



CCC ... WHAT'S IT ALL ABOUT??

The Commodore Computer Club -- formerly the Vancouver Pet Users' Group -- serves the users of all Commodore computers, including Commodore 64, VIC-20, PET, Super PET, CBM and any future computers from Commodore.

We are an independent, voluntary, non-profit group organized under the Society Act of B.C. with an active membership of several hundred.

The club presently meets twice a month -- once for a workshop, where members are encouraged to bring their own equipment, and once for business and lectures by guest speakers. The workshop meeting is currently held on the first Tuesday of the month at David Thompson Secondary School cafeteria, 1755 E. 55th Avenue (near Victoria Drive and 54th) starting at 7:00 p.m. The business/lecture meeting is subject to change and its location can be learned from phoning the club's 24-hour answer phone: PET-3311 (738-3311).

For our many members who live in the Richmond, Delta, Surrey and White Rock area, we also have a monthly meeting held on the second Wednesday of the month in the cafeteria of McNair Secondary School at the corner of No. 4 Road and Williams in Richmond. Next scheduled meeting there is on October 10th at 7 p.m.

Special guests during the last year have included Commodore computer guru Jim Butterfield, representatives from software companies, and a lawyer discussing software piracy. The workshop also features demonstrations of items such as modems and various programming tools.

One of the major features of the club is the large library of public domain programs for the 64, VIC and PET, containing hundreds of programs. The 64 library currently contains over 30 disks, while the VIC-20 library consists of 15 disks and 24 tapes. These tapes and disks can be borrowed by members for a

reasonable deposit, or in the case of the 64 library, purchased. Membership in the club also entitles you to receive this free newsletter, available at club meetings.

Another advantage of Commodore Computer Club membership is that various local retailers give a discount to paid-up members upon presentation of a membership card. And merchants have canvassed meetings for special bulk purchases of goods such as monitors, printers and various software.

Membership fee in the Commodore Computer Club is only \$20 a year. Applications will be accepted at the Pacific Coast Computer Fair and at all regular meetings of the club.

Again, for information on the club and its meetings, call PET-3311 (738-3311). Or you can write to our mailing address: P.O. Box 91164, West Vancouver, B.C. V7V 3N6.

INSIDE THE 1541: 4

By LARRY PHILLIPS

Now that we have saved a program on a diskette, we can look at how it will be loaded back into the computer. This process is not nearly as complex as a save, at least for the controller.

When we give the command `LOAD"TEST",8` the CPU signals the controller to open a program file called TEST. In order to do this, the controller will search the directory for that name. When found, the entry contains the track and sector numbers of the first block of the program. The controller will instruct the drive to seek to the appropriate track and to read. When the right sector comes by, the controller reads data into a buffer. It then converts the data from GCR (see Part 3) into 8 bit bytes. The data is then sent to the CPU. You will remember that the first two bytes in the sector were calculated by the controller during a save, and serve as pointers to the next track and sector to be fetched. These two bytes are not sent to the CPU, as it will have no use for them. The next two bytes in the first sector of a program file constitute a load address. The action taken by the CPU will depend on the secondary address

used in the `LOAD` command. If the secondary address is not 0, the CPU will load the program to the address pointed to by the first two bytes it received. In our example, we specified no secondary address, so it defaulted to 0. The CPU will now load the program to address 2049 (\$0801). This is the normal place for a BASIC program to load.

Meanwhile, back at the floppy, the controller, having sent all the data from the first sector, will tell the drive to move the head to the next sector of the program. This will continue until it encounters a sector with the first byte equal to 0, signifying that this is the last sector of the program. The second byte indicates the number of bytes left to be sent in. When the last byte has been transferred, the controller will indicate to the CPU that it is finished. The CPU will close the file and then set up all its program pointers, etc. Notice that the sending device in both load and save is the one to signal the end of data transfer.

Just as we saw in part 3 that we could open a program file and `PRINT` the data to it, we can similarly open a program file and `GET` data from it, just as if it were a sequential file. We'll

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CHIT-CHAT...

Our newsletter returns! After a summer holiday of three months, we have plenty of items lined up for you. This issue is slightly larger than usual since it will be distributed at the Pacific Coast Computer Fair, to be held the weekend of September 22-23 at Robson Square. We hope to now publish every two months, with the complete library listings (which are now nearly 4 pages) every three issues. As usual, contributions are always welcome. They can be created with most popular word processors (Paperclip, SpeedScript, Word Pro, Mirage) and submitted on disk or tape to the editor. The benefits of this are numerous: in addition to fame and notoriety, you can obtain extra "benefits." Inquire for details...

* * *

The club's business/lecture meeting location may be going through some changes in the next month, since we seem to have lost the use of King Edward Campus's auditorium. One possibility is the auditorium at the Emily Carr School of Art on Granville Island, which in the future may include a wide-screen projection TV, ideal for club purposes. But this has yet to be decided. Check the club's answer 'phone

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A COMPLEAT GUIDE TO MACHINE LANGUAGE PROGRAMMING ON THE PET

By HAROLD BROCHMANN

MORE ON MICROMON [7-1]

In the last chapter we were introduced to MICROMON. We learned how to use it for assembling and disassembling ML programs. We also examined how the clear screen routine worked and used the TRANSFER function to move the essential part of the clear screen routine down to the second cassette buffer where we modified it slightly.

Perhaps it is now time to learn how to save ML programs on cassette or disk so that we can use them later.

SAVING ML PROGRAMS [7-2]

If you have turned the PET off since the last chapter, re-enter any ML program at \$033A. If not, use the one that is still there. Now enter either MICROMON or MLM and execute this line:

```
.S"0:ML PROGRAM",08,033A,034C
[use no spaces] for disk or:
.S"ML PROGRAM",01,033A,034C
[use no spaces] if you are
using cassette.
```

When A ML PROGRAM is loaded in the normal fashion from BASIC it will locate itself in the correct place. Try it.

INDIRECT ADDRESSING [7-3]

We have seen how the accumulator can be loaded with either a specific number (immediate addressing), the content of a particular byte (absolute addressing) or the content of an address offset by the contents of either the X register or the Y register (absolute indexed addressing). These same addressing modes also apply to the STA instruction.

In this section we will see how the addresses used by the LDA and STA instructions can be located somewhere else entirely. This is known as INDIRECT ADDRESSING. To illustrate:

Suppose location \$5E contains \$00, location \$5F contains \$80 and the Y register contained \$00, then: LDA (\$5E),Y means to load the accumulator with the contents of location \$8000.

If the Y register contained \$01, then the accumulator would be loaded with the contents of \$8001, and so on. Because the address referred to indirectly is indexed by the Y register, we call this kind of addressing INDEXED INDIRECT.

The location where we store the address to which either LDA or STA refer indirectly, must be in "zero page" - that is in the first 256 bytes of RAM between \$00 and \$FF. This space is heavily used by the PET operating system and we have to choose which bytes we use for indirect addressing with some care. Locations \$5E - \$63 are used by

BASIC as a FLOATING POINT ACCUMULATOR. They are only used when the PET does numerical calculations. We can use this space for our examples. Assemble this little routine:

```
.: 033A A9 00 LDA #000
.: 033C 85 5E STA $5E
.: 033E A9 80 LDA #800
.: 0340 85 5F STA $5F
.: 0342 A9 2A LDA #28
.: 0344 85 60 STA $60
.: 0346 A9 80 LDA #800
.: 0348 85 61 STA $61
.: 034A A0 00 LDY #001
.: 034C B1 5E LDA ($5E),Y
.: 034E 91 60 STA ($60),Y
.: 0350 60 RTS
```

The first few instructions place the address \$8000 in \$5E and 5F and address \$8029 in \$60 and \$61. Notice that the machine code for STA when zero page is referred to (zero page addressing) is different from the code when absolute addressing is used.

At \$034C the accumulator is loaded with the contents of \$8001 (pointed to by the contents of \$5E and \$5F, offset by the \$01 in the Y register). At \$034E the accumulator contents are stored at \$8029 (pointed to be \$60, \$61 and the Y register).

Use MICROMON to enter this program. Let's see if it works. Exit MICROMON, and in the top left corner of the screen type in ABC. SYS 826 should replicate another B immediately below the first one.

THE BLOCK TRANSFER [7-4]

One frequent use of indexed indirect addressing is a "block transfer" in which the contents of an entire block (256 bytes) are moved elsewhere.

Perhaps "moved" is the wrong word. When we do LDA and STA we are really copying or "replicating" the byte contents - not moving them.

We will now write a ML routine which replicates the contents of the first block of the screen into the second block of the screen. The pointer to the load base address is \$5E and \$5F, while the base destination address pointer is at \$6A and \$61.

```
INIT. 033A A9 00 LDA #000 ;SET INDIRECT
      033C 85 5E STA $5E ;...ADDRESSES
      033E 85 60 STA $60 ;...TO $8000 AND
      0340 A9 80 LDA #800 ;...$8100
      0342 85 5F STA $5F ;
      0344 A9 81 LDA #81 ;
      0346 85 61 STA $61 ;
      0348 A0 00 LDY #000 ;INDEX
BEGIN 034A B1 5E LDA ($5E),Y;
      034C 91 60 STA ($60),Y;
      034E C8 INY ;
      034F D0 F9 BNE $034C ;LOOP TO BEGIN
      0351 60 RTS ;FINISHED.
```

This assembler listing has been embellished with labels in the left margin and comments in the right margin. This presentation makes the assembler listing much easier to read. Unfortunately, MICROMON cannot cope with labels and comments so that only the mnemonic assembler code can be typed in as before. There are more elaborate assembler programs that can handle labels as well. These are known as "two-pass assemblers".

Assuming now that the machine code has been correctly entered and you are back in BASIC, place something on the first six or seven screen lines, then SYS 826.

ASSIGNMENT 7-4

An examination of the last program reveals that if the Y register is initialized to a number larger than zero in (\$0348) then less than a whole block will be transferred. Modify this last program so that exactly three lines from the top of the screen are replicated starting at say, line 10.

MULTIBLOCK TRANSFER [7-5]

The last program transferred a maximum of 256 bytes of memory from one location to another, in this case from one screen location to another. Let us now transfer several blocks and use the X register to keep track of the number of blocks that have been operated on. In this way we can transfer the entire screen contents (a little less than four blocks) to some other location in memory. By reversing the pointers, the screen contents can

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Club meetings are normally held: Workshop: first Tuesday of the month, 7:00 p.m., Thompson Secondary School cafeteria, 1755 E. 55th Ave. (near Victoria Drive); Business: third Tuesday of the month -- 7:00 p.m. LOCATION SUBJECT TO CHANGE AS OF THE OCTOBER/84 MEETINGS. These dates and locations are subject to change. For up-to-date information on any changes, please call the club's 24-hour answer phone: PET-3311 (738-3311)

Club Executive: President -- Jim Bauerle; Vice-President -- Sigmond Steiner; Secretary -- Marvin Steinway; Treasurer -- Hu Reijne; Directors -- Robert de Boer, Guenter Hake, Jim Jorgenson, Terry Juuti, Murray Kopit, Mike Wugley, Elmer Roy, Philip Seligman, Nick Shevchenko, Tony Smith, Arthur Tamer, Al Townsend, Jim Wilcox.

DISK DRIVE WOES

By MIKE QUIGLEY

I'm sure if Benjamin Franklin were alive today, he'd revise one of his most famous quotes to read: "In this world nothing is certain but death and taxes ...and the 1541 disk drive developing problems."

Almost everyone I know with a 1541 at some time has had to part with this essential part of their computer system because it went out of alignment or developed some similar malaise. And lots of these people have interesting stories about getting their drives repaired. One fellow I know suggested his adventures might make an interesting game -- with a factor of one in several billion that it would have a happy ending!

At least two acquaintances came close to developing ulcers because they had bought disk drives at a dealer which had been dropped from Commodore's "authorized" list. When their drives broke they had to go through incredible hassle to get them repaired, including sending the drives to Toronto, and writing threatening letters (which got the quickest results).

Probably the most bizarre story came from another person. I'll let him tell it in his own words.

"Getting my computer equipment repaired puts me into a peculiar state of mind. Taking something into the shop is like leaving a relative in the hospital...in the cancer ward.

"My 1541 broke -- out of alignment -- on a holiday weekend, of course. I was desperate to get it repaired. One member of our group -- who was away on holiday -- had told me that there was someone in a certain part of town who re-aligned drives and did good work. Acting on a tip, I drove to a store in that part of town.

"I asked a salesman in the store, 'Do you know anyone around here who repairs 1541s?'. He replied, 'Sure, I do.' I asked him if my friend had sent people to him to get their drives fixed, and he replied, 'Yes, on several occasions.'

"I gave him my drive, without even getting a receipt (the epitome of stupidity!). When I phoned him several days later, he said he was working on the drive, but it needed one part to make it fully operational. He said he would try to pick up the part after work that evening. About this time, I talked to my friend, who told me that he had never sent anyone to this fellow to get their 1541 repaired!

"Paranoia began to gnaw at my vitals. I phoned a couple of days later, and not only had

nothing been done on my drive, but this salesman had suddenly become 'sick'. No one would give me his unlisted home phone number so I could get in touch with him.

"About this time I was seriously considering phoning a lawyer for help. Finally, I got hold of the salesman's phone number. It seemed he had developed a serious (but not fatal) disease, and had been ordered to stay home by his doctor. But he said he was working on my drive.

"The next time I phoned him, he said the drive was in the store where he had left it (before he became ill), and he had to get a fellow employee named Tim to bring it to his house. A couple of days later when I phoned again, he said that the drive was still in the store.

"Finally, I went to the store, and under the pretext of taking the drive over to the salesman's house, got it back. The fellow named Tim knew

nothing about taking the drive anywhere.

"At this point I was relieved, because I at least had the drive back. But I discovered that no work had been done on the drive -- it was in the same condition as when I took it to the store two weeks previously.

"I managed to get the name of the guy who I should have seen in the first place. When I arrived at his place, he whipped out his oscilloscope and began investigating my problems as I sat and watched. But he couldn't get any signal. This, we discovered, was because the motor which turns the disk wasn't working. And nothing we could do would make it function.

"My heart sank as I contemplated another \$40-\$50 for a new motor. I took everything home. Just for a lark, I connected the motor (which uses 12 volts DC) to my electric train transformer. It worked

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THUS SPEAKS THE PRES.

By JIM BAUERLE

As most of you know, the Commodore Computer Club had over 600 members last year. Please note the past tense -- 'had'. At the end of August 1984 over 200 had not as yet renewed their membership dues. This means that your club is getting smaller instead of larger as had been anticipated. We have noted a marked decrease in attendance at all our meetings but especially at the lecture and business meetings.

Your club has to pay a fair amount of money for rental of meeting places and without the participation of more members this is going to create a strain on the budget. Personally I have no clear indication why we have had such a dramatic loss of members. Some thoughts have crossed my mind, such as loss of interest in computing, the fact that this is summer time, that we as a club did not provide the services that were looked for, etc.

You must remember that the executive members alone cannot provide any services. It takes involvement by all members at least at some time. It's your club. If any of you have any sound ideas on how to improve the club, I would be more than grateful personally and the executive collectively, if you would share your thoughts with us.

We may have to make some major changes insofar as meeting places and times are concerned. We may not have any summer

meetings next year. Also we may go to one meeting per month, perhaps at a different place in order to conserve our budget.

We may be able to get a large monitor, so that we can put on demonstrations and lectures or classes and all can see the output from a computer. If this happens then we will be looking for some help to move the equipment or we will have to find a place to keep the monitor on a more permanent basis. Right now the use of a large rental monitor is prohibitively expensive (\$150.00 per day) and also it is a major problem moving the equipment from the rental place to the meeting place and back again.

Perhaps some of you could also talk to your friends that used to come to meetings and no longer do, to let us know their reasons for not continuing. We would also like to put on more seminars and classes, but as always we need your help in getting these things off the ground, so if you can spare any time at all please let us know and get involved. As I have said on several occasions, you do not have to be an expert in anything to help out, all we need is your willingness to put a little effort into the club for the good of all.

Some of you will know that I have had to cut down on my club activities because of a family illness which will continue to take more of my time, so please let us know what you can do for your club. See any of your executive at any club function.

PRINTERS — THE BEST AND THE WORST: A SURVEY

By BRUCE DUNN

The cost of printers for personal computers is rapidly dropping, and with the availability of powerful word processing programs such as Paperclip, more and more people are adding a printer to their computer. Choosing a printer, however, can be frustrating as different computer shops each carry only two or three makes, making side by side comparisons difficult.

Two of the more important factors in choosing a printer are print speed and print quality. To judge these on a fair basis, I went around to a number of co-operative computer retailers with my copy of Paperclip, and printed out the same one page document on 8 different dot-matrix printers. By timing the printer, I obtained a measure of how fast the printers worked in actual practice. The time to print out a page is affected by the advertised printing speed of the machine (50, 80, 120, or 160 characters/second etc.) but is also affected by such things as how fast the paper is advanced from line to line. I then took the printouts, coded them with a serial number, and had them judged for print quality by Commodore Computer Club members at one of the club workshop meetings. All judging was done "blind" without knowing the identity of the printer. Club members were asked to rate print quality on a scale of 1 to 10. As a reference point people were shown a printout done on a Commodore MPS 801 dot matrix printer, a machine that produces a blurry, smeared printout with crude letters and no lower case descenders. They were told that this printout rated a "1" on the print quality scale. They were also shown the same material printed out on a ITX daisy wheel printer, a machine that produces high quality type similar to that of an office typewriter with a carbon ribbon. They were told that this rated a "10" on the quality scale. Table 1 lists the numerical average of the scores given by 28 people to the printouts, as well as the time to print the test page (minutes and seconds). Note that the ratings and speeds are specific to the model tested. Other models from the same manufacturers may have a different print quality or print at a different speed.

The Okidata, Gemini, Epson, and Roland printers have conventional print heads that produce round dots on the paper. The way that the dots are laid out to produce letters, however, differs between printers, leading to considerable differences in the perceived quality of the

printout. The Gemini 10X and Epson RX80 printers appear to have exactly the same layout of dots -- this is not surprising as the Gemini was designed by people who had previously worked for Epson, then left to form a new company of their own. The printers received almost identical quality scores, although the Gemini was somewhat faster. The Okidata 92 was even faster still, but its letters were formed in a way that made it somewhat more obvious that the printout was from a dot-matrix printer, and it received a somewhat lower quality score. The printout from the Roland PR 1010 looked considerably more dot-matrix-like than the printout from the other three printers -- the dots in the characters are laid out in a manner that unfortunately seems to emphasize rather than hide the unavoidable gaps between dots. The Roland print quality score was relatively low as a result. Note: do not confuse the tested Roland PR 1010 with the Roland PR 1111, a more expensive printer with very high print quality.

All four of the round-pin printers have an emphasized print mode, in which the print head moves more slowly across the paper and double prints the dots horizontally in order to fill in the gaps between dots. In addition, the Okidata has a correspondence mode in which it double prints horizontally, then spaces up very slightly and repeats the line to further fill in the gaps in the characters. To see the best print quality that could be produced by the printers, the Epson, Gemini, and Roland were tested in the emphasized mode, while the Okidata was tested in its correspondence mode. Print quality improved dramatically, at the cost of slower printing. The most impressive performance was from the Okidata, whose correspondence mode is so good that 7 out of 28 people gave it a perfect 10, and a further 11 gave it a 9. The Gemini and Epson received averages of 7.3 and 7.6, while the Roland in its slow emphasized mode only got a score of 6.1 (about the same as the Epson and Gemini in normal fast mode).

The Mannesman Tally, the Admate, and the Commodore 1526 printers have a print head that makes square dots on the paper. This is an advantage for strictly horizontal or vertical lines, which then appear without any dots at all. It does, however, not improve the print quality for those parts of letters that are curved or slanting, which then simply appear as a series of squares rather than dots. The Mannesman Tally M180 and the Admate DP80 are made by the same factory and their print mechanisms are similar if not identical. What is essentially the same printer is also sold in Vancouver under other names such as the Computate CP80, the TEO PX80, the Spirit 80, and the Alpha 80 -- in fact it is likely that any printer boasting square pins comes ultimately from the same source. This factory also appears to make the 1526 printer for Commodore. Like the old, superceded Commodore 1525 printer and its replacement the Commodore MPS 801, the 1526 printer has the advantage of directly operating from the serial bus of the Commodore 64, and does not need an interface. The print head on the 1526, however, is only 8 pins high, while that on the Admate, Mannesman Tally etc. is 9 pins high. This means that only 1 pin instead of 2 is available to draw descenders on the 7 dot high letters, and that underlined print has the underlining directly touching the letters, rather than spaced below the letters as on all other printers.

All three square-pin printers gave clear sharp print, and printed the test page in exactly the same time. In spite of the claims of various salesmen about the superiority of the print of square-pin printers, there was no clear agreement among those rating the printouts that this approach works better. The square-pin printers all received average ratings of approximately 6, the same as the Gemini 10X and the Epson RX-80. However, there was a tendency for individuals to

(Continued on page nine)

TABLE #1

PRINTER	Normal Printing		High Quality Mode	
	Quality	Speed	Quality	Speed
ITX Daisy Wheel	(10)	3:22		
Okidata 92	5.4	0:27	8.5	1:31
Gemini 10 X	6.2	:54	7.3	1:16
Epson RX 80	5.8	1:03	7.6	1:42
Roland PR 1010	4.2	:57	6.1	1:30
Mannesman Tally	6.0	1:03		
Admate DP-80	6.2	1:03		
Commodore 1526	5.8	1:03		
Commodore MPS 801	(1)	1:50		

VIC LIBRARY

VIC tapes and disks require a \$5.00 deposit while you borrow them.
Vic librarian is Mike Buckley.

"VIC VIC TAPE 01" 01 2A
12 "DIRECTORY" U PRG 1
1 "PISTOL PETE" G PRG 1
1 "RACE" G PRG 1
7 "PRG CLASS VIC" U PRG 1
6 "BASIC CODE READ" U PRG 1
7 "BASIC CODE BEND" U PRG 1
3 "BIG LETTERS" P PRG 1
4 "CHECK DISK" U PRG 1
10 "DISI" A PRG 1
11 "DISARM" A PRG 1
14 "DISPLAY T&S" U PRG 1
9 "DISI" A PRG 1
4 "HISTORGRAM" P PRG 1
9 "PERFORM TEST" U PRG 1
7 "PROGRAM CHARS" P PRG 1
13 "RANDOM FILE" U PRG 1
5 "SEQUENTIAL FILE" U PRG 1
8 "TINYHON INST" A PRG 1
3 "TINYHON 1" A PRG 1
6 "VIC DIS-1" A PRG 1
398BLOCKS FREE.

"VIC VIC TAPE 02" 02 2A
12 "DIRECTORY" U PRG 1
1 "SELECTIONS" SEQ 1
7 "PRG CLASS VIC" U PRG 1
9 "FINANCIAL" B PRG 1
3 "LO PASS FILTER" E PRG 1
4 "CONTEXT INDEXER" U PRG 1
11 "COPY-ALL DISK" U PRG 1
4 "RANDOM BEND" U PRG 1
7 "TEAM SER-2" C PRG 1
6 "KEYSORT" U PRG 1
4 "BORT DEMO-1" U PRG 1
4 "BORT DEMO-2" U PRG 1
6 "VIC VIC" U PRG 1
4 "TINYHON BASIC AID" U PRG 1
24 "82 TAP ONTARIO" B PRG 1
4 "DYSTICK DEMO" U PRG 1
3 "SK HI-RES" P PRG 1
398BLOCKS FREE.

"VIC VIC TAPE 03" 03 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
9 "CALENDAR" P PRG 1
2 "LOTTO 449" G PRG 1
8 "MONITOR" B PRG 1
5 "CHECKBOOK" B PRG 1
6 "MAIL LIST TAP" B PRG 1
10 "NUMERIC PAD" U PRG 1
7 "FILE CLERK TAPES" P PRG 1
4 "SCROLL+/-" U PRG 1
4 "RINGER EOL" U PRG 1
3 "RINGER" U PRG 1
4 "MEMORY SNAPSHOT" U PRG 1
5 "TRACE" U PRG 1
3 "COPY DISK FILE" U PRG 1
2 "SHELL SORT" P PRG 1
2 "BUBBLE SORT" P PRG 1
2 "DORT C" P PRG 1
2 "DORT D" P PRG 1
376BLOCKS FREE.

"VIC VIC TAPE 04" 04 2A
12 "DIRECTORY" U PRG 1
10 "VIC DT" U PRG 1
7 "PRG CLASS VIC" U PRG 1
1 "S-X CIRCULAR" P PRG 1
2 "S-X SPIRAL" P PRG 1
1 "S-X TRIANGLE" P PRG 1
1 "S-X FAN-TABIT" P PRG 1
1 "S-X ANDZ DMO" P PRG 1
1 "S-X DATA DEMO" P PRG 1
4 "FUEL CHASE" G PRG 1
8 "ROBOT CHASE" G PRG 1
1 "LANDING" M PRG 1
2 "COUNTER" M PRG 1
2 "MEMORY MUSIC" M PRG 1
3 "SPACE SHIPS" M PRG 1
7 "TANK WAR" M PRG 1
7 "VIC-20 SHIP" M PRG 1
6 "JAZZER" G PRG 1
1 "TANK WAR P1" G PRG 1
9 "TANK WAR P2" G PRG 1
9 "ONE ON ONE" G PRG 1
385BLOCKS FREE.

"VIC VIC TAPE 05" 05 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
12 "BRAIN DEMO" P PRG 1
11 "BUBBLE BEE" P PRG 1
1 "COLOUR BAR" P PRG 1
5 "DRAGON" P PRG 1
3 "GENERAL JACOBS" P PRG 1
13 "GENERAL DEMO" P PRG 1
3 "GRAPHIC DEMO" P PRG 1
3 "GRAPHIC SOUND" P PRG 1
6 "HANDIC DEMO3" P PRG 1
5 "HI RES DEMO1" P PRG 1
4 "KALIDSCOPE-1" P PRG 1
4 "KALIDSCOPE-2" P PRG 1
6 "KEYBOARD GRAPH" P PRG 1
6 "NERRY VIC-MAP" M PRG 1
6 "VIC MEMO" M PRG 1
8 "SOUND KEYBOARD" M PRG 1
8 "ROBOTS" M PRG 1
369BLOCKS FREE.

"VIC VIC TAPE 06" 06 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
12 "BRAIN DEMO" P PRG 1
11 "BUBBLE BEE" P PRG 1
1 "COLOUR BAR" P PRG 1
5 "DRAGON" P PRG 1
3 "GENERAL JACOBS" P PRG 1
13 "GENERAL DEMO" P PRG 1
3 "GRAPHIC DEMO" P PRG 1
3 "GRAPHIC SOUND" P PRG 1
6 "HANDIC DEMO3" P PRG 1
5 "HI RES DEMO1" P PRG 1
4 "KALIDSCOPE-1" P PRG 1
4 "KALIDSCOPE-2" P PRG 1
6 "KEYBOARD GRAPH" P PRG 1
6 "NERRY VIC-MAP" M PRG 1
6 "VIC MEMO" M PRG 1
8 "SOUND KEYBOARD" M PRG 1
8 "ROBOTS" M PRG 1
369BLOCKS FREE.

"VIC VIC TAPE 07" 07 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
12 "BRAIN DEMO" P PRG 1
11 "BUBBLE BEE" P PRG 1
1 "COLOUR BAR" P PRG 1
5 "DRAGON" P PRG 1
3 "GENERAL JACOBS" P PRG 1
13 "GENERAL DEMO" P PRG 1
3 "GRAPHIC DEMO" P PRG 1
3 "GRAPHIC SOUND" P PRG 1
6 "HANDIC DEMO3" P PRG 1
5 "HI RES DEMO1" P PRG 1
4 "KALIDSCOPE-1" P PRG 1
4 "KALIDSCOPE-2" P PRG 1
6 "KEYBOARD GRAPH" P PRG 1
6 "NERRY VIC-MAP" M PRG 1
6 "VIC MEMO" M PRG 1
8 "SOUND KEYBOARD" M PRG 1
8 "ROBOTS" M PRG 1
369BLOCKS FREE.

"VIC VIC TAPE 08" 08 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
12 "FLIP" U PRG 1
8 "BRAIN WARP" U PRG 1
13 "JUGGLER" G PRG 1
8 "SLOT MACHINE" G PRG 1
1 "REVERSE" G PRG 1
7 "HIDDEN MAZE" G PRG 1
11 "SEARCH" G PRG 1
13 "BUSINESS DEMO" P PRG 1
19 "NAMING CHANGES" E PRG 1
2 "PRIME NUMBERS" E PRG 1
14 "BASEBALL" G PRG 1
12 "FOUR IN A ROW" G PRG 1
356BLOCKS FREE.

"VIC VIC TAPE 09" 09 2A
12 "DIRECTORY" U PRG 1
1 "BIG CHARS" P PRG 1
4 "DND" G PRG 1
3 "S-X BOUNCER" P PRG 1
4 "S-X CLOCK" P PRG 1
9 "HARMONIZER" M PRG 1
2 "TEAL MONSTER" M PRG 1
4 "KALIDSCOPE-3" P PRG 1
12 "VIC MAIL" B PRG 1
12 "LUEL IC" B PRG 1
12 "NETEOR MAZE" G PRG 1
7 "ASTEROIDS" G PRG 1
6 "LULLABY" G PRG 1
4 "BUDGET-1" G PRG 1
12 "SUNLIGHT" G PRG 1
18 "RUSS'N ROULETTE" G PRG 1
454BLOCKS FREE.

"VIC VIC TAPE 10" 10 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
5 "S-X KINETIC" P PRG 1
3 "S-X PWR SPIRAL" P PRG 1
4 "S-X PATTERNS" P PRG 1
4 "AIR DEFENSE" G PRG 1
6 "LIFE" G PRG 1
1 "RELOCATE SCRN" U PRG 1
12 "LANSMAN" U PRG 1
11 "HUNGRY DRAGON" G PRG 1
3 "POTHOLES JS" G PRG 1
12 "CANDY" G PRG 1
17 "CAVES OF ICE RKS" G PRG 1
8 "UXB 2.1 (JS)" G PRG 1
10 "MYSTERY SPOTS" G PRG 1
13 "DOLL" G PRG 1
10 "DEMON STAR" G PRG 1
3 "DEMONSTAKER" P PRG 1
10 "PAINT MIX/SEC A" P PRG 1
3 "RAM TEST" U PRG 1
379BLOCKS FREE.

"VIC VIC TAPE 11" 11 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
10 "TIME BOMB" G PRG 1
10 "SOUND GENERATOR" P PRG 1
4 "COLON IAP BK JS" G PRG 1
15 "C2" G PRG 1
20 "C3" G PRG 1
13 "SHAKE ESCAPE" G PRG 1
6 "KEYBOARD" A PRG 1
10 "VIPER" G PRG 1
18 "VIC COPY-ALL" U PRG 1
3 "ELABORATE BK" G PRG 1
6 "CHECKBOOK" B PRG 1
1 "PILOT BK" L PRG 1
21 "C2" G PRG 1
6 "P THER" A PRG 1
4 "TINYHON W/DATE" U PRG 1
375BLOCKS FREE.

"VIC VIC TAPE 12" 12 2A
63 "RTTY-8/8 16K" P PRG 1
63 "PRG" G PRG 1
20 "RTTY BK" P PRG 1
491BLOCKS FREE.

"VIC VIC TAPE 13" 13 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
14 "KINEFIELD BKJS" G PRG 1
10 "ELECTRO PLOT" G PRG 1
12 "DEMOS/OSIRIS" G PRG 1
4 "BIO 2-COL DIR" U PRG 1
9 "COLORBOT (JS)" G PRG 1
11 "CO2" G PRG 1
2 "UNUSUAL ENDING X" P PRG 1
9 "PRE-PRINT 18 BK" P PRG 1
13 "NIN-PRINT 28 BK" P PRG 1
5 "CANYON CRUISER" G PRG 1
11 "C2" G PRG 1
3 "SPEEDSCRYPT BK" B PRG 1
1 "HAUNTED HOUSEBK" G PRG 1
25 "H2" G PRG 1
466BLOCKS FREE.

"VIC VIC TAPE 14" 14 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
11 "BLAM!" E PRG 1
9 "TETRACRYSTALS" G PRG 1
13 "TETRACRYSTALS" G PRG 1
7 "SUNNY FIGHT" P PRG 1
2 "BRAIN BENDER 1" G PRG 1
2 "BRAIN BENDER 2" G PRG 1
7 "DRAGON POWER" G PRG 1
7 "CITY BOMBER" G PRG 1
7 "CHICKEN LITTLE" G PRG 1
16 "CHICKS" G PRG 1
9 "TETRACRYSTALS" G PRG 1
9 "DEFLECTION" G PRG 1
11 "BALL CLOCK" P PRG 1
3 "BROSPER" P PRG 1
5 "FIRST MATH" E PRG 1
13 "KUNCHATH" E PRG 1
13 "JUMPING JACK" G PRG 1
5 "SPIDER RESCUE" G PRG 1
365BLOCKS FREE.

"VIC VIC TAPE 15" 15 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
7 "STOCK MARKET" G PRG 1
7 "SKIING" G PRG 1
15 "CUTOFF" G PRG 1
3 "NUMERIC KEYPAD" G PRG 1
4 "GEM NR. CAL BK" P PRG 1
15 "GER APP1" P PRG 1
7 "TARGETSHOTS JS" G PRG 1
492BLOCKS FREE.

"VIC VIC TAPE 17" 17 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
6 "MAIL LIST" B PRG 1
6 "BASIC" B PRG 1
6 "FUNCTION KEYS" U PRG 1
2 "SQUARED" E PRG 1
3 "FILE CLERK" U PRG 1
2 "ALPHABETIC" U PRG 1
4 "HENRY SNAPSHOT" A PRG 1
4 "MULTIPLY" U PRG 1
7 "LONG DIVISION" E PRG 1
3 "FLASH PROMPT" P PRG 1
13 "SPEED TEST" P PRG 1
7 "S-X CREATE" U PRG 1
7 "PROG CHARS" U PRG 1
3 "VISIBLE VIC" P PRG 1
379BLOCKS FREE.

"VIC VIC TAPE 18" 18 2A
7 "PRG CLASS VIC" U PRG 1
10 "RAND. ANALYSIS" U PRG 1
12 "UNSCRAMBLER" U PRG 1
7 "ALPH-DIRECTORY" U PRG 1
8 "TINY ALPH-DIR" U PRG 1
10 "VARIABLE LISTR" U PRG 1
23 "NM" P PRG 1
11 "HATHQUIZ" E PRG 1
14 "QUANTIN BK JS" E PRG 1
11 "FAST ADD" E PRG 1
11 "HATCHMAN" E PRG 1
13 "LADDERS BK JS" E PRG 1
376BLOCKS FREE.

"VIC VIC TAPE 19" 19 2A
11 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
5 "FIRST MATH" P PRG 1
12 "BIG MATH" P PRG 1
2 "THIRDMATH" P PRG 1
13 "HATHMAN TIMES" P PRG 1
13 "HATHMAN MINUS" P PRG 1
11 "ELECTRO-TIMER" P PRG 1
11 "ELECTRO-PLUS" P PRG 1
11 "FAST ADD" P PRG 1
10 "LONG DIVISION" P PRG 1
11 "HATHQUIZ" P PRG 1
10 "FRENCH" P PRG 1
12 "F" P PRG 1
388BLOCKS FREE.

"VIC VIC TAPE 20" 20 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
10 "1-TOUCH KEYVDS" U PRG 1
3 "CASSETTE-BEEP" U PRG 1
22 "THIRDMATH" P PRG 1
18 "SPACE MATCH BK" E PRG 1
13 "CYCON REVMS JS" E PRG 1
10 "WICKED" E PRG 1
13 "NICKOS-2" E PRG 1
14 "NICKOS-3" E PRG 1
14 "NICKOS-4" E PRG 1
12 "HOUSE FACE" G PRG 1
8 "SEES" G PRG 1
3 "HARKEN" G PRG 1
18 "HARKEN" G PRG 1
10 "DOBLIN" G PRG 1
12 "SPEED SKI" U PRG 1
4 "TINY DRIVER" U PRG 1
10 "VIC DT" U PRG 1
376BLOCKS FREE.

"VIC VIC TAPE 21" 21 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
8 "ASTROGLADIATOR" U PRG 1
8 "AST2" U PRG 1
11 "ALLEN" E PRG 1
12 "HAISHMAN" E PRG 1
10 "FIREBOMB" E PRG 1
10 "VIC TERMINAL" C PRG 1
7 "TERRA-VIC" E PRG 1
8 "SPACE DODGE" G PRG 1
376BLOCKS FREE.

"VIC TAPE 22" 22 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
10 "OLYMPIAD BK JS" G PRG 1
10 "PESTS BK JS" G PRG 1
11 "PE" G PRG 1
2 "SUBTRACT TEST" E PRG 1
2 "MULTIPLY TEST" E PRG 1
2 "ADDITION TEST" E PRG 1
3 "DIVISION TEST" E PRG 1
12 "BANK BUST" E PRG 1
10 "SPACE PATRL JS" G PRG 1
10 "8P" P PRG 1
13 "ROBOT MATH" E PRG 1
11 "HAKS GUILTS" E PRG 1
3 "COLOR CHART" U PRG 1
11 "BEEKEEPER JS" G PRG 1
376BLOCKS FREE.

"VIC TAPE 23" 23 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
9 "SHUFFLE" G PRG 1
8 "SPEED MATH" E PRG 1
23 "SUBTRACT-2" E PRG 1
9 "ET MATH 1" E PRG 1
9 "ET MATH 2" E PRG 1
9 "ET MATH 3" E PRG 1
10 "ET MATH 4" E PRG 1
9 "ET MATH 5" E PRG 1
12 "SLITH" P PRG 1
377BLOCKS FREE.

"VIC TAPE 24" 24 2A
12 "DIRECTORY" U PRG 1
7 "PRG CLASS VIC" U PRG 1
10 "BUBBLE BEE" P PRG 1
12 "COLOUR BAR" P PRG 1
5 "DRAGON" P PRG 1
3 "GENERAL JACOBS" P PRG 1
13 "GENERAL DEMO" P PRG 1
3 "GRAPHIC DEMO" P PRG 1
3 "GRAPHIC SOUND" P PRG 1
6 "HANDIC DEMO3" P PRG 1
5 "HI RES DEMO1" P PRG 1
4 "KALIDSCOPE-1" P PRG 1
4 "KALIDSCOPE-2" P PRG 1
6 "KEYBOARD GRAPH" P PRG 1
6 "NERRY VIC-MAP" M PRG 1
6 "VIC MEMO" M PRG 1
8 "SOUND KEYBOARD" M PRG 1
8 "ROBOTS" M PRG 1
11 "SOUND EFFECTS" M PRG 1
11 "MORE SOUND EFF" M PRG 1
11 "KEYSD SOUNDS" M PRG 1
3 "SILENT NIGHT" M PRG 1
4 "ARROW" G PRG 1
13 "ARTILLERY" G PRG 1
11 "BANDIT-1" G PRG 1
6 "BARBICANE" G PRG 1
12 "BIOVIM" G PRG 1
9 "BLACKJACK" G PRG 1
12 "BUSH TRAIL" G PRG 1
12 "DAM BUST" G PRG 1
5 "DEFLECTION" G PRG 1
1708BLOCKS FREE.

"VIC TAPE 25" 25 2A
6 "BASIC CODE READ" U PRG 1
7 "BASIC CODE BEND" U PRG 1
3 "BIG LETTERS" P PRG 1
4 "CHECK DISK" U PRG 1
4 "DIRECTORY" U PRG 1
11 "DISARM" A PRG 1
14 "DISPLAY T&S" U PRG 1
10 "DISI" A PRG 1
4 "HISTORGRAM" P PRG 1
9 "PERFORM TEST" P PRG 1
7 "PROGRAM CHARS" P PRG 1
13 "RANDOM FILE" U PRG 1
5 "SEQUENTIAL FILE" U PRG 1
8 "TINYHON INST" A PRG 1
3 "TINYHON 1" A PRG 1
6 "VIC DIS-1" A PRG 1
4 "VIC DIS-2" A PRG 1
6 "VIEW SAM" U PRG 1
7 "PRG CLASS VIC" U PRG 1
4 "SEARCHER" U PRG 1
4 "RELOCATE SCRN" U PRG 1
4 "VIC WEDGE" U PRG 1
369BLOCKS FREE.

(Continued on next page)

— MACHINE LANGUAGE —

(Continued from page two)

be brought back again by the same routine.

```

FRMSCR 033A 20 52 03 JSR #0352 ;SET POINTERS
0330 A9 80 LDA #80 ;...FROM SCREEN
033F 85 5F STA #5F ;...TO $1000
0341 A9 10 LDA #10
0343 85 61 STA #61
0345 60 RTS
TOSCRN 0346 20 52 03 JSR #0352 ;SET POINTERS
0349 A9 80 LDA #80 ;...FROM $1000
034B 85 61 STA #61 ;...TO SCREEN
034D A9 10 LDA #10
034F 85 5F STA #5F
0351 60 RTS
COMMON 0352 A9 00 LDA #000 ;NEEDED FOR
0354 85 5E STA #5E ;...BOTH
0356 85 60 STA #60 ;...SUBROUTINES
0358 60 RTS
ENTRY1 0359 20 3A 03 JSR #033A ;FROM SCREEN
035C 4C 62 03 JMP #0362
ENTRY2 035F 20 46 03 JSR #0346 ;TO SCREEN
0362 A2 00 LDX #000 ;BLOCK COUNTER
0364 A0 00 LDY #000 ;INDEX
TRANSF 0366 81 5E LDA #5E,Y ;PERFORM
0368 91 60 STA #60,Y ;...TRANSFER
036A C8 INY
036B D0 F9 BNE #0366
036E 85 5F INC #5F ;NEXT BLOCK
036F E6 61 INC #61
0371 E8 INX ;INC BLOCK COUNTER
0372 E0 04 CPX #004 ;FINISHED?
0374 D0 F0 BNE #0366 ;TRANSFER MORE
0376 60 RTS

```

This is quite an ambitious program. Let us examine it detail.

There are two entry points labelled ENTRY1 and ENTRY2, depending on whether we want to transfer screen contents from the screen to memory or from memory to screen.

ENTRY1 is at \$0359, or 857, while ENTRY2 is at \$035F, or 863.

Depending on which entry point we chose, either FRMSCR or TOSCRN is called. The first of these sets the ORIGIN pointers to \$8000 and the DESTINATION pointers to \$1000. The second one does the reverse. Both routines make use of the common routine COMMON.

The block counter (X) and the index (Y) are now initialized to zero and four blocks of memory are transferred.

Because this program is so complicated there is an excellent chance that an error was made in entering it. For this reason let us save it from MLM with: .S"0:TRANSFER",08,033A,0377 (no extra spaces) for disk or: .S"TRANSFER",01,033A,0377 (also no extra spaces) for tape. In this way, if there is an error and the PET crashes, we can reload TRANSFER, disassemble it and make corrections.

Partly fill the screen and SYS 857. Now clear the screen and SYS 863. Did it work?

Fans of "The Compleat Guide..." who have missed earlier segments will be pleased to know that it will be available in the 64 library, thanks to Harold Brochmann. It comes as files readable with any word processor which reads program files (SpeedScript, Word Pro, Paperclip, etc.)

VIC-20 LIBRARY

(Continued from previous page)

```

"VIC VIC AC" AC 2A
4 "VIC WEDGE" U PRG 9
21 "BATELLITE FINDR" U PRG 10
13 "BILLBOARD" U PRG 11
2 "JIM IN COLOUR" P PRG 7
4 "LOTARIO" U PRG 5
2 "PMS CHARACTERS" P PRG 13
14 "MULTIPLY PRAC" E PRG 13
5 "SUBTRACT PRAC" E PRG 11
13 "POLY TURTLE" U PRG 14
27 "BACKGARDEN" U PRG 10
10 "TAP" U PRG 10
14 "FREE-FALL" G PRG 7
2 "VISIBLE VIC" U PRG 13
6 "CALENDAR" P PRG 8
6 "PRIME FACTORS" E PRG 11
14 "GOBBLE" U PRG 9
10 "SPACEMAN-1" G PRG 12
10 "SPACEMAN-2" G PRG 8
10 "S-X JAMPER" U PRG 13
6 "S-X COLOUR ROOB" PRG 8
4 "S-X POKKY" P PRG 9
13 "S-X GARFIELD" P PRG 7
2 "S-X HI DEMO" U PRG 11
2 "S-X TRISH PIC" P PRG 13
1 "S-X DESIGN" P PRG 2
1 "S-X DESIGN-2" P PRG 2
1 "S-X DESIGN-3" P PRG 2
4 "DIGICLOCK" U PRG 9
4 "HI-RES FOURIER" U PRG 12
12 "USA SONG" H PRG 4
40 BLOCKS FREE.

"VIC VIC AD" AD 2A
4 "VIC WEDGE" U PRG 3
4 "DIRECTORY" U PRG 13
7 "PMS CLASS VIC" U PRG 8
6 "CALENDAR" U PRG 8
2 "LOTTO 449" G PRG 7
0 "MONITOR" A PRG 6
5 "CHECKBOOK" A PRG 4
5 "MAIL LIST TAPE" A PRG 4
4 "NUMERIC PAD" U PRG 4
7 "FILE CLERK TAPE" P PRG 3
7 "SCROLL" U PRG 4
4 "RINGER SOL" U PRG 2
2 "PAUSE" U PRG 10
2 "MEMORY SNAPSHOT" PRG 10
5 "TRACE" U PRG 1
7 "COPY DISK FILES" U PRG 1
2 "SHELL SORT" P PRG 2
2 "SORT C" P PRG 1
2 "SORT D" P PRG 3
12 "NATHAN" U PRG 3
14 "GOBBLE" G PRG 4
5 "PENCIL" U PRG 8
11 "THUNDERBIRD" G PRG 10
11 "STARFIGHT" G PRG 2
11 "SPACEMAN" G PRG 2
11 "TANK VS UFO" G PRG 7
14 "MINI GOLF" G PRG 7
10 "INVADERS" G PRG 7
7 "CAVERN" G PRG 4
11 "SOLDRUSH" G PRG 4
11 "CHASE" G PRG 9
9 "FLIP INET" G PRG 7
8 "FLIP" U PRG 7
8 "BRAIN WARP" G PRG 4
8 "BLOT MACHINE" G PRG 4
7 "HIDDEN MAZE" G PRG 3
14 "GOLDRUSH (JB)" G PRG 9
14 "JOYSTICK DEMO" G PRG 3
3 "SK HI-RES" P PRG 2
6 "COPY CAT" G PRG 4
24 "ENTERPRISE BK" G PRG 1
16 "SKRAPH PLAT" E PRG 17
40 BLOCKS FREE.

"VIC VIC AE" AE 2A
4 "VIC WEDGE" U PRG 5
4 "DIRECTORY" U PRG 12
7 "PMS CLASS VIC" U PRG 8
0 "UFO PILOT (JB)" G PRG 8
13 "GOBBLE (JB)" G PRG 6
4 "DAY AT RACES-1" G PRG 5
18 "DAY AT RACES-2" G PRG 5
13 "RHINO" G PRG 10
7 "S-CAL" H PRG 1
14 "PILOT BK" G PRG 3
20 "TINY PLAN BK" G PRG 3
5 "HORSE TRAINER" G PRG 6
2 "4 COLOUR MAP" G PRG 6
2 "SCREEN SW" U PRG 9
9 "PETA/ROSE" G PRG 4
12 "KOPPEK" A PRG 12
12 "DISASSEMBLER" A PRG 12
6 "BASIC NIGHTMARE" X PRG 12
7 "MORE SOUNDS" X PRG 7
7 "COLOUR EATER" P PRG 3
2 "CRITTER" P PRG 3
3 "S-X JOYRITER" P PRG 12
3 "S-X HI RES DEMO" P PRG 12
11 "S-X CALCULATOR" P PRG 12
2 "PRINT HEX/DEC" A PRG 4
26 BLOCKS FREE.

"VIC VIC AF" AF 2A
4 "DIRECTORY" U PRG 3
12 "DIR TAPE-10" U PRG 15
4 "VIC WEDGE" U PRG 1
7 "PMS CLASS VIC" U PRG 15
3 "TIME BOMB" G PRG 5
5 "S-X KINETIC" P PRG 4
3 "S-X PWR SPIRAL" P PRG 3
3 "S-X PATTERNS" P PRG 3
6 "AIR DEFENSE" G PRG 2
6 "LIFE" P PRG 12
2 "RELOCATE SCR" U PRG 12
6 "HANDMAN" G PRG 15
11 "HUNGRY DRAGON" G PRG 3
3 "POTHOLES/DISC" G PRG 11
17 "CAVES OF ICE BKS" G PRG 3
8 "USB 2.1" G PRG 10
13 "MYSTERY SPELL" G PRG 12
10 "DOTS" G PRG 12
10 "DEMON STAR" G PRG 12
4 "TINY DIRECTORY" U PRG 4
2 "PRINT HEX/DEC" A PRG 10
36 BLOCKS FREE.

"VIC VIC AG" AG 2A
4 "VIC WEDGE" U PRG 4
4 "DIRECTORY" U PRG 9
7 "PMS CLASS VIC" U PRG 15
3 "NAME PLAY" G PRG 4
5 "BUS RACE" G PRG 12
1 "CYLONS 1" G PRG 10
20 "CYLONS 2" G PRG 10
13 "SHAKE ESCAPE" G PRG 5
6 "KEYBOARD" A PRG 5
10 "VIPER" G PRG 5
10 "VIC COPY-ALL" U PRG 12
6 "POLYGRAPH SK" P PRG 12
6 "CHECKBOOK" G PRG 12
1 "PILOT BK" L PRG 12
21 "PI" U PRG 11
4 "LP TIKER" A PRG 10
37 BLOCKS FREE.

"VIC VIC AH" AH 2A
4 "VIC WEDGE" U PRG 2
4 "DIRECTORY" U PRG 1
7 "PMS CLASS VIC" U PRG 1
11 "ELECTRO FLASH" E PRG 3
12 "DEMONS/OBISIT" G PRG 11
4 "COLORBOT (JB)" G PRG 6
11 "CO2" P PRG 7
12 "MUSICAL ENDING" X PRG 10
12 "MM-PRINT 10 BK" P PRG 7
13 "MM-PRINT 20 BK" P PRG 2
5 "CANYON CRUISER" G PRG 12
12 "RESCUE" G PRG 10
11 "C2" P PRG 12
23 "HAUNTEDHOUSE BK" G PRG 10
12 "2" G PRG 8
12 "NARDHAT CLIMBER" G PRG 10
4 "DISK-G-VIC" U PRG 15
36 BLOCKS FREE.

"VIC VIC AI" AI 2A
4 "VIC WEDGE" U PRG 5
4 "DIRECTORY" U PRG 9
7 "PMS CLASS VIC" U PRG 10
11 "BLAM!" U PRG 12
7 "REACT" G PRG 6
9 "TETRACYCLES" G PRG 6
14 "CRYS" SE 11
7 "CUTOFF/4043" G PRG 13
11 "SUPER FIGHT" P PRG 10
7 "TRENCHFIRE4352" G PRG 9
13 "BRAIN BENDER 1" G PRG 12
2 "BRAIN BENDER 2" G PRG 11
2 "BRAIN BENDER 3" G PRG 6
7 "DRAGON POWER" P PRG 7
7 "CITY BOMBER" G PRG 5
7 "CHICKEN LITTLE" G PRG 1
12 "CHICK" G PRG 5
9 "DEFLECTION" G PRG 5
11 "BALL CLOCK" P PRG 1
6 "HORDEHELL" E PRG 5
5 "FIRST MATH" E PRG 15
13 "MUNCHMATH" G PRG 10
13 "SLIPING JACK" G PRG 10
31 BLOCKS FREE.

"VIC VIC AJ" AJ 2A
4 "VIC WEDGE" U PRG 4
4 "DIRECTORY" U PRG 11
7 "PMS CLASS VIC" U PRG 10
7 "SKINS" G PRG 11
15 "NUMERIC KEYPAD" G PRG 10
15 "GEN MD. CAL BK" P PRG 30
15 "GEN YR. CAL BK" P PRG 11
8 "SEM APPT. CAL" P PRG 43
8 "SHAMES 4" G PRG 16
7 "TARGET SHOT JB" G PRG 9
4 "COMPUTE PRFDR" U PRG 11
32 "DISKSHRIMP 16K" P PRG 16
6 "FUSGE" H PRG 6
4 "VIC PIANO" H PRG 11
1 "LADDERS BK" G PRG 9
19 "TH2" G PRG 9
10 "MONTHS BK" P PRG 3
31 "ECONOMICS BK" G PRG 9
9 "MEMORY UTILITY" U PRG 5
5 "ADDITION DRILL" E PRG 4
16 BLOCKS FREE.

"VIC VIC AK" AK 2A
4 "VIC WEDGE" U PRG 12
7 "PMS CLASS VIC" U PRG 10
4 "DIRECTORY" U PRG 10
8 "MONITOR" G PRG 10
7 "MAIL LIST" U PRG 11
3 "BUDGET" G PRG 8
6 "FUNCTION KEYS" U PRG 12
6 "SHAMROD" G PRG 12
7 "FILE CLERK" G PRG 8
2 "ALPHABETIZER" U PRG 10
2 "HENRY SHAMROD" U PRG 23
4 "MULTIPLY" E PRG 12
7 "LONG DIVISION" E PRG 12
13 "FLASH PRERIT" U PRG 11
13 "SPEED TYPE" E PRG 11
7 "8 X 8 CREATE" U PRG 11
2 "VISIBILE VIC" P PRG 19
11 "BASE CONVERTER" A PRG 19
2 "BINARY GUILT" E PRG 12
6 "IMMAY TAKE" G PRG 12
8 "VIC FINANCE" G PRG 4
4 "CHAR MANIFIER" P PRG 14
11 "DISASSEMBLER" A PRG 13
8 "JOTTO" U PRG 12
30 "COMPUTE FILE" U PRG 12
30 "HAUNT HOUSE BK" G PRG 15
14 BLOCKS FREE.

"VIC VIC AL" AL 2A
4 "VIC WEDGE" U PRG 9
7 "PMS CLASS VIC" U PRG 10
4 "DIRECTORY" U PRG 8
8 "1-TOUCH KEYS" U PRG 12
13 "CABBETTES" U PRG 12
22 "THERAPY BK" G PRG 11
18 "SHAPE MATCH BK" E PRG 12
9 "CYON REVIEWS JB" E PRG 12
14 "MICROS-1" E PRG 7
14 "MICROS-2" P PRG 10
14 "MICROS-3" P PRG 8
14 "MICROS-4" P PRG 8
14 "MICROS-5" P PRG 8
14 "MICROS-6" P PRG 8
13 "ASTRO SHOWER" G PRG 16
4 "THIS & THAT BK" G PRG 17
18 "COMCAT" G PRG 17
7 "SPACE DRIVE" G PRG 15
11 "ROCKS" G PRG 15
14 BLOCKS FREE.

"VIC VIC AN (ED)" AN 2A
4 "VIC WEDGE" U PRG 5
4 "DIRECTORY" U PRG 9
13 "SHERLOCK" U PRG 14
5 "FIRST MATH" U PRG 12
13 "RATHMAN TIMES" U PRG 12
13 "RATHMAN TIMES" U PRG 12
11 "ELECTRO-TIMES" PRG 10
11 "ELECTRO-PLUS" PRG 4
12 "ADAPT FACE" P PRG 4
7 "LONG DIVISION" PRG 12
11 "NATHQUIZ" PRG 10
16 "FRENCH" PRG 15
3 "FR. ACC. PRAC." PRG 5
36 BLOCKS FREE.

"VIC VIC AN" AN 2A
4 "VIC WEDGE" U PRG 14
4 "DIRECTORY" U PRG 31
7 "PMS CLASS VIC" U PRG 31
1 "OLYMPIAD BK JB" G PRG 1
1 "PESTS BK JB" G PRG 9
13 "PE" PRG 9
2 "SUBTRACT TEST" E PRG 9
2 "MULTIPLY TEST" E PRG 23
2 "ADDITION TEST" E PRG 9
3 "DIVISION TEST" E PRG 9
10 "SPACE PATRL JB" G PRG 10
10 "SP" G PRG 9
11 "PROBOT MATH" E PRG 12
11 "NAKE GUILTS" E PRG 12
3 "COLOR CHART" U PRG 26
12 "BASKETBALL" G PRG 12
11 "BUNNY HOP JB" G PRG 14
7 "RAINBOW 80 DANCE" G PRG 14
3 "PRINT LOTTO WEST" G PRG 12
12 "FRENCH" G PRG 12
10 "SK FRENCH 2" PRG 5
12 "FRO-CAT" G PRG 17
9 "SC" G PRG 17
5 "DISK PURGE" U PRG 15
15 BLOCKS FREE.

"VIC VIC AD (FR)" DI 2A
4 "DIRECTORY" U PRG 14
12 "FR.VICAB1 BK.V" PRG 11
23 "FR.VICAB2 BK.V" PRG 8
21 "FR.VICAB3 BK.V" PRG 8
18 "FR.VICAB4 BK.V" PRG 13
20 "FR.VICAB5 BK.V" PRG 8
11 "FR.RHINO.V" PRG 7
12 "FR.FRACTIONS.V" PRG 9
8 "FR.EXPLH.V" PRG 9
11 "FR.TACH.V" PRG 9
9 "FR.DEV.LES.V" PRG 12
12 "FR.SIMPL.V" PRG 13
12 "FR.ORTHOGRAFIE.V" PRG 4
33 BLOCKS FREE.

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THE WHOLE 64 LIBRARY

Disks (double-sided) cost \$5.00 to buy or require a \$10.00 deposit while you borrow them. 64 librarian is Glenn Hazlewood -- see him at any of the club's Vancouver meetings.

"CCC LIBRARY DISK" A1 2A			"CCC LIBRARY DISK" E1 2A			"CCC LIBRARY DISK" I1 2A					
1 "C-64 WEDGE"	PRG	23	1 "CONT. LDR. RL"	PRG	32	1 "EYES"	PRG	17 "WATERMELON J.C."	PRG		
2 "BLACKJACK"	PRG	28	2 "MI RES LOADER"	PRG	32	2 "FRIENDS"	PRG	34 "MOON BUGGY.C"	PRG		
3 "TARGET POND"	PRG	27	3 "SCREEN"	PRG	32	3 "SINCE2"	PRG	14 "TERMINAL.64.C"	PRG		
4 "ANDRIDI WIR 64"	PRG	26	4 "CON. LDR. PAL"	PRG	32	4 "CON. LDR. PAL"	PRG	7 "ATERN.64.C"	PRG		
5 "ATARI 81.C2"	PRG	42	5 "GUESSIE"	PRG	32	5 "SQUEEZE"	PRG	41 "TOLL BRIDGES.P"	PRG		
6 "ENTERTAINER"	PRG	43	6 "TEXT"	PRG	32	6 "VH. THINGS"	PRG	29 "RELOCATOR 5.2.C"	PRG		
7 "LABYRINTH"	PRG	42	7 "HOPALONG"	PRG	32	7 "HOPALONG"	PRG	24 "MUSICMASTER"	PRG		
8 "KEYBOARD"	PRG	2	8 "GUYSTER"	PRG	32	8 "NUDE. REV"	PRG	7 "TERM.64.C"	PRG		
9 "DISK DOCTOR"	PRG	12	9 "F1G1"	PRG	32	9 "NUDE. ROLETTE"	PRG	38 "LIGHT CYCLES 441"	PRG		
10 "PETALES/ROSE"	PRG	91	10 "F1S2"	PRG	32	10 "NUDE. 99.1"	PRG	14 "TERMINAL.64.C"	PRG		
11 "CASTLE ADVENTURE"	PRG	4	11 "F1S3"	PRG	32	11 "NUDE. 61A"	PRG	34 "MUEL FORTUNE.C"	PRG		
12 "MAXIT"	PRG	4	12 "MOUND2"	PRG	32	12 "NUDE. 1400.1"	PRG	14 "BURNINERINS.C"	PRG		
13 "BLOCKS FREE."	PRG		13 "BLOCKS FREE."	PRG	32	13 "NUDE"	PRG	4 "41 INTRICIE"	PRG		
"CCC LIBRARY DISK" A2 2A			"CCC LIBRARY DISK" E2 2A			"CCC LIBRARY DISK" I2 2A					
1 "C-64 WEDGE"	PRG	11	1 "LIST-NE CO.1"	PRG	32	1 "DES.1"	PRG	7 "B/SCRIPT COMMAND"	PRG		
2 "HIRE VIEW 2"	PRG	89	2 "MI RES LOADER"	PRG	32	2 "7-SHILL"	PRG	18 "1 TOUCH COMMAND"	PRG		
3 "HIRE VIEW 2.HAC"	PRG	20	3 "SCREEN"	PRG	32	3 "MUSIC"	PRG	23 "GRAPHIC TUF-2.64"	PRG		
4 "1-DOLLAR"	PRG	88	4 "CON. LDR. PAL"	PRG	32	4 "MUSIC"	PRG	31 "GRAPHIC TUF-1.64"	PRG		
5 "2-MAR"	PRG	9	5 "GUESSIE"	PRG	32	5 "DIANE"	PRG	36 "SPRITES TUF-1.64"	PRG		
6 "3-DOL BEGSEL"	PRG	3	6 "TEXT"	PRG	32	6 "WILLY"	PRG	31 "SPRITES TUF-2.64"	PRG		
7 "4-KAREN"	PRG	43	7 "HOPALONG"	PRG	32	7 "RACCOON"	PRG	25 "LARGE ASSEMBLER"	PRG		
8 "5-TOIR"	PRG	2	8 "GUYSTER"	PRG	32	8 "BIBB"	PRG	8 "BRANDON"	PRG		
9 "FRENCH 64"	PRG	3	9 "F1G1"	PRG	32	9 "WATCH"	PRG	5 "INV DISK DIR"	PRG		
10 "STANDARD.SET"	PRG	33	10 "F1S2"	PRG	32	10 "WINSTON"	PRG	6 "DATAWRITER"	PRG		
11 "HIRE BACKUP"	PRG	32	11 "F1S3"	PRG	32	11 "MICROMETER"	PRG	7 "DISK NAME CHANGE"	PRG		
12 "HOUSE"	PRG	1	12 "MOUND2"	PRG	32	12 "NUDE"	PRG	13 "OLD MON.MED"	PRG		
13 "SPRINT.8V81201"	PRG	1	13 "BLOCKS FREE."	PRG	32	13 "BLOCKS FREE."	PRG	15 "R.REVENGE"	PRG		
"CCC LIBRARY DISK" B1 2A			"CCC LIBRARY DISK" F1 2A			"CCC LIBRARY DISK" J1 2A					
1 "AFRICA ABIA"	PRG	12	1 "BITS AND BYTES"	PRG	52	1 "DISKVIEW-64"	PRG	1 "100 RADIUS"	PRG		
2 "BABY AND A SUBST"	PRG	6	2 "BTSPRITES"	PRG	13	2 "SPRITE BASIC"	PRG	32 "100 RADIUS"	PRG		
3 "20 QUESTIONS"	PRG	18	3 "DOS BOOT.64"	PRG	28	3 "BUTTERFLY SPRITE"	PRG	32 "GLOBE"	PRG		
4 "ADDITION GAME"	PRG	3	4 "DOS 5.1.64"	PRG	28	4 "CANYONS OF IELAT"	PRG	32 "SHON/64"	PRG		
5 "AIR"	PRG	27	5 "DOS 5.1.64"	PRG	13	5 "S41 FORMATTER"	PRG	32 "DO/64"	PRG		
6 "BIG MATH 1.1"	PRG	11	6 "DISK AUTO CHANGE"	PRG	13	6 "INDEX HARDCOPY 3"	PRG	32 "SBACK.64"	PRG		
7 "CASH REGISTER"	PRG	13	7 "COPY/ALL"	PRG	12	7 "S41 FORMATTER"	PRG	32 "SCOPY.64"	PRG		
8 "CRYPTOSTAR"	PRG	10	8 "HON TO TWO"	PRG	21	8 "SPEEDSCRIPT"	PRG	32 "LOAD"	PRG		
9 "DONUTS"	PRG	11	9 "VIEW MAP"	PRG	16	9 "SPEEDSCRIPT, INST"	PRG	32 "MICROMON INST"	PRG		
10 "ELIJA"	PRG	4	10 "CHECK DISK"	PRG	16	10 "BLOCKS FREE."	PRG	17 "MICROMON 49152"	PRG		
11 "FRACTIONS"	PRG	23	11 "PRINTER TEST"	PRG	16	11 "VOYAGER V1"	PRG	32 "FUNCTION KEYS"	PRG		
12 "HISTORIAN"	PRG	4	12 "VIEW MAP"	PRG	16	12 "40 RADIUS"	PRG	29 "DUAL 1541 BACKUP"	PRG		
13 "EDU-TILITIES"	PRG	27	13 "VIEW MAP"	PRG	16	13 "40 RADIUS"	PRG	32 "DUAL 1541 INSTR."	PRG		
14 "HAIKU 5"	PRG	13	14 "VIEW MAP"	PRG	16	14 "SPHERE.1"	PRG	32 "CHANGE DISK"	PRG		
15 "HANGMAN"	PRG	20	15 "VIEW MAP"	PRG	16	15 "40 DEGREES"	PRG	"CCC LIBRARY DISK" J2 2A			
16 "HANGMAN(HJS)"	PRG	8	16 "VIEW MAP"	PRG	16	16 "40 DEGREES"	PRG	11 "LIST-NE FIR"	PRG	14 "TEMP CONVERT.C"	PRG
17 "MATH DICH"	PRG	13	17 "VIEW MAP"	PRG	16	17 "40 DEGREES"	PRG	12 "WORD PROCESSOR.C"	PRG	16 "RES-D SUPPLY.C"	PRG
18 "MATH TUTOR"	PRG	6	18 "VIEW MAP"	PRG	16	18 "40 DEGREES"	PRG	13 "EASY EDIT.C"	PRG	18 "BIO-CONFAT.C"	PRG
19 "MISSING NUMBER"	PRG	23	19 "VIEW MAP"	PRG	16	19 "40 DEGREES"	PRG	14 "TYPEWRITER.C"	PRG	12 "BIO-PILOT.C"	PRG
20 "PETS"	PRG	27	20 "VIEW MAP"	PRG	16	20 "40 DEGREES"	PRG	15 "TYPEWRITER.C"	PRG	17 "BIO-PILOT.C"	PRG
21 "SPELLING BEE-FIL"	PRG	24	21 "VIEW MAP"	PRG	16	21 "40 DEGREES"	PRG	16 "TEXT EDITOR.C"	PRG	25 "CAR COST MILE.C"	PRG
22 "STATISTICS/CAPITALS"	PRG	28	22 "VIEW MAP"	PRG	16	22 "40 DEGREES"	PRG	17 "MINIMORPHO.C"	PRG	18 "RECIPE SIZER.C"	PRG
23 "BLOCKS FREE."	PRG		23 "VIEW MAP"	PRG	16	23 "40 DEGREES"	PRG	18 "FOOD PRICES.C"	PRG	27 "RECORDINGS.C"	PRG
"CCC LIBRARY DISK" B2 2A			"CCC LIBRARY DISK" F2 2A			"CCC LIBRARY DISK" J2 2A					
1 "SPACE PILOT"	PRG	12	1 "BOOT.UK2.64"	PRG	58	1 "QUIET AFTERNOON"	PRG	1 "100 RADIUS"	PRG	16 "RES-D SUPPLY.C"	PRG
2 "SNAKES"	PRG	12	2 "SPRITES.64"	PRG	42	2 "GUESS A GRAPH"	PRG	32 "100 RADIUS"	PRG	18 "BIO-CONFAT.C"	PRG
3 "PAL PLOTTING DEN"	PRG	12	3 "MUSIC 64"	PRG	8	3 "GUESS A GRAPH"	PRG	32 "GLOBE"	PRG	12 "BIO-PILOT.C"	PRG
4 "SPRITES DEMO"	PRG	12	4 "LAND.64"	PRG	8	4 "TORPEDO"	PRG	32 "SHON/64"	PRG	17 "BIO-PILOT.C"	PRG
5 "3-D DEMO"	PRG	10	5 "DEMO.64"	PRG	6	5 "TORPEDO"	PRG	32 "DO/64"	PRG	32 "SBACK.64"	PRG
6 "N/L DEMO DEMO"	PRG	5	6 "1800 MILES/INST"	PRG	52	6 "TORPEDO"	PRG	32 "SCOPY.64"	PRG	32 "LOAD"	PRG
7 "STAR TREK IV-A"	PRG	19	7 "1800 MILES/INST"	PRG	52	7 "TORPEDO"	PRG	32 "MICROMON INST"	PRG	17 "MICROMON 49152"	PRG
8 "SPRITE MAKER"	PRG	16	8 "1800 MILES/INST"	PRG	52	8 "TORPEDO"	PRG	32 "FUNCTION KEYS"	PRG	29 "DUAL 1541 BACKUP"	PRG
9 "ATARI 81.C2"	PRG	42	9 "1800 MILES/INST"	PRG	52	9 "TORPEDO"	PRG	32 "DUAL 1541 INSTR."	PRG	32 "CHANGE DISK"	PRG
10 "ANDRIDI WIR 64"	PRG	26	10 "1800 MILES/INST"	PRG	52	10 "TORPEDO"	PRG	"CCC LIBRARY DISK" J3 2A			
11 "ENTERTAINER"	PRG	43	11 "1800 MILES/INST"	PRG	52	11 "TORPEDO"	PRG	1 "100 RADIUS"	PRG	16 "RES-D SUPPLY.C"	PRG
12 "LABYRINTH"	PRG	2	12 "1800 MILES/INST"	PRG	52	12 "TORPEDO"	PRG	32 "100 RADIUS"	PRG	18 "BIO-CONFAT.C"	PRG
13 "KEYBOARD"	PRG	2	13 "1800 MILES/INST"	PRG	52	13 "TORPEDO"	PRG	32 "GLOBE"	PRG	12 "BIO-PILOT.C"	PRG
14 "DISK DOCTOR"	PRG	12	14 "1800 MILES/INST"	PRG	52	14 "TORPEDO"	PRG	32 "SHON/64"	PRG	17 "BIO-PILOT.C"	PRG
15 "CASTLE ADVENTURE"	PRG	4	15 "1800 MILES/INST"	PRG	52	15 "TORPEDO"	PRG	32 "DO/64"	PRG	32 "SBACK.64"	PRG
16 "MAXIT"	PRG	4	16 "1800 MILES/INST"	PRG	52	16 "TORPEDO"	PRG	32 "SCOPY.64"	PRG	32 "LOAD"	PRG
17 "BLOCKS FREE."	PRG		17 "1800 MILES/INST"	PRG	52	17 "TORPEDO"	PRG	32 "MICROMON INST"	PRG	17 "MICROMON 49152"	PRG
"CCC LIBRARY DISK" C1 2A			"CCC LIBRARY DISK" G1 2A			"CCC LIBRARY DISK" J3 2A					
1 "PONZO TUTOR-1.64"	PRG	4	1 "SPACE DUER BOOT"	PRG	149	1 "CHRISTMAS"	PRG	1 "100 RADIUS"	PRG	16 "RES-D SUPPLY.C"	PRG
2 "PONZO TUTOR-2.64"	PRG	4	2 "SPACE DUER BOOT"	PRG	17	2 "CHRISTMAS"	PRG	32 "100 RADIUS"	PRG	18 "BIO-CONFAT.C"	PRG
3 "PONZO TUTOR-3.64"	PRG	4	3 "SPACE DUER BOOT"	PRG	17	3 "CHRISTMAS"	PRG	32 "GLOBE"	PRG	12 "BIO-PILOT.C"	PRG
4 "PONZO TUTOR-4.64"	PRG	4	4 "SPACE DUER BOOT"	PRG	17	4 "CHRISTMAS"	PRG	32 "SHON/64"	PRG	17 "BIO-PILOT.C"	PRG
5 "PONZO TUTOR-5.64"	PRG	4	5 "SPACE DUER BOOT"	PRG	17	5 "CHRISTMAS"	PRG	32 "DO/64"	PRG	32 "SBACK.64"	PRG
6 "PONZO TUTOR-6.64"	PRG	4	6 "SPACE DUER BOOT"	PRG	17	6 "CHRISTMAS"	PRG	32 "SCOPY.64"	PRG	32 "LOAD"	PRG
7 "PONZO TUTOR-7.64"	PRG	4	7 "SPACE DUER BOOT"	PRG	17	7 "CHRISTMAS"	PRG	32 "MICROMON INST"	PRG	17 "MICROMON 49152"	PRG
8 "LISTER.V4.4"	PRG	8	8 "SPACE DUER BOOT"	PRG	17	8 "CHRISTMAS"	PRG	32 "FUNCTION KEYS"	PRG	29 "DUAL 1541 BACKUP"	PRG
9 "1525 CHAR.EDIT"	PRG	19	9 "SPACE DUER BOOT"	PRG	17	9 "CHRISTMAS"	PRG	32 "DUAL 1541 INSTR."	PRG	32 "CHANGE DISK"	PRG
10 "1525 VEH. INST"	PRG	19	10 "SPACE DUER BOOT"	PRG	17	10 "CHRISTMAS"	PRG	"CCC LIBRARY DISK" J4 2A			
11 "TIN VEH SET UP"	PRG	25	11 "SPACE DUER BOOT"	PRG	17	11 "CHRISTMAS"	PRG	11 "LIST-NE FIR"	PRG	14 "TEMP CONVERT.C"	PRG
12 "TIN VEH SET UP"	PRG	25	12 "SPACE DUER BOOT"	PRG	17	12 "CHRISTMAS"	PRG	12 "WORD PROCESSOR.C"	PRG	16 "RES-D SUPPLY.C"	PRG
13 "TIN VEH SET UP"	PRG	25	13 "SPACE DUER BOOT"	PRG	17	13 "CHRISTMAS"	PRG	13 "EASY EDIT.C"	PRG	18 "BIO-CONFAT.C"	PRG
14 "TIN VEH SET UP"	PRG	25	14 "SPACE DUER BOOT"	PRG	17	14 "CHRISTMAS"	PRG	14 "TYPEWRITER.C"	PRG	12 "BIO-PILOT.C"	PRG
15 "TIN VEH SET UP"	PRG	25	15 "SPACE DUER BOOT"	PRG	17	15 "CHRISTMAS"	PRG	15 "TYPEWRITER.C"	PRG	17 "BIO-PILOT.C"	PRG
16 "TIN VEH SET UP"	PRG	25	16 "SPACE DUER BOOT"	PRG	17	16 "CHRISTMAS"	PRG	16 "TEXT EDITOR.C"	PRG	25 "CAR COST MILE.C"	PRG
17 "TIN VEH SET UP"	PRG	25	17 "SPACE DUER BOOT"	PRG	17	17 "CHRISTMAS"	PRG	17 "MINIMORPHO.C"	PRG	18 "RECIPE SIZER.C"	PRG
18 "TIN VEH SET UP"	PRG	25	18 "SPACE DUER BOOT"	PRG	17	18 "CHRISTMAS"	PRG	18 "FOOD PRICES.C"	PRG	27 "RECORDINGS.C"	PRG
19 "TIN VEH SET UP"	PRG	25	19 "SPACE DUER BOOT"	PRG	17	19 "CHRISTMAS"	PRG	19 "HEATING COST.C"	PRG	27 "LIBRARY CARDS.C"	PRG
20 "TIN VEH SET UP"	PRG	25	20 "SPACE DUER BOOT"	PRG	17	20 "CHRISTMAS"	PRG	20 "PROPERTY EVAL.C"	PRG	14 "CHECKBOOK.C"	PRG
21 "TIN VEH SET UP"	PRG	25	21 "SPACE DUER BOOT"	PRG	17	21 "CHRISTMAS"	PRG	21 "WEIGHT MATCHER.C"	PRG	18 "BIO-PILOT.C"	PRG
22 "TIN VEH SET UP"	PRG	25	22 "SPACE DUER BOOT"	PRG	17	22 "CHRISTMAS"	PRG	22 "MEMORANDA.C"	PRG	9 "BIOHYTHM.C"	PRG
23 "TIN VEH SET UP"	PRG	25	23 "SPACE DUER BOOT"	PRG	17	23 "CHRISTMAS"	PRG	23 "LIFE EXPECT.C"	PRG	19 "BLOCKS FREE."	PRG
24 "TIN VEH SET UP"	PRG	25	24 "SPACE DUER BOOT"	PRG	17	24 "CHRISTMAS"	PRG	"CCC LIBRARY DISK" K1 2A			
25 "TIN VEH SET UP"	PRG	25	25 "SPACE DUER BOOT"	PRG	17	25 "CHRISTMAS"	PRG	1 "C-64 WEDGE"	PRG	14 "TEMP CONVERT.C"	PRG
26 "TIN VEH SET UP"	PRG										

PIRATED SOFTWARE ARE BEING PEDDLED IN VANCOUVER'S RAGS

By SARAH COX

Illegally copied computer software is being advertised for sale in Vancouver newspapers. But despite protests from software manufacturers, police say they can't stop the computer pirates until Canada's copyright law is changed.

The police and manufacturers both want the 50-year-old Copyright Act revised specifically to include products of the computer age -- including stiff penalties for possession of copied disks.

An epidemic of computer piracy has resulted in each legally sold computer program being illegally copied an average of five to 10 times, according to industry estimates.

One local software marketing manager was shocked to discover advertisements for copied disks in the *Buy and Sell*. "I hadn't realized they [pirates] were advertising but when I saw six in a row I had quite a reaction. It costs about \$50,000 to develop a program and these people are selling the disks for \$5 or less," he said.

The *Buy & Sell* advertisers did not declare themselves to be "pirates" but remarkable bargains were offered: "...programs. Several 100s available. \$1 and up. Or trade for other programs." "Apple programs: DBase II \$10. Visi Calc \$5. Word Star \$10." The three Apple programs list for \$895, \$345 and \$595 respectively.

Many programs are protected by tricks designed to prevent copying. But other programs specifically designed to defeat protection schemes can be purchased for as little as \$50 from computer stores -- or pirated themselves -- and protection codes can be broken as fast as they are implemented.

The *Sun* telephoned a number in the *Buy & Sell* that read: "Commodore 64 games, gd selection \$3 and up."

A young male voice answered: "I've got everything. I've got all word games, arcade games, graphic games, Shoot the Alien -- that's an arcade game. I've got puzzles too."

"What do you mean where did I get them from? My friend gave them to me...I didn't know it was illegal, my friend said it was okay, that I wouldn't get in trouble." The advertiser paused and then hung up.

A Vancouver police spokesman said "rampant piracy" will likely continue until Canada's 1924 Copyright Act is changed so police can crack down. He said police receive two or three complaints a month from software manufacturers, but the vague copyright law makes investigation difficult.

Police have to prove the

products were offered for sale before charges are laid. An advertisement constitutes an offer for sale, but even so advertisements are only investigated if the department receives a specific complaint and usually the only step taken is to inform the advertiser by telephone they are breaking the law. Police don't have the resources to spend much time on a prosecution that can result in no more than a \$200 fine.

Buy & Sell publisher Mike Abbott said he knows computer pirates advertise in his paper

but "I'm not going to do anything about it until someone tells me to." Advertisements for illegal or stolen goods are refused by the paper, but laws governing computer software are too vague to worry about, said Abbott.

A spokesman from the *Sun's* classified department said his staff cannot check software advertisements to see if the products are legal. "We have no say of knowing if they are illegal."

(Reprinted from the Aug. 22 Vancouver Sun)

C-64 LIBRARY

(Continued from previous page)

CCC LIBRARY * K1 2A
12 "LIST-HE FIRST" PRG 7 "MORT SCHED.C" PRG
27 "INTEREST.C" PRG 6 "MORT CALC.C" PRG
21 "BOOKS.PING.C" PRG 12 "MORTGAGE.I" PRG
38 "LUMP SUM.C" PRG 23 "MEMORANDA.C" PRG
23 "BOND YIELD.C" PRG 13 "INVOICER.C" PRG
4 "FICA TAX.C" PRG 7 "DATES.C" PRG
9 "STOCK OPTION.C" PRG 6 "SALES.C" PRG
11 "STOCK LIST.C" PRG 8 "MARKS.C" PRG
15 "LAN.C" PRG 10 "GROWTH RATE.C" PRG
25 "FRES CASH FLOW.C" PRG 4 "DAY OF WEEK.C" PRG
12 "INVESTMENT.C" PRG 3 "CALENDAR.C" PRG
11 "INVENTORY.C" PRG 3 "TYPIST TEST.C" PRG
4 "GROWTH CALC.C" PRG 12 "BUSINESSCARD.C" PRG
14 "DECISION MAKER.C" PRG 24 "APPOINTMENT.C" PRG
10 "FINANCIAL CALC.C" PRG 19 "COPS BASE TAPE.C" PRG
12 "PORTFOLIO.C" PRG 20 "COPS BASE DISK.C" PRG
7 "MORTGAGE.C" PRG
290BLOCKS FREE.

CCC LIBRARY * K2 2A
13 "NPRN SCREENS" PRG 19 "CATLOG.IMG" PRG
67 "NPRN.DOC" PRG 6 "CHSDOT.IMG" PRG
15 "NPRN.SAMPLE" PRG 1 "MO.IMG" PRG
74 "NPRN.UTIL" PRG 11 "PTERR.IMG" PRG
20 "NPRN" PRG 7 "SHDUTL.IMG" PRG
15 "DOC/44.LP" PRG 3 "SCHED LISTER" PRG
24 "BINGO" PRG 3 "ACCEPT.IMG" PRG
6 "SPRITE SEN" PRG 7 "ACCEPT.IMG" PRG
9 "SUPER DIRECTORY" PRG 17 "FORMAT.IMG" PRG
11 "DISK EDITOR" PRG 12 "CLUE" PRG
3 "DISK MASTER" PRG 35 "CLUE TWO" PRG
1 "COMAL" PRG
159BLOCKS FREE.

CCC LIBRARY DISK* L1 2A
1 "MENU" PRG 6 "44MENU" PRG
43 "PROPS" PRG 7 "VICHENU" PRG
15 "HIND BOSSLE/44" PRG 21 "VICFEEDSCRIPT" PRG
15 "HIND BOSSLE/VIC" PRG 3 "VCONTENTS" PRG
9 "HEND WRITER/44" PRG 3 "44 CONTENTS" PRG
9 "HEND WRITER/VIC" PRG 19 "80" PRG
5 "BEGIN CORNER/44" PRG 14 "SPEED1" PRG
5 "BEGIN CORNER/VIC" PRG 9 "SPEED2" PRG
6 "NLEBS/44" PRG 17 "SPEED3" PRG
4 "NLEBS/VIC" PRG 20 "SPEED4" PRG
10 "SOUND STORY" PRG 18 "SPEED" PRG
5 "STEP LISTER/44" PRG 1 "44INTR" PRG
4 "VIC PRINT SOUND" PRG 1 "INSTR" PRG
2 "CASS REPER/44" PRG 8 "CONVERT/44" PRG
3 "CASS REPER/VIC" PRG 8 "CONVERT/VIC" PRG
35 "SOUND SCULPTOR I" PRG 4 "COMPUTESCREEN" PRG
13 "44SPEDSCRIPT" PRG 1 "COMPUTE" PRG
9 "SKI PHYSICS I" PRG 10 "GALETTE" PRG
8 "SKI PHYSICS 2" PRG 10 "GALETTE" PRG
14 "SKI PHYSICS/44" PRG 9 "VICBOOKS" PRG
14 "JOYSTICK CONTROL" PRG 4 "COMPUTE/VIC" PRG
14 "FAST ADD/44" PRG 6 "GALETTE/44" PRG
21 "FAST ADD/VIC" PRG 1 "RANDOM EMULATOR.C" PRG
26 "SUPERSPRITE" PRG 11 "FAST COPY-44" PRG
122BLOCKS FREE.

CCC LIBRARY DISK* L2 2A
1 "MENU" PRG 10 "SHAPE MATCH" PRG
5 "COMPUTE/VIC" PRG 9 "WORD SCRAMBLE/44" PRG
7 "GALETTE/VIC" PRG 8 "WORD SCRAMBLE/VIC" PRG
2 "SCIENTIST" PRG 18 "SPACE PATROL/VIC" PRG
2 "COMPUTE" PRG 15 "BEGIN CORNER/44" PRG
0 "VICBOOKS" PRG 8 "I TOUCH KEYWORDS" PRG
10 "44BOOKS" PRG 2 "RANDOM NUMBERS" PRG
17 "3-D TAC TOE/44" PRG 2 "TAPE DATA FILES1" PRG
17 "3-D TAC TOE/VIC" PRG 2 "TAPE DATA FILES2" PRG
7 "CASTLE DUNGEON/VIC" PRG 2 "TAPE DATA FILES3" PRG
26 "CASTLE DUNGEON/44" PRG 4 "FILE COPIER" PRG
9 "FRANTIC FISH/VIC" PRG 3 "44 CONTENTS" PRG
13 "FRANTIC" PRG 05 "CODE PRO-44 SHA" PRG
40 "FRANTIC FISH/44" PRG 4 "COMPUTECOLOR" PRG
13 "REVENGE CYDOR/VIC" PRG 4 "COMPUTESCREEN" PRG
13 "REVENGE CYDOR/44" PRG 7 "VN" PRG
2 "THERAPY/44" PRG 10 "GALETTE" PRG
2 "THERAPY/VIC" PRG 11 "FAST COPY-44" PRG
16 "SPELL CRITTER/44" PRG
16 "SPELL CRITTER/VIC" PRG
160BLOCKS FREE.

CCC LIBRARY DISK* H1 2A
1 "MENU" PRG 12 "BANK BARRELS/VIC" PRG
5 "COMPUTE/VIC" PRG 20 "SPACE PATROL/44" PRG
7 "GALETTE/VIC" PRG 18 "SPACE PATROL/VIC" PRG
2 "COMPUTE" PRG 15 "RDSOT MATH/44" PRG
0 "VICBOOKS" PRG 13 "RDSOT MATH/VIC" PRG
10 "44BOOKS" PRG 25 "90" PRG
4 "NN" PRG 11 "BEGIN CORNER/VIC" PRG
4 "COMPUTECOLOR" PRG 3 "COLOR CHART/VIC" PRG
4 "COMPUTESCREEN" PRG 3 "COLOR CHART/44" PRG
18 "GALETTE" PRG 12 "BEEKEEPER/44" PRG
4 "ULTRAFONT LOADER" PRG 11 "BEEKEEPER/VIC" PRG
13 "ULTRAFONT.OS2" PRG 2 "VCONTENTS" PRG
14 "REVISED ML/44" PRG 2 "44 CONTENTS" PRG
83 "CODE PRO-44 SHA" PRG 1 "BEGIN CORNER/44" PRG
15 "BANK BARRELS/44" PRG
303BLOCKS FREE.

CCC LIBRARY DISK* H2 2A
32 "DISK MASTER" PRG 4 "DIR.L2" PRG
32 "44 DISK MASTER" PRG 7 "DIR.S1" PRG
2 "DIR.C1" PRG 3 "DIR.S2" PRG
2 "DIR.A2" PRG 3 "DIR.M1" PRG
2 "DIR.A1" PRG 1 "-----" PRG
4 "DIR.1" PRG 3 "DIR.XREF" PRG
3 "DIR.2" PRG 19 "FUNCKEYS" PRG
4 "DIR.C2" PRG 31 "AUDIO CATALOGER" PRG
3 "DIR.D1" PRG 3 "DIR.A" PRG
4 "DIR.D2" PRG 3 "PRINT LOTTO 449" PRG
2 "DIR.E1" PRG 19 "64 WORD HUNT" PRG
2 "DIR.E2" PRG 10 "44 RECORD TIMER" PRG
4 "DIR.F1" PRG 3 "44 FAIR ARE" PRG
3 "DIR.F2" PRG 4 "MULT TO 70 NOS" PRG
3 "DIR.G1" PRG 8 "ALPHA-DIRECTORY" PRG
3 "DIR.G2" PRG 8 "TINY-ALPHA-DIRECT" PRG
4 "DIR.H1" PRG 12 "UNSCRATCHER" PRG
5 "DIR.H2" PRG 12 "COLOR PENTONHIDE" PRG
3 "DIR.I1" PRG 12 "44 DISK EDITOR" PRG
5 "DIR.I2" PRG 3 "TIGER SPIRIT" PRG
3 "DIR.K1" PRG 14 "BUDGET PLANNER" PRG
3 "DIR.K2" PRG 4 "METEOR BOOT" PRG
5 "DIR.L1" PRG 32 "METEOR TITLE" PRG
2 "DATA 1" PRG
6 "ML METEOR" PRG
291BLOCKS FREE.

CCC LIBRARY DISK* H1 2A
1 "MENU" PRG 31 "88" PRG
5 "COMPUTE/VIC" PRG 30 "CAMPAIGN MANAGER" PRG
7 "GALETTE/VIC" PRG 2 "CURSOR GET/VIC" PRG
2 "COMPUTE" PRG 2 "CURSOR GET/44" PRG
4 "44 BOOKS" PRG 1 "44 BOOKS" PRG
4 "COMPUTECOLOR" PRG 2 "BALLOON BLITZ/VIC" PRG
4 "COMPUTESCREEN" PRG 4 "STRING SEARCH 2" PRG
18 "GALETTE" PRG 4 "STRING SEARCH 1" PRG
3 "ERROR TRAP/44" PRG 1 "BRITE MUSIC LOA" PRG
4 "VIC BOOKS" PRG 2 "-----" PRG
9 "VIC BOOKS" PRG 6 "GEMINI CHARS" PRG
2 "BEGIN CORNER 1" PRG 12 "ART DECO SET(31)" PRG
2 "BEGIN CORNER 2" PRG 9 "GOTHIC.SET(19)" PRG
2 "BEGIN CORNER 3" PRG 9 "ROMAN/SCRIPT(19)" PRG
2 "BEGIN CORNER 4" PRG 9 "OLD ENGLISH(31)" PRG
2 "BEGIN CORNER 5" PRG 9 "SHARD SET" PRG
7 "BND-CAT/VIC" PRG 9 "SCRIPSET" PRG
9 "8C" PRG 1 "GEMINI SET" PRG
20 "BND-CAT/44" PRG 1 "-----" PRG
11 "BRITE MAGIC" PRG 32 "CHAR BOOT" PRG
5 "DISK PURGE" PRG 1 "ROTATE DATA" PRG
22 "BALLOON BLITZ/44" PRG 9 "STANDARD.SET" PRG
264BLOCKS FREE.

CCC LIBRARY DISK* H2 2A
40 "DISKFLER" PRG 15 "STAND ALONE SCRA" PRG
39 "DISKFLER.DOC1" PRG 5 "GUILT GRAPHICS" PRG
16 "DISKFLER.DOC2" PRG 43 "BILLIE JEAN OH" PRG
6 "BAT 17 30120" PRG 23 "LOAD.PROTOCOL.10" PRG
11 "STARTREK SURROG" PRG 23 "LOAD.PROTOCOL.10" PRG
18 "SWED64" PRG 17 "TERM.OTT.C44.ML3" PRG
22 "ADDRESS FILE" PRG 137 "TERM.PROTOCOL.10" PRG
11 "SCROLLING SIGN" PRG 9 "TERM.PROTOCOL.10" PRG
11 "SEND MORSE" PRG 7 "NBUID" PRG
24 "SEKOR" PRG 1 "8 u 6" PRG
67 BLOCKS FREE.

CCC LIBRARY DISK* O1 2A
33 "SPEEDSCRIPT.V.5" PRG 4 "R2 1" PRG
76 "S/F INTR.V.5" PRG 4 "R2 2" PRG
10 "S/B ARTICLE" PRG 6 "FEED TRICKS 1" PRG
8 "CONVERTER" PRG 33 "R2 4" PRG
3 "CUSTOMER BOOT" PRG 4 "R3 1" PRG
12 "THE CUSTOMIZER" PRG 4 "R3 2" PRG
3 "44 EMULATOR.C" PRG 33 "R3 3" PRG
4 "81 1" PRG 33 "R3 4" PRG
4 "81 2" PRG 6 "ART SHOW.C" PRG
33 "81 3" PRG 1 "LOAD.8" PRG
33 "81 4" PRG 9 "DISSOLVE.0" PRG
4 "R1 1" PRG 40 "JIMMY.D" PRG
4 "R1 2" PRG 48 "SIGNATURE.D" PRG
33 "R1 3" PRG 14 "FUNKY TRICKS" PRG
33 "R1 4" PRG 18 "FASTCOPIER" PRG
12 BLOCKS FREE.

CCC LIBRARY DISK* O2 2A
1 "MENU" PRG 5 "BEGIN CORNER 1/V" PRG
7 "GALETTE/VIC" PRG 5 "BEGIN CORNER 2/V" PRG
2 "COMPUTE" PRG 1 "ROCKNEY SOFTWARE" PRG
0 "VICBOOKS" PRG 5 "SCREEN HEAD/VIC" PRG
9 "VIC BOOKS" PRG 3 "ANIMATING VIC" PRG
6 "COMPUTECOLOR" PRG 9 "LEARN COUNT/44" PRG
4 "COMPUTESCREEN" PRG 9 "LEARN COUNT/VIC" PRG
18 "GALETTE" PRG 6 "DISK TRICKS 2" PRG
3 "VCONTENTS" PRG 5 "DISK TRICKS 3" PRG
1 "SPEED CUST BOOT" PRG 15 "SCREEN-80" PRG
8 "CUSTOM-80 LOADER" PRG 9 "CUSTOM-80" PRG
34 "MYSTERY MANOR/44" PRG 1 "CUST CHAR LOADER" PRG
14 "MYSTERY MANOR/VIC" PRG 1 "DISK 80" PRG
5 "BEGIN CORNER 1/V" PRG 23 "TREASURE HUNT/44" PRG
6 "BEGIN CORNER 2/V" PRG 23 "TREASURE HUNT/VIC" PRG
330BLOCKS FREE.

CCC LIBRARY DISK* S2 2A
41 "888" PRG 2 "DOWNLOAD MENU" PRG
41 "888S.IMG" PRG 2 "FEED INTRD" PRG
41 "888SD" PRG 1 "FEED INTR" PRG
35 "CELLINE 888" PRG 2 "MAIN MENU" PRG
7 "TERM.44" PRG 1 "PORT INTRD" PRG
7 "CELLINE" PRG 1 "NEED INTRC" PRG
1 "CALL NUM" PRG 1 "TESTFILE" PRG
1 "CATEGORIES" PRG 2 "THIS 1" PRG
34 "CL15 BRIDGE" PRG 1 "THIS 2" PRG
1 "CL15 CAT" PRG 1 "THIS 3" PRG
1 "CL15 1" PRG 1 "MELCONE" PRG
1 "CL15 2" PRG 1 "CASHU 1" PRG
1 "CL15 3" PRG 1 "CASHU 2" PRG
1 "CL15 INTRD" PRG 1 "CASHU.FD" PRG
1 "CL15 LIST" PRG 1 "-----" PRG
1 "DELETE INTRD" PRG 17 "-----" PRG
2 "DOWNLOAD INTRD" PRG 7 "TERM.C" PRG
301BLOCKS FREE.

— A VIEW FROM THE OUTSIDE WORLD —

By BOB WIEMER
(from Newsday)

If English were written the way computers are programmed, oceans of paper pulp and thousands of square miles of forest might be saved. That will probably never happen, of course, because there seems to be a profound gap between those who are comfortable in English and those who talk to computers.

But that gap may be more perceived than real.

Logic is important in both writing and programming, and a lot of what programmers do today is also being taught in first-year university composition classes.

For example, in BASIC, most programs are introduced with a REM statement. That stands for "remark," and it's nothing more than an introduction. The REM statement, like the lead paragraph in a news story, tells them what you're going to tell them.

Requiring a REM statement at the beginning of every written piece would not only save paper, it might also make composition classes unnecessary. Writing is a simple, horse-before-the-cart ex-

ercise: It works best if the act of putting something down on paper follows an act of thought, and not vice versa.

Another useful BASIC command is GOTO. Computers don't mess around with transitional phrases. Instead of writing such essentially meaningless terms as "meanwhile" or "moreover," a programmer simply tells the machine to "go to" the next step. In a complex narrative this could be used to help a reader remember what was said earlier.

If, for example, Howard Oswald Jones is identified on line 5 as a cousin of the murder victim, a reader may have forgotten that by the time "Jones" is mentioned again on line 33. That's when a GOTO 5 command would be appropriate.

In journalistic terms, the most useful command in the BASIC vocabulary is GOSUB. Computer programmers never have to spell out the same series of commands twice in any one program. They avoid it by going through the steps once in what they call a subroutine. That can then be called up at several points in the program by telling the machine to GOSUB, which means: Go

to the subroutine.

In just about every newspaper story there are at least a couple of paragraphs that are there simply to provide background information.

Every time a story on a murder trial is written, for example, the writer has to tell who was killed and when the crime was committed. Enormous amounts of paper could be saved by simply writing GOSUB and then giving the date and page number of the story published the day after the murder.

The use of the GOSUB command would also make it possible to print entire sections devoted to editorials and columns in a space the size of a business card. An editorial written under this system might read as follows:

10 REM Editorial

20 PRINT "Middle East Crisis"

30 GOSUB Feb. 24, 1984: P. 78

Columnists who espouse particularly narrow views frequently write the same basic piece over and over again. The only variation comes in the excuse or "hook" they use to get into the piece. By printing only a photo, a byline, and a relevant GOSUB command, thousands of trees could be spared.

PRINTER SURVEY . . . Continued from page 4

prefer either the round-pin or the square-pin printouts.

Interestingly, while the Okidata, Gemini, Epson, Roland, and Mannesman Tally all produced print that was an accurate 10 characters/inch, the Admate and the Commodore 1526 produced a non-standard, slightly compressed print which measures out to approximately 10.7 characters per inch. In addition to the above-noted defects associated with having a print head that is short by one pin, the Commodore 1526 had the peculiarity of making a lower case letter "k" that for all the world looks like an upper case letter.

In addition to their normal print mode, the square-pin printers all had a slower speed emphasized print mode.

However, with square-pin printers in the emphasized mode the letters seem to be merely darker than normal, not better formed than normal. The emphasized mode of square-pin printers would therefore be useful for boldfacing in text, but unlike that of round-pin printers would not serve for "pseudo-letter-quality" printing. Since the print quality does not change when square pin printers print in emphasized mode, the print quality scores for normal mode also apply to the emphasized mode.

Aside from price, print quality, and speed, one should consider several other factors when buying a printer:

1) Do you want to hook it up directly to your computer without

an interface? If so, you are limited to Commodore printers. The Commodore MPS 801 printer is slow and has poor print quality, but it is inexpensive and adequate for program listings. The Commodore 1526 printer is reasonably fast, has decent print quality, but has been selling for nearly as much as the combined cost of some non-Commodore printers with an external interface. A further limitation of the 1526 printer is that many word processing programs cannot send it the correct codes (Paperclip version D works well; Paperclip C does not work).

2) Do you have a particular requirement for very high print speed in normal mode? If so, the Okidata or one of the higher speed Epson models might be what you want.

3) Do you have a particular requirement for very high quality printing? In this case, the round-pin Okidata, Epson, or Gemini in emphasized or correspondence mode seem to be superior to the best that the square-pin printers can do. If you really need high quality and can wait for printouts, maybe what you need is a daisy wheel printer.

4) If you are doing a lot of printing, look closely into ribbon cost before you buy. I personally have gone through 4 ribbons in 6 months. Depending on the printer, ribbon costs can range from \$3 or so for typewriter-like ribbons to \$15 or more for cartridges. For heavy users, the cost of expensive ribbons can quickly eat up any

difference in price between different printers.

5) Look at the paper feed mechanism of any printer you may buy. Once a page is printed and the printer has advanced to the top of the next page, only some printers allow you to tear of the just-printed page. Others still grip the completed page in a tractor mechanism, and require you to either print another page, or waste a sheet of paper with the "form feed" button before you can get the first page away from the machine. This is o.k. if you are mainly printing multiple page documents, but is somewhat annoying and wasteful if you are mainly printing single page documents.

6) Do you have any peculiar requirements for printing special symbols, superscript and/or subscript? Not every feature is available on all printers. Also, some but not all printers can do compressed printing at 15 or 17 characters per inch. This is extremely handy if you are trying to fit a complicated table onto normal sized paper.

7) Look at the reputation and experience of the dealer you are considering buying from. How long has he been selling that printer, and how long is he likely to continue selling it? Who is going to service the printer during and after the warranty period? Can he help you with technical information such as setting up the printer with an interface, and setting up a word processing program with the printer?

THE COMPUTING CYNIC

Our former "cynical" columnist, Mark Jacques, has abandoned us to write for TPU magazine. In his place, we welcome a new writer.

By VICTOR VENTI

Probably the most hilarious program I've seen in quite a while is one called 'First Aid' in the October issue of *Compute!'s Gazette*. It consists of four pages of BASIC statements which, when run, present a menu of ailments. Pushing the corresponding letter or number tells you what to do to remedy the problem.

Just think -- if you have "BLEEDING (SEVERE)", you can stumble to your computer, find the disk with the First Aid program, power up the machine, load the program, and find out what to do -- while you are bleeding all over the keyboard, no doubt. Or how about "FAINTING" -- perhaps you should try ESP for that one!

Speaking of stupid things, on page 71 of the same *Gazette* issue is an ad for a "check and stationery vinyl carrier". This is a plastic sheet with slits in it into which checks or envelopes can be inserted so they can then be processed in a traction-feed printer. The device can handle up to eight checks or five envelopes at once. This is yet another example of technology making something relatively simple into something unnecessarily complicated. Wouldn't it be quicker to make out the checks or envelopes by hand?

When you buy hardware or software for your computer, one thing I'm sure you like to get is after-sale service. I was disappointed in this regard recently. I had purchased an item locally made by a manufacturer based in the U.S. of A. After using it for a while, I noticed a couple of features weren't working correctly. So I wrote to the maker.

Over a month later, I received a reply which said they'd replace my copy with a new improved one if I'd send mine to their office. This struck me as a less-than-acceptable solution, given the tortoise-like speed of the mail and the potential hassle with Customs, who like to make you pay duty on anything coming into the country no matter what the circumstances.

So I phoned up the local distributor of this product (there are several distributors for the company in the Vancouver area) and asked them if they could be of any assistance. The answer was no dice.

I can't afford to be without

this item, since it's in constant use every day. If I'd been aware of this lack of service on the local level, I'd have had second thoughts about purchasing it in the first place. It's something you should consider when purchasing items of a similar nature...

According to *Mad Magazine*, "Home computers are the only \$500 home appliances that are useless without \$3000 worth of optional accessories!"

The funniest classified ad for computers appeared in one of the local papers recently. Some person wanted to sell a VIC-20, cassette and 1525 printer...for \$600!!! This was just about the time the VIC (allegedly discontinued by Commodore) was being sold for around \$80 at Zellers. With the datasette and printer, the whole package could have been bought new for around \$350!!!

People who used to read *Commander* magazine, emanating out of Tacoma, Washington, may have noticed something recently -- this magazine has disappeared. In fact, it was bought out by Ziff-Davis Publishing, who elected to send *Commander* subscribers their own magazine *Creative Computing* for the balance of their subscriptions (or a refund, if that's what they want).

In a letter, Ziff-Davis said words to the effect that "the Commodore 64 and VIC-20 receive ample coverage in *Creative Computing*". Gee -- one of the reasons I don't buy *Creative Computing* is the fact that there is almost nothing in it about my favorite computers!

I can't say I'll shed any tears over *Commander's* demise, though I'll admit my attitude is tainted by the fact that they showed no interest in two articles I sent them. Their editorial slant was, to put it mildly, wishy-washy, and the magazine seemed to be made up largely of P.R. releases from various manufacturers.

I notice that one of their regular contributors, Colin Thompson, is crying the blues recently because Commodore won't release a COMAL cartridge he designed...at least in North America. Considering that COMAL is practically synonymous with "public domain," methinks Mr. Thompson's anguish comes from a different motivation -- like loss of revenue.

In any case, good riddance to *Commander*!

NEXT
NEWSLETTER :
NOVEMBER 6TH
DEADLINE :
OCT. 16TH

CHIT-CHAT

(Continued from page one)

(738-3311)...and not the day before the next meeting, which will be held around October 17th (yes, the day may change as well as the place).

Ken Bell, well-known columnist who writes about computers for the Vancouver Province (of which he's the business editor) will appear at the club's November lecture meeting. Be sure and catch this event! Duncan Fraser of Conti Computers will give another of his popular demonstrations at the December workshop meeting. Thanks, Duncan, for an interesting demo of modems at the September workshop!

INSIDE THE 1541

(Continued from page one)

examine some uses for these two techniques in a future article.

As for sequential files, they differ from program files in only one way. The first two bytes transferred are not a load address. Since a sequential file may not be loaded, there is no need for an address. The track and sector pointers are still there because the controller needs to know where the next block is, but of course they are needed only by the controller, and are not transferred to the CPU.

Let's dwell for a moment on the need for track and sector pointers. If these were not available, the controller would have to know in advance where each part of a file were going to be kept. This could be done by keeping a table of blocks for each file, but would obviously take up too much space on the disk. It could be done by starting each file right after the previous one, but would be wasteful of disk space in another way. If a file was scratched, we would be left with a sequential group of blocks with nothing useful on them. Then in order to save another file, the controller would first have to determine if the new file would fit into the space vacated by the scratched file. If not, it would have to find a suitable group of blocks, leaving some perfectly good disk space awastin'. If on the other hand, the new file would fit into less space than the scratched file took, we would now have an even smaller group of blocks to fill. In Commodore disk units, if a file is scratched, the next file to be saved will use these vacant sectors on a 'nearest to directory' basis. The new file, as a result, may be fragmented and saved all over the diskette in little chunks. The more files are scratched and saved, the more likely this is to happen. The price? A small increase in the time taken to load the file because of all the extra head movements that must take place.

WORD PROCESSING

By MIKE QUIGLEY

The field of word processing for the Commodore 64 is a highly competitive one. There are programs available which will create multiple columns on a page, perform arithmetical calculations and even type in foreign languages. For those who don't need such fancy frills, Cardco's Write Now! 64 is a "basic" word processor which offers plenty of creative opportunities for the serious programmer.

This machine language, cartridge-based program is in many ways similar to the company's like-named program for the VIC 20, which is, in my opinion, the best word processor for that computer (see my review of the VIC version in the May/84 issue of *TPUG Magazine*).

The major improvement of the 64 version is an Insert Mode, which can be used to place copy in the middle of previously typed text. With the VIC Write Now! this could be done only with some difficulty. Another new feature is an 80-column preview mode. This is useful for correcting errors in formatting before the copy is sent to the printer.

It's also possible to change the screen colors to one of four different combinations. The VIC version allowed the use of any color, but almost all of these would conflict with screen messages. It isn't possible to return to BASIC with the 64 version, but files can be deleted and renamed and a disk initialized (a bad choice of words, since "initialize" in this case means "NEW" (N0), not "I0").

Write Now! 64 offers control over all 4 margins of the printed page, up to a maximum length of 254 lines and width of 250 characters. Copy can be flush left, centred or justified. There is considerable versatility in manipulating text in blocks, which can be moved, copied, deleted, or saved as separate files. Up to 9 place markers can be inserted in the text. There is a non-destructive directory which "pauses" with the CONTROL key. Copy can be loaded from other word processors which save with Program files and printed with Write Now! 64 after some minor modifications.

There are a wide variety of commands which can be sent to the printer. Most of these are called "dot commands" consisting of a period followed by a two-letter code and optional numeric information. For example, ".tm 08" followed by a return sets the top margin eight lines from the beginning of the page. This information is not printed out.

Character codes for special printer tricks like underlining, italics, emphasized printing and so forth can be obtained with the Commodore E, which represents

CHR\$(27), the printer "Escape Code". This is used in combination with redefinable characters, where a substitute value can be assigned to any keyboard character.

Write Now! 64 can be used to generate multiple copies, and it can print individual pages of a document, which is handy if a minor error is found. The Commodore K placed in the text will allow input from the keyboard, which can be used for inserting names, addresses, and so forth in form letters. It's also possible to generate form letters using information stored either with Cardco's Mail Now! cartridge or in specially created "mail merge" files (though it should be noted that these must be program, not sequential files as suggested in the manual).

Some of the VIC Write Now's features have not undergone a successful transition. It's supposed to be possible to use the joystick to scroll copy about the screen, but this wouldn't work with either 64 port. Copy is SAVED with function key F3 and LOADED with F4, which can lead to disaster if you're not careful. And the 64 program's tab positions exist only across the width of the screen, which is 40 characters long.

There are a couple of annoying bugs. One is that if a line during printing begins with a period, for example a machine language instruction (.6) or an ellipsis ("..."), that whole line will be omitted, since the computer recognizes it as a "dot command." The second is that the

"at" sign ("@") should not be used while saving copy to tape, because this character is used as an end-of-file marker, and any copy after it can't be loaded back in. Using tape can result in no prompt messages like "press play & record on tape", because the colors of the messages change, and sometimes they are the same as that of the screen.

Also, it's not possible to search and/or replace any of the characters created with the Commodore key, which appear as reverse capitals, for example, the "E" which takes the place of CHR\$(27). And you can't search and replace a word with nothing except when this action is performed immediately after the program is booted up.

None of these problems, however, are so serious that they can't be overcome by creative thinking. And any inconvenience they cause is more than made up for by the program's ease of operation, ability to overcome operator errors (the RUN/STOP key returns one to the main text from almost any situation) and speed in printing out, especially when used in conjunction with one of Cardco's popular interfaces. Compared to many other ill-designed word processing programs, Write Now! 64 is a pleasure to use. (Cardco, Inc., 313 Mathewson, Wichita, KS 67214. \$49.95, about \$70 Canadian)

AD RATES FOR THE COMMODORE COMPUTER CLUB NEWS:

(All dimensions in inches)

FULL PAGE	10-1/4x15	\$100.00
1/2 PAGE	10-1/4x7-1/2	\$ 60.00
1/3 PAGE	6-3/4x7-1/2	\$ 45.00
1/6 PAGE	3-1/4x7-1/2	\$ 25.00
1/12 PAGE	3-1/4x3-3/4	\$ 15.00

Copy must be camera ready and to the exact size specifications above. All printing and artwork must be black ink on white background. All pictures must be screened.

Any deviation from the above will result in additional charges at the prevailing rates. As an example, a half page ad was made up for one issue and the cost of producing the ad was equal to the cost of the space alone; therefore, the total cost of the ad was double the above rates.

Color and other services are also available, at additional charge.

All ads are payable in advance except where a purchase order accompanies the insertion.

For further information, see any member of the executive or the editor at any of the club's regular meetings.

***** CCC CLASSIFIEDS

For sale: VIC Heswriter word processor, \$10; VIC EM1 Music Composer, \$15; VIC Fun With Music by Epyx, \$10 -- or all 3 for \$25. Songwriter for C-64 (disk-based music program), \$15. 321-8465 6-10 p.m.

BUSCARD II printer and IEEE interface with on board BASIC 4.0 and a monitor. Used only 3 months. \$175. C-64 LINK printer and IEEE interface with on board BASIC 4.0, monitor and a terminal program. \$110. Call 522-5471.

Your ad can appear here too -- it costs nothing (for CCC members only). See the editor at any of the club's regular meetings.

Wanted -- person to convert Apple program to C-64 version. Price negotiable. Call Pat 734-0465.

Remember -- the club meets in Richmond as well as Vancouver. Location is in the cafeteria of McNair School at No. 4 Rd. and Williams on the second Wednesday of the month, starting at 7:00 p.m.

Setting Up Paperclip

By BRUCE DUNN

Paperclip is one of the most versatile word processors around. Paperclip is more than just a single word processing program however. It is an entire disk full of material that allows you assemble your own highly customized word processing package. The Paperclip program and its supporting files are not copy protected and can be loaded and saved by normal BASIC commands. The Paperclip disk even includes a good backup program! However, the program will not run without a "dongle" (a special plastic-embedded circuit) inserted into the joystick port of the computer. You get one dongle when you buy the program -- don't lose it!

The fact that the program is not copy protected allows you to place a copy of Paperclip on as many disks as you desire -- when I format a new disk for word processing I always put Paperclip as the first program. A more important advantage of this system is that as Batteries Included (the publisher) refines and updates the program, you can easily get free updates by finding a friend or dealer with the latest version of the program, and copying it.

As of now (Sept 84) Paperclip is into its fourth major update, called Paperclip D. In addition to major revisions, minor bugs in the program are fixed on a running basis, without creating a new lettered version -- the date of release of the program is given in its sign-on message. The manual is generally well written -- read it carefully. The major problem with the manual is that it may not be up to date, and may fail to have instructions for some of the more recent additions or changes to the program. The original Paperclip (version A) came with a mediocre manual. When Paperclip B was produced in 1983, a good printed manual was provided. Paperclip C, issued in late 1983, retained the features of Paperclip B, but added an 80 column screen display and changed the way the search function worked. It was issued with the Paperclip B manual supplemented with a couple of Xeroxed sheets of extra instructions. Paperclip C disks included a text file called "New Paperclip" which contained the same material, and could be printed out to give extra copies of the information on the loose sheets. Currently, Paperclip D is being supplied with a B manual with the B to C changes typeset and bound in at the end of the manual, and has additional loose sheets with the instructions for the further changes in the D version (a scrolling directory and provi-

sion for using secondary addresses with printers). The disk contains a file "64d notes" which duplicates the information on the loose sheets (the C to D changes). However, the file "New Paperclip" detailing the B to C changes is no longer on the disk. If you update from C to D, you therefore only need a copy of the D disk, whereas if you update from B to D, you will need both the D disk and the file "New Paperclip" from the C disk.

How to Customize your Paperclip Program

Paperclip must have the correct printer file merged with it before it can control your printer. The printer files on the disk cover most common printers. A printer file can be used by calling it up from the list of printer files each time you use Paperclip. However, it is easiest to permanently embed the printer file into the main Paperclip program by using the "merge prtfil-d" program on the disk. The modified Paperclip program can then be saved using a new name ("Paperclip Gemini" or whatever).

Those using a Cardco printer interface must lock the interface in the no-ASCII-translation mode before printing from Paperclip. This may be done by typing in a special open command before loading Paperclip (see the Cardco manual), by using the "Cardco Lock" program on club disk J1, or by modifying the printer file that you are using so that Paperclip automatically locks the interface each time it prints. This last option was only made possible when the D version of Paperclip was released, as unlike earlier versions of the program, Paperclip D printer files have the capability of sending a secondary address to the interface or a printer.

Printer files can only be modified before they are merged with the main Paperclip program. To modify a printer file, run the "printer setup" program on the disk, and use it to load and modify the printer file that you intend to use with Paperclip. The use of the "printer setup" program is not clear unless you dig deep into the more obscure parts of the manual, so I will outline it here. Run the "printer setup" program. From the program, load the printer file that you want to modify. Once the correct file has been loaded, use the down cursor key to sequence through the codes listed. The code you want to change is called "secondary address for text" and is at the very end of the list. It will take a couple of minutes of button pushing to get to it.

When you are there (you can't sequence past it accidentally) use the delete key to remove the number which is there, and replace it with the number 25. Press the return key to enter the change. Then press "reverse on" (control 9) to continue in the program and save the modified printer file under a new distinctive name. This use of the "reverse on" key is not explained in the program, but comes from page P-16 of the manual. This modified printer file will then always open the interface with a secondary address of 25, which locks it into the no-ASCII-translation mode.

Once you have merged the desired printer file with Paperclip, you can further customize the main Paperclip program by specifying the default colors for the text, background, and border, and whether you want the video output for formatting purposes automatically displayed in 80 column format (the program as supplied defaults to a 40 column display). This is done using the "defaults-d" program on the disk. This program will also set the default printer output to the user port, rather than the serial bus if this is something you need.

-- DISK WOES -- (Continued from page three)

fine. So I took everything back to this guy's house.

"The next day I got a call from him. He said he'd aligned the drive perfectly, but he couldn't make it SAVE programs. Plunged into further depths of depression, I took the drive home again. Since the drive would READ disks, I booted up the C-64 wedge, and the error message I got when trying to SAVE was WRITE PROTECT ON. Looking down inside the drive, I discovered that the little sensor for write protection had been dislodged from its socket. With a pair of tweezers, I inserted it back in, and the drive worked perfectly."

Well, horror fans, is that story grisly enough? Do you believe it really happened? Well, don't laugh, because it happened...to me!



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MEETING: OCT. 2
THOMPSON SCHOOL