

The Magazine For ALL Commodore Computer Users

\$2.95

# TAPUG Magazine

April 1985

Butterfield on Memory Maps

Beginners' BBS Guide:  
Start of a New Series  
by Ian A. Wright

*Star Trekking* and  
Computer Simulation:  
Articles by Dave Neale  
and Efraim Halfon

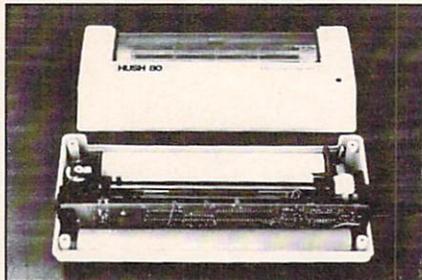
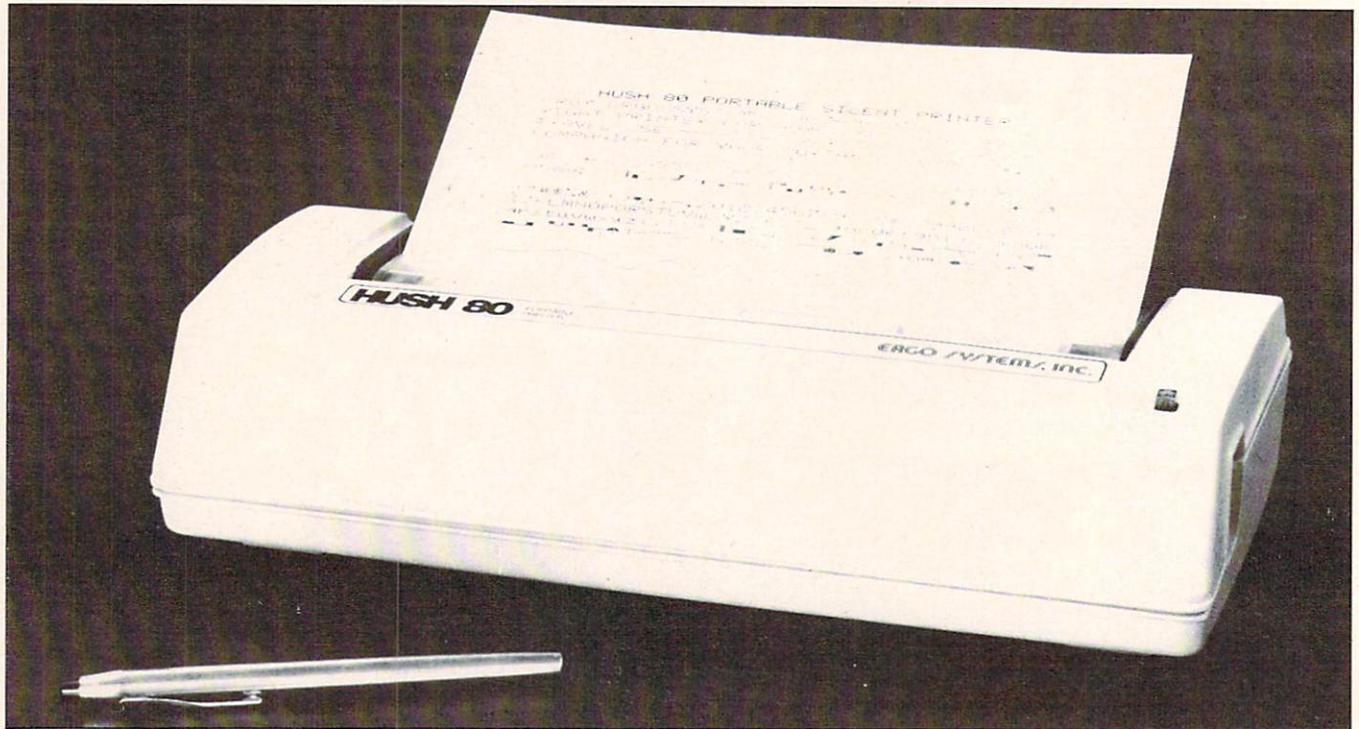
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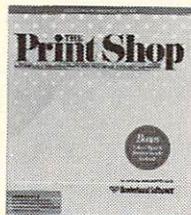
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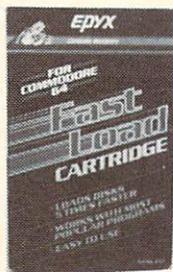
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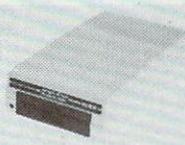
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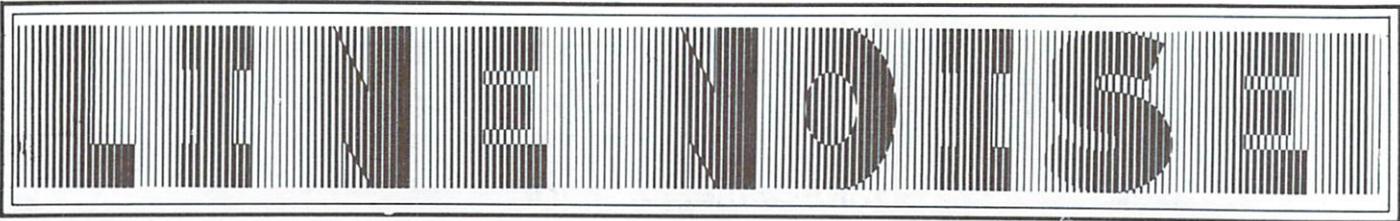
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## 1541 Clone Caution

The Lien Yig disk drive, for use with the C-64 and VIC 20, has recently been on sale in the Vancouver area. This product comes in the box equivalent of a 'plain brown wrapper', which is to say that other companies can put their name on the box and on the drive itself.

The drive, which outside looks like a single MSD unit, seems to be very sturdily built with parts that are, for the most part, available at electronic supply houses. The disks are inserted vertically, and there is a swing-down lever to keep them inside, much like on recent models of the 1541. It makes a lot more noise than the 1541 as well, when advancing from track to track or when formatting disks.

Although most BASIC and ML programs, as well as the DOS 5.1 wedge, will work with the Lien Yig, it should be pointed out that those relying on specific DOS routines will not. Included in this group are **Sysres**, **Dam Busters**, **Print Shop** and the familiar four-minute copy program. Even the program to change device numbers, on the 1541 test disk, will not function correctly.

As such, this Taiwanese clone would be primarily useful in a dedicated application — with an accounting system, for example, or on a BBS as a second drive.

Also, as of this writing, the unit is not CSA approved.

Michael Quigley  
Vancouver, British Columbia

## Hasty Home Accountant

Regarding L. Jarrett's evaluation of the **Home Accountant** in your November issue: I have been using mine for almost a year now, and I agree that its only shortcoming is that it is very slow.

Therefore, I bought the **Kwik-Load** program from Datamost. It works beautifully with the **Home Accountant** and speeds things up approximately 400 per cent. It's really nice to get a piece of software that does what it is supposed to do.

Thank you for *TPUG Magazine*. It's nice to have a window through which to watch others with the same frustrations scurrying to find answers.

M. Lutzker  
Palm Springs, California

## Assembly Program Lister

For some time now, magazines in Australia have been grappling with the problem of transferring program listings to the printed page. They went through the various stages of phototypesetting, producing everything from the illegible to the impossible in all shades of grey.

With a bit of thought, various lister programs have evolved that produced (usually sequential) files that can be read in via a translator program. Lo! the readable listing.

That was okay for BASIC. Machine language listings, such as the direct output from an assembler, were more difficult. Even the **Commodore Assembler Suite** only permitted direct readable output to paper.

But we've now solved that one. A special version of the assembler program for the C-64 and 8032 has been produced that writes a sequential file to disk. The file contains what would normally go to paper. Import the file to **Easy Script** for minor editing, then feed the file to a typesetter and away you go.

There are no limits on the size of program that can be handled this way, given the normal limits of disk storage. **Easy Script** can handle only about six pages of assembler listing at a time, so a larger listing would have to be split up into smaller files. Apart from that, there are no hassles.

TPUG does not really publish actual listings, but through your pages I thought I might reach those who do. User group magazines often print listings, so they may be interested. Anyway, I thought I would let you know that the problem had been tackled and fixed.

The next job is to try writing a direct binary file to disk, so that the loader phase of the assembly process can be abandoned.

Paul Blair  
Holder, Australia

*Line Noise* presented  
by Lana Coviello



# FOURTH ANNUAL CONFERENCE

*for members of TPUG*

Saturday and Sunday, May 25 and 26, 1985  
9:30 a.m. to 4:30 p.m.

252 Bloor St. W. (Bloor & St. George)

**ACTIVITIES:** Two-day program of speakers covering topics of interest to beginners and experts

*Full day session:*

**Sunday, May 26th**

Introduction to Machine Language by Jim Butterfield

*Half day sessions:*

**Saturday, May 25th**

Introduction to C-64 Graphics by John Moore

Very Elementary Programming in BASIC by Lorenzo Pinazza

Introduction to C-64 Sprites by Carl Garant & John Moore

**Sunday, May 26th**

Commodore Data Bases Versus dBase III by Rob Lockwood

**TPUG program library** available on pre-copied disks at reasonable cost

**Dealer displays** of hardware, peripherals & software

**"Traders' Corner"** — one person's junk is another's treasure

**"Answer Room"** — 10 minute consultation with a Club expert

**"Birds of a Feather"** sessions for BBS SYSOPs, newsletter editors, member clubs

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Pre-registration spouses & children \$10.00 per person

Late registration after April 15, or at the door, \$30.00

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**MAY 25 & 26 — RESERVE THESE DATES ON YOUR CALENDAR NOW!**

# This and That

with Ron Obvious

Regular This and That columnist Doris Bradley is on a hang-gliding assignment in Central Asia this month, but TPUG stalwart Ron Obvious has put together this miscellany of warmed-over items at the last moment to fill in. Longtime TPUG members will remember Ron's classic appearance as the headless programmer in the club's 1979 Hallowe'en Pageant.

## Auction for UNICEF

The Electronic Auction Company will be holding an Electronic Auction in Toronto on May 24 and 25. All the proceeds are going to UNICEF's fund for African famine relief. Anyone interested in attending the auction, or in selling their second-hand hardware or software, should contact Ron Smith at 416-429-4822 as soon as possible. You may also write to: The Electronic Auction Company, P.O. Box 624, Station 'F', Toronto, Ontario, Canada, M4Y 2L8.

## VIC/1526 Elucidation

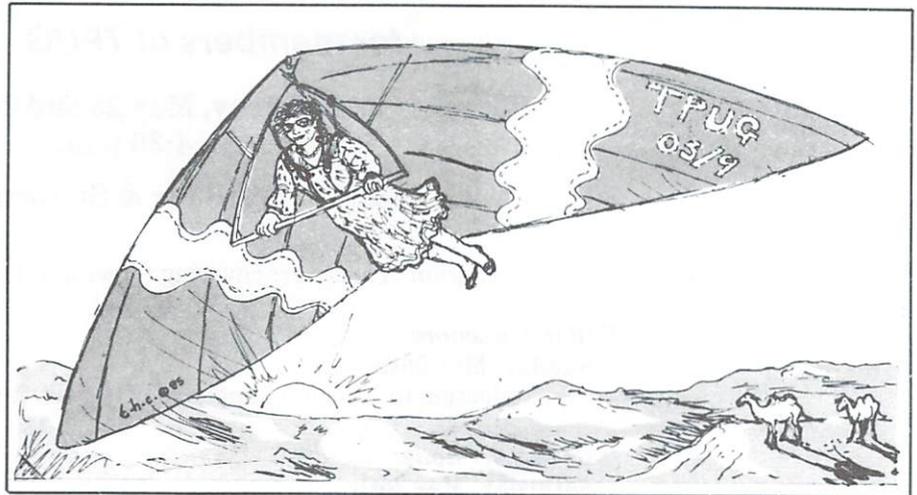
Anne Gudz points out that the tip in last month's magazine for running a VIC 20 with the 1526 printer suffered from a typographic error: the correct **SYS** location is 64490, not 64990. Anne says that this **POKE** does not work for all 1526s in any event. She says that the following line is also worth trying if you don't have any luck with the **SYS**:

```
POKE 37160,0:POKE 37161,1
```

## Mortgage Recalculation

While we're on the subject of bonehead editorial errors, those of you who have typed in Jim Butterfield's **Versatile Mortgage Calculator** from the March issue can stop sending letter bombs, and start typing the following lines:

```
30 data "October",1984: rem first payment month
40 data 200,2,300,0: rem payment, number of periods
180 read a1:print"Amount at start:":a1:a=int(a1*100+.5)
220 z$=chr$(m1)+chr$(m2)+chr$(m3)
300 if asc(z$)=83 then end
310 p9=0:if asc(z$)=80 then p9=4:open 4,p9:q$=chr$(17)
:print#4,q$:"      ":n$
330 if p9 then print#4,q$:" Balance=";a/100;"@";i1;"% ";y3
360 if p9 then print#4,q$:"Mth Interest Payment Balance"
395 if p9 then print#4,q$;m$;
450 x=i3:gosub 620:x=p3:gosub 620
650 x$=left$(a$, (len(a$)-2))+". "+right$(a$,2)
```



## Computer Pun?

J. Ylimaki has provided us with a couple of pages of, as he calls it, World's Worst Computer Puns. I think he's right, but I just can't resist inflicting one on you... Have you heard of the new computer magazine that specializes in data bases and FLOWcharts? It's called 'Fields and Streams'... Would you like to read more?

## Small Things Considered

This live, children's radio show airs weekdays in the New York City area on WNYC AM/83 from 5 to 8 p.m. and is aimed at the 12-and-under set. On Tuesdays, there are computer lessons for young listeners involving the talking computer, 'SAM', on loan from Commodore.

## Drodzy Czytelnicy!

We often get calls from members who want to know the meaning of the computerist's cryptic phrase, 'Reverse Polish Notation'. In order to clear up this mat-

ter for once and for all, we asked resident expert Astrid Kumas to prepare the following authentic example of RPN. An interesting challenge for beginning programmers would be to write a BASIC routine to decode this text. Try to do it in twenty-five lines or less.

nie wiece!  
nacie, ze dopry zar jest funta wart, jesli  
trabqjia jest trabqjia! A pozna tym, przyz-  
stodze zawiedzenni i niepociesszeni. Ale  
Przepraszamy tych, ktorzy czuja sie  
nieestety zartem na Prima Aprilia.  
wylasznienie. Otdz artykly Pani Bold jest  
nabar. Dla nich wlasnie brnkujemy to  
moze byl wartd was tacy, ktorzy dali sie  
'I'pawboware', z przymuntem ok. Ale  
J'kryk zastytowany Buttefeld lwests  
Zapewne wieia z saw potrakstowstfo ar-

## Manual Repairs

Several people have noticed that the *COMAL Reference Guide* is short two keywords. If you want your copy to be complete, add these commands:

### FORWARD

Syntax: **FORWARD** <distance>

This statement/command moves the turtle <distance> screen units forward. If the pen is down (see **PENDOWN**), a line is drawn using the present **PENCOLOR**. See **PENCOLOR**.

### GETCOLOR

Syntax: **GETCOLOR**(<x>, <y>)

This function returns an integer giving the colour of the pixel at (<x>, <y>). If the position indicated is outside the present frame, the function returns a value of -1.

## Speedy Super OS/9

In order to get an idea of the efficiency of our adaptation to the SuperPET of the OS/9 operating system, TPUG's SuperPET chapter recently ran a short benchmark program (see box) on several different machines. The slowest time, 2008 seconds, was turned in by Waterloo's microBASIC on the SuperPET. Next slowest, with 1311 seconds, was PET BASIC 4.0 running on the 6502 side of the SuperPET.

BASIC-A on an IBM 3270 PC was considerably faster, with 704 seconds. Fastest of all, though, was BASIC-09, running on the SuperPET under Super OS/9. Though it is an interpreted BASIC like the others, Super OS/9 was clocked at an impressive 459 seconds on the benchmark test.

```

130 PRINT TIME#
140 FOR N=1 TO 1000
150 FOR K=2 TO 500
160 M=N/K
170 L=INT(M)
180 IF L=0 THEN 230
190 IF L=1 THEN 220
200 IF M>L THEN 220
210 IF M=L THEN 240
220 NEXT K
230 PRINT N;
240 NEXT N
250 PRINT TIME#
260 END
    
```

## Inner Space Mapped

For the last six months or so, Karl Hildon of *The Transactor* magazine has been putting in twenty-seven hour days over a hot typesetting machine, assembling intricate tables and tortuous diagrams into pages for an epic work of reference for all Commodorians — *The Complete Commodore Inner Space Anthology*. I have seen some of those pages and they are beautiful as well as packed with all kinds of useful information. Karl says that the book will be ring-bound and printed on thick paper to withstand heavy use, and that the first run should be off the presses about the same time as you get this magazine. Demand for this book is sure to be heavy, so I'd suggest you get your order in to *The Transactor* as soon as possible. The price is a low \$14.95 (Canadian residents pay in Canadian dollars, US residents in US dollars), with no extra for shipping and handling. As of this writing, the international price has not been finalized.

## COMAL Library Launched

Victor Gough announces that the gargantuan task of organizing the first series of C-64 COMAL library disks is now complete. The library comprises nineteen disks so far, in four series (disks in the old 'L' language series have been discontinued or reassigned). Here is a list of the new disks:

### (K)TX COMAL Today Disk Series

- (K)T1 COMAL Today #1
- (K)T2 COMAL Today #2
- (K)T3 COMAL Today #3
- (K)T4 COMAL Today #4

### (K)UX User Group Disk Series

- (K)U1 User Group #1
- (K)U2 User Group #2
- (K)U3 User Group #3
- (K)U4 User Group #4
- (K)U5 User Group #5

### (K)BX COMAL Book Disk Series

- (K)B1 COMAL Handbook (1st. ed.)
- (K)B2 Beginning COMAL
- (K)B3 Foundations in Computer Studies with COMAL
- (K)B4 Structured Programming with COMAL
- (K)B5 Captain COMAL Gets Organized
- (K)B6 The COMAL Library of Functions and Procedures

### (K)ZX Miscellaneous Series

- (K)Z1 COMAL Tutorial (best first COMAL disk)
- (K)Z2 COMAL Sample

(K)Z3 Auto Run Demo

(K)Z4 Utilities Disk #1

If you want more detailed information on what's in the COMAL library and how it's organized, send a letter (including your name, address and membership number!) to: TPUG COMAL Information, 1912A Avenue Road Suite 1, Toronto, Ontario, CANADA M5M 4A1.

## Commodore Educational Software

Those of you who own a Commodore 64 and have joined TPUG recently may not be aware of the 58 diskettes of public domain educational programs that Commodore Canada released over a year ago. These programs are a subset of those worked on by the school boards in the Metro Toronto area, and are arranged alphabetically by subject area. They are not sorted by level — a given disk may contain programs at several different levels. The programs are organized under the following headings: English, Business/Administration, Computer Science, Mathematics, Problem Solving, Science, Geography, Francais, Language, Music, Physical and Health Education, Technology, Utilities and Games. We will send out a two-page list of the programs upon request. Better still, order *The TORPET 26* for \$2 and get one-line documentation for each program (including an indication as to whether the program is for primary, junior, intermediate or senior grades). □

RAM at	BASE	Test	Screen	Custom Labels		
16K	8000	\$1000	2680	\$1200	\$800	\$600
32K	8000	\$1000	2680	\$1200	\$800	\$600
48K	8000	\$1200	4096	\$1000	1788	\$1000

\* VIC 1200 32K RAM Expander

# The Answer Desk

with Louise Redgers

## C-64 With Shack Printer

*How do I run a Radio Shack GGP 115 printer with my Commodore 64?*

G.D. Louatt  
Toronto, Ontario

This reply is from an anonymous TPUG member:

Set your printer protocols at serial, 600 baud, even parity and one stop bit. To send information out to the serial port, open the file to the printer with this line:

```
OPEN 2,2,2,CHR$(7)+CHR$(96)
```

## Device Number Problem

*In the December issue of TPUG Magazine, Dick McKlveen of Cocoa Beach, Florida, reported on a difficulty with the device address of his second 1541 disk drive. After having cut the device selection jumper on the drive to convert it from device 8 to device 9, Mr. McKlveen attempted to make the device address selectable by wiring a switch across the jumper terminals. However, the modification was unsuccessful — for some unknown reason, the drive's device address remained at 8 regardless of the position of the switch. In the following letter, reader Ronald Lisoski shares his own experience with the same problem.*

I also have an 8/9 switch wired across the address lines of my second 1541. The only way I have found to change the address is to power the 1541 drive off and on. I have tried initializing it, to no avail. Apparently the address selection is part of the drive's power on initialization. I am sure there is a place in the 1541's memory that holds its address and could be manipulated that way, however I don't know where it is or how to get at it.

Ronald Lisoski  
Stone Mountain, Georgia

## BASIC Chaining

*Warren Smith, in our December issue, wanted to know how to 'chain load' a large program from a small program on his C-64. He had found that only part of the*

*second program appeared to be in memory after the load. The following letter offers one approach to this problem.*

When the LOAD instruction is executed from within a program, important pointers are not reset — specifically, the pointer that tells BASIC where the end of your program is. In order to load a large program successfully from a smaller one, the larger program must reset these pointers as soon as it is run. The run, by the way, occurs automatically as a function of the program mode load.

The easiest way to solve the problem is to add the following line to the larger program.

```
Ø POKE 45,PEEK(174):POKE 46,  
PEEK(175):CLR
```

Ralph Juliano  
Inverness, Florida

The same trick should work on other machines, but the locations are different. For PET/CBM use 42 and 43 instead of 45 and 46; and use 201 and 202 instead of 174 and 175.

Another approach to the same problem begins by loading the largest program in the chain. Then type:

```
PRINT PEEK(45);PEEK(46)
```

(If you are using a PET/CBM machine rather than a VIC 20 or C-64, the locations to peek are 42 and 43.) Two numbers will be printed — let's call them VTL and VTH, since they represent the low and high bytes respectively of the pointer to the 'variables table' that normally comes immediately after a BASIC program.

The trick is to use these numbers to set the variables table pointer artificially high at the beginning of the shorter first program. Do this with the following line in that first program:

```
1Ø POKE45,VTL:POKE46,VTH
```

(Again, use locations 42 and 43 on PET/CBM machines.) Of course, you substitute in this line the values of VTL and VTH that you recorded earlier. You should note, too, that if you lengthen the longest program in the chain by adding

even one character, you will have to redo the entire process.

## Connector Connection

*For those who have been pounding the pavement trying to find a card-edge connector for the PET or C-64, I have found one that is readily available, at least in Canada. It is the EDAC 307-024-000-202 where 000 indicates the pin type — solder-lug, wirewrap, etc. It is the same as the EDAC 308 series except that 307 is 'commercial spec' and 308 is 'mil spec'. You can find them at Active Electronics. They have outlets in Calgary, Downsview, Montreal, Ottawa and Vancouver. I am pretty sure that they take prepaid mail orders, but you will have to contact them.*

Glen Smith  
Deep River, Ontario

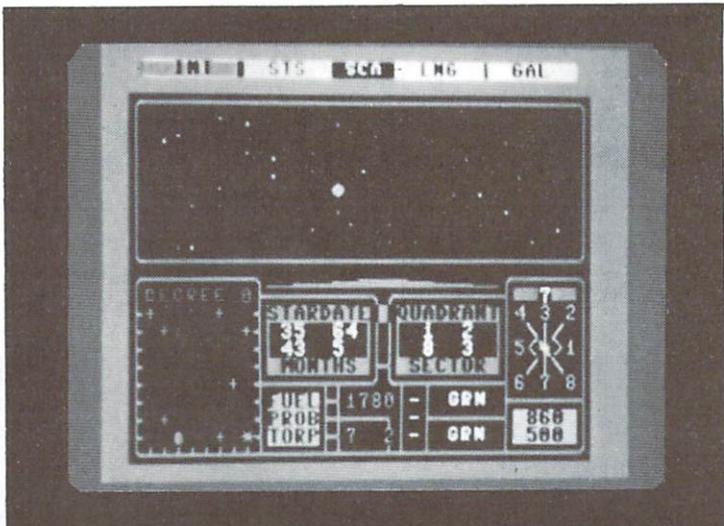
## 1526 Chip Appeal

*A while ago, I purchased a Commodore 1526 Dot Matrix printer. Because I bought it from a mass market retailer, I was unaware that the printer was severely lacking in many important areas. These include the unavailability of different fonts, the lack of graphics dumping ability, and more fundamentally, the inability of the printer to even underline text! The last factor was truly amazing and I was very upset to find this out. I am looking for an upgrade chip to provide me with these features, especially the underline capability. I saw an ad for a chip for the 1525 and MPS 801 printers. Will it work in my 1526 or where can I find one? Please help ...*

Patrick B. Haggood  
Ann Arbor, Michigan

It is very unlikely that a chip designed for the 1525 and 801 would function properly in a 1526 — they are completely different machines. Would anybody out there who knows of the existence of an upgrade chip for the 1526 (or MPS 802) printers please let us know? We will pass along the information for all of you who might be interested.

*If you have a question for The Answer Desk, please send it to: The Answer Desk, c/o TPUG Magazine, 1912A Avenue Road, Suite 1, Toronto, Ontario M5M 4A1, Canada.* □

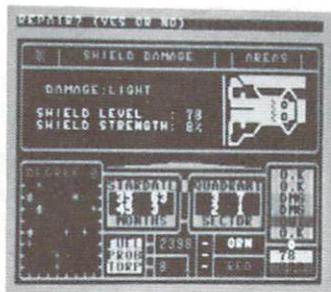


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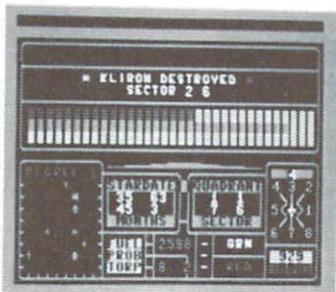
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# Computer Simulation Step by Step

by Dave Neale

With the age of computers came a whole new concept in research — simulation. In almost all forms of high cost research or testing, there are some processes that can be duplicated by a computer, avoiding the tremendous costs involved with experimentation. These costs are not always just monetary.

Airlines use computer-controlled flight simulators to train their pilots. These complex machines simulate the precise handling characteristics of particular aircraft. Even the interior of the simulator is an exact replica, down to the last nut and bolt. Because of this, during times of heavy stress — maybe a single engine approach in bad weather with the brakes failed and half the flight instruments not working — pilots actually begin to believe they are in a real aircraft, going through the real manoeuvre. You could say instinct takes over. It's at this point that the simulation yields its maximum benefit. The aircraft is handled just as if there are three hundred and fifty people in the back whose lives depend on the pilot's next move.

In the flight simulator the pilots actually learn by doing, without the heavy cost of failing. This type of work could not be duplicated in real life.

Of course, simulation can be on any scale: it can be as simple as simulating the roll of a pair of dice. No matter what its scale, the design of a simulation goes through several more or less rigid stages. Let's take a look at them now, with examples from a simulation I am quite familiar with — **Star Trek**.

## Identify the objective

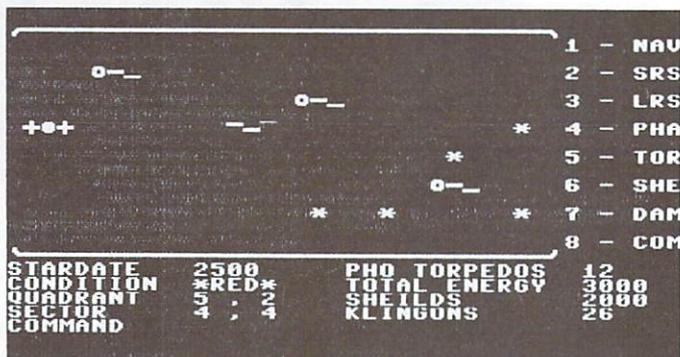
The most important thing to keep in mind during the design of a simulation program is your objective. I know that sounds a bit simple, but it's very easy to get caught up in the actual programming and end up going off on a tangent. If you have just one task to do, then it's easier to keep focused and do it. By keeping the task simple, you can eliminate many errors and misleading results. The more time spent on preparation, the less time needed for debugging.



The original *Star Trek* game short range scan, in the bad old days before Dave Neale.

Last summer I was fortunate in being removed from my computer for almost four months (while fulfilling a contract in the Arctic). Yes, I said 'fortunate'. During that time, all I had with me was a pencil, paper, several books on computing and a desire to write programs. One thing I learned very quickly was that, if you sit and think about how you want a program to work, you

should be able to format it in your mind (or on paper). Then start writing. Prior to the summer, I used to just sit in front of the terminal and bang away, only to cause many simple errors and structuring problems.



Dave Neale's first attempt, pre-'Version One'. Along with the new status display on the right side of the screen, the spaceships are getting sleeker.

## Plan the major functions

Most simulations have several major sections. **Star Trek** has many major functions. For example, the *Enterprise* has devices that help it in its task of defending the Federation Territory. One of these major functions is the Helm Control, which in turn has several sub-functions. Before the actual code can be written for this, a detailed knowledge is needed of how the system would function in *all* modes of operation. On several occasions I have quickly written some code and tested it, and found it worked properly . . . and then some strange combination of variables occurs that the system hasn't been programmed for. At that point, the system's usefulness diminishes. However, some systems are very complex, and not every combination of factors can always be foreseen.

## Plan the sub-functions

Every major function can be broken down into many parts. With **Star Trek**'s Helm Control function, there are sub-functions to handle the course for the starship, the warp factor (or speed), the distance to travel, and the relative position or heading. Another set of calculations handles energy used and time taken.

Other major functions will entail totally different set-up requirements, so each major function is really a separate entity or program. This modularity minimizes the risk of destructive interaction between the parts of the simulation.

## Interface the major functions

If the simulation is complex enough to require several major functions, then the interaction between the functions will have to be planned for. Generally, the more complex the simulation is, the more interaction is required. Information is carried across the interface in variables. With BASIC, all the variables, arrays and strings are neatly taken care of. However, if the simulation requires the speed of machine language, then the programmer must set aside several blocks of memory in which to store variables and flags. These blocks are best set up when the common or like variables are arranged to make access very easy,

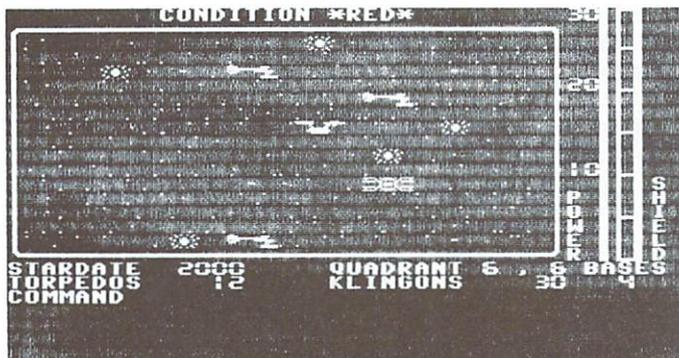
which in turn slightly speeds up the routine.

With **Star Trek**, one area of memory stores a whole series of flags that state the condition of the simulation at any time. Some of these are simple on/off flags (indicating device status, for example), while others store actual numbers.

## Plan the logic flow

When proper consideration has been given to the major functions, and the format has finally been pictured in your mind or on paper, then the task of planning the logic flow for each module can begin. It is a good idea to use notes, REM statements or a real flow chart to expand the concept you wish to create. For a lot of people (including myself, before that summer away from the computer), this represents wasted time. Why write everything down, when a few minutes or hours in front of the terminal can produce what you want? If the module is relatively small and simple, then why not? However, a highly structured program will be easier to work with, to interface with other systems, or to expand. Also, it won't require as much debugging or rewriting.

What's even more important, though, is that by working out the details of the major function in advance, you may actually gain a better knowledge of what you have created. I can remember a few cases of not exactly knowing why something



'Version One' of Dave Neale's *Star Trekking*. Suddenly the spaceships look like spaceships, and the status display looks like an instrument panel.

I had programmed worked but, at the time, I didn't want to rock the boat. The real problem came when I had to modify the system, and that was when I wished I had used a more structured approach.

## Write the code

Before any actual code is written, you must answer a few very important questions. Does the simulation require the speed of machine language, or will BASIC suffice? Are there aspects of the simulation, particularly in the area of graphics, that might make another language more suitable? Of course, each language offers different characteristics and, for a given task, some will be better adapted than others.

It's a good idea to include lots of comment lines in the code. On several occasions I have had to waste time trying to decode some of the routines for **Star Trek** because I had neglected this step. After you have worked with the code, and have gained a thorough knowledge of each major function, you can then remove the less important comments. It is also very important to keep a record of notes or ideas you have for the program.

## Testing and debugging

Now the fun begins! Like any kid, I always enjoy typing **RUN** and seeing if my creation works. More often than not, it doesn't.

If you mainly work with machine language, you'll know that it's a good idea to save a copy before the program is run. If you don't, you may never see it again. I'm lucky if one out of ten routines that I write works on the first try.

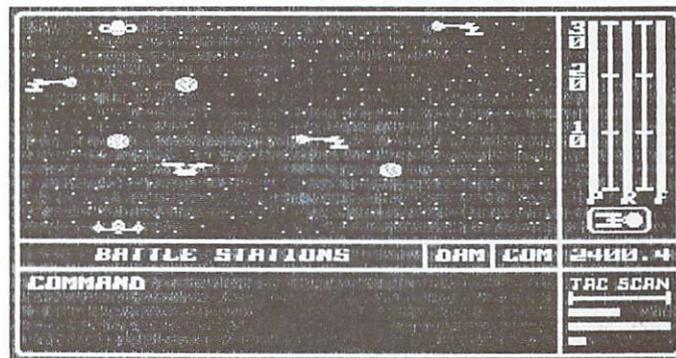
The easiest and most practical method of testing is to set up what I call a 'bench' routine. Such a routine actually simulates the simulation. I used this process in developing a new Short Range Scan (SRS) for Version Three of **Star Trek**. I wanted



'Version Two' of Dave Neale's *Star Trekking*, with customized character set and 'new, improved' planets.

to create a new method of presenting the information on the screen, but I didn't want to mess up the actual program (or have **Star Trek** get in the way of what I was doing). First, I wrote a routine that emulated the SRS, and then inserted my new routine into it. From there, I did all the testing and debugging without the problem of having to deal with a monster program. This also gave me the opportunity to add the new Tactical Scanner, along with a new Multi-Shield System and Status Windows.

With the bench routine, you can create several different routines at one time, even leaving one till another is completed. Once you know a routine works, you can install it in the actual program and then carry out whatever tests are necessary.



'Version Three' of Dave Neale's *Star Trekking*, with the new tactical scanner, multi-shield system and status windows.

Depending on the type of routine, it may be a good idea to set up a series of test procedures to put the new creation through its paces. By breaking the routine up into parts, you can keep track of what is actually going on. Once you're getting good results, do some more testing. Nothing is more discouraging than building, testing and inserting a routine, then finding out you forgot one or two parameters. It's really important here to try to come up with virtually all of the possible combinations of input and test data, so you can be one hundred per cent sure of success.

With even a small bit of programming knowledge, you can work wonders — if you put your mind to it. You are only limited by your desire and the amount of RAM available. □

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# Simulation: Worlds Inside The Computer

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by Efraim Halfon © 1984

A simulation is a counterfeit, a pretence. A computer simulation is a program that makes the computer pretend to be something else. You've probably seen **Flight Simulator II**, or **Solo Flight**: in these games, the computer pretends to be an airplane that you can fly. The joystick and the keyboard become your cockpit controls; the video screen becomes your window on the scenery below. Those who have tried one of these programs know that the simulation can be surprisingly true to life. But how is it done?

The first step in creating a simulation program is called *mathematical modelling*: the programmer decides which features of the system of interest should be reproduced in the computer memory. In the case of an airplane simulation, these features

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**... On mainframe computers, mathematical models are programmed in FORTRAN or in languages designed specifically for simulation ... Is it practical to program a simulation on a home computer, in BASIC? ...**

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may be the effects of ailerons, rudder, flap and landing gear on drag and performance. The second step is to write mathematical equations that describe the flight of the particular airplane type being simulated, the effects of pilot actions and the effects of the environment on the airplane — turbulence, for example. The equations are dynamic and take into account the passing of time, as well as pilot actions: differential equations are commonly used for this purpose. Tens of equations are needed to describe all the details of an airplane flight — the location of the plane, its velocity, its horizontal and vertical accelerations, its pitch, yaw, roll, drag and trim. Other equations compute the relation of the pilot to the ground, and the view from the windows.

Computer simulations are not limited to airplane flight. A bank manager might use simulation to describe queues at a bank, as an aid in deciding how many teller windows to keep open. The computer would keep track of the time of arrival of each customer, the queue he or she chooses, and how long it takes for a teller to take care of the customer's business. Another simulation involving queues might be the organization of a blood donor clinic. In this case, the organizer has to decide how many beds to keep open and how much staff to use.

A traffic engineer might use simulation to design a highway; the computer would keep track of traffic, and the effect of intersections. A car engineer might use simulation to design the suspension system of a car.

Not all simulations model systems that have been designed by people. Ecologists use simulations to describe the behaviour of animal populations, to describe the life cycle of fish and plan fisheries management, or to predict the fate of toxic pollutants that may enter a lake and end up in the drinking water. Other scientists may use simulations to predict where acid rain will fall, and which lakes will be affected and how; others will use it to predict tomorrow's weather.

On mainframe computers, mathematical models are programmed in FORTRAN or in languages designed specifically

for simulation, such as CSMP, DYNAMO and SIMULA. Is it practical to program a simulation on a home computer, in BASIC?

As mentioned before, simulation models often employ differential equations. The numerical solution of these equations requires a knowledge of calculus. However, modellers (the developers of simulation models) also often use a simpler and efficient formalism well suited for digital computers: discrete event modelling, which numerically is expressed by difference equations. These equations are easier to understand for the beginner, and I will use them to describe the development of a simple model.

Assume that your objective is to model the growth of the human population on Earth from now, 1985, to the year 2085. The first step is to estimate Earth's present population. Let's call this number  $n_{1985}$ , and set it equal to 5 billion people. The second step is to estimate the proportion of births per year, which we'll call  $b$ . The unit for this number is births per 1000 people. A typical value for  $b$  might be 2 births per 1000 people in Europe, for example, or 5 births per 1000 people in an undeveloped country. We'll also need a number  $d$ , representing the proportion of deaths. A reasonable value for  $d$  might be 1.1 deaths per 1000 people.

The next step is to write a mathematical model that will predict the Earth's population in 1986, 1987, and so on, until the year 2085, given the population estimate of the previous year. In the first year, the model has the form:

$$N_{1986} = N_{1985} + (B - D) * N_{1985}$$

To predict the population in 1987, given the 1986 population estimate, the model takes this form:

$$N_{1987} = N_{1986} + (B - D) * N_{1986}$$

In general, then:

$$N(\text{YEAR} + 1) = N(\text{YEAR}) + (B - D) * N(\text{YEAR})$$

That is to say, next year's population equals the sum of this year's population and a fraction of this year's population corresponding to the difference in the birth and death rates for the year. In the real world, of course,  $b$  and  $d$  are not uniform either geographically or chronologically, but for now we will ignore this important fact for simplicity's sake. A more subtle assumption in discrete event modelling is that the model can produce realistic forecasts by one year jumps, even though in reality births and deaths occur continuously. From a mathematical point of view this assumption is acceptable as long as the average number of births and deaths predicted every year is correct.

The following program is an implementation of our model as we have detailed it so far:

```
5 REM INITIAL CONDITIONS, 5 BILLION
  PEOPLE ON EARTH IN 1985
10 N0=5E9:YEAR=1985:B=0.05:D=0.011
20 REM COMPUTE POPULATION NEXT YEAR
30 N0=N0+(B-D)*N0:YEAR=YEAR+1
40 REM PRINT POPULATION EVERY YEAR
50 PRINT N0, YEAR
60 REM CHECK IF YEAR IS 2085
70 IF YEAR<=2085 GOTO 30
80 REM END SIMULATION
90 END
```

The program in its present form will predict the number of people on Earth from 1985 to 2085. The advantage of modelling is that, in addition to predicting future events, we can also compute the effects of policy proposals. We could reduce  $b$  from 0.05 to 0.02, for example, in an effort to simulate the effect of a policy that promotes birth control as a means of reducing population growth. We can decrease the proportion of deaths due to improved health conditions: what will the effects be? These and other scenarios can be easily modelled by changing parameters  $b$  and  $d$  in line 10.

A model, however, is only an abstract representation of the system of interest, and its assumptions may not be completely correct. It is fairly easy to think of ways in which our population growth model could be made more realistic. For example, we have assumed up to now that  $b$  and  $d$  are constant proportions of the living population in a given year. Suppose we assume, however, that population growth will slow down when the population has attained a size of 20 billion people. We might reason that food supplies will by then be reduced because of increased population density, that pollution in the environment will be higher and food sources depleted. These effects will reduce the number of births and slow population growth.

In mathematical terms, we can express this hypothesis as follows. Assume a critical value, 20 billion people, for example, and call it  $k$ , the carrying capacity of the environment. Assume next that, as the number of people on Earth,  $n0$ , gets close to  $k$ , the proportion of births decreases. Line 30 of our program becomes:

```
30 N0=N0+(B*(K-N0)/K-D)*N0
```

We also need to introduce the new parameter  $K$ :

```
12 K=2E10
```

Other scenarios can be produced by changing the values of  $k$ ,  $b$  and  $d$ .

Another interesting experiment is to add a year to year random variation in the proportion of births or deaths: this change adds reality to the simulation by including in the model other factors, such as uncertainty due to good crops or bad crops, floods or record harvests. The model is modified as follows:

```
13 VAR=5.0:REM EXPECTED YEAR TO  
YEAR VARIABILITY
```

```
25 CHANGE=B*(VAR*RND(0)-VAR/2)
```

Line 30 in our model now becomes:

```
30 N0=N0+(B+CHANGE-D)*N0
```

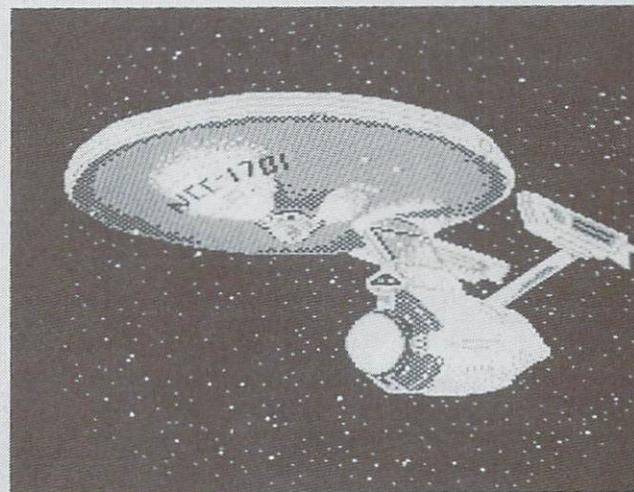
The random yearly changes we have now introduced add some uncertainty to the model simulations, but also add realism. An interesting experiment would be to run the simulation with various values of the parameter  $var$ . By increasing  $var$  suitably we could test whether, given such large perturbations to the food supply as might arise from a nuclear war, the human population on Earth might become extinct. The usual method — called the Monte Carlo technique — involves running the model several times and comparing the different predictions it generates.

Mathematical models now control, or have been used in many aspects of, our daily life. They aid in designing our cars, telephone systems, planes and banks. They are used to predict the weather and to simulate the behaviour of vessels in space. And, as we have seen in this article, even a simple simulation can generate interesting and useful results. □

## Star Trek's Tangled Roots

by Dave Neale

Are there any good computer genealogists out there? Does anyone know the real roots of the *Star Trek* computer game? In preparing the article on the history of *Star Trek*, I came across a whole barrage of possible answers to that question.



The only problem I faced was trying to figure out which ones were accurate.

I knew that the perfect environment for its creation would have to be the university campuses of the late sixties or early seventies, but who could I contact that would still be around? Obviously, some of the professors who had been students in that era. That sounded simple — all I had to do was to make a few phone calls and I'd have the answer.

Wrongo, Dave!

I had heard that there was a student at the University of Toronto who "first thought out the idea", but the name had been lost long ago. From a telephone receptionist there, I obtained the number of a certain professor... my first solid lead.

What followed was a classic case of the bureaucratic shuffle. No one I called knew anything at all on the subject; but everyone could tell me of such and such a person who would certainly be able to answer all my questions. After going through three universities, one college, and a score of people in the know, I knew I would never be able to pin the responsibility on any one person.

So: is the history of the *Star Trek* game really lost for ever? If you can shed any light on the subject, or know of anyone who can, please drop me a line at the following address:

### History of Star Trek

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# Star Trek: Still Boldly Going

by Dave Neale

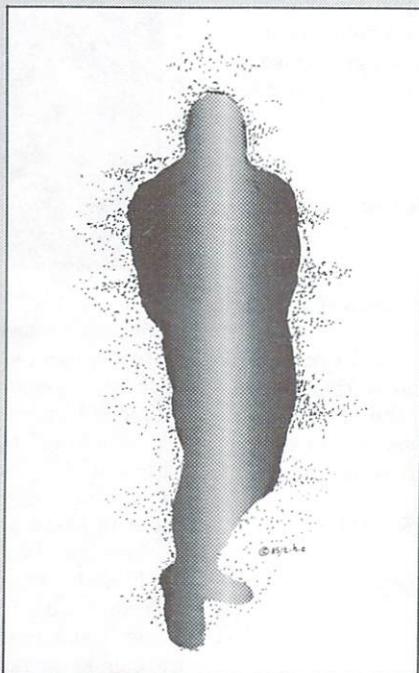
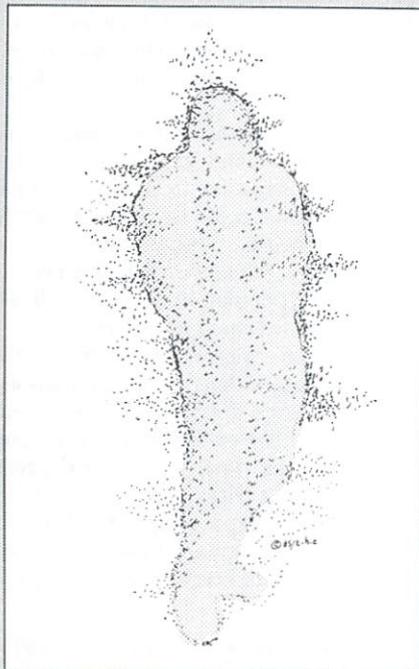
At approximately 8:25 PM EST on Thursday, September 8th, 1966, my brother called me into the house to watch a new TV program — Star Trek. By 9:30 that night I was hooked on the series, as were millions of other kids across North America.

By the spring of 1969, when the program was cancelled because of poor ratings, seventy-nine episodes had been filmed and aired. Literally hundreds of thousands of letters were sent in, complaining about the cancellation, but to no avail — the series was laid to rest. A lot of people thought that was the end of a great story; however, it seems it was only the beginning.

Some time in the early seventies, with the availability of computers, it was only natural for someone to write a **Star Trek** program. The exact person or persons who first created the standard format is unknown. After researching this, and coming up with name after name of the supposed 'first creator', I'm left to assume that it was either a global joint effort, or it was the shy person who invented the wheel. In any case, the early versions were rather primitive by today's standards.

At that time, the only places you could expect to find a computer were at major

universities or large corporations. The computers were tied up during the day because computers and computer time were very expensive, so the games generally were played at night, and only by the true sci-fi fans and computer hackers. One version, written in FORTRAN for the CDC 6600 by D. Matuszek and P. Reynolds from the University of Texas, contained thirty-three different commands. These ranged from the standard *Navigate* through to *Shuttle Craft Launch* and *Planetary Analysis*. Despite this impressive array of commands, the program had no graphic features, making it, I guess, one of the first adventure games.

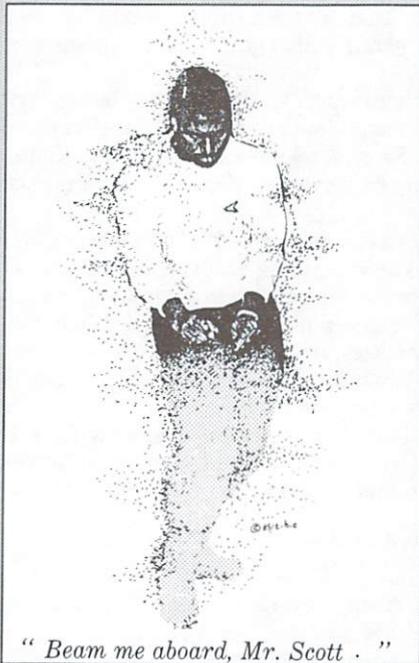


a company purchased software for a system, the software vendor usually threw in several games, one of which was **Star Trek**. By playing games every once in a while, the users gained confidence in their ability to run the system. Again, however, the programs contained no graphics, and usually no sound.

When Commodore and Apple released their computers in the early eighties, **Star Trek** finally made it into the user's home. Still, the early machines offered only rudimentary graphics and sound capabilities. By this time, the local arcades were becoming very popular, so a version of **Star Trek** was naturally created for them. This version lacked any of the plot lines of the series or movies, and was of the shoot-'em-up style. It was popular enough to be later adapted to the Commodore 64 by Sega Corporation.

With several versions now available for the Commodore 64, **Star Trek's** popularity is still growing. The third movie was completed last summer; a fourth is now in the planning stages: it seems that interest in the saga will never end. If you have any doubt about that, just ask a neighbor of mine. She has seen all the *Star Trek* there is to see, and read all there is to read.

By the way, she's only seven. She doesn't know who the Beatles were. □



"Beam me aboard, Mr. Scott . "

Some systems were set up in such a way that several people could play together at different terminals and form a crew for the *Enterprise*, while other people could even be the dreaded Klingons. Regardless of which system it was played on, the general theme of the games was very similar. The *Enterprise* had to rid the galactic quadrant of the Klingons before a time limit ran out.

When the smaller and cheaper computers started coming on the scene in the late seventies, the game had branched out to some of the minicomputers. The first version I came across was on a BASIC 4, by MAI. It seems that when



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# Memory Mapping

by Jim Butterfield

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Maps that show the various uses of RAM, ROM and the I/O registers are useful for the intermediate level programmer and hacker. If you know a little about the personality of a RAM location, you can peek it to see what the computer's up to, or poke it to change some aspect of the computer's workings. The Input/Output registers are even more 'tactile'... you can often see or hear what you've done immediately after entering the POKE. Hopefully, what you see and hear won't be sparks and smoke: there's no chance of that on the newer Commodore machines, of course, and little chance on the earlier PET/CBM units.

ROM maps serve a different purpose. They may be used for study, so that the computer's exact logic may be traced; and the ROM subroutines may be 'called' to perform certain tasks. These ROM subroutine calls may be grouped into two categories: 'authorized' entry points, where the manufacturer invites the user to call up a machine feature; and 'unauthorized' entry points, where the user discovers ROM code that can be exploited to make an application program more concise. It's hardly necessary to say that authorized entry points are more stable, since the manufacturer usually attempts to keep them consistent between various models of computers.

The first maps were devilishly difficult to produce. As a user group, we knew very little, and lengthy study of the ROM disassemblies — plus inspired guesswork — was needed to make sense of the many memory locations. As new Commodore computers were introduced, the task became easier. The new machines were modifications of the old ones, and the job was largely updates, revisions and some additions.

My memory maps are somewhat cryptic, as you might have noticed. This is partly to help the publisher: twenty pages of maps tend to clog up a magazine. Also, it's partly a timing problem: when I am preparing maps, I'm conscious that many users will want to see them. Thus, I make the descriptions brief in order to get the job done. And finally, it's a question of

style: I want to suggest, rather than define, the role of each location. And I want new maps to relate to older ones to allow users to do their own cross referencing between computers.

I'd like to illustrate memory map styles with an example. I have on hand four memory maps (some RAM, some ROM)

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**... The first maps were devilishly difficult to produce... lengthy study of the ROM disassemblies was needed to make sense of the many memory locations...**

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of the Commodore Plus/4, and I'll pick a location, quote the various maps, and give more detail. The four maps are from:

- Commodore. Authentic but incomplete, and not always descriptive;
- Paul Blair of Australia, who picked the computer apart at length. He appears to be using Commodore's maps where available, filling in his own material where changes seemed desirable. He has done some detailed mapping of ROM routines;
- Mike Todd of the UK, who prepared his maps (amazingly!) with no access to a Plus/4. He had only some ROM dumps and cross reference material from me. His insights into RAM usage are quite incisive;
- Me. My maps were prepared in haste from early prototypes, and then upgraded as the final production machines became available.

Let's look at a sample location, picked almost randomly — location hex B1, decimal 177:

Commodore: Label ERRSUM, no description

Paul Blair: Tape error count

Mike Todd: Count of # of error to be corrected during cassette read

Jim B. (me): Tape error count

We're saying about the same thing: this Plus/4 location counts tape errors. Just for the record, let's try to outline more of the story surrounding this location.

Everything on tape is written twice, and this allows us to correct errors. Location \$B1 counts uncorrected errors: the count goes up when errors are found, and down when they are fixed. When we read the first block on tape, the computer counts the errors in \$B1, but it also logs the exact characters in trouble in a (double) table from \$0437 to \$0472. There's a pointer kept in \$07B6 which keeps track of the proper place in this table. Normally, the contents of \$B1 and \$07B6 will be identical during the reading of the first block; however, if there are over 30 character errors, \$07B6 jumps to 255 and quits counting.

Now, on to reading the second block. Just before we start, we transfer pointer \$07B6 into \$07B7 ('limit of error table'), and then reset the pointer. Whenever we reach a character that has been noted as bad, we see if a good read has been seen from the second block. If so, we decrease the count in \$B1 since there's one error less; the tracking pointer in \$07B6 moves along to the next character that will need fixing. When we have finished reading tape, \$B1 had better contain a value of zero or there are errors that we haven't fixed. All this is noted by the system, and you'll get advice of the read being good or bad in variable ST, the status variable.

Location \$B1 is referenced during a tape read and not at any other time.

When you read such a location in the map, it would be handy if you knew about the other associated locations. Locations \$07B6 and \$07B7 are well described in Mike's maps, and adequately described by Paul and Commodore. I lump both locations into a general area called 'tape working values'. The table at \$0437 is satisfactorily identified in all the maps except Commodore's, which gives no description.

Are the above one-line descriptions sufficient? Probably, in most cases. The address in question is correctly assigned a role in life. Would the whole paragraph given above be better? In some cases, yes; in others, it would be overkill. Perhaps the most important extra element of information is that address \$B1 works together with addresses \$07B6 and \$07B7 and a table that starts at location \$0437. Suppose that a user wanted to know: what location should I examine to view the number of *corrected* tape errors? The answer would not be \$B1, which



# A Beginner's Guide to Bulletin Boards

by Ian A. Wright

*Bulletin boarding has become very popular in recent months, and modems are among the hottest-selling peripherals. To some extent, this popularity results from a multi-media blitz caused by stories about 'hackers' presented in the movies, on television and in print. Real telecommunication, however, is an enjoyable and often very useful activity, not — as the media often portray it — solitary and destructive. This is the first of a series of articles that will introduce you to the world of telecommunications. BBS veteran Ian Wright will describe some of the uses of bulletin boards and explain the proper procedures for accessing these boards. When possible, Ian has drawn examples from TPUG's own Bulletin Board System (BBS) to show various on-line activities.*

## Introduction

To start telecommunicating, you will need a *terminal program*, a *modem* and a *telephone line*. There are many kinds of terminal programs available, ranging from a few lines in BASIC, to full-featured commercial programs like those advertised in this magazine. Similarly, there are various types of modems and even telephone lines, but let's leave the discussion of selecting a modem and a terminal program for later, since I believe you should decide what you want to do with telecommunications *before* acquiring specific hardware and software.

Simply put, the terminal program selects and translates the information you wish to send or receive, and allows you to direct the incoming data to the screen, disk or printer. A modem, on the other hand, is a small hardware device that can send information to the computer and that can accept output from it, just as the disk or cassette drive does. The modem sends and receives information via the telephone line but cannot store it. Your computer can be 'hooked up' to someone else's machine located in the next room, across the street, or across the world. Telecomputing brings the world into your home.

## What Can A BBS Do For Me?

A bulletin board system allows you to leave messages to other users and to read messages from them. It works rather like

the bulletin board in the local supermarket, but you don't have to leave home to use the BBS. Unlike the supermarket, the BBS messages can provide an on-line 'help' function where someone who is writing a program can ask for programming assistance. A message left on the BBS one day will often have one or more expert responses within twenty-four hours — sometimes sooner.

The message topics do not have to deal with programming; in fact some BBSs (not TPUG's) restrict their discussions to non-computer topics. TPUG's BBS has the 'TPUG OFFICE' as a member, so that you can leave requests for disks (and pay for them), arrange a renewal, or make general queries, and these will be dealt with as if you had visited the TPUG office itself. The general term for this is E-Mail, for electronic mail, and it is a primary activity on all systems.



## Say What?

A BBS is also a forum for debate. A message about some current event can ignite discussions — not always amicable — of morals, values and ethics. A few years ago, on one BBS, a debate became so intense that some messages were censored — many users have never returned to that board. The 'free' expression of ideas is upheld, although there are strict rules about proper language and behaviour. TPUG's rules, for example, are written in its 'TEN COMMANDMENTS' bulletin and they are enforced by our SYSTEM Operator (SYSOP), Richard Bradley.

## Hear Ye!

Most boards, like TPUG's, have a bulletin section that provides information on a variety of topics. Want to know the time and location of a meeting? Use the

'events' bulletin. Want to find out about other machines? Check out the AIBMGO bulletin. Other bulletin board systems have reviews of restaurants, bars, stories, programs, and so on — all available in their bulletin section. As I write this, one of the BBBBS (Bradley Brothers) lines has almost one hundred technical 'question and answer' messages in its bulletin section; and PSI-Wordpro has a bulletin section about piracy. Generally, it is the SYSOP who writes bulletins, but you can arrange to have your material put into a bulletin if you can convince the SYSOP that it will interest other members. Most BBSs have an 'opening bulletin' that is the SYSOP's method of leaving messages, or of making general announcements to all the users.

## Data Bases

Some telecommunications services provide on-line data bases, like stock quotations, airline prices and shopping catalogs, but you pay for these functions. TPUG's bulletin board does not support this kind of information, but the price is much less, too! As you become interested in telecommunications, you might want to investigate some of these commercial systems' special functions. For example, CompuServe has over eight hundred different data bases, and you can select and buy stocks on-line through The Source. Remember, however, that you are paying for each minute that you are connected (or for each character transmitted), so TPUG's and the other BBSs provide an opportunity to 'learn the ropes' of telecommunications without a huge financial investment.

## Homework Can be Fun

Telecommunicating can help you with your job. Business offices, colleges or other places that have mini-computers or mainframes use 'dumb terminals' for input/output within the building, and you can turn your home computer and telephone line into an extension of this system. Imagine staying at home to do your work! It's already being done. A number of former students of mine are required to use their university mainframe on a time-sharing basis, and they up/download their assignments from home. One young man has only used nineteen minutes of his allotted terminal time,

so he can trade the remainder to others who need to spend extra time in the lab. I too have downloaded my 'homework' from a VAX and worked on the files in my spare time.

### Up the Downloader

TPUG's BBS will allow you to 'upload' a file or a program. This means that you can write a review or write a program and send it to the office without leaving home, and you don't have to worry about it being lost in the mail. The TPUG BBS does *not* support 'downloading', since the large number of active users (about seven hundred) require too much disk space to store programs that you can receive. Other systems, however, have public-domain programs that are freely accessible over the phone. A little of your time and a blank disk are all that's required. If you are interested in acquiring

copyright material — forget it! The SYSOPs expel members who trade pirated software.

### Things That Are NOT Done

There are many legal, enjoyable, and above all useful, activities in telecomputing, but I would like to comment here on the 'Hollywood hacker' image. This term, 'hacker', is being used in the media to label someone who uses telecommunications for illegal purposes. Unfortunately, the label is also being stuck on the true hacker, who is simply a dedicated computer user. Some hackers are also BBS users. Most of them are model citizens.

In the last few months, a group of bulletin board users have been discussing these 'criminal/vandal' stories in an attempt to gather information to counteract them. Whether the stories

deal with illegal entry into company data files, or attempts to infiltrate banks or government offices, most stories suggest that 'breaking-in' is a major part of telecomputing. What rot! A very small number of juvenile minds are involved in these incidents. Responsible users are concerned that the public perception of 'the hacker' will lead to stringent laws applied to all telecomputing. It is conceivable, for instance, to have a large additional fee for a phone line used by a modem — this came into effect in Oklahoma, in 1983. Another possibility is a modem licence — either for the station or the operator. Blanket regulations like these might be used to counteract the few isolated incidents, rather than putting the responsibility for security on those who are paid to manage the data. It is necessary that we all telecommunicate in a responsible manner. □

## Daring Daylight Robbery 12 Hours Late

TPUG members attempting to access the club BBS early on March 8 were surprised to find the board down. The explanation was unfortunately simple: TPUG offices had been burgled in the early hours of the morning. Several computers, disk drives, modems and disks were taken. A telephone was also stolen by the apparently confused thieves, and acts of petty vandalism committed.

The robbery was discovered at seven a.m. by copy assistant Terry Hachey, who immediately notified police and TPUG management.

According to Louise Redgers of the TPUG Board of Directors, a Board meeting on the night of the robbery had lasted until nearly midnight. "It was a bit startling to learn the next morning that the robbery had occurred so soon after we left the building", she told *TPUG Magazine*, adding: "The general reaction from Board members was, 'Glad we didn't meet the thieves on their way in!'".

There is speculation that malice towards the club may have been a motive on the part of the thieves, who did not attempt to force entry into non-TPUG offices in the building. The TPUG business office, library, storeroom, magazine and BBS room were the sole targets of the attack.

Police found fingerprints on the office memo board, where the thieves had



scrawled an illiterate and spiteful message, but they cannot say at this time whether the fingerprints belong to one of the thieves or had been made prior to the robbery. Prints were also found, however, on the vent panel which TPUG's nocturnal visitors had wrenched out of a door in order to gain access to one of the rooms. The positioning of the vent makes it likely that this set was made by one of the thieves.

TPUG's hard disk containing the membership list for the entire club was also stolen. Fortunately, TPUG did have backups at other locations, so it is hoped that normal office procedures will resume with only a fraction of the inconvenience to club members that the thieves apparently intended.

Hardest hit was the BBS room, although TPUG was not the only sufferer in the BBS robbery. Sysop Richard Bradley lost hardware of his own that he had been using for the benefit of the club.

Speaking on behalf of the Board of Directors, Louise Redgers asked that members bear with the club while equipment is being replaced and the BBS set up again. "The directors would like to thank our staff members for all the extra work they have put in since the burglary", she said. "We should have things pretty well back to normal within a week or two."

Meanwhile, investigation of the burglary has turned up a number of leads that Toronto police are currently pursuing. □

# Super OS/9 Similar to Unix

by Brad Bjorndahl

OS/9 is an operating system written by Microware for the 6809 microprocessor. It is a multi-task, multi-user, modular system, very similar to Unix. It is written entirely in assembly language so that it is extremely efficient and small, yet has most of the capabilities of Unix that are appropriate to a 64K computer system. It is expected that this SuperPET version will give the programmer more than 45K of memory. On top of that, the 30K or so of RAM that Commodore uses for BASIC is available as RAM disk.

The formidable job of converting OS/9 to the SuperPET was taken on by Avy Moise. He had help from a few York University colleagues and TPUG members, but the bulk of the work was done by him. Since the project was started last September, Avy has reported progress and problems to each SuperPET chapter meeting. I saw enough of the details to know the enormous amount of work he has contributed.

A hardware addition is required to run OS/9 on the SuperPET but it will not change any of the current Commodore or Waterloo capabilities. A small printed circuit board will reconfigure (with a software switch) the sixteen 4K bank-switched RAM blocks into 64K of contiguous memory, as required by OS/9. This board can be plugged directly into the early 3-board models of the SuperPET. A little soldering is necessary with 2-board models.

The entire OS/9 package includes the PC board, the operating system, assembler and editor on a diskette, and four manuals. Many who ordered OS/9 early have already received the manuals; Avy Moise assures us that the final product will be faithful to them.

An initial distribution version, called 0.9, will go to eighty-three people who purchased early. It is expected that these users will make it their business to use, abuse, batter and bother OS/9 to force it to reveal all hidden bugs. We want to distribute a clean and robust version 1.0 to everyone, including those who started with 0.9.

Originally I was excited about OS/9 because of the numerous languages that would become available — C and LISP, for example. I think now that the operating system will be enough of a

challenge — there is a lot here.

First consider multi-tasking: the simultaneous execution of more than one user program on a single computer. This is done by frequently switching from one program to another. OS/9 switches every tenth of a second.

OS/9 must handle many associated problems such as giving priority to more important programs, suspending execution of programs that require I/O to complete, and assigning memory space for code and data. For each program, OS/9 keeps count of the time since it last executed. This time is referred to as its 'age'; the 'oldest' programs are selected for execution. When its turn comes, the program runs for its allowed tenth of a

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**... OS/9 supports multi-tasking — the simultaneous execution of more than one user program on a single computer ...**

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second. Then its age is set to either zero or a non-zero value called 'priority'.

The priority allows the user to give a program an artificially high age so that it will execute more often and for longer periods of time than other programs. For example, program A with priority of 100 could run up to 10 seconds before another program gets some time. Depending on the ages of other programs in memory, program A could wait as little as one tenth of a second before getting another 10 seconds. On the other hand, all programs get a slice of time after they have 'aged' long enough.

This system can be easily abused, of course, but there is a degree of control over priority levels. Each user and program is assigned an ID number, and program priority can be changed only by a user (or another program) with the same ID number.

At first glance the multi-user feature may seem quite limited since the resources of an 8-bit processor are relatively small. OS/9 has a few smart tricks to ease the situation. First, certain restrictions can be imposed on users in terms of what programs they can run. Second, programs are always split into

data and executable code sections. As a result, a program (such as the interpreter BASIC09) can be run by more than one user with only one copy of the code in memory. Each user has a unique and independent block of memory for data and they all use the same code when their execution time comes up. This saves a great deal of memory.

With multi-tasking and multi-users, what more could anyone ask? How about pipelines and modular I/O?

Pipelines are facilities provided by the operating system to transfer data from one program to another without the user being concerned about defining disk files, buffering, or synchronisation of input and output. A user simply starts two or more programs with a command to the operating system to take each record of output from one program and give it directly to another. The fastest programs will wait for the slowest ones. It is possible to direct output to more than one program at a time with the same ease.

Modular I/O is simply a way of structuring the programs that transfer data. It allows, from a systems programmer point of view, an easy and standard procedure for adding disks and other devices to a computer system. As far as SuperPET owners are concerned, it means that virtually any disk or terminal can be used when the appropriate program, called a driver, is written. For example, using the memory of a commercially available graphics board as RAM disk requires an easy modification to a copy of the driver for the Commodore RAM disk mentioned at the beginning of this article.

Finally, I want to mention the OS/9 file system. It provides a hierarchy of files by allowing directories to contain other directories. This allows a kind of nesting of files, which can either 1) provide a user with a superb organizational tool, or 2) provide a user with enough rope to hang by. I can hardly wait.

If I have not convinced each and every reader to rush out to buy a SuperPET just to run OS/9, then consider the following. A BASIC language benchmark that *BYTE* magazine has used to compare program run times on various computer systems was run on the SuperPET in BASIC09 under OS/9. It ran more than thirty per cent faster than on the IBM PC. □

# Commodore 64 Handball

by Nick Sullivan

The instructions for this game are not difficult to master: using the two cursor control keys to move your paddle, keep the ball from getting past you. The SHIFT LOCK key may be used to freeze the game if the tension becomes temporarily unbearable. □

```
1 FOR I=49152 TO I+551: READ A: CK=CK+A: POKE I,A: NEXT
2 IF CK<>67841 THEN PRINT "ERROR IN DATA STATEMENTS": POKE 49152,96: END
3 PRINT CHR$(8) CHR$(142)
4 U=0: SYS 49152: FOR I=142 TO 140 STEP -1
5 U=(PEEK(I) AND 15)+10*((INT(PEEK(I)/16) AND 15)+10*U): NEXT
6 IF U>HS THEN HS=U
7 PRINT SPC(10);"HIGH SCORE:";HS
8 PRINT "<DOWN> <RVS>P<OFF>LAY AGAIN <RVS>Q<OFF>UIT"
9 GET A$: IF A$="P" GOTO 4
10 IF A$<>"Q" GOTO 9
11 PRINT CHR$(9)
12 :
13 DATA 32, 24, 229, 238, 40, 208, 162, 2, 142, 23, 208, 202, 142
14 DATA 134, 2, 134, 75, 162, 10, 134, 76, 134, 143, 169, 0, 160
15 DATA 3, 140, 21, 208, 153, 139, 0, 136, 16, 250, 160, 63, 153
16 DATA 128, 3, 136, 16, 250, 169, 82, 141, 2, 208, 160, 62, 140
17 DATA 16, 208, 185, 233, 193, 153, 64, 3, 136, 16, 247, 169, 204
18 DATA 160, 60, 153, 128, 3, 136, 136, 136, 16, 248, 162, 13, 142
19 DATA 248, 7, 232, 142, 249, 7, 169, 24, 141, 0, 208, 169, 134
20 DATA 141, 1, 208, 141, 3, 208, 32, 204, 193, 38, 162, 102, 253
21 DATA 24, 102, 254, 32, 25, 193, 32, 211, 193, 32, 38, 193, 173
22 DATA 1, 208, 201, 50, 208, 4, 24, 32, 25, 193, 201, 230, 208
23 DATA 4, 56, 32, 25, 193, 173, 0, 208, 201, 24, 176, 36, 173
24 DATA 16, 208, 41, 1, 208, 29, 24, 102, 254, 238, 0, 208, 173
25 DATA 2, 208, 201, 120, 240, 16, 206, 2, 208, 206, 2, 208, 16
26 DATA 8, 173, 16, 208, 41, 1, 141, 16, 208, 173, 16, 208, 41
27 DATA 1, 106, 173, 0, 208, 106, 24, 105, 12, 133, 2, 173, 16
28 DATA 208, 41, 2, 106, 106, 173, 2, 208, 106, 197, 2, 176, 43
29 DATA 173, 1, 208, 56, 237, 3, 208, 24, 105, 14, 201, 50, 176
30 DATA 32, 56, 102, 254, 198, 143, 208, 22, 169, 81, 164, 139, 153
31 DATA 0, 4, 153, 0, 216, 230, 139, 230, 75, 230, 76, 230, 76
32 DATA 165, 76, 133, 143, 76, 113, 192, 32, 211, 193, 198, 139, 48
33 DATA 10, 169, 32, 164, 139, 153, 0, 4, 76, 84, 192, 169, 0
34 DATA 141, 21, 208, 133, 198, 70, 139, 96, 102, 253, 165, 162, 41
35 DATA 3, 170, 232, 134, 251, 134, 252, 96, 162, 2, 160, 200, 165
36 DATA 254, 16, 1, 202, 200, 208, 253, 165, 197, 201, 2, 208, 10
37 DATA 173, 3, 208, 201, 64, 240, 3, 206, 3, 208, 201, 7, 208
38 DATA 10, 173, 3, 208, 201, 195, 240, 3, 238, 3, 208, 173, 141
39 DATA 2, 208, 251, 202, 208, 215, 248, 24, 165, 140, 101, 75, 133
40 DATA 140, 165, 141, 105, 0, 133, 141, 165, 142, 105, 0, 133, 142
41 DATA 216, 162, 24, 160, 0, 24, 32, 240, 255, 160, 0, 162, 2
42 DATA 181, 140, 72, 74, 74, 74, 74, 32, 221, 193, 104, 41, 15
43 DATA 32, 221, 193, 202, 16, 237, 173, 18, 208, 237, 1, 208, 144
44 DATA 4, 201, 22, 144, 244, 165, 251, 74, 197, 252, 208, 3, 32
45 DATA 182, 193, 198, 252, 48, 12, 166, 253, 48, 4, 238, 1, 208
46 DATA 96, 206, 1, 208, 96, 166, 251, 134, 252, 166, 254, 48, 13
47 DATA 238, 0, 208, 208, 7, 110, 16, 208, 56, 46, 16, 208, 96
48 DATA 206, 0, 208, 16, 250, 110, 16, 208, 14, 16, 208, 96, 162
49 DATA 0, 234, 136, 208, 252, 202, 208, 249, 96, 208, 4, 192, 0
50 DATA 240, 249, 200, 9, 48, 76, 210, 255, 0, 255, 0, 3, 255
51 DATA 192, 15, 0, 240, 28, 0, 56, 63, 255, 252, 54, 66, 108
52 DATA 118, 126, 110, 102, 24, 102, 230, 60, 103, 199, 165, 227, 196
53 DATA 255, 35, 199, 165, 227, 230, 60, 103, 102, 24, 102, 118, 126
54 DATA 110, 54, 66, 108, 63, 255, 252, 28, 0, 56, 15, 0, 240
55 DATA 3, 255, 192, 0, 255, 0
```

# TPUG Conference 1985

TPUG's Annual Conference will be held on May 25 and 26 this year at 252 Bloor Street West in Toronto (see the ad on page 5 of this issue for further details). The conference is a unique opportunity to meet and to learn from some of the most renowned experts in Commodore computing — people like Jim Butterfield, Liz Deal, Gerry Neufeld and Paul Higginbottom, to name only a few. To give you an idea of what's in store, some of this year's speakers have agreed to briefly preview their presentations on these pages.

## Which Terminal Program?

by Tom Shevlin



Tom Shevlin

Computer telecommunications seems to be rapidly catching up to word processing as the most popular use of the home computer. While most modem owners get their feet wet using some of the many electronic Bulletin Board Systems (BBSs), in part because many of them are free of charge, there are many other services available. These include the 'mass-market' commercial databases such as CompuServe, specialized commercial services such as Dialog (a large data bank for scientists and engineers), and other private mainframes to which one may have access. All these services have one thing in common: to access them, you need a terminal program. But which one?

The most important function of a terminal program is to support the combination of computer, modem, printer, disk drive and interface you own. Modems fall into two broad classes: 'true' RS232 modems, and machine-specific modems. An RS232 modem can be used with any computer that has an RS232 port, and can use most terminal programs. The machine-specific type attaches to a port, such as the cartridge or user port, of a particular machine. It normally requires

pokes and other commands in the program that are unique to that modem.

The system with which one is communicating also places requirements on the terminal program. While some systems accept any ASCII terminal, others demand the use of a specific make of terminal. The personal computer must then be made to pretend it is that terminal type by using a program known as a terminal emulator. While Commodore owners, especially owners of the classic 'greenscreen' machines, do not share with Apple and IBM users the capability of emulating hundreds of terminal types, several of the most popular ones can be acquired.

Once communication has been established, it is often desirable to be able to exchange files with the host machine. BBS users will be familiar with Punter protocol, a function by which programs can be uploaded and downloaded with error checking on BBSs using Steve Punter's program. Compuserve and others use a variety of other protocols, which must be in one's terminal program if uploading and downloading are to be done there. Another 'protocol' is no protocol at all. A file can be transferred by opening a file on the host (a UNIX system, for example) for input, and just sending out the sequential file without handshaking or error checking. This also works in the reverse direction if the micro's program can log files to disk or a buffer. If the modem is of good quality, there is seldom a problem with line noise errors.

Some remote systems require the use of specialized keys that do not exist in all terminal programs. The use of control keys, found in most programs, is sufficient to pause or abort file reading, interrupt functions, and so on. There are several important systems that require the sending of a true 'break' key, found on most real terminals but on very few micro programs, to halt the reading of a file. It can be tiresome indeed to discover that a file that may run to ten screenfuls or more must be read all the way to the end. Occasionally, even an emulator program for a specific terminal may fail on one or more special keys. One mainframe would give me no more than one screen of anything until I discovered a bizarre combination of escape codes, which seemed to change by the month. As

TPUG SuperPet stalwart Doug Staley says, "When in doubt, try *everything*..."

A discussion of some of the other goodies and frills that might be found in terminal programs, such as autodial support, automatic log-on, screen colour change, and so on, could go on for a long time, but I think I have mentioned most of the important basics. The 'perfect' terminal program does not yet exist, so the modem enthusiast should either keep a large arsenal of them handy, or contribute to the ongoing effort to produce better ones. □

## Spreadsheets for Home and Business

by Dave Powell



Dave Powell

*A Comparison of Some Spreadsheets* will interest anyone who is considering the purchase of their first spreadsheet, or who is ready to move up to a more advanced one. It's always difficult to choose a new package, and something like a spreadsheet presents at least two problems. First, many dealers don't keep an up-to-date 'open' copy for you to examine, so it's hard to find out what the package offers. Secondly, even if you find a good dealer who can (and will) tell you what functions a product offers, you will still be stymied, unless you know what the functions *do* and what you actually *need*.

This session will cover the second problem in some detail. Do you need a spreadsheet with 'three-dimensional capability'? What is 'three-dimensional capability'? What about a 'net present value' function, or logarithms (didn't they go out of fashion when scientific calculators hit thirty dollars?). Is 'replicate' the same as 'copy'? These are some of the questions that will be answered, along with descriptions of many of the less esoteric functions. All of these descriptions will be given in the context of the home or small business en-

vironment. In other words, what are the functions of a spreadsheet, and how useful are these things to you?

Once you know which functions you need, and which are 'nice to have', it's time to start checking out the products. Now you'll be able to talk to your favourite dealer, and ask some intelligent questions. This can still be a frustrating process, because not all dealers carry a large selection. However, this session can help out here, as well. I'll discuss the features of several of the more common spreadsheet packages (**Multiplan**, **Practicalc** and others) and how they well they are implemented.

I'm aiming to have plenty of time for questions, and if there is a demand, I will also demonstrate the creation of a small application on the big screen. □

## Using Super OS/9

by Gerry Gold  
with Avygdor Moise



Gerry Gold

Super-OS/9 is now available to expand the computing power of your SuperPET (and greenscreen 8032, if you can locate a SuperPET board). TPUG has done what others would not do, because we were convinced that the SuperPET's extensive resources were like a genie in a bottle, untapped by the operating system installed by Commodore and Waterloo.

What can you do with Super-OS/9? What will it 'run'? Why spend another 149 dollars (US) or 195 dollars (Cdn.) on a machine that Commodore no longer supports?

Super-OS/9 permits you to run programs never before available to Commodore owners. These programs divide roughly into three groups: languages, application software, and some excellent public domain software that TPUG intends to acquire.

**Languages:** Super-OS/9 runs Microware's BASIC-09, a compiled BASIC that *Byte* magazine includes in the new generation of languages that are compatible with, but superior to, the slower and older Microsoft BASIC. But you need not program in BASIC. OS/9 also runs the C language, and compiled

versions of Pascal, COBOL and FORTRAN. The need for these languages has brought some people reluctantly to abandon their cherished SuperPETs. With Super OS/9, that won't have to happen again.

**Application software:** A good example is **DynaCalc**, a spread sheet that, to quote one user, "runs rings around Visicalc". There is also a choice of editors and word processors, like **Display Writer**, an advanced word processor that includes a large spelling dictionary. Several business programs are available and we hope to test them shortly. We are also pleased to have access to true relational data bases.

**Public domain software:** The public domain library is strongest in utilities, application software, and extensions to the OS/9 operating system. These include a spelling checker; utilities such as **Grep** and **Tree** that speed up file access; **Squeeze** and **Unsqueeze** utilities to permit files to be compressed for rapid transfer; and a number of MODEM and X-MODEM terminal programs to assist in those transfers. There are many other goodies, such as a LISP-like language, for those who dabble in artificial intelligence. What do you get with Super-OS/9?

- The OS/9 operating system implemented for the SuperPET.
- Four detailed manuals.
- An assembler, editor and symbolic debugger.
- A terminal program with upload/download capabilities. This will probably be X-MODEM.
- Numerous utilities, including programs to read and write any Commodore file.
- A small Memory Management Unit that fits easily into your machine. Two-board SuperPETs require a minor hardware modification, for which TPUG will gladly provide documentation and assistance.

Super-OS/9 loads like any of the Waterloo languages from the power-up menu. Moreover, it does not interfere with the SuperPET when it is not running. To our knowledge, Super-OS/9 will in no way affect the operation of your PET or SuperPET software.

Still doubtful? Will OS/9 limit you to the SuperPET? Quite the contrary, Watson! Our initial core of Super-OS/9 users, adept on PET, VAX, Apple, TRS, IBM-PC, and other computers, know quite well that OS/9 will extend the life of their Super-PETs, because existing files and software will be largely upward-compatible with their machines. On top of that, they get the added computing power of OS/9. □

## Commodore 64 Graphics Programming

by Dave Neale



Dave Neale

If you want to get into programming graphics, you should try to acquire a reasonable knowledge of what the Commodore 64 has to offer. I have received many requests from people wanting to know how to create certain effects; often the answer is that there are all sorts of ways to achieve a particular objective. So if you want to take an idea, or some modest program, and beef it up to create a graphical wonder, you should know just what you are getting into. There are all sorts of neat little ways of creating the effects you want without going to too much trouble.

With the 64 becoming more popular every day, the quality of the software written for it has improved dramatically. Adding some sort of graphical presentation to your program will make it much more appealing. I will talk about the ways to add that little extra to improve your work, beginning with low-res graphics. From there I will go on to programmable characters, and how, with just a little bit of effort, you can imitate hi-res.

Because so much commercial software written today does have some form of hi-res graphics, I will then move on to talk about both standard and multi-colour hi-res. Using the KoalaPad touch tablet, I will demonstrate the application and possible benefits of multi-colour, and the problems that could arise through its use. I will cover screen banking (moving the screen to another area in memory) with its associated pros and cons.

Of course, no discussion of graphics would be complete without a short talk on the uses of sprites, sprite animation and sprite layering. Animation can add that extra dimension of realism to your program, while layering offers multi-colour sprites, but in hi-res mode. I will also demonstrate, using interrupt programming, how to put more than eight sprites on the screen at one time. □

# Computerize your Newsletter

by Mike Martin © 1984

One of the best uses for a personal computer is producing bulletins, newsletters and programs. The civic groups, churches and fraternal orders who produce these small publications could benefit from computerizing. However, a little knowledge is necessary to avoid some pitfalls in the process.

I've been doing a fraternal order bulletin for several years now. I started with a portable typewriter for both typesetting and mailing labels. The thought of computerizing my efforts brought a great sigh of relief, but I discovered that, while the computer was much better, it wasn't any faster. Instead of typing my text over and over until it looked right, I was now spending five hours fiddling with printer format commands on a friend's Apple II. I was still thinking of the computer as a typewriter, and doing artwork and paste-up by hand. After much trial and error, I discovered a few secrets that actually made the experience better and faster.

First, I had to get past the paste-up mentality. The first issue produced on the computer may take three or four times longer than if it were done manually but, if planned properly, could save more time for future issues. Your first thoughts should be about creating a simple format that will stay the same for future issues. You should be able to change headlines, and delete or add text without disturbing the embedded printer commands. The format should be so complete that little, if any, paste-up would ever be necessary.

Select your type size, style and column width from the range of choices your printer allows. Position the embedded printer commands so that you can delete and add text without disturbing them. Unless you have an advanced word processor like Pro-Line's WP64 that offers special facilities for two-column printing, you should put just one column in each wordprocessing file on your disk or tape. If your page has two columns, put the page header on the first file, and space the top of the second column file to start below it. By dividing the page into these two files, you can have greater control over your page format. For future editions of your bulletin, you can call up each column independently and change the headlines between your format com-

mands, and the text between the headlines, without having to look up or remember which commands to use each time. Then the new file should be saved with a descriptive file name and version number, such as **january news3**.

For schedules or calendars, you should be able to use a 'global edit' that changes every reference to last month into the current month. In most cases, meeting times and events will stay the same, so

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**... I discovered a few secrets that actually made the experience better and faster...**

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you should only have to change the date, title of the discourse, song, or name of the speaker. Updating an entire month of weekly meetings will only take minutes, instead of the hours needed to retype an entire listing by hand. Fancy formatting tricks involving expanded type, double-strike, underlining, or differing type sizes will be handled by your format after that first time. Since most printers give you a choice of line spacing, you can play with the number of lines per inch to properly fill the space. And, by measuring art cuts, you can insert extra line-feeds to leave enough space to glue them in later. You can even play with the margins to inset a section of type for an art cut.

Having stored each column or page in an individual file, completely formatted, last minute changes or corrections can be easily accomplished. One change to a file, and a print-out can be done in a couple of minutes. By minimizing paste-up, you add flexibility and last minute immediacy. You will have to wind the paper back to the top of the page to print that second column, but that shouldn't be a problem.

Now for a solution to the quality problem. You will discover that the quality of the printout drops rather quickly after about a dozen printouts from your new ribbon. Pale gray copies aren't very readable. But I've discovered the perfect solution, and at a reasonable price. Several companies are making large, commercial copy machines. You won't find them in many offices, and they aren't coin-operated in your local supermarkets. You will find them in a few print shops, and copy shops. They turn out a copy that

is darker, clearer and, in short, better than your original. My favourite, by Kodak, will copy artwork with large solid black areas, making them *darker* solid black, not the usual copier version in muddy gray. Even the dot matrix pattern will be much less noticeable. Most of these advanced copiers even offer reduction in size as a bonus. A copy from these machines delivered to any commercial printer will give you a much clearer, more readable finished product. Quality varies widely between the shops, depending on how frequently they have their machines serviced and cleaned, so take an afternoon and, with a good quality dot matrix printout in hand, go to several shops and get a copy made. A couple of dollars invested could be well worth your time and effort in improving the look of your product.

Your personal computer can bring a level of quality and professionalism to your publication that seemed beyond your grasp before. Use its added features to spice up your presentation. And, with the joystick art programs now available, you can even print out pictures and diagrams to go with your text. □

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# Printing With Wordpro

by Charles Lewis

One of the oldest — and most popular — word processing programs available for Commodore computers is **WordPro**. The commands are easy to learn, and its editing capacities are as powerful as any package on the market. In fact, the more I learned about other programs, the more satisfied I was with **WordPro 4**, the version I had.

When I purchased a new dot matrix printer, however, I was disappointed. Although my printer was capable of many special effects — bold face, expanded and condensed print, italics, subscript and superscript, and many others — **WordPro 4** had no way to access them. I checked with my dealer, but the only suggestion he could make was to purchase the updated **WordPro 4+**. Since that was a rather expensive luxury, I gave up.

Then one day I glanced at the appendix to my manual, and found this statement: "It may have run through your mind that perhaps the special characters could be assigned to printer controls, like 8 for back space. Well, you can..." I stopped. Would this work with other printer controls, as well?

I began by setting the values I needed at the top of my file. The command goes like this: <format checkmark> <digit 0-9> = <printer code>. With my Gemini 10-X, for example, emphasized print is accessed with the sequence <ESC> "E" — chr\$(27) chr\$(69). So I set up a format command for 0=27 and 1=69.

When, after that, I wanted to use emphasized print, I simply used the special character command <CTRL> "+" (which comes out as an up arrow on the screen), and "0"; then repeated the process with <CTRL> "+1". When I used the output to video mode, nothing happened except that the "01" appeared in the text in reverse video; but when I printed out a hard copy, the printer recognized the command and shifted to emphasized mode.

The same method worked for subscripts and superscripts. To begin a footnote, I set the format for 0=27, 1=83, and 2=0, then entered the special character immediately before the footnote number in my text. To return from the footnote, I set the format for 3=84 and 4=69. Since **WordPro** inserted an unwanted space, I left no spaces between the footnote numbers and the code to

turn the footnote off, and none between the code and the following text.

I haven't experimented with all the special effects, but everything seems to work, with one caution: since the program wasn't designed to access these printer commands, it treats them as if they were normal printing characters for the purpose of spacing. If a footnote came in the middle of a line, therefore, it could cause that line to end slightly short of the right hand margin. If you had the justification feature turned on, it would affect the appearance of the final draft.

The same application should work with any word processing program that enables you to send special characters to the printer. It would also work with any printer — dot matrix or letter quality. You'll have to study both your printer's manual and the documentation for your word processing program, but the investment in time is worth it. That printer cost you a bundle; you might as well get your money's worth. □

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# Butterfield Invents 'Liquidware'

by Helvetica Bold

TPUG Magazine has learned that TPUG computing legend Jim Butterfield is putting the finishing touches on an innovative computer peripheral. **Brewalyzer**, as the package has been tentatively dubbed, is an integrated system designed to analyze and evaluate what some experts term 'yeast-driven malt beverages' and others call 'beer'.

Butterfield describes his years of research on the product as 'draining', and speaks of his eagerness to get back to work on his *Zero-Page Manual* ("The shortest book in the world", he laughs.) But he scoffs at reports that his thirst for perfection was responsible for the elbow inflammation that has forced him to all but give up archery ("Ridiculous!" he chuckles. "Though true.") Yet he is uncharacteristically tight-lipped when pressed for details on the project.

"Let's just say I saw a need and decided to do something about it," he told TPUG Magazine. "Come back in another month or two, and maybe I'll have more to say."

Long-time Butterfield crony Doug 'Hedgehog' Dinsdale is more informative.

"A lot of people have been hurt by bad, foul-tasting beer," Dinsdale says. "Sometimes it's their first one — that's when it's really tragic. They're never the same. Most of them won't even look at beer again — they won't risk another bad experience. And who's going to do anything about it? Not the government! Well, some of those victims were Jim Butterfield's friends, and Jim is doing something about it."

It appears that considerable research has gone into this project, and not only in Jim's Canadian home town. He has been observed testing Steam Beer in San Francisco, Carib Beer in Trinidad, and Elephant Beer in Copenhagen. It is said that his research has carried him to the top of the Henninger Tower in Frankfurt, West Germany (though bystanders claim that an elevator also played a significant role). According to a Commodore Europe representative: "We thought it would be a good place for environmental testing — the Henninger Tower isn't as high as the CN Tower in Toronto, but it's on a hill, which helps make up the difference."

Few details have been released on the



This photograph, taken several years ago in Munich by TPUG operative Helga von Googol, shows a cleverly disguised Butterfield (third from left) secretly taking part in an early phase of the **Brewalyzer** project.

hardware interface — a specialized sensor called an 'electronic tongue', capable of detecting critical taste characteristics of any beer in which it is immersed. Early versions of the electronic tongue apparently suffered from a defect that caused them to get larger and go numb under excessive duty cycles, but it is believed that this problem has now been licked.

Of course, the ultimate success of any new product depends on its software — the user interface. Information in this area is more complete, thanks to a top-ranking, though anonymous, source within Butterfield's own world-spanning organization.

The **Brewalyzer** program is said to be sophisticated, yet easy to use, thanks to trail-blazing 'bubble-up menus' from which the user selects options with a specially-chilled joystick. (Experimental versions used a mouse, an approach that was abandoned when the creature unfortunately drowned.)

"The word to describe this package is 'friendly' ", our informant claims. "In fact, after it's tipped a few, you might say it gets *too darn friendly* — practically falls all over you. I guess I shouldn't complain,

though. At least it doesn't throw up. . . ."

So exacting were the programming requirements for the **Brewalyzer** package that Butterfield was reportedly forced to use a completely revised version of BASIC. Known as 'BASIC 5 or 6', this unique dialect encourages structured coding, and simplifies the creation of the 'shplit-image' graphics that are another **Brewalyzer** innovation.

Even with the optional slurred-speech synthesizer, the price of the **Brewalyzer** package is expected to be affordable. As Doug Dinsdale puts it, "Thanks to Jim, beer-drinkers the world over will soon be free of the threat of foul, flat, sour, stagnant, acrid or rancid brew. . . ."

Though a release date has yet to be announced, unofficial word from Commodore insiders is that the product should be available in time for the prime beer-consumption weather of midsummer (in one hemisphere or another). There is also talk of an adaptation for IBM micros — the **Scotch and Sodalyzer** — to come later in the year.

**Ciderlyzer** for the Apple machines, and **Dr. Pepperlyzer** for Atari are also contemplated for future release. □

# VIC 20 Custom Characters

by Jim Butterfield

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**Question:** How do I make use of the VIC 20's custom characters with an 8K RAM expander plugged in? I have tried everything, but still cannot figure it out.

Here's an example that will give you the general idea. This will work with memory expansion of 8K and over. There are no custom characters in the VIC 20 until you put them there.

There are a whole bunch of things you need to do in order to make the VIC 20 use custom characters. Since the video chip can only 'see' RAM locations below 8192, you must liberate space there. The usual way to do this is to move up the beginning of BASIC area. This you might do with something like:

```
POKE 8192,0:POKE 44,32:NEW
```

Now you have the space from 4096 to 8191 to play with — more than you really need, and less space for your BASIC program.

Next, you must decide which part of this newly-liberated space will be used for screen, and which will be used for characters. The screen is already at 4096; let's leave it there. We'll have to move some characters into a spare part higher within the free area — say 6144 to 8191. There's a complete set of characters

in ROM at 32768 to 34815 (both regular and reversed characters). Let's copy them down to the 6144 area we have picked. We may do this with:

```
FOR J=0 TO 2047:POKE J+6144,PEEK(J+32768):NEXT J
```

After this, we will want to set the video chip to recognize the screen at 4096 and characters at 6144. Calculate: 4096 divided by 1024 plus 8 gives 12; 6144 divided by 1024 plus 8 gives 14. 12 (for the screen) times 16 plus 14 (for the characters) gives 206; so we make it happen with:

```
POKE 36869,206
```

The new characters are now working, but we won't see anything, since the new characters are exactly the same as the old ones. Let's change the 'period' character to something else — a little square, say — to prove that we have control over our character set. The period is screen character number 46. Since each character takes up eight bytes in the character set table, we multiply 46 by 8 to get 368, and then add the start of our character set table (6144) to get 6512. The following series of commands will change the shape of the 'period' character so that all periods on the screen will be changed:

```
POKE 6516,28:POKE 6517,20:POKE 6518,28
```

It will take a while to get the hang of it, but you can change any character to anything you want. Special alphabets, graphics ... it's all there. Hope this gets you started. □

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# Kids and Word Processing

by Joel Meers

There is a great deal of discussion going on these days about computers and kids, and computers in education. Being both a teacher and the father of a six year old girl, I would like to make some observations about a truly remarkable program — **Storywriter**, by J.M. Vayda and C.C. Capon. My copy came from the TPUG BEST MISC.P disk, and is the V10.P PET version. I understand that a version for the C-64 is now available in the newly released Public Domain Educational disks.

When I received my copy in the summer of 1983, I sat down one evening and asked my daughter — who already enjoyed telling impromptu stories to her dolls and pet rabbit — if she would like to make one up on the computer, with me typing. She agreed, and it soon became a favourite activity. Also, I am convinced, a very useful one. Not only did this give my daughter a chance to use her mind creatively, but it also gave her practice in reading. **Storywriter's** printer output is in double-width type — just the right size for young children. And when a child can read her own creations, the motivation seems to be even greater.

The stories were short, but they were hers, and they were coherent collections of complete thoughts — 'sentences', as we teachers like to call them. My daughter would walk proudly away from the printer with her creation, add the illustrative touch with her Crayolas, and hurry off to read it to her mother. Although I am a former Kindergarten teacher, watching my own child learning to read amazed me; seeing her read her own creations was an even greater thrill.

In the fall, my daughter entered grade 1, and I was more than pleased when they began not long afterwards with little keyboard familiarization exercises on the 4032 PET. I am running a SuperPET, but my daughter was delighted when she ran home and told me they had a computer like mine.

The first use of **Storywriter** in the school had each child type three statements, in the form "I have a red . . ." Each statement each had to have a noun to complete it, and was left open ended. The children then drew an object of the stated colour to complete the sentence.

Simple, but enormously productive: they were learning to find letters on the keyboard, to space words on the keyboard, and to hit sufficient RETURNS to leave several spaces between the sentences. All of the sentences had to start with a capital I, so they were also learning to create shifted characters. In addition, they were learning sentence structure. And they didn't even know they were learning!

That night, my daughter insisted on repeating the exercise on the computer at home, but it was what happened the next night that really got me excited.

She came home, and asked for **Storywriter**. It was Thanksgiving time, and she wanted to write about it. But this time there was to be no help on the keyboard: "I want to type my own!" Here is what resulted:

## Thanksgiving

On Thanksgiving I'm going to eat turkey.

I'll have some pumpkin pie for dessert.

I'll colour a picture of a turkey.

Of course, the Crayolas came out for the finishing touches, but there it was: a story on her first try! This became an almost nightly thing — a battle for the keyboard, in fact. She would even come home for lunch and, after the peanut butter sandwich it was, "Mummy, can I have my story on?" (Peanut butter on the keyboard rules had to be established rather quickly.)

A few other very interesting things became evident in the weeks that followed. When no adult was handy to provide spelling help, out came her word cards, and a whole variety of ingenious ways of finding the spellings for words — books, catalogues, you name it. Confidence soon developed in using words them. The purchase of a picture dictionary has made her almost totally independent of adult intervention, except for printing out and saving to disk.

Also, after just a few stories, she was filling the whole screen. **Storywriter**

allows the user to type one full screen of text, which is one full page of enhanced type — just over two hundred words. There are days when I would have fallen over to get that out of a fifth grader with pencil and paper! The kids I've seen using this program are rarely happy until they have filled the screen, no matter what grade they're in.

Ease with the editing keys develops quickly. Initially, all I showed my daughter was how to erase a word with the DEL key. The more complex operations were handled by an adult. Before long, though, she had mastered the cursor controls as well. I have found that fifth grade kids catch on to the cursor controls very easily with **Storywriter**, as well as using the INST key to separate lines for addition of text.

The marvellous thing about the computer in creative writing is that it gives the kids the freedom to create without getting bogged down in the process of writing. Kids want their writing to be perfect, and by the time they erase, and scratch out, and erase, and scratch out, the time or the idea (or both) are lost in the frustration. On the computer, they see clear, distinct text, and seem more aware of errors. Even adult writers will tell you that the ability to correct errors tracelessly can have a liberating effect on the task of writing.

Don't get me wrong: I am not advocating the demise of printing or cursive writing. I do feel, however, that a text editor such as **Storywriter** can encourage kids to write more carefully. And the more they work with words, the more they will develop a sense of correct grammatical structure.

My daughter, for instance, now spends more time than ever printing in the workbooks, and on the paper that she has around the house; and her writing and sentence structure are constantly improving. I can't help but feel the same results and spinoffs can occur with children in higher grade levels as well, and the potential for reluctant kids would seem to me to be equally great.

I'm sure that, every day, more teachers and parents are becoming aware of **Storywriter's** potential. If you haven't already done so, I urge you to give it a try. I am sure you will be pleased. I know that as both a parent and a teacher, I am!

# The Commodore Show

by Louise Redgers

On Saturday, February 9, and Sunday, February 10, the West Coast Commodore Association held *The Commodore Show* in San Francisco. It was an overwhelming success. Users appeared with questions and problems, and with money to spend on their favourite hobby. With approximately 10,000 people passing through, it was very interesting for Doris Bradley and me to chat with our members who live on the West Coast.

Yes . . . they have the same complaints about Commodore machines out west too. They want to make their 1541 disk drive run faster and their 64 do jobs that it was never designed to do, and they came to listen to the experts talk about the solutions to the problems.

The impressive list of speakers included our own Jim Butterfield, Comal expert Len Lindsay, Dr. Richard Immers (co-author of *Inside the 1541 DOS*), *COMPUTE!* Magazine Technical Editor Charles Brannon (author of *Speedscript*

and other programs), *WordPro* and *WP64* creator Steve Punter, *RUN Magazine* Editor Guy Wright.

The show was set up quite differently from TPUG's annual conference, where the emphasis is on speakers and sessions. The WCCA ran eighteen seminars over the two day show, compared to sixty planned for the conference. Their dealer area was much larger, however — reminiscent of a *World of Commodore* show. We had a good time swapping ideas with the show organizers — we hope they benefited from the exchange as much as we did.

One interesting new product at the show was a very fast new hard disk produced by a Florida company. This device runs with a C-64, and has a ten megabyte storage capacity. Watch future issues for more details on this product, which should be of special interest to BBS operators.

Perhaps to me the highlight of the

whole trip was a visit to Silicon Valley. It is really impressive to stand in a room and chat with Jim Butterfield, Chuck Peddle, Bill Syler and Glenn Stark, the men who developed the machines and wrote the books on the early Commodore Computers. This is a story that demands more time and space than I have here, but I hope to be able to share it with you in a future issue.

Doris Bradley and I wish to extend a special thank you to the two hundred current TPUG members who stopped by and said hello, and we want to provide a warm welcome to the seventy new members who joined TPUG in San Francisco. We hope that you will find that the club's services fulfil your needs. Congratulations to the West Coast Commodore Association on an excellent show, and special thanks to Matthew Leeds and Kurt Fisher for providing TPUG with the booth space. We hope to do it again next year! □

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# Library Additions

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TPUG's library of public domain software grows month by month. Hundreds of disks containing thousands of programs are available to TPUG members at the nominal cost of ten dollars per disk. Considering that each disk is packed with good programs, at today's software prices this is a fantastic value.

In order for the library to keep growing, our librarians need a constant supply of new programs. If you have written a program or a collection of programs that you think might be an asset to the library, please send it to: TPUG Program Library, 1912A Avenue Road, Suite 1, Toronto, Ontario M5M 4A1, Canada. If your contribution is accepted you will be sent the library disk of your choice. If, for some reason, your contribution is not needed, your original disk will be returned to you.

On these pages our librarians describe the most recent additions to the library.

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## February C-64 Disk: (C)TG

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Before we get started, I would like to pass a few things along to you. I have been getting a lot of calls from people interested in setting up sporting event schedules, and a lot of people interested in genealogy. At the present time there are no programs for these purposes in the Commodore 64 Library, so I have been unable to help. If anyone out there has a program in one of these areas, please send it in.

The first program on this month's disk is a menu program. It will show you the names of the files that you should load, and let you load them by pressing the number that corresponds to the filename. The disk instructions can also be accessed through the menu program. The menu program originally came from the Fox Valley 64 Users Group, and the minute I saw it I knew I had found something worthwhile. If you have any suggestions about how I might further improve the disk format, please write to me c/o the TPUG office. Your suggestions are always welcome.

If you are a resident of Ontario and you have to do your income tax return, there

are two programs on this disk that will be invaluable to you. **Taxboot** will load in the instructions and, when you are ready, the actual tax program. I think you will be impressed with this program (I certainly was). The other tax program is called **Tax 84 Ont 1.2**, and it is an update of the same tax program that has appeared in the library since 1980.

If you enjoy the music created by **Master Composer**, and have used the **Jukebox** program in the past, then you will welcome **Music Machine** to your personal library. Basically, this is an improved version of **Jukebox**. There are also two new songs, **Mash Theme** and **Satisfaction**.

Newspaper carriers will find **Paperboy** a great way to cut down on the paperwork (pardon the pun) involved in keeping track of their paper routes.

Game players should really enjoy **Monster Panic**. Sometimes it is easy, sometimes it is impossible. The graphics and the sound are great. I am not an avid game player, but I found that I could really get into this game. My high score is 14720. If you can beat that you are either very lucky or very good.

We also have an update of the 1541 fast backup program direct from the author, Thomas Tempelmann. It is even faster than the original program, so this is one that nobody should miss.

The rest of the disk contains several very useful little utility programs and some other fun stuff that you are sure to enjoy. Instructions for the programs are also included. To print out all eleven pages worth, load and run **DOC Printer**.

Well, that's about it. If you are wondering what type of thing you might soon see in the library, I can give you a few hints. Just flipping through some of the Almost Ready To Be Released disks, I see one dedicated entirely to KoalaPad-related programs. All the programs on this disk require a KoalaPad, and you can thank Roger D. Burge for the terrific menu system.

Digging a little deeper, I find a few more music disks, two or three disks with hi-res pictures created with **Doodle**, as well as a menu program to allow you to look at the pictures on your screen and dump them to your 1525 or MPS-801 printer. There is also what looks to be the

start of a **Star Trek** disk, a new communications disk, a new utility disk and a collection of games.

If you have sent something into the library and it has not yet appeared on a disk, please do not get discouraged. After doing several days of non-stop disk searching, I am pleased to announce that I only have about one hundred disks left to look through. Out of all this searching, I have about seven or eight disks worth of brand new material that will be appearing as soon as possible. If you were planning to send something in, don't let all this backlog talk scare you out of doing so, though. I always welcome more 'treasures'.

If you have any comments about the library (favourable or otherwise), please send them to me c/o the TPUG office. I can't improve the library unless I know what is wrong with it. And I won't know what is wrong with it unless you tell me!

Presented by David Bradley

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## February PET Disk: (P)TG

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This month's disk features a group of farm programs collected by Dan Underwood of Phoenix, Arizona. Some have been translated from Apple and TRS 80 format. Anyone involved in the commercial side of farming will certainly find lots of useful material here.

**Pearson SQR**, for instance, uses the famous 'Pearson square' method to mix two or three types of feeds, while **Tractor** compares different brands and models of tractors for you (the data came from the 'Nebraska tests'). **Crop Compare** compares the relative economic merits of corn and soybeans. **Implement** — written by highschool boys in Worth, Missouri — gives information about different tillage implements, using data from a study done at the University of Missouri.

**Hog Odds** is based on a chart of information that was carried in *National Hog Farmer* a long time ago, based on twenty years of price cycles. It tries to predict how hog prices are likely to move at different times of the year. **Hog Ration** calculates a balanced hog ration and the cost of same. **Ration Mix 1**, on the other

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hand, calculates the daily feed requirements of a milk cow, depending on her weight, milk production, fat content of the milk and supplementary hay and silage. It also evaluates a daily ration for nutritional adequacy and return over feed cost. The program comes from Oklahoma State University.

Farmers and non-farmers alike will be interested in **Moon's Phases**, a science utility that reveals the phase of the moon for any date between 1900 and 2099; and — for completely different reasons — in **Tax 84 Ont 1-2**, the long-awaited Ontario, Canada, tax calculation program. This is also your chance to get **Diary**, an events diary that will help you make some sense of your daily life.

Rounding out the disk, there's **Invasion** and **Mazes** for game players; a handy note-taking database called **Notes**; a calendar program; an interest calculator; and a hilarious version of **BASIC Aid** called — you guessed it — **Not BASIC Aid**.

Presented by Mike Donegan

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### February SuperPET Disk: (S)TM

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This disk contains a series of utility programs, of which all but one are for the 6809 side of the SuperPET. The lone exception is a BASIC 4.0 program written by John Toebes, which reads a damaged disk and writes all the readable sectors to a new disk in the other drive.

Alain Proulx has contributed a real gem of a program for the handling of all the disk-related functions that are common to controlling the library. This machine language program is a menu-driven, easy-to-use routine for formatting, backing-up and copying disks. It provides for the renaming, copying and deleting of files, as well as the browsing of SEQ files, one screen's worth of data at a time. This program is also available from the TPUG office with all instructions, comments and commands in French.

The disk also includes some machine language in-memory sort programs that provide for sorting up to 300 twenty byte records. One of them will handle 1585 seventeen byte records. These values only indicate the available space and record lengths, and the number of records should not exceed 6000 characters or 26,950 characters respectively. Depending on the sort selected, it may be called from the monitor or from a language.

These sorts take their input data from disk and place the sorted outputs back on disk.

The remaining utilities on the disk include routines to display the disk directory in two columns, and optionally send it to your printer. There is an APL function to present an alphabetized four column directory and load the program/function selected. There is a BASIC program to load a machine language routine; a routine to initialize and set up a printer; a program to count the number of occurrences of a given string in a SEQ file; and a framework for a game. Finally, there is a patch to mBASIC V1.1 to take out the RETURN after 79 characters.

That completes the description of the February SuperPET disk. As usual, there is a 'describe' file on the disk providing additional data on the files.

Presented by Bill Outfield

---

### February VIC 20 disk: (V)TG

---

It is with great pleasure that I am able to tell you that the library reorganization is complete and next month I will highlight the reorganization disk, as well as the regular monthly disk.

This month we have a great variety of programs, including games written for the unexpanded VIC 20. Let me tell you about just a few of them. The object of **Airline Pilot**, for instance, is to land your plane safely at the airport by adjusting its airspeed and elevation. Watch out for storms and crosswinds. In **Slither Dearest**, you save the eggs of the 'slither' from the evil birds, gaining points for elapsed time and the number of eggs you save. And in **Rescue**, you must try to rescue the people on the ledges without hitting either the ledges or the sinister skull-headed beasts. Just to make things interesting, the bottom of the screen is a pool of acid. You can fly by hitting the fire button and moving the joystick in the direction you wish to go.

Also on this disk are some good educational games and programs: **Direct Train**, **Algebra Tutor** and **Binary Quiz**. There are many utilities, too, including **Wedge II**, **Dynamic Monitor** and **Disk Log 8k**. **PJ Advert 8k** is an advertising editor that allows you to create a multi-screen message that scrolls from one screen to another automatically.

The menu program that was due to be released this month will be appearing next month, as I haven't yet completed

the enhancements I want to include. Also appearing next month: a package of programs from the Netherlands.

I would like to thank Roger Burge, Keith Bruce and B. Barkhouse for their many contributions to this month's disk. Thanks also to everyone else who has submitted programs and, of course, please keep sending them! Things are really looking up for us VIC 20 users.

Presented by Daryl King

---

### (C)FI enfin!

---

Le nouveau disque en français pour le Commodore 64 est enfin prêt. Ce disque, effort commun de plusieurs membres francophones du club comprend du logiciel assez varié. En effet, on y retrouve un peu de tout . . . des programmes pratiques, des jeux ainsi que de la musique.

Parmi les programmes que je trouve les plus intéressants, il y a 'info-budget' et 'budget'; ils vous permettront de planifier vos dépenses à l'avance. L'auto-chargeur vous offre un menu de tous les programmes sur votre disque et vous les chargez en appuyant sur une seule touche. Il y a aussi 'l'accordeur', il teste votre oreille musicale, de même 'qu'orthographe' qui vérifie votre vocabulaire afin de voir si il y a interférence linguistique avec l'anglais. Pour ce qui est des jeux; vous pouvez vous divertir en jouant à 'l'île au trésor', 'gourmandise', 'bonhomme pendu' 'black Jack', 'mine d'or', 'baril, ainsi que plusieurs autres programmes conçus pour vous amuser! Un jeu que je recommande fortement est 'notone'; c'est un jeu de dés qui pose un réel défi, car j'ai toujours l'impression que le 64 triche quand il s'aperçoit qu'il est en position de perdre. En moyenne, il gagne six ou sept fois sur dix.

Si c'est la musique qui vous intéresse, alors chargez 'mélodie' pour entendre de la musique tout en lisant les notes sur l'écran, ou alors 'musique LM' qui joue deux chansons entièrement composées en langage-machine.

Je crois que vous serez satisfaits de la qualité de ce logiciel. Souvenez-vous que si vous avez des programmes en langue française pour une machine Commodore, n'importe lequel, envoyez-nous en une copie et nous ferons en sorte que votre programme soit accessible à tous. À la prochaine.

Présenté par Baudouin St-Cyr

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# Reviews

## Spritemaster from Access Software

Sprite creation utility  
for Commodore 64,  
disk or tape drive,  
and joystick.  
Price: \$35.99 US

### Review by John McEwen

One thing that separates the C-64 from lesser (albeit more costly) computers is the sprite generation capabilities of the machine. However, the pilgrim who plugs in the C-64 for the first time finds that wresting these marvels out of the computer is an awkward and tedious task. First you must draw a grid on a sheet of paper, and mark on it the sprite pixels you want turned 'on'. You convert the pattern into numeric values using binary math, then poke the values into the computer. Moving the sprite requires more math, and more pokes.

**Spritemaster 64** is a sprite generator and editor program that takes care of the tedious parts of the above chores, allowing the user to focus on the creative aspects of spritemaking.

The program comes with a twenty-five page user's manual, including an eleven page tutorial. In this section, demonstration sprites are used to step the user through the program's features.

**Spritemaster 64** lets you work with sixteen sprite storage areas, each of which can hold one sprite. You can build, modify or delete sprites — multicolour or hi-res — in any of those areas, or copy sprites between areas, using simple menu-driven commands. Loading sprites from disk or tape, and saving them, are also easy. Advanced capabilities of **Spritemaster 64** allow you to chain your sprites in an animation sequence, and to transfer them to another program as **DATA** statements.

A drawback to the program is that the 'save to disk' option stores not just selected sprites but all sixteen. The sprites are saved as a large sequential file — you can only fit ten of these on a disk — so there is lots of potential for wasted disk space.

My only other complaint will seem trivial to those who have had to enter sprites the hard way: one uses the joystick to design the sprite, pressing the

fire button to set and reset pixels. It would be nice if some of the shape manipulation features found in the current micro-illustrator programs were present to speed things up.

I would recommend this product to C-64 owners who wish to reduce the tedium involved in sprite creation. The documentation is easy to follow and informative. The various sprite creation and manipulation routines are powerful but easy to use — and seem to be foolproof. Most important of all, sprite data is easily moved into the user's program. □

## Diskaligner from GRQ Marketing Disk drive alignment utility

### Review by Ian A. Wright

The **Diskaligner** package is designed to let you check and repair the alignment of 'low profile' disk drives, and consists of a disk and a manual. It is available from GRQ Marketing, P.O. Box 197, Thornhill, Ontario L3T 3N3. The price is \$29.95 (\$24.95 US).

Since the introduction of the Commodore 'slim-line' drives in the spring of 1982, many owners have complained about alignment problems. These problems usually stem from the fact that the drive's read/write head is attached to the stepper motor by an inexpensive steel band passing over a pulley. It seems that this attachment system can slacken with time and wear, allowing the head more movement than it originally had. This throws out the alignment. (It is interesting to note that there have been fewer complaints about drives sold since the start of 1984.)

Don't feel smug because you haven't had alignment problems. Unless you test for alignment, you don't know that an error is developing until it's too late. The alignment error is both progressive and pernicious! Most of the time, you discover the problem when you try to load one of the older disks from your collection. Even worse, if you try to write or scratch material on one of your old disks, the new data may be partially overwriting previous stuff. Read errors abound! Files are a jumbled mess! Directories are suddenly incomplete, garbled or totally gone!

Do I sound bitter? It has happened to me. Try calling your local dealer. When you do, he smiles knowingly and says: — Drive alignment, eh? It should be ready two weeks from Tuesday, and will only cost about \$70.00. — Isn't there a better way?

Ta-Tahh! **Diskaligner** to the rescue! For an initial cost of \$39.95, you can do your own re-alignment by following the step-by-step instructions and using their disk-based alignment program. Does it work? In a word — yes. Using a pre-release version of **Diskaligner**, I have re-aligned 1540s, 1541s and 2031s (low profile versions) with no difficulty — and I am far from technically adept.

How do you know if you need **Diskaligner**? If you have a version of the 1540, 1541 or 2031 TEST/DEMO disk that came with your drive, you can check out your alignment at home, because this disk has been mass-produced on a disk copier that is constantly checked for alignment. This process results in a disk that is absolutely certain to be properly formatted. Commercial 'cats-eye' alignment disks (like your dealer should have) can cost hundreds of dollars, so this TEST/DEMO disk is the next-best thing for use at home — as long as you have never altered it in any way. The TEST/DEMO disk *must* be a factory original. If you don't have one, you will need to buy one from Commodore. Don't copy someone else's TEST/DEMO disk. To check whether your disk drive is aligned, you should **COLLECT** or **VALIDATE** the *write-protected* TEST/DEMO disk, using this simple program:

```
10 OPEN15,8,15:OPEN1,8,15
20 PRINT#1,"VALIDATE"
30 INPUT#15,ER$,DE$,TR$,SE
40 PRINT ER$;DE$;TR$;SE
50 CLOSE1:CLOSE15
```

While the program is running, you should closely watch the red light on your disk drive, because if it flickers you need **Diskaligner**. If there is no flickering and you are still having read/write problems, you should pass your drive into the hands of your friendly dealer — it needs professional help!

**Diskaligner** starts by asking you to place the TEST/DEMO disk in the drive and press RETURN. It then presents a screen menu that seems quite cryptic without help from the instruction manual.

There, however, you will find simple step-by-step instructions and diagrams to show you how to take your drive apart and expose the underside where the stepper motor is mounted. Be careful not to lose or mix up the two kinds of screws while removing the case, and be gentle when handling the 'innards'. At this point, by the way, your drive's warranty has expired regardless of the date, since Commodore doesn't like amateurs opening up and fiddling with 'their' disk drives.

Following the instructions, you must slacken (but *not* remove) the stepper motor screws, which are very tight. Now load the **Diskaligner** program to reset your alignment. You have a choice of two different techniques within **Diskaligner**. I have had better success with the one that centres the head in track 18 than the 'click/silent' technique, probably because I have worked on newer drives. In both cases, the program rechecks your accuracy by first headering a scratch disk, and then writing to and reading back from tracks 1 and 35. When this is done, you can re**VALIDATE** the TEST/DEMO disk by selecting menu item 7, and all those flickers should be gone. If not, try again. The first time, this job will take about an hour or so but, with experience, it can be done in less than half that time. One useful trick is to use some chewing gum on the end of the Phillips screwdriver to hold the tiny screws while replacing them in the case.

The first time that I used **Diskaligner**, my drive was aligned when I put it together, yet when I replaced it on my desk the red light still flickered! Being not too bright, I re-aligned the drive, replaced it, and... same again! After considerable head-scratching, I finally figured out that I was placing the drive too close to my 1701 monitor. Anywhere within two inches, and the **VALIDATE** activity was affected by the monitor. Be warned. Move your drive away from the monitor or TV set when checking the drive!

Put your drive back together and test the disk again, using the **VALIDATE** function on the **Diskaligner** program. Still no flickers? You have just saved yourself about fifty per cent of the cost of a repair centre alignment — and the next one is free! Because the drive head will continue to slip, you should test the drive with the TEST/DEMO disk every month, especially if you do a lot of headering, or use a lot of programs that are protected using errors. The **Diskaligner** program is one that will find a lot of buyers as soon as the word gets around. It has been sorely needed.

## Stealth from Broderbund Software

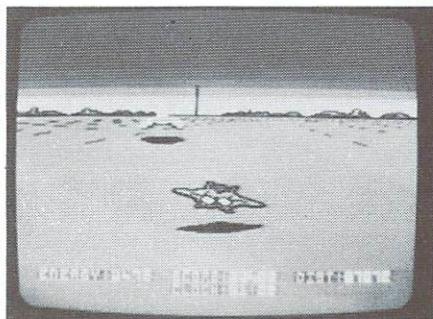
Arcade-style game  
for Commodore 64,  
joystick and disk drive

### Review by Marya Miller

The plain of Mordor did have volcanic pits spewing forth deadly gases. It did not have robot ships, tanks, rocket missiles, radar and kamikaze jet fighters.

Not that Broderbund Software claims that the Dark Tower you are trying to destroy has anything to do with *that* Dark Tower. Or that the Council of Nine has anything to do with the Nine Ringwraiths. But, as a Tolkien fan *and* an arcade game addict, I found it surprisingly easy to imagine I was flying a fighter jet over the plains of Mordor. Though I would have liked to see some orcs...

In short, this game captures your imagination. The graphics are clear and pleasing — I have to admit it is much more fun to shoot jet fighters when they soar realistically towards you, complete with shadows and bursts of flame from their engines. Maneouvability is realistic and therefore easy; and so is targetting.



That is *not* to say **Stealth** is an easy game, however. It took many (enjoyable) hours before I finally destroyed the Dark Tower.

Some games are *so* challenging that one gets discouraged or bored. **Stealth** manages to strike the perfect balance by allowing decisive and very satisfying victories at various levels while one still strives to attain the ultimate goal. You encounter a new enemy weapon on each level, and it's fun to finally get to the next level and see which one you are about to meet.

It is evident that excellent error-proofing and thorough pre-testing have gone into the game's creation. **Stealth**

manages to avoid all the common pitfalls of arcade games: confusing screen display, crude graphics, too easy, too hard, annoying sound effects, poor targetting coordination, and so on. In fact, **Stealth** falls down in only one area: packaging. The title is boring and its package is dull and murky. I would never have picked it off the shelf if it had not been recommended to me.

Call it **The Dark Tower** instead and put a picture on the box cover as bright as the graphics on the screen — you've got a first class game.

And maybe throw in a few robot orcs...

## Raid On Bungeling Bay from Broderbund Software

Arcade-style game  
for Commodore 64,  
disk drive and joystick  
\$29.95 (U.S.)

### Review by Michael Quigley

**Raid On Bungeling Bay** is a shoot-'em-up viewed from above, like reading a map. You are the pilot of a helicopter and your task is to fly through a series of islands, blowing up factories. Life isn't as simple as it may sound, though — trying to prevent you from doing your duty are tanks, anti-aircraft guns, boats (which also supply the factories) and airplanes of two colours: black and white. Contrary to custom, the white ones are the bad guys!

The graphics of this game are exceptionally good. The total playing area is the equivalent of one hundred screens on the C-64, and there is continuous scrolling in all four directions (that is, if you keep going straight up, you'll eventually come back to the same place). Controlling your helicopter with the joystick requires a bit of skill, which comes with practice.

High scores are retained automatically, and there are provisions for pausing and restarting the game. The sound is also good, and every slight movement of the joystick results in a change in the pitch of the helicopter's rotors.

The only thing I don't like about this game is the fact that its disk has not one but *two* errors for copy-protection. This seems callous, in view of the 1541's inherent ability to self-destruct. How would you like it if, every time you turned on your car's ignition, the engine was damaged a little more?

**VIP Terminal**  
from Softlaw  
Terminal package  
for the Commodore 64

**Review by Dave Powell**

**VIP Terminal** is a fully-featured telecommunications system for the C-64. It is part of Softlaw's 'VIP Library', and is advertised at \$59.95 U.S. Softlaw's address is 9072 Lyndale Avenue South, Minneapolis, Minnesota 55420, USA.

I really like this product — it's one of the few terminal programs I've met that supports the lowly 1600 (VICMODEM) with advanced functions. It can also use other modems, and a variety of printers. The manual is very complete, and covers much of the extra information that one needs to know when communicating in a variety of protocols. Because of the mass of information, it's sometimes hard to find a particular reference — an index would help.

**VIP Terminal** allows the user to set up a telecommunications environment, fine-tune it for a particular application, and save it on disk. What constitutes an environment? Take a look at the box on this page to get an idea just how large a range of choices is available.

Each environment has a telephone directory for up to sixteen numbers, and each of those can be associated with a dialling sequence (yes, pauses are supported), an override of some of the defaults (baud rate, parity, stop bits, duplex and linefeeds), and an auto logon enquiry/response entry. There is also a pre-defined key section for each environment, in which one can set up ten 'logo-key' and ten 'CTRL-key' definitions.

Just to drive this point home — all the options I have been discussing can be selected in advance, saved as a disk file, and reloaded on future occasions. For another application, an entirely different environment can be put together. It is even possible to switch environments in the middle of a session.

Auto-dialling is possible even with modems — like the 1600 VICMODEM and the HES modem — that don't support this feature directly. For these simple modems **VIP Terminal** cleverly simulates auto-dialling by playing the touch-tone notes through the TV or monitor speaker into the telephone mouthpiece. For this method to work, it is necessary to have touch-tone service in one's telephone area. In Ontario (at least),

Bell may require that a surcharge is paid if you do not have a touch-tone phone.

If you are having trouble with finding the line free to your favourite BBS, use the automatic redial. When no carrier is detected, **VIP Terminal** will automatically redial after a pause which can be set at any period between 20 and 255 seconds. This works with any of the modem types, but is most convenient with a true auto-dial one.

With a true auto-answer modem, **VIP Terminal** will automatically handle multiple calls, and using 'E-Mail' it will accept and save on disk multiple calls while unattended! (I didn't have a modem suitable for testing auto-answer.)

There's more. Your C-64 has a disk, and maybe a printer — can **VIP Terminal** support these too? You bet! This is the difference between a program that turns a C-64 into a communicating terminal, and one that makes it into a communicating computer.

**VIP Terminal** has an in-memory workspace that can be used to store and manipulate shorter messages. Transmission can be directed to or from the workspace either manually or automatically. Functions available include saving and restoring a workspace to or from disk, simple full-screen editing (including insert and delete) in a 40 column

display, and printing. Printing, deleting and saving of partial workspaces is supported, from the cursor to the end of the space. This is very useful because one can perform cosmetic editing off-line, without connect charges.

For longer transmissions, one can use a 'virtual' mode for printing or file access. This sends incoming data to the printer and/or disk as well as the screen. Files can be sent from disk as well. When using virtual transfers, the host should support X-on X-off protocol, or data will be lost, because there's not enough time to process all the i/o and get back to the phone line in time to catch each character. (Using X-on X-off protocol, **VIP Terminal** sends an X-off character when it needs to stop the incoming data, and an X-on to restart it. It will automatically do this at other times as well, such as when one exits to edit a workspace.)

The design of this package is excellent. Not only has it got enough functions to serve most needs, but it is put together in such a way that everything is accessible. For icon-lovers I should mention that just about everything except typing can be done with joystick and fire button. I prefer to use cursor keys and function keys, but both methods are well implemented.

### Video Display

- Screen display (40/64/80/106 chars)
- Highlight, character, screen, border and cursor colours
- Cursor type (block/underline)
- Cursor blink (on/off)
- Audible margin — 'bell' near right edge of screen
- Key click (on/off)
- Word wrap (on/off)

### 'Terminal' Characteristics

- Baud rate (50 to 2400; half duplex only at 1200 or more)
- Parity (odd/even/mark/space/none)
- Stop bits (1/2)
- Duplex (full/half)

### Advanced Features

- Backspace (destructive/non-destructive)
- Linefeeds (add to incoming carriage returns, outgoing ones, or both, or none)
- Up to 3 strip and replace specifications (e.g. strip incoming delete characters or replace 'ascii1' by 'ascii2')
- Pause and resume characters (e.g. X-on and X-off)
- Open memory buffer character
- Close memory buffer character
- Transmit mode (X-on/X-off, no delay, prompted, set delay, or hardwire (for RS232C printers))
- Transmit speed (regular or 10 cps)

I tested the package by signing on to the TPUG BBS, CompuServe and an IBM mainframe using MVS-VTAM-TSO (the last two through Datapac and directly to a dial-in port). My only problems were virtual transfer from TSO (it doesn't use X-on X-off protocol) and finding the G4 graphics demo at CompuServe (it wasn't on the frame mentioned in the **VIP Terminal** manual). I didn't try a Punter-type transfer — my 30 minutes ran out at TPUG! — but captured downloaded data from the BBS in the workspace, and subsequently edited and printed the useful bits.

In all of these tests, the package was a pleasure to use. It is particularly nice to have an 80 column display for TSO, and emulating a VIDTEX-type terminal at CompuServe, where each page starts a fresh screen. Little things such as the backspace automatically sending a character delete as well as moving the cursor back on the screen are not noticed at first because it all works so naturally. It's only later when reading a CompuServe manual on how to accomplish the same thing that one realizes that it's all been handled automatically!

If your need is a terminal program to access a single type of host, and you have no plans to change modems, or printers, then a cheaper (or free) package might do — especially if you don't need upload/download. One day, though, you'll want something better. **VIP Terminal** would be an excellent choice. □

The Stack  
Light Rifle  
from Anirog  
Game peripheral  
for Commodore 64

### Review by Marya Miller

In appearance, the Stack Light Rifle is as cheap and flimsy as its name: feather-light, very plastic and toy-like.

It does, however, come apart to form a Light Pistol (which is handy if you have smaller members of the family) and is very easy to aim. Distance from the screen is not a problem: you can aim and hit your target just as successfully from five inches as from five feet.

It is easy to install — you just plug it into a joystick port and the user port, load

your game, and start shooting at the screen.

Its big disadvantage for me is that the concentrated light from the screen gave me a splitting headache within three minutes every time I tried it (quite literally).

I did find, however, that I could aim it successfully without using the targetting sight. I actually preferred this method, but I wouldn't recommend it to gamers who seek the ultimate high score. In games such as **Starbase Defence** (see review below), you need every extra bit of targetting assistance you can get.

In conclusion, the novelty of firing a rifle at the screen and seeing direct consequences quickly wore off. I still prefer the joystick. □

Starbase Defence  
and Indian Attack  
from Anirog  
Arcade-style games  
for Commodore 64,  
Datasette and joystick  
or Stack Light Rifle

### Review by Marya Miller

**Starbase Defence** consists, basically, of nothing more than mindless, boring target practice. The sound effects are irritating, monotonous and anxiety-producing. It is an 'all or nothing' game. If you don't win every level — the entire game — a message flashes on the screen:

*"Global Nuclear Destruction imminent. All power plants have been lost";* or words to that effect.

Not only irritating, but depressing.

**Indian Attack** is more suited to children than to teenagers or adults. The graphics look as if they were drawn by a child and are ridiculously appealing (though I winced at the head of the Indian that kept bobbing up outside the window of the log cabin, and wondered how many Native Rights groups had complained already). The galloping horses, complete with (synchronized) thundering hooves, were great. The colour also was good.

That's about all there is to **Indian Attack**. You pick off the Indians as they gallop past your window and wipe out the occasional scalping party that jumps in.

In contrast to **Starbase Defence**, **Indian Attack** was too easy. But it was much more fun. □

Star Trekking  
Version 2  
from Ufland Software  
Outer space simulation  
game for Commodore 64

### Review by Shafqat Khan

Anyone who has TPUG disk (C)T6 has already seen Dave Neale's **Star Trek Version 1**, which is much simpler than this current release.

For those of you who have not already enlisted in Starfleet, **Star Trekking V.2** is a computer game where you, as the captain of a Federation Starship, must patrol known space fighting the warships of the dreaded Klingon Empire. The Klingons have a nasty habit of travelling in groups and attacking Federation Starbases. Your job is to destroy the Klingons in the allotted time.

Version 2 has greatly improved graphics and sound, including a pair of truly breathtaking hi-res title screens. The instructions are now a separate file, eliminating the need to scan through the text. This allows more memory to be used by the actual game. The long range scan now shows the sector map in colour, locating all explored areas and displaying the *Enterprise* in blue, the Klingons in red, and Starbases in grey.

This version of the game offers several new options to enhance play. For instance, the Captain may now cause the *Enterprise* to self-destruct if he finds himself in a hopeless situation. This last-resort option immediately ends the game. Also new is the option of attempting to capture, by using your tractor beam, any Klingon starship that is very low on energy. This gives you a chance to interrogate the prisoners, and possibly learn the location of other Klingons.

This is a great game. After playing other versions, this is the one I always go back to. It is available from Dave Neale at Ufland Software, P.O. Box 1324, Meaford, Ontario, N0H 1Y0, at a cost of \$21.95 (Cdn).

By the way, **Star Trekking Version 3** is now under development. This version will contain Interrupt-driven sound, individually-controlled forward and aft shields, still *more* improved graphics and hi-res screens, and possibly voice simulation. □

# Against The Monsters

by Norman J. Chaplin

The four games reviewed here are all graphics adventures. The versions reviewed are the latest tape versions for the Commodore 64.

## Temple Of Apshai

by Epyx  
Cassette or disk,  
for one player

**Temple Of Apshai** is a game with novel features and many resources, but ultimately it fails to provide enduring interest.

This game provides more than enough levels, dungeons, and monsters. The graphics are satisfactory, and the sound effects are realistic. To actually fight the encounters with arrows and swords promises interest. But the game fails, due to the awkward control of the warrior by the keyboard, and the slowness of the monsters, even at their fast speed. The keyboard causes the warrior to turn right with the R key, and left with the L key. This turning left with the right hand and right with the left hand causes continual confusion.

**Temple Of Apshai** includes an intelligent innkeeper, who bargains with the player for his equipment. However, the novelty of bargaining for swords, shields, armour and other items wears off, and eventually this action merely slows the start of the game.

I felt none of the tension in playing **Apshai** that I encountered in playing **Telengard** or **Sword Of Fargoal**. After a time, boredom set in.

The tape version of **Apshai** loads using two tapes. The first tape contains the program for bargaining with the innkeeper and establishing the warrior's character, strengths, level and equipment. This tape program is in BASIC and can be copied for backup protection. The second tape you will need for loading the game is one of two additional tapes provided, containing dungeon levels one through four.

These tapes are not in BASIC, but the loss of one or even two program levels is not catastrophic.

A new cartridge version of this game, **Gateway to Apshai**, has been advertised. This version is played with a joystick, and should be preferable to the keyboard version.

## Telengard

by Avalon Hill  
Cassette or disk,  
for one player

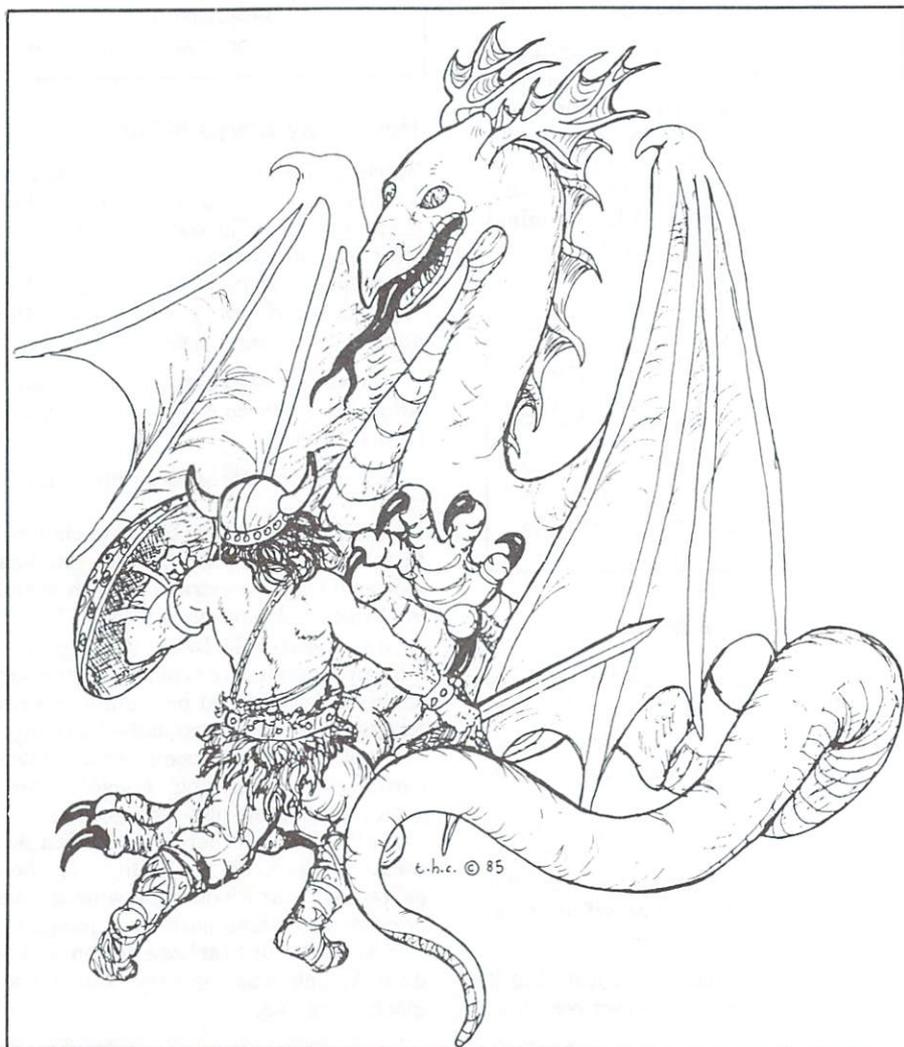
*Dungeons and Dragons* fans will feel right at home in this game. The computer rolls up a sequence of characters, from which you can select your favourite. The usual character attributes (such as strength, intelligence, dexterity and wisdom) are all there for you to use while you attempt to advance your character, level by level.

The character is moved with the keyboard. This is not an arcade game — the tension lies in the anticipation of impending confrontations with monsters. Should you evade, fight or cast a spell upon the minotaurs, dragons, skeletons, vampires, ghouls and other creatures you

will undoubtedly meet? Which spell will be successful? Should you move north or south? Can you pick up that treasure before it disappears or is defended? Should you leave your gold at the High Altar, in hope of a blessing?

**Telengard's** resources are inexhaustible. Supplied with an endless variety of monsters, treasures, magic spells and dungeons, the game is never dull. Game design is excellent, and the graphics and sound effects adequate. I felt frustration when I lost my characters, and elation when they advanced a level.

The only game weaknesses: a slight delay in drawing new dungeon configurations, and minor frustration in not being able directly to control the fighting. I felt anxious and helpless while waiting for the computer to determine the outcome of an encounter.



## Sword Of Fargoal

by Epyx

Cassette or disk,  
for one player

The village of Ferrin lies blighted by the wizardry of the evil Umla. Only the magic Sword of Fargoal can save it.

In your search, you descend level by level into the gloomy dungeon. The attacking monsters become ever more powerful. *Kill the werewolf. Pick up the golden treasure. Avoid the warlord. The treasure is too heavy. If only you could reach a temple you could trade the treasure for more experience points . . .*

Your warrior in **Sword Of Fargoal** is joystick-controlled, which seems to envelop you in the action. While you do not actually control your warrior's fighting, you can watch your hit points decrease under the blows and bites of the monsters, and break off the conflict, if you are severely wounded. If you can make it to the sanctuary of a temple, you can be restored to health.

**Sword Of Fargoal** supplies the player with a character of modest abilities, no experience, and two spells: one of healing and one of teleportation. Battle skills

and increases in vitality (hit points) must be earned by locating treasure or killing monsters.

I was never bored with **Sword Of Fargoal**. Decisions are more important in this game than in many others, and controlling the warrior with the joystick is natural, and does not interrupt the thinking process. However, I felt less excitement during play than when playing **Telengard**. Hanging about in temples awaiting recovery from wounds was a bit tedious. (If you dare, you can venture forth before complete recovery.)

The graphics and sound were quite good; the dungeon complexity and variety of monsters more than adequate. This game will sustain player interest for a long time.

## Warriors Of Ras

by Screenplay

Cassette or disk,  
for one player

This game is similar to **Temple Of Apshai**, except that it moves the warrior using the 'up arrow' and 'left arrow' keys, or with a 'move' command. (The instruction manual emphasizes the use of the 'move' command: I found the game very

awkward to play until I discovered the abilities of the arrow keys.)

Each time the game is started, a goal is defined. These goals are usually in the form of recovering some exotic object. In the hours that I played, I was never able to survive long enough to recover the object, even though I killed many monsters and gained much experience. After a brief learning period, survival appeared to be more a matter of luck than skill.

The graphics and sound are adequate, and the supply of monsters and dungeons endless. This game uses frequent messages to the player, which are generally clear and even interesting. Often, however, they are unnecessary, and just tend to slow the game. I found the ability to direct blows to various parts of the opponent's body also tended to slow the game (as well as adding little interest). The 'aim' command, for which an extra turn is required, was useful in dealing with the evasive elves.

## Summary

**Telengard** and **Sword Of Fargoal** are good games, capable of providing extended enjoyment. After the novelty wears off **Temple Of Apshai** and **Warriors of Ras**, they may sit on the shelf. □

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## The Membership Manager from Abraxas Software

Data base system  
with text editor  
for Commodore 64  
and disk drive

### Review by Louise Redgers

**The Membership Manager** from Abraxas Software is a data base system that comes complete with a text editor for use in the printing of invoices, reports and lists for a small (less than 869 records containing 126 characters each) mailing list. It was designed for the Commodore 64 and perhaps its most endearing feature is that it has the first-time user in mind. The slim users' guide explains data bases and computers in simple English. It also tells you how to go about setting up the system and how much time will be involved. It is one of the best software manuals I have ever seen for the first-time user. The system also comes with a second manual — a planning guide with operating instructions that is also very easy to comprehend.

The program loads up with a rather horrible-looking copyright message screen on my monochrome green monitor, but once onto the next menu you are told to use the function keys to set the screen colours as well as the printer format. This makes it very user friendly.

The software is slow to load: once you are familiar with the system it becomes painful to wait. I would like to try it with a fast load program. Setting up the records is very easy. You have many prompts and it handles one line of the entry at a time. After offering many opportunities to change one's mind about the contents of the record layout, it becomes engraved in stone. The confusing part is placing where you want each prompt to appear on the screen. I would have preferred another method than the one given, but it was acceptable. It certainly was foolproof.

Adding records was easy, but it would have helped to have said on the screen that **RUN/STOP** would exit to the menu when you were done. I then decided to modify my records and it worked well. Next I wanted to write a letter to the people on my mailing list. I went to the 'edit letter' phase and found that it insisted on a blank disk and would not reformat a previously used disk. The word processor is very simple and consists of a blank screen. After using it

many times one longs for the special commands of a **Paperclip** or **WordPro**.

I had further adventures printing out reports and labels, but in sum they were slow but very easy for the novice. Setting up things to print on my Epson MX-80 was extremely easy. One just selects from a set of printer files using the function keys, or very simply sets up one for your special printer. Even I could create a printer file.

Overall I would recommend this package to the new user who has volunteered to spend his/her spare time looking after the membership to some obscure organization, like the local computer club. Its slowness is not really a problem when you are at home and can wander off for food or coffee while things are loading and creating. The ideal size of group would be 100 to 200 people who require a fair bit of detail about themselves, equipment and special interests. Novice computer users might find this series of programs very useful for cataloguing, keeping track of the movement of items (equipment loans, for example), or other such detail-oriented work that requires some searching and summarizing. Other packages in the series are **The Stock File**, **The Repair Shop** and **The Auto Dealer**.

**The Membership Manager** is distributed by Beacon Software Inc, 705 Progress Ave. # 17, Scarborough, Ontario, Canada, telephone (416)431-3200.

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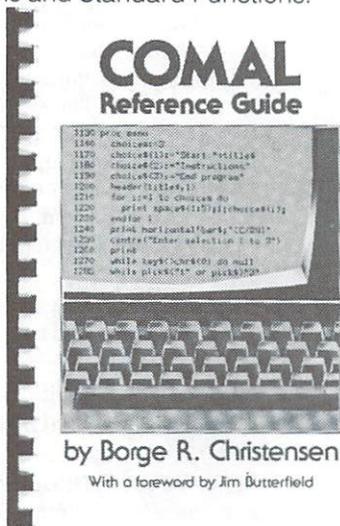
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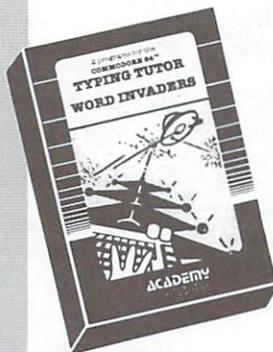
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# Products Received

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## Safetyline

**Safetyline** from Maximus, 6723 Whittier Avenue, McLean, Virginia 22101. Price: \$39.95 (US).

**Safetyline** is the first in a series of **Software Movies**, computer-generated stories combined with an audio soundtrack and interactive games. The product has been designed for youngsters four and up.

The authors of **Software Movies** utilized Maximus' newly developed Compu-sync soundtrack to achieve synchronized sound. All **Software Movies** are compatible with the C-64 computer.

**Safetyline** is "a lesson of daily living"; to be more precise, a lesson on children's safety on the road and in public places where it is easy to get lost. The lesson is presented by Max the Cat. Each side of the disk contains a movie to illustrate a particular situation, and two games to entertain, as well as reinforce, the main theme.

The movie on Side A of the disk is called *Sam Goes To School*. It teaches children basic rules of crossing the road. Two games follow: *Streetcross* and *Hiddenwords*.

The movie on side B of the disk is *Sam Gets Lost At The Zoo*. It gives important tips on how to behave when one gets lost — a frightening experience for a young child. Two games, *Maze* and *Tipmatch*, strengthen the main points brought up in the movie.

All games on the disk require a joystick.

## C-64 Strategy Games

**Winning Strategy Games on the Commodore 64** by Toby Matthews and Paul Smith. Published by Ellis Horwood Ltd. Canadian distributor: John Wiley & Sons Canada Ltd., 22 Worcester Rd., Rexdale, Ontario. Tentative price: \$18.50 (Cdn.)

This book is a collection of ten strategy games listings for the C-64. The games are written in BASIC. The authors of the programs chose a different topic for each game. There is a stock market investment game (**Broker**), an adventure game (*Elderberry House*), games involving political conflict (*Tyrant* and *Feudal Kingdom*) etc. They all have the common aim of challenging the user's intellect, rather than his reflexes.

Each game is preceded by a short in-

roduction that describes the idea of the game and gives a few tips on how to play it. The games programs are to be typed in, and to help you avoid mistakes, a list of the control characters in upper and lower case has been included in the book. However, for those who would like to play the games straight away, two disks containing all the programs are available at additional cost.

The authors of the book hope that playing the games and working out winning combinations will help the user to devise his own strategy games. For this purpose, they have also included a number of instructions and subroutines that the user can adapt to his own use.

## Casino Blackjack

**World Class Casino Blackjack** from Nova Computer Software, 374 Spadina Road, Toronto, Ontario M5P 2V8. Price: \$49.95 (Cdn.)

**World Class Casino Blackjack** is for those who are already familiar with the game but would like to master the skills and self control needed to win it. As claimed by the authors of the program, 'card counting' is the most effective yet simplest strategy to win blackjack. Their aim is to give the user an opportunity to learn it.

The user can play one hand against the dealer, or play up to seven hands at the same time. A separate program will let you play with up to seven different players.

During the game, a whole set of statistics is available to help the player(s) make the right betting decision and familiarize themselves with the percentages, as they are affected by the 'card count'.

## Real Estate 64

**Real Estate 64** from Handic Software Inc., 520 Fellowship Road, Suite B206, Mount Laurel, New Jersey 08054. Price: \$49.95 (US).

**Real Estate 64** is a game with 3-D graphics for the C-64. It is a *Monopoly* type of game that gives you a chance to become a real estate operator. You buy properties in different cities in North America or Europe, build houses on the acquired land, sell or lease them, take

part in auctions . . . All you have to keep in mind is that your transactions should be profitable. There are some unpleasant and unpredictable surprises, though . . .

**Real Estate 64** is a game for up to four players. If the number of human players is less than four, the computer can play, too. The game has been written in five different languages, including English.

## Tom Thumb

**Reading Skill Adventures With Tom Thumb** from International Software Systems, P.O. Box 5427, Richmond, Virginia 23220. Price: \$39.95 (Cdn.)

This famous story by the Brothers Grimm has been adapted by ISS for their Reading Skill Adventures Series. The series is designed to improve children's reading and comprehension skills at different levels of education. **Tom Thumb**, for example, is for preschoolers to early grade school children.

Three vocabulary levels are offered, each presenting new and more difficult words. It is also an interactive story: as the story goes on, multiple choice questions and answers are introduced, and children can create slightly different versions of **Tom Thumb** by choosing the answers that appeal to them most.

## Megabase

**Megabase** from SAK Data Products, 1590 Matheson Blvd., Unit 26, Mississauga, Ontario L4W 1J1.

SAK Data Products Ltd. has introduced the new **Megabase** system for storing and protecting valuable diskettes and documentation. The system combines D-style ring binders, clear vinyl diskette jackets, and a companion slipcase, to provide the user with a convenient library-style storage system.

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# TPUG Associate Clubs

## CANADA

**C64 North Bay Users Group (Ontario)** meets at Cassellholme on Olive St. on the first Wednesday of the month at 7:30 pm. Contact Matt Vautour 705-474-5692.

**Chaleur Commodore Club (New Brunswick)** meets at the District School Board, Dalhousie, on the third Wednesday of the month at 7:00 pm. Contact Terry Traer 506-684-4852.

**Commodore Owners of Muskoka (Ontario)** meets at MacAulay Public School, Bracebridge, on the first Wednesday of each month at 7 pm. Contact Mike Wilson 705-645-6300.

**Edmonton Commodore Users Group (Alberta)** meets at Archbishop Jordan High School, Sherwood Park, on the last Friday of each month at 7 pm. Contact Bob Kadylo 403-465-3523.

**Guelph Computer Club (Ontario)** meets at Co-operators Insurance Assoc. on the second Wednesday of each month at 7:30 pm. Contact Brian Grime 519-822-4992.

**London Commodore Users Club (Ontario)** meets at Althouse College of Education, main auditorium on the third Monday of each month at 7 pm. Contact Dennis Trankner 519-681-5059.

**Sarnia C64 Users Group (Ontario)** meets at Lambton College on the first Sunday of each month at 7:30 pm. Contact J.C. Hollemans 519-542-4710.

**Saskatoon Commodore Users Group (Saskatchewan)** meets in Room 2C02, Engineering Building, University of Saskatchewan, on the last Friday of each month (except June, July and December) at 7:00 pm.

**Commodore Users Club of Sudbury (Ontario)** meets at Lasalle High School in the cafeteria on the last Thursday of each month at 7 pm. Contact Tim Miner 705-566-9632.

**PET Educators Group (Windsor, Ontario)** meets at Faculty of Education Building, 600 3rd Concession, Windsor, on the third

Wednesday of each month (not July and August) at 7 pm. Contact John Moore 519-253-8658.

**Winnipeg PET Users Group (Manitoba)** meets at Gordon Bell High School, Room 228, on the first Wednesday of each month at 7:30 pm. Contact W.P.U.G., P.O. Box 4096, Station B, Winnipeg, MB, R2W 5K8.

## UNITED STATES

**Russellville CUG, Inc. (Arkansas)** meets at Oakland Heights Elementary School on the third Thursday of each month at 7:30 pm. Call 501-967-1822.

**C-64 Users Group, Inc. (Chicago, Illinois)**: seven chapters meet at 7:00 pm. **Northwest Chicago** (Logan Square) on the first Tuesday; **River Grove** on the first Wednesday; **Des Plaines** on the first Thursday; **Park Ridge** on the second Monday; **Calumet Park** on the second Tuesday; **Westchester** on the second Thursday; **Southwest Chicago** (Garfield Ridge) on the second Friday; **Evanston** on the third Wednesday. For exact locations and changes, contact Darrell Hancock 312-588-0334, or David Tamkin 312-583-4629.

**Commodore Computer Club of Toledo (Ohio)** meets at Bedford Administration Building on Temperance Rd., between Lewis and Jackman Roads on the second Friday of each month at 7:30 pm. Contact Jim Cychler 419-475-9160.

**Commodore Houston Users Group (Texas)**: **Clear Lake Chapter** — Nassau Bay City Hall, NASA Road #1, on the first Wednesday of each month at 7 pm. **Central Chapter** — Farish Hall, University of Houston main campus. **NW Chapter** — Bleyl Jr. High School, 10,000 Mills Road (Cypress-Fairbanks SD), on the third Thursday of each month at 7:30 pm. **Klein Chapter** — Hildebrandt Middle School, 22,800 Hildebrandt Road (Klein ISD), on the third Tuesday of each month (except July & August) at 6:30 pm. Contact Mary F. Howe 713-376-7000.



**Genesee County Area Pet Users Group (Michigan)** meets at Bentley High School on Belsay Rd. on the third Thursday of each month at 7 pm. Contact Gordon Hale 313-239-1366.

**Mountain Computer Society (Sandy, Utah)** meets at Murray High School on the second Thursday and last Tuesday of each month at 7:00 pm. Contact Dennis Senior 801-566-5593, or Don Jones 801-967-6641.

**Commodore 64 Owners of Petaluma (California)** meets in the multi-use room, La Tercera School on the third Thursday of the month at 7:00 pm. Contact Robert Hermann 707-762-1376.

**Boston Computer Society/Commodore Users Group** meets at Minute Man Tech High School, Rt 2A (just off Rt 128), in Lexington, MA, every second Monday of the month at 7 pm. Contact Harvey W. Gendreau 617-661-9227.

**Sacramento Commodore Computer Club (California)** meets at Kit Carson High School, on the fourth Monday of each month at 7 pm. Contact Geoff Worstell 916-961-8699.

**MAT-SU Commodore-64 Club (Alaska)** meets at the Alaska Computer Systems store, Wasilla, on the third Thursday of each month at 7 pm. Contact Terry Maw 907-376-7508.

**Michigan's Commodore 64 Users Group** meets at Warren Woods High School in Warren, on the third Tuesday of each month at 7 pm. Call 313-773-6302.

**Mohawk Valley Commodore User's Group (New York)** meets at the Clara S. Bacon School in Amsterdam, at 7 pm on the second Tuesday of the month. Contact William A. Nowak 518-829-7576.

**Greater Omaha Commodore 64 U.G. (Nebraska)** meets at South Omaha campus of the Metropolitan Technical Community College, 27th and Q Streets in Room 120 of the Industrial Training Center, on the first Thursday of the month at 7 pm. Contact Bob Quisenberry 402-292-2753.

**Manasota Commodore Users Group (Florida)** meets at the Florida Power and Light Building, Bradenton, on the second and fourth Thursdays of the month at 7 pm. Contact Robert O. Bronson 813-747-1785.

**S.C.O.P.E. (Dallas, Texas)** meets at U.T.D., Erik Jonsson Building (Corner Floyd & Campbell Rds.), in Plano, on the second Saturday of the month at 1:30 pm. Contact Betty Clay 817-274-0709.

**Southern Minnesota Commodore Users Group** meets at Mankato State University on the first Thursday of each month at 7:30 pm. Contact Dean Otto 507-625-6942.

**Tri-City Commodore Computer Club** meets at Washington Public Power Supply System auditorium on George Washington Way on the second Wednesday of the month at 7:00 pm. Contact George Carpenter 216-946-7746.

**Westmoreland Commodore User's Club (Penn.)** meets at Westmoreland County Community College, in Youngwood, on the third Friday evening of each month. Contact Bob McKinley 412-863-3930.

## INTERNATIONAL

**Baden Computer Club (West Germany)** meets at CFB Baden-Soellingen on the second Sunday of each month at 7 pm. Contact Ben Brash.

**Trinidad Association of Commodore Owners — TACO** meets at St. Mary's College, Frederick Street, Port of Spain, every second Saturday of the month at 2 pm.

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# Calendar of TPUG Events

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## Spring Schedule

Please note: The exceptions to the "rule" for the designated date for a meeting (e.g. second Thursday) are shown in bold.

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**Brampton Chapter:** Central Peel Secondary School, 32 Kennedy Rd. N. on the second Thursday of the month at 7:30 pm in the Theatre.

Thu. Mar. 7  
Thu. Apr. 11

Thu. May 16  
Thu. June 6

**Central Chapter:** Leaside High School, Bayview & Eglinton Aves. on the second Wednesday of the month at 7:30 pm in the auditorium for "advanced" computerists.

Wed. Mar. 20  
Wed. Apr. 10

Wed. May 8  
Wed. June 12

**COMAL Chapter:** York Public Library, 1745 Eglinton Ave. W. (just east of Dufferin) on the last Thursday of the month at 7:30 pm in the Story Hour Room (adjacent to the auditorium).

Thu. Mar. 28  
Thu. Apr. 25

Thu. May 30  
Thu. June 27

**Commodore 64 Chapter:** York Mills C.I., 490 York Mills Rd. (east of Bayview) on the last Monday of the month at 7:30 pm in the cafetorium.

Mon. Mar. 25  
Mon. Apr. 29

Mon. May 27  
Mon. June 10

**Communications Chapter:** York Public Library, 1745 Eglinton Ave. W. (just east of Dufferin) on the first Wednesday of the month at 7:30 pm in the Story Hour Room (adjacent to the auditorium).

Wed. Mar. 6  
Wed. Apr. 3

Wed. May 1  
Wed. June 5

**Eastside Chapter:** Dunbarton High School (go north on Whites Rd. from the traffic lights at Highway 2 and Whites Rd. to next traffic lights; turn left to parking lots) on the second Monday of the month at 7:30 pm

Mon. Mar. 11  
Mon. Apr. 15

Mon. May 13  
Mon. June 10

**Hardware Chapter:** York Public Library, 1745 Eglinton Ave. W. (just east of Dufferin) on the **second Tuesday** of the month at 7:30 pm in the Story Hour Room (adjacent to the auditorium).

Tue. Mar. 12  
Tue. Apr. 9

Tue. May 14  
Tue. June 11

**Machine Language Chapter (6502):** Fenton High School, off Kennedy Rd., south of Steeles Ave., Brampton, on the first Tuesday of the month at 7:30 pm in the computer room. For further information call Garry Ledez c/o 416-782-8900.

Tue. Mar. 5  
Tue. Apr. 2

Tue. May 7  
Tue. June 4

**SuperPET Chapter:** York University, Petrie Science Building (check in Room 340). Use north door of Petrie to access building. On the third Wednesday of the month at 7:30 pm

Wed. Mar. 13  
Wed. Apr. 17

Wed. May 15  
Wed. June 19

**VIC 20 Chapter:** York Public Library, 1745 Eglinton Ave. W. (just east of Dufferin) on the first Tuesday of the month at 7:30 pm in the auditorium.

Tue. Mar. 5  
Tue. Apr. 2

Tue. May 7  
Tue. June 4

**Westside Chapter:** Clarkson Secondary School, Bromsgrove just east of Winston Churchill Blvd. (south of the QEW) on the third Thursday of the month at 7:30 pm in the Little Theatre for **PET/CBM/VIC 20/Commodore 64**.

Thu. Mar. 21  
Thu. Apr. 18

Thu. May 16  
Thu. June 20

Are you interested in organizing some other interest group in the Greater Toronto area? Please let the club office know, by mail, phone, or TPUG bulletin board.

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## Classifieds

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**This space is for the ads of TPUG members. Wanted or for sale items only. Cost is 25 cents per word. No dealer ads accepted.**

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**PET 4032** with cassette and 4032 printer. Hundreds of games and educational programs. \$750.00 (US). Dr. D. Cruden 2803 Charles St., Rockford, IL 815-398-3224.

**For Sale:** Epson MX100 printer with Commodore interface. Call Mr. Shah 416-365-9244 or 416-461-7606.

**Create video titles** with VIC 20, C-64, cassette. Instructions, \$9.95. Jerry Lemaitre, 9 Brock Crescent, Collingwood, Ontario, L9Y 4A4.

**For Sale:** Complete CBM 8032 system: 4040, 2031, SCM TP1, ADA 1800 and 1450, WordPro 4+, Visicalc, Power, Supergraphics, Spellmaster, plus three languages, plus thirty more items. Call 215-895-2628.

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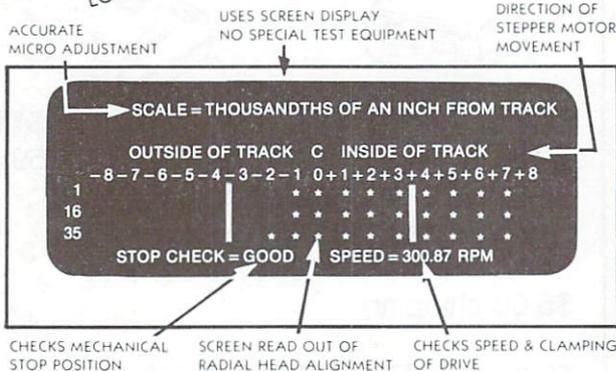
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## BULLETIN TO TPUG MEMBERS

TPUG librarians have discovered in our offices a copy of the (V)TG (VIC 20 library) disk whose original contents have been illegally replaced with copyrighted Commodore 64 software, apparently by the same person or persons who burgled TPUG in early March (see article on page 19). It is possible that disks were also sabotaged, and that some of these were inadvertently distributed to TPUG members. TPUG apologizes to any members who may have received such disks, and to software authors and manufacturers whose copyrighted programs may have been illicitly copied.

Louise Redgers  
TPUG General Manager

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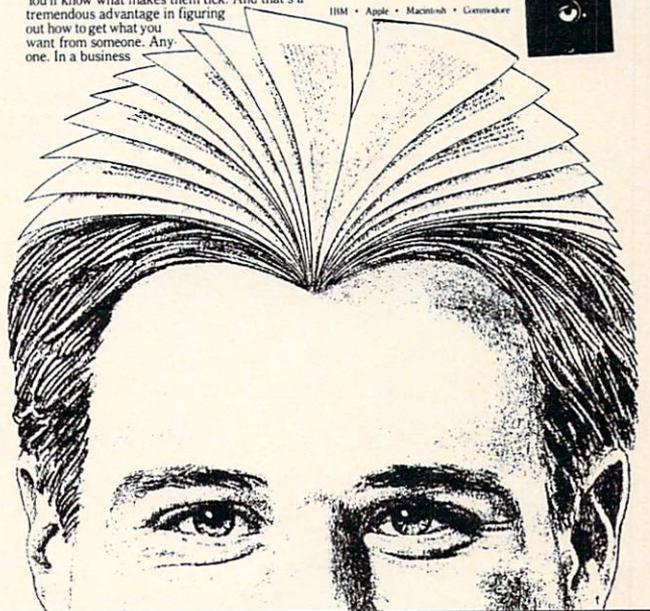
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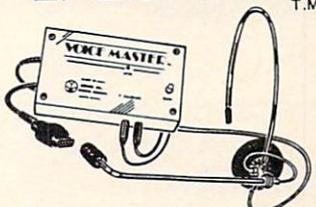
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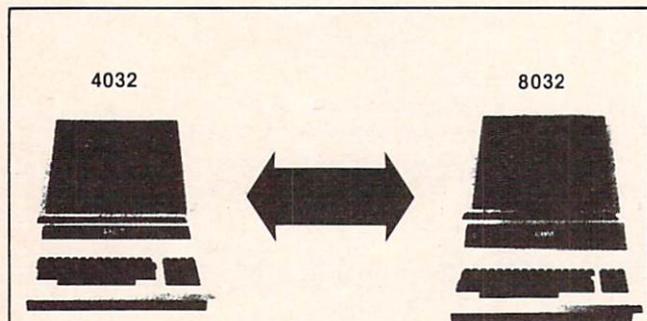
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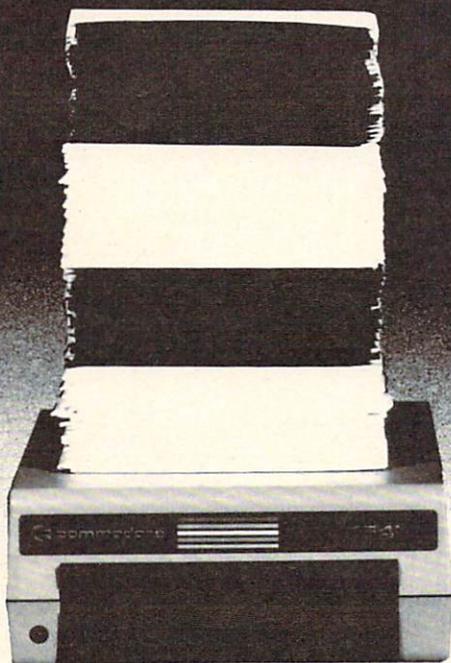
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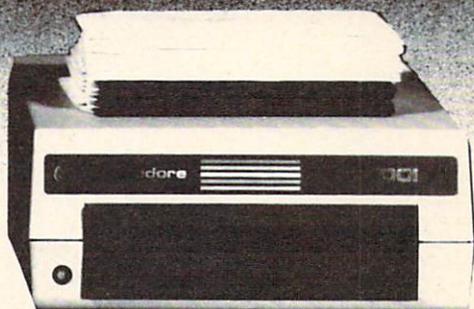
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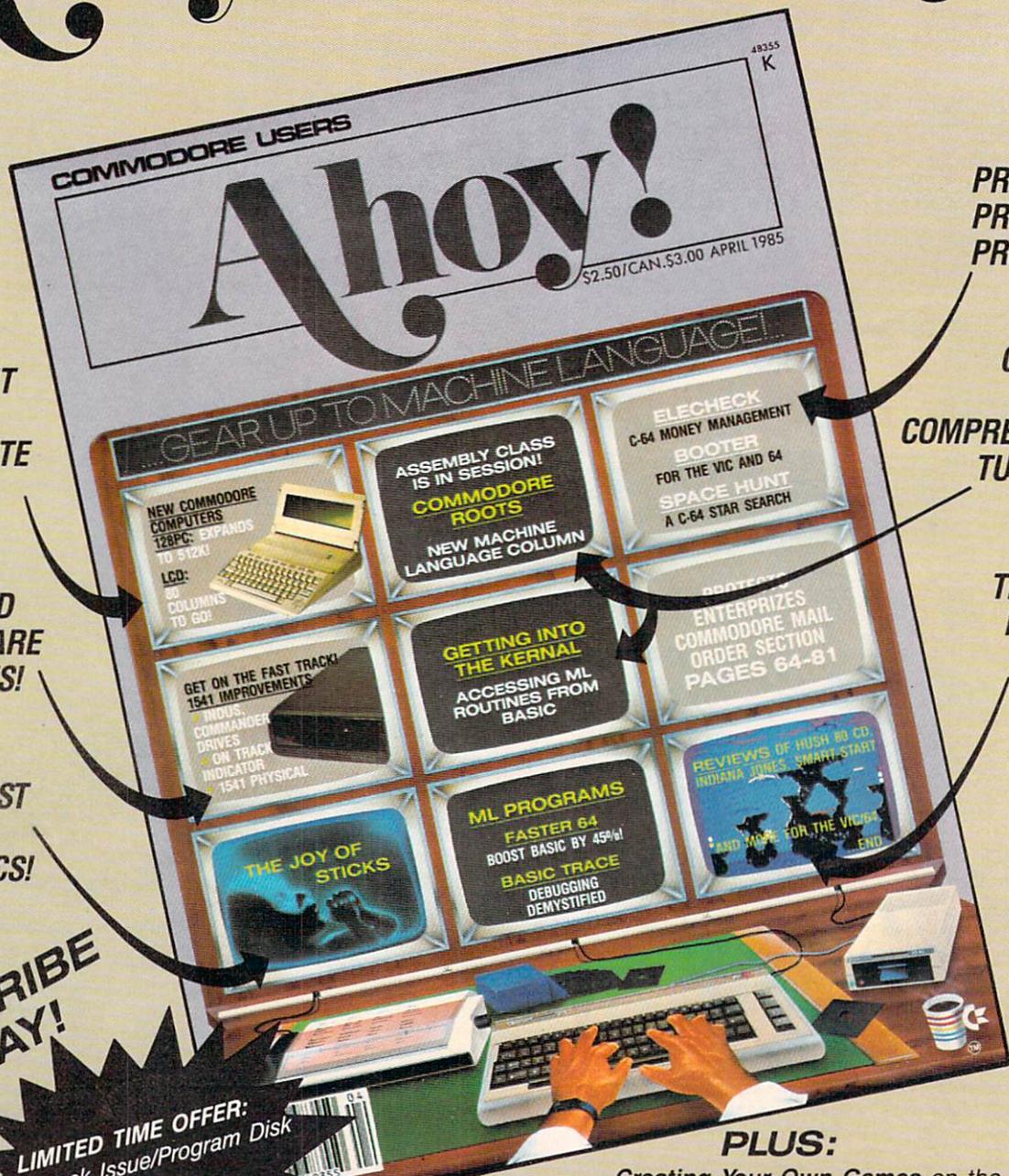
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