+".INV" :REM*72
:REM*27 580 D$="0:"+DF$+D$ :REM*79 910 PRINT" 0. MAIN MENU" :REM*233
150 FOR I=0 TO 5 :REM*249 590 OPEN2,8,15 :REM*34 920 PRINT" 1. ADD ITEMS" :REM*181
160 PRINTI;M$(I):NEXT :REM*182 600 OPEN1,8,8,D$ :REM*138 930 PRINT" 2. LIST ITEMS" :REM*141
170 PRINT"{CRSR DN}CHOICE?":WAI 610 INPUT#2,A,A$ :REM*56 940 PRINT" 3. ITEM DETAILS" :REM*234
T K,7:GET A$:A=VAL(A$) :REM*25 620 IF A<20 THEN RETURN :REM*25 950 PRINT" 4. MODIFY DATA" :REM*169
:REM*100 630 PRINTA$:CLOSE1:CLOSE2 :REM*197 960 PRINT" 5. ANOTHER ROOM" :REM*220
180 PRINT:PRINT"(SHFT CLR)"M$(A 640 IF A=63 THEN INPUT"{CTRL 9} 970 PRINT"CHOICE?":WAIT K,7:GET
) :REM*191 RETURN";A$:RETURN :REM*208 A$:B=VAL(A$) :REM*197
190 IF A>2 AND NR=0 THEN INPUT" 650 PRINT"REPLACE OLD FILE? Y/N 980 IF B<1 THEN 1650 :REM*235
NO DATA!";A$:RUN :REM*103 660 IF A$<"Y" THEN RETURN :REM*169 990 IF B>4 THEN 820 :REM*78
200 IF A>2 OR NR=0 THEN 220 670 OPEN2,8,15,"S0:"+DF$:GOTO 6 1000 PRINT:ON B GOSUB 1040,1250
:REM*198 680 : :REM*224 ,1100,1140:GOTO 900 :REM*194
210 PRINT"{CRSR DN}ARE YOU SURE 690 CLR:INPUT"{CRSR DN}FILE NAM 1010 : :REM*40
? Y/N":WAIT K,7:GET A$:IF A 700 E";NF$ :REM*87 1020 IF NR$(A)=" THEN INPUT"NA
$<"Y" THEN 20 :REM*87 710 PRINT"{CRSR DN}ITEMS ARE GR 1030 : :REM*68
220 ON A+1 GOSUB 230,690,250,82 720 PRINT"ITEMS ARE GR 1040 B=IR(A)+1:GOSUB 1560 :REM*70
0,410,1690:GOTO 20 :REM*201 730 PRINT"ITEMS ARE GR 1050 IF B>NI THEN INPUT"ROOM IS
230 END :REM*103 740 PRINT"ITEMS ARE GR 1060 RETURN :REM*179
240 : :REM*43 750 PRINT"ITEMS ARE GR 1070 RETURN :REM*179
250 CLR:D$="S,R" :REM*191 760 PRINT"ITEMS ARE GR 1080 RETURN :REM*179
260 GOSUB 560:IF A>19 THEN RUN 770 PRINT"ITEMS ARE GR 1090 RETURN :REM*179
:REM*136 780 PRINT"ITEMS ARE GR 1100 RETURN :REM*179
270 INPUT#1,A,B :REM*225 790 PRINT"ITEMS ARE GR 1110 RETURN :REM*179
280 PRINT"{CRSR DN}FILE "NF$" A 800 PRINT"ITEMS ARE GR 1120 RETURN :REM*179
LLOWS"A :REM*2 810 PRINT"ITEMS ARE GR 1130 RETURN :REM*179
290 PRINT"ROOMS, &"B"ITEMS PER 820 PRINT"ITEMS ARE GR 1140 RETURN :REM*179
ROOM." :REM*143 830 PRINT"ITEMS ARE GR 1150 RETURN :REM*179
300 PRINT"PRESS RETURN IF OK, O 840 PRINT"ITEMS ARE GR 1160 RETURN :REM*179
R ENTER:" :REM*88 850 PRINT"ITEMS ARE GR 1170 RETURN :REM*179
310 I=A:J=B:GOSUB 740 :REM*120 860 PRINT"ITEMS ARE GR 1180 RETURN :REM*179
320 : :REM*123 870 PRINT"ITEMS ARE GR 1190 RETURN :REM*179
330 FOR I=1 TO A :REM*248 880 PRINT"ITEMS ARE GR 1200 RETURN :REM*179
890 PRINT"ITEMS ARE GR 1210 RETURN :REM*179
900 PRINT"ITEMS ARE GR 1220 RETURN :REM*179
910 PRINT"ITEMS ARE GR 1230 RETURN :REM*179
920 PRINT"ITEMS ARE GR 1240 RETURN :REM*179
930 PRINT"ITEMS ARE GR 1250 RETURN :REM*179
940 PRINT"ITEMS ARE GR 1260 RETURN :REM*179
950 PRINT"ITEMS ARE GR 1270 RETURN :REM*179
960 PRINT"ITEMS ARE GR 1280 RETURN :REM*179
970 PRINT"ITEMS ARE GR 1290 RETURN :REM*179
980 PRINT"ITEMS ARE GR 1300 RETURN :REM*179
990 PRINT"ITEMS ARE GR 1310 RETURN :REM*179
1000 PRINT"ITEMS ARE GR 1320 RETURN :REM*179
1010 PRINT"ITEMS ARE GR 1330 RETURN :REM*179
1020 PRINT"ITEMS ARE GR 1340 RETURN :REM*179
1030 PRINT"ITEMS ARE GR 1350 RETURN :REM*179
1040 PRINT"ITEMS ARE GR 1360 RETURN :REM*179
1050 PRINT"ITEMS ARE GR 1370 RETURN :REM*179
1060 PRINT"ITEMS ARE GR 1380 RETURN :REM*179
1070 PRINT"ITEMS ARE GR 1390 RETURN :REM*179
1080 PRINT"ITEMS ARE GR 1400 RETURN :REM*179
1090 PRINT"ITEMS ARE GR 1410 RETURN :REM*179
1100 PRINT"ITEMS ARE GR 1420 RETURN :REM*179
1110 PRINT"ITEMS ARE GR 1430 RETURN :REM*179
1120 PRINT"ITEMS ARE GR 1440 RETURN :REM*179
1130 PRINT"ITEMS ARE GR 1450 RETURN :REM*179
1140 PRINT"ITEMS ARE GR 1460 RETURN :REM*179
1150 PRINT"ITEMS ARE GR 1470 RETURN :REM*179
1160 PRINT"ITEMS ARE GR 1480 RETURN :REM*179
1170 PRINT"ITEMS ARE GR 1490 RETURN :REM*179
1180 PRINT"ITEMS ARE GR 1500 RETURN :REM*179
1190 PRINT"ITEMS ARE GR 1510 RETURN :REM*179
1200 PRINT"ITEMS ARE GR 1520 RETURN :REM*179
1210 PRINT"ITEMS ARE GR 1530 RETURN :REM*179
1220 PRINT"ITEMS ARE GR 1540 RETURN :REM*179
1230 PRINT"ITEMS ARE GR 1550 RETURN :REM*179
1240 PRINT"ITEMS ARE GR 1560 RETURN :REM*179
1250 PRINT"ITEMS ARE GR 1570 RETURN :REM*179
1260 PRINT"ITEMS ARE GR 1580 RETURN :REM*179
1270 PRINT"ITEMS ARE GR 1590 RETURN :REM*179
1280 PRINT"ITEMS ARE GR 1600 RETURN :REM*179
1290 PRINT"ITEMS ARE GR 1610 RETURN :REM*179
1300 PRINT"ITEMS ARE GR 1620 RETURN :REM*179
1310 PRINT"ITEMS ARE GR 1630 RETURN :REM*179
1320 PRINT"ITEMS ARE GR 1640 RETURN :REM*179
1330 PRINT"ITEMS ARE GR 1650 RETURN :REM*179
1340 PRINT"ITEMS ARE GR 1660 RETURN :REM*179
1350 PRINT"ITEMS ARE GR 1670 RETURN :REM*179
1360 PRINT"ITEMS ARE GR 1680 RETURN :REM*179
1370 PRINT"ITEMS ARE GR 1690 RETURN :REM*179
1380 PRINT"ITEMS ARE GR 1700 RETURN :REM*179
1390 PRINT"ITEMS ARE GR 1710 RETURN :REM*179
1400 PRINT"ITEMS ARE GR 1720 RETURN :REM*179
1410 PRINT"ITEMS ARE GR 1730 RETURN :REM*179
1420 PRINT"ITEMS ARE GR 1740 RETURN :REM*179
1430 PRINT"ITEMS ARE GR 1750 RETURN :REM*179
1440 PRINT"ITEMS ARE GR 1760 RETURN :REM*179
1450 PRINT"ITEMS ARE GR 1770 RETURN :REM*179
1460 PRINT"ITEMS ARE GR 1780 RETURN :REM*179
1470 PRINT"ITEMS ARE GR 1790 RETURN :REM*179
1480 PRINT"ITEMS ARE GR 1800 RETURN :REM*179
1490 PRINT"ITEMS ARE GR 1810 RETURN :REM*179
1500 PRINT"ITEMS ARE GR 1820 RETURN :REM*179
1510 PRINT"ITEMS ARE GR 1830 RETURN :REM*179
1520 PRINT"ITEMS ARE GR 1840 RETURN :REM*179
1530 PRINT"ITEMS ARE GR 1850 RETURN :REM*179
1540 PRINT"ITEMS ARE GR 1860 RETURN :REM*179
1550 PRINT"ITEMS ARE GR 1870 RETURN :REM*179
1560 PRINT"ITEMS ARE GR 1880 RETURN :REM*179
1570 PRINT"ITEMS ARE GR 1890 RETURN :REM*179
1580 PRINT"ITEMS ARE GR 1900 RETURN :REM*179
1590 PRINT"ITEMS ARE GR 1910 RETURN :REM*179
1600 PRINT"ITEMS ARE GR 1920 RETURN :REM*179
1610 PRINT"ITEMS ARE GR 1930 RETURN :REM*179
1620 PRINT"ITEMS ARE GR 1940 RETURN :REM*179
1630 PRINT"ITEMS ARE GR 1950 RETURN :REM*179
1640 PRINT"ITEMS ARE GR 1960 RETURN :REM*179
1650 PRINT"ITEMS ARE GR 1970 RETURN :REM*179
1660 PRINT"ITEMS ARE GR 1980 RETURN :REM*179
1670 PRINT"ITEMS ARE GR 1990 RETURN :REM*179
1680 PRINT"ITEMS ARE GR 2000 RETURN :REM*179
1690 PRINT"ITEMS ARE GR 2010 RETURN :REM*179
1700 PRINT"ITEMS ARE GR 2020 RETURN :REM*179
1710 PRINT"ITEMS ARE GR 2030 RETURN :REM*179
1720 PRINT"ITEMS ARE GR 2040 RETURN :REM*179
1730 PRINT"ITEMS ARE GR 2050 RETURN :REM*179
1740 PRINT"ITEMS ARE GR 2060 RETURN :REM*179
1750 PRINT"ITEMS ARE GR 2070 RETURN :REM*179
1760 PRINT"ITEMS ARE GR 2080 RETURN :REM*179
1770 PRINT"ITEMS ARE GR 2090 RETURN :REM*179
1780 PRINT"ITEMS ARE GR 2100 RETURN :REM*179
1790 PRINT"ITEMS ARE GR 2110 RETURN :REM*179
1800 PRINT"ITEMS ARE GR 2120 RETURN :REM*179
1810 PRINT"ITEMS ARE GR 2130 RETURN :REM*179
1820 PRINT"ITEMS ARE GR 2140 RETURN :REM*179
1830 PRINT"ITEMS ARE GR 2150 RETURN :REM*179
1840 PRINT"ITEMS ARE GR 2160 RETURN :REM*179
1850 PRINT"ITEMS ARE GR 2170 RETURN :REM*179
1860 PRINT"ITEMS ARE GR 2180 RETURN :REM*179
1870 PRINT"ITEMS ARE GR 2190 RETURN :REM*179
1880 PRINT"ITEMS ARE GR 2200 RETURN :REM*179
1890 PRINT"ITEMS ARE GR 2210 RETURN :REM*179
1900 PRINT"ITEMS ARE GR 2220 RETURN :REM*179
1910 PRINT"ITEMS ARE GR 2230 RETURN :REM*179
1920 PRINT"ITEMS ARE GR 2240 RETURN :REM*179
1930 PRINT"ITEMS ARE GR 2250 RETURN :REM*179
1940 PRINT"ITEMS ARE GR 2260 RETURN :REM*179
1950 PRINT"ITEMS ARE GR 2270 RETURN :REM*179
1960 PRINT"ITEMS ARE GR 2280 RETURN :REM*179
1970 PRINT"ITEMS ARE GR 2290 RETURN :REM*179
1980 PRINT"ITEMS ARE GR 2300 RETURN :REM*179
1990 PRINT"ITEMS ARE GR 2310 RETURN :REM*179
2000 PRINT"ITEMS ARE GR 2320 RETURN :REM*179
2010 PRINT"ITEMS ARE GR 2330 RETURN :REM*179
2020 PRINT"ITEMS ARE GR 2340 RETURN :REM*179
2030 PRINT"ITEMS ARE GR 2350 RETURN :REM*179
2040 PRINT"ITEMS ARE GR 2360 RETURN :REM*179
2050 PRINT"ITEMS ARE GR 2370 RETURN :REM*179
2060 PRINT"ITEMS ARE GR 2380 RETURN :REM*179
2070 PRINT"ITEMS ARE GR 2390 RETURN :REM*179
2080 PRINT"ITEMS ARE GR 2400 RETURN :REM*179
2090 PRINT"ITEMS ARE GR 2410 RETURN :REM*179
2100 PRINT"ITEMS ARE GR 2420 RETURN :REM*179
2110 PRINT"ITEMS ARE GR 2430 RETURN :REM*179
2120 PRINT"ITEMS ARE GR 2440 RETURN :REM*179
2130 PRINT"ITEMS ARE GR 2450 RETURN :REM*179
2140 PRINT"ITEMS ARE GR 2460 RETURN :REM*179
2150 PRINT"ITEMS ARE GR 2470 RETURN :REM*179
2160 PRINT"ITEMS ARE GR 2480 RETURN :REM*179
2170 PRINT"ITEMS ARE GR 2490 RETURN :REM*179
2180 PRINT"ITEMS ARE GR 2500 RETURN :REM*179
2190 PRINT"ITEMS ARE GR 2510 RETURN :REM*179
2200 PRINT"ITEMS ARE GR 2520 RETURN :REM*179
2210 PRINT"ITEMS ARE GR 2530 RETURN :REM*179
2220 PRINT"ITEMS ARE GR 2540 RETURN :REM*179
2230 PRINT"ITEMS ARE GR 2550 RETURN :REM*179
2240 PRINT"ITEMS ARE GR 2560 RETURN :REM*179
2250 PRINT"ITEMS ARE GR 2570 RETURN :REM*179
2260 PRINT"ITEMS ARE GR 2580 RETURN :REM*179
2270 PRINT"ITEMS ARE GR 2590 RETURN :REM*179
2280 PRINT"ITEMS ARE GR 2600 RETURN :REM*179
2290 PRINT"ITEMS ARE GR 2610 RETURN :REM*179
2300 PRINT"ITEMS ARE GR 2620 RETURN :REM*179
2310 PRINT"ITEMS ARE GR 2630 RETURN :REM*179
2320 PRINT"ITEMS ARE GR 2640 RETURN :REM*179
2330 PRINT"ITEMS ARE GR 2650 RETURN :REM*179
2340 PRINT"ITEMS ARE GR 2660 RETURN :REM*179
2350 PRINT"ITEMS ARE GR 2670 RETURN :REM*179
2360 PRINT"ITEMS ARE GR 2680 RETURN :REM*179
2370 PRINT"ITEMS ARE GR 2690 RETURN :REM*179
2380 PRINT"ITEMS ARE GR 2700 RETURN :REM*179
2390 PRINT"ITEMS ARE GR 2710 RETURN :REM*179
2400 PRINT"ITEMS ARE GR 2720 RETURN :REM*179
2410 PRINT"ITEMS ARE GR 2730 RETURN :REM*179
2420 PRINT"ITEMS ARE GR 2740 RETURN :REM*179
2430 PRINT"ITEMS ARE GR 2750 RETURN :REM*179
2440 PRINT"ITEMS ARE GR 2760 RETURN :REM*179
2450 PRINT"ITEMS ARE GR 2770 RETURN :REM*179
2460 PRINT"ITEMS ARE GR 2780 RETURN :REM*179
2470 PRINT"ITEMS ARE GR 2790 RETURN :REM*179
2480 PRINT"ITEMS ARE GR 2800 RETURN :REM*179
2490 PRINT"ITEMS ARE GR 2810 RETURN :REM*179
2500 PRINT"ITEMS ARE GR 2820 RETURN :REM*179
2510 PRINT"ITEMS ARE GR 2830 RETURN :REM*179
2520 PRINT"ITEMS ARE GR 2840 RETURN :REM*179
2530 PRINT"ITEMS ARE GR 2850 RETURN :REM*179
2540 PRINT"ITEMS ARE GR 2860 RETURN :REM*179
2550 PRINT"ITEMS ARE GR 2870 RETURN :REM*179
2560 PRINT"ITEMS ARE GR 2880 RETURN :REM*179
2570 PRINT"ITEMS ARE GR 2890 RETURN :REM*179
2580 PRINT"ITEMS ARE GR 2900 RETURN :REM*179
2590 PRINT"ITEMS ARE GR 2910 RETURN :REM*179
2600 PRINT"ITEMS ARE GR 2920 RETURN :REM*179
2610 PRINT"ITEMS ARE GR 2930 RETURN :REM*179
2620 PRINT"ITEMS ARE GR 2940 RETURN :REM*179
2630 PRINT"ITEMS ARE GR 2950 RETURN :REM*179
2640 PRINT"ITEMS ARE GR 2960 RETURN :REM*179
2650 PRINT"ITEMS ARE GR 2970 RETURN :REM*179
2660 PRINT"ITEMS ARE GR 2980 RETURN :REM*179
2670 PRINT"ITEMS ARE GR 2990 RETURN :REM*179
2680 PRINT"ITEMS ARE GR 3000 RETURN :REM*179
2690 PRINT"ITEMS ARE GR 3010 RETURN :REM*179
2700 PRINT"ITEMS ARE GR 3020 RETURN :REM*179
2710 PRINT"ITEMS ARE GR 3030 RETURN :REM*179
2720 PRINT"ITEMS ARE GR 3040 RETURN :REM*179
2730 PRINT"ITEMS ARE GR 3050 RETURN :REM*179
2740 PRINT"ITEMS ARE GR 3060 RETURN :REM*179
2750 PRINT"ITEMS ARE GR 3070 RETURN :REM*179
2760 PRINT"ITEMS ARE GR 3080 RETURN :REM*179
2770 PRINT"ITEMS ARE GR 3090 RETURN :REM*179
2780 PRINT"ITEMS ARE GR 3100 RETURN :REM*179
2790 PRINT"ITEMS ARE GR 3110 RETURN :REM*179
2800 PRINT"ITEMS ARE GR 3120 RETURN :REM*179
2810 PRINT"ITEMS ARE GR 3130 RETURN :REM*179
2820 PRINT"ITEMS ARE GR 3140 RETURN :REM*179
2830 PRINT"ITEMS ARE GR 3150 RETURN :REM*179
2840 PRINT"ITEMS ARE GR 3160 RETURN :REM*179
2850 PRINT"ITEMS ARE GR 3170 RETURN :REM*179
2860 PRINT"ITEMS ARE GR 3180 RETURN :REM*179
2870 PRINT"ITEMS ARE GR 3190 RETURN :REM*179
2880 PRINT"ITEMS ARE GR 3200 RETURN :REM*179
2890 PRINT"ITEMS ARE GR 3210 RETURN :REM*179
2900 PRINT"ITEMS ARE GR 3220 RETURN :REM*179
2910 PRINT"ITEMS ARE GR 3230 RETURN :REM*179
2920 PRINT"ITEMS ARE GR 3240 RETURN :REM*179
2930 PRINT"ITEMS ARE GR 3250 RETURN :REM*179
2940 PRINT"ITEMS ARE GR 3260 RETURN :REM*179
2950 PRINT"ITEMS ARE GR 3270 RETURN :REM*179
2960 PRINT"ITEMS ARE GR 3280 RETURN :REM*179
2970 PRINT"ITEMS ARE GR 3290 RETURN :REM*179
2980 PRINT"ITEMS ARE GR 3300 RETURN :REM*179
2990 PRINT"ITEMS ARE GR 3310 RETURN :REM*179
3000 PRINT"ITEMS ARE GR 3320 RETURN :REM*179
3010 PRINT"ITEMS ARE GR 3330 RETURN :REM*179
3020 PRINT"ITEMS ARE GR 3340 RETURN :REM*179
3030 PRINT"ITEMS ARE GR 3350 RETURN :REM*179
3040 PRINT"ITEMS ARE GR 3360 RETURN :REM*179
3050 PRINT"ITEMS ARE GR 3370 RETURN :REM*179
3060 PRINT"ITEMS ARE GR 3380 RETURN :REM*179
3070 PRINT"ITEMS ARE GR 3390 RETURN :REM*179
3080 PRINT"ITEMS ARE GR 3400 RETURN :REM*179
3090 PRINT"ITEMS ARE GR 3410 RETURN :REM*179
3100 PRINT"ITEMS ARE GR 3420 RETURN :REM*179
3110 PRINT"ITEMS ARE GR 3430 RETURN :REM*179
3120 PRINT"ITEMS ARE GR 3440 RETURN :REM*179
3130 PRINT"ITEMS ARE GR 3450 RETURN :REM*179
3140 PRINT"ITEMS ARE GR 3460 RETURN :REM*179
3150 PRINT"ITEMS ARE GR 3470 RETURN :REM*179
3160 PRINT"ITEMS ARE GR 3480 RETURN :REM*179
3170 PRINT"ITEMS ARE GR 3490 RETURN :REM*179
3180 PRINT"ITEMS ARE GR 3500 RETURN :REM*179
3190 PRINT"ITEMS ARE GR 3510 RETURN :REM*179
3200 PRINT"ITEMS ARE GR 3520 RETURN :REM*179
3210 PRINT"ITEMS ARE GR 3530 RETURN :REM*179
3220 PRINT"ITEMS ARE GR 3540 RETURN :REM*179
3230 PRINT"ITEMS ARE GR 3550 RETURN :REM*179
3240 PRINT"ITEMS ARE GR 3560 RETURN :REM*179
3250 PRINT"ITEMS ARE GR 3570 RETURN :REM*179
3260 PRINT"ITEMS ARE GR 3580 RETURN :REM*179
3270 PRINT"ITEMS ARE GR 3590 RETURN :REM*179
3280 PRINT"ITEMS ARE GR 3600 RETURN :REM*179
3290 PRINT"ITEMS ARE GR 3610 RETURN :REM*179
3300 PRINT"ITEMS ARE GR 3620 RETURN :REM*179
3310 PRINT"ITEMS ARE GR 3630 RETURN :REM*179
3320 PRINT"ITEMS ARE GR 3640 RETURN :REM*179
3330 PRINT"ITEMS ARE GR 3650 RETURN :REM*179
3340 PRINT"ITEMS ARE GR 3660 RETURN :REM*179
3350 PRINT"ITEMS ARE GR 3670 RETURN :REM*179
3360 PRINT"ITEMS ARE GR 3680 RETURN :REM*179
3370 PRINT"ITEMS ARE GR 3690 RETURN :REM*179
3380 PRINT"ITEMS ARE GR 3700 RETURN :REM*179
3390 PRINT"ITEMS ARE GR 3710 RETURN :REM*179
3400 PRINT"ITEMS ARE GR 3720 RETURN :REM*179
3410 PRINT"ITEMS ARE GR 3730 RETURN :REM*179
3420 PRINT"ITEMS ARE GR 3740 RETURN :REM*179
3430 PRINT"ITEMS ARE GR 3750 RETURN :REM*179
3440 PRINT"ITEMS ARE GR 3760 RETURN :REM*179
3450 PRINT"ITEMS ARE GR 3770 RETURN :REM*179
3460 PRINT"ITEMS ARE GR 3780 RETURN :REM*179
3470 PRINT"ITEMS ARE GR 3790 RETURN :REM*179
3480 PRINT"ITEMS ARE GR 3800 RETURN :REM*179
3490 PRINT"ITEMS ARE GR 3810 RETURN :REM*179
3500 PRINT"ITEMS ARE GR 3820 RETURN :REM*179
3510 PRINT"ITEMS ARE GR 3830 RETURN :REM*179
3520 PRINT"ITEMS ARE GR 3840 RETURN :REM*179
3530 PRINT"ITEMS ARE GR 3850 RETURN :REM*179
3540 PRINT"ITEMS ARE GR 3860 RETURN :REM*179
3550 PRINT"ITEMS ARE GR 3870 RETURN :REM*179
3560 PRINT"ITEMS ARE GR 3880 RETURN :REM*179
3570 PRINT"ITEMS ARE GR 3890 RETURN :REM*179
3580 PRINT"ITEMS ARE GR 3900 RETURN :REM*179
3590 PRINT"ITEMS ARE GR 3910 RETURN :REM*179
3600 PRINT"ITEMS ARE GR 3920 RETURN :REM*179
3610 PRINT"ITEMS ARE GR 3930 RETURN :REM*179
3620 PRINT"ITEMS ARE GR 3940 RETURN :REM*179
3630 PRINT"ITEMS ARE GR 3950 RETURN :REM*179
3640 PRINT"ITEMS ARE GR 3960 RETURN :REM*179
3650 PRINT"ITEMS ARE GR 3970 RETURN :REM*179
3660 PRINT"ITEMS ARE GR 3980 RETURN :REM*179
3670 PRINT"ITEMS ARE GR 3990 RETURN :REM*179
3680 PRINT"ITEMS ARE GR 4000 RETURN :REM*179
3690 PRINT"ITEMS ARE GR 4010 RETURN :REM*179
3700 PRINT"ITEMS ARE GR 4020 RETURN :REM*179
3710 PRINT"ITEMS ARE GR 4030 RETURN :REM*179
3720 PRINT"ITEMS ARE GR 4040 RETURN :REM*179
3730 PRINT"ITEMS ARE GR 4050 RETURN :REM*179
3740 PRINT"ITEMS ARE GR 4060 RETURN :REM*179
3750 PRINT"ITEMS ARE GR 4070 RETURN :REM*179
3760 PRINT"ITEMS ARE GR 4080 RETURN :REM*179
3770 PRINT"ITEMS ARE GR 4090 RETURN :REM*179
3780 PRINT"ITEMS ARE GR 4100 RETURN :REM*179
3790 PRINT"ITEMS ARE GR 4110 RETURN :REM*179
3800 PRINT"ITEMS ARE GR 4120 RETURN :REM*179
3810 PRINT"ITEMS ARE GR 4130 RETURN :REM*179
3820 PRINT"ITEMS ARE GR 4140 RETURN :REM*179
3830 PRINT"ITEMS ARE GR 4150 RETURN :REM*179
3840 PRINT"ITEMS ARE GR 4160 RETURN :REM*179
3850 PRINT"ITEMS ARE GR 4170 RETURN :REM*179
3860 PRINT"ITEMS ARE GR 4180 RETURN :REM*179
3870 PRINT"ITEMS ARE GR 4190 RETURN :REM*179
3880 PRINT"ITEMS ARE GR 4200 RETURN :REM*179
3890 PRINT"ITEMS ARE GR 4210 RETURN :REM*179
3900 PRINT"ITEMS ARE GR 4220 RETURN :REM*179
3910 PRINT"ITEMS ARE GR 4230 RETURN :REM*179
3920 PRINT"ITEMS ARE GR 4240 RETURN :REM*179
3930 PRINT"ITEMS ARE GR 4250 RETURN :REM*179
3940 PRINT"ITEMS ARE GR 4260 RETURN :REM*179
3950 PRINT"ITEMS ARE GR 4270 RETURN :REM*179
3960 PRINT"ITEMS ARE GR 4280 RETURN :REM*179
3970 PRINT"ITEMS ARE GR 4290 RETURN :REM*179
3980 PRINT"ITEMS ARE GR 4300 RETURN :REM*179
3990 PRINT"ITEMS ARE GR 4310 RETURN :REM*179
4000 PRINT"ITEMS ARE GR 4320 RETURN :REM*179
4010 PRINT"ITEMS ARE GR 4330 RETURN :REM*179
4020 PRINT"ITEMS ARE GR 4340 RETURN :REM*179
4030 PRINT"ITEMS ARE GR 4350 RETURN :REM*179
4040 PRINT"ITEMS ARE GR 4360 RETURN :REM*179
4050 PRINT"ITEMS ARE GR 4370 RETURN :REM*179
4060 PRINT"ITEMS ARE GR 4380 RETURN :REM*179
4070 PRINT"ITEMS ARE GR 4390 RETURN :REM*179
4080 PRINT"ITEMS ARE GR 4400 RETURN :REM*179
4090 PRINT"ITEMS ARE GR 4410 RETURN :REM*179
4100 PRINT"ITEMS ARE GR 4420 RETURN :REM*179
4110 PRINT"ITEMS ARE GR 4430 RETURN :REM*179
4120 PRINT"ITEMS ARE GR 4440 RETURN :REM*179
4130 PRINT"ITEMS ARE GR 4450 RETURN :REM*179
4140 PRINT"ITEMS ARE GR 4460 RETURN :REM*179
4150 PRINT"ITEMS ARE GR 4470 RETURN :REM*179
4160 PRINT"ITEMS ARE GR 4480 RETURN :REM*179
4170 PRINT"ITEMS ARE GR 4490 RETURN :REM*179
4180 PRINT"ITEMS ARE GR 4500 RETURN :REM*179
4190 PRINT"ITEMS ARE GR 4510 RETURN :REM*179
4200 PRINT"ITEMS ARE GR 4520 RETURN :REM*179
4210 PRINT"ITEMS ARE GR 4530 RETURN :REM*179
4220 PRINT"ITEMS ARE GR 4540 RETURN :REM*179
4230 PRINT"ITEMS ARE GR 4550 RETURN :REM*179
4240 PRINT"ITEMS ARE GR 4560 RETURN :REM*179
4250 PRINT"ITEMS ARE GR 4570 RETURN :REM*179
4260 PRINT"ITEMS ARE GR 4580 RETURN :REM*179
4270 PRINT"ITEMS ARE GR 4590 RETURN :REM*179
4280 PRINT"ITEMS ARE GR 4600 RETURN :REM*179
4290 PRINT"ITEMS ARE GR 4610 RETURN :REM*179
4300 PRINT"ITEMS ARE GR 4620 RETURN :REM*179
4310 PRINT"ITEMS ARE GR 4630 RETURN :REM*179
4320 PRINT"ITEMS ARE GR 4640 RETURN :REM*179
4330 PRINT"ITEMS ARE GR 4650 RETURN :REM*179
4340 PRINT"ITEMS ARE GR 4660 RETURN :REM*179
4350 PRINT"ITEMS ARE GR 4670 RETURN :REM*179
4360 PRINT"ITEMS ARE GR 4680 RETURN :REM*179
4370 PRINT"ITEMS ARE GR 4690 RETURN :REM*179
4380 PRINT"ITEMS ARE GR 4700 RETURN :REM*179
4390 PRINT"ITEMS ARE GR 4710 RETURN :REM*179
4400 PRINT"ITEMS ARE GR 4720 RETURN :REM*179
4410 PRINT"ITEMS ARE GR 4730 RETURN :REM*179
4420 PRINT"ITEMS ARE GR 4740 RETURN :REM*179
4430 PRINT"ITEMS ARE GR 4750 RETURN :REM*179
4440 PRINT"ITEMS ARE GR 4760 RETURN :REM*179
4450 PRINT"ITEMS ARE GR 4770 RETURN :REM*179
4460 PRINT"ITEMS ARE GR 4780 RETURN :REM*179
4470 PRINT"ITEMS ARE GR 4790 RETURN :REM*179
4480 PRINT"ITEMS ARE GR 4800 RETURN :REM*179
4490 PRINT"ITEMS ARE GR 4810 RETURN :REM*179
4500 PRINT"ITEMS ARE GR 4820 RETURN :REM*179
4510 PRINT"ITEMS ARE GR 4830 RETURN :REM*179
4520 PRINT"ITEMS ARE GR 4840 RETURN :REM*179
4530 PRINT"ITEMS ARE GR 4850 RETURN :REM*179
4540 PRINT"ITEMS ARE GR 4860 RETURN :REM*179
4550 PRINT"ITEMS ARE GR 4870 RETURN :REM*179
4560 PRINT"ITEMS ARE GR 4880 RETURN :REM*179
4570 PRINT"ITEMS ARE GR 4890 RETURN :REM*179
4580 PRINT"ITEMS ARE GR 4900 RETURN :REM*179
4590 PRINT"ITEMS ARE GR 4910 RETURN :REM*179
4600 PRINT"ITEMS ARE GR 4920 RETURN :REM*179
4610 PRINT"ITEMS ARE GR 4930 RETURN :REM*179
4620 PRINT"ITEMS ARE GR 4940 RETURN :REM*179
4630 PRINT"ITEMS ARE GR 4950 RETURN :REM*179
4640 PRINT"ITEMS ARE GR 4960 RETURN :REM*179
4650 PRINT"ITEMS ARE GR 4970 RETURN :REM*179
4660 PRINT"ITEMS ARE GR 4980 RETURN :REM*179
4670 PRINT"ITEMS ARE GR 4990 RETURN :REM*179
4680 PRINT"ITEMS ARE GR 5000 RETURN :REM*179
4690 PRINT"ITEMS ARE GR 5010 RETURN :REM*179
4700 PRINT"ITEMS ARE GR 5020 RETURN :REM*179
4710 PRINT"ITEMS ARE GR 5030 RETURN :REM*179
4720 PRINT"ITEMS ARE GR 5040 RETURN :REM*179
4730 PRINT"ITEMS ARE GR 5050 RETURN :REM*179
4740 PRINT"ITEMS ARE GR 5060 RETURN :REM*179
4750 PRINT"ITEMS ARE GR 5070 RETURN :REM*179
4760 PRINT"ITEMS ARE GR 5080 RETURN :REM*179
4770 PRINT"ITEMS ARE GR 5090 RETURN :REM*179
4780 PRINT"ITEMS ARE GR 5100 RETURN :REM*179
4790 PRINT"ITEMS ARE GR 5110 RETURN :REM*179
4800 PRINT"ITEMS ARE GR 5120 RETURN :REM*179
4810 PRINT"ITEMS ARE GR 5130 RETURN :REM*179
4820 PRINT"ITEMS ARE GR 5140 RETURN :REM*179
4830 PRINT"ITEMS ARE GR 5150 RETURN :REM*179
4840 PRINT"ITEMS ARE GR 5160 RETURN :REM*179
4850 PRINT"ITEMS ARE GR 5170 RETURN :REM*179
4860 PRINT"ITEMS ARE GR 5180 RETURN :REM*179
4870 PRINT"ITEMS ARE GR 5190 RETURN :REM*179
4880 PRINT"ITEMS ARE GR 5200 RETURN :REM*179
4890 PRINT"ITEMS ARE GR 5210 RETURN :REM*179
4900 PRINT"ITEMS ARE GR 5220 RETURN :REM*179
4910 PRINT"ITEMS ARE GR 5230 RETURN :REM*179
4920 PRINT"ITEMS ARE GR 5240 RETURN :REM*179
4930 PRINT"ITEMS ARE GR 5250 RETURN :REM*179
4940 PRINT"ITEMS ARE GR 5260 RETURN :REM*179
4950 PRINT"ITEMS ARE GR 5270 RETURN :REM*179
4960 PRINT"ITEMS ARE GR 5280 RETURN :REM*179
4970 PRINT"ITEMS ARE GR 5290 RETURN :REM*179
4980 PRINT"ITEMS ARE GR 5300 RETURN :REM*179
4990 PRINT"ITEMS ARE GR 5310 RETURN :REM*179
5000 PRINT"ITEMS ARE GR 5320 RETURN :REM*179
5010 PRINT"ITEMS ARE GR 5330 RETURN :REM*179
5020 PRINT"ITEMS ARE GR 5340 RETURN :REM*179
5030 PRINT"ITEMS ARE GR 5350 RETURN :REM*179
5040 PRINT"ITEMS ARE GR 5360 RETURN :REM*179
50
```

HOME INVENTORY

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1060 GOSUB 1400 :REM*88 CSRR RTs}";:INPUTID$(A,B) 1840 PRINT"YOUR CHOICE?":WAIT K
1070 IF A$="Q" THEN RETURN :REM*179 ,7:GET A$:M=VAL(A$)
:REM*53 1480 PRINT"AGE, YRS: ",AG(A,B) :REM*185
1080 IR(A)=B:B=B+1:GOTO 1050 :REM*141 1850 IF M<4 THEN 1900 :REM*100
:REM*184 1490 PRINT"{CSRR UP}"TAB(9);:IN 1860 IF M>4 THEN RETURN:REM*242
1090 : :REM*120 1500 PRINT"ORIGINAL COST: "NV(A 1870 PRINT"SECONDARY ADDRESS IS
1100 INPUT"DETAIL ITEM # (0 QUI :REM*8 "B) :REM*127
1110 IF B<1 OR B>IR(A) THEN RET 1510 PRINT"{CSRR UP}"TAB(14);:I 1880 PRINT"CASE, & LINE FEEDS:"
URN :REM*232 NPUTNV(A,B) :REM*44 :INPUT"NEW VALUE";SA:GOTO
1120 GOSUB 1310:GOTO 1100 1520 PRINT"PRESENT VALUE: "PV(A :REM*78
:REM*251 ,B) :REM*162 1890 : :REM*155
1130 : :REM*160 1530 PRINT"{CSRR UP}"TAB(14);:I 1900 OPEN4,4,SA:CMD 4:PRINT:PRI
1140 PRINT"{CSRR DN}PRESS RETUR :REM*120 NT :REM*159
N AT ANY PROMPT TO" 1540 RETURN :REM*148 1910 PRINTCHR$(14)"HOME INVENTO
:REM*191 1550 : :REM*78 RY" :REM*101
1150 PRINT"KEEP THE SAME DATA." 1560 PRINT"{SHFT CLR}FOR EACH I 1920 PRINT"FILE: "NF$:REM*235
:PRINT :REM*239 TEM, GIVE A DESCRIPTION" 1930 T1=0:T2=0:T3=0:B$="(15 SPA
1160 INPUT"MODIFY WHICH ITEM # :REM*25 CES)" :REM*140
(0 QUIT)";B :REM*122 1570 PRINT"INCLUDING MAKE, SIZE 1940 FOR A=S TO E:I=0:J=0
1170 IF B<1 OR B>IR(A) THEN RET :REM*99 :REM*69
URN :REM*47 1580 PRINT"GIVE AN IDENTIFICATI 1950 PRINT:PRINTCHR$(14)"ROOM"A
1180 GOSUB 1400:GOTO 1140 ON SUCH AS SERIAL # OR OTH :REM*70
:REM*95 ER MARKS." :REM*133
1190 : :REM*228 1590 PRINT"COMMAS & COLONS NOT 1960 IF IR(A)=0 THEN 2020
1200 PRINT:PRINT"ROOMS" , , "ITEM :REM*190
S" :REM*143 1600 PRINT"{CSRR DN}AGE IS IN Y 1970 IF MAND1 THEN PRINT"{2 SPA
1210 FOR I=1 TO NR :REM*226 EARS." :REM*95 CES)# DESCRIPTION"SPC(35)"
1220 PRINTI,NR$(I)TAB(32)IR(I) 1610 PRINT"COST IS ORIGINAL PRI ID"SPC(13)"AGE{2 SPACEs}CO
:REM*223 CE OF ITEM," :REM*187 ST VALUE" :REM*69
1230 NEXT:RETURN :REM*105 1620 PRINT"& ESTIMATE THE CURRE 1980 FOR B=1 TO IR(A) :REM*241
1240 : :REM*23 NT VALUE." :REM*16 1990 I=I+NV(A,B):J=J+PV(A,B):ON
1250 PRINT"{SHFT CLR}" :REM*8 1630 PRINT"{CSRR DN}PRESS SPACE M GOSUB 2180,2220,2160
1260 FOR I=1 TO IR(A) :REM*49 BAR":WAIT K,7:GET A$ :REM*168
1270 PRINTI;IT$(A,I) :REM*168 :REM*50 2000 NEXT :REM*90
1280 NEXT:IF IR(A)>16 THEN INPU 1640 : :REM*164 2010 : :REM*28
T"(CTRL 9)RETURN";A$ 1650 CI=0:FOR I=1 TO NR :REM*2 2020 PRINT"TOTAL, ROOM"A
:REM*137 1660 CI=CI+IR(I):NEXT :REM*225 :REM*190
1290 RETURN :REM*157 1670 RETURN :REM*19 2030 B=IR(A):GOSUB 2110:REM*170
1300 : :REM*75 1680 : :REM*204 2040 T1=T1+B:T2=T2+I:T3=T3+J
1310 PRINT"{CSRR DN}ROOM:"NR$( :REM*80
A) :REM*102 1690 PRINT"{CSRR DN}ENSURE PRIN :REM*201
1320 PRINT"ITEM #:"B :REM*188 TER IS READY" :REM*125 2050 NEXT:PRINT :REM*78
1330 PRINT"DESCRIP:"IT$(A,B) :REM*208 2060 : :REM*114
:REM*152 1710 INPUT"{CSRR DN}START REPOR 2070 IF S=E THEN 2100 :REM*114
1340 PRINT"IDENT:"ID$(A,B) T AT ROOM{2 SPACEs}1{3 CRS :REM*98
:REM*75 R LFs}";S :REM*98 2080 PRINTCHR$(14)"TOTAL FOR RO
1350 PRINT"AGE, YRS: ",AG(A,B) 1720 PRINT"END REPORT AT ROOM " :REM*187
:REM*3 NR :REM*255 2090 B=T1:I=T2:J=T3:GOSUB 2110
1360 PRINT"COST: ",NV(A,B) 1730 PRINT"{CSRR UP}"TAB(18);:I :REM*155
:REM*152 NPUTE:PRINT :REM*176 2100 PRINT#4:CLOSE4:RETURN
1370 PRINT"VALUE: ",PV(A,B) 1740 IF S<1 OR S>E OR E>NR THEN :REM*182
:REM*231 RETURN :REM*190 2110 PRINTB$"ITEMS:"SPC(8)B
1380 PRINT:RETURN :REM*19 :REM*23 :REM*73
1390 : :REM*173 1760 PRINT"{SHFT CLR}DESSCRIPTIO 2120 PRINTB$"ORIGINAL COST:"I
1400 PRINT"{SHFT CLR}ROOM:"NR$ :REM*83 :REM*194
(A) :REM*0 N & ID MAY BE CUT TO FIT."
1410 PRINT"ITEM #"B"DESCRIPTION :REM*182 2130 PRINTB$"PRESENT VALUE:"J
(Q: TO QUIT):" :REM*150 :REM*169
1420 PRINTTAB(2)IT$(A,B):REM*30 1770 PRINT"YOUR OPTIONS:":PRINT :REM*226
1430 PRINT"{HOME}{CSRR DN}":INP :REM*255 1780 PRINT"0. SUMMARIZE DATA" :REM*168
UTA$ :REM*234 :REM*250 2160 IF LEN(IT$(A,B))>46 THEN P
1440 IF A$="Q" THEN RETURN 1800 PRINT"2. FULL DESCRIPTIONS :REM*194
:REM*130 & ID'S ONLY" :REM*92 2170 IF LEN(ID$(A,B))>15 THEN P
1450 IT$(A,B)=A$ 1810 PRINT"3. FULL REPORT" :REM*92 2180 PRINTRIGHT$(B$+STR$(B)+ "
:REM*117 ,4)LEFT$(IT$(A,B)+B$+B$+B$ 2190 PRINTLEFT$(ID$(A,B)+B$,15)
1460 BRINT"{HOME}{7 CSRR DN}s}ID :REM*184 2190 PRINTLEFT$(ID$(A,B)+B$,15)
: {2 SPACEs}"ID$(A,B) :REM*220 RIGHT$(B$+STR$(AG(A,B)),3)
:REM*91 ; :REM*204
1470 PRINT"{HOME}{7 CSRR DN}s}{3 1830 PRINT"5. CANCEL" :REM*181

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HOME INVENTORY

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2200 PRINTRIGHT$(B$+STR$(NV(A,B)),6) :REM*30
2210 RETURN :REM*57
2220 PRINTIT$(A,B):PRINTID$(A,B):PRINT:RETURN :REM*188

```

Listing 2. Home Inventory 128 program.

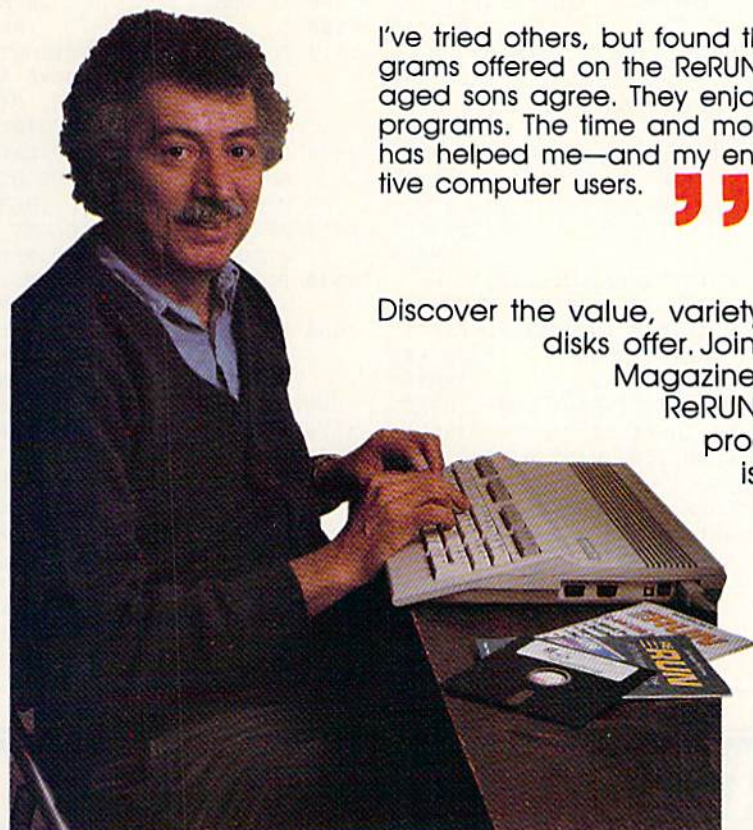
```

0 REM HOME INVENTORY 128 - IAN LLOWS"A"ROOMS, &"B"ITEMS PE M";J :REM*156
ADAM :REM*95 R ROOM." :REM*207 720 NR=I:NI=J :REM*15
10 NF$="NONE":PRINT"80 COLUMNS" 340 PRINT"PRESS RETURN IF OK, O 730 IF A>I THEN I=A :REM*239
:REM*119 R ENTER:" :REM*129 740 IF B>J THEN J=B :REM*8
20 GRAPHIC 5:COLOR 6,1:PRINT"{2 350 I=A:J=B:GOSUB 700 :REM*68 750 DIM IT$(I,J),ID$(I,J),AG(I,
HOMES){SHFT CLR}{COMD 7}" 360 : :REM*163 J),NV(I,J),PV(I,J),NR$(I,I
:REM*11 370 FOR I=1 TO A :REM*19 R(I) :REM*209
30 FOR I=0 TO 79:CHAR,I,4,"{SHF 380 INPUT#1,NR$(I),IR(I) 760 RETURN :REM*133
T C)":NEXT :REM*216 :REM*157 770 : :REM*63
40 FOR I=0 TO 3:CHAR,44,I,"{SHF 390 FOR J=1 TO IR(I) :REM*26 780 DO:GOSUB 1200 :REM*74
T B)":NEXT:CHAR,44,4,"{COMD 400 INPUT#1,IT$(I,J),ID$(I,J),A 790 INPUT"WORK ON WHICH ROOM (Q
E)" :REM*210 G(I,J),NV(I,J),PV(I,J) :REM*39 QUIT)":A$ :REM*60
50 PRINTCHR$(142):M$(0)="END":S :REM*34 800 A=VAL(A$) :REM*250
A=7 :REM*34 410 NEXT:IF J>NI THEN IR(I)=NI :REM*132 810 IF A=0 THEN DO UNTIL A$=NR$
60 M$(1)="CREATE FILE" :REM*130 :REM*36 (A):A=A+1:LOOP UNTIL A>NR
70 M$(2)="GET FILE FROM DISK" 420 NEXT :REM*36 :REM*204
:REM*58 430 GOSUB 550:GOSUB 960:GOTO 50 :REM*108 820 IF A<1 OR A>NR THEN EXIT
80 M$(3)="WORK ON DATA":REM*162 :REM*243 :REM*212
90 M$(4)="SAVE TO DISK" :REM*70 440 : :REM*173
100 M$(5)="PRINTED REPORT" 450 PRINT"PRESS RETURN FOR: "NF 840 WINDOW 0,5,79,24,1:COLOR 5,
:REM*115 $ :REM*118 4 :REM*217
110 DO:WINDOW 0,0,35,3,1:COLOR 460 GOSUB 580:IF B>19 THEN RETU 850 IF IR(A)=0 THEN GOSUB 1020:
5,15 :REM*23 RN :REM*140 GOTO 840 :REM*80
120 PRINTCHR$(142)TAB(9)"* HOME 470 PRINT#1,NR:PRINT#1,NI:B$=" 860 PRINT" 0. MAIN MENU"
INVENTORY *" :REM*88 :REM*39 :REM*191
130 PRINTTAB(12)"BY IAN ADAM" 480 FOR I=1 TO NR :REM*30 870 PRINT" 1. ADD ITEMS"
:REM*58 490 PRINT#1,B$+NR$(I):PRINT#1,I :REM*123
140 GOSUB 230:WINDOW 0,5,79,24, 500 FOR J=1 TO IR(I) :REM*100 880 PRINT" 2. LIST ITEMS"
1 :REM*55 :REM*95
150 PRINT"{CRSR DN} THE MAIN ME 510 PRINT#1,B$+IT$(I,J):PRINT#1 890 PRINT" 3. ITEM DETAILS"
NU{CRSR DN}" :REM*169 ,B$+ID$(I,J) :REM*71 :REM*148
160 FOR I=0 TO 5:PRINTI;M$(I):N 520 PRINT#1,AG(I,J):PRINT#1,NV( 900 PRINT" 4. MODIFY DATA"
EXT :REM*203 I,J):PRINT#1,PV(I,J):REM*50 :REM*127
170 PRINT"{CRSR DN}YOUR CHOICE? 530 NEXT:NEXT :REM*138 910 PRINT" 5. ANOTHER ROOM"
:GETKEY A$:A=VAL(A$) :REM*84 :REM*130
:REM*64 550 IF DS>19 THEN PRINT"PROBLEM 920 PRINT"CHOICE?":GETKEY A$:B=
180 FAST:PRINT"{SHFT CLR}"M$(A) :REM*34 :REM*190
:REM*31 :REM*52 VAL(A$) :REM*79
190 IF A>2 AND NR=0 THEN INPUT" 560 DCLOSE:RETURN :REM*118 930 IF B<1 THEN EXIT :REM*79
NO DATA!";A$:RUN :REM*103 570 : :REM*102
200 IF A>2 OR NR=0 THEN 200 580 INPUT"FILE NAME";NF$ 940 SCNCLR:IF B<5 THEN ON B GOS
:REM*198 UB 1040,1250,1110,1150:GOTO
210 PRINT"{CRSR DN}ARE YOU SURE 590 DS=LEFT$(NF$,12)+".INV" 950 LOOP :REM*166
? Y/N":GETKEY A$:LOOP UNTIL 600 DO:IF A THEN DOPEN#1,(D$),W 960 CI=0:FOR I=1 TO NR :REM*87
A$="Y" :REM*229 :ELSE DOPEN#1,(D$) :REM*230 970 CI=CI+IR(I):NEXT :REM*49
220 ON A+1 GOSUB 290,660,310,78 610 B=DS:IF B<20 THEN RETURN :REM*203 980 RETURN :REM*102
0,450,1580:LOOP :REM*222 :REM*66 990 WINDOW 0,3,43,3,1:COLOR 5,1
230 WINDOW 46,0,79,3,1:COLOR 5, 620 PRINT"PROBLEM: "DS$:DCLOSE: 1 :REM*24
14 :REM*27 IF B=63 THEN GETKEY A$:RETU 1000 PRINT"ROOM"A;NR$(A)" ITEMS
240 PRINT"FILE NAME:{2 SPACES}" 630 PRINT"REPLACE OLD FILE? Y/N :REM*210 :REM*24
NF$ :REM*181 " :GETKEY A$:IF A$<"Y" THEN 1010 : :REM*40
250 PRINT"TOTAL ROOMS{3 SPACES} 640 SCRATCH(D$):LOOP :REM*182 1020 IF NR$(A)=" THEN INPUT"NA
",NR :REM*155 RETURN :REM*213 ME OF ROOM";NR$(A):REM*148
260 PRINT"ITEMS PER ROOM",NI 650 : :REM*182 1030 : :REM*68
:REM*242 660 CLR:INPUT"FILE NAME";NF$ 1040 B=IR(A)+1:GOSUB 1510 :REM*56
270 PRINT"ITEMS ENTERED ",CI; :REM*82 1050 DO:GOSUB 990:WINDOW 0,10,7
:REM*164 9,24,1:IF B>NI THEN EXIT :REM*76
280 RETURN :REM*167 670 PRINT"{CRSR DN}ITEMS ARE GR 1060 GOSUB 1370:IF A$="Q" THEN
290 PRINT"{2 HOMES}{SHFT CLR}": 700 INPUT"{CRSR DN}MAXIMUM # OF :REM*126
END :REM*206 ROOMS";I :REM*54 1070 IR(A)=B:B=B+1:CI=CI+1 :REM*240
300 : :REM*103 700 INPUT"MAXIMUM ITEMS PER ROO 1080 GOSUB 230:LOOP :REM*33
310 CLR:GOSUB 580:IF B>19 THEN 710 : :REM*228 1090 INPUT"ROOM IS FULL";A$:RET
320 INPUT#1,A,B :REM*16 URN
330 PRINT"{CRSR DN}FILE "NF$" A

```

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RE
RUN



HOME INVENTORY

```

1100 :                                :REM*130                                :REM*237                                :REM*249
1110 DO:INPUT"DETAIL ITEM # (0 1300 PRINT"DESCRIP:",IT$(A,B) 1470 PRINT"PRESENT VALUE: "PV(A
QUIT)";B :REM*91 :REM*186 ,B) :REM*236
1120 IF B<1 OR B>IR(A) THEN RET 1310 PRINT"IDENT:",ID$(A,B) 1480 CHAR,14,11:INPUTPV(A,B)
URN :REM*226 :REM*105 :REM*41
1130 GOSUB 1290:LOOP :REM*156 1320 PRINT"AGE, YRS:",AG(A,B) 1490 RETURN :REM*102
1140 : :REM*170 :REM*45 1500 : :REM*16
1150 PRINT"PRESS RETURN AT ANY 1330 PRINT"COST:",NV(A,B) 1510 COLOR 5,15:PRINT"(SHFT CLR
PROMPT TO KEEP THE SAME DA :REM*186 )FOR EACH ITEM, GIVE A DES
TA.":WINDOW 0,6,79,24 1340 PRINT"VALUE:",PV(A,B) :REM*153 cription with make, size,
:REM*106 :REM*153 CONDITION, ETC." :REM*38
1160 DO:INPUT"(CRSR DN)MODIFY W 1350 PRINT:RETURN :REM*250 1520 PRINT"GIVE IDENTIFICATION
HIGH ITEM # (0 QUIT)";B 1360 : :REM*143 SUCH AS SERIAL # OR OTHER
:REM*14 1370 COLOR 5,4:PRINT"ITEM #"B," :REM*224 MARKS."
1170 IF B<1 OR B>IR(A) THEN RET DESCRIPTION (Q: QUIT):" 1530 PRINT"COMMAS & COLONS NOT
URN :REM*47 :REM*49 ALLOWED AS INPUT." :REM*141
1180 SCNCLR:GOSUB 1370:LOOP 1380 PRINTTAB(2)IT$(A,B) 1540 PRINT"AGE IS IN YEARS."
:REM*14 :REM*247 :REM*247
1190 : :REM*228 1390 CHAR,0,1:INPUTA$:IF A$="Q" 1550 PRINT"COST IS ORIGINAL PRI
1200 PRINT"ROOMS ACTIVE:","ITE THEN RETURN :REM*208 CE OF ITEM, & ESTIMATE CUR
MS" :REM*94 1400 IT$(A,B)=A$ :REM*39 RENT VALUE." :REM*105
1210 FOR I=1 TO NR :REM*226 1410 CHAR,0,5:PRINT"ID:{2 SPACE :REM*160
1220 PRINTI,NR$(I)TAB(32)IR(I) s}"ID$(A,B) :REM*4 RETURN :REM*90
:REM*223 1420 CHAR,3,5:INPUTID$(A,B) :REM*13 :REM*90
1230 NEXT:RETURN :REM*105 :REM*13 1580 PRINT"ENSURE PRINTER IS RE
1240 : :REM*23 1430 CHAR,0,9:PRINT"AGE, YRS:", :REM*173 ADY{(CRSR DN)" :REM*173
1250 FOR I=1 TO IR(A) :REM*15 1440 AG(A,B) :REM*146 1590 GOSUB 1200 :REM*98
1260 PRINTI;IT$(A,I) :REM*162 1440 CHAR,9,9:INPUTAG(A,B) :REM*240 1600 INPUT"(CRSR DN)START REPOR
1270 NEXT:INPUT"(CTRL 9)RETURN" :REM*199 T AT ROOM{2 SPACES}1{3 CRS
;A$:RETURN :REM*137 1450 PRINT"ORIGINAL COST: "NV(A R LFs)";S :REM*240
1280 : :REM*63 ,B) :REM*122 1610 PRINT"END REPORT AT ROOM " NR :REM*105
1290 PRINT"(CRSR DN)ITEM #:"B 1460 CHAR,14,10:INPUTNV(A,B) 1620 PRINT"(CRSR UP)"TAB(18);:I

```

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HOME INVENTORY

```

NPUTE:PRINT          :REM*2  1780 PRINTCHR$(14)"HOME INVENTO  1930 :                      :REM*195
1630 IF S<1 OR S>E OR E>NR THEN  :REM*234  1940 IF E-S THEN BEGIN :REM*192
      RETURN          :REM*208  1950 PRINTCHR$(14)"TOTAL FOR RO  :REM*52
1640 :                :REM*164  1800 T1=0:T2=0:T3=0:R$="###":S$  :REM*189
1650 SCNCLR:PRINT"DESCRIPTION &  :REM*196  1960 B=T1:I=T2:J=T3:GOSUB 1980:
      IDENT'N MAY BE SHORTENED  :REM*105  BEND :REM*80
      TO FIT THE PAGE." :REM*236  1820 PRINT:PRINTCHR$(14)"ROOM"A  :REM*48
1660 PRINT"HERE ARE THE REPORT  :REM*201  1980 PRINT"ITEMS:"SPC(9)B
      OPTIONS:" :PRINT :REM*148  :REM*70
1670 PRINT"0. PRINT JUST SUMMAR  :REM*116  1990 PRINT"ORIGINAL COST:"I
      Y DATA" :REM*135  1830 IF IR(A) THEN BEGIN :REM*28
1680 PRINT"1. SHORT ID, AGE, &  :REM*147  2000 PRINT"PRESENT VALUE:"J
      COST TABLE" :REM*21  :REM*96
1690 PRINT"2. FULL DESCRIPTIONS  :REM*22  2010 RETURN
      & ID'S ONLY" :REM*42  2020 :
1700 PRINT"3. FULL REPORT" :REM*174
      :REM*6  2030 IF LEN(IT$(A,B))>46 THEN P
1710 PRINT"4. SET SECONDARY ADD  :REM*196  RINTIT$(A,B)
      RESS" :REM*34  2040 IF LEN(ID$(A,B))>15 THEN P
1720 PRINT"5. CANCEL" :REM*39  RINTID$(A,B)
1730 PRINT"YOUR CHOICE?":GETKEY  :REM*64
      A$:M=VAL(A$) :REM*210  2050 PRINT USING R$;B;:PRINT "
1740 IF M=4 THEN PRINT"SECONDAR  :REM*149  ;:PRINT USING U$;IT$(A,B);
      Y ADDRESS IS"SA"FOR UPPER  :REM*232  ;:PRINT USING T$;ID$(A,B);
      AND LOWER CASE, WITH LINE  :REM*189  ;:PRINT USING R$;AG(A,B);:PR
      FEED.":INPUT"NEW SECONDARY  INT USING S$;NV(A,B),PV(A,
      ADDRESS";SA:GOTO 1650 B) :REM*146
      :REM*38  2060 RETURN
1750 IF M>4 THEN RETURN:REM*100  2070 PRINTIT$(A,B):PRINTID$(A,B
1760 : :REM*29 ) :PRINT:RETURN :REM*2
1770 OPEN4,4,SA:CMD4:PRINT :REM*211
      :REM*193  1920 NEXT:PRINT :REM*75

```

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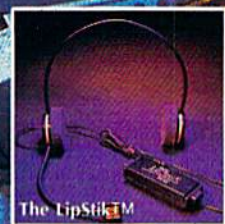
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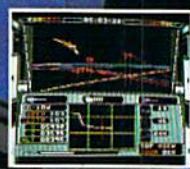
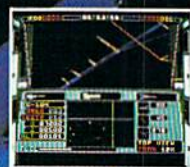
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Affairs of State

From the Pine Tree state to the Golden Gate, this program should appeal to anyone who wants to learn about the 50 states.



By MARY E. WILSON

Everyone surely knows that Sacramento is the capital of California. But how many can answer which state claims the black-eyed Susan as its state flower?

This educational program will test your knowledge of not only the state capitals, but also the state flowers, state birds and even the nicknames of all 50 states. You can use it as a tool to help little Bethany pass her seventh-grade social studies quizzes, to test Uncle Bill's trivia knowledge, or simply for your own edification.

To use the program, which is written entirely in Basic, simply type in Listing 1 and save it to disk. When you are ready to play, type in "AFFAIRS OF STATE", then press the return key and type in RUN at the prompt.

A menu will soon appear on the screen offering a choice of quiz categories. Option 1 asks you to name the capitals; option 2 presents the capitals, and you must correctly name the states. Options 3, 4 and 5 give the state, and you must type in the flower, bird or nickname for that state.

The program automatically keeps track of your score (you get two points for each correct answer). A high-pitched sound accompanies a correct answer. After each wrong entry—announced by a low-pitched sound—the program provides the correct answer.

Listing 2 will print out an answer sheet with the information in columnar form and in condensed print, so that it will fit on one page. It will work on the 1525 and compatible printers.

The easy way to type in Listing 2 is to first save Affairs of State to disk. Load it and delete lines 10 through 1200, leaving the Data statements. Then type in Listing 2, which is quite short, including line 1210. Save the program under a new name, such as Answer



Sheet or whatever you wish. This saves typing all the Data statements again.

(See the March-April edition of *RE- RUN* for a version of this program with a graphic depiction of each state.) ■

Mary E. Wilson is probably the only Commodore programmer who has great grandchildren. Now retired, she was a data entry operator for the State of Florida Health and Rehabilitative Services.

Listing 1. Affairs of State program.

```

10 REM AFFAIRS OF STATE BY MARY E. WILSON :REM*144
110 D$="{15 CRSR DNs}":DD$="{4 CRSR DNs}":R=(-TI):S=54272 :REM*53
110 E$="{SHFT LB.}":F$="{COMD *}":G$="{CTRL 9}{SHFT LB.}":H$="{CTRL 9}{COMD *}":I$="{CTRL 9}{CTRL 0}":S$="{CTRL 9}{CTRL 0}" :REM*32
120 GOSUB920 :REM*207
130 : :REM*188
140 REM *READ DATA AND PLACE IN ARRAYS* :REM*221
150 : :REM*208
160 DIMJ$(50,5) :REM*53
170 FORT=1TO50:READJ$(T,1),J$(T,2),J$(T,3),J$(T,4),J$(T,5) :NEXT :REM*19
180 GOSUB360 :REM*10
190 GETMM$:IFMM$=""THEN190 :REM*52
200 POKE53280,11 :REM*222
210 GR=VAL(MM$) :REM*39
220 GOSUB620 :REM*40
230 : :REM*33
240 REM *PLAY AGAIN OR END* :REM*33
250 : :REM*53
260 PRINT"{SHFT CLR}{3 CRSR DNs}"TAB(7){CTRL 8}YOUR TOTAL SCORE IS ";SC;"% :REM*180

```

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A F F A I R S O F S T A T E

```

270 IFSC>95THENPRINTDD$TAB(9) "      570 RETURN                      :REM*202
   {CTRL 5)THAT'S VERY GOOD!"      580 END                          :REM*198
                                   :REM*164      590 :                          :REM*138
280 PRINTD$TAB(10){2 SPACES}"{C      600 REM *MAIN LOOP*                :REM*188
   TRL 4)PLAY AGAIN? (Y/N)"         610 :                          :REM*158
                                   :REM*162      620 QN=1:SC=0:GR=VAL(MM$)
290 GETA$:IFA$=""THEN290           :REM*108      630 FORA=1TO50                      :REM*25
                                   :REM*237      640 R=INT(RND(1)*50)+1:IFJ$(R,1
300 IFA$="Y"THENRESTORE:GOTO170     :REM*62      )=""THEN640:IFJ$(R,2)=""THE
                                   :REM*17      N640
310 PRINT"{SHFT CLR}"D$TAB(12)"     :REM*193      650 IFGR=1THEN X$="NAME THE CAP
   {CTRL 8)HAVE A NICE DAY!"        :REM*133      ITAL OF "+"{COMD 6}"J$(R,1
                                   :REM*212      ):AN$=J$(R,2) :REM*234
320 END                             :REM*153      660 IFGR=2THENX$="WHICH STATE'S
330 :                               :REM*200      CAPITAL IS "+"{COMD 6}"J$
340 REM *MENU*                      :REM*191      (R,2):AN$=J$(R,1) :REM*191
350 :                               :REM*200      670 IFGR=3THEN X$="NAME THE STA
360 PRINT"{SHFT CLR}":POKE53280    :REM*33      TE FLOWER OF "+"{COMD 6}"J$
   ,5:POKE53281,0 :REM*200          $(R,1):AN$=J$(R,3) :REM*33
370 BT$="{CTRL 9){CTRL 4){SHFT     :REM*61      680 IFGR=4THENX$="NAME THE STAT
   U){26 SHFT *s){SHFT I){CTRL     :REM*240      E BIRD OF "+"{COMD 6}"J$(R
   0}"                               :REM*125      ,1):AN$=J$(R,4) :REM*240
380 BS$="{CTRL 9){CTRL 4){SHFT     :REM*0       690 IFGR=5THENX$="WHAT IS THE N
   -){CTRL 0}"                      :REM*33      ICKNAME OF "+"{COMD 6}"J$(
390 BM$="{CTRL 9){CTRL 4){SHFT     :REM*166      R,1)+"2":AN$=J$(R,5) :REM*0
   J){26 SHFT *s){SHFT K){CTRL     :REM*191      700 PRINT"{SHFT CLR){CRSR DN}"T
   0}"                               :REM*166      AB(1)"(CTRL 9){CTRL 4)QUEST
400 PRINT"{SHFT CLR){CRSR DN}";     :REM*147      ION # ";QN;SPC(14)"(CTRL 4)
   TAB(12)"(CTRL 3)AFFAIRS OF      :REM*187      {CTRL 9)SCORE ";SC :REM*191
   STATE(CTRL 4)":PRINT:REM*51      :REM*179      710 PRINT"{HOME}{4 CRSR DNs}{CT
410 PRINT"{CRSR DN}";:PRINTTAB(     :REM*166      RL 8){CRSR RT}"X$:PRINT:PRI
   6)BT$ :REM*13                    :REM*166      NT:QN=QN+1 :REM*166
420 PRINTTAB(6)BS$;SPC(26);BS$      :REM*198      720 OPEN1,0:PRINT"{CRSR DN){CTR
   :REM*189                          :REM*198      L 4){2 SPACES}";:INPUT#1,A$
430 PRINTTAB(6)BS$;SPC(11)"(CTR     :REM*147      :CLOSE1:PRINT :REM*198
   L 4)MENU"SPC(11);BS$            :REM*149      730 IFA$=AN$THENPRINTDD$TAB(2)"
   :REM*197                          :REM*149      {COMD 1)RIGHT!":GOSUB820:SC
440 PRINTTAB(6)BS$;SPC(26);BS$      :REM*147      =SC+2 :REM*147
   :REM*137                          :REM*147      740 IFA$<>AN$THEN GOSUB870:PRIN
450 PRINTTAB(6)BS$;SPC(2);"(CTR     :REM*187      TDD$TAB(2)"(CTRL 5)SORRY! "
   L 4)1. STATES/CAPITALS";SPC      :REM*187      ;:REM*187
   (6);BS$ :REM*65                  :REM*179      750 IFA$<>AN$THENPRINT"THE CORR
460 PRINTTAB(6)BS$;SPC(26);BS$      :REM*229      ECT ANSWER IS " :PRINTTAB(2
   :REM*229                          :REM*179      );"{CRSR DN}{CTRL 4)"AN$
470 PRINTTAB(6)BS$;SPC(2);"(CTR     :REM*133      :REM*133
   L 4)2. CAPITALS/STATES";SPC      :REM*243      760 J$(R,1)="" :IFGR=2THENJ$(R,2
   (6);BS$ :REM*132                  :REM*21      )="" :REM*243
480 PRINTTAB(6)BS$;SPC(26);BS$      :REM*21      770 FORT=1TO2500:NEXT:NEXT
   :REM*241                          :REM*21      :REM*21
490 PRINTTAB(6)BS$;SPC(2);"(CTR     :REM*153      780 RETURN :REM*153
   L 4)3. STATE FLOWERS";SPC(8      :REM*83      790 : :REM*83
   );BS$ :REM*213                    :REM*127      800 REM *CORRECT ANSWER SOUND*
500 PRINTTAB(6)BS$;SPC(26);BS$      :REM*103      :REM*127
   :REM*205                          :REM*103      810 : :REM*103
510 PRINTTAB(6)BS$;SPC(2);"(CTR     :REM*138      820 POKES,150:POKES+1,75:POKES+
   L 4)4. STATE BIRDS";SPC(10)     :REM*138      5,0:POKES+6,200:POKES+24,15
   ;BS$ :REM*205                      :REM*138      :POKES+4,17 :REM*138
520 PRINTTAB(6)BS$;SPC(26);BS$      :REM*217      830 FOR T=0TO250:NEXT:POKES+4,0
   :REM*217                          :REM*25      :RETURN :REM*25
530 PRINTTAB(6)BS$;SPC(2);"(CTR     :REM*129      840 : :REM*129
   L 4)5. STATE NICKNAMES";SPC      :REM*41      850 REM *INCORRECT ANSWER SOUND
   (6);BS$ :REM*41                    :REM*251      * :REM*251
540 PRINTTAB(6)BS$;SPC(26);BS$      :REM*149      860 : :REM*149
   :REM*52                          :REM*149      870 POKES,18 :POKES+1,14:POKES+
550 PRINTTAB(6);BM$:PRINT:PRINT     :REM*251      5,0:POKES+6,180:POKES+24,15
   :REM*251                          :REM*58      :POKES+4,21 :REM*58
560 PRINTTAB(7)"(CTRL 3)PRESS N     :REM*192      880 FOR T=0TO600:NEXT:POKES+4,0
   UMBER OF YOUR CHOICE"           :REM*192      :RETURN :REM*192
                                   :REM*9

```

AFFAIRS OF STATE

1170	PRINTTAB(7)ISSPC(4)ISSPC(4) ISSPC(4)ISSPC(4)ISSPC(4)ISSPC(4) \$:REM*105	1360	DATA IOWA,DES MOINES,WILD ROSE,EASTERN GOLDFINCH,HAW KEYE :REM*72	1550	DATA NORTH DAKOTA,BISMARCK ,WILD PRAIRIE ROSE,WESTERN MEADOWLARK,FLICKERTAIL :REM*3
1180	PRINT"{COMD 7}"TAB(7)ISSPC (4)ISSPC(4)ISSPC(4)ISSPC(4) ISSPC(4)IS :REM*194	1370	DATA KANSAS,TOPEKA,SUNFLOW ER,WESTERN MEADOWLARK,SUNF LOWER :REM*172	1560	DATA OHIO,COLUMBUS,SCARLET CARNATION,CARDINAL,BUCKEY E :REM*94
1190	PRINTTAB(3)SSSSSS\$ESSPC(4))SSSPC(4)SSSPC(4)SSSPC(4)S SSPC(4)SSSSSSSS\$:REM*60	1380	DATA KENTUCKY,FRANKFORT,GO LDENROD,CARDINAL,BLUEGRASS :REM*164	1570	DATA OKLAHOMA,OKLAHOMA CI Y,MISTLETOE,SCISSORTAIL FL YCATCHER,SOONER :REM*237
1200	FORT=1TO3000:NEXT:RETURN :REM*66	1390	DATA LOUISIANA,BATON ROUGE ,MAGNOLIA,EASTERN BROWN PE LICAN,PELICAN :REM*128	1580	DATA OREGON,SALEM,OREGON G RAPE,WESTERN MEADOWLARK,BE AVER :REM*11
1210	: :REM*240	1400	DATA MAINE,AUGUSTA,WHITE P INE CONE & TASSEL,CHICKADE E,PINE TREE :REM*95	1590	DATA PENNSYLVANIA,HARRISBU RG,MOUNTAIN LAUREL,RUFFLED GROUSE,KEYSTONE :REM*140
1220	DATA ALABAMA,MONTGOMERY,CA MELLIA,YELLOWHAMMER,HEART OF DIXIE :REM*173	1410	DATA MARYLAND,ANNAPOLIS,BL ACK EYED SUSAN,BALTIMORE O RIOLE, OLD LINE :REM*221	1600	DATA RHODE ISLAND,PROVIDEN CE,VIOLET,RHODE ISLAND RED ,LITTLE RHODY :REM*212
1230	DATA ALASKA,JUNEAU,FORGET ME NOT,WILLOW PTARMIGAN,NO RTH TO THE FUTURE :REM*109	1420	DATA MASSACHUSETTS,BOSTON, MAYFLOWER,CHICKADEE,BAY :REM*91	1610	DATA SOUTH CAROLINA,COLUMB IA,CAROLINA JESSAMINE,CARO LINA WREN,PALMETTO :REM*80
1240	DATA ARIZONA,PHOENIX,SAGUA RO CACTUS,CACTUS WREN,GRAN D CANYON :REM*196	1430	DATA MICHIGAN,LANSING,APPL E BLOSSOM,ROBIN,WOLVERINE :REM*209	1620	DATA SOUTH DAKOTA,PIERRE,P ASQUE FLOWER,RINGNECKED PH EASANT,COYOTE :REM*181
1250	DATA ARKANSAS,LITTLE ROCK, APPLE BLOSSOM,MOCKINGBIRD, LAND OF OPPORTUNITY :REM*123	1440	DATA MINNESOTA,ST. PAUL,LA DY'S SLIPPER,COMMON LOON,N ORTH STAR :REM*105	1630	DATA TENNESSEE,NASHVILLE,I RIS,MOCKINGBIRD,VOLUNTEER :REM*138
1260	DATA CALIFORNIA,SACRAMENTO ,GOLDEN POPPY,CALIFORNIA V ALLEY QUAIL,GOLDEN :REM*83	1450	DATA MISSISSIPPI,JACKSON,M AGNOLIA,MOCKINGBIRD,MAGNOL IA :REM*19	1640	DATA TEXAS,AUSTIN,BLUEBONN ET,MOCKINGBIRD,LONE STAR :REM*161
1270	DATA COLORADO,DENVER,COLUM BINE,LARK BUNTING,CENTENNI AL :REM*0	1460	DATA MISSOURI,JEFFERSON CI TY,HAWTHORN,BLUEBIRD,SHOW ME :REM*193	1650	DATA UTAH,SALT LAKE CITY,S EGO LILY,SEAGULL,BEEHIVE :REM*12
1280	DATA CONNECTICUT,HARTFORD, MOUNTAIN LAUREL,ROBIN,CONS TITUTION :REM*210	1470	DATA MONTANA,HELENA,BITTER ROOT,WESTERN MEADOWLARK,TR EASURE :REM*145	1660	DATA VERMONT,MONTPELIER,RE D CLOVER,HERMIT THRUSH,GRE EN MOUNTAIN :REM*5
1290	DATA DELAWARE,DOVER,PEACH BLOSSOM,BLUE HEN,FIRST :REM*170	1480	DATA NEBRASKA,LINCOLN,GOLD ENROD,WESTERN MEADOWLARK,C ORNHUSKER :REM*80	1670	DATA VIRGINIA,RICHMOND,DOG WOOD,CARDINAL,OLD DOMINION :REM*223
1300	DATA FLORIDA,TALLAHASSEE,O RANGE BLOSSOM,MOCKINGBIRD, SUNSHINE :REM*135	1490	DATA NEVADA,CARSON CITY,SA GEBRUSH,MOUNTAIN BLUEBIRD, SILVER :REM*140	1680	DATA WASHINGTON,OLYMPIA,WE STERN RHODODENDRON,WILLOW GOLDFINCH,EVERGREEN:REM*93
1310	DATA GEORGIA,ATLANTA,CHERO KEE ROSE,BROWN THRASHER,EM PIRE STATE OF THE SOUTH :REM*160	1500	DATA NEW HAMPSHIRE,CONCORD ,PURPLE LILAC,PURPLE FINCH ,GRANITE :REM*79	1690	DATA WEST VIRGINIA,CHARLES TON,BIG RHODODENDRON,CARDI NAL,MOUNTAIN :REM*129
1320	DATA HAWAII,HONOLULU,HIBIS CUS,HAWAIIAN GOOSE,ALOHA :REM*143	1510	DATA NEW JERSEY,TRENTON,PU RPLE VIOLET,EASTERN GOLDFI NCH,GARDEN :REM*29	1700	DATA WISCONSIN,MADISON,WO D VIOLET,ROBIN,BADGER :REM*27
1330	DATA IDAHO,BOISE,SYRINGA,M OUNTAIN BLUEBIRD,GEM :REM*12	1520	DATA NEW MEXICO,SANTA FE,Y UCCA,ROADRUNNER,LAND OF EN CHANTMENT :REM*147	1710	DATA WYOMING,CHEYENNE,INDI AN PAINTBRUSH,MEADOWLARK,E QUALITY :REM*200
1340	DATA ILLINOIS,SPRINGFIELD, VIOLET,CARDINAL,PRAIRIE :REM*85	1530	DATA NEW YORK,ALBANY,ROSE, BLUEBIRD,EMPIRE :REM*84		
1350	DATA INDIANA,INDIANAPOLIS, PEONY,CARDINAL,HOOISIER	1540	DATA NORTH CAROLINA,RALEIG		

Listing 2. Printout program.

1	REM AFFAIRS OF STATE - MARY	\$ (I), D\$ (I), E\$ (I): NEXT: REM*48	LEN (A\$ (I))) B\$ (I) SPC (30-LEN (
	WILSON : REM*147	60 OPEN 4, 4 : REM*149	B\$ (I))) C\$ (I); : REM*75
2	REM WILL PRINT A ONE PAGE DA	70 ES\$=CHR\$ (27): REM ESCAPE CODE	120 PRINT#4, SPC (30-LEN (C\$ (I))) D
	TA SHEET {4 SPACES} ON 1525 OR	: REM*113	\$ (I) SPC (30-LEN (D\$ (I))) E\$ (I)
	COMPATIBLE PRINTER : REM*89	80 PRINT#4, ES\$+"B"+CHR\$ (3): REM	: REM*248
3	POKE53281, 0: POKE53280, 11: POK	CONDENSED ON : REM*83	130 NEXT : REM*5
	E646, 3 : REM*147	90 PRINT#4, ES\$+CHR\$ (1): REM 1/8	140 PRINT#4: CLOSE4 : REM*187
4	DIMAS (51), B\$ (51), C\$ (51), D\$ (5	IN SPACING : REM*183	150 END : REM*23
	1), E\$ (51) : REM*52	100 FOR I=1 TO 51 : REM*16	1210 DATA STATE, CAPITAL, FLOWER,
5	FOR I=1 TO 51: READA\$ (I), B\$ (I), C	110 PRINT#4, SPC (10) A\$ (I) SPC (30-	BIRD, NICKNAME : REM*151

Commodore Lanes

*When you're ready to strike up a game with your bowling buddies,
this C-64 arcade program will be right up your alley.*

By JOHN FEDOR

Bowling, a C-64 game you'll find yourself playing as intensely as the real thing, lets you and as many as seven of your friends bowl strikes, spares, gutterballs—anything except splits. You can choose among ten handicapping speeds (the lower the number you select, the faster the ball travels down the lane), and scores are automatically tallied at the end of the game.

Type in the listing and save a copy before running the program.

The scoresheet, along with each play-

er's name and running score, is displayed at the top of the screen. To roll the ball down the bowling lane, press any key other than the space bar.

Players take turns bowling until all ten frames of the scoresheet are filled. As in the real thing, if you bowl a strike (X) in the tenth frame, you get two more balls to roll, and a spare (I) gives you one extra ball. The highest score possible is 300 points, which requires 12 consecutive strikes.

The game uses two machine language routines. One copies the ROM charac-

ter set into RAM and adjusts the bytes to resemble a bowling pin. The other draws the bowling ball on the screen and checks for a keypress.

If you think stringing up strikes and spares in Bowling is easier than the real thing, hark to the words of the *RUN* staff, who play the game in the late afternoon, when the editor-in-chief isn't looking: It's almost as difficult. [R]

John Fedor, currently a freshman at the College of Lake County, in Illinois, has an avid interest in both computers and math.

Listing 1. Bowling program.

```

0 REM BOWLING - JOHN FEDOR
1 IF PEEK(49152) < 76 THEN FOR I = 0
2 0251:READA:POKE49152+I,A:NEX
3 T:REM*211
4 POKE198,0:CLR:REM*1
5 DIM N$(8),S(26,8),H(8),B(8)
6 REM*225
7 POKE53280,0:POKE53281,0:SYS4
8 9155:REM*190
9 FOR I = 54272 TO 54296:POKEI,0:NE
10 XT:POKE54296,15:POKE54273,15
11 :POKE54277,17:REM*242
12 PRINT"(SHFT CLR){CTRL 2}{2 C
13 RSR DNS}BOWLING {2 CCSR DNS}
14 PRINT"(5 CCSR DNS)HOW MANY P
15 LAYERS (1-8):";REM*49
16 GETA$:IFA$<"1"ORA$>"8"THEN80
17 :REM*185
18 PRINTA$:REM*224
19 NP=VAL(A$):REM*5
20 FOR I = 1 TO NP:REM*152
21 PRINT"(SHFT CLR){2 CCSR DNS
22 }PLAYER #"I"{CSR LF}."
23 :REM*155
24 PRINT:PRINT"{CSR DN}ENTER
25 YOUR NAME ";REM*171
26 INPUTN$(I):REM*25
27 N$(I)=LEFT$(N$(I)+"(39 SPAC
28 Es)",20):REM*37
29 PRINT"{CSR DN}ENTER HANDIC
30 AP (1-10, 1 HARDEST) ";:INP
31 UTH(I):REM*249
32 IFH(I)<1ORH(I)>10THEN160
33 NEXTI:REM*221
34 POKE53281,1:PRINT"(SHFT CLR
35 ):POKE53281,0:REM*102
36 PRINT"{CTRL 7}PLAYERS(COMD
37 7){SHFT B}1{SHFT B}2{SHF
38 T B}3{SHFT B}4{SHFT B}5{
39 SHFT B}6{SHFT B}7{SHFT B}
40 8{SHFT B}9{SHFT B}10{SHF
41 T B}{CTRL 2}":REM*210
42 FOR I = 1 TO NP:REM*252
43 PRINTLEFT$(N$(I),7):REM*26
44 NEXTI:REM*251
45 FORF = 1 TO 10:FORP = 1 TO NP
46 :REM*27
47 PRINT"{HOME}{11 CCSR DNS}"
48 :REM*171
49 FOR I = 1 TO 39:PRINT"{CTRL 6}{S
50 HFT C}{CTRL 2}";NEXTI:PRIN
51 T:PRINT:PRINT:PRINT:P
52 RINT:PRINT:REM*242
53 PRINT:PRINT:PRINT:FOR I = 1 TO 3
54 9:PRINT"{CTRL 6}{SHFT C}{CT
55 RL 2}";NEXTI:REM*174
56 REM SET UP PINS NOW (TRON)
57 :REM*101
58 PRINT"{HOME}{13 CCSR DNS}"
59 :REM*17
60 FOR Y = 1 TO 7:REM*190
61 Z = -(Y = 3 OR Y = 5) - 2 * (Y = 2 OR Y = 6) -
62 3 * (Y = 1 OR Y = 7):REM*144
63 PRINTTAB(34+Z)"(CTRL 3){SHF
64 T X}{CTRL 2} ";REM*32
65 IF Y > 2 AND Y < 6 THEN PRINT"{CTRL
66 3}{SHFT X}{CTRL 2}";REM*50
67 PRINT:NEXT Y:REM*78
68 B = 1:REM WHICH BALL #
69 :REM*144
70 PRINT"{HOME}{11 CCSR DNS}{C
71 CTRL 8}PLAYER UP:{CTRL 4}"N$
72 (P)"(CTRL 2)":REM*73
73 GOSUB380:GOTO590:REM*29
74 Y = 15:DY = 1:POKE198,0:REM*143
75 B(P) = B(P) + 1:D = 0:REM*27
76 POKE828,Y:POKE829,DY:POKE83
77 0,10+H(P)*12:SYS49152
78 :REM*154
79 Y = PEEK(828):REM*90
80 :REM*223
81 FOR X = 1 TO 33:POKE1023+Y*40+X,
82 32:POKE1024+Y*40+X,81
83 :REM*58
84 FOR T = 1 TO 2:NEXT T7,X:REM*23
85 X = X - 1:REM*47
86 X = X + 1:REM*37
87 A1 = 1024+Y*40+X:REM*219
88 IF PEEK(A1) = 88 THEN 510
89 :REM*104
90 IF X = 39 THEN S(B(P),P) = D:RETUR
91 N:REM*41
92 POKEA1-1,32:POKEA1,81:GOTO4
93 60:REM*171

```

RUN it right: C-64

```

510 IFPEEK(A1)=88THENPOKEA1,32: 750 FOR Y=1 TO 7 :REM*114 1050 IFA$="Y" THEN RUN :REM*13
D=D+1:POKE54276,0:POKE54276 760 Z=-(Y=3 OR Y=5)-2*(Y=2 OR Y=6)- 1060 PRINT"(SHFT CLR){CRSR DN}B
,129 :REM*192 3*(Y=1 OR Y=7) :REM*80 YE":END :REM*79
520 IFPEEK(A1-39)=88THENPOKEA1- 770 PRINTTAB(34+Z)" {CTRL 3} {SHF 1070 DATA76,107,192,169,8,32,21
39,32:D=D+1:POKE54276,0:POK 780 IFY>2ANDY<6THENPRINT"(CTRL 0,255,173,14,220,41,254,14
E54276,129 :REM*143 3){SHFT X}{CTRL 2}"; :REM*227 1,14,220 :REM*109
530 IFPEEK(A1+41)=88THENPOKEA1+ 790 PRINT:NEXT Y :REM*247 1080 DATA165,1,41,251,133,1,162
41,32:D=D+1:POKE54276,0:POK 800 D=0:B=B+1:GOSUB380:BU=BU-1 :REM*100 0,189,0,208,157,0,48,189,
E54276,129 :REM*67 810 POKE1023+X+Y*40,32:POKE5529 :REM*239 0
540 IFPEEK(A1+82)=88THENPOKEA1+ 820 Z=1024+(P+2)*40+5+F*3+B,1:REM*35 1090 DATA209,157,0,49,189,0,210
82,32:D=D+1:POKE54276,0:POK 830 IFD=10THENPOKEZ,24 :REM*170 1,157,0,50,189,0,211,157,0,
E54276,129 :REM*202 840 IFD<10THENPOKEZ,D+48 :REM*212 51 :REM*254
550 IFPEEK(A1-78)=88THENPOKEA1- 850 IFBUTHE720 :REM*128 1100 DATA189,0,212,157,0,52,189
78,32:D=D+1:POKE54276,0:POK 860 GOTO710 :REM*163 1,0,213,157,0,53,189,0,214,
E54276,129 :REM*119 870 REM SCORING ROUTINE:REM*250 157 :REM*59
560 IFPEEK(A1-117)=88THENPOKEA1 880 PRINT"{HOME}{10 CRSR DNs}" :REM*238 1110 DATA0,54,189,0,215,157,0,5
-117,32:D=D+1:POKE54276,0:P 890 FORI=1 TO 12:PRINT"{39 SPACES 5,232,208,205,32,234,192,4
OKE54276,129 :REM*140 }":NEXT I :REM*120 1,240 :REM*94
570 IFPEEK(A1+123)=88THENPOKEA1 900 PRINT"{HOME}{11 CRSR DNs}" :REM*38 1120 DATA9,12,141,24,208,162,0,
+123,32:D=D+1:POKE54276,0:P 910 FORP=1 TO NP:PRINTN$(P)TAB(20 189,99,192,157,192,50,232,
OKE54276,129 :REM*58 1); :REM*225 224,8 :REM*35
580 GOTO490 :REM*164 920 SC=0:B(P)=0:FORF=1 TO 9 :REM*62 1130 DATA208,245,96,0,24,24,24,
590 REM BALL END OF ALLEY :REM*11 60,126,126,60,169,0,133,25
:REM*66 1,133 :REM*67
600 POKE1023+X+Y*40,32 :REM*130 930 B(P)=B(P)+1:FB=S(B(P),P) :REM*147 1140 DATA252,162,0,24,165,251,1
610 POKE55296+(P+2)*40+5+F*3+B, 940 B(P)=B(P)+1:SB=S(B(P),P) :REM*47 09,60,3,133,251,165,252,10
1 :REM*47 5,0,133 :REM*182
620 Z=1024+(P+2)*40+5+F*3+B:IFD 950 SC=SC+FB+SB:IFFB+SB=10THENS 1150 DATA252,232,224,40,208,237
<10THENPOKEZ,48+D :REM*147 1):IFS(B(P)+1,P)=10THENS SC= 24,165,252,105,4,133,252,
630 IFB=2ANDD<10THENPOKEZ,48+D 960 IFFB=10THENS SC=SC+S(B(P)+2,P) :REM*200 160,0,169 :REM*200
:REM*2 1160 DATA32,145,251,174,60,3,17
640 IFB=1ANDD=10THENPOKEZ,24 970 NEXT F:B(P)=B(P)+1 :REM*87 2,61,3,192,1,208,14,202,56
:REM*237 980 B1=S(B(P),P):B2=S(B(P)+1,P) :REM*127 1,165 :REM*222
650 IFB=2ANDD+S(B(P)-1,P)=10THE 990 IFB1=10THENB2=B3:B3=S(B(P)+ 1170 DATA251,233,40,133,251,165
NPOKEZ,78 :REM*245 3,P) :REM*167 2,252,233,0,133,252,192,2,2
660 IFB=1ANDD=10THENB(P)=B(P)+1 1000 SC=SC+B1+B2+B3 :REM*189 08,14,232 :REM*114
:GOTO680 :REM*112 1010 PRINTSC:NEXT P :REM*71 1180 DATA24,165,251,105,40,133,
670 IFB=1THENB=2:GOTO370 :REM*125 1020 REM END ROUTINE :REM*18 251,165,252,105,0,133,252,
680 IFF<10THEN710 :REM*63 1030 PRINT"{CRSR DN}PLAY AGAIN 142,60,3 :REM*207
690 IFB=1THENBU=2:GOTO720 1040 GETA$:IFA$<>"Y"AND A$<>"N" T 1190 DATA224,13,240,4,224,21,20
:REM*208 1050 HEN1040 :REM*3 8,8,173,61,3,73,3,141,61,3
700 IFB=2THENY=S(B(P),P)+S(B(P) 1060 1200 DATA169,81,160,0,145,251,1 :REM*42
-1,P):IFY=10THENBU=1:GOTO72 1070 74,62,3,160,0,136,208,253,
0 :REM*62 202,208 :REM*215
710 NEXT P,F:GOTO870:REM SCORING 1080 1210 DATA248,32,228,255,208,3,7
:REM*106 6,141,192,96,165,1,9,4,133
720 REM BONUS BALL :REM*14 1 1220 DATA173,14,220,9,1,141,14,
730 PRINT"{HOME}{13 CRSR DNs}" :REM*218 220,173,24,208,96 :REM*144
740 IF S(19,P)=10 AND S(21,P)<1 1090 1230
0ANDS(21,P)>0THEN800:REM*78

```

ANOTHER FIRST! TWO NEW SUPER PRODUCTS WITH UNBELIEVABLE POWER!

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Well folks, here it finally is. THE BEST!! There is just not anything any better than Supercard. Even our competitor has stated that to back up the newest protection schemes, a high powered software/hardware package is needed. Supercard is the product of 2 years and \$300,000 in total investment. Supercard is installed easily into your 1541 or 1541c, in just minutes with no soldering required. This package will make backups of programs that no other utility can even touch.

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Version C. \$44.95 One Supercard for one 1571. Minor soldering will be required if Supercard is installed in the 1571 drive.

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This multifunction Hacker Cartridge is our design and it is stuffed full of "Goodies", the likes of which you may never see anywhere! It is packed full of utilities. Here are just some we plan to include:

- HesMon
- DriveMon
- Term Program
- Text Editor
- Auto Loader
- Graphic Labeler
- Calendar Maker
- Wedge Card
- Renumber
- Screen Dupe
- Fast Loader
- ALSO 64/128 Super Nibbler and 1541/1781 Fast File Copier
- 1581 Burst Set
- Change Address
- Fast Error OK
- Disk Search
- Unscratcher
- File Locator
- Lock Files
- Bulk Erase
- Compactor
- Uncompactor
- Auto Boot Maker (1541, 1571, 1581)
- Rapid Lock Copier
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- V-Max Copier
- Kernel Save
- I/O Save
- Sector Editor
- Variable Cross Ref.
- Quick Scratch

This cartridge is transparent and can be left in. It also has a reset. Over 500 blocks of programming.

\$44.95 Due February '88

RUN's CHECKSUM

By BOB KODADEK

TYPE IN RUN's CHECKSUM, which serves for both the C-64 and for the C-128 in either 40- or 80-Column mode, and save it to disk before running. When typing in a program from RUN, first load and run RUN's Checksum. The screen will display the 64 or 128 version, whichever is appropriate, and a SYS number that deactivates the Checksum when typed in and followed by return. Always disable RUN's Checksum before attempting to run another program. The same SYS number will reactivate the Checksum.

Keep the following in mind: You can abbreviate Basic keywords; spaces affect the checksum only when within quotes; and the order of characters affects the checksum.

When you press return after typing in a program line, a one-, two-, or three-digit number from 0 to 255 appears directly below the line just entered. If this number matches the checksum value in the program listing, the line is correct. You enter the next line by typing it in right over the previous line's checksum value. If the number that appears *doesn't* match the listing's checksum value, carefully compare the line with the magazine listing to find your error. Then move the cursor back up to the line and make your corrections. Now, after you press return, the correct checksum value should appear. Continue entering the listing in this way until all the lines have been correctly typed. Then deactivate RUN's Checksum, using the SYS number. Save the finished program. [R]

Listing 1. RUN's Checksum program.

```
10 REM RUN'S CHECKSUM 64/128 - WRITTEN BY
   BOB KODADEK
20 MO=128:SA=3328:IF PEEK(40960)THEN MO=64
   :SA=49152
30 FOR I=0TO140:READ B:CK=CK+B:POKE SA+I,B
   :NEXT
40 IFCK<>16951 THENPRINT"DATA ERROR!":END
50 PRINTCHR$(147)STR$(MO)" RUN CHECKSUM":
   PRINT
60 PRINT"TO TOGGLE ON OR OFF, SYS"SA:IF MO
   =128 THEN 90
70 POKESA+13,124:POKESA+15,165:POKESA+25,1
   24:POKESA+26,165
80 POKESA+39,20:POKESA+41,21:POKESA+123,20
   5:POKESA+124,189
90 POKESA+4,INT(SA/256):SYS SA:NEW
100 DATA 120,162,24,160,13,173,4,3,201,24,
   208,4,162,13,160,67,142,4,3,140
110 DATA 5,3,88,96,32,13,67,152,72,169,0,1
   41,0,255,133,176,133,180,166,22
120 DATA 164,23,134,167,132,168,170,189,0,
   2,240,58,201,48,144,7,201,58,176
130 DATA 3,232,208,240,189,0,2,240,42,201,
   32,208,4,164,180,240,31,201,34
140 DATA 208,6,165,180,73,1,133,180,230,17
   6,164,176,165,167,24,125,0,2,133
150 DATA 167,165,168,105,0,133,168,136,208
   ,239,232,208,209,169,42,32,210
160 DATA 255,165,167,69,168,170,169,0,32,5
   0,142,169,32,32,210,255,32,210
170 DATA 255,169,13,32,210,255,104,168,96■
```

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Time-Keeper 128

*Now you can keep time while you're programming
on the C-128.*



By ROBERT KODADEK

Time-Keeper 128 is a handy clock/calendar (C-64 users got one in last month's column) that keeps the time, month, day and year in the upper-right corner of the screen while your computer is running. The program is interrupt-driven, RAM resident and transparent to many other Basic and ML programs.

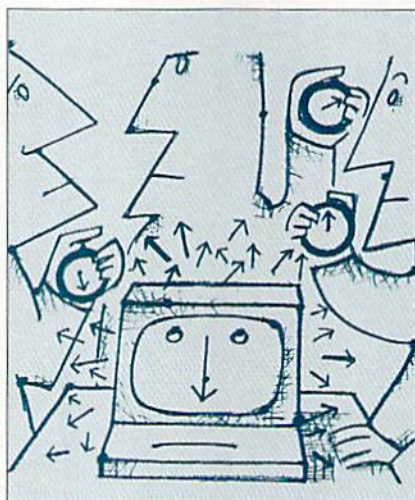
Time-Keeper works on both 40- and 80-column screens and has a built-in alarm (which you can adjust for visual and/or audible signals) and an autoleap-year function. The clock/calendar is updated once per second and the data is stored in easily accessible RAM locations. This information can then be used by one of your own custom applications, such as a bulletin board system.

ENTERING THE LISTINGS

Time-Keeper 128 has two listings. Listing 1, Time-Keeper 128, is a boot program to load the object file and set the date, time and alarm. Listing 2, Time-Keeper File Generator, creates the fast-loading object file, OB.TK 128, on your disk. After you've typed in and saved both listings, using RUN's Checksum to check for typing errors, run the file-generator program. If all goes well, the error channel will report the message, 00,OK,00,00. List the directory to be sure the new file is present.

Whenever you want to use Time-Keeper, load and run the boot program. You'll be prompted to enter the correct time and date and whether you wish to set the alarm. Time-Keeper's display begins with an asterisk followed by the month, date, year, hours, minutes, seconds and the characters "al," for alarm.

The leading asterisk prevents the Basic editor from replacing or deleting a Basic program line should you press return while the cursor is resting on the top line of the screen. Whenever the



alarm is set, the characters "al" will appear in reverse video. When the alarm goes off, these characters will flash while the SID chip emits a bell-like chime for about 30 seconds. If you don't care to listen to it, cancel the chiming with the shift/control/C combination.

Though the display is continuous, you may turn it off at any time with shift/control/F and back on again with shift/control/N. These key combinations are rarely found in programs, so they shouldn't interfere with any program that's running concurrently with Time-Keeper.

USING TIME-KEEPER 128

Time-Keeper may be used with almost any Basic program, including programs published in RUN. Time-Keeper is compatible with RUN Script 128, version 2.40, published in the December 1986 issue and on the Productivity Pak II disk. It also works with version 2.56 on the Productivity Pak III disk as long as the spelling checker is not activated.

Unfortunately, the spelling checker

may use the memory occupied by Time-Keeper and lock up the computer. RUN Script and other word processors continually update the 80-column screen and, because of this, a conflict can result over control of the VDC chip. For this reason, the clock display must be off before you load and run the word processor.

To view the clock/calendar display from within RUN Script, press F1 followed by shift/control/N. Turn the display off again with F1 followed by shift/control/F. If you leave the continuous display on, garbage can appear on the first line of your text display. These characters are not stored in RAM and will not affect your document in any way. The original text can always be returned by pressing the restore key, but it's best to view the display and then turn it off again.

Time-Keeper has also been tested with Notepad 128, Presto-Write 128, Shopping List, SpeedScript 128, and the Merlin 128 assembler from Roger Wagner Publishing. You'll find that it will also work with almost any Basic program. In most instances, Time-Keeper should be the very first program you load and run. When loading Notepad 128, however, don't run the boot program. Instead, load the object file with the Boot command. Since Time-Keeper uses the same time-of-day clock, it's not necessary to reset the time for Notepad.

FOR 128 PROGRAMMERS

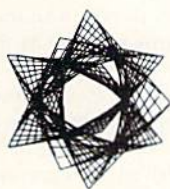
The following RAM locations contain the data in the format indicated:

LOCATION	DATA	FORMAT
6410	tenths	BCD
6411	seconds	BCD
6412	minutes	BCD
6413	hours	BCD
6414	month	decimal ►

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E A S Y A P P L I C A T I O N S

LOCATION	DATA	FORMAT
6415	date	decimal
6416	year	decimal

Binary Coded Decimal data (BCD) can be converted (unpacked) easily by using the 128's built-in hex\$ command. Use the following routine to read and print the time from within one of your programs:

```
100 FOR I=0 TO 2:B=PEEK(6413-I) AND 127
110 PRINT RIGHT$(HEX$(B),2);
120 IF I<2 THEN PRINT " ";
130 NEXT
```

Use the following routine to read and print the current date:

```
150 FOR I=0 TO 2:B=PEEK(6414+I)
160 PRINT MID$(STR$(B),2);
```

```
170 IF I<2 THEN PRINT " ";
180 NEXT
```

INTERRUPTING THE VDC CHIP

The *C-128 Programmer's Reference Guide* states that you shouldn't try to write to the 80-column chip either directly or indirectly by way of interrupts. Generally this statement is correct, but you can work around it with a little ingenuity. Since there is no way to safely save the value of the VDC registers during interrupts, the best thing to do is not disturb them while they are in use. It's too bad that the operating system doesn't set a flag to signal when an important 8563 routine is active, but that would have made things too easy.

The first thing you can do is limit the number of accesses to the chip. The IRQ hits about 60 times a second, so your

routine would be bombarding the chip with job requests. A built-in time delay can solve this problem easily by limiting the number of screen updates. Time-Keeper uses a one-second delay in its interrupt routine as the first trick.

The next trick is to check to see whether the Basic screen editor is using the display chip at the present time, and to exit the routine if it is. This can be established by examining the last JSR address on the stack and see if it falls within the range of one of the screen editor's ROM routines. If you write your own programs that access the 80-column chip, it is wise to use the built-in ROM routines rather than your own. R

Bob Kodadek spends his free time writing computer programs and running his software business, Family Software.

Listing 1. Time-Keeper 128 boot program.

```
1 REM TIME-KEEPER 128(2 SPACES) 12 IF MN<1 OR MN>12 THEN PRINT 23 POKE CL+5,MS:POKE CL+6,HR:SY
40/80 COLUMN :REM*182 US:GOTO11 :REM*187 S ML:END :REM*213
2 REM (C) 1987 BOB KODADEK 13 S$=RIGHT$(STR$(MD(MN)),2)+") 24 PRINT:PRINT"HOURS(2 SPACES){
:REM*109 " :REM*223 1-12)"E$;:INPUT HR :REM*193
3 REM :REM*146 14 PRINT SPC(1)"DATE(2 SPACES){ 25 IF HR<1 OR HR>12 THEN PRINT
4 BANK 15:F$="OB.TK 128":PRINT" 1-"S$ E$;:INPUT DT :REM*218 US:GOTO24 :REM*19
LOADING "F$:BLOAD (F$) 15 IF DT<1 OR DT>MD(MN) THEN PR 26 PRINT SPC(1)"MINS(2 SPACES){
:REM*209 INT US:GOTO14 :REM*160 0-59)"E$;:INPUT MS :REM*113
5 PRINT CHR$(147) CHR$(14) CHR$ 16 PRINT SPC(1)"YEAR (86-99)"E$ 27 IF MS >59 THEN PRINT US:GOTO
(13) SPC(15)"(SHFT T)IME-{SHF ;:INPUT YR :REM*201 26 :REM*161
T K)EEPER 128":PRINT :REM*169 17 IF YR<86 OR YR>99 THEN PRINT 28 PRINT"AM-PM{3 SPACES}{A/P)"E
6 DIM MD(12):FOR I=1 TO 12:READ MD :REM*17 US:GOTO16 :REM*17 $;:INPUT P$ :REM*5
(I):NEXT :REM*166 18 PRINT:PRINT SPC(8)"(SHFT S)E 29 IF P$ <>"A" AND P$ <>"P" THEN
7 ML=DEC("1900"):CL=DEC("190C") T THE TIME (HR/MS/AM-PM)" 30 PRINT US:GOTO28 :REM*223
:US=CHR$(145)+CHR$(145) :REM*127 30 FLAG=0:IF P$="P" THEN FLAG =
:REM*33 19 GOSUB24:POKE CL,MS:POKE CL+1 128 :REM*75
8 FOR I=0 TO 3:E$=E$+CHR$(32):NEXT ,HR :REM*145 31 BY=HR:GOSUB33:HR=BY OR FLAG
:REM*236 20 POKE CL+2,MN:POKE CL+3,DT:PO :REM*163
9 FOR I=0 TO 3:E$=E$+CHR$(157):NEX KE CL+4,YR :REM*217 32 BY=MS:GOSUB33:MS=BY:RETURN
T :REM*202 21 PRINT:PRINT SPC(8)"(SHFT S)E :REM*207
10 PRINT SPC(8)"(SHFT S)ET THE T THE (SHFT A)LARM? (Y OR N) 33 X=INT(BY/10):Y=BY-10*X:BY=16
DATE (MN/DT/YR)":PRINT ":REM*36 *X+Y:RETURN :REM*111
:REM*44 22 HR=0:MS=0:IF A$="Y" OR A$="{ 34 DATA 31,29,30,31,30,30,31,31
11 PRINT"MONTH(2 SPACES){1-12)" SHFT Y)" THEN GOSUB 24 ,30,31,30,31 :REM*39
E$;:INPUT MN :REM*245 :REM*83
```

Listing 2. Time-Keeper File Generator program.

```
1 REM TIME-KEEPER 128 OBJECT 8 PRINT:PRINT"PUT FORMATTED DIS 240,8,32,94,25 :REM*59
:REM*187 K INTO DRIVE & PRESS RETURN": 13 DATA 169,128,141,144,26,169,
2 REM (C) 1987 BOB KODADEK SYS65487 :REM*5 127,141,13,220,32,107,25,169
:REM*109 9 SCRATCH (F$):BSAVE (F$),P6400 ,129,141,13 :REM*119
4 F$="OB.TK 128":PRINT"PLEASE W TO P7108:PRINT:PRINT DS$ 14 DATA 220,32,144,27,96,201,18
AIT, READING DATA...":REM*46 :REM*137 240,4,201,146,208,2,73,128,
5 BANK 15:IF PEEK(215)=128 THEN 10 DATA 76,19,25,76,67,25,76,16 141,11,221,142 :REM*231
FAST :REM*80 5,25,0,0,0,0,129,9,7,87,0,12 15 DATA 10,221,140,9,221,140,8,
6 DO UNTIL I=708:READ BY:POKE D 9,162,146,142 :REM*216 221,96,169,128,160,25,141,24
EC("1900")+I,BY:CK=CK+BY :REM*129 3,140,25,3 :REM*103
:REM*129 11 DATA 9,25,173,15,221,41,127, 16 DATA 169,147,141,20,3,169,26
7 I=I+1:LOOP:IF CK<> 65524 THEN 73,13,25,32,84 :REM*154 ,141,21,3,96,216,169,127,141
PRINT"DATA ERROR!":END 12 DATA 25,173,15,221,9,128,141 ,13,221,172,13 :REM*0
:REM*56 ,15,221,174,17,25,173,18,25, 17 DATA 221,48,23,32,61,246,32,
```

EASY APPLICATIONS

225,255,208,15,32,107,25,32, 9,225,32,0,192 :REM*231	5,26,240,8,248,24,105,1,216, 232,208,243,72 :REM*27	,221,41,4,240,5,169,45,141,1 30,27,173,130 :REM*245
18 DATA 32,144,27,108,0,10,76,9 5,250,169,127,141,13,220,32, 138,255,169 :REM*245	28 DATA 74,74,74,74,32,99,26,10 4,41,15,24,105,48,201,48,208 ,6,192,0,208,2 :REM*26	38 DATA 27,208,7,169,128,141,14 4,26,208,43,206,129,27,173,1 29,27,41,207 :REM*135
19 DATA 129,141,13,220,96,36,21 5,16,13,162,18,169,0,32,204, 205,232,169,56 :REM*113	29 DATA 169,32,153,121,26,200,9 6,42,32,48,57,47,48,56,47,56 ,55,32,49,50 :REM*199	39 DATA 208,33,169,15,141,24,21 2,160,9,162,0,140,5,212,142, 6,212,169,48 :REM*55
20 DATA 32,204,205,173,130,27,2 40,8,173,144,26,73,128,141,1 44,26,160,0 :REM*116	30 DATA 58,51,48,58,48,80,32 ,65,76,0,128,0,0,60,216,160, 3,185,8,221 :REM*168	40 DATA 141,1,212,169,32,141,4, 212,169,33,141,4,212,206,130 ,27,165,211 :REM*60
21 DATA 173,14,25,32,71,26,200, 173,15,25,32,71,26,200,173,1 6,25,32,71,26 :REM*106	31 DATA 153,10,25,136,16,247,20 6,146,26,208,25,169,60,141,1 46,26,44,143 :REM*223	41 DATA 164,212,201,5,208,33,19 2,20,208,5,169,0,141,130,27, 192,39,208,8 :REM*28
22 DATA 200,162,32,173,13,25,72 ,41,16,240,2,162,49,138,32,1 14,26,104,32 :REM*220	32 DATA 26,16,15,186,189,7,1,20 1,195,144,4,201,208,144,3,32 ,179,25,44,13 :REM*85	42 DATA 173,143,26,9,128,141,14 3,26,192,21,208,8,173,143,26 ,41,127,141 :REM*213
23 DATA 99,26,200,173,12,25,32, 90,26,200,173,11,25,32,90,26 ,169,1,44,13 :REM*211	33 DATA 25,48,70,173,9,25,208,7 0,169,255,141,9,25,174,14,25 ,224,2,208,17 :REM*134	43 DATA 143,26,76,101,250,0,0,0 ,31,28,31,30,31,30,31,31,30, 31,30,31,32 :REM*193
24 DATA 25,16,2,169,16,32,114,2 6,200,169,1,44,144,26,16,2,1 69,129,32,114 :REM*84	34 DATA 169,29,172,16,25,192,88 ,240,11,192,92,240,7,192,96, 240,3,189,131 :REM*129	44 DATA 125,255,147,142,13,13,3 2,32,32,32,32,84,73,77,69,45 ,75,69,69,80 :REM*220
25 DATA 26,169,12,44,144,26,16, 2,169,140,32,114,26,160,16,2 08,3,153,0,4 :REM*173	35 DATA 27,205,15,25,208,23,160 ,1,140,15,25,238,14,25,173,1 4,25,201,13 :REM*42	45 DATA 69,82,32,49,50,56,13,32 ,40,67,41,32,49,57,56,55,32, 66,79,66,32,75 :REM*120
26 DATA 200,185,102,26,240,10,3 6,215,16,243,32,202,205,76,5 4,26,96,141 :REM*28	36 DATA 208,18,140,14,25,238,16 ,25,208,10,238,15,25,208,5,1 69,0,141,9,25 :REM*112	46 DATA 79,68,65,68,69,75,13,0, 96 :REM*50
27 DATA 145,26,169,0,170,236,14	37 DATA 173,18,25,240,67,173,13	

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TELECOMPUTING WORKSHOP

Tips from readers and a request for help in creating a talking terminal program, plus more telecomputing advice.

By DAVID BRADLEY

I RECENTLY RECEIVED A LETTER from W. H. Lambdin of East Bernstadt, Kentucky, about the Volks 6480/Aprotek 12C modem. He thinks I've been doing you all a disservice by "blackballing" it. He points out that the 6480, in contrast to the Commodore 1670, won't answer when you don't want it to; it doesn't put any stress on the user port; it isn't as heat sensitive as the 1670; and it comes with a five-year warranty, compared to the 1670 with its standard Commodore 90-day warranty.

However, he does admit that the 6480 "won't work with just any terminal software" and that "the terminal software that comes with it is so full of bugs, you can't upload with it, and if you download a combination of Basic and machine language, you won't be able to get a working copy." (I never heard that one before.)

He goes on to mention a variety of terminal programs that have been modified to work with the 6480. Two good sources of programs for the 6480 that I've found are Public Domain Solutions, PO Box 832, Tallevast, FL 34270, and the telecommunications download area of Q-Link.

I think the 6480/12C is a good modem; it would just be a lot better if it worked more like some of the other modems on the market and if the manual that comes with it gave you all the information necessary to make it "sing and dance" using Basic.

By the way, regardless of our difference of opinion, I do appreciate the constructive criticism!

PC PURSUIT

Matt Sussdorff of Naples, Florida, wrote in about an online network called PC Pursuit. It lets you call 27 different area codes during evenings and weekends for just \$25 per month, and you can access all sorts of systems, like Mne-matics Videotex, that would otherwise cost you long-distance fees. For more information about PC Pursuit, call 1-800-TELENET.

This service isn't especially new; I've just never used it. Remember, I don't

know everything. If, like Matt, you want to tell your fellow modem users about a service or product you like or something you did, write to me about it!

TALKING TERMINAL?

If anybody can help a blind Commodore user who's interested in writing a talking terminal program with his Votalker C-64 speech synthesizer, please write to Philip Halton, 471 Chicopee St., Chicopee, MA 01013. He'd really appreciate it.

BBS MONEY-SAVER

I got a message on Q-Link from "Asgardian" concerning the cost of a phone line for running a BBS. He suggests that you get a metered line instead of a normal one. This will drop the cost of the line considerably, as long as you don't make any outgoing calls. However, if you run a PunterNet node, you're better off staying with a normal line. A very active node can attempt to make dozens of calls in one night.

HANDY PRODUCTS

Aprotek, 1071-A Avenida Acaso, Camarillo, CA 93010, has some useful products for the C-64 and C-128 I thought you should know about. One is a cable that extends the user port, and another is a cable that extends the cartridge port. Both cables are about 12 inches long. Just note the "This Side Up" stickers on each end, and make sure you plug the cables in accordingly. Another item they have is an 8-foot long serial cable that's handy if you want to locate printers and/or disk drives on both sides of your computer/BBS setup.

The following note came to me via Q-Link from "JIM64C": "I just finished looking at the November issue of RUN, and I want to mention that Radio Shack offers modular pliers that can be used for attaching new plugs to the ends of phone cables. They're available for about \$8.00. In connecting the plugs, be sure you reverse the color code from one end of the cable to the next (if the black is on the left side at one end, then it must be on the right side at the other

end). I don't know why, but this is the only way to get the cable to work properly. You write a great article; keep up the good work."

To make things a bit clearer, if you hold both ends of a modular phone cable beside each other, with the tabs up, you'll notice that the colors are reversed. This is as it should be. If you replace the plugs, make sure the colors are reversed when you look at the cable in this manner, before you do the final crimping with your special pliers.

ELUSIVE PERFECTION

Phillip Turner of Clanton, Alabama, is planning to get what he considers to be the "perfect modem," a Hayes SmartModem, and he wants to know what the "perfect" terminal program for it would be. As I've said before, there are a lot of very good terminal programs available, but I have yet to see the "perfect" one. Two exceptional public domain/shareware terminal programs that support the SmartModem are MultiTerm 5.2 and Darkterm 4.b. A couple of commercial programs are Sixth Sense and BobsTermPro.

Don't forget to send me specifications for what you'd consider the ultimate terminal program (see the December 1987 column for survey details).

Q I've been searching for a hard drive (at least 20 Mbytes) that's compatible with the C-64/128 to use on my 24-hour BBS. The ones I've seen are the Xetec Lt. Kernal and the InConTrol Data Chiefs. Which of these would you recommend?

—ROBERT NATALY
WESTPORT, MA

A Hard drives, with their large storage capacity, are used on Commodore machines mostly for BBSs. Of the two you mentioned, my only extensive experience has been with the Lt. Kernal. I've seen the ICT but have never really worked with it. I know the Lt. Kernal offers amazing speed, and from what I know of it and the ICT, I would

recommend the Lt. Kernal. I'd appreciate it if anyone who has a hard drive for their Commodore would write and let me know what they think of it, and I'll pass the information along.

Q Last December I purchased an FSD-1 disk drive from Emerald Components International. I'd heard good reports about its performance and how ECI had overcome the problems the 1541s have. It performed wonderfully—until now. Last week I joined Q-Link, and when I tried to load the Q-Link software, it knocked the stuffing out of my drive. Q-Link said I should buy a 1541 or 1571 from Commodore, because the fastload in the FSD-1 isn't compatible with the Q-Link fastload. There must be another way to solve this problem!

—BARRY FREEMAN
HERNDON, VA

A What you describe is very strange, because I have an FSD-1 and use it all the time with Q-Link with no trouble at all. However, mine has no fastload. I suggest you contact ECI, tell them your story and see what they have to say about it. And please keep us informed!

Q I'm in desperate need of help. I love to telecommunicate, but every time I'm downloading valuable information, my carrier gets interrupted. You could do me a great favor by printing a program in your column that shuts off the auto-answer of a Telelearn modem.

—NATHAN BOYD
WESTLAKE, LA

A It sounds to me as if call-waiting might be the culprit. Once you make contact with a BBS or network, your modem shouldn't answer the phone. However, if you have call-waiting, the beeps and/or clicks probably break your connection and then your modem may very well answer the phone. Call your local phone company for information on how to disable or eliminate call-waiting.

Q I bought one of the first Commodore 128s that came out and had no problems with it until I bought a modem. I can boot up my terminal program (Common Sense), dial a number, make the connection and run as long as I want. However, if the computer has been on for at least 15 minutes,

when I disconnect from that first number, my screen fills with garbage and I can't get back online except by shutting down completely for about half an hour.

I've tried disconnecting the phone lines and the printer, shutting off the disk drive after the program is loaded, setting my 128 up on blocks and directing a large fan on it, but to no avail. The one thing that helps is directing a fan at the power supply, and I don't understand why that should be. I've taken the top off the power supply and run my system for hours, and the heat sink and the top of the transformer get only a little warm. I can't see how this small amount of heat could cause this much trouble.

Can you give me any kind of suggestion on how I can overcome this problem so I can go online without having a 10-inch fan blowing on my power supply?

—JOHN M. DEWEES
BROOKHAVEN, PA

A From what you've said, I'd suggest trying to use your modem with another 128 system and your 128 system with another power supply. If you get the same results with both of these combinations, then your modem must be drawing too much power and you should send it back for a replacement. If these combinations work fine, then your power supply needs to be replaced or you could get a Hayes-compatible modem, such as a Mercury, that comes with an external power supply. In the latter case, you'll also need an RS-232 interface, which you can get from Aprotex. Good luck!

Q For a couple of years, I ran the Empire BBS in central New York and loved every minute of being a SYSOP. I plan on putting up another BBS as soon as I get married and am in my new house.

What I'm writing to you about is a phenomenon we've been experiencing in this area. It seems that about three years ago there was a rash of new BBSs. At first this was great, but then usership declined. In the past year, several BBSs have shut down because of lack of use! We've tried everything to get the users back online, but to no avail. Personally, I think the area was saturated too fast, and the users are just plain bored with telecommunications. That's sad, because the SYSOPS who are still running are great people, and so much can be done on BBSs! Is this a local phenomenon, or have you heard of it before?

—ERIC MAUSER
LIVERPOOL, NY

A Not only have I heard of it, I've experienced it first hand. When I

first got into BBSs, there were about four for Commodore users in all of Toronto, where I used to live. Now there are literally hundreds of them. Many have shut down because of lack of activity, but, since somebody else is always catching the BBS bug, there are always new ones opening up.

One reason there are so many these days is because it's so easy to get started. A modem that can run a BBS can cost as little as \$19, and there are all sorts of BBS programs around. I imagine things in the Commodore BBS world will settle down one of these days, but for the time being, we should probably expect to have an excessive number of BBSs in a lot of areas.

BRADLEY BBS COMMANDMENTS:

#1—Be a participant in the bulletin boards you use. Some people call in, look over the message board, get information from the bulletins, download and then leave. However, most BBSs welcome feedback on just about any topic. You can get a discussion rolling by leaving one comment, question or observation. Everybody knows something that can be shared and appreciated by others. Also, treat a BBS as a place to share information when someone else needs help, as well as to get information when you need assistance. If you see a message from somebody in trouble, take the time to leave them a response.

#2—When you're on a BBS, watch the information that appears on your screen. Most systems offer plenty of instructions, so take the time to read them. You might also look in the bulletin section, where a lot of systems have a section on common questions and answers. If you still don't understand something, leave the SYSOP a message. If you never tell anybody you're having trouble, they can't help. ■

Telecomputing Workshop is a monthly column dedicated to the needs of RUN readers who are using, or intend to use, a Commodore computer for telecommunications. We invite you to submit your questions and comments to:

David Bradley
Telecomputing Workshop
RUN Magazine
80 Elm St.
Peterborough, NH 03458

You can leave online messages for David Bradley on QuantumLink (DavBradley), American PeopleLink (DavBradley), Delphi (DavidBradley) or via the PunterNet to 13/SYSOP or 13/David Bradley.

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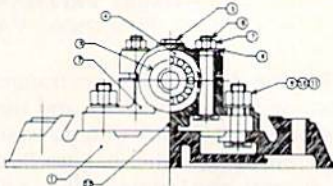
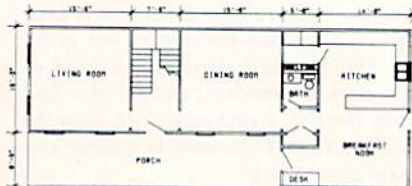
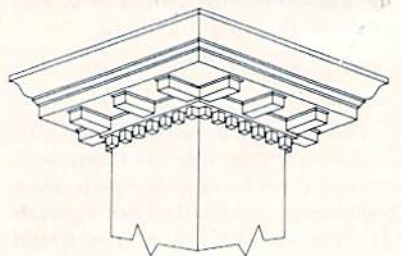
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Personal Newsletter 64 (Soft Syn)	39
Pocket Superpak 2 64/128	69
Pocket Dictionary (Dig Sol)	10
Pocket Writer 2 (Dig Sol)	39
Security Analyst (Free Spirit)	39
Superbase 64 (Progress)	55
Superbase 128 (Progress)	55
Superscript 128 (Progress)	49
ThoughtForm 64 (Gallery)	25
TIMEWORKS	Call
Vizistar or Viziwrite 128	65

Wordpro 128/Spell/Filepro	\$30
Wordpro 64/Spell/Turbo	30
The Write Stuff 64 (Busy Bee)	19
The Write Stuff 64 with Talker	24

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Cardio Exercise (Bodylog)	75
CASINO 64	10
Celebrity Cookbook (Merrill)	25
Classical Music (Strider)	9
Crossword (Radarsoft)	12
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Family Tree 128 or 64 (Geneal)	39
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Maps USA, World/Europe (Ea.)	19
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WEEKLY READER	call
KIDSVIEW - Lg. Character Software	call
Kidsview/Kidsworld or	35
Mount Murdoch (each)	35

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AntiBump Boards for 1541 (CDA)	39
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GEOWATCH

Avoid big trouble with installing GEOS applications by reading the simple advice in this column.

By MATTHEW STERN

THIS MONTH I TURN once again to an examination of GEOS 128, this time describing how to avoid trouble when installing application programs. I'll also tell you about a geoFile update, another GEOS-compatible printer interface, a hint for using the Tymac connection and a couple of low-cost, near-letter-quality printers I hope Berkeley will support.

APPLICATION INSTALLATION

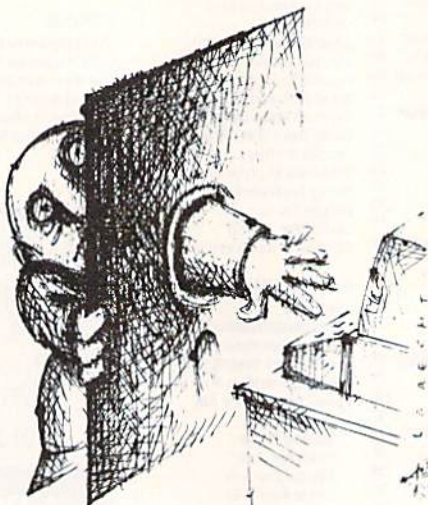
When you first boot GEOS 128, a dialog box asks, "Have you ever installed a Berkeley Softworks GEOS application product?" If you don't answer this innocuous-sounding question carefully, you'll be in a bind—unable to use any application with your GEOS program, now or in the future.

What's going on is that the original boot disk writes its serial number to the backup boot disk, which is then used for installing and running applications. The applications also get imprinted with the serial number, and an application will work only if the numbers on the backup and the application match. In other words, your applications will work only with your backup boot disk, not anybody else's. Berkeley invented this questionable scheme as a form of copy protection.

The first time you use GEOS 128, you *must* click the "yes" icon in response to this question if you have any GEOS applications or there's any possibility you ever will. If you click the "no" icon, you'll *never* be able to use any applications with your GEOS program.

In case you've already answered the prompt incorrectly and now have applications you can't use, there are two possible solutions. First, you can order a replacement boot disk from Berkeley for \$7 and wait a few weeks for it to arrive. If you're desperate, Mystic Jim (2388 Grape, Denver, CO 80207; BBS number: 303-321-8954) sells a utility that changes serial numbers. However, this utility should be used only by the technically inclined who understand the workings of GEOS.

It's unfortunate that such an easy-to-



use operating system has such a potentially disastrous installation procedure. If GEOS 128 can't offer users a second chance to install applications, it should at least display warnings and an "Are you sure?" prompt before you click the "no" icon.

COMPATIBLE APPLICATIONS

Now the question arises: What applications are compatible with GEOS 128? Of course, all those written specifically for 128 mode are compatible, including Berkeley's recently released 128 version of geoWrite Workshop (formerly Writer's Workshop). This package includes an updated geoWrite 2.1 with full-page editing (in 80-Column mode) and a new Paint Overlay printer driver for saving overlaid printouts as geoPaint files. Then you can preview and print the files in geoPaint.

Most C-64 GEOS applications, including the new geoPublish and geoSpell, work with GEOS 128, but they run only in 40-Column mode. Two 64 applications that *won't* work with GEOS 128 are geoFile and geoCalc. According to Rob Siegel of Berkeley, these programs access the GEOS 64 Kernel, thereby making them incompatible with GEOS 128. Perhaps by the time you read this, 128 versions of geoFile

and geoCalc will be available at your dealer.

GEOFILE UPDATE

The original version of geoFile contained several serious bugs—so serious, in fact, that the program was removed from store shelves for a time. Now, according to Berkeley, the wrinkles have been ironed out in the new geoFile 1.2. If you have a geoFile 1.0 disk, send it to Berkeley and you'll get an updated 1.2 disk at no charge. For more information, contact Berkeley Softworks Technical Support, 2150 Shattuck Ave., Berkeley, CA 94704; 415-644-0890.

INPUT ON INTERFACES

In last November's geoWatch, I suggested that the ideal Commodore-compatible parallel printer interface should work with all Commodore programs and include a buffer. Now I've recently discovered that such a device exists—the Omnitronix Hot Shot Plus.

In addition to the above capabilities, this interface lets you print double- and quadruple-density graphics for a darker and better-defined image, and it offers a number of near-letter-quality fonts and a built-in editor for designing your own fonts.

Omnitronix has also released a ROM chip upgrade that enables the Hot Shot Plus to print quadruple-density graphics using geoPaint. Before, it could print only double-density from geoPaint.

The Hot Shot Plus's most useful feature for GEOS is its 8K buffer (expandable to 64K). GEOS fonts and graphics can take a long time to print, but with a large-capacity print buffer, the computer doesn't have to wait until the printer has finished before going on to other tasks.

At a suggested retail price of \$100, the Hot Shot Plus costs far more than Berkeley's geoPrint Cable (which I reviewed in November). Also, depending on your print and other variables, it requires you to change switch settings between various applications. On the plus side, however, it offers printing enhancements for both GEOS and non-

GEOS programs that the Berkeley interface does not, and it doesn't force you to buy a new printer to get near-letter-quality fonts.

An alternative to the Hot Shot Plus is Omnitronix's less sophisticated Hot Shot. Priced at around \$60, this interface offers one near-letter-quality font, double- and quadruple-density printing and an optional 8K buffer that's not expandable. For more information on both interfaces, contact Omnitronix at 760 Harrison St., Seattle, WA 98109; 206-624-4985.

While I'm on the subject of printer interfaces, Michael Habermann of Baltimore, Maryland, has sent in a tip for users of the Tymac Connection. He says, "Place both internal switches in the off,

or closed, position, and the Tymac works fine! I've used the GEOS Okidata 92 driver with the interface and had no problems—graphics and text both print OK!"

INEXPENSIVE LQ PRINTERS

Not surprisingly, GEOS doesn't support daisywheel printers, since it so far prints only bit-mapped images. It also doesn't provide drivers for 24-pin dot matrix printers (unless you use them in a nine-pin emulation mode), because most of these printers have been priced beyond the range of most C-64/128 users. Now, however, NEC and Epson have each introduced a letter-quality, 24-pin printer for under \$500. It's my hope that Berkeley decides to support these machines, since their improved

print quality would be a real boon to users of GEOS applications. If you agree with me, why not write to Berkeley (address above) and tell them how you feel. We just might make a difference! ■

The monthly geoWatch column addresses the needs of RUN readers who use GEOS, Berkeley Softworks' alternative operating system for the C-64 and C-128. Your questions and comments are welcome. Send them to:

Matthew Stern
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RUN Magazine
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You can also contact Matthew Stern on QuantumLink. His online name is Matt S3.

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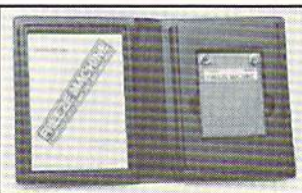
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- Six month subscription to Q-Link, the telecommunications service from Quantum Computer Services.
- Twenty five pages of laser printed output from Laser Direct
- Twelve month subscription to RUN magazine

Seven Second Prizes!

- Complete library of C64 or C128 GEOS applications from Berkeley Softworks
- Commodore peripherals: 1670 1200 Baud Modem and your choice of a

1764 or 1750 RAM Expansion Module or 1351 Mouse

- Three month subscription to Q-Link, the telecommunications service from Quantum Computer Services.
- Ten pages of laser printed output from Laser Direct
- Twelve month subscription to RUN magazine

Seven Third Prizes!

- Your choice of any five C64 or C128 GEOS applications from Berkeley Softworks
- Commodore peripherals: 1670 1200 Baud Modem and your choice of a 1764 or 1750 RAM Expansion Module or 1351 Mouse
- Three month subscription to Q-Link, the telecommunications service from Quantum Computer Services.
- Five pages of laser printed output from Laser Direct
- Twelve month subscription to RUN magazine

Official Rules

1. Employees of Berkeley Softworks, Quantum Computer Services, Laser Direct, RUN Magazine, their advertising and promotional agencies and their immediate families are not eligible to enter the contest.
2. Each entry must be wholly the product of the developer in whose name the entry has been submitted. The entry may not have been published prior to this contest. Copyrighted images are ineligible.
3. Entries must be produced with GEOS or GEOS based applications (e.g. geoWrite, geoWrite Workshop, geoPaint, geoPublish, etc.)
4. Entries must be submitted in both printed output form (dot matrix or laser printed) and disk in 1541/1571 format. The following should be clearly marked on both the printout and the disk:
 - A. Contestant's name, address and phone number.
 - B. Occupation (optional)
 - C. The GEOS based application package(s) used to create the entry
 - D. Intended use for the entry, if other than just for this contest (e.g. user group newsletter, school, business, etc.)
5. Entries become the property of Berkeley Softworks, which

reserves the right to adapt, use or publish all entries received. No disks will be returned, so be sure to make a copy of your entry before you submit it to the contest.

6. Deadline for entries is June 30, 1988. Mail entries to Berkeley Softworks, 2150 Shattuck Avenue, Berkeley, CA, 94704 Attn: GEOS Desktop Publishing Contest.
7. Contestants may enter multiple categories, but may only submit one entry per category per division (e.g. one entry in the Flyer category, Dot Matrix division and one entry in the Flyer category, Laser Printer division). Regardless of the number of categories you enter, you will only be eligible to win one prize.
8. Final judging will be performed by the staff of RUN Magazine. The decisions of the judges are final in all respects. This includes decisions regarding creativity, similarity among entries and general suitability.
9. This contest is void where prohibited by law. All federal, state and local taxes are the sole responsibility of the winners.

General Conditions

- Entries will be judged on creativity, originality, composition, layout, content and overall design.
- Make sure your mailer will protect your printout and disk from damage. Affix sufficient first class postage. Mail your printout, disk and official entry blank to the above address in time to reach RUN Magazine before the June 30, 1988, deadline.
- Winners will be announced by September, 1988.

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City	_____
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Age	_____
Occupation	_____ (optional)
Signature	_____
Parent's Signature	_____ (if contestant is under 18)

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COMMODORE CLINIC

What are the differences between Commodore's 1350 and 1351 mice? How many files can be kept open at once on a disk drive?

By LOU WALLACE

PROGRAMMING

Q I'm writing a program and want to keep a few files open while the program is running. How many can I keep open at one time on a Commodore disk drive?

—D. SCHWARTZ
SCOTTSDALE, AZ

A It depends on the drive you use. 1541s and 1571s have three available buffers to open up to three sequential files at once, or one relative file (which requires two buffers) and one sequential file (one buffer). The 1581 drive has seven buffers, so you can have more combinations of open files, but it's not a good idea to have more than two relative files open at once.

Q I'm taking a course in Basic, and the class uses MS-DOS computers. However, I want to do my homework on my C-64. The problem is Basic 2.0 doesn't have any text-formatting abilities, and I need to have columns of decimal numbers to two significant digits, with the decimal points aligned. How can I do it?

—M. WRIGHT
ODUM, GA

A It's not too difficult. All you need is a short routine to read in a number, truncate it to two digits to the right of the decimal, and convert it to a string. Once that's done, you can add extra zeros if the number has fewer than two significant digits, and pad it with enough space characters so all the numbers have the same number of digits. This short Basic program segment demonstrates one way to do it:

```
10 PRINT "X=";INPUT Y
20 GOSUB 50
30 PRINT Y,X$
40 GOTO 10
50 X=Y*100:X=INT(X):X=X/100
60 X$=STR$(X):T=X-INT(X):IF T=0
  THEN X$=X$+"00":GOTO 80
70 T=(X*10)-INT(X*10):IF T=0 THEN
  X$=X$+"0":GOTO 80
```

```
80 FOR J=1TO(10-LEN(X$)):X$=" "+X$
  NEXT
90 RETURN
```

In this example, the program asks you for a number and converts the number to a string with the proper number of digits. It then adds character spaces to the front of the number so the output is ten characters long, with the decimal points aligned. You can change the number of zeros the program adds to a number by changing the 10 in line 80. And the subroutine at lines 50-90 could be included in your programs.

However, while writing this, I discovered a bug in both the C-64 and C-128 math routines and thought I would pass it on to our readers. Apparently it involves round-off errors in floating-point math, but only affects certain numbers, for which I haven't as yet been able to find a pattern. It's easier to demonstrate than explain. In Direct mode, type in the following lines:

```
X=33.4
Y=(X*10)-INT(X*10)
PRINT Y
```

What do you think the value of Y is? If you answer zero, you're right, but the answer you get is 1.1920929E-07! Not quite right, that's for sure. If you had entered -33.4 for X, the value given for Y would have been a little less than 1, a very large error indeed. These errors are enough to cause programs to work incorrectly when they encounter one of the "magic" error-causing numbers, as in the small routine above. So be warned!

Q How can I reprogram the C-128's shifted run key and the help key? Also, how can I keep a user from exiting a Basic 7.0 program with the stop key?

—R. BURNS
CONCORD, NH

A The answers to both questions were published recently in the Best of Magic column in *RUN's Special Issue #4*. To disable run-stop/restore, use these Pokes:

POKE 792,51:POKE 793,255

As most 128 users know, the eight function keys can easily be reprogrammed with the Key command. But you can easily reprogram the shifted run and help keys with the following SYS commands.

RUN KEY

BANK 15:SYS DEC("60EC"),8,,"RUN KEY"

HELP KEY

BANK 15:SYS DEC("60EC"),9,,"HELP KEY"

Substitute your own commands for the words RUN KEY or HELP KEY to give you a total of ten programmable function keys.

HARDWARE

Q While using my C-128 in C-64 mode, I formatted a disk on my 1571. The disk directory showed that I had 1328 blocks free. Does this mean my 1571 formatted both sides of the disk? I thought that happened only when you were in C-128 mode. Then, when I turned it over and tried to get a directory, it responded with Drive Not Ready. What does this mean?

—J. P. STEVENS
EXETER, NH

A It means you've formatted both sides. Evidently your 1571 was still in 1571 mode, not 1541 mode. The 1571 can be used with the C-64, although it doesn't allow the high-speed data transfer in C-64 mode. However, you have a misconception about how the 1571 double-sided drive works. It is not the same as formatting a disk with the 1541, then turning it over and formatting it on the other side, which results in essentially two separate disks, each with its own directory. To get at the data on the back of this 1541-formatted disk, you must turn it over. However, when you format with the 1571 in 1571 mode, both sides of the disk are formatted at the same time. They share the same directory, and the drive can access the data on the back without turning over the disk. When you turned the disk over, it was

in the drive upside down and the directory couldn't be found, as if the disk were unformatted. This resulted in the Drive Not Ready error.

Q About a year ago, I bought the new Commodore 1350 mouse, and I've been using it with programs like Pocket Writer 2 and GEOS 128. Now I hear about a new mouse called the 1351. What's the difference between them, and should I think about changing to the new version?

—C. CALVET
GARDEN GROVE, CA

A The difference is like night and day. The 1350 really isn't a mouse, although it looks like one. In reality, it's a joystick in sheep's—er, mouse's—clothing. It's only able to report to the computer movement in eight directions, just like a joystick. The 1351 mouse, on the other hand, is a "true" mouse. It reports on movement in 256 directions. (The 1351 can also be used as a standard joystick if needed.) This makes it a perfect proportional controller, and it's one of the finest peripherals ever to come out of Commodore. With software designed to use it as a mouse, its movements are smooth and fluid. I've seen it priced at under \$35—a bargain—and one I recommend.

Q I recently received an SX-64 (an older, portable C-64 with built-in drive and five-inch color monitor). Do the comments I read about the C-64 and the 1541 drive also apply to my SX-64? Also, I was given some older programs like *The Manager* and *The Printed Word*. How do these compare with newer programs like *Pocket Filer* or *Pocket Writer 2*?

—L. BOWLES
JACKSONVILLE BEACH, FL

A Yes, for the most part the SX and C-64/1541 are the same. The SX has a different default color on power up, though, and there may be some minor differences in the 1541 ROMs. As for the older software, if it's adequate for

you, then you need nothing else. However, the newer software packages (especially Pocket Writer 2) are faster and have more features.

SOFTWARE

Q I have a C-128, and I need to write text over the graphics screen and save it. I know the CHAR command allows you to print on the screen, but what I need is a form of text editor so I can easily do it. Do you know of any such programs?

—J. BASTION
BOSTON, MA

A There are several C-64 graphics programs you could use. For example, Doodle! has reasonable text abilities as well as very good drawing features. Flexidraw (from Inkwell) is another, with excellent drawing tools and good text-editing features. Abacus Software has CADPAK 128, which uses the 128's 40-column graphics, and it has some text features that might do what you need. And of course there's GEOS 128, which uses both text and graphics.

Q I have the *Better Working Spreadsheet* by Spinnaker. Based on RUN's article on the 1764 RAM expander in the July 1987 issue, I bought a 1764. However, I can't use it with my spreadsheet because the computer locks up. Is there a way I can make it work?

—J. SAEZLER
OREGON, OH

A Your spreadsheet program is overwriting the area of memory occupied by the RAMdisk software. Unless the software is specifically written for use with the RAMdisk and makes allowances for its machine code, there's no guarantee it'll work with it. Since the number of owners of RAM expansion cartridges is rapidly increasing, software developers are writing programs that use the expansion RAM. If you can't find a spreadsheet that works with RAMdisk, contact Spinnaker (One Kendall

Square, Cambridge, MA 02139; phone 617-494-1200) to see if they're developing one that will work with the 1764.

Q A C-128 program I'm writing needs to know what disk drive it was loaded from and the amount of memory present. Short of the program asking the user, is there a way to tell what expansion RAM is present and which drive (8-11) should be used?

—TOM MCDUNNEL
WEST PALM BEACH, FL

A Yes, there is. You can tell what drive was last accessed with a Peek to \$BA, and by placing a line at the beginning of your program that Peeks that address, you'll know what drive to default to. Here's an example.

```
10 DN = PEEK(DEC("BA"))
20 BLOAD"SPRITES", B0,U(DN+0)
```

The variable DN is set to the drive last used, so if you load and run this program from any drive, the sprite data is loaded from the same drive.

As for checking for 17XX RAM expansion cartridges, again, a small routine at the beginning of your program can handle that for you. For example:

```
10 A = 57094:POKE A,255:IF PEEK(A)
   <>255 THEN RX = 0:GOTO 30
20 POKE A,0:A = 57088:RX = 128: IF
   (PEEK(A) AND 16) THEN RX = 512
30 REM RX CONTAINS THE AMOUNT OF
   EXPANSION RAM PRESENT
```

This short routine will return the total amount of expansion RAM available in the variable RX. If you have a 1700, RX = 128, and if a 1750 is present, RX = 512. If the system is unexpanded, the value of RX will be 0. ■

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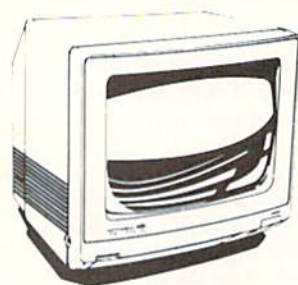
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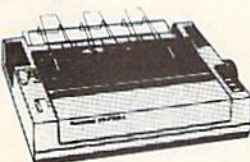
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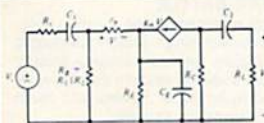
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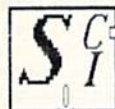
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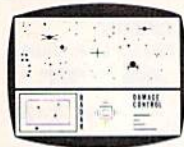
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Called the backbone of the computer industry, user's groups are still an untapped resource for many computerists. Next month, find out what user's groups are all about as *RUN* examines how they function and the benefits they have to offer. We'll also include a list of user's groups in the U.S. and Canada to help you locate the one nearest you.

In related articles, we'll provide tips on how to start a user's group if your area doesn't have one, how to start and maintain a club newsletter and how your club can set up its own online bulletin board system.

REPAIR TIPS—

Before you send your computer equipment off to the shop for expensive repairs, you may be able to save time and money by fixing it yourself. Another April article, written by an experienced computer technician, will provide numerous tips on locating and repairing malfunctions in your C-64 system at home. If you'd still rather not do the work yourself, this information will make you better informed when you go to the repair shop.

PROGRAMS—

We're not foolin' when we say the April issue of *RUN* will offer lots of features to make using your Commodore more fun and worthwhile. For example, say good-bye to boring text graphics in 64 Basic with Fontastic 64. This program lets you choose from nine text fonts to add variety to your video display.

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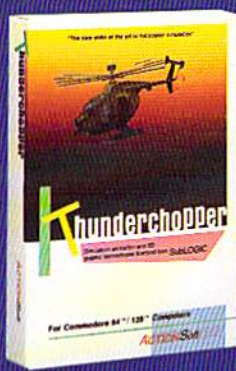
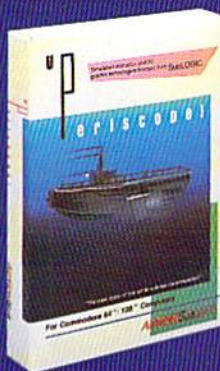
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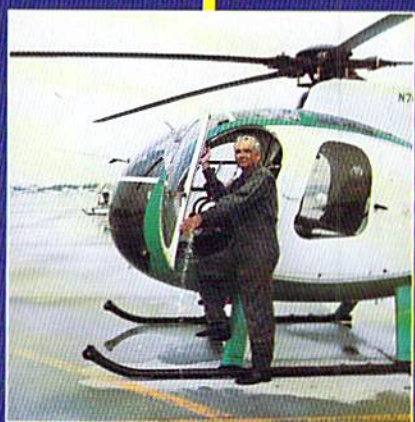
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