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TPUG Magazine

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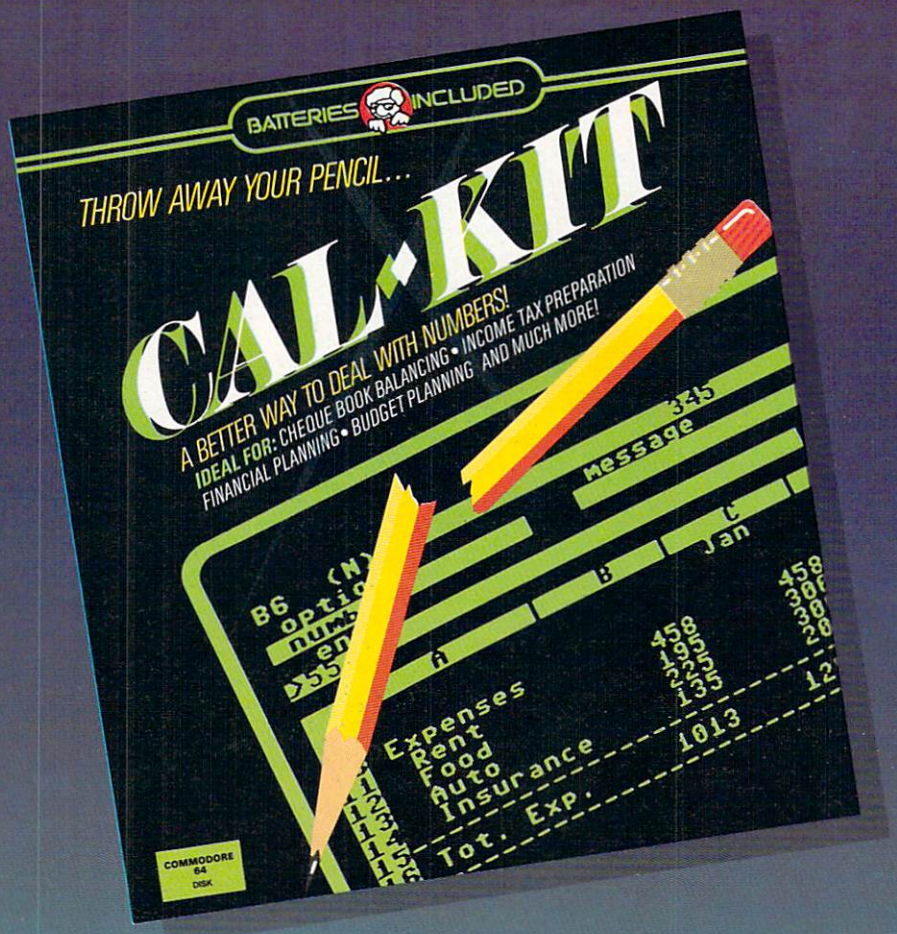

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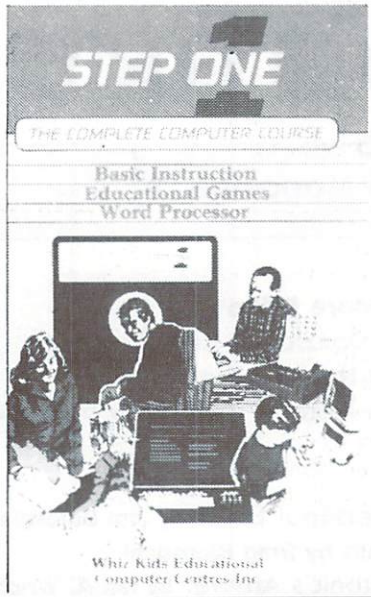

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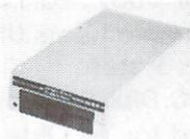

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Editorial: Octobus Disaster Update

When a product fails to live up to its advertising, people justly become disappointed and angry. One such product is the **Octobus**, marketed by Silicom Software Inc., which was advertised in *TPUG Magazine* last September.

In late summer, last year, we accepted an advertisement for this product and an advanced version known as **Octobus Plus**. At the same time, we received copies of each product and some rough manuals. We had no reason to believe that **Octobus** was anything other than what its advertising claimed it to be: an IEEE-488 interface with a Centronics parallel port, BASIC 4.0, and communications software.

It was not until after we had finished putting together our December issue that I heard from our reviewer, Ian Wright, that the **Octobus** products given us for review had left two computers inoperable: his own, and an additional one that he had borrowed. Ian wrote:

"... The next time I turned on the **Octobus Plus** my C-64 didn't work. I had a screen full of random characters that flickered and changed colour.

"I have had three C-64s, and this would not be the first time that something had gone wrong with one of my machines. I assumed that my latest machine had developed some problem (it had never given trouble before) and I asked a friend to loan me his machine to finish the review of the **Octobus Plus**. His machine blew up and smoke started to come out of it!"

The computers were sent to Commodore for repair. One needed a new board; the other, a new power supply. We called Silicom and made them aware of the problem. They were pleasant, but maintained that the problem must have been caused by inserting their product incorrectly. At our insistence, they did pay for the repairs to both computers. They also took both review samples back to be tested. They called us once after that, asking to see Ian's review. At that time, however, no review had been written, as Ian was prepared to give the product a second chance. That was the last contact we had with Silicom.

As that tale of woe came to a close, another began. Concerned TPUG members started calling and writing because they could not make contact with Silicom at the phone number printed in their ad. We tried to reach them at other phone numbers they had provided. Their answering machine had disappeared. Cheques had been cashed in October; as of the end of December, no product had been delivered.

TPUG regrets this incident, though it is hard to see how we could have avoided it. We check out our advertisers as best we can. We try to make certain that they have products to ship. When we discover that our members or our reviewers are disappointed in a product, we discontinue advertising it.

As of December 28th, 1984, we have been unable to make any contact with Silicom Software Inc. We are disappointed that they saw fit to pull their scam using our magazine. We deeply regret any problems this has caused our members and suggest that anyone holding cancelled cheques for products not delivered do the following:

- Drop us a line at the address below, including a copy of your cancelled cheque and any correspondence that may have occurred.
- If necessary, take your complaint against Silicom Software Inc. to small claims court.

TPUG will continue in its attempts to get satisfaction for its members. We will keep you posted.

Louise Redgers
Director of Advertising Sales
TPUG Magazine
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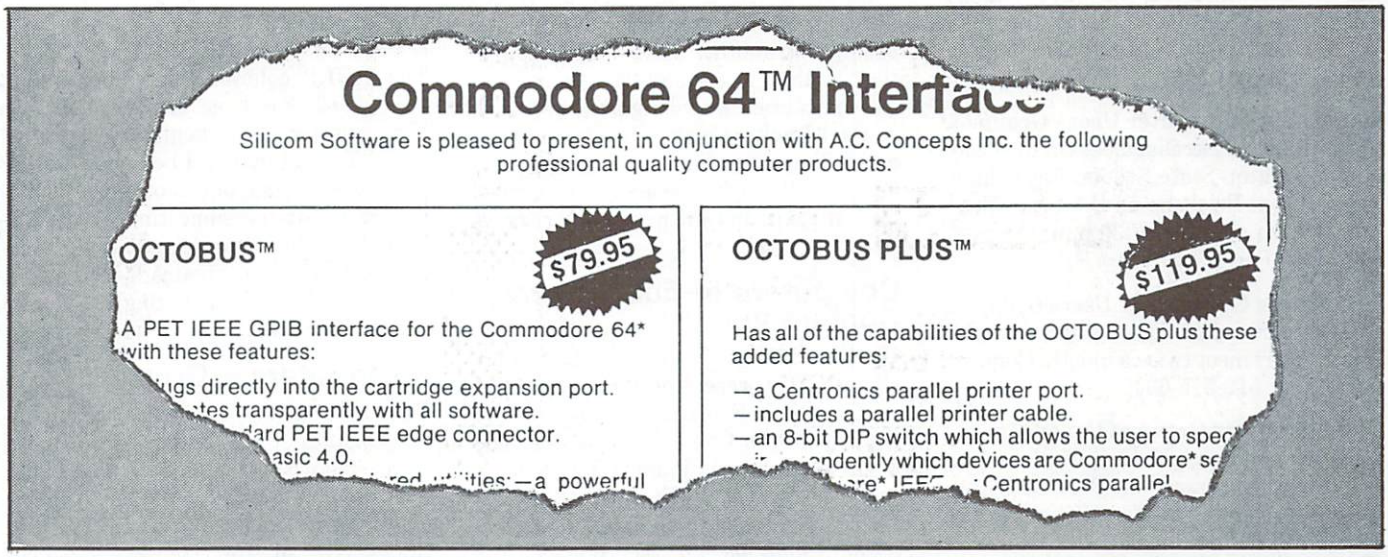


This advertisement appeared in TPUG *Magazine last September. At the time of going to press, we have been unable, despite persistent efforts, to determine that the* Octobus *works as claimed, or that Silicom Software intends ever to deliver the product to their customers.*

This and That

by Doris Bradley

Trinidad in February!

Yes, several TPUG members are going to attend the TACO meeting in Trinidad on Saturday, February 23, 1985. As Canada and the northern United States are caught in the throes of winter, we are looking forward to experiencing some warm, maybe even hot, weather!

Other Computer Clubs

This month's information from other computer clubs includes some interesting groups from the far north and other far away places. The groups listed may or may not have an associate membership in TPUG.

First City Users Group (FCUG) meets on Sundays at 2 p.m. in Room 217 of the local high school in Ketchikan (on an island in south-east Alaska).

Polar Peckers and Hackers Group is a new user group in Pond Inlet, North West Territories.

Medicine Hat Commodore Users Group meets on the 2nd and 4th Wednesdays of the month. They would like to trade newsletters or just correspond with members of other groups. Please write: MHCUG, Box 764, Medicine Hat, AB, Canada T1A 7G7.

Technion Commodore User's Group (TCUG) meets the second Thursday of every month at 17:30. Contact Dr. Alexander Burcat, Dept. of Aeronautical Engineering, Technion — Israel Institute of Technology, Haifa 32000, Israel. Telephone (04) 293198

Commodore Computer Users Group of Queensland, Australia, meets in the Club Rooms, Milton State School, Bayswater Rd., Milton, Brisbane on the first Tuesday of each month at 7:30 p.m. Contact Dr. Greg Perry.

Crossroads Commodore Users Group is a newly-formed group in South Central Texas. They meet twice a month. Contact Jerry Guy 512-575-0342.

The C-64 Users Group of Canada is forming in the Montreal area. Contact Mr. Robert Adler, Snowdon, P.O. Box 792, Montreal, PQ H3X 3X9. Phone 514-739-3046.

Save with Replace Bug

Have you ever been bitten by the elusive Save With Replace Bug? If you have, hold that disk! Don't do anything more on it — just send it, with thorough documentation of the incident, to: Louis F. Sander, 153 Mayer Dr., Pittsburg, PA, 15237. He hopes to solve this mysterious (and so far unexplained) problem by carefully diagnosing several bugged disks. Good luck, Lou!

Four-Minute Backup

Jim Butterfield and I would like to thank all those who have sent letters and cheques, or handed in money for Thomas Tempelmann. In the next few days, I am going to change more than three hundred dollars into German marks for transmission to Germany. (I'll be glad to change more later.)

Many of you have written eloquently concerning **FBackup**. I have chosen to quote from David G. Veatch's letter: "The article in the December 84 *TPUG Magazine* asked for only five dollars, but I have a copy of the whole German disk, full of utilities, so that I feel a larger contribution is in order...

"I have given away dozens of copies of Thomas Templemann's fast copy program believing it was public domain, and have even uploaded it to the bulletin board our C-64 users' group runs. It is an excellent program. Considering that all we had before was **1541 Backup**,which took up to half an hour to make a copy of a whole disk, Mr. Templemann's program brought us into the 21st century, so to speak."

David's letter, as well as another recent letter from Warren Woodcox, have brought up another matter. The suggestion is that some software houses in North America are taking programs such as **Fast Backup**, making a few changes, and selling them. I am sending these two letters to the software houses concerned for comment, and will provide more news later.

Computers in Education Conference

The NorthWest Council for Computer Education is presenting the 14th annual conference on February 7, 8 and 9 at the Eugene Hilton Conference Center. The keynote speaker is Pamela McCorduck, co-author of *The Fifth Generation: Artificial Intelligence and Japan's Computer Challenge to the World*. For registration information, contact: Linda Ague, 2583 N. 15th, Springfield, Oregon 97477.

Tape Alignment Kit

In the November issue of *TPUG Magazine* I indicated that the tape alignment kit was available immediately. Unfortunately, my information was incorrect. The most important part of this kit is a screwdriver, and as this magazine goes to press, the screwdrivers have still not arrived from Europe. My apologies for the delay. If you have ordered the kit, all I can do is promise you that it will be in the mail as soon as is humanly possible.

Now that I know more about just what is involved, I can suggest an alternative for you. If you get the double-sided sheet of instructions on aligning the heads of your Datasette from us (one is included with each tape order shipped out), all you will really need is a Phillips *0 screwdriver. Unfortunately, in Toronto, this particular screwdriver is being sold as part of a set only. Unless you have access to a set of Phillips screwdrivers, alignment of a Datasette could be a bit pricy.

Whether you can get the screwdriver yourself or whether you get the kit from us, good luck with the process! Nothing would please me more than to have all the members who purchase our tapes able to load them without any problems.

When You Order

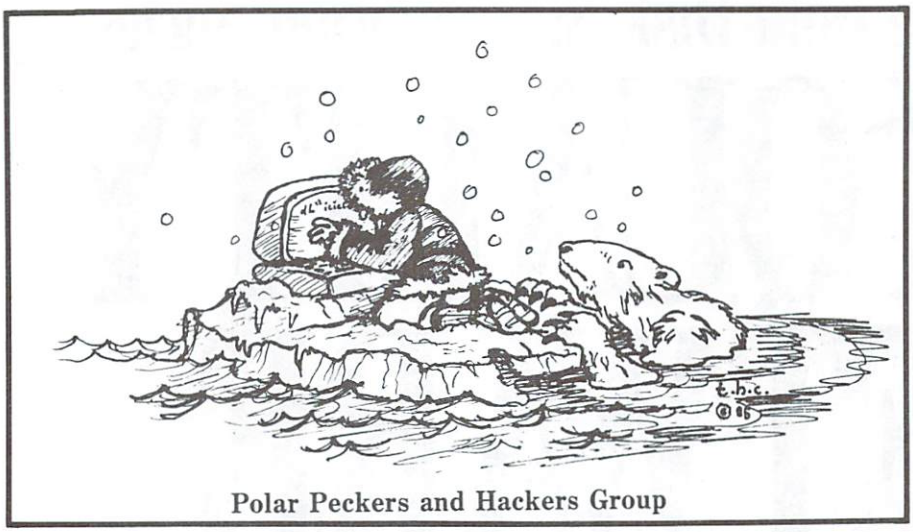
In order to help speed up the processing of your order, please do not ask any auxiliary questions, or make library submissions at the same time. Thank you.

HELP Column

The 'HELP' column, which I initiated in June 1983, has been transformed into 'The Answer Desk', beginning with this issue. The column will be conducted by George Shirinian, one of our local TPUG members. At the same time the 'PET-Pals' has been transferred to a special section of the Classified Ads. Of course, those members participating will not be charged for the space.

Forth Interest Group

The 1985 schedule of the Southern Ontario Chapter of the Forth Interest Group is as follows: March 2nd, June 1st, September 7th and December 7th. The meetings go from 2 p.m. to 5:30 p.m. in Room 312 of the General Sciences Building of McMaster University. For more information call Dr. N. Solntseff, Unit for Computer Science, McMaster



Polar Peckers and Hackers Group

University, Hamilton, ON L8S 4K1. Phone (416) 525-9140, Ext. 3443/4/5.

The TPUG Forth group is no longer holding formal monthly meetings, but may meet informally at the TPUG Office if there is sufficient interest.

The Commodore Show,

The West Coast Commodore Association will hold a two-day exhibit and speaker program at the Cathedral Hill Hotel, San Francisco, on Saturday and Sunday, February 9th and 10th, 1985. This will be a good opportunity to hear a number of prominent speakers who write about or work with Commodore products — Jim Butterfield, for example. The cost is $12.50 for the two days or $7.50 for one day. Louise Redgers (*TPUG Magazine*'s Ad Director) and I plan to attend, and we want to meet our west coast members. Hope to see you there!

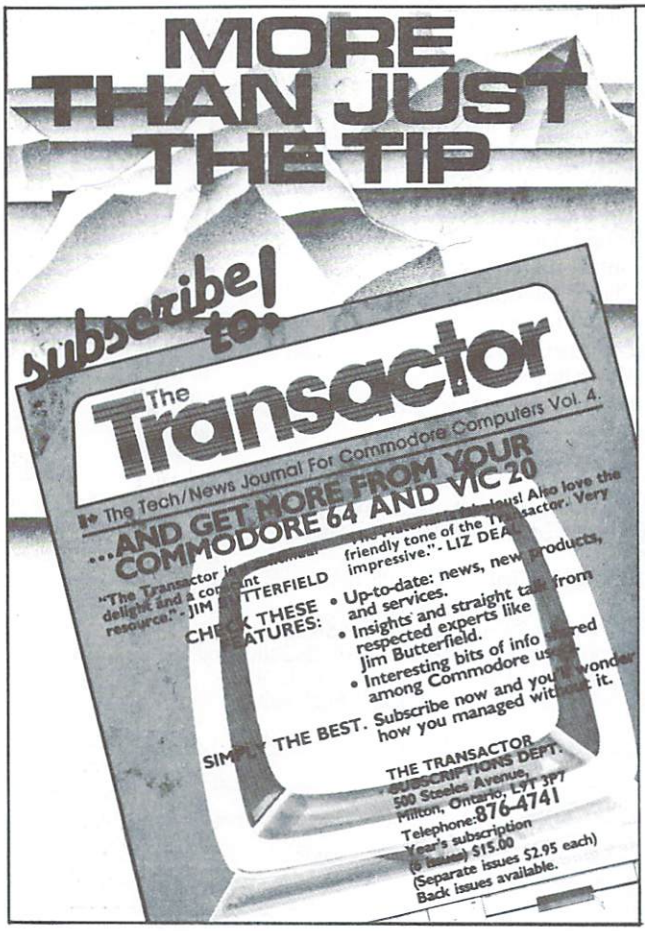
TPUG Conference 1985

This month's issue of *TPUG Magazine* includes the registration package for the Fourth Annual TPUG Conference, to be held in downtown Toronto on the Memorial Day weekend, May 25 and 26, 1985. You will find sessions for every level of expertise, and for most Commodore computers (including the SuperPET, Commodore-16, Plus 4 and B-128). Before making your choice of sessions, please be sure to read our definitions of Beginner, Intermediate and Advanced. The same definitions were read to our speakers so that we would be able to label the sessions as accurately as possible.

Don't wait for spring — do it now! Get your application in as soon as possible and take advantage of the Early Bird registration fee of $20.00. I hope to see you there, whether you live in Scarborough, Ontario; San Francisco, California; or Sollentuna, Sweden.

Our Members

Among recent members to join is a seventy-two year old gentleman from Silver Spring, Maryland. He has a Masters degree in physics and math and a PhD in Educational Research and Statistics. He has had his C-64, 1541 drive and Epson RX-80 printer for about one year. In his words: "I am interested in keeping up with the times." □



Ask Someone Who Knows

If you enjoy **Jim Strasma's** many books, and his articles in this and other magazines, you'll be glad he also edits his own highly-acclaimed computer magazine, now in its sixth year of continuous publication. Written just for owners of Commodore's many computers, each **Midnite Software Gazette** contains hundreds of brief, honest reviews.

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The Answer Desk

with George Shirinian

I would like to preface this new column by pointing out that all of the questions and many of the answers originate with TPUG members. My contribution is to twist the arms of the appropriate people for the best answers we can come up with. I hope you find the information below worth all the sore limbs around the club! I should also point out that most of the questions have been edited for conciseness.

Disks And Databases

I'm thinking of getting a disk drive but don't understand about floppies. Can you explain, for instance, what is meant by the term 'double density'?

Another question: I'm a camera nut and have about a million feet of Super 8 movie film, as well as about a million slides. I also have around three thousand books and twenty-five hundred LP records. How can I organize information about these items and their location using my computer? I imagine some kind of filing system, but what kind?

S.G. Lucas,
Lubbock, Texas

You will receive a great deal of enjoyment and benefit, in my opinion, if you do acquire a disk drive, as you suggest. It is almost essential for serious information handling. Put simply, 'double-density' means that the oxide coating on the plastic floppy disk has magnetic properties that are suitable for holding more kilobytes of data than a single density disk. The Commodore 1541 disk drive stores approximately 170,000 bytes of data on its disk (which is more than the old Apple and Radio Shack computers could accommodate) and it is recommended that you use double density disks, although this is not absolutely essential. The 1541 uses only one side of the disk, so be sure not to pay extra for double-sided disks.

To keep track of your records, tapes and films, you need a type of program called a 'database manager'. Such a program stores chunks of information in units called records. A record consists of separate fields containing the specific information on such things as author, title and date. By separating the information into fields, the program can access any particular kind of data throughout the database very rapidly: for example, all the books by a particular author.

It wouldn't be appropriate for me to endorse any particular brand of database manager. There are three, however, that I can recommend you look into: **Flexfile 2.1**, **The Consultant** and **Superbase**. Look for reviews in *TPUG Magazine* and other periodicals.

Screen Text Characters

I am writing a program on the C-64 in which I would like the screen to come up with the text character set (upper and lower case) without the user having to press the SHIFT/Commodore-key combination. What is the best way of doing this?

There are several ways to obtain the text character set on the C-64. POKE 53272,23 is one good way to do it from within a program. (You can use POKE 53272,21 to get the upper case/graphics character set.) Another way is with the statement PRINT "<CTRL-N>", which has the advantage of taking up the least amount of RAM. But in the interest of making your program as clear and as portable as possible, you might consider using PRINT CHR$(14) for text, and PRINT CHR$(142) for upper case/graphics. This statement will work on the VIC 20, C-64 and 8032, though not on 40-column PETs. Incidentally, you might want to disable the SHIFT/Commodore key toggle with a PRINT CHR$(8). CHR$(9) will restore it.

PET Load Errors

I recently received Disk (C)T8 for the Commodore 64. One of the programs was supposed to show how to load a program saved on a C-64 into a PET with BASIC 4.0. When I tried the program, all I got was a load error on the PET. Can you give me an idea how I can do this with a datasette?

Dan Flinn
Eldoret, Kenya

The problem of the load error is not related to the problem of loading a C-64 program into a PET. Perhaps your disk got damaged in transit. The following technique works, regardless of whether you use a disk drive or datasette, and is good for any PET/CBM with BASIC 4.0.

First, clear your PET's memory by typing NEW, then load in the program saved from a C-64. Because the C-64 saves programs with a different memory location for the start of BASIC than the PET series, you must help the PET find the start of the program in its memory.

To do this, enter the BASIC line number 0 (zero) with the statement REM after it. You need such a statement after the line number for it to 'take'. Line 0 is fairly safe, as most programs begin with some other number. Then, enter the following command in direct mode (no line number): POKE 1026,8. This POKE links the new line 0, which is at the PET's normal start of BASIC, with the rest of the program. Now delete line 0, which is no longer needed, by typing 0 on a blank line and pressing RETURN.

The C-64 program has now been relocated to the normal start of the PET's BASIC. It will list and, if compatible with the PET in other respects, will also run.

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

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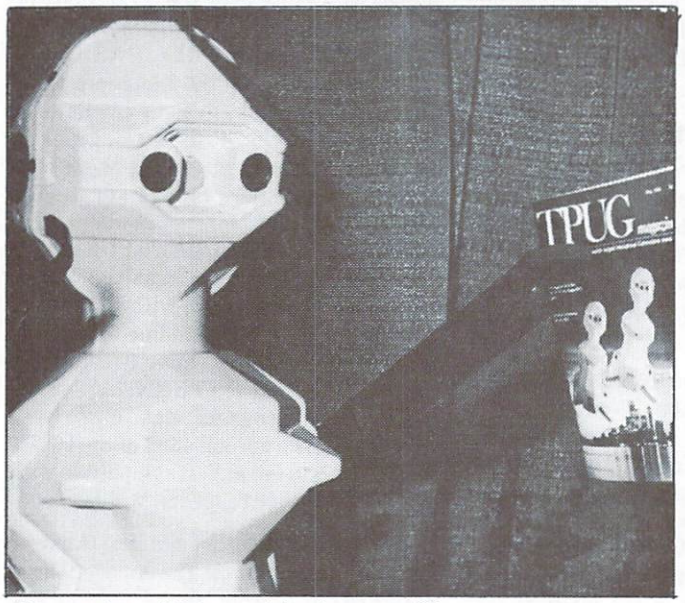
TRIKE

Commodore II Show Dazzles

by Ken Cox

The World of Commodore II show, from November 29 to December 2, in Toronto, attracted 41,600 show goers (an increase of 3,400 from the previous year). The explosive popularity of the Commodore 64 has left a mushroom cloud of software and peripherals, and the fallout continues to dazzle. There was a clear trend at the World of Commodore II towards keyboards, graphics utilities and cheaper games. Alas, the VIC 20 was almost wiped off the face of the earth. It was fondly remembered in stacks of heavily-discounted cassettes and cartridges.



"Do you have this in machine language?"

As one would expect, Commodore gave its products the red carpet treatment. There were plenty of 'hands on' opportunities and helpful 'shipmates' to show you how.

The Commodore 16 (The Learning Machine) and the Plus/4 (The Productivity Machine) did not pack 'em in, but many gamers gathered around the **Pirate Adventure** on the C-16, **Jack Attack** on the Plus/4, and **Satan's Hollow** on the C-64 at the back of the main display.

The business machines were on display in the Commodore section of the show, but it was hard to get excited without the forthcoming Hyperion. Commodore announced the tilt-and-swivel 8296 system, which has 128K RAM, built-in **Paperclip, Consultant, CalcResult** and more. Across the aisle the focus was on Commodore's educational software, with a gowned 'schoolmaster' to show parents programs on counting, shapes and patterns, letter-matching and vocabulary skills.

...the VIC 20 was almost wiped off the face of the earth. It was fondly remembered in stacks of heavily-discounted cassettes and cartridges...

The Commodore SFX MusicMaker keyboard overlay made its Canadian debut. This entry-level product comes from Britain, but it is clearly intended to be an international product: the instructions come in German, French and Italian, as well as English. The sound quality of the SFX starter software was inferior to the Kawasaki system from Sight and Sound Music Software Inc. Their plastic keyboards are the same. (For the story behind these competing keyboards see *Keyboard Strikes Sour Note*, on opposite page).

Commodore is also apparently moving into softwear: at one

...a mushroom cloud of software and peripherals...

booth they were selling clothes-to-compute-by. The snappy white sweatshirt featured bright Commodore logos down the sleeves, with the now-familiar World of Commodore crest over the heart. Also offered were Foreign Legion caps, school binders and key holders. The proceeds went to charity.

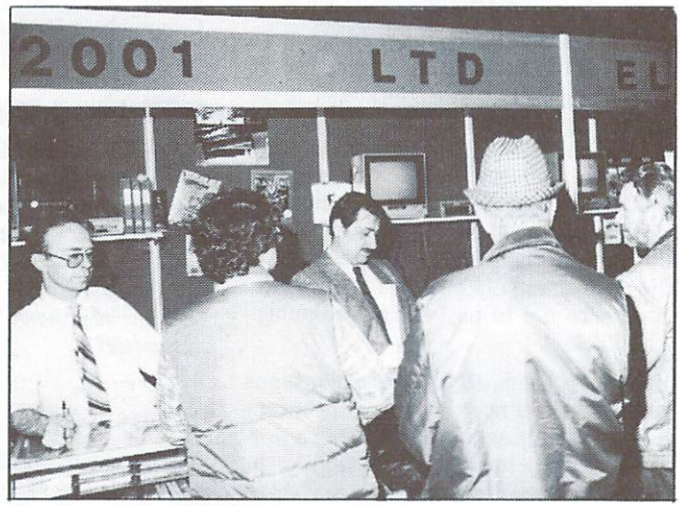
Keeping ahead of computing trends is one of the jobs for Jim Gracely, the technical editor of Commodore's own *Commodore Microcomputers* and *Power Play* magazines. While flogging three back issues plus a current issue for $3.00 (again for charity), Jim explained that this was a way to move boxes of magazines that found their way into warehouses instead of newsstands.

Asked where computing is headed, Gracely quipped " ... breakdancing and trivia games!" And then, more seriously: "The ultimate goal, if you are going to have a computer in every house,

...a rather strange tape drive made it to The World Of Commodore II just hours before the show opened...

is to have something with telecommunications. Home shopping, home banking. You're not going to keep playing games for ever, and not everyone's going to want to work with a database for their record collection. There's got to be something coming up that everyone wants. It seems right now that telecommunications is going to be the key to that".

There was much more to the World of Commodore than just Commodore's offerings, with many interesting products to explore along the aisles, and knowledgeable people to meet.



The Electronics 2001 booth was a hive of activity. Here king bee Tony Prijately assists a swarm of customers.

A highlight for budding artists was the lightpen package called **Flexidraw**, shown by Inkwell Systems, of San Diego. You create pictures and designs by drawing on your screen: the fast, smooth moves look like they have been imported from an IBM or Apple. Scott Maxwell, co-author of **Flexidraw**, said it wasn't that way at all.

...you could build a picture one hundred feet long...

"Actually, our program came out before the Macintosh, so before anybody had ever heard of **MacPaint**, there was **Flexidraw**." The program only works with a high quality lightpen, which is manufactured by a sister company of Inkwell Systems.

Flexidraw has an interesting form of copy protection — none. The catch is that the program won't work with other lightpens. "You can make as many copies as you want. All we do to protect it is check for a noisy pen. If you have a noisy, bad pen, it doesn't work."

Maxwell claimed that about fifty per cent of the people who buy **Flexidraw** are engineers using it for schematics and drawings. By connecting screen after screen you could build a picture one hundred feet long.

A companion program is **Flexifont**, written by Scott Maxwell. It allows you to create signs and pictures in various character styles (like Olde English).

If you can't (or won't) fork out a couple of hundred dollars for the deluxe brand of drawing utility, you could go for the familiar **Tech Sketch** lightpen, which was available at a booth a few doors down. The hazards of crossing the border into Canada caught up with some of the **Tech Sketch** disks. Apparently Canadian customs decided to zap a couple of boxes with some form of x-ray machine and, while looking for contraband, the border men accidentally left behind a bunch of read errors. After getting several disks back during the show, salesmen started checking each disk as it was sold.

To hook you into the banking system, electronic shopping mall or local BBS, you need a modem. Picking up on the shortage of autodial/autoanswer equipment, Bot Engineering of Milton,

Keyboard Strikes Sour Note

by Ken Cox

Imitation may be the sincerest form of flattery, but it is not music to the ears of a U.S. company that developed a keyboard overlay for the C-64.

First, we check the Commodore display, where Rick Cardinelli of London, England, sits in his morning suit, merrily playing the Commodore Music Maker.

"It is probably the very best on the market", says Cardinelli, "and at the moment it is selling very, very well in England."

When asked who actually developed this Commodore-backed package, John Van Til of Music Sales, in London, modestly replies, "It's really a group of people." Yes, but which group?

We amble across the hall to another exhibit, where the Incredible Musical Keyboard, (also known as the Kawasaki synthesizer) draws a crowd. Curiously, the keyboard resting on the Commodore 64 is identical to the one we have just seen.

George Staleos, of Sight and Sound Software in Wisconsin, was not amused with the carbon copy, especially when his piece of plastic cost 75 thousand dollars to develop.

"I walked into the show, and lo and behold, there it was! The unit is identical. It took us six months to develop the mould changes. They copied everything — the box, the size, the interior packaging, even the labels on the keys!" But not the music book, George. "They had to change something", he said. "I was shocked."

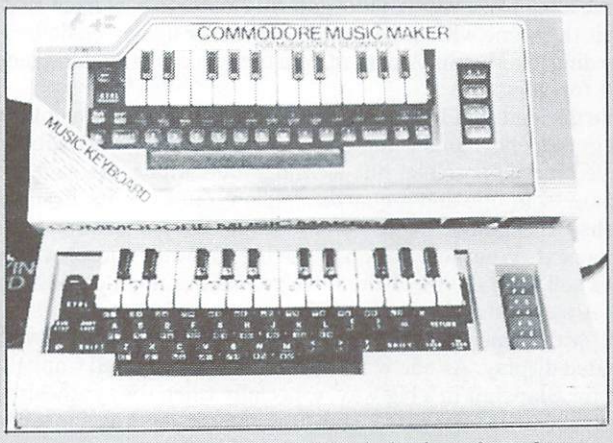
How could a British company conjure up the American's keyboard?

It seems that John Van Til worked for Sight and Sound for two years, as head of its European office. Then he moved to another music publisher called Music Sales.

In the summer of 1984, Music Sales and the Sight and Sound people met in Wisconsin to discuss a deal for distribution or licensing of Sight and Sound's Incredible Musical Keyboard — the item on display. Even though they didn't reach an agreement, Music Sales turned up with the same keyboard — except for the logo in the bottom right corner.

Staleos says his rival "saved time and money. Their advantage was that they could make the mould from a perfect specimen." □

Sight and Sound claims its 75 thousand dollar design was copied.



Who really designed this British keyboard package sold by Commodore?

Photos by Ken Cox

Ontario, offered its Pocket Modem for $150.00. "It is functionally the same as a (Commodore) 1650", said distributor Ed Stewart. "It will accept all of the standard software." The small modem in the plain package was in short supply. "We are currently geared to make about sixteen hundred a month. We didn't realize how big the Commodore market was. For every Atari that's been sold, there must be a hundred Commodores."

Photos by Roberto Portolese

Gleeful thief attempts to steal Butterfield seminar sign.

No matter how many "shoot 'em ups" there are, somebody will always make another. In the arcade gallery, Canada's pistol-shooting Olympic Gold Medal winner, Linda Thom, hit level 42, with 44,000 points on a Stack Light Rifle game. Thom brought the same skills to the video range as she has done to her sport: "Good aim, steady hand, and keep your eye on the target." The champion even surprised herself. "I expected to be beaten, because some of these guys are real arcade denizens," she admitted, as fans gathered to seek autographs and admire the gold medal hanging from her neck. "I guess I do have a lot of skill on the shooting game."

...or a Russian player was flattened to the ice...

The World of Commodore saw the first skirmish in what could become a big price war in videogames. Mastertronic, from Britain, hit the scene with good quality games for under ten dollars. According to Martin Alper, of Mastertronic in London, they opted for volume.

"We decided that if we reduced the price to under ten dollars we'd get an enormous volume out on the marketplace. Nobody believed it was possible, but we did," said Alper. He said the company sold one-and-a-quarter million games in its first six months in England. Canada is following the pattern, and the U.S. is next. What will this do to the big software houses whose games sell for $40.00? "I think we're making them panic a little," Alper said.

Still with games, Advantage showed its latest in another well-attended display. As one would expect, hockey-crazed Canucks went for **Slapshot** in a big way, especially when the synthesized voice yelled "He Scores!", or a Russian player was flattened to the ice.

One of the most popular products at the show was a good-looking peripheral from San Jose, California — Sequential Circuits' MusicMate keyboard, which is sold through Commodore dealers. Pro-Line Software had an effective demonstration of **The Wordprocessor**, by Steve Punter, on a Brother HR-15 printer. And for those whose BASIC programs run out of memory, C'TEC Inc. of Galveston, Indiana, showed its Memx 64K to 256K memory board.

A rather strange tape drive made it to WOC II just hours before the show opened: the Quick Data Drive from Genamation Inc., developed in California. The storage medium for this small device is a 'wafer', which holds 128K. The wafer is a tiny cassette, about a third to a half of the size of a standard cassette. An endless loop of tape races past the head, giving supposedly faster sequential data handling. (The cost of the drive, when it becomes available, will be $129.95).

...while looking for contraband, the border men accidentally left behind a bunch of read errors...

When not actually computing, many people are reading about the hobby. One publisher represented was Copp Clark Pitman Ltd., who produce a vast array of books for Commodore computers. Sales agent Taras Tataryn flipped through a catalog boasting thirty-seven books for the C-64, twelve for the VIC 20, six for the Commodore 16, and twenty-one for Commodore computers in general.

A new line of twenty-two *Sunshine* books from Britain ranges in price from $12.95 to $14.95. Tataryn predicted that competition from these books will drive prices down.

The international sale of Jim Butterfield's *1985 Reference Diary* prompted one salesman to relate a lesson about promotion. Apparently, sales were okay in Britain, but much better in Australia. The inside of the diary was the same, but the cover was different in Australia — black, with a big Commodore logo. The strong identification with Commodore sold it, or so the story goes.

In the field of computer aids for the disabled, Karl Ullman of Informatic Software demonstrated a briefcase-sized keyboard with large keys. Through the Votrax-based voice synthesizer, a stroke victim could communicate using phrases selected from a menu, even down a telephone line. Another program will patiently help a mentally retarded person to memorize an important telephone number.

At the TPUG booth, a computer versus computer chess tournament continued throughout the show. Club member Bill Bullock reported that a 'sleeper' came out on top. His ranking put **Colossus Chess 2.0** first, followed by **Sargon III** and Odesta's **Chess 7.0**. "It was a pretty slim sampling, though", Bullock said. "All three were on a par. I'd like to look into it further to see how they do over a larger number of games."

The World of Commodore was a good show for people who wanted to see what was new, for those who just like to be around computers, and for those who needed a first-hand look at a package they were considering. To pre-Christmas shoppers, the show offered plenty of bargains, such as disks at $15.00 a pack. Because of the crowding, buyers sometimes needed sharp elbows to get near the best stuff. Traffic on major aisles was stop and go during peak hours.

Show manager Cam MacDonald was delighted with the attendance, and announced that there will be a World of Commodore III starting November 28, 1985. Not bad for a show that was originally intended as a one-shot celebration of Commodore's first quarter century. □

New CBM Boss Wants More in the Family

by Ken Cox

The newly-appointed president of the Canadian subsidiary of Commodore Business Machines has vowed to keep existing Commodore owners in the "family", while adopting a strategy to attract even more. As he proudly surveyed his company's display at the World of Commodore, Alfred Duncan talked about plans for a bigger push into the business market and for more computers in schools, while still keeping the hobbyists interested.

On the latter scene, one of the complaints from Commodore users has been a lack of upward compatibility in recent machines, both in hardware and software. Duncan voiced concern about alienating users. "We don't forget about our customers once they buy a Commodore product. We would like to keep them in the family for ever."

While pointing out that Commodore 16 software runs on the Plus/4, Duncan commented: "We try not to let the compatibility issue stand in the way of utilizing an improvement in the technology. In the Plus/4, as a result of a change in the operating system, we have much more usable RAM with the 64K than was available in our previous products. That results, unfortunately, in a lack of compatibility. But we recognize the issue, and are paying close attention to it in our research and development."

"... We don't forget about our customers once they buy a Commodore product."

Watch for a new computer on the business front. "Commodore has a technology licensing agreement with Hyperion that allows us to use the technology that Hyperion developed. We intend to utilize that technology with some modifications our engineers have made to introduce a new business computer. It will be fully IBM-compatible."

Some observers have become sceptical of Commodore's product announcements, but Duncan insists the days of touting computers that failed to appear on the market are "long gone".

Surveys show that Commodore still has a twenty per cent share of the Canadian small business market, largely because of its past success. "You buy a computer system to do something for you, and it doesn't matter when you buy it whether or not there's something down the road that may be a little more technologically advanced. It is still performing the function."

In the education market, Duncan wants to put Commodore 16s and 64s into more classrooms, along with educational software. "We can put more computers per dollar into schools than any other computer company in the world. We're going to continue to do that here in Canada."

This gives Commodore an advantage in the future, because youngsters who learn on a Commodore computer at school are potential buyers for home machines.

Duncan gave an example of how truly international Commodore has become: "The semiconductors are manufactured in Pennsylvania and California onto a wafer. The wafer is then air-freighted to Hong Kong where it is cut up and turned into a chip. The chips are then put onto a printed circuit board either in Hong Kong, Japan or Taiwan. They are then air-

...The new business computer will be fully IBM-compatible...

freighted all around the world to the assembly facilities. At the moment there are two in the U.S., one in the U.K. and one in Germany. The end units are distributed throughout the world."

Duncan sees differences between North American users and those in Europe: "The European user is less oriented towards game and recreational software than we are in North America, and they seem to be much more interested in education and productivity types of software. The U.K. market is unique in that they have much more software on cassettes than we have here. That's partially a function of cost. Because of the tax structure, the CPU is a little bit more expensive than it is here, and the cassette deck is a lot less expensive than a disk drive."

Again on the Canadian scene, Duncan said Commodore of Canada is one of the most successful subsidiaries in terms of per capita sales.

"... We can put more computers per dollar into schools than any computer company in the world."

"Our penetration here in Canada is much higher than it is in the United States. The number of units per household, for example, is upwards of fifteen per cent in Canada where it's only nine or ten per cent in the U.S. Having said that, the Europeans are much more advanced than we are in Canada in terms of home computing. Their usages are much more productive and serious education oriented, and there are more computers per household in Europe than there are in Canada."

Commodore recognizes that Canada is a bilingual country, and provides many French language educational programs. It has taken a step further with the software built into the new Plus/4. "The software came up here in English, and we have now managed to translate that into French. We'll have a fully French language Plus/4 product for the French-speaking market." □

Program Piracy and Personal Ethics

by Jim Butterfield

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A number of isolated thoughts relating to piracy, copyright, legality and ethics.

I try not to sound as if I'm preaching on the subject of program piracy. If a school student rips off a program that is sold commercially, it won't cause me to lose any sleep. But maybe it should cause him or her to lose a little sleep.

If someone steals a program and then feels rather tacky about it, that seems to me to be an appropriate state of mind. With thousands of free programs available, why lift one in the first place? But here's what baffles me: I can't understand the types who steal programs and then seem to think that the theft makes them the smartest people on earth. That's smart?

It can be interesting and educational to look into protection mechanisms to see how the trick is done. The area doesn't interest me personally, but one can look into inner workings of computers and disk systems, and learn things about their mechanisms and logic. If someone tells me, "Hey ... I figured out how **Galactic Zappers** does their protection system", I'm likely to reply, "Good detective work; I bet you had fun doing it".

If the same person tells me that a backup was produced, I'm still not too worried. But when I hear about copies made for friends and relatives, I tend to lose interest in the conversation and move away. The annoying thing is that such people seem to be expecting congratulations for performing an action to help mankind. They see themselves as Robin Hood.

Pirates who make copies and give them to friends are tacky. Pirates who make copies and sell them are criminals. Once you start making money from this kind of stuff, the whole rationale of a 'youthful prank' collapses.

But I'm still not sure how to rank pirate pirates, who take pirated software and copy it. Dumb, maybe? It is interesting to note, however, that nobody in the world gets madder than a pirate whose work is ripped off. Talk about moral indignation...

In the same vein, many pirates of previous years have taken jobs with software houses. It's amazing how their ethics have changed, now that their own programs are involved.

I've often said that the best protection for programs is in support: updates, service, documentation and warranty. Users believe they are buying a service, not an object. Too many software houses believe they are selling an object — disk, tape or cartridge — not a service.

. . . it is interesting to note, however, that nobody in the world gets madder than a pirate whose work is ripped off . . .

At a recent TPUG meeting, I mentioned SubLogic's **Flight Simulator II**, saying that it would be hard to pirate. This is not so much for the disk protection scheme as for the packaging: attractive four-colour box, two substantial books with four-colour covers, four navigation charts, supplementary notes sheet, flight control card and warranty card. Oh — and it's a very good program, too.

With all this packaging and material — all of which are important, if you want to use the software effectively — piracy did seem unlikely. Sure, there would be (and are) a few disk copies around, but without the documentation, they would be of limited value.

I was wrong. A highly professional piracy group has been putting out bootleg copies — complete with enclosure, four-colour printing, and the whole package. It even has the SubLogic warranty card inside. More on this in a moment.

No club should tolerate open piracy on club premises or club time. What members do in the privacy of their own home is between them and their consciences (and maybe the cops).

Many software houses believe that clubs exist for the sole purpose of stealing programs. I hope that's not true of any clubs; it's certainly not true of TPUG. But because of the implied bad reputation, clubs must make an effort to be squeaky clean.

I recently received a letter from a visitor to Toronto. He said, in part, that it could be the clean and bright appearance of the city that led to us being a highly ethical team up here.

It was a nice thought, but it doesn't quite work.

Turns out the professional software ring that has been bootlegging **Flight Simulator II** is also a Canadian-based group, not a hundred miles away from Toronto. The story will probably break before this article is published, but at the time of writing I can't name names or places.

It's nice to see Canadian technical innovation and commercial initiative at work . . . usually. But I don't think I'll brag about this one too much.

As far as I know, the laws on software piracy have not been fully tested in the courts yet. But there's an interesting legal side issue: you can get 'em for sure if they copy the documentation. The laws about copying books are very clear indeed. □

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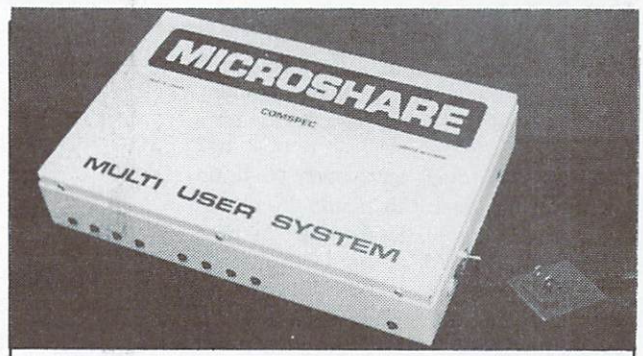

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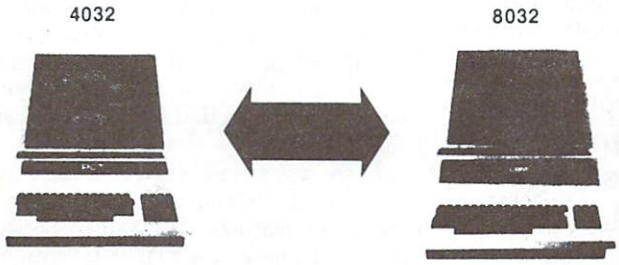

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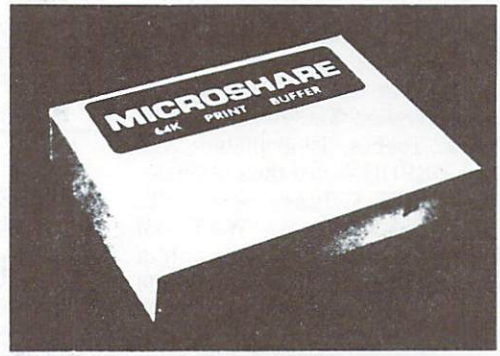

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SuperPET Deeper Down

by Brad Bjorndahl

Up to this point, my articles on the SuperPET have been intended to illustrate its character and potential. This may have resulted in an overly positive image of the machine. A little serious criticism is due, if only to placate the cynics.

Most of the topics have been general and at a high level: this is not the place to provide detailed descriptions of the ROM routines. At a high level the SuperPET is, in fact, well designed. The languages have only minor bugs, the ROM routines are useful and effective, and file handling is better than Commodore's.

On a nuts-and-bolts plane, difficulties arise. Waterloo used a high-level language called WSL to generate most of its code for the interpreters, editors and the operating system. Many sequences of instructions could have been reduced in size, if only WSL 'knew' the functions of all the registers. Because of two projects that I will describe in a moment, it has become painfully clear just how difficult and inefficient the WSL code can be. For example, it has been estimated by more than one person (and I agree) that the operating system is about twice as large as it needs to be. Also, the editor has been rewritten so that it is several times faster, and requires two fewer disk blocks, than the WATCOM version. The rewritten version, by J. Toebes, is available from TPUG and ISPUG — see the December 1984 *SuperPET Software* article. To bring the point home, the WATCOM microBASIC interpreter requires 40K of memory despite using many ROM routines.

The first of the two projects involves a number of members of ISPUG (led by Toebes) who are attempting to prepare a BASIC compiler to run on the 6809 microprocessor. It will be modelled after the WATCOM microBASIC. There are currently no compilers for the 6809 side of the SuperPET and, since microBASIC is so well designed and BASIC is popular in general, it seems to me an obvious choice. After volunteering to help, I was sent two 4K banks of the WSL interpreter code. The first phase of the project, the disassembly, had been done before I entered. The second phase (at least as difficult) is to structure, comment and document the code as well as possible. After examining the output of WSL, I feel that the following comments are fair.

First, WSL is not optimised to the 6809 processor. There is a great deal of redundancy because registers are often loaded with values that they already contain. Secondly, many structures that are apparent in the code cannot be replaced with the structures provided by the microAssembler: I often find a 'Guess-Admit-Endguess' structure that contains a branch out of the structure, defeating its purpose. Perhaps WATCOM has a more sophisticated set of structure statements (as implied in their *Portable Software* article in the August/September 1984 issue). Thirdly, there are many 'jump' statements, to the middle of other subroutines. What is worse, as far as disassembly is concerned, is that the destination subroutines are often in other banks of memory.

The same problems also made the second project more difficult. The OS-9 operating system, lately adapted for the SuperPET by TPUG (with special help from Avygdor Moise), requires routines called drivers, whose function is to interface the operating system with I/O hardware. While working on the disk routines, Moise asked for assistance with the keyboard, screen and port drivers. I offered to write a driver for keyboard. In order to do this, I found that it was necessary to determine how the existing interrupt routines 'interrogate' the keyboard PIA chip. That code was particularly messy, with numerous jumps and branches, but it was not very long. In short, I rewrote the keyboard driver in a structured way. Moise took the result, corrected a few bugs I had introduced, and improved the quality of the code still more. In addition, he added some new features (such as two-key rollover) and implemented a control key.

. . . It has become painfully clear just how difficult and inefficient the WSL code can be. . .

As a result of being involved with these two projects, I can briefly describe the WSL output as low-quality code — the kind of work that, from a human programmer, might be termed 'amateurish'. Does the quality of the code affect the user? This is the only important question for most SuperPET owners. There are two somewhat opposing considerations, with respect to the quality of software code — ease of maintenance, and efficiency. In this case, maintenance is not an issue. The average user will not be modifying the operating system or interpreters, as was done for the keyboard driver.

Code efficiency has two complementary aspects: size and speed. I have already described how much memory is demanded by the operating system and microBASIC. However, the memory used by the languages is bank-switched, and is not normally available to a user's program. All interpreters, large and small, provide about 30K of low memory to the user. No doubt PEEKs, POKEs and system calls can make unused portions of bank-switched memory available, if necessary. Speed of code is a different problem. Any SuperPET user will tell you that the languages are relatively slow. Whenever I switch over to BASIC 4.0, I am surprised at how fast it seems to be. WATCOM microBASIC is much nicer to use than BASIC 4.0, but I will make a very rough guess that it is fifty per cent slower.

There was a time when I thought that the speed difference was somehow due to the extra features that had to be supported. I know now that it is mainly a result of inefficient code. Of course, no one uses interpreters for run time efficiency, but some users will find the long jobs tedious. For example, I have an APL program that searches numerical sequences for looping, and a search of five hundred sequences takes two to five hours, depending on the starting parameter. I have no doubt that reasonably efficient code would execute in minutes, not hours, but I can't complain too much. Without the APL interpreter I probably would not have the program at all. □

Game Piracy: Mastertronic's Answer

by Ian A. Wright

In one corner of the 'World of Commodore II' show I was assaulted by a sight and sound barrage that seemed to herald a change in the marketing of computer software. A dance group breakin' to the Jacksons' music attracted crowds to the Mastertronic display, but what caught my attention was their prices. Mastertronic, a British company, is selling software games for under ten dollars. That's right — packaged games at $7.99 for the VIC 20 and $9.99 for C-64 games. This company may single-handedly alter the industry's marketing strategies for computer games — and may help to stop the problem of software piracy.

Software, Gameware

I should distinguish between computer software games, and software for business users and utilities. Games — even complex ones — don't ordinarily require a great deal of documentation or after-sales support from the manufacturer. However, business software and utilities (word processors, spreadsheets, database managers) usually have elaborate manuals and tutorials, and include some kind of update process in the package. Most piracy is aimed at the games market because most business software is difficult to use unless you have the complete package. Few businesses will risk their reputation by using stolen software, and few home users are willing to forego the necessary handholding.

Gameware prices

Bought any games recently? The average price for computer games is close to forty dollars (Canadian, without tax), according to Barbara Freedman of Canadian Software Source, while some — **Ken Uston's Blackjack** is one example — are priced at over sixty dollars. These games may be worth the sticker price and more; nevertheless, gameware costs are a contributing factor in the growth of the 'pirate market'. Software designers say they must be paid for their art, and programmers for their time and effort in producing a game. Manufactures cite rising costs for production and materials. Distributors and retailers have to contend with fixed costs and limited shelf-life. Therefore prices are high — often beyond the means of the young people for whom the games are mainly intended. Their perspective is different: their time is unlimited, their labour cost is zero, and their fixed costs are negligible. Thus was born the 'pirate'.

The Pirates

For as long as software protection has existed, so have the small, highly-skilled groups dedicated to breaking it down. As the protection got more sophisticated, so did the pirates, with an increasing emphasis on specialization. According to a number of knowledgeable sources, pirate groups were typically composed of students of various ages, some of whom were adroit at dealing with, say, read/write errors. When a piece of heavily protected software was obtained (bought, borrowed, loaned...) it might have to be passed around the group until all the keys were found. That could involve rewriting whole sections of machine code — an immensely time consuming job. The group's final touch would be to rewrite the program's screen credits to include a line like "...brought to you by the BIT BYTER". This was their way of advertising their expertise and stroking their egos.

For a number of reasons, pirate groups are no longer so widespread as they once were. Some former pirates have matured and found other activities to occupy their time. For many, the thrill of breaking a program is gone since the manufacturers cannot afford to install ever more sophisticated protection schemes. The game has become boring.

Some manufacturers have found it necessary to employ former pirates as professional protection consultants, to construct or test protection schemes for new products. Some groups have disbanded because of internal disputes. Whatever the reason, there are now fewer of these groups around — but game piracy is becoming even more common.

The Domestic Pirate

In recent months there has been an explosion in the material designed to 'break' existing software protection schemes. Disk-copy programs and how-to books are readily available. No longer is it necessary to be part of a pirate group: now you can buy (or copy) the expertise, and 'do it yourself'. Rather than just pirates, there are now 'traders' who barter pirated game copies with each other — somewhat like bubble-gum cards. To me, the most amusing part of home piracy is that those commercial copy programs are also protected against copying. You cannot use your new copy program to copy itself so you can give it to your friends — but other copy programs can copy your copy-protected copy program!

Mastertronic's Solution

The Mastertronic line of British software is being handled in Canada by Bullock Industries of Markham, and according to David Harding, Bullock's aggressive sales policy has put Mastertronic gameware into a number of department and mass-merchandising stores like K-Mart, Simpson's, Woolco and Zellers. Back in the U.K., over fifty per cent of Mastertronic's line of games made it to the software 'Top Ten', and Mastertronic has gained thirty per cent of the entire games market.

Any game costing less than ten dollars must be simple, and lacking in high quality graphics and sound, right? Wrong. My son has been playing Mastertronic's **Chiller**, **BMX Racers** and **Space Walk** recently, and the quality of each of these is better than most games that sell for over twice the price. I'll leave it to him to review the games, but I was favourably impressed.

Harding says, "There's a short interest attention span and a low boredom threshold on any arcade game, regardless of price. Who wants to pay top dollar for an eventual dust collector?" My own experience bears this out: there are forty dollar games on my desk that I have not loaded for months.

Mastertronic shouldn't be troubled by piracy — the cost is so low that there is no incentive to wait for a pirated copy. The games can be bought with pocket money rather than being a major purchase. Gameware may be moving to the same status as commercial audio records and tapes. It was originally thought that the introduction of tape machines would ruin the record industry: it didn't happen. The continuing spiral of game protection and piracy have to stop somewhere. Let's hope Mastertronic will lead the way. □

New Computers At The CES Show

by Chris Bennett

Commodore introduced two new computers at the winter Consumer Electronics Show held in Las Vegas in early January. A variety of new peripherals and software was also shown.

Commodore 128 Personal Computer

The Commodore 128 Personal Computer is a sleek machine in a light beige case. It has a 92-key typewriter-style keyboard with a 14-key numeric keypad, eight programmable function keys, individual cursor keys, a HELP key, a 40/80 column key, and other keys called LINE FEED, NO SCROLL, ESCAPE, TAB, ALT and CAP LOCK. The machine comes with 128K of RAM, user selectable 40/80 column full colour display, and the best BASIC of any Commodore machine. It will be available in the spring, and should sell for about 250 dollars U.S.

The C-128's Commodore 64 Mode is said to be 100 per cent compatible with all C-64 software, both on disk and on cartridge.

Rumours about the C-128 have been flying about for some time, but they were always irritatingly vague or contradictory. Now we can see why — this is a complex machine. For starters, the C-128 has three operating modes. The Commodore 64 Mode is said to be 100 per cent compatible with all C-64 software, both on disk and on cartridge. The CP/M Mode uses Digital Research's CP/M 3.0 operating system. This means that all software written for CP/will run with little or no modification. The Commodore 128 Mode features Commodore's most powerful version of BASIC called — would you believe — BASIC 7.0. This is an extended BASIC after the pattern of the Plus/4 and C-16, but with powerful new commands for dealing with sprites and sound. Video output in Commodore 128 Mode can be set to either 40 column colour, or to 80 column colour (in conjunction with the new 1902 RGBI monitor).

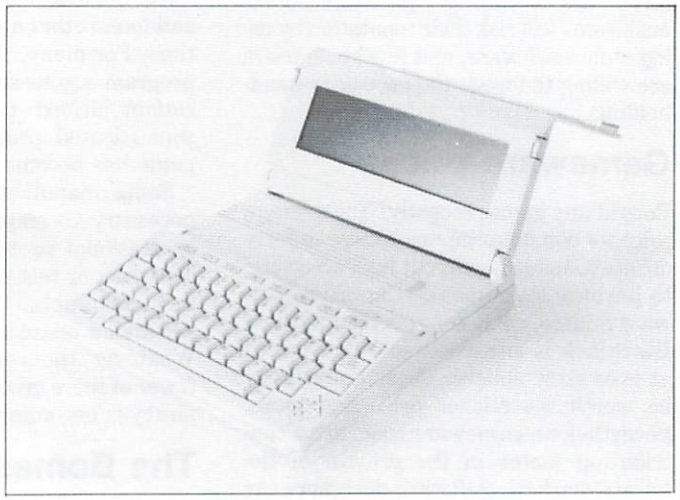
The C-128 can be expanded to 512K of RAM, although only 128K can be used for BASIC. The 8502 (6502 Compatible) microprocessor runs at either 1 or 2 MHz clock speed. The Z80A microprocessor used for CP/M mode runs at 4 MHz, while the 6510A microprocessor (for C-64 mode) runs at 1.02 MHz. The 80 column screen has 640 by 200 pixels and the video outputs include a digital RGBI, chroma/luma, standard NTSC composite video and RF/TV.

While the C-128 will work with existing peripherals, the full power of the machine will not be realized unless the Commodore 1571 high-speed disk drive and 1902 RGBI monitor (80 column colour) are used.

Commodore LCD Personal Computer

The Commodore LCD Personal Computer is a briefcase-size, lightweight computer complete with built-in applications software and a 300 baud auto-answer/auto-dial modem. Weighing about five pounds, the LCD lap computer has built-in Commodore BASIC 3.6, 32K RAM, 96K ROM, and one of the largest screens available in its class (80 columns by 16 line Liquid Crystal Display). It features a 72-key keyboard with eight programmable function keys and four cursor keys, and can run on 4 AA alkaline batteries for 15 hours.

The software built into the LCD computer includes a word processor, a file manager, a spreadsheet, an address book, a scheduler, a calculator, a memo pad and a terminal emulator. The machine also has a serial I/O port for Commodore disk drives and printers, an RS-232C port, a Centronics port, modular phone jacks for a direct connect modem, an expansion port, and a bar code reader port (Hewlett/Packard Compatible). The LCD will be available

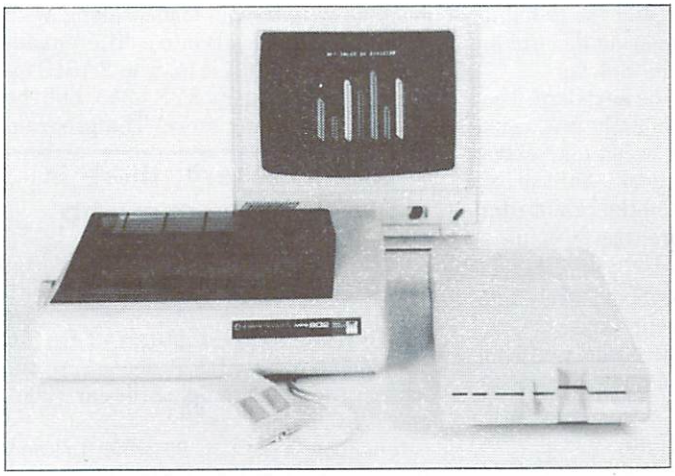


The Commodore LCD Personal Computer can run on 4 AA alkaline batteries for 15 hours.

during the first half of 1985 at a cost of about 500 dollars U.S.

New Peripherals

Besides the new computers, Commodore showed a variety of new peripherals, including a fast disk drive, hi-res monochrome and colour monitors, and two new modems.



In the CP/M mode, the 1571 disk drive will hold about 410K of formatted data.

The Commodore 1571 is a double-sided disk drive that will work with the C-128 in Commodore 64 Mode at 300 cps (just like the 1541); in C-128 Mode, it runs at 2000 cps; in CP/M Mode it will read at 3500 cps and will also read most CPM format disks, including IBM system 34, Kaypro and Osborne. In C-128 mode, the 1571 uses both sides of the disk, for a total of 350K of storage. In the CP/M mode, the 1571 will hold about 410K of formatted data. In the C-64 mode, the standard 170K on one side is available.

The Commodore 1901 Monochrome Monitor is suited for applications such as wordprocessing, database, and spreadsheets that need a high quality 80 column non-colour display.

The Commodore 1902 RGBI/Composite monitor complements the C-128 computer. It is a high-quality colour monitor that will provide a clear display in either 40 or 80 column mode. No special cables or interfaces are needed. The monitor is compatible with all computers using RGBI or composite output, as well as with videocassette recorders.

The Commodore 1660 and 1670 are two new modems for the Commodore 64, Plus/4 or Commodore 128. The 1660 is a 300 baud direct-connect modem with auto-answer, auto-dial, and a built-in speaker. The 1670 is a 300/1200 baud direct-connect modem that features auto-answer/auto-dial, auto baud rate and parity, and a built-in speaker.

The March issue of TPUG Magazine *will contain in-depth coverage of the new hardware and software announced at CES.* □

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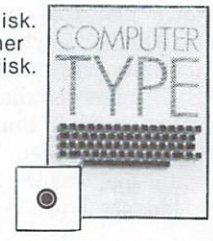

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Sunset Days For The VIC 20?

by Malcolm O'Brien

"The one to grow on". That's what the ads said. A lot of us believed it, too — maybe a million of us, or so. If you couldn't trust Captain Kirk, who could you trust? For many of us, it became "the one to grow tired of"; or "the one to grow out of". Only a very few of us decided that it was "the one to grow old with".

Those with long memories (about three years — a long time in the computer world) will perhaps remember that the VIC 20 came onto the market with a bang. Wonderful features, at a wonderful price. Real keys, not a flat membrane keyboard like the Sinclair or the Atari 400! Colour and hi-res graphics! Sound, a disk drive, game cartridges and a cheap modem! This computer had everything, and at a fraction of the price of an Apple II or Atari 800!

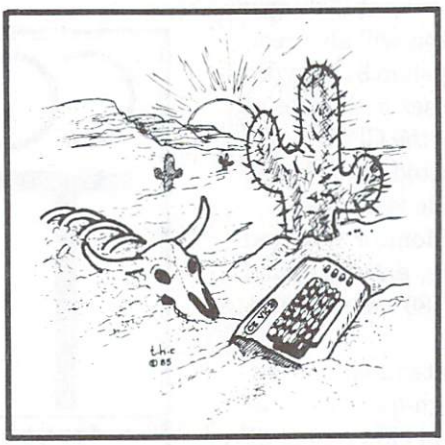
I always wanted an Atari 800, but couldn't afford one. A friend bought one, though. It cost him almost a thousand dollars. At least by then they were including the BASIC ROM with the machine, instead of selling it separately! About six months later, I bought a VIC 20: a steal at 250 dollars (second-hand, with no storage device). Another 100 dollars got me a Datasette, and I already had a black-and-white TV that I'd been using with my Sinclair ZX81.

I read the *Programmer's Reference Manual*, started buying *Compute!* (there was no *Gazette* at that point) and attended a TPUG VIC meeting (VIC meetings were bigger then — even when Jim Butterfield *wasn't* there). I learned Commodore BASIC and 6502 machine language. And today, although I compute on a daily basis, my VIC 20 sits ignored — forlorn and rejected. But why?

Grim reality set in. The hi-res graphics amounted to a sine wave at the upper left corner of the screen. The absence of graphic and sound commands in BASIC meant memorizing an array of five-digit numbers, along with the purposes of the various values that could be POKEd into them. The 3583 bytes were insufficient to accommodate much of a program in BASIC, unless you chained three of them together and didn't mind the wait while the Datasette loaded them in. The worst part, for me, was the 22-column screen. The kindest word I can think of to describe the VIC 20 screen is "goofy". It drove me nuts! I wanted to continue computing, but I couldn't stand the thought of looking at that screen again. For a time, I went back to the Sinclair!

To be fair, I still love the keyboard. The VIC 20 does have the 6502, the VIC chip, the interface adapters; it can take extra RAM, can be interfaced to a hard drive or a BSR module, can be the brains of a robot; best of all, there are 80-column boards!

The problem is: everybody 'grew on' their VIC 20s in different ways. Maybe you've encountered the same problem that I heard about at that first VIC meeting. A man there had bought a motherboard, 8K cartridge and a 16K cartridge. When he put them all together, he only had 16K. His 8K occupied the same memory addresses as his 16K. Right away, as a new user, he had spent a significant sum of money on something that was useless to him.



If Commodore had offered a cartridge that added the full complement of RAM and extra columns on the screen, the VIC 20 would be alive today. But the code for the extra columns would have been located at $A000, where everything else was located. That's why you can't use the **SuperExpander** and **Programmer's Aid** at the same time, even though you might have bought a motherboard just to do that very thing. Software developers couldn't be sure of the configuration of the machines, and so it was difficult, perhaps, to cater to the VIC 20 market.

Problems. Confusion. I used the terminal program that came with the 1650 Automodem. It runs on the unexpanded VIC 20. Was I surprised when it ceased to run after I'd plugged in 16K! The machine language is loaded along with the BASIC, and loads into a different address when the 16K is in. The BASIC includes the statement SYS 4300, but the ML isn't there any more! The program

...somewhere, there is a VIC 20 owner who learned everything about the machine...

should really PEEK the start of BASIC and add an offset. But it doesn't, so the hapless user has to unplug the cartridge, and load again.

It behooved the VIC 20 owner to know the basic machine very well and to eye the market very carefully before buying anything! This was hardly the 'user friendliness' that people were looking for when they bought the machine. Many owners made costly errors because they were ill-informed; moreover, this situation continues to this day. It is comforting to think that it now costs only 79 dollars to put yourself into this situation.

Somewhere, there is a VIC 20 owner who learned everything about the machine, made informed and prudent purchasing decisions in expanding his machine, and created for himself a viable, valuable and powerful computer system that he is using every day. And that user now sits ignored — forlorn and rejected.

But there may be light at the end of the tunnel (instead of a train). Something may happen to give new life to the VIC 20 and its user. My crystal ball is cloudy, but I perceive a good, cheap hardware modification coupled with software support from the usual sources (user groups and magazines). Some changes can have a dramatic effect. The implementation of OS/9 for the SuperPET is a case in point. As I typed the press release for TPUG's announcement of this development, I had the feeling that microcomputer history was being made. And I have no doubt that this will change the face of computing in the world of Commodore.

All that's needed to revive the VIC 20 is ideas. Maybe they will be your ideas. Give it some thought. In the meantime, remember: it's not how much you get, it's how little it costs. Caveat emptor. □

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Forecasting with the 8032: Part Six

by John Shepherd

*PET disk (P)T6 in the TPUG library contains four programs that can be used to project historical data into the future, using a process called time series analysis. The first five parts of this series of articles (*TPUG Magazine, *May, June, July, August/September, October and December issues) defined some forecasting terminology and a few of the concepts, and showed how to operate the programs. In this, the final article of the series, John Shepherd discusses how to choose the right forecasting model for a particular application.*

Forecasters today have literally hundreds of models from which to choose. The choice of an optimum model is a matter of judgement requiring some experience. The four TPUG programs offer some twenty-five commonly used forecasting models. In this final article of the series, I will try to show how to produce realistic forecasts using these programs.

Collect the Data

The very first step in preparing any forecast is to gather the historical data. This must be in the form of a uniform time series, with no gaps due to missing data. In the subsequent calculation of expected forecast error, the more data we have, the better the statistical evaluation of the model. If there is seasonality in the data, at least two and preferably three 'years' of data are required to calculate usable seasonality factors.

Graph the Data

The next step is to graph the data to examine it for a pattern, or even for a lack of pattern. The choice of optimum forecasting model is very dependant upon the observed historical data pattern. The program **forcst data.8** accepts data as a sequential file, for use in the three other programs, and permits up to 100 data points to be shown on the 8032 screen as a double density plot.

A number of possible data patterns are shown in Figure I. In evaluating various alternative forecasting models, look to see whether the data show any 'trend', or whether they show a 'constant demand'. If there is trend, try to see whether it is 'linear' or 'quadratic'. Watch out for changes in trend, which are called 'ramps'.

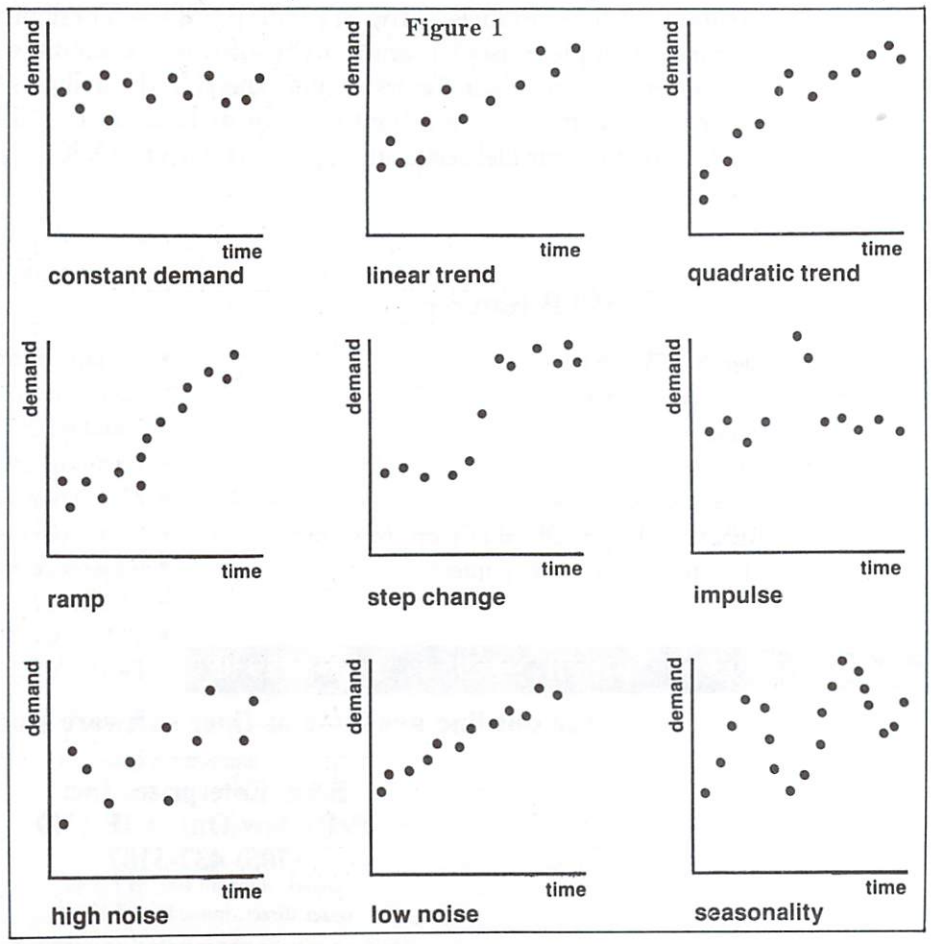
Sometimes, sudden but sustained changes in the level of demand occur. These are called 'step changes'. 'Impulses' are infrequent, random and large variations in demand which, if present, can also affect the choice of model. Frequent random variations in the data about a trend are called 'noise'. Try to determine whether the data shows a high or low amount of noise. The program **forcst data.8** will calculate seasonality factors to help in determining whether any significant amount of seasonality is present. All of these patterns are shown in Figure I.

Determine Forecast Requirements

Having examined the data, the next step in deciding upon the optimum model is to determine the forecast requirements. The most important consideration is the forecast lead time — whether the forecast is to be immediate, short-term, medium-term or long-term. For example, the effect of seasonality is not important for long-term forecasts, but must be considered for immediate or short-term projections. Exponential smoothing models are more suitable than linear regression models for immediate or short-term forecasts. The former give the most weight to recent data, whereas the latter give equal weight to both old and new data.

It is important to keep the cost of the forecasting procedures to a minimum, particularly if there are many sets of data to analyze. There are two kinds of costs. 'Initial costs' are those associated with gathering the first set of data, determining the optimum model and preparing the first forecast. 'Iterative costs' are those associated with preparing subsequent forecasts, as data is added for subsequent

Figure 1



periods. One iterative cost is the cost of providing memory space for the historical data required for iterative calculations. Exponential smoothing models require a minimum of data, whereas linear regression models usually require considerably more data.

The most important property of a model, however, is that it be easily understood by the person using the forecast. The purpose of a forecast is to reduce uncertainty and risk in decision making. All forecasts will usually have some error, although the proper use of these programs can determine the amount of error to be expected. The most sophisticated and expensive techniques cannot eliminate this uncertainty. If a user does not understand the rationale behind a forecast, he will not understand the degree of uncertainty and will not use the forecast properly.

Choose the Best Model

In choosing an optimum forecasting model, judgement must be used. It would be possible to develop a program to mechanically try out all twenty-five models, to choose the model with the best statistical fit. Such a procedure should be used only with extreme care, if at all. Just as most people can find meaningful patterns in random data, if they examine them long enough, so can a computer uncover a result that reflects aberrations in a particular data set, rather than choosing a meaningful model for projecting a forecast.

For the eleven basic model categories in the TPUG programs, **Table I** summarizes their applicability to different data patterns and forecast requirements. In choosing a model, do not expect it to describe any underlying process: choose the simplest model that handles the observed pattern, meets the requirements and has a reasonable fit to the data. In some cases, none of the models may fit particularly well: often, the data will be highly random, and the forecast would not be significantly improved by more sophisticated models.

Remember the example of stock market prices. Many studies have shown that stock market price movements are essentially random, even though for short periods patterns are often apparent. Over the long run, the 'naive' forecasting model provides the 'best' fit for such stock price data, even though to a user, the degree of uncertainty of such a 'forecast' may be unacceptably high.

The key characteristics of the eleven basic forecasting models are as follows:

Naive Model

Perhaps because of its simplicity, this model is frequently used for immediate and short-term forecasts, where demand is relatively constant and where there is low noise. It is easily understood, has low initial and iterative costs, and requires a minimum of memory. It is frequently adjusted for seasonality. As is true for all moving average forecasts, the greater the forecast lead time, the greater the degree of uncertainty in the forecast. Always compare the performance of the model you have chosen against the naive model.

Linear Regression

Regression models are used for medium and long-term forecasts. They are not suitable for data patterns showing ramp or step changes because the oldest data is weighted equally with the more recent

	Naive	Linear Regression	Quadratic Regression	Additive Seasonality	Trigonometric Seasonality	Simple Moving Average	Double Moving Average	Simple Exponential Smoothing	Double Exponential Smoothing	Triple Exponential Smoothing	Adaptive Smoothing
DATA PATTERN											
Constant Demand	E	E	N	E	E	E	N	E	N	N	N
Linear Trend	N	E	N	E	E	N	E	N	E	N	E
Quadratic Trend	N	N	E	E	E	N	N	N	N	E	O
Ramp	O	N	N	N	N	N	E(2)	N	E(2)	E(2)	E
Step Change	E	N	N	N	N	E(2)	O(2)	E(2)	O(2)	O(2)	E
Impulse	N	O	O	O	O	E(3)	O(3)	E(3)	O(3)	O(3)	E
High Noise	N	E	E	E	E	E(3)	E(3)	E(3)	E(3)	E(3)	E
Low Noise	E	E	E	E	E	E	E	E	E	E	E
Seasonality	E(1)	E(1)	E(1)	E	E	E(1)	E(1)	E(1)	E(1)	E(1)	E(1)
FORECAST REQUIREMENTS											
Immediate-term	E	N	N	N	N	E	E	E	E	E	E
Short-term	F	N	N	O	O	E	E	E	E	E	E
Medium-term	N	O	O	E	E	N	N	N	N	N	N
Long-term	N	E	E	N	N	N	N	N	N	N	N
Available Storage Low	E	N	N	N	N	O(2)	O(2)	E	E	E	E
Easily Understood	E	E	E	E	N	E	O	N	N	N	N
Recent Data Most Weight	E	N	N	N	N	E(2)	E(2)	E(2)	E(2)	E(2)	N
Initialization Cost Low	E	N	N	N	N	E	E	O	O	O	O
Iteration Cost Low	E	N	N	N	N	E	E	E	E	E	E
Can Vary Smoothing	N	N	N	N	N	N	N	N	N	N	E
TPUG Program "FORCST"	ma.8 exp.8	glm.8	glm.8	glm.8	glm.8	ma.8	ma.8	exp.8	exp.8	exp.8	exp.8

NOTES: E = Excellent; O = Possibly Useful; N = Not Suitable
(1) = With Seasonality option; (2) = With "N" low or alpha high; (3) = With "N" high or alpha low

Table 1

data. They require considerably more memory capacity than moving average models and take longer to calculate. Use linear regression models if the basic data pattern appears to fluctuate around a straight line.

Quadratic Regression

Quadratic models should be considered if the basic data pattern appears to fluctuate around a curved trend line. Use with caution on long-term forecasts, because the influence of the quadratic term in the equation can grow rapidly with time.

Additive Seasonality

This is the most readily understood correction for seasonality. In the TPUG programs, simple additive seasonality is available only with the regression models. Of all the models in the set, these require the most data and take the most time to calculate.

Trigonometric Seasonality

This seasonality correction is available in additive and multiplicative forms with the regression equations. For a proper evaluation, these models require at least 30 to 40 data points.

Simple Moving Average

Like the naive model, simple moving averages are used for immediate and short-term forecasts where there is a relatively constant demand. With a large enough period, high noise levels can be averaged out and the effects of impulses minimized. With corrections for seasonality these models find wide use.

Double Moving Average

These models are used for immediate and short-term forecasts where demand shows a trend. They are frequently corrected for seasonality.

Simple Exponential Smoothing

Exponential smoothing models require a minimum of memory but are less readily understood by users. They are used for immediate to short-term forecasts and are frequently adjusted for seasonality. As is true for moving average models, the greater the lead time, the greater the potential forecast error. Simple exponential smoothing is used where demand is relatively constant, and can often be used interchangeably with a simple moving average.

Double Exponential Smoothing

These models are used where demand shows a trend or a ramp pattern. Because they are difficult for users to understand, double moving averages may be used instead, and often perform just as well.

Triple Exponential Smoothing

Triple exponential smoothing is rarely used, unless the data pattern shows a curved trend. Correction for seasonality is available as an option.

Adaptive Smoothing

For immediate to short-term forecasts, these models usually perform well because the smoothing constant automatically increases to counteract any sustained increase in forecast error. A major drawback, however, is the complexity of these models.

Putting It All Together

Remember that all time series forecasts assume that a previous data pattern will, at least to some extent, be repeated in the future. Always compare the expected forecast error of the 'optimum' model that you have chosen with the error for the naive model. If the two errors are similar in magnitude, then possibly the data is highly random. Usually, however, the 'optimum' model will produce a lower error. Check the screen error graph. If it looks random then it is not likely that a significantly better model will be found.

Super-OS/9: TPUG Implements Ultimate SuperPET Operating System

OS/9 lives! The SuperPET can now run the C language, compiled FORTRAN 77, compiled Pascal, compiled BASIC, a number of spreadsheets, data bases, word processors and 6809 assemblers. In short, the SuperPET (and the 8032 PET, if you add a SuperPET board), has a new lease on life. Super-OS/9 programs will now run on a whole series of other machines. Also, the world of OS/9 — and there is quite a bit out there — is now available on your SuperPET.

Implementing Super-OS/9 required that certain problems be resolved: the SuperPET hardware was not compatible with the requirements of a disk-based operating system; and OS/9 software had to be made compatible with the SuperPET keyboard, screen, memory and disk, and the restrictions imposed by the ROM-based Waterloo Operating System.

Here are TPUG's solution to these problems:

- OS/9 required 64K of contiguously addressed RAM. A small hardware device has been designed, built and tested to convert the SuperPET's bank-switched memory to meet these requirements while maintaining all PET and SuperPET functions and capabilities. That is, with Super-OS/9, you gain a lot and give up nothing.

- TPUG purchased exclusive rights to implement OS/9 on Commodore computers. We transferred OS/9 source and binary code from 8" OS/9 disks to CBM format. We built a series of machine language tools to make this transfer possible.

- We then created Waterloo assembler source code from the OS/9 files and developed drivers for OS/9. These drivers include programs to access the keyboard, the clock, and all I/O devices.

- It was still necessary to make the code generated by Waterloo's assembler compatible with the requirements of OS/9. We wrote a linker and loader that create this compatibility.

- To ensure an adequate and stable operating system, thorough testing and extensive debugging began in late November, 1984 (TPUG received the source code in late September, 1984).

The final operating system reflects this emphasis on quality. TPUG has created a standard OS/9 that will run any standard OS/9 Level I program that has been transferred to a CBM disk. TPUG will initially assist with these transfers until transfer utilities are available in our library and vendors begin to support our format.

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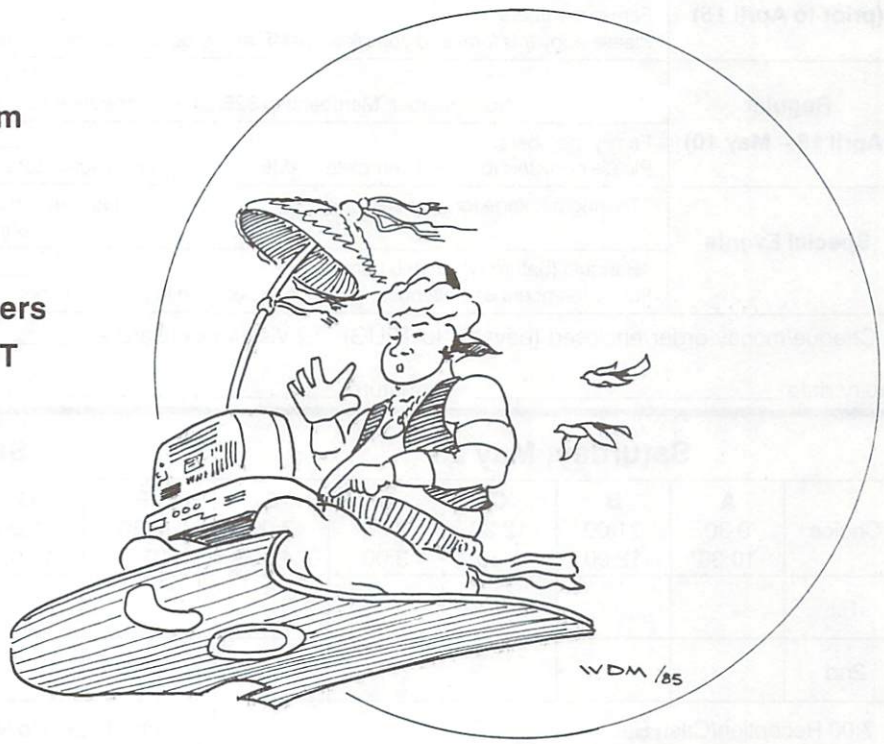
1985 TPUG Annual Conference

May 25th and 26th. . . .

Guest speakers include:

David Berezowski
The Bradley Brothers
Jim Butterfield
Hal Chamberlin
Dr. Frank Covitz
Elizabeth Deal
Keith Falkner
Paul Higginbottom
Dave Hook
Len Lindsay
Lou Sander
with guest speakers
from Windsor PET
Educators Group



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4th Annual TPUG Conference

May 25, 26, 1985

REGISTRATION FORM

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Reg. #	
Mailed	
# of packages	

Pre-registration deadline — May 10, 1985
New registrations will be processed at the conference if space permits.
Family member rate not applicable at the door.

Please send information on accommodation: hotel ☐ university residence ☐

Participant Data

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Please provide further information if you require assistance ☐

Registration Fees

Early Bird (prior to April 15)	Member $20.00 Non-member: Membership $25.00 + Conference $20.00 = $45.00	
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Program Selection

	Saturday, May 25					Sunday, May 26				
Choice	A 9:30 10:30	B 11:00 12:00	C 12:30 1:30	D 2:00 3:00	E 3:00 4:30	F 9:30 10:30	G 11:00 12:00	H 12:30 1:30	I 2:00 3:00	J 3:30 4:30
1st										
2nd										

7:00 Reception/Cash Bar
8:00 *Banquet

Introduction to Machine Language 10:00–5:00 ☐
1st choice ☐ 2nd choice ☐

Send registrations and payment to:
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*Ticket function

Cancellations must be submitted in writing and are subject to a $5 administration fee.

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

AMENITIES:
Close to subway
Snack area for conference participants
Optional **Club Banquet** Saturday evening — $25 per person
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Associate (U.S.A.)	$25 U.S.
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Associate (Overseas—air mail)	$45 U.S.

Early-bird registration $20.00, starts February 1, 1985
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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!

TPUG Annual Conference Speaker Information

Definitions Regarding Programming Skills

Beginner: Has succeeded in setting up his/her machine for operation. Knows how to load and run programs written by other people. Can write a program to display his/her name on the screen. Has an interest in knowing more.

Intermediate: Can write programs which interact with the keyboard and screen. Has mastered the most commonly used words in the BASIC language. Is confortable modifying BASIC programs written by other people.

Advanced: Has a good grasp of the entire BASIC language. Has succeeded in programming most of: sprites, SID, joysticks, data files, POKE, printer. Probably can write some machine-language. Understands most POKEs on his/her machine.

Conference Speaker Schedule

Saturday: May 25, 1985

Series A: 9:30-10:30

A-1, B-1: Introduction to C-64 Graphics (9:30-12:00)
Speaker: John Moore, educator, computer consultant, member of Windsor PET Educators Group
Everything the beginner needs to get started with C-64 graphics: a brief examination of the graphics capabilities of the C-64, starting with character sets, low-res graphics, changing colours, screen poking, etc. How to turn on hi-res graphics, and a brief examination of hi-res with BASIC. A disk of public domain software will be explained and distributed. A look at some commercial software packages will also be included if time allows: e.g. Koala Pad, light pens.
Level: Beginner

A-2: LOGO
Speaker: Laurie Fountain, Manager, Educational Systems, Central Region, Commodore Business Machines Ltd.
There's more to LOGO than turtle graphics. Come and explore the list-handling facility, music, and sprites. How to use LOGO as a thinking tool.
Audience: All

A-3, B-3: Very Elementary Programming in BASIC (9:30-12:00)
Speaker: Lorenzo Pinazza, teacher, member of Windsor PET Educators Group
So you just bought a C-64 computer! Now what? Here are some things a beginning beginner can do.
Level: Beginner

A-4: 1541 Disk Drive Techniques
Speaker: Gerry Neufeld, author
Uses for unclosed files; using two 1541 drives as drive 0 and drive 1.
Level: Intermediate

A-5: Raster Interrupts
Speaker: David Berezowski, Commodore software expert, author of Satan's Hollow (action game for C-64)
Advanced raster interrupt techniques and multi-sprite processing/programming; attendees should be accomplished machine language programmers who understand the working of the C-64 in some detail. Related to the material in session B-5. Neither session is necessary to understand the other but their subjects are intertwined.
Level: Advanced

A-6: Terminal Emulators & Bulletin Boards
Speaker: Tom Shevlin, former TPUG SYSOP, student, sound consultant
Using terminal emulation programs to contact Bulletin Boards and to sign on to mainframes; a review of some of these telecommunications programs for the C-64, the PET and the SuperPET.
Audience: All **Repeat Session: I-1**

A-7: Spreadsheets
Speaker: John Shepard, Handic Software Inc.
How to get more out of your spreadsheet program. Using Calc Result, John will attempt to show the special tricks he uses to make better use of his program.
Audience: All

Series B: 11:00-12:00

B-1: Introduction to C-64 Graphics (9:30-12:00)
Continuation of Session A-1.
Level: Beginner

B-2: Introduction to Commodore's New Microcomputers
Speaker: Liz Deal, well-known & popular writer
Jim Butterfield, TPUG guru, author,
A dynamic duo introduces the C-16 and Plus/4, including an outline of their features and some programming information. There will also be a brief outline of the newly-announced C-128 computer.
Level: Intermediate

B-3: Very Elementary Programming in BASIC (9:30- 12:00)
Continuation of Session A-3.
Level: Beginner

B-4: Relative Files
Speaker: Chris Bennett, TPUG Business Manager
Chris will describe how to write a program which creates, reads and updates relative files, using a VIC 20 or C-64.
Level: Intermediate **Repeat Session: G-1**

B-5: Collision Detection
Speaker: David Berezowski, Commodore software expert, author of Satan's Hollow (action game for C-64)
Collision detection techniques for handling object interaction (such as in games); these techniques apply to many different situations. Emphasis is on speed of processing rather than on resolution. Related to the material in Session A-5. Neither session is necessary to understand the other, but their subjects are intertwined.
Level: Advanced

B-6: Word Processing
Speaker: Donna Green, Commodore WP consultant
A look at some of the best word processors for the C-64.
Audience: Word Processing Beginners

B-7: Magic Software for the C-64
Speaker: Don Whitewood, supervisor of video & microcomputer testing & development, Toronto School Board
It is difficult to describe this superb software — it is a series of various types of editors for such functions as animation, word processing, joystick control, etc. It is a very powerful environment for creating educational or other applications; it manages these editors.
Audience: All (particularly educators)

Series C: 12:30-1:30

C-1: C-64 Sound for Beginners
Speaker: Don Gray, computer enthusiast, teacher, member of Windsor PET Educators Group
So your C-64 has a SID chip. So what? Here are some hints, suggestions and public domain programs for beginners to get their machine going into the C-64 Sounds of Music. Some commercial programs will also be shown.
Level: Beginner

C-2: Astronomy
Speaker: Dr. Frank Covitz
researcher, software developer
The Planetarium continued — Heavenly Bodies Part II — a guided tour of the solar system; this is the second in the series which began last year.
Audience: All **Repeat Session: G-3**

C-3: C-64 Library
Speakers: Richard & David Bradley
C-64 librarians and BBS SYSOPs
Favorite programs of the C-64 library; emphasis on entertainment.
Audience: All **Repeat Session: J-1**

C-4: Effective Programming on the C-16 & Plus 4
Speakers: Liz Deal, well-known & popular writer
Jim Butterfield, TPUG guru, author,
Commodore expert, world traveller ...
The new software features of these machines especially graphics and sound.
Level: Intermediate

C-5: Microcomputer Hardware
Speaker: Peter Ponzo, professor, Univ. of Waterloo
Fundamental structure of a microcomputer – what the chips do, what's under your keyboard. A veteran presenter of Waterloo's Hardware and Interfacing Course, Peter will help you come to grips with what happens inside your machine.
Audience: Hardware Beginners

C-6: Advanced File Handling
Speaker: Keith Falkner
technical consultant, hobbyist
Don't sort that file! — techniques associated with getting at your data in the right order.
Level: Advanced

C-7: Introduction to COMAL
Speaker: Len Lindsay, author, consultant, COMAL Users Group U.S.A.
An introduction to disk-loaded COMAL and its built-in graphics for the C-64.
Audience: All

Series D: 2:00-3:00

D-1: Telecommunications
Speaker: Gord Campbell, TPUG director, editor of InfoAge and Computing Canada
Using communications to move files from computer to computer.
Level: Intermediate

D-2, E-2: Introduction to C-64 Sprites (2:00 — 4:30)
Speakers: Carl Garant, student
John Moore, educator, computer consultant, member of Windsor PET Educators Group
This session will teach beginners how to create their first sprite using BASIC. Building upon that, using more than one sprite, multi-colored sprites, making sprites move; will all be examined. Using a sprite editor will also be covered. A disk of public domain sprite programs and editors will be explained and distributed.
Level: Beginner/Intermediate

D-3: Computer Music
Speaker: Hal Chamberlin, author, president of MTU
Approaches to creating music with a microcomputer; how computer music will be generated in the future.
Level: Intermediate/Advanced **Repeat Session: H-2**

D-4: Disk Handling for Beginners
Speaker: Dave Hook
one of TPUG's professional amateurs
How to get started with the 1541 drive — Dave will cover the same ground as he did in his series of articles which appeared in TPUG Magazine.
Level: Beginners **Repeat Session: F-2**

D-5: Operating Systems
Speaker: Paul Higginbottom
Commodore software expert
Overview of UNIX and the C programming language.
Level: Intermediate/Advanced **Repeat Session: F-1**

D-6: C-64 Graphics and Hi-Res Screens
Speaker: David Neale
author of C-64 Star Trek, airline pilot
Using C-64 graphics, screen banking, and hi-res screens created on a Koala Pad, and integrating these in your own programs.
Level: Intermediate/Advanced **Repeat Session: J-4**

D-7: Machine Language: Pre-School
Speaker: Lou Sander, author, speaker
If machine language is Chinese to you, consider attending this session. Through humour and analogy, it illuminates the central principles of ML programming — simple ideas, foreign to natural thinking, which often befuddle beginners. Master those principles here, and you're ready to tackle real learning.
Level: Intermediate

Series E: 3:30-4:30

E-1: User Group Expectations
Speaker: Michael Bonnycastle, TPUG president
What to expect and what not to expect from a user group.
Audience: All

E-2: Introduction to C-64 Sprites (2:00-4:30)
Continuation of Session D-2.
Level: Beginner

E-3: Writing About Computers
Speaker: Ellen Strasma
publisher of Midnight Gazette, author
How to write an article for publication. Some magazines have so many articles submitted to them that they will not consider any article which is not already almost perfect. An experienced editor, Ellen will give you insight into writing better articles.
Audience: All

E-4: Selected Topics for the B-128
Speakers: Liz Deal, well-known and popular writer
Jim Butterfield, TPUG guru, author, world traveller, Commodore expert....
Some software and general information for the B-128 will be presented. A question and answer period will be included.
Level: Intermediate

E-5: SYNTH
Speaker: George Feil, author of SYNTH, computer science student
SYNTH is a music development system which gives you very complete control over the C-64's sound-producing capabilities; it is written by George — he will explain how it functions and will present some of the music he has produced with it.
Level: Intermediate/Advanced **Repeat Session: I-2**

E-6: TPUG Terminal Programs
Speakers: Richard & David Bradley
C-64 librarians & BBS SYSOPs
How to use different terminal programs from the TPUG library; features of each and how to choose the right one for your application.
Audience: All

E-7: Interfacing, Particularly with Videodisk
Speaker: Don Whitewood, supervisor of video & microcomputer testing & development, Toronto School Board
A demonstration of computer control of a Laserdisk and a description of the interface used to do this; if time permits, three parallel port interfaces for the PET, two of which work with the C-64.
Audience: All

Sunday: May 26, 1985

Series F: 9:30-10:30

F-1: Repeat of Session D-5

F-2: Repeat of Session D-4

F-3: Menus and Program Chaining
Speaker: John Easton, TPUG Westside co-ordinator, photographer, computer enthusiast
How to set up good menu screens; how to load a program from within another program; the session is based on his series of articles in TPUG Magazine.
Level: Intermediate

F-4: A Comparison of Some Spreadsheets
Speaker: Dave Powell, author, software reviewer for TPUG Magazine
A user talks about his experience with a number of spreadsheets for the C-64, including Multiplan and Practicalc.
Audience: All

F-5: Commodore's 1541 User's Guide, 2nd Editon
Speaker: Jim Strasma
publisher of Midnight Gazette, author
If you've been reading the new revised 1541 manual and have tried out the sample programs included on the disk, and wanted to learn more about those techniques, here's your opportunity. (Jim and Ellen Strasma are the co-authors of this new revised edition.)
Audience: All

F-6: Come and Talk to Commodore
Speaker: Peter Baczor and Jim Gracely, Commodore (U.S.A.), plus a representative of Commodore (Canada).
Here is your opportunity to hear what Commodore is doing and also to ask Commodore representatives your questions.
Audience: All

Series G: 11:00-12:00

G-1: Repeat of Session B-4

G-2: Introduction to Data Bases
Speaker: Roger Marsh, teacher
How to conceptualize, plan and use a simple data base; Roger will use a program from the TPUG library to set up and demonstate data bases.
Audience: Data Base Beginners

G-3: Repeat of Session C-2

G-4: Two Structured Languages for the C-64
Speaker: David Boswell, software researcher, author of many books on computer science
PASCAL is an important language in the mainstream of computer science education. Structured BASIC was developed so that BASIC could be effectively used in teaching computer science. Interpreters for these two languages have been developed in cartridge form for the C-64 by Watcom Products, a company intimately associated

with the University of Waterloo. The session will concentrate on PASCAL and will include its extensions, which handle sprites, sound and colour.
Level: Intermediate

G-5: Moving Up to a New Computer
Speaker: Hal Chamberlin, author, president of MTU
What to consider when moving to a new computer: trade-offs in graphics systems and graphics monitors; word processing considerations; alternative display technologies — LCD, plasma, raster versus vector.
Audience: All

```
G-6: The Computer -- an Educational Tool
Speaker: A representative of COMPU*TECH Education
         Services, developers and publishers of
         educational software and textbooks

Using a personal computer as an effective
educational tool. Discussion will give a practical
approach to making the computer the most valuable
educational tool in the home.
```

Series H: 12:30-1:30

H-1: Beginning Word Processing
Speaker: Don Gray, computer enthusiast, teacher, member of Windsor PET Educators Group
A brief look at some printers and word processors so that beginners might get an idea about what to look for before they go out and buy. Find out just what a word processor does.
Audience: Word Processing Beginners

H-2: Repeat of Session D-3

H-3: User Port Hardware and Accessories
Speaker: Keith Falkner, technical consultant, hobbyist
A variety of interfaces based on the user port — all of these you can build yourself.
Level: Intermediate

H-4: 1541 Disk Drive Software
Speaker: Gerry Neufeld, author
Working the 1541 job queue and the ROMs; putting Machine Language into the drive, executing it, and accessing the ROM routines.
Level: Advanced

H-5, I-5: Commodore Data Bases Versus dBase III (12:30 — 3:00)
Speaker: Rob Lockwood, Manager of market research and analysis
What you can and can't do with data bases and why; how to enlarge your spreadsheet capabilities with data bases; Omnifile, the Manager and the Consultant compared with dBase III. Members are encouraged to bring along manuals of the data bases they are using and to contribute to a group discussion on data base techniques.
Level: Intermediate/Advanced

H-6: Robotics
Speaker: Jack Becker, creator of Randy the robot
Meet Randy's successor, and hear about his future. Randy can transmit a picture to your TV or audio up to 100 miles (wireless).
Audience: All

Series I: 2:00-3:00

I-1: Repeat of Session A-6

I-2: Repeat of Session E-5

I-3: OS-9 Operating System
Speakers: Gerry Gold & Avy Moise, co-developers of OS/9 for the SuperPET
This well-developed modular operating system has been established for a long time on a number of other machines. Now available for the SuperPET, it makes a wealth of software and new capabilities available to SuperPET users.
Audience: All

I-4: TPUG Utilities for the C-64
Speaker: Dave Hook, one of TPUG's professional amateurs
My favorite utilities — how they help me to program more effectively.
Level: Beginner/Intermediate

I-5: Commodore Data Bases Versus dBase III
Continuation of Session H-5.
Level: Intermediate/Advanced

I-6: COMAL
Speaker: Len Lindsay, author, consultant, COMAL Users Group, U.S.A.
An introduction to cartridge-based COMAL which will include some of its more interesting features such as the TRACE and CHANGE commands, protected input screens, function keys and batch files.
Level: Intermediate/Advanced

Series J: 3:30-4:30

J-1: Repeat of Session C-3

J-2: How To Become Rich and Famous by Writing About Computers
Speaker: Loui Sander, author, speaker
Louis F. Sander tells all! How magazine writing took him, overnight, from obscurity to wealth and renown (or at least to less obscurity). How YOU can get there too, through the power of your pen (or keyboard). Every step will be revealed, including financial details. Questions and answers will follow.
Audience: All

J-3: An RS-232 for the VIC 20 and C-64
Speaker: Keith Falkner, technical consultant, hobbyist
Make an I/O accessory to talk to printers, modems, and other computers. An easy first project for people to learn their way around a soldering iron and/or the keyboard.
Level: Intermediate

J-4: Repeat of Session D-6

J-5: The Computing Business
Speakers: Jim Strasma, publisher of Midnight Gazette, author
Louise Redgers, TPUG advertising director
How to run a small business in your home — Jim has run a number of ventures from his home using different computers. Near the end of the session a group discussion about members' experiences and problems will be encouraged. Louise will add a Canadian perspective to the topic.
Audience: All

J-6: Text Formatting
Speaker: Bill Dutfield, SuperPET librarian
This session will provide an insight into text formatters. It will discuss their place in the world of electronic text composition tools, comparing them to editors and word processors. In particular, the use of the SuperPET text formatter "finish" will be described.

Audience: advanced users of text manipulation

All Day Session: Sunday, 9:30-4:30

Topic: An Introduction to Machine Language
Speaker: Jim Butterfield, the Prime Commodorian
The presentation will parallel part of Jim's book — Machine Language for the Commodore 64 and other Commodore computers.

Level: Intermediate

Note: speakers and times subject to change without notice

Other Attractions

Conference Banquet

Saturday, May 25, 1985—8:00p.m.
Mix with the Speakers, Conference Committee, TPUG Executive and members from near and far. Come along and have a bit of fun.
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Sunday—visit McMichael Canadian Collection
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TPUG has implemented the popular 6809 operating system 'OS/9' on the SuperPET. Super-OS/9 greatly expands software availability and the hardware capabilities of this computer while at the same time preserving access to the Waterloo languages and programs.
The cost of Super-OS/9 to club members will be $195 (Cdn.), which will include the cost of a hardware modification that will not affect the normal operation of the SuperPET. Two board SuperPETs require a simple hardware modification — we provide instructions. To obtain your copy please send $195 (Cdn.) to: TPUG (1912A Avenue Rd., Suite 1, Toronto, Ont., M5M 4A1, Canada).

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- Super-OS/9 will run hard disks and parallel drives.
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Foolproof Your 4040 Disk Drive

by John Vanderkooy

The 4040 dual disk drive is very popular, and gives reliable operation, relative to some of the other Commodore drives. One area in which it is less than perfect is its 'turn on' and 'turn off' characteristic, when disks are loaded. The disks can be clobbered, as many of you know. I describe below a hardware modification that makes the unit foolproof when the power is applied or removed with the disks in place.

The main problem is related to the +5 volt power supply, which collapses quickly on power-down. The possibility of current flow in the heads is not locked out at this time, as the logic unit's brain is starved of oxygen from the 5 volt supply. My 'fix' is to sense the imminent demise of the 5 volt supply by detecting when the unregulated supply voltage, normally 9 volts, drops below about 7 volts; then making sure there can be no head current by preventing the head select transistors from turning on with a relay.

My circuit (**Figure I**) uses the unregulated inputs for the +12 and +5 volt supplies (which measure about 18 and 9 volts respectively) to drive the relay. Both these supplies turn on quickly, but the +9 volt supply turns off much quicker than the +18 volt supply. A 12 volt relay with DPDT contacts is used to ground the head selects. At power-on, the 18 and 9 volt supplies rise quickly, but the 100k resistor and 47 microfarad capacitor give about 2.5 seconds before the Darlington transistor pair turns on the relay, because there is a 6.5 volt Zener in series with the transistor emitters. By this time, the 4040 has powered up sufficiently to prevent any unwanted write current in the heads. When the mains switch is turned off after a session, the 9 volt unregulated supply dies quickly. When it reaches about 7 volts, the 1N4148 diode D2 discharges the 47 microfarad capacitor sufficiently to shut off the relay, just before the 5 volt regulated supply has any tendency to fall.

To find the connections that the extra circuit is wired to, note that the head selects are pins 2 and 12 on the connector for the ribbon cable (P2 on the main logic board) that goes to disk drive

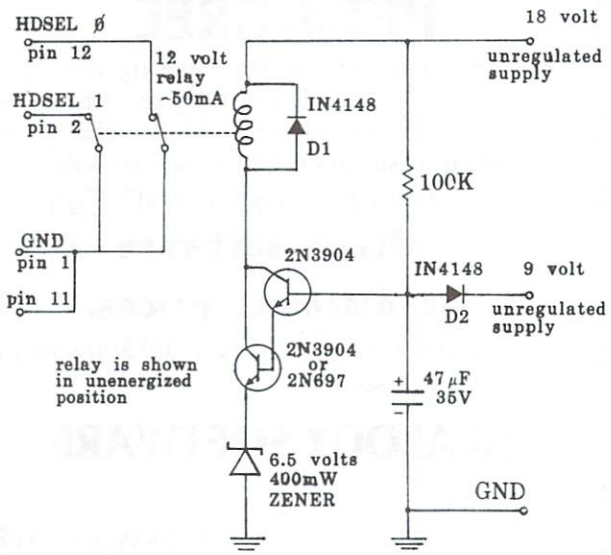
... The main problem is related to the +5 volt power supply, which collapses quickly on power-down ...

unit #1. The ground connections are pins 1 and 11. All the necessary connections are made to the bottom of the main logic board. A meter will help you locate proper points near the diodes of the power supplies. I soldered the connections to the various points and mounted a small card edge connector to plug in my circuit. This keeps things neat and allows you to test the system easily.

As a final point, there is nothing you can do to prevent damage to a disk if the power is switched off while writing to a disk. I thought of using a relay driven from the activity light to short the mains switch, but CSA would have a fit!

***(Caution:** Users should be familiar with electronics, construction and testing before undertaking the kind of hardware modification described in this article, which might void warranty and/or affect the future serviceability of the unit).* □

CIRCUIT TO PREVENT DISK CRASHES



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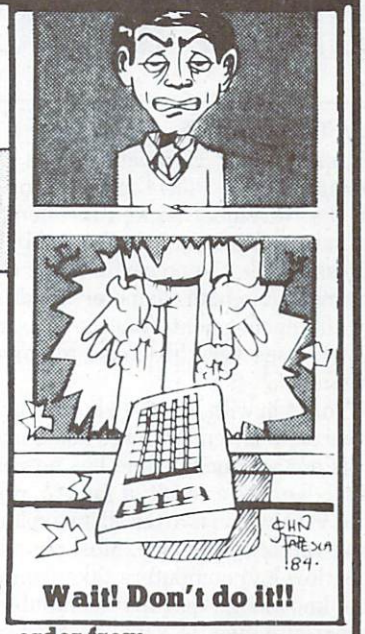

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Plus/4 and C-16: Disappointingly Mediocre

by Terry Traub

After reading Elizabeth Deal's article about the new Plus/4 and 16 computers in the November issue, I feel compelled to raise a few issues that she did not address. While the powerful Basic 3.5 implemented in both computers is admittedly an improvement over the VIC 20 and C-64, I see very little else to commend them.

To begin with, the C-16 is obviously not a serious contender in the home market: it is not expandable and has no port for a modem. As a result, it fails to 'replace' the VIC, which is after all an expandable and versatile machine. Most people who buy low-end computers take comfort in the knowledge that their computers can grow with them. A VIC owner, when asked that dread question, "So, you got a computer? What're you gonna do with it?" can confidently reply: "Telecommunicate. Expand the memory and word process."

Unfortunately, the marketing 'experts' at Commodore failed to understand that the reason the VIC was so successful is that once the home user has worked through the 'toy/learning tool' phase of computing, he or she is ready for more sophisticated applications requiring a versatile machine. I suspect that there are going to be an awful lot of dusty C-16's lying around in closets six months after Christmas.

The Plus/4, on the other hand, is touted by Commodore as a 'productivity machine', implying that it is somehow more useful than the C-64 or the Atari 800XL, the other logical choices in its price range. Since the 'productivity' of any computer must inevitably be measured by its software, the critical spotlight is eventually brought to bear on the bundled software that comes with the Plus/4. The word processor is the most important non-recreational software used in the home, but the one that comes with the Plus/4 is disappointing even as inexpensive word processors go. Only 37 columns per line are visible, and you can only get full (77 character) lines by horizontal scrolling. I hate horizontal scrolling; I like to see what I'm writing, not 'seek' it. Horizontal scrolling is the kind of drudgery that should have disappeared with the invention of cars and washing machines. The Plus/4's small spreadsheet is inadequate for all but the most rudimentary uses, such as graphing one's ice-cream consumption over a three month period. The database looks okay, but on balance I would say that those who truly wish to use their computers as 'productivity' machines would be well advised to get better software. Again, Commodore's mistake is in failing to understand that most people will quickly outgrow the built-in software.

As for the Plus/4 as a programming computer, its main innovation, aside from the built-in machine language monitor and the nice Basic, is the bank-switching method which provides about 60K of Basic workspace. That's all very well, but the longest program I have in Basic is about 23K, and that's looooooong; it takes up ninety blocks of disk space, or ten minutes on cassette. Those who write programs in Basic longer than that might benefit from the Plus/4, certainly; for the rest of us there is no particular advantage. I need hardly mention the loss of the 64's sprite graphics and excellent three voice synthesizer, replaced in the Plus/4 and 16 alike by a paltry two voice tone generator.

I see the Plus/4 as an insult and a disappointment, as well as a major marketing error. One would hope that Commodore will soon come to their senses and put out a '64/Plus' with such selling features as 128K of memory, 80 column display option, a better disk drive, and most importantly, complete compatibility with C-64 software and hardware.

An 80-column Board for Ye Olde Pette

by Tom G. Bartoffy

A friend of mine recently had an 80-column board installed in his Fat Forty. While he was extolling its newfound virtues, I was struck by something that could only be called jealousy: here I was with my old fashioned PET 2001, still using **WordPro 3+**, stumbling along with a 40-column monitor and a 60-column printout.

The obvious course of action was to get in touch with Comspec, here in Toronto, who performed this trick of electronic wizardry, and see if they would upgrade my PET. Alas, there is apparently too much difference in the video controllers for a simple adaptation, and they have not yet devoted any R & D time to developing a new one for us 'old timers'.

However, there may yet be an answer! I was informed that if sufficient interest was expressed among the PET owners — coupled with a willingness to part with somewhere around a hundred-and-fifty or two hundred dollars, Comspec would be more than willing to expend the effort.

It would obviously be premature to describe the final 80-column board, but if it is like the one for the Fat Forty, it will have to be wired-in by Comspec, and will consist of several ICs and probably a couple of extra circuit boards. As on the Fat Forty, an external toggle switch should enable the user to select 40 or 80 columns. This gives the best of two worlds: 40 columns for the graphics and games modes, and 80 columns for word processing and spread sheets.

Now for the 64 thousand (or is it 32K) dollar question. Who cares?

If you are among the earlier TPUG members who own a PET and find it difficult to justify the expense of another (or a new) computer, and you feel that this is just the thing you need, please send me a short letter stating your interest, the BASIC version you have, and the amount you would feel comfortable in paying for the modification when it becomes available. There is obviously no obligation to buy at any time.

The address to send it to is: 97 Regina Avenue, Toronto, Ontario, M6A 1R5.

The responses will be collated and presented to Comspec. Letters and names will be kept in strict confidence and under no circumstances be released to Comspec or anyone else.

In order to expedite this survey, please send your responses as quickly as possible. I expect to present my findings to Comspec six weeks after you receive this magazine. □

General Purpose SAVE/LOAD

by Kevin Boardman

This routine for the C-64, with either tape or disk, uses Kernal routines to SAVE or LOAD any block of memory. By using the relocation option, programs or data can be LOADed to any address in memory, regardless of where they were saved from. Simple prompts make the routine very easy to use. It is presented here with one statement per line for the sake of clarity, but it could easily be 'crunched' into a small subroutine, for use in your programs. Because it uses Kernal routines, it could easily be converted to work on the VIC 20, as well as the PET/CBM machines and SuperPET. □

```
9994 rem ***************************
9995 rem **    memory  save/load    **
9996 rem **         v.1   c-64      **
9997 rem **    by kevin boardman    **
9998 rem **      july 15, 1984      **
9999 rem ***************************
10000 a=780:x=781:y=782:n=49152:
       d=n:k=251
10010 print"■l■oad or ■=■ave"
10020 geta$:ifa$="l" then 10050
10030 if a$<>"s" then 10020
10040 goto 10120
10050 input"relocated load-■y■(space>
       or ■n■";r$
10060 ifr$="y" then r=0:goto 10080
10070 r=255
10080 gosub 10160
10090 gosub 10230
10100 gosub 10510
10110 end
10120 gosub 10160
10130 gosub 10230
10140 gosub 10410
10150 end
10160 rem setlfs
10170 input"enter device #: ";dv
10180 poke a,1:poke x,dv:poke y,r
10190 sys 65466
10200 return
10210 :
10220 :
10230 rem setnam
10240 if a$="l" and r<>0 then 10280
10250 input"enter start address: ";sb
10260 if a$="l" then 10280
10270 input"enter end address: ";se
10280 input"enter file name: ";nm$
10290 if len(nm$)>15 or len(nm$)<1
       then 10280
10300 for c=1 to len(nm$)
10310 poke d,asc(mid$(nm$,c,1))
10320 d=d+1
10330 next c
10340 poke a,len(nm$)
10350 poke x,n-(int(n/256)*256)
10360 poke y,int(n/256)
10370 sys 65469
10380 return
10390 :
10400 :
10410 rem save
10420 poke k,sb-(int(sb/256)*256)
10430 poke k+1,int(sb/256)
10440 poke a,k
10450 poke x,se-(int(se/256)*256)
10460 poke y,int(se/256)
10470 sys 65496
10480 return
10490 :
10500 :
10510 rem load
10520 poke a,0
10530 if r<>0 then 10560
10540 poke x,sb-(int(sb/256)*256)
10550 poke y,int(sb/256)
10560 sys 65493
10570 return
60000 open 1,8,15:input#1,a,b$:printb$
```

A Life Saver For 1541 Users

Contributed by Mike Norman

To stop the disk's head from 'break-dancing' when loading in software with disk protection:

```
OPEN 15,8,15
PRINT#15,"M-W";CHR$(106)CHR$(0)CHR$(1)CHR$(133)
CLOSE 15
```

New 64 Book Clear But Not Deep

by Elizabeth Deal

Commodore 64
Sight and Sound
by John Anderson
Creative Computing Press
136 pages

This book is about Commodore 64 graphics and sound. It is in two parts — one for standard BASIC, and the other for *Simons' BASIC*, a popular cartridge-based package that provides 114 additional BASIC commands.

The first half of the book presents very simple graphic programs in BASIC. Lots of illustrations are provided, in addition to the cute little programs. The characters the reader must type are clear.

Simple BASIC statements, such as IF, THEN, GOTO, PRINT, POKE, FOR and NEXT, are used and explained, with PRINT carrying the burden of the work. Simple animation routines should get you started in the video game craze. Numerous typing aids are provided, the screen editor is explained nicely, and many of the control characters are illustrated in a clear manner.

There is a variety of sound-using programs, providing eleven sound effects in all. The programs are short, clear and easy to type in, so you can start at once building your repertoire of beeps and other sounds.

The second half of the book deals with high-resolution graphics and sound as used from *Simons' BASIC*. Since I don't have *Simons' BASIC*, what follows is just a short presentation of points I find worth commenting on.

There is no index, which makes it difficult to find things. For instance, while discussing the RENUMBER command in *Simons' BASIC*, the author says that it cannot RENUMBER the target lines of GOTO and GOSUB; and that "later on in *Simons' BASIC* we will build procedures and learn how they can be used instead of GOTO and GOSUB commands . . . " Well, neither the index nor the table of contents gave me any clues about the procedures. I read the whole book and still didn't find them.

The screen-saving program in the regular BASIC section is probably all right, but looks rather odd. Some ten thousand bytes are saved, even though the screen and colour memory only need two thousand.

The author has a habit of omitting the loop indices. The Commodore documentation does the same thing. I think a tutorial book should show a clearer link between a FOR and its NEXT.

Some descriptions of the keyboard characters or modes are strange (Appletalk?). For instance, the author refers to the normal, usual Commodore keyboard graphics as 'special characters'. Then we have the 'inverse bracket': it took me a while to see that the 'inverse bracket' is the cursor-right character. Similarly, the reverse-mode characters are often called 'inverse' mode. This is acceptable — you can call them what you want — but it is rather strange on a Commodore computer.

Early in the book is a chapter on how to handle a disk drive. Once again, there are some strange semantics: turning power on to the disk is confused with initializing it. The author states that the red light indicates that the drive is spinning (sometimes true, sometimes not!). The disk ID must be a "two-digit number . . . 00-99" — not quite true. CLOSE 15 closes a file that you "opened with the FORMAT command" — again almost, but not quite, correct.

Another rather dangerous suggestion in the same chapter: "To load a program . . . make sure that the disk in the drive has been formatted and that it contains the program you want to load". I think beginners should stay away from this section. It could cause misunderstandings that might damage good disks.

A welcome section discusses the Wedge commands. I found one little problem: the RENAME is missing. The C is used for RENAMEing (that's fine) but the book doesn't mention C's normal use as COPY.

I do not like the tone of the introduction. The author makes statements such as: "your machine is lacking in documentation", "documentation accompanying the machine (is) extremely lacking", "documentation with *Simons' BASIC* is as shaky as anything we've seen from Commodore", and so on. This is 1985. If this book had been written about the PET in 1979/80, I would have agreed. But we now have the *User's Guide*, which contains a lot of useful material; and also the *Programmer's Reference Guide*, which, while terse and rough to read in places, is mostly correct. This book actually adds little beyond what is in the *User's Guide*. □

Jim Butterfield's

Valentine's Day Programming Contest

Write a Valentine program that asks the user for his or her sweetheart's name, then clears the screen and prints a heart with that name within it.

The name may be up to ten characters long. Hard copy output is not necessary, but can be provided, if desired.

Submission details will be given in next month's issue of TPUG Magazine. The winner will be announced during the TPUG 1985 Conference Banquet, so get started today!

Reviews

The Home Computer Wars

by Michael S. Tomczyk

Compute! Publications Inc.
301 pages
$9.95 U.S. (paperback)
$16.95 U.S. (hardcover)

As one of the old-time PET users, Commodore has always interested and sometimes confused me. Unlike many of the microcomputer manufacturers, Commodore was run by one man — Jack Tramiel. In the late 1950s, Tramiel started a typewriter parts company in Toronto. From this modest beginning, he built Commodore Business Machines, now the leading manufacturer of home computers.

Michael Tomczyk, the author of *The Home Computer Wars*, joined Commodore in 1979 as an assistant to Tramiel. Over the next five years, he was at the centre of Commodore's rise to the top of the consumer computer market. In the process, Commodore wiped out Texas Instruments and Atari and, according to Tomczyk, helped keep the Japanese out of the North American Market. *The Home Computer Wars* is more than a description of one man's success: it also offers insight into the highly-competitive and aggressive corporate battlefield.

I have met many of the people mentioned in the book, including Tomczyk himself and Jack Tramiel. The book's account of these people generally corroborates both my own impressions and the many comments I have heard from Commodore employees. The book also illuminates a lot of rumours about happenings at Commodore. It gives reasons why many executives didn't last long, and also shows the kind of thinking behind product and marketing decisions.

When Commodore first brought out the VIC 20, for example, many people in the company did not believe it was a viable product and were pushing for their own conception of a colour computer in the 600 to 1000 dollar (U.S.) price range. Tramiel's view was that the public wanted a computer for under 300 dollars, whether they knew it or not. The Japanese, at that time, were getting ready to hit the North American market with their own 600 dollar home computers. The VIC 20, Tomczyk maintains, made them stop and think. They still aren't here, although the MSX machines may change that later this year.

While this book offers insight into many happenings at Commodore, it does not address many of the serious problems that have occurred over the years. For example, there is a brief mention about the shortage of 1541 disk drives, but no clarification of the poor quality control and design shortcomings associated with them. Another serious complaint addressed only briefly is the way Commodore treated their dealers when the VIC 20 and Commodore 64 were put on the mass market.

Although one may not agree with the way Commodore went about their business (unless one owned stock) the results are admittedly impressive. Now that Jack Tramiel has bought out Atari, the next few years will be very interesting. As of this writing, Commodore and Atari are embroiled in two lawsuits:

. . . Although one may not agree with the way Commodore went about their business the results are impressive . . .

one over Commodore's Amiga purchase (Commodore's involvement in that suit is indirect), and the other over charges that ex-Commodore employees stole secrets about the UNIX machine when they moved to Atari. The Amiga computer is an 80 column colour machine to which Commodore acquired the rights several months ago. If preliminary reports are correct, it would be reasonable to think of the Amiga as a souped-up Macintosh, with colour. The UNIX computer is a multi-user machine that Commodore hopes will be their next true business machine. It uses a 16-bit processor (the ZILOG 8000), and should be very powerful.

This book may help you to comprehend some of the things that Tramiel does in the months to come. It is one publication you won't want to miss if you are interested in the continuing saga of the *Home Computer Wars*

Reviewed by Chris Bennett

6502 Assembly Language Subroutines

by Lance A. Leventhal and Winthrop Saville

Osborne/McGraw-Hill
630 Bancroft Way
Berkeley, CA 94710
ISBN 0-931988-59-4
550 pages.

Whether you do a lot of work in assembly language, or are just getting started, this book is for you. *6502 Assembly Language Subroutines* was designed for just about anyone, at any level of expertise.

This book is intended as a source or reference for the assembly language programmer. It contains sixty-seven subroutines in eight categories to handle common assembly language tasks. Among the areas covered are code conversion, arithmetic, array manipulation and indexing, and string manipulation. The subroutines are provided in a standard format. The input and output phases of each are individually detailed, with complete descriptions of how each operates. Sample executions are included so the reader will be able to get a full understanding of the system (always important if you need to adapt a routine to the main program you're working with).

In each subroutine there is also a separate section listing registers used, execution time, program size, data memory required, special cases, entry/exit conditions and examples.

The book opens with several chapters of information I wish I had had when I first got into assembly language. The section on 'Common Programming Errors' points out potential trouble spots and areas of confusion. It also provides the beginner with a starting point in the difficult process of locating and correcting errors. One or two minutes in this section alone can save hours of work trying to debug a system.

As with almost all other books dealing with assembly language, there is a section on addressing modes. This book, however, breaks the common barrier and gives a detailed explanation of how each addressing mode works. When it comes to some of the more complex modes, a

complete breakdown is provided and careful description follows. After just skimming through this section, I felt that all the other books I had previously bought told only a small part of the story on addressing modes.

The really outstanding feature of the book is the way the authors have arranged the information. Each page is laid out practically, with an ample supply of white space for notes or comments; very easy-to-read print and large, self-explanatory headings. The eight-page index is one of the best I've seen for a book of this size. With almost each main topic subsectioned, it is not difficult to find the exact information you're after. That, in itself, is a real time-saver.

A drawback for Commodore users is the way the authors deal with input/output and interrupt service routines. Almost all of these were written for the Apple II computer. The authors acknowledge this, and have tried to make each routine as general as possible but, since these two areas are very computer-dependent, generalization is difficult.

One other point that bothered me about each subroutine is the way each is entered: by saving the return address. In almost all cases, the routine can be called by using a Jump-to-SubRoutine command (JSR), in which the return addresses are automatically handled for you. Storing the return address only seems to complicate a simple subroutine.

However, *6502 Assembly Language Subroutines* is without doubt the best reference book on this subject I've ever come across. It can save any reader time and a lot of effort because there is no longer any need to write, debug, test or alter standard routines. And, as previously mentioned, beginners will find a host of information that will boost them into the high-speed world of assembly language.

Review by Dave Neale

Studio 64
from Entech

Music software for Commodore 64 and disk drive.

Studio 64 provides a reasonably flexible and relatively painless way of composing music on your Commodore 64. Although I can't accept Entech's claim that " . . . you can create music as expressive and sophisticated as the most advanced synthesizers . . . ", I have heard only one music editor program that could do that, and it is not yet commercially available.

Studio 64 presents you with a musical staff and, as the music plays, the notes are scrolled across it. Only eight notes are displayed at a time, and only one voice. Sharps and flats are indicated, as is the waveform being used on each note. The octave number of the current note is shown at the top of the display. One can use the cursor control keys to scroll back and forth to different parts of the score.

The score editor allows you to insert and delete individual notes quite efficiently. Also, you can easily insert a block of music into the middle of the score, or tack it on to the end. This can be a big help when you want a repetitive bass or percussion line.

The resources of the Commodore 64's synthesizer chip have yet to be fully utilized by a commercial program...

The packaging says that all three voices can be seen at once. What it doesn't say is that this can only be done when the music isn't playing, and then only one note per voice at a time.

A unique feature of **Studio 64** is that one can easily assign a different waveform to each note. This is helpful in bringing variety and 'punch' to the music you create. The documentation claims you can even have more than one waveform for each note. That it can do this is demonstrated in the enjoyable songs that come with the program. The problem here is that, although the handbook is admirably lucid in other respects, it neglects to tell you *how* to do this!

Studio 64 will let you design your own sounds by enabling you to choose the waveform used, as previously mentioned; and by giving you control of the ADSR envelope generators and the filters. It won't let you use the synchronization or ring modulation features of the SID chip, nor does it let you use the third voice's oscillator and envelope outputs to modulate the other two voices. Musically, this means that you can't create vibrato, tremolo, or real-time changes in timbre.

A more serious limitation is that you can't slur one note into the next. Other programs, such as **MusiCalc** and **Music Construction Set** (though not **Master Composer**), do permit this. It can make a real difference in the listenability of your music, and ultimately the type of songs you can successfully transcribe to the Commodore 64.

Studio 64 can be played in real time. You can play notes by pressing keys on the second two rows on the keyboard. Unfortunately, the note doesn't stop when you take your finger off the key: you have to hit the space-bar to shut it off. What you play is posted on the musical staff on your screen as you play it. However, the program cannot display notes longer than a whole note (four beats), although it will play them back.

Entech also says it has optional programs available that will let you add your compositions to other programs; print lead sheets complete with lyrics, chords and full musical notation; and a talking version of **Studio 64** that tells you what notes you are playing as you play them.

The resources of the Commodore 64's Sound Interface Device synthesizer chip have yet to be fully utilized by a commercial program. **Studio 64** does not even come close to doing that. What it does, it does fairly well. But there are other programs out there, notably **Master Composer**, that will give you more for your money for most applications.

Review by Tim Grantham

KMMM Pascal
from CGRS Microtech

Implementation of the Pascal language for Commodore

KMMM Pascal is a nearly complete implementation of both standard Jensen-Wirth Pascal and the more popular UCSD Pascal, with enhancements. It is perhaps the most complete version of Pascal yet available for Commodore computers, including the PET/CBM and C-64. It is also the only Commodore Pascal that I know of which is a true compiler: it generates true machine code from a Pascal source file. Other implementations have an interpreter that reads each command and then processes it. This allows KMMM Pascal, in benchmark tests, to be the fastest version of Pascal available for the Commodore series.

Although earlier versions of KMMM Pascal (versions I-III) were subsets of standard and UCSD Pascal, the most recent release, version IV.5, is virtually complete. It lacks the labelling capability of standard Pascal, which allows line numbers to be used, but since most experts argue against the use of line

numbers in Pascal, this is a minimal deficiency.

KMMM Pascal requires at least 24K of free RAM. Although cassette can be used for saving and loading small Pascal source files, KMMM Pascal is supplied on disk. Therefore at least one disk drive is required. Additionally, the programs which make up KMMM Pascal (editor, compiler, translator) are compatible with Commodore BASIC. This means that they can be loaded as a normal BASIC program, and started with the RUN command, even though they are written in machine language. Likewise, compiled and translated Pascal programs may be executed in the same manner. This adds to the ease of using this package.

The disk that comes with the package contains a boot program. This allows Commodore 64 users to set up their system so that the editor, compiler and translator will access IEEE-488 peripherals, instead of the normal serial devices. The boot program also loads the popular DOS wedge program from disk, allowing easier disk access.

Two versions of the KMMM Pascal editor are supplied on the disk. The first one is an editor and pseudocompiler that comprises both advanced editing facilities for creating Pascal source files, and the syntax-checking part of the larger compiler that allows you to check for errors before you begin the compiling process. This allows easy debugging of programs. The second version of the editor takes up about half as much memory as the larger one, and does not include the syntax-checking compiler. This version is only used when you are creating very large Pascal files and need all of the computer's free memory.

There are two modes within the editor. The main function of the 'command' mode is to control file access. In command mode the KMMM Editor recognizes a large number of useful commands: it is one of the most advanced editors available with any version of Pascal. But there's more — a second mode known as 'window' mode that allows you to create Pascal programs (source files) with great ease. In this mode the viewing area can be scrolled both forward and backward, making it much easier to edit programs.

Creating a Pascal source file is very different than programming in BASIC. Pressing the 'HOME' key will move the cursor to the home position of the viewing area (upper-left corner), but 'CLR' will move the cursor to the bottom of the viewing area (lower-left corner). The cursor controls, 'INST' and 'DEL' act exactly as in BASIC. However, other keys are used for more advanced functions. Special keys are assigned to such tasks as deleting and inserting lines. It is also possible to activate an insert mode in which any characters typed are inserted into a line, rather than replacing characters in a line.

After a source file has been created, you can then load the compiler and execute it. After compiling the source file, you may then dump the P-code listing to disk and/or execute the translator. The translator, in processing the P-code, generates a 6K machine language program consisting of the run-time package for KMMM Pascal, followed by the machine language generated from the source file. Preceding this block of machine language is a BASIC SYS command that allows the program to be started with RUN. The program can be saved, loaded and verified just like a normal Pascal program.

KMMM Pascal Extensions

Version IV.5 of KMMM Pascal supports standard Pascal commands except for line numbering commands and the WITH statement. Many extensions to standard Pascal are also included.

The data type STRING comes from UCSD Pascal. It allows the convenience of using strings up to a user-specified maximum length.

The new reserved words CALL, MEM, SHL and SHR all give access to memory locations. CALL is the Pascal equivalent of BASIC's SYS, allowing execution of machine language programs from within Pascal. MEM is like BASIC's POKE and PEEK, allowing direct changing of memory registers. SHL and SHR are the same as the machine language commands ROL and ROR, allowing the bit patterns of memory registers to be shifted (rotated) to the left or right.

Many new functions give advanced string handling capabilities to KMMM Pascal. The CONCAT function allows any number of variables of type CHAR or STRING to be concatenated, or combined, into a single variable. COPY and MIDSTR are like BASIC's MID$; while LEFTSTR and RIGHTSTR parallel BASIC's LEFT$ and RIGHT$ functions. DELETE is an inverse version of the

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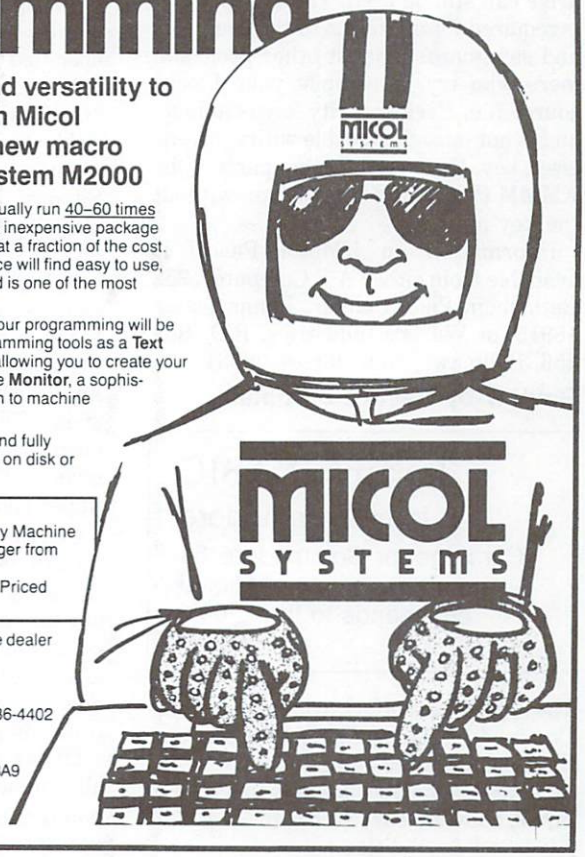


COPY function, allowing small sections of a large string to be deleted or replaced. The POS function returns a value equal to the starting position of 'STRING1' within 'STRING2'.

ANDB, ORB and NOTB allow Boolean operations on INTEGER expressions. GETKEY and INKEY allow KMMM Pascal to receive a single keystroke from the keyboard. GETKEY will return the value CHR(0) immediately if no key is pressed, while INKEY will wait until a key is pressed to assign a value. RND is like its BASIC counterpart, generating either a new random value (parameter positive) or a random value after changing the seed value (parameter negative).

Four non-standard procedures are also supplied with KMMM Pascal IV.5. EXIT allows a program to exit from a procedure or function before it has been completed. CLOSE allows a single file opened by RESET or REWRITE to be closed. This operation is necessary if disks are changed in the same drive during file access. ERASE allows a file of any type on disk to be scratched from the file directory. Finally, RENAME allows any file on disk to be given a new name in the disk directory.

Included with the package is a 'security key', similar to a cartridge, which plugs into the cassette port of your machine. It includes a male edge so that a cassette drive can still be used. The security key is required for execution of the compiler, and safeguards against other programmers who try to compile your Pascal source file. Each security key is unique, and is not interchangeable with someone else's key. However, all other parts of the KMMM Pascal package will run without the key in place.

Information on KMMM Pascal is available from either A B Computer, 252 Bethlehem Pike, Colmar, Pennsylvania 18915, or Wilserv Industries, P.O. Box 456, Bellmawr, New Jersey 08031.

Review by Kevin Boardman

Simons' BASIC
from Commodore
Cartridge for Commodore 64 providing many additional commands to the C-64's BASIC

The Simons' BASIC cartridge transforms Commodore 64 BASIC V.2 into one of the most advanced and complete versions of BASIC available for any microcomputer, allowing easy access to the C-64's advanced capabilities.

The package was created by David Simons of Great Britain, and is marketed by Commodore. It expands BASIC with no less than 114 additional commands, most of them usable in either direct or program mode. Included are commands to aid with editing and debugging, text and screen manipulation, input validation, numeric and Boolean operations, disk handling, graphics, sprite and character graphics, structured programming, music synthesis and remote control handling operations. Let's take a quick tour and see exactly what you get.

Editing and Debugging

Numerous commands provide help in these areas. With KEY you can assign 16 functions to the function keys at the right of the C-64 keyboard, using them in combination with the SHIFT key and the Commodore key. DISPLAY shows the function key assignments.

AUTO automatically prints line numbers at a desired increment. RENUMBER renumbers program lines at a desired starting line and increment. GOTOs and GOSUBs are not renumbered, however, for a reason that I will explain later.

PAUSE allows you to program a delay during which program execution halts. The pause can be terminated early by pressing the RETURN key. PAGE divides program listings into pages of a specified number of lines for easier debugging. OPTION causes Simons' BASIC keywords to be printed in reverse field when listing a program, as an aid to transferring programs to C-64's without Simons' BASIC. DELAY controls the speed with which program listings scroll on the screen.

FIND, TRACE, and RETRACE are also useful in debugging. FIND searches through a program for a specific command sequence or string, and displays the line numbers of all lines containing the string. TRACE and RETRACE cause the current line numbers of an executing program to be displayed in a window in the upper right corner of the screen.

COLD resets the computer, just as though you typed 'SYS 64738'. OLD causes an accidentally erased program — one that has been NEWed — to be revived. It will also work to restore a program after COLD. However, if any part of a new program has been entered, the previous program is lost.

DUMP displays the current values of all assigned variables. RESET allows the pointers of a DATA statement to be set to a specific line number, eliminating the need to read through data sequentially. CGOTO allows a jump to a line number specified by a numeric expression: CGOTO 102+5 would have the same effect as GOTO 25. Finally, DISAPA and SECURE allow any number of program lines to be permanently hidden from the user.

Text and Screen Manipulation

The Simons' BASIC commands in this area are some of the most advanced on any personal computer. For example, INSERT enables one to insert one string inside another at a specified position. Similarly, INST allows a string to be placed into another larger string at a specified position, overwriting the original text. Two other commands, PLACE and DUP, can be used in conjunction with the insert commands for even more complex manipulation. PLACE makes it possible to determine the position of a smaller string inside a larger one, while DUP allows a certain character to be duplicated a specified number of times and inserted into a string.

FETCH, which is similar to GET, allows you to specify the types and number of characters that can be entered. INKEY allows simple checking for the depression of a function key. Finally, ON KEY allows very powerful input operations to be created. For example, a string of six characters can be defined as input characters. Thereafter, program execution will automatically jump to a specified line number whenever one of the allowed keys is pressed. This command can be disabled with DISABLE and re-enabled with RESUME.

PRINT AT allows the x and y coordinates of a print statement to be specified. USE allows alignment of numerical data during print statements. CENTRE allows text to be printed centred on a line. And LIN returns the current row on which the cursor is positioned.

Numeric Operations

MOD returns the remainder of a division operation. DIV and FRAC respectively return the integer and the fractional parts of a division result.

Simon's BASIC supports binary and hexadecimal numbers. Binary numbers must be prefixed with a percentage sign (e.g. %00000111), and hex numbers with a dollar sign (e.g. $0C00). The absence of a prefix, of course, indicates a decimal number. The three types of number can be mixed freely in expressions, with the

result being given always in decimal. For example, the command PRINT $FF will cause the number 255 to be displayed.

The final mathematical enhancement is the EXOR command, which performs an 'exclusive or' between two numbers. 'Exclusive or' is one of the four fundamental logical operations (the others are 'and', 'or' and 'not').

Disk Operations

One major disappointment with normal V.2 BASIC is that most disk drive functions require extensive file openings and control code transmissions, which can be very time consuming. Simons' BASIC provides commands to perform operations that would otherwise require a utility such as the DOS Wedge. One, DISK, passes a string to the disk command channel without requiring that it first be OPENed. To format a disk, for example, you would use: DISK "N0:NAME,ID". DIR lists the disk directory to the screen without overwriting a program in memory. MERGE will merge programs and subroutines from disk into memory. Unfortunately, no command is provided to read the error channel.

Graphics

The most powerful, and certainly the most enjoyable aspect of Simons' BASIC, is its complete support of Commodore 64 graphics. Commands are available to draw various shapes on the screen, and to partially emulate turtle graphics.

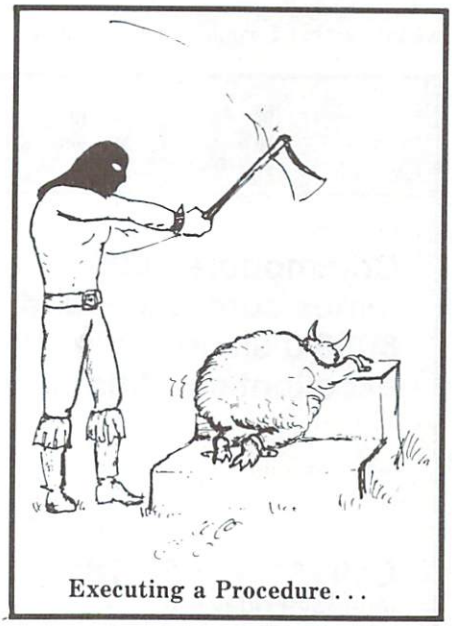
COLOUR eliminates the tedious POKE 53281,C:POKE 53280,C. It is sure to be the most widely used graphics command. It requires two parameters: the border colour and the screen colour. It also sets up the colour scheme for the multicolour graphics screen.

HIRES erases and set up a high resolution graphics screen with specified foreground and background colours. The equivalent command for multicolour graphics is MULTI. HICOL and LOWCOL allow the plotting colours to be changed on the hi-res and multicolour graphics screens respectively. NRM is used to return to a text screen, while CSET is used to return to a graphics screen.

The plotting commands all apply to both hi-res and multicolour screens. PLOT turns on an individual pixel on the graphics screen. LINE draws a line between two specified points. REC draws a rectangle of specified size. You can plot entire circles and ellipses with CIRCLE, or partial ones with ARC. ANGLE allows a radius of any circular shape to be drawn by designating the number of degrees counter-clockwise from the vertical diameter. BLOCK draws a solid rectangle. PAINT fills any bounded section of the screen with a specified colour.

DRAW allows a shape to be coded as a string of digits, providing a modest 'turtle graphics' capability. With ROT a shape can be rotated by any multiple of forty-five degrees, and its size changed by any desired factor (of course, if the factor is too large, the drawing won't fit on the screen).

CHAR and TEXT allow text of any size to be displayed on the graphics screen. The ability to vary the size of the characters allows many variations in text styles.



Executing a Procedure...

Screen Data Operations

Simons' BASIC provides a flexible screen scrolling capability with the commands LEFT, RIGHT, UP and DOWN. Data may be either scrolled off the screen or wrapped around to the opposite side. Instead of scrolling the entire screen at once, if desired any number of separately defined windows can be scrolled at the same time in any direction. By combining scroll commands, data can be scrolled diagonally, as well.

BCKGNDS sets the background colour of an individual character, which is useful when using custom characters in games. FLASH causes all characters of a specified colour to alternate between normal and reverse field. For example, FLASH 0 will flash all the black characters on the screen. OFF terminates the flashing. BFLASH flashes the screen border between two specified colours.

FCHR fills a section of the screen with a specified character; the colour equivalent is FCOL, which fills a section of colour memory with a specified colour. FILL combines these two commands, filling a screen area with a specified character in a specified colour. MOVE duplicates, and INV inverts, a specified portion of the screen.

SCRSV and SCRLD save and load screen data as sequential files on disk. To save a screen, for example, you would enter SCRSV 2,8,2,"name,S,W". Also useful are COPY, which dumps a hard copy of the graphics screen to the printer; and HRDCPY, which dumps the text screen.

Sprites

Simons' BASIC does not require that you specify sprite designs as a series of numbers. Instead you draw a graph of the sprite within your program, using the DESIGN and @ commands. Both hi-res and multicolour sprites are supported.

The CMOB command is used to set up the colours for a sprite (MOB stands for 'Movable Object Block' — another term for sprite). MOB SET initializes the number, memory block, colour, priority and resolution of a sprite. MMOB is used to display and move a sprite along a line without user intervention. It accepts parameters for the MOB number, the two sets of coordinates between which the sprite will move, the size of the sprite, and the speed at which it will travel. RLOCMOB is similar to MMOB, but the current location of the sprite is taken to be the starting point of its movement.

DETECT initializes sprite collision detection, and CHECK then performs the actual detection. MOB OFF turns off a specified sprite.

Custom Characters

Creating custom characters with Simons' BASIC is extremely simple. MEM copies the character patterns from ROM to hidden RAM. By accessing this hidden RAM, efficient use is made of all 64K of the C-64. As with sprites, the characters are defined using the DESIGN command, along with the @ command, to create a character grid within the program.

Structured Programming

This is an area that will be appreciated by serious programmers. Simons' BASIC allows the use of Pascal-like structures, as well as procedures, obviating the need for confusing GOTOs and GOSUBs. It is in support of this philosophy that the RENUMBER command does not renumber GOTO and GOSUB targets.

ELSE is added to the IF...THEN statement to simplify the branching in

REPEAT..UNTIL allows only one.

Simons' BASIC also supports procedures: powerful programming structures normally associated with languages like Pascal, COMAL and Waterloo BASIC. PROC is used to define a procedure name. The code following, up to END PROC, constitutes the procedure. It can be executed using the EXEC command. The effect is similar to GOSUB except that the procedure is referred to by name — not by a meaningless line number. Similarly, CALL can be used to directly transfer program execution to a labelled line — a more civilized method than GOTO. Associated with the use of procedures is the powerful ability to declare 'local' variables. Variables defined with the LOCAL command 'belong' to a specific subroutine, and may have a different value somewhere else in the program. GLOBAL restores the original values to variables that were reassigned with the LOCAL command.

Sound and Music

Simons' BASIC supports the SID sound synthesis chip, which is used for sound effects and music programming on the C-64.

VOL sets the volume of the SID's output. WAVE sets the waveform of a specified voice. MUSIC is used to encode musical data. It supports 255 different tempo settings and the full range of pitches supported by the SID. Sharps and flats may be specified, and individual pitches may be fine-tuned. Having been encoded into a string variable, the music may be played back either on its own, or as background to another program without stopping that program's action.

Special Input Devices

The x and y coordinates at which a light pen is placed on the screen can be read using the PENX and PENY commands. The POT command returns the resistance of a paddle, and the JOY command returns the status of the joystick handle and firebutton.

Conclusion

Simons' BASIC, it should be clear by now, is pretty comprehensive. Commands are offered for every aspect of programming, making it easy for even a novice to efficiently program the C-64. If you wish to use your computer at its full potential, and don't want to be bothered with tiresome POKEs, Simons' BASIC is what you need, and I recommend it.

Review by Kevin Boardman

Vegas Jackpot and Duckshoot from Mastertronic

Arcade-style games for Commodore 64 with disk drive

Vegas Jackpot is a game that simulates a four-reel slot machine, using the function keys to bet, collect, gamble and pay. The number keys 1 to 4 are used to hold any reels that you want to try to match, but this option is not available each time. On a win, you can collect, or gamble for progressively larger wins. The game is so well done that I would not be surprised to see it in a casino. The odds are such that it takes about fifteen minutes to lose your hundred dollar stake — the same as at the casinos.

Duckshoot is similar to the video arcade game called **Carnival**. You get a gun controlled by your joystick, a supply of bullets displayed at the bottom of the screen, and three rows of bears, bonus items and ducks. If you don't shoot the ducks before they get to the bottom row, they fly down and eat ten of your bullets. In the arcade game the screen is vertical, while in this version, it is horizontal, giving less room to catch the ducks. Still, it is an excellent game.

Reviewed by Mike Martin

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Chiller, BMX Racers, and Spacewalk from Mastertronic

Arcade-style games for Commodore 64 and disk drive

Chiller's opening screen shows Michael Jackson as a zombie rising out of the earth. It is excellently done in colourful hi-res — a good thing, because it takes four minutes to load from a 1541 (it won't load at all from a 4040 drive).

The game begins to the sounds of Jackson's 'Thriller'. Like those opening graphics, the music is very well done.

At first, I found the play was confusing — I didn't know who was who. However, I soon learned not to touch the spider, that the man in blue was a zombie, and that the man in red and white was me — Michael Jackson.

To get to the second of the five screens, you have to collect five magic crosses, but moving around the forest uses up energy. More energy can be obtained from baskets and toadstools.

Polar Pecker plays *Chiller*

Chiller can be played with either joystick or keyboard, but the joystick is definitely easier to use.

In **BMX Racer**, you drive your BMX pedal dirt-bike though the race course, going over bridges, and dodging trees, oil patches and other obstacles. You can adjust the bike's speed by pushing forward on the joystick. As you finish one winding course the screen changes to a new and more difficult one.

In **Space Walk**, you are an astronaut on the moon. The object is to capture satellites. The joystick controls your jet pack, which lets you move around to grab satellites. After you get the satellites you take them back to your shuttle and then the screen changes. You collect points for each satellite you catch. You must avoid meteorites, landers and other astronauts.

These games are no better (or worse) than many other computer games available, but these offer features like hi-res graphics and music for only ten dollars.

Reviews by David Wright

Switching 1541 Device Numbers

by Elizabeth Deal

In her article 'Switching 1541 Device Numbers' in the January TPUG Magazine, *Elizabeth Deal described a 'semi-permanent' method of changing the device number on a 1541 disk drive. The method involves wiring a switch to the drive's circuit board in place of the device-selection jumpers. By this means the device can be selected at the flick of the switch, instead of using either the hardware method (which is irrevocable — you can't replace the jumpers), or the software method (which is ephemeral — the device number changes back when you switch off the drive). Liz recommends that the device number should be selected before powering up the system. However, for those who want to switch device numbers while the system is on, she has provided a number of interesting observations, which formed the second part of her article. Due to an editorial slip-up this did not appear last month, so here it is now.*

Software Reset: Not Recommended

Strange events keep happening with the software reset command. It may be useful, though, if you must switch device number without turning off the system. If you are interested in some curious details, read on.

The reset command should only be 'UJ', or so the CBM book says. Richard Immers and Gerald Neufeld in their *Inside Commodore DOS* book state that you should use the 'U:' (colon) command since 'UJ' crashes. I think they are onto something, but my results are different:

I used 'UJ' on the #3 ROMs and Kernal 1 and 2 C-64. I never had problems using the old **DOS-WEDGE 5.1**. On the current C-64 and #5 ROMs, *only* the 'U;' (semicolon) works, everything else crashes *when the U command is in a PRINT# statement*. But three versions of the U command work with the **5.1 WEDGE** I got recently as well as an old one. Ditto **POWER** and ditto some home-brew code in **Supermon**.

So it's a jungle. Here are several change-and-reset schemes that work. To change from device 9 to 8:

	Wedge 5.1	POWER/MOREPOWER	Supermon.E3
1. flip the switch from number 9 to number 8			
2. reset disk	>UJ	DISK"UJ"	>UJ
3. tell system	>#8	DEVICE 8	>F8
4. use it	>	Function-3 key	>

In all three systems you can use 'UJ', 'U:' or 'U;'. They all do the job so long as you do every step in this order and no other. I find the existence of three commands a bit peculiar.

By the way, on the 1541 you don't hear the reset. But you can always confirm that the drive was reset by interrogating the error channel (point 4). The '73,CBM DOS V2.6 1541,00,00' message tells you a reset has taken place.

I have submitted **Supermon.E3** to the TPUG library about June, it should be available by now. Incidentally, the initialization SYS defaults everything to device 8. So if you use device 9, tell **Supermon.E3** about it using the flip-device command, '>F9'. However, whatever you do almost makes no difference. You shouldn't crash since the program always checks if a device is there, prior to all I/O operations including SAVE and LOAD. If the device isn't there, you either get a '?' or the prompt. You may get some garbage, 'SEARCHING', 'LOADING' or the like. Ignore it.

The PRINT# Puzzle

First flip the switch to a desired device number, then RUN this:

```
10 CD=9:ND=8:OPEN 1,CD,15:PRINT#1, "U;":CLOSE 1
20 OPEN 1,ND,15:INPUT#1, E,E$:PRINT E;E$:CLOSE1
```

Line 10 tells the computer current device (CD), and the new device to which you just positioned the switch (ND). Then it resets the drive. CLOSE 1 isn't needed. Line 20 shows the sign-on message '(73,CBM DOS V2.6 1541)' confirming that change has taken place. Only 'U;' functions. The colon and J crash. I tried all sort of variations of this thing, and the results are the same. A strange puzzle.

Conclusion

Since the Wedge, **POWER** and **Supermon.E3** work any of the three U commands, I think the problem cannot be in the disk ROMs, but rather in the way BASIC handles the OPEN and PRINT# commands as used for reset. Any ideas out there?

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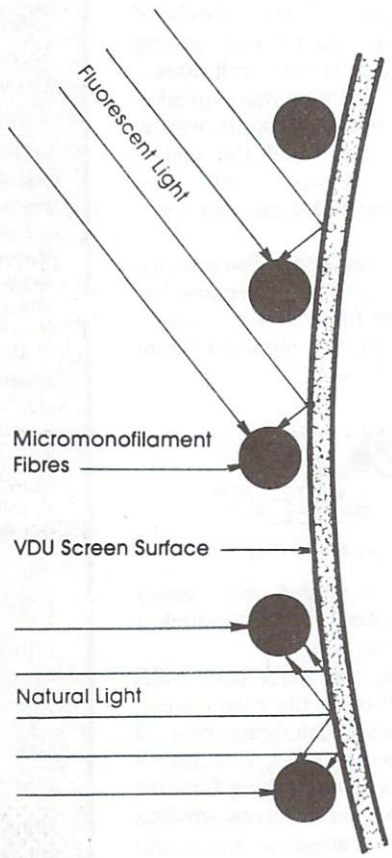

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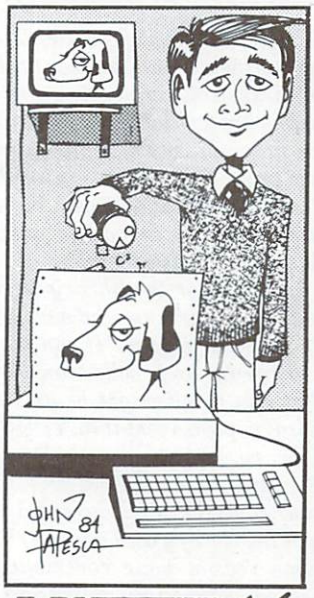

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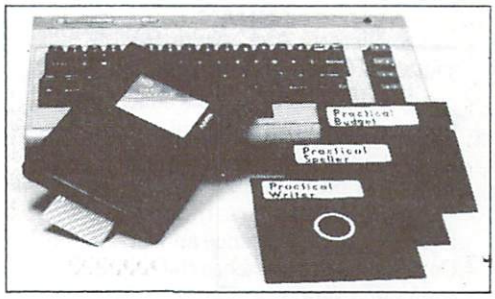

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In order for the library to keep growing our librarians need a constant supply of new programs. If you have written a program or a collection of programs that you think might be an asset to the library, please sent it to: TPUG Program Library, 1912A 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 their most recent compilations.

November VIC 20 Disk: V(TD)

An exceptional program on this month's disk is **Col Calc 16K** — a 16K electronic spreadsheet for the VIC 20! Documentation for the spreadsheet is contained in a menu-driven program called **Colcalc Inst.16K**.

Col Calc 16K is well-written and very powerful. Take the time to plan your spreadsheet carefully, and I think you'll be pleased. A small suggestion: take a look at the sample programs and print them out, if possible, before trying to design your own spreadsheet.

Another great program this month is an adventure game called **The Midway**, also a 16K program. This well-constructed game is set in the circus midway. It should offer many hours of fun. Among the locations you'll explore are the Fun House, the Ferris Wheel, the Shooting Gallery and the Hot Dog Stand, to name just a few. Time is crucial, and there's a booby-trap you have to watch out for, as well. Don't neglect to draw a map!

I'd like to thank Charlotte Latin School and Walter L. Newton for these contributions to the TPUG library, along with everyone else whose programs appear on this month's excellent disk. At the same time, I'd like once again to request that you send in your programs, as it is becoming hard to fill disks each month. In fact, there will not be a December VIC 20 disk this year, owing to the shortage of material. So please take a look at your programs, old and new, and see if there isn't something you've written that you'd like to share with the rest of us. We'll all benefit.

Presented by Daryl King

November C-64 Disk: C(TD)

If you have a non-Commodore printer and you want to print out hi-res pictures, the **Dumpnoncomm** is the program for you. List lines 2110-2250 before you run the program, to make sure that it is set up for your printer. A sample picture is provided. Good luck...

You'll find a great character editor program on this disk: **Grafixeditor2**. When the display appears, use the cursor keys to position the cursor over the character that you want to edit, and then hit the 'UP ARROW' key. The character will appear in the area you are editing. Use '.' to turn a pixel on, and 'SPACE' to turn one off. Press the 'LEFT ARROW' key to see the menu. Three sample sets are provided.

November C-64 Disk: (C)MC

This disk has five programs that people involved in Language Arts education will find useful. They are: **Simple Sent**, **Compound Sent**, **Drill er/ir/ur**, **Drill ie/ei**, and **Drill ou/ow**.

Simple Sent teaches the difference between a simple sentence and a fragment. **Compound Sent** teaches the basics of the compound sentence. The three **Drill** programs give practice spelling words that have similar sounds, but different spellings. All five are quite well done.

You'll also find no less than eleven handy little utility programs, all in machine language, which I won't describe individually. Instructions for them are provided in a file called 'INSTRUCTIONS.C'. Good luck...

November C-64 Disk: (C)MD

If you are into Waterloo BASIC, then a program on this disk will be of interest to you. It is like Waterloo BASIC, except that many of the Waterloo bugs have been fixed and some new features have been added. All Waterloo programs will work with **Northcastle Structured BASIC**. To execute the 'RUN' versions, just use LOAD and RUN. The other versions must be loaded ,8,1 and they must be turned on with the appropriate SYS. Good luck...

A handy utility this month is **Easy DOS Loader**. This has lots of great commands that can be activated with the touch of just a few keys.

Game players will like **100 Meter Loader** and **Chip Away Loader** (very similiar to **Break Out**). Good luck...

C-64 Music Disk: (C)S5

There is a lot of great music on this disk. The menu program is called **Jukebox**. Among the pieces you won't want to miss are: *Africa*, *Daniel*, *Eine Kleine*, *Star Wars*, *Karma* and *Elephant Walk*.

C-64 Music Disks: (C)S6,(C)S7,(C)S8

If you enjoyed any of the other ML music disks, then these three disks are for you! If you haven't yet found out what good C-64 music is like, they're for you also! Some exceptional songs on these disks are: *The Entertainer*, *Beer Barrel Polka*, *La Cucaracha* and *Tumbling Tumble*.

December C-64 Disk: (C)TE

Before we look at the programs on this disk, I should point out that the program listed in the directory as **search/replace.c**, should have been called **search/rescue.c**. Sorry about that — it was late, I was tired, and my fingers were refusing to take orders from my brain.

There's a great game on this disk. It's

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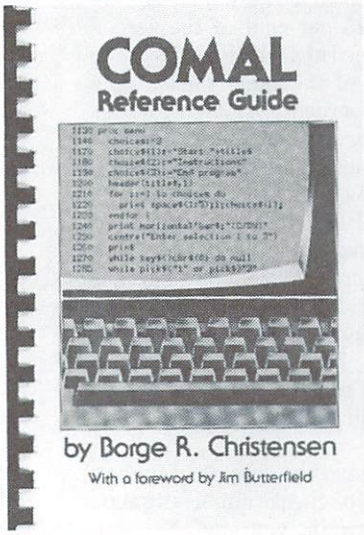

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called **Qix** (pronounced 'quix'). People from all over the world have been donating this game to the library for a year and a half. The only reason that it did not appear much sooner is that I suspected that it must be under copyright. I tried to find out who was selling it, but I never could, so here it is. The object is to get 75 per cent of the screen before your time runs out. Beware of the two stars, and of the 'quix' that is zipping around the screen. Plug your joystick into control port 1. Good luck...

Another good game is **Battleships**. **Battleships** has been around for quite a while on the PET, but this version is greatly improved. As in the board game, the idea is to place your ships strategically on your grid. Then you start trying to find the computer's ships, while it tries to find yours. Hits are acknowledged aurally as well as visually. Have a good time with it, and good luck finding the PT boat!

Before we leave the subject of games, don't forget to check out **Hangman**. Another **Hangman**, you say? Yes, but none of them hang like this one! It must be seen.

On the utility side of things, machine language programmers will be glad to see **Monad**, a powerful machine language monitor. Be sure to load it ,8,1 and enter SYS 8*4096 to execute it. A lot of the instructions are the same as **Supermon**'s, but there are many extras — like the capability of scrolling through memory dumps and disassemblies with the function keys.

People who have been searching for just the right program to keep track of all their files with, will enjoy using **Disk File 3.4**, a fast, easy-to-use utility that can work with an MSD-2, a 4040, a 1541 (device 8), or two 1541s (one device 8 and the other device 9). I'd suggest that you have a separate data disk for this program.

Presented by David Bradley

December PET Disk: P(TE)

This month's disk has a varied collection of utilities that you won't want to miss. **Ultrasort** is a sort program written in assembler for maximum speed. Also interesting are **Rel File Fix**, which allows you to read and modify relative files, and **Rel-Seq Conv**, which allows you to interconvert relative and sequential files. With **Usr Def Kybrd**, as the name suggests, you can redefine the keys on your computer. With **Hi-res Plot**, written in assembler, you can plot double density pixels on a 40 column screen. **2031-Copy/All** is a single drive copy program for the 2031, and **Squeezer** is a BASIC program compactor.

If you are interested in ham radio, you won't want to miss three programs designed to help you with your hobby. **Ham Register** is a call sign and name register that allows you to get an operator's name and other information you have entered just by typing in the call sign. With **Morse-Bttrfld** you can practise sending and receiving code, and with **QSL** you can print your own QSL cards.

A special feature on this disk is a pair of programs that focus on sports medicine. **Power Jump 80** helps you calculate the energy required in a power jump from a crouched position. Apparently this is especially useful for those interested in badminton. With **Step Test 80**, you can calculate energy consumption using the aerobic step test method.

Three integrated business programs for the 8032 should help you to put your finances in perspective. The three are **Accounting**, **Budget** and **Checkbook**. The programs are supported with a common base of six data files. You'll also want to check out **Diskfile**, a simple database program for disk.

We still haven't hit all the high points on P(TE), but by now it should be pretty clear that this is one you don't want to miss.

Presented by Mike Donegan

December SuperPET Disk (S)TK

This month's disk contains about twenty programs. There are some programs for the 6502 side of the SuperPET, and more for the 6809 side.

For the 6502 side, there are a number of programs submitted by Roger Bassaber of Ste. Clotilde, France. For the most part, these make use of banked memory. Included are two 6502 assemblers: one in BASIC, the other in machine language. There is a program that lets you scroll BASIC programs, to make programming and debugging easier. There is also a disassembler, and an editor patterned after the Pascal editor.

For the 6809 user, there is a collection of utilities, including some that have been distributed previously, but for which the assembly code is now provided. There are several screen dump programs that dump from the top of the screen to the line above the cursor. These can co-exist with all languages, and will dump to all supported peripheral devices such as printers and disk drives. For printers, both carriage control and carriage control/linefeed are supported. There are versions to load from the menu and from the monitor.

Other utilities on the disk include a routine to set the time and date on the SuperPET, a program to print a sequential file, and a routine to set the tabs to pre-determined values. There is also a program to set the left margin on a Diablo printer. This collection of utilities comes from ISPUG, and represents part of the ISPUG Summer 1984 Utilities Disk. There will likely be more programs from that source on next month's SuperPET disk.

From Avygdor Moise this month, there is a program to drive a Radio Shack Color Computer compatible printer. This printer connects to the RS232 port of the SuperPET. As might be expected of any device drivers using this port, it is best driven through PETCOM, though it will work well without PETCOM, too. Page feeds are lacking on this printer, so the driver simulates them. A documentation file on the disk provides some information on how to connect the printer to the SuperPET, and what parameters need to be established to drive it.

This month's final program is an extended precision calculator, which can carry out simple arithmetic operations, with up to four hundred digits of precision. It handles addition, subtraction, multiplication and division. There are five registers for holding intermediate results. Input streams from disk, as well as from the keyboard, are supported, as is output of calculations to printer and disk file. This program is written in Waterloo BASIC and, as a consequence, can be rather slow. It is, however, much faster (and more accurate) than doing the job by hand. The speed factor contributed to the need to make the calculations 'programmable', so that a job could be initiated with all input — both instructions and data — being read from a disk file. In this way, the machine can run complex problems, yet remain unattended. The program was converted from an IBM-PC public domain program, and includes enhancements by Bill Dutfield.

That about covers the contents of this month's disk. As usual, the disk also contains a describe file, providing further information.

Presented by Bill Dutfield □

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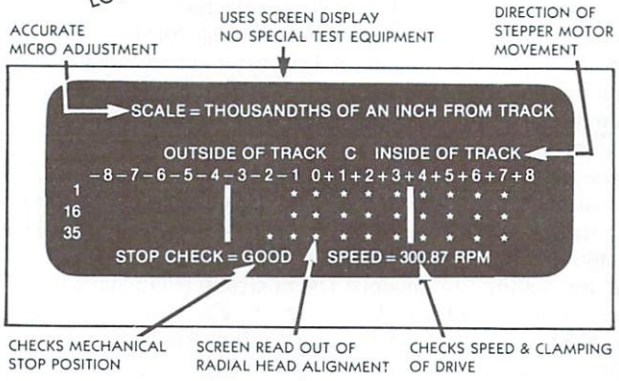

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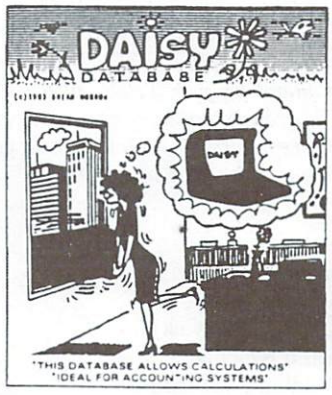

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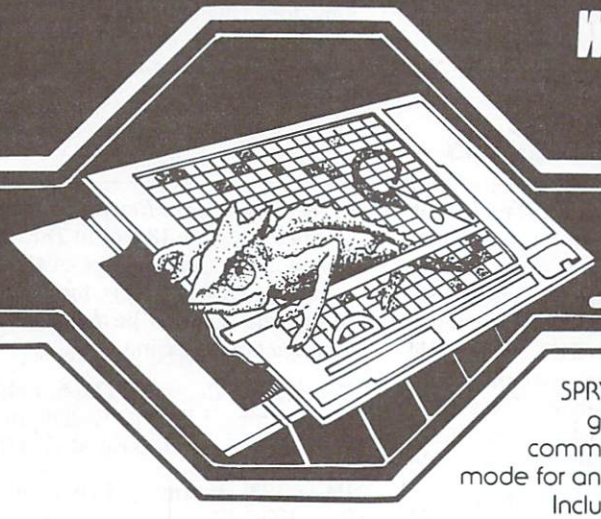

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Timmins Computer Club (Ontario)
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Butterfield Book Fact Fixes

by Jim Butterfield

A few items that didn't turn out right in my recent publications:

Machine Language For The Commodore 64 and Other Commodore Computers (Brady Communications Company, Inc. Bowie, MD 20715)

Page 25, in the box: The address of CHROUT should be $FFD2, not $FFD as shown.

Page 51, in the box: Status: Status flags may be changed. In the VIC 20 and Commodore 64, the C (Carry) flag indicates some type of problem with output.

Page 96, middle: The RAM space from $0801 to $CFFF is a whopping 50K, not 94K.

Page 96, near the bottom: David Hook wants me to mention that my statement, "BASIC programs will relocate as they load", is correct for VIC 20, Commodore 64, Commodore 16/Plus 4 and B systems, but is not true for PET and CBM machines. I pointed out that this is explained under the heading, 'Extras for VIC and Commodore 64', but he thinks I should clarify the point anyway.

Page 174: The addresses at the top should be $E880 (decimal 59520) and $E881 (decimal 59521).

Page 175: Figure C.5 is a duplicate of figure C.3 on page 173. Perhaps this compensates for the missing figure on page 193.

Page 193: Only half the memory map is given. The missing diagram can be found in the *Commodore Reference Diary 1985* (see below), page 134; or in *The Complete Commodore Inner Space Anthology*, a comprehensive reference for Commodore computers soon to be released by *The Transactor* magazine.

Commodore Reference Diary 1985 (Copp Clark Pitman Ltd., 495 Wellington Street West, Toronto, Ontario M5V 1E9)

Page 123: Saving A Program: SAVE "0:PROG2" should be SAVE "0:PROG2",8. On the next line ('Wedge') 0=PROGNAME should be ↑PROG2. Next year, I'll probably put in PROGNAME for this example, since some readers wondered if the 2 digit has some mystical significance (it hasn't).

Page 148: In line 110, IF/ST=0 should be IF ST=0. □

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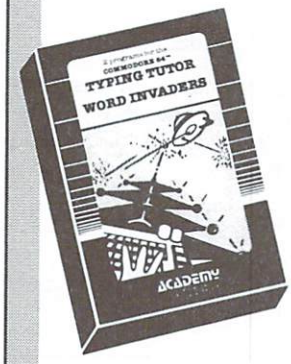

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Calendar of TPUG Events

Winter/Spring Schedule

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

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

Thu. Jan. 10	**Thu. Mar. 7**	**Thu. May 2**
*	Thu. Apr. 11	**Thu. June 6**

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

Wed. Jan. 9	**Wed. Mar. 20**	Wed. May 8
Wed. Feb. 13	Wed. Apr. 10	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 p.m. in the Story Hour Room (adjacent to the auditorium).

Thu. Jan. 24	Thu. Mar. 28	Thu. May 30
Thu. Feb. 28	Thu. Apr. 25	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 p.m. in the cafetorium.

Mon. Jan. 28	Mon. Mar. 25	Mon. May 27
Mon. Feb. 25	Mon. Apr. 29	**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 p.m. in the Story Hour Room (adjacent to the auditorium).

Wed. Jan. 2	Wed. Mar. 6	Wed. May 1
Wed. Feb. 6	Wed. Apr. 3	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 p.m.

Mon. Jan. 14	Mon. Mar. 11	Mon. May 13
Mon. Feb. 11	**Mon. Apr. 15**	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 p.m. in the Story Hour Room (adjacent to the auditorium).

Tue. Jan. 8	Tue. Mar. 12	Tue. May 14
Tue. Feb. 12	Tue. Apr. 9	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 p.m. in the computer room. For further information call Garry Ledez c/o 416-782-8900.

Tue. Jan. 8	Tue. Mar. 5	Tue. May 7
Tue. Feb. 5	Tue. Apr. 2	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 p.m.

Wed. Jan. 16	**Wed. Mar. 13**	Wed. May 15
Wed. Feb. 20	Wed. Apr. 17	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 p.m. in the auditorium.

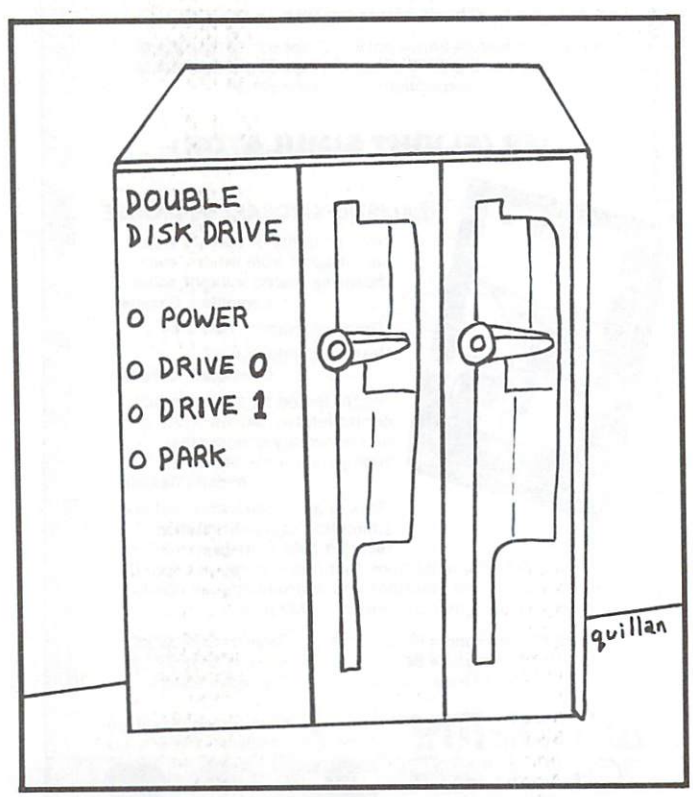
Tue. Jan. 15	Tue. Mar. 5	Tue. May 7
Tue. Feb. 5	Tue. Apr. 2	Tue. June 4

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 p.m. in the Little Theatre for **PET/CBM/VIC 20/Commodore 64.**

Thu. Jan. 17	Thu. Mar. 21	Thu. May 16
*	Thu. Apr. 18	Thu. June 20

*Joint Brampton/Westside meeting at Central Peel Secondary School in Brampton on February 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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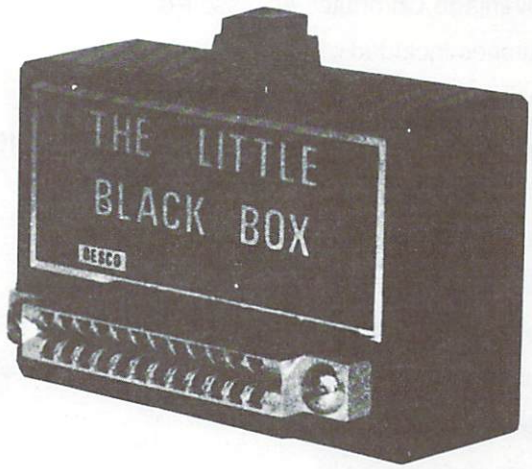

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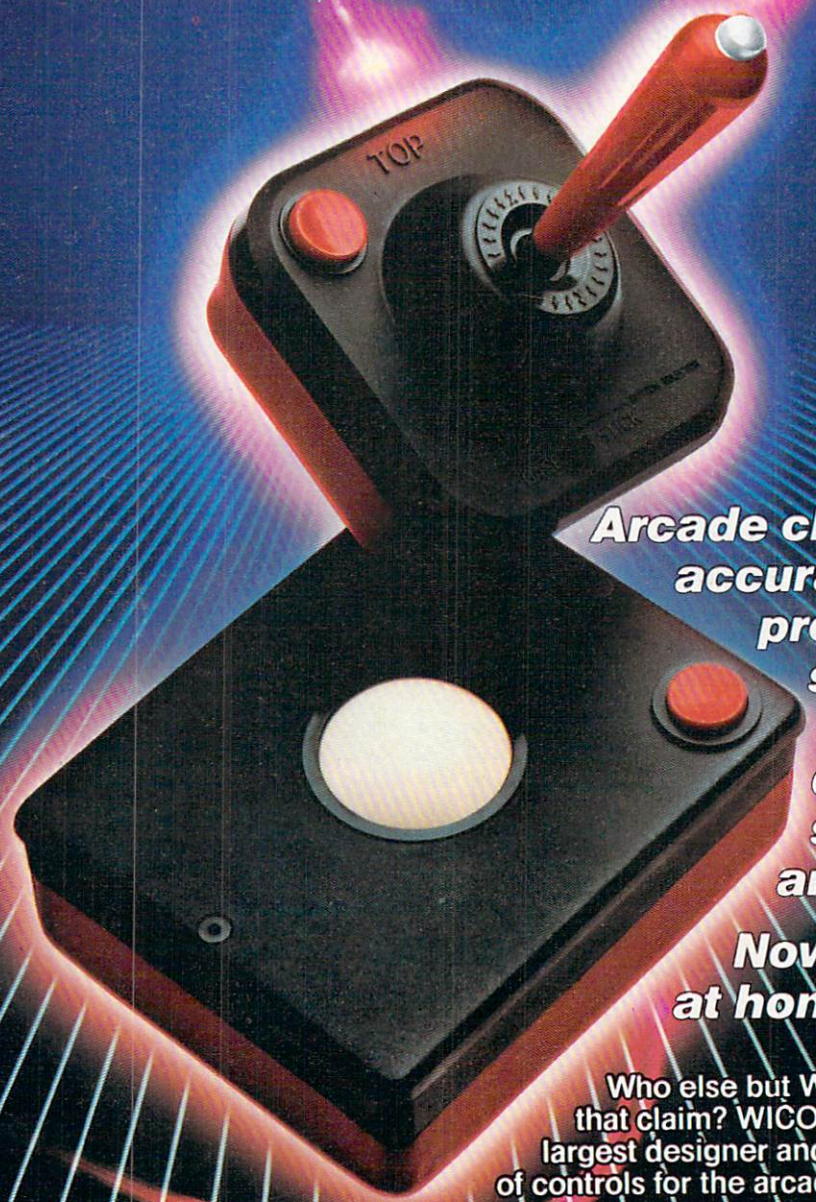

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