

THE NEWSLETTER

A publication of TPUG, Inc.

President's report

Welcome to INFO magazine. I know you will find it as great a magazine as do I! As usual TPUG has left everything to the last minute, so if this newsletter is a bit rough, please do not blame the INFO staff, nor the new newsletter editor, Charles Lavin. Charles actually volunteered for this position! My many and heartfelt thanks go to him.

Charles comes highly recommended to this position. Besides being a many-time contributor to Run and Commodore magazines, Charles has studied computer science in college. He has been involved with various publications since his college days, and is currently an editor for a newspaper in the Florida Keys. An experienced Commodore programmer, he keeps busy writing C-64 software for a Miami software publishing firm. He can also be found roaming around various bulletin boards, most notably QuantumLink.

TPUG welcomes Charles Lavin.

Send in your mailing label!

If you are a TPUG member who also subscribes to INFO magazine, *immediately* send us the mailing label of your latest issue. Your TPUG membership will be extended for the equivalent unexpired time of your INFO subscription. If you don't send us your mailing label, you will probably end up receiving two copies of each INFO issue — the one sent by INFO's subscription department, and the one sent by TPUG. We are asking for your INFO mailing label to be sure we correctly delete the proper name from INFO's database. Remember, computers are strictly literate. M. Brown may be listed on the TPUG roster as M BROWN and on the INFO list as M G BROWN. The computers would have no way of knowing this is the same M. Brown. So please send us your mailing label so TPUG and INFO can serve you as you deserve!

Oh, by the way: as with all correspondence sent to the TPUG office, please include your membership number. Thanks!

Computer Expo '88 Show Disk

As usual, there will be new editions of the Show Disk for the April Computer Expo Show. It has been a policy that the C-64 show disk contain the "best of" programs. The three games are: **CRAZY COMETS** (note the quality of which the Europeans are capable), **ROBBERS** (a fun cops and robbers game), and **NEW TREK** (need I say more?). The three business applications programs are: **LETTERS** (a full-powered word processor, of only 33 blocks — the documentation is longer than the program!), Lou Sander's **LABEL MAKER** program, and Bob Kober's **ULTRA** sequential file printer (use it to print the new disk catalog on the reverse, as well as the contained order forms). The five utilities include: ! (speeds the 1541 disk drive to five times normal), **FILE SCRATCHER** (removes even one-letter filenames), an updated **UNICOPY 64** by Jim Butterfield (allows copying one file or many), **COPI-SWAP** (an updated version of a full-disk copier, from TPUG friend Thomas Templemann), and last but not least, **9 SEC FORMAT** (formats disks in nine seconds!). There are two graphics demos on side one, the **BOUNCING BALL** Amiga demo, and the laser show (aka **SWINTH**). When you flip over the disk, you will find one more graphics demo, **TIME CRYSTAL**. Load, sit back, and be amazed. To fill out side two, there are **two music and picture files** for SIDPIC 2.5.

Updated C-64 catalog disk

Be sure to read the other side of the C-64 show disk. The beginnings of the new C-64 catalog are on side two of the C-64 Expo '88 Show Disk. Here you will find 48 disks not included in the hardcopy catalog, with (at least) one-line descriptions of each program. The disk catalog can be read or printed with any sequential file reader/printer (use **ULTRA**, found on side one). Soon this catalog will be included on the reverse of all C-64 disks. If the catalog is a bit rough, please be patient! Do let the TPUG office know of these rough spots

(patch them for me?). Send revisions, additions, and positive comments along to 5300 Yonge Street, Willowdale, Ont. M2N 5R2. Thanks.

Many thanks

... to Steve Douglas, author of the PaperClip wordprocessor, for presenting (lecturing, talking on) PaperClip III to the C-64 and C-128 groups. Both presentations were informative, thoroughly presented, and well received.

GEOS update

Look in the library section next issue for a description of TPUG's first "exclusively GEOS" disk, assembled by Peter and Paul Hughes.

Oops

In the last newsletter, wherein I informed the membership of the contract with INFO magazine, I said the members would be getting the April INFO issue. My error. It is *this* issue (#20, May/June 1988) which is your first TPUG/INFO issue. I got the printing date (March/April) and release date (May/June) confused. Besides, it's cold up here in Toronto, so I had my shoes on, and could not count that high!

Enjoy this issue.

For our American members

Frank Bremer of Auburn Hills, MI recently suffered the woes of attempting to get his 4040 disk drive repaired. After numerous calls to Commodore and other repair centers, he had all about given up hope of getting his drive fixed. During the Christmas holiday, he found a company that fixed his drive. "I brought the drive in on a Thursday and received it back on Monday," he says. "I highly recommend this company for friendly, reasonable and quick service." The company is: Virginia Micro Systems, Inc., 13646 Jeff Davis Highway, Woodbridge, VA 22191. Their phone number is (703) 491-6502.

ANNE E. GUDZ
PRESIDENT

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The Newsletter is published bimonthly by the Toronto Pet User's Group (TPUG), Inc., the world's largest Commodore users' group. TPUG is a non-profit corporation dedicated to the service and support of owners and users of Commodore computers. All rights to material published in The Newsletter are reserved by TPUG, Inc. and no material may be reprinted without written permission except where specifically stated.

Book review

Title: Members Handbook
Author: 64/More Commodore User Group, Inc.
P.O. Box 26811
San Jose, CA 95159-6811
Price: \$5.00 U.S. (includes disk)

This 28-page booklet is professionally typeset, and thus clear to the eye, and easy to read. The User Group has indeed provided information that is either unavailable or hard to find in books for new users of Commodore 64 and 128 computers.

Their first article is called "Your First Day," and gives advice as to where and how to set up your computer, including the insertion of a cartridge. It advises on the preferred order of firing up the components, and describes simple test programs to make sure your new system really works. Detailed instructions lead the new owner through formatting a disk; loading, saving, and verifying; listing a directory, explaining all that is displayed on the screen as a result; and the importance of write-protecting a disk.

Flipping to the end, one finds perhaps the second most useful article in the booklet, "Using the DOS Wedge" with the C-64. Easily accessed, and in neat columns, are listed the disk function, its command in BASIC 2.0, and the same command using the wedge.

If a new user gets no other value from this booklet, then his or her money is already well spent. However, there is more. Included as well is the instruction set for SUPERMON-64. And don't miss the section on how to sew covers for your computer equipment! There are also mini-dictionaries of "buzzwords" that are such a necessity for the rank beginner to understand other more experienced users' jargon. Buzzwords regarding the computer (*algorithm to zero page*), the printer (*ASCII to tractor feed*), and telecommunications (*baud to XModem*) are included.

Also included is a short section on GEOS, an article on program protection, and an article by Jim Butterfield

explaining the languages of the computer.

The disk that accompanies this booklet contains the Club's Articles of Incorporation and By-Laws, all the text files in the booklet, and these programs: MORTGAGE (C-64), SUPERMON (C-64), DISK DATAMAKER (C-64), MULTI FILE COPY, COPY FILE 64, FASTCOPY (C-64), WHERE 64, DIRECTORY PRINTER (C-64), FAST FORMAT (C-64), PET SIMUL.49152 (C-64), DOS.WEDGE.52224 (C-64), E-Z.SEQ. READ (C-64 and C-128), CONVERSION V.2.0 (C-64 and C-128), and F-KEYS DEMO (C-64 and C-128).

The only fault I can find in this great booklet is on page 27, and is due to poor typographic quality: the "↑" and "←" are not clearly printed.

Despite this, the Members Handbook and disk are certainly well worth the \$5. I recommend it to all (new) users.

ANNE E. GUDZ

Meeting Schedule

C-128: First Tuesday of the month.
1988: May 3, June 7
Amiga Central: Second Tuesday of the month. 1988: May 10, June 14
C-64: Fourth Tuesday of the month, except December. 1988: May 24, June 26

All of the above meetings commence at 7:30 p.m. in the York Public Library, 1745 Eglinton Ave. W. (just east of Dufferin), in the Auditorium or Study Hour room.

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Westside: Second* Thursday of the month. 1988: May 12, June 19
Amiga West: Second* Thursday of the month. 1988: May 12, June 19

*These meetings were formerly held on the third Thursday of the month. They take place at Clarkson Secondary School, Bromsgrove Rd. just east of Winston Churchill Blvd., Mississauga, in the Little Theatre.

□ □ □

Eastside: Second Monday of the month. 1988: May 9, June 13

Meetings are held at Dunbarton High School, in the computer room. (Go north on Whites Rd. from the traffic lights at Highway 2 and Whites Rd. to the next traffic lights; turn left to parking lot.)

□ □ □

Brampton Meeting: Third Thursday of the month. 1988: May 19, June 16

Meetings are held at 4 Silver Maple Court, Bramalea in the Hospitality Room.

ANY QUESTIONS?

Questions concerning TPUG or the TPUG insert should be directed to the TPUG office, 5300 Yonge Street, Willowdale, Ont. M5N 5R2. Or phone (416) 733-2933.

PET to C-64: some hints

Although most PET programs will run immediately on a Commodore 64, there are just enough exceptions to cause problems for the unwary user. Fortunately, in most cases, particularly where POKES are concerned, there are some easy fixes that will save the day. This article uncovers many of these POKES, and then takes a look at some other unexpected conversion problems and their solutions.

By MELVIN BILLIK

Any PET program will automatically load into the C-64 correctly. This is because the C-64 automatically loads a program at its start-of-BASIC location. Hence, although PET programs start at location 1025 while C-64 programs start at 2049, this relocation feature will prevent any loading problems on the C-64. (The reverse is not true, but more on that later).

One of the main reasons for a PET program failing to run on the C-64 concerns POKE statements. The POKE numbers for the two machines are different. For example, the start of screen memory is location 32768 for the PET and 1624 for the C-64. Hence, if you want the letter "A" to appear in the upper left-hand corner of the screen, you must replace the PET BASIC statement POKE 32768,65 with POKE 1024,65 for the C-64.

One can, in fact, use this information to determine, *within a program*, whether the program is running on a PET or a C-64. Suppose, for example, you wish to place an "A" in the upper left-hand corner of the screen and a "B" in the sixth row, third column. The following program segment will accomplish this on the PET or the C-64:

```
10 GOSUB 5000
20 POKE SC,65
30 R=6: C=3
40 CC=SC+40*(R-1)+(C-1)
50 POKE CC,66

5000 W=PEEK(1024)
5010 SC=1024
5020 IF W=0 THEN SC=32768
5030 RETURN
```

On the PET, location 1024 will always be zero. On the C-64 it will not, unless the symbol "@" just happens to be sitting in the upper left-hand corner, an event about as likely to occur as having all your programs work correctly on the first run!

Now let's look at some other common POKES. To disable the

STOP key on the PET, we use POKE 144,88 (use POKE 144,46 for a 2.0 ROM). For the C-64, use POKE 788,52 and POKE 788,49, respectively.

On the PET, POKE 59468,14 converts the screen display to the text mode (lower case), and POKE 59468,12 converts back to the graphics mode (upper case). For the C-64, use POKE 53272,23 and POKE 53271,21, respectively.

These changes can be incorporated into a single program devised for either machine by utilizing our subroutine at line 5000. For example, suppose we wished to start out by converting to lower case and disabling the STOP key. The following changes would accomplish this:

```
15 POKE L1,L2: POKE S1,L2
5010 SC=1024: L1=53272: L2=23:
      S1=788: S2=52
5020 IF W=0 THEN SC=32768:
      L2=14: S1=144: S2=88
```

Occasionally, one might want to clear the keyboard buffer. Locations 158 and 198 contain the number of characters in the keyboard buffer for the PET and C-64, respectively. Hence, POKE 158,0 and POKE 198,0 will clear the buffer for these two machines.

Bugs to watch out for

In converting programs, I have found a few unexpected difficulties; two of them are probably due to flaws in the C-64.

If you are printing a message as part of an INPUT statement, and the printed output exceeds one line, then a string input causes some strange results. Try the following:

```
10 INPUT "OKAY, NOW ENTER
YOUR NAME AND BE SURE TO
PRESS RETURN WHEN
DONE"; N$
20 PRINT N$
```

You will find that the name typed in has been concatenated with part of the INPUT message. The fix is simple:

```
10 PRINT "OKAY, NOW ENTER
YOUR NAME AND BE SURE TO
PRESS RETURN WHEN DONE"
15 INPUT N$
20 PRINT N$
```

Another bug occurs when one attempts to print to a file, starting with the SPC function. Execution of the following program causes a "SYNTAX ERROR IN LINE 250":

```
210 PRINT "WOULD YOU LIKE
THE OUTPUT ON THE"
220 PRINT "(1) SCREEN OR (2)
PRINTER";
230 INPUT A: A=A+2
240 OPEN 10,A
250 PRINT #10, SPC(12) "HELLO"
```

By trial and error, I found that the SPC function appearing anywhere but at the start of a PRINT# statement caused no problems. The following fix works perfectly:

```
PRINT #10, "" SPC(12) "HELLO"
```

Another type of conversion problem involves the use of unique BASIC 4.0 commands. The C-64 recognizes BASIC 2.0 commands, not the 4.0 ones. For example, suppose we have opened disk files 12, 13, and 14. To close all these files, you can use the DCLOSE statement on a PET (with 4.0 ROM). For the C-64, use CLOSE 12: CLOSE 13: CLOSE 14.

It is interesting to note that running a program with tokenized BASIC 4.0 commands on a C-64 can yield strange results. When I ran a program containing a DCLOSE command, a NEXT WITHOUT FOR error appeared. Apparently the C-64, not recognizing DCLOSE, detokenized it as the closest keyword, NEXT, and that's how the command was interpreted.

So, in general, when attempting a PET to C-64 conversion, you should check the program for any unique BASIC 4.0 commands. These should be replaced by their BASIC 2.0

Please turn to page 6 / CONVERT

Program grooming

Have you ever wondered why some program listings in magazines read so well, while other programs have just barely understandable logic? Have you wished that you could write such clean code, and not have your program hopping all over the place? Here are some tips to help you clean up your programs and produce better code.

By **JIM BUTTERFIELD**

I'm much better at things the second time through. If I write a program, it will often be much better after the first draft is scrapped and a new version written. I think that's because, as I write the program, I revise my concept of how it should go around its job. The second time I take on the job, I know my objectives better.

The programs I publish are usually "groomed." Knowing that others will study the code, I pick through it for readability and smooth logic flow. The final version may not look much like the first outline that I scratched on the back of an envelope. Readers may wonder why their code doesn't come out so neatly. The answer is: my code doesn't start that way either. It's often polished into its final form.

What are the rules of good program grooming? They are not rigorous, but a number are not hard to identify.

First, check the flow of the program. The program should generally proceed from beginning to end. Yes, there will be loops as things are repeated. There will also be parts of the program that will only be executed "sometimes," depending on the data that is found. But the whole program as well as its parts (loops and optional sections) should exhibit this "flow." If you find your program hopping around, or threading its way through a tangle of logic, it's probably time for a rewrite.

By the way, calling a subroutine does *not* break a program's flow. If the subroutine is written properly with a clear **RETURN**, the program will pick up where it left off when it called **GOSUB**. Some byte-counters will tell you that you must never have a subroutine that's called only once. Their argument is that the code could be placed in-line more efficiently. I don't agree. Subroutines can be a good way of organizing the logic units in your programs.

Next, look for sections of code that are similar. You may be repeating an action that can be usefully consolidated into a single subroutine. This can serve many purposes, the least important of which is to make your program shorter. When you unify similar sections of code, you will often see patterns within your program flow, patterns that open the way to a smoother program. Again, consolidating this type of code makes it easier to change when necessary; the changes will be less likely to conflict.

This "creative laziness" can be very good for the style of your program. A few examples might be worthwhile. Suppose we had code to print three blank lines (say, **PRINT: PRINT: PRINT**). By converting it to **FOR J=1 TO 3: PRINT: NEXT J**, we save no code. But the pattern of what we are doing becomes more visible; and if we later decide to print twelve lines instead of three, the change becomes simple.

We might look at a slightly more complex example. Suppose we are inputting data for several years, and have coded within the program lines such as: **INPUT "1985"; X**, then **INPUT "1986"; X**, and so on. Perhaps the program totals the various values of **X** that are received. Again, the

world becomes much simpler by recoding as:

```
100 FOR Y=1985 TO 1988
110 PRINT X
...
350 NEXT Y
```

Again, the revised program becomes much easier to change.

This kind of coding quickly leads to the use of *lists* (usually called *one-dimensional arrays*). If our coding started out as:

```
300 PRINT "JANUARY"
...
330 PRINT "FEBRUARY"
...
360 PRINT "MARCH"
```

... we could simplify by putting the names of the months into a list (a one-dimensional string array), producing coding such as:

```
100 DATA JANUARY, FEBRUARY, MARCH, APRIL ...
110 DIM M$(12)
120 FOR J=1 TO 12
130 READ M$(J)
140 NEXT J
...
300 FOR J=1 TO 12
310 PRINT M$(J)
...
340 NEXT J
```

It saves you some code. More importantly, it allows you to organize your program much more tightly. Whatever you were doing with each month, you'll do it more consistently within a loop structure.

The third important grooming area is to look through your program variables. A program such as **CROSS-REF** can be a big help here. Some variables may turn out to be unused; you set up their values but didn't need them. Some may group together as similar. Sometimes you can consolidate several variables into one, since they all do the same job. Sometimes you can put them into an array (yes, a list again) since they do a similar job and can be accessed with "common code."

As you write a big program and approach the end, you might have forgotten many of the things you did near the beginning. Just looking back can help your planning.

Program grooming is a special skill. Maybe we could organize "program charm schools" to teach programmers this much-needed methodology.

HELP

GEORGE R. SKINNER

Amiga

Before I begin, let me make a correction to last month's column. There was a minor omission in the command set I supplied to decrease the "dreaded" disk swapping on the Amiga. The correct command set is this:

```
MAKEDIR RAM:C
COPY DF0:C ALL TO RAM:C
ASSIGN C: RAM:C
```

• I have recently received some phone calls from users who have had trouble with what they thought were blank disks. What they in fact received were disks that had no icons. To see the contents of these disks you must use the CLI.

The CLI is located in one of the drawers on the Workbench disk. I have moved the CLI icon on my Workbench disk onto the opening Workbench window by holding down the left mouse button over the icon and dragging it onto the opening window. This saves me clicking on the drawers to get to the CLI icon.

When using the CLI there are a couple of very important commands to remember! But first I would like to explain very quickly the AmigaDOS disk structure.

The structure of an AmigaDOS disk is similar to that of an MS-DOS disk, and while first looking through the disk it may appear complicated. The disk structure can be likened to a tree with the trunk (the main directory) and branches (subdirectories) listed in the disk. In this list you will see DIR listed after certain file names; these indicate *directories* that may contain one or more (or sometimes, no) files. If you list one of these directories you may find additional DIR files. This all sounds complicated but it is not, once you understand how to access all these directories.

The command that allows you to change directories is CD. It also allows you to change disks in a drive, or change drives. If you issue the command CD DF1: you are telling AmigaDOS that you want to look at the second drive (if you have one). The command CD C tells AmigaDOS to change to the directory where all AmigaDOS commands are located. With your workbench disk in the drive, type in CD C and then type LIST; you will get a list of all AmigaDOS command files.

To get out of a directory, type CD /. If you were still in the C directory CD / will take you back to the main directory. If you had been in a subdirectory of C (assuming there was one), then CD / would take you back to the C directory, and another CD / would take you to the main directory.

Suppose you wanted to print all the directories on paper. By copying the Amiga's output to device PRT:, the printer, you will get a hard copy. To get your printout, type DIR > PRT: OPT A. OPT stands for "option." You do not have to use the OPT command, but it will give you a variety of printed directories.

The MAKEDIR command creates a directory on the disk. The command MAKEDIR DF1: FOX, for example, creates a FOX directory on the disk in drive DF1: and files could now be stored in this new directory. Now suppose we have two files in the RAM: disk, called SILVER and RED. To copy these two files to the FOX directory we can use the command COPY RAM: #? TO DF1: FOX. This command will copy all the files from the RAM: disk to the FOX directory. Notice that I did not use the filenames but used the wildcard symbol to transfer the files. I could have

used the filenames, but this is a faster method of copying all the files at once.

The last valuable command I will discuss is TYPE. This command will display text files to the screen. For example, TYPE READ.ME will display the file READ.ME on the screen. You can also try TYPE READ.ME PRT: to copy the file to the printer.

One of the best books I have seen on AmigaDOS is the AmigaDOS Manual, 2nd Edition by Bantam Books. It is an excellent book and explains in layman's terminology the commands of AmigaDOS. The book is divided in four chapters: Introducing AmigaDOS; AmigaDOS Commands; ED: The Screen Editor; and EDIT: The Line Editor. The book sells for \$24.95 U.S. and \$29.95 Cdn. I have recently noticed a shortage of books on the Amiga; hopefully, this will be corrected as soon as possible.

• Since my last article, I have discovered a small bug in AVCTerm, which resets the block count to zero while uploading/downloading files over 255 blocks. The file is OK, only the block size and the download time will be incorrect. If there is anyone having trouble creating a phone directory for AVCTerm, the solution is quite simple. Use the "Edit Phone Directory" menu and a listing of the BBS names and phone numbers will appear. Type in the name and numbers as shown in the existing examples. If you're using a modem slower than 2400 baud, make sure you change the baud rate. Use the cursor keys to move the cursor and make changes. Press the ESC key when finished, and an asterisk will appear in the bottom left corner of the screen. Press the X key and RETURN, and you will come back to the main program. Use the mouse to go to the "Load Phone Book Directory" menu, and all entered phone numbers will appear on the screen.

C-128

• I have had a look at the RAMDOS128 program, recently released by Commodore, and it looks great. It uses the RAM expander as a second, extremely fast, disk drive. You can save and load programs the same way you would use a second physical drive. Congratulations, Commodore — but what took it so long to appear on the local bulletin board scene?

• Another program from Commodore checks your 1581 drive in the 128 mode. This program tells you whether the drive has a WD1770 controller chip, and whether the J1 resistor is open. If you have a 1581 drive this program is a must! The documentation tells you that the jumper resistor will be installed free by taking your drive to an authorized Commodore service center. Even if your warranty has expired Commodore will fix the drive *free!* This program will not determine if the soldered connection on pin#10 is bad on chip U10, but if you take your drive in for service this soldered joint will be checked. This solder connection is the reason why some 1581 drives will not work with some of the C-64 computers; this problem might also be intermittent in some cases. The program is called DIAG.1581; DIAG1581.DOC is the name of the documentation file. The program will work on C-64 computers by removing the DEC(x) function calls and replacing them with absolute values. These programs will be on a TPUG disk probably before you read this.

• If there are any novice CP/M users who are still having problems trying to understand this aspect of the C-128, write me and let me know what the problem is.

C-64

• The writers of Prism Software have recently placed an updated version of their File Copy program into the public domain. This version makes use of the burst mode on the 1571 drives. This is an excellent shareware program.

Book review

Title: *Electronic Computer Projects*
Author: COMPUTE! Books
Price: \$10.95 U.S., \$14.95 Cdn.

Have you ever wondered how to use your computer to turn on your lights at dusk or to control a robot? Or how to construct devices for your computer like a light pen or joystick? *Electronic Computer Projects* is a book that shows you how to do this and more as it introduces you to the fascinating hobby of computer interfacing and digital electronics.

The book is written for users of the C-64, C-128, or VIC 20 and can also be used with any of the Atari 8-bit computers.

Most books on the topic of computer interfacing are written at a very advanced level. As a result, they are often difficult to understand and frustrating for the beginner. This is not the case with *Electronic Computer Projects*. This book is free of technical jargon and only assumes that the reader has some knowledge of BASIC. This makes it ideal for the computer interfacing novice.

The book begins with an introduction to circuit building techniques. Most of the projects in the book are built using solderless breadboards. Using this technique, you put together a circuit simply by plugging components into this board. All the parts for the projects, including the solderless breadboard, are readily available. In fact, all the components can be purchased at Radio Shack, and Radio Shack catalog numbers are provided.

The book goes on to explain how bits and bytes are represented in the computer. Then, using a simple logic probe you construct, you explore how to send digital signals through the computer's control port (game port).

Each project in the book is clearly explained and described. Step-by-step instructions guide the user through the construction of each project. The descriptions are further enhanced by the many diagrams and photographs which accompany them. Example programs demonstrate how software can be used to monitor or control the hardware constructed.

The projects themselves start out easy, and progress in difficulty. All the projects can be completed in one or two evenings. The simplest project is the digital joystick. You can go on to build game paddles, a light pen, or a computer-controlled burglar alarm. As well, two types of light sensors are described. The first is an analog sensor that you can use to sense various levels of ambient light. The

other, a digital light sensor, can be used to sense when a light beam is broken by a passing person or object. Among other things, this project can be used to form a sophisticated timer or as an addition to the burglar alarm. The electronic switch project describes how you can use your computer to turn on or off electrically powered items, such as lights and motors.

Two other chapters will send readers well on their way down the road to designing and building their own projects. The chapter on digital logic explains the use and operation of gates, the basic building blocks of digital circuitry. "More Ideas" is a cornucopia of additional projects and ideas.

The book concludes with a chapter introducing computer-controlled robotics. A project to control a joint of a robot is presented.

Overall, *Electronic Computer Projects* is a clear, understandable introduction to computer interfacing. The projects are fun, and you will learn a lot building them. If you are at all interested in becoming involved with this exciting facet of the home computing hobby, *Electronic Computer Projects* will prove invaluable.

CONVERT

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counterparts. Another example: DLOAD "TEST" will not work, but LOAD "TEST",8 will.

Finally, as mentioned earlier, while a PET program can easily be loaded into a C-64, the reverse is not true. A few adjustments will, however, rectify this problem. First, type in any line 0, say 0 REM. Then type in POKE 2048,0. Then load your C-64 program into the PET. Finally, type in POKE 1025,1: POKE 1026,8. The task is finished. You can list and run the program. When finished, you can eliminate line 0; be sure to save your program to cassette or disk.

Additional sources

It would be impossible to list all the conversion problems and their solutions here. For example, machine language programs can present a myriad of new problems in the conversion process. The memory maps published in *Compute!* by Jim Butterfield are a very useful reference tool. *Programming the PET/CBM* by Raeto Collin West is another good source. I have also found an article in the March, 1983 issue of *Commodore Magazine* by Garry Kiziak, appropriately titled "Converting PET programs for the Commodore 64," to be particularly useful.

New in our library

Share your masterworks with other Commodore computerists! For every program that you contribute to the TPUG public domain library, we will send you a TPUG disk of your choice. Include on the disk your name and membership number, the program name, the computer for which it's meant, and a brief description of what the program does. Also include with your disk submission the name of the TPUG disk you wish in return.

C-64 new releases

Disk name: (C)HI
TPUG:WS BEST PICS

This disk contains 25 of the best of Wayne Schmidt's hires pictures. Load the first program on the disk (SLIDE-JJGG), run, answer the prompt, sit back and enjoy the following: SCHOLENMALER, PEN & CANDLE86, VASE ET FLEUR, MIDDLE EARTH, PAGODA (one of my favorites), GOTHIC HOUSE, NATALIE, POLA NEGRI, CHRISTMASPIRIT, COLELIDIVA, SGT.MAJOR, PIRATE, SEREN.BN, HOWDY, EL PRES, COWBOY, CHOO-CHOO, MOUSE/PEN, COMAL TURTLE, CELTIC EAGLE, BUGS BUNNY, COL BUGS, QRS M.M, IDCOVER, and MONEY. □ Peter and Paul Hughes have included their CR/UNC/PRINT program so that the pictures can be dumped to printer, as well.

Disk name: (C)HJ
TPUG JP JS PD PICS

Load the first program on this disk, answer the prompts, sit back and enjoy 31 marvelous hires pictures. To print, use CR/UNC/PRINT included on disk (C)HI. □ The first 13 pictures on this disk are from JoAnne Parks, and include, for us Trekkies: KIRKSPOCK, BONES, and UHURA. Then there are CAESAR, CARLSAGAN, JOHN LENNON and DAVID BOWIE, followed by six cycle pictures: KNEE DRAGGER, MOTORCYCLE, GOING MOBILE, HELIX, SCOOTERS, and for the bicyclists, TOURDEFrance. □ From Jim Sachs, we have incredible color hires pictures: SACHS, SAUC ATT, WASH DC, LINCMDY, LINCMT, CASTLEJS, TM MACHN, KINGTUTU1, CD PORSCHE, LUNAR SURFACE, and CVTREFIELD. □ From miscellaneous authors are: DISKEATR, CUJO, SLEEPER, FLINTS, TERMINATOR, SUDDEN IMPACT, and RAMBO.

Continued on page 7

TPUG ON QUANTUMLINK

The TPUG board is located in:

- ✓ Commodore Information Network
- ✓ User Group Support Center
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New in our library

C-64 new releases

From page 6

Disk name: (C)AAT Feb. '88 TPUG

The first program on this month's disk is really ten programs linked together, and run by the first program, **CYBERFAST**. This is an excellent graphics demo of a roaring fireplace, complete with flying sparks, and soothing background music. Don't miss this excellent program! ☐ While sitting in front of the fire, play the challenging **SIX SIDED CHESS** game from Edmonton User's Group. Thanks for the extensive instructions! ☐ Boxing fans will enjoy the eight skill levels and four opponents of the **BOXING** game. ☐ To satisfy the Karate fans, battle against the wits and strength of the computer in **KARATE BATTLE**. ☐ For those of us who are "Wheel of Fortune" addicts, **SPIN THAT WHEEL** is a PD version of that TV game. ☐ A marvelous software speedup of the 1541 drive to 5 times normal, called **!** for speed, comes to TPUG from Ireland. ☐ While working on your disks, use the **MENU CREATOR** to organize their contents. ☐ **COMPILER.64** is compatible with most Deblitzer programs. ☐ The **1670 SUPPRESSOR** by Jim Butterfield inhibits that modem from answering your phone. ☐ And, as usual, the disk of the month contains **AUTOBOOT**, **PRINTBOOTDATA**, and the **ULTRA** sequential file reader.

Disk name: (C)AAU Mar. '88 TPUG

CAMEL CAVERNS is an adventure game made by a committee in one afternoon. You'll like it! When you need a break, ☐ **DASH GAME** is a multi-word version of Hangman, developed for use as a classroom activity for reading teachers. ☐ **STRATEGIC BLACK-JACK** is version 3.1 of Bob McKay's automatic blackjack game — Las Vegas beware! ☐ **PETALS** comes recommended from Jim Butterfield, and is an oldie but challenging goodie. ☐ Since solving the puzzles were beyond me, I enjoyed **COMPU-HUMOUR**, a short file of axioms, wise old sayings and general insanity that put a smile back on my face. ☐ **CORNUCOPIA** draws a simple picture of a fruit cornucopia. ☐ **SPAZY TV** produces 17 ML screens of amazing video effects (epileptics beware). ☐ **FREDDIE'S REVENGE** is a sample of a graphics program. ☐ **EFFECTS** is a sound sampler wherein you can listen to frogs or the ocean, amongst the 12 special effects in this program. ☐ **MOCKPAINT/CAR** is a whimsical, humorous demo that shows how easy it is to combine a hi-res screen, text display, and music. ☐ **KEYBD.OVLY** prints just what it says. Written for the 1525, it works with my 1526, and maybe your printer too! ☐ **VFAST FILECPY** is a shareware program which may just be the fastest file copier on the market. However, it does not copy relative files, or work in the 1571 double-sided mode.

ANNE E. GUDZ

C-128 new releases

Disk name: (Y)AAP

FLASHQUIZ 128 allows you to create quiz games for education and amusement. ☐ Use **FORMATTER** to format disks and do ID functions. ☐ Wage a sea battle with **DEPTHCHARGE**. ☐ **COPY ALL 128** is a two-drive copier. ☐ With **SORT 128** you can create and alphabetize lists. ☐ **TOKENS128** lists the C-128's command locations in hex and decimal. ☐ **BODY** displays some "primitive" 80-column art. ☐ **128INVADERS** is our 80-column version of the popular game.

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Disk name: (Y)AAQ

SIDMASTER128 is the C-128 version of the C-64 program. Included are also 4 SID tunes. ☐ **GUITAR GUIDE.128** is a cord chart book on disk for musicians. ☐ Pick your **LOTTO** numbers with **LOTTO128**. This program analyzes past numbers when selecting new ones. ☐ **BURST COPY 1571** is a copy program that uses burst mode to read in the files. (Unfortunately, it doesn't write them back as fast.) ☐ **DISK WHIZ V1.1** is an alternative utility to Commodore's 1571 DOS shell. ☐ Keep a computerized diary with **PERSONAL DIARY**. ☐ **PCFORMAT** allows you to format disks for MS-DOS equipment. ☐ Match wits with **SUPERHACKER** in this codebreaking game. ☐ **TIERRABASE 128** is a database program, part of a series. Good features!

Disk name: (Y)AAR

TAROT 3.1A is a computer-based fortune teller. ☐ **ULTRATERM** is a multi-featured terminal program. Includes documentation. ☐ **XP128.RUN** is a sequential reader/printer program. ☐ With **DBLDIRSCAN** you can load directories from two drives, side by side. ☐ Use your RAM expansion as another drive with **RAM-DISK128**. ☐ **EXPRAM.INT** is another RAM disk utility.

Disk name: (Y)AAS

CHESS-128 is a good game; comes with documentation. ☐ **NEW DRAW N PAINT** is an updated version of this Doodle-type program. ☐ There are many features in **17XXX UTILITY**, a RAM expansion utility. ☐ Use 128 **CATALOGER** to catalog disks. ☐ Do math calculations with **CALCULATOR 128**. ☐ **HALOWEEN SONG** may come in handy on October 31! ☐ Create music for your programs with **BASIC TUNE MAKER**. ☐ **SEQ RD/PRINT.128** is a sequential file reader and printer.

Continued on page 8

TPUG Disk of the Month
Library Disk

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New in our library

C-128 new releases

From page 7

Disk name: (Y)AAT

TOUR DC 1.0 is a 40-column program with words and pictures about Washington, DC. ☐ **HALEYS** maps Comet Halley through the Solar System. ☐ **DESERT NIGHT** is an interesting 40-column demo. ☐ Create your own cheat sheets with **KEYBD.OVLY.C-128**. ☐ **BREAK UP** reduces larger files to several smaller files. ☐ You may want to use some of these **80-COLUMN TRICKS** in your programs. ☐ Create squared paper on a 1525 printer with **CROSSWORD**. ☐ **PCWARS 2** is an advertising demo. ☐ **OUTLINE 128** is a utility for writers and thinkers. ☐ **ULTRACAT 2.0** is a disk catalog program. ☐ First there was Eliza. Now there's **MENTOR 128**, your own therapist. ☐ Play **AXEL F**, the popular theme song to *Beverly Hills Cop*. ☐ **SKETCH PAD 128** is a 40-column drawing program. ☐ **AUTOMENU** allows you to load programs by menus. ☐ With **LABELS 80** you can create labels for names, addresses, or jams! ☐ **TAX '87** is an Ontario Income Tax program.

GEORGE R. SKINNER

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Amiga new releases

Disk name: (A)TAF

File IISG Demo is an excellent database program that supports sound and graphics. Excellent user interface, Definitely Amiga! Worth looking at. ☐ **Adventure** is the original Adventure game, now for the Amiga. It even has speech! ☐ **Rocket** is a neat little program for those times when you just can't think of what to do with your Amy. Use the cursor keys to direct the rocket and land on the window.

Disk name: (A)TAG

Sonix_Scores are three neat songs for Sonix — Thriller, Lost in Space, and Little People. Thanks to Ken Poulton for getting them to us. ☐ **Scores** are three Deluxe Music Construction Set songs (we have to be fair, don't we?) — WAGRock, WAGTail, and Tiger. Thanks, Adam, for downloading these from CRS. ☐ **Text Files** are lots of neat text files acquired from various BBSs in Ontario — lots of humor files, and informative files too. *Worth looking at!* ☐ **BLLUURR** is a neat little screen hack to blur the screen in front of your eyes... ☐ **STROBE** must be run from the CLI. Move the mouse to control the strobe. Neat at parties with the lights out. ☐ **MUNCH** is an interesting little pattern demo. *It must be run from the CLI* to function properly. Click the invisible close gadget in the upper left-hand corner to exit.

Disk name: (A)TAH

(Same as World of Commodore V Show Disk)

Nemesis is Mark Riley's demo that won best sound award in the recent Badge Killer Demo contest. ☐ **Kahnankas** is another Eric Graham ray-traced rendering of the "little ball thingy that sits on your desk." Excellent! ☐ **PacMan87** is a shareware version of the arcade game. Includes good graphics and neat sound effects. ☐ **Amoeba Invaders** is another shareware translation of an arcade game. Excellent sound, smooth graphics.

Disk name: (A)TAI

DB-WIZARD is a neat little database. This is presented as a shareware through Merlin Software. ☐ **Aegis AudioMaster** is a demonstration of Aegis' latest product. Many features work here. Some sample sounds are included. ☐ Eric Graham keeps cranking out the hits. His ray-tracing animations are just fantastic. This month we have the **ROCKER**. Also included are some programs for making your own animations with Sculpt-3D from Byte by Byte.

Disk name: (A)TAJ

Many of the programs on this disk were donated by member Frank Cox — thank you for sending them in. ☐ **FixBoot** attaches itself to a boot sector, and grabs all free memory. It's great for commercial software as well that has memory conflicts. Works better than RUN NOFASTMEM. ☐ **Asteroids** is an interlaced version of the arcade classic, complete with digitized sound effects. Quite good! ☐ **MacGAG** causes windows to open and close similar to how they do on an Apple Macintosh (actually more like an old TV set). ☐ **SuperBrickOut** is a BreakOut-type game. ☐ **Sectorama** is a complete disk recovery/sector editor written by David Joiner of MicroIllusions. Very nice! ☐ **Othello** is Cygnus Software's implementation of the classic board game. ☐ Three nice pictures: **Legends** is a "barbaric"-type picture; **FuturePorsche** is a modified Sachs classic; and **Probe** is the sci-fi probe from Lucasfilm's *The Empire Strikes Back*. ☐ **AVCterm** is a terminal program made especially for the Amiga Valley BBS. Includes Punter and XModem protocols. ☐ **Moose** is a talking moose from the Macintosh world: pops up on occasion. ☐ **3D-Tic-Tac-Toe** — when played in three dimensions, it isn't always a tie! ☐ **Dominoes** is an excellent version of Dominoes, with smooth scrolling and a bunch of options. Very good.

SYD L. BOLTON
ADAM WHITE