

OK ... SO WHO ARE WE?

The Commodore Computer Club (formerly the Vancouver Pet Users' Group -- VPLUG), serves the users of all Commodore computers, including VIC-20, Commodore 64, 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 over 400.

The club meets twice a month. The first gathering is on the first Tuesday at Killarney Secondary School cafeteria, 49th and Killarney (near Kerr and 49th), starting at 7:00 p.m. This is a workshop meeting with a maximum of participation from members, who are encouraged to bring their own equipment.

The second meeting is on the third Tuesday of each month at the Sunset Memorial Centre, 404 East 51st Avenue, in Vancouver, also at 7:00 p.m. This consists of a brief discussion of club



The Commodore Computer Club meets twice a month.

business, followed by a special evening program on topics of interest to the members. During the past year our business meetings have included a guest appearance by Jim Butterfield (who will be appearing again in conjunction with the Pacific Coast Computer Fair), demonstrations of the Hero Robot and Micron Eye, and examples of music possible on the Commodore 64.

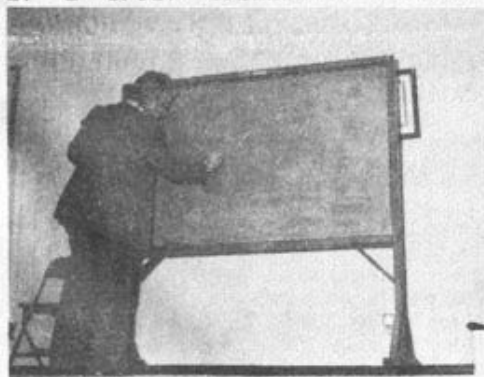
The club also organizes special courses for the members on machine language programming, introductory BASIC programming, and seminars on the features of the C-64. These courses are repeated at regular intervals.

Our large library of public domain programs ranges from games to utilities to specific applications such as stock-market analysis and diamond grading. These programs are available free of charge to our members through our PET, VIC-20 and C-64 librarians.

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 often canvass meetings for special bulk purchases of goods such as monitors, printers, and various software.

Membership fee is only \$20 a year. Applications will be accepted at the Computer Fair and at both workshop and business meetings of the club.

We have grown very rapidly during the past year, and as a result, may have to seek different quarters for our meetings in the future. To keep up to date on these and other club developments, we encourage members and non-members to call our 24-hour club answer phones: PET-FF11 (738-3311) where you can also leave messages. Or you can write to our mailing address: Box 91164, West Vancouver, B.C. V7V 3N6.



Jim Butterfield is among the guest speakers to address the club.



Smaller groups cater to the special interest of members.

4TH ANNUAL 1983 PACIFIC COAST COMPUTER FAIR



SEE YOU AT THE FAIR

The Commodore Computer Club will join other user groups and commercial exhibitors to present the fourth annual Pacific Coast Computer Fair the weekend of September 17-18th.

Theme of the fair, to be held at the Robson Square Media Centre in downtown Vancouver, is "Machines of the Future Today".

Two panel sessions are scheduled. The first, on Saturday afternoon, will be on computer languages, with emphasis on C, Pascal and Modula-2. Participants include Mike Lehman of Digital Research Inc., Joel McCormack of Volition Systems, and Bob Wallace of Quiksoft.

The second session, on Sunday afternoon, has the theme Micros, Today and Tomorrow. Don McKay will moderate a panel consisting of John Dvorak, editor

of Infoworld, Bill Godbout, president of Compupro, Phil Lemons, West Coast Editor of Byte magazine, George Morrow, President, Morrow Designs, and Andrew Flugelman, editor of P.C. World.

A wide variety of workshops and lectures by guest speakers will also provide plenty of food for thought.

Among the workshops are:
RAM disk word processing & IBM P.C. -- Peter Abel, Instructor, BCIT.

Q-system Pascal on the PC -- Dick Hart, Network Consulting.

DBASE-II -- Maurice Hedges, New Age Seminars.

Visicalc -- Paul Hunt, Instructor, BCIT.

Lisp and Artificial Intelli-

Continued on next page

HEROES OF STUPIDITY

By NIELS HANSEN-TRIP
CCC President

Our neighbours, Joe and Caroline, came home one night to find their front door standing ajar, the contents of drawers and cupboards littering the floor. Scrawled in lipstick on the vanity mirror was the cryptic message: "Sorry, just having some fun." Caroline wept whenever she thought of it for more than a month. Her feelings were not crushed by the loss of possessions, nothing much was missing. "It's the sense of being violated," she said. "Someone has raped my private space. I'll never feel safe again."

Recent newspaper articles would seem to indicate that there is a new wave of pranksters out to entertain themselves and snatch away the last vestiges of common decency. The movie "War Games" has made invasion of privacy an act of heroism and helped to popularize the notion the thoughtless meddling is good clean fun. Legions of bored, but impressionable teenagers now have a space-age replacement for torching schools and ransacking their neighbour's belongings as an expression of social frustration.

The Milkaukee 414s, named after the local area code, are a group of computer users who have achieved notoriety by using home computers to access the data banks of businesses, colleges and governments throughout the U.S. and Canada, apparently without regard for the lives they are risking. Targets for their creative manipulations have included the nuclear

research laboratory and a cancer treatment hospital where, in their brilliance, they were able to put the whole system down. Fortunately, the computer was not in use for monitoring patients at the time.

Frankly, the mindless activity of these self-proclaimed child geniuses terrifies me. Perhaps Caroline can feel safe in her home again since the vandals are undoubtedly off the streets right now, sitting at basement consoles, transfixed by colour monitors, as auto-dial, direct connect modems methodically test the locks on the nation's data banks.

It's not the mischief that worries me -- most of the kids will grow up some day. It's the fact that the "system" reacts so badly to attempts to break it. Every time someone cheats the system or takes advantage of a loop-hole, the system just gets bigger. The laws become so numerous and onerous that it is almost impossible to pass a day without breaking one or two inadvertently. The armies of enforcement officers thrive on such shenanigans because the people must be protected from themselves. The total cost is horrendous.

Well, it's almost 1984, kids, and the future is waiting. All you prospective 414s can get out there and win the battle for "Big Brother" if you want. Milkaukee's heroes of stupidity are on the right track to help ensure that George Orwell was right. Really, though -- can't you find something useful to do?

TREASURER QUILTS

Richard Hamilton, Treasurer for the Vancouver PET User Group for many years, has resigned. "I think it's time," was his comment. "There's a lot more skilled and qualified people around now who can provide the sophisticated accounting that is required by the club." Hamilton was responsible for the design and implementation of the present computerized bookkeeping methods.

Club President Niels Hansen-Trip expressed dismay at receiving Hamilton's resignation: "It comes at a bad time, because the club is in a state of rapid expansion. His experience and organizational skills will be hard to replace."

Richard Hamilton was originally responsible for taking the Vancouver PET User Group a big step beyond shoebox accounting. VPUG used to keep records by stuffing receipts in a box with a statement written on a napkin or the back of an

envelope. Attendance at meetings often exceeded one hundred but there were fewer than fifty paid memberships. With the introduction of membership cards and Hamilton's tenacity in checking them, membership has grown to exceed three hundred and excellent control has been achieved for expenditures.

"The club is losing an excellent director," said Hansen-Trip. "He has never been selfish in his motivation. He has always cared for the club and was willing to work long and hard to get the job done. It has been a pleasure working with him."

Hamilton's last day as a director and as treasurer was August 31. Hu Reijne has assumed responsibility for the Treasury until the next annual general meeting when new directors will be elected.

Thanks, Dick, and best wishes from the Commodore Computer Club.

COMPUTER FAIR *From page 1*

GENESE — Fred Martin, Instructor, BCIT.

The guest speakers and their topics includes author Jack Gruschcow (Software Publishing); Bill Campbell, Softpak Consulting (Software Packaging in B.C.); Ken Berkun, Quantum Solutions (Databases for Micros); Gordon Letwin, Microsoft (Operating Systems of the Future); Joel McCormack, Volition Systems (Modula-2); Barry Pollack, General Parametrics (Advances in Computer Graphics); David & Eileen Rose, Rosesoft (Independent Software Marketing); Bob Wallace, Quiksoft (Comparative Survey of Systems Under \$600); Mark Ursino, Microsoft (Xenix Operating System); Jerry Kirk & Steve Tresotte, MicroSoft (Multi tool word processing); Jim Pettinger, Auger Data Planning (Selecting a Small Business Computer).

Of course, no Commodore computer owner will want to miss the lecture by Jim Butterfield on New Approaches to Programming. Butterfield, in addition to appearing at the Computer Fair, will be appearing at several Commodore Computer Club functions as well. For information on these, call the club's 24-hour phone line at PET-3311 (738-3311).

Times for the Fair are the same both days: 10:00 a.m. to 6:00 p.m. Admission is \$4.00 each day. For last-minute information, check Ken Bell's Data Base column in the Province on Wednesday, September 14 or else call the club's phone.

See you at the fair!

FLASH NEWS!!!

Jim Butterfield will be featured at two club events, both to be held in the auditorium (not the cafeteria) of Killarney Sec. School. These will be on Mon., Sept. 19 and Tues., Sept. 20. The latter replaces the regular club business meeting, which is usually held at Sunset Centre. Starting time for both Butterfield encounters is 7:00 p.m.

Admission is free to all CCC members. Non-members may attend at a cost of \$5, which is deductible from the \$20 club membership fee if application is made either at one of the two events or within a month from that date.

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Opinions expressed in this paper are those of the individual authors, and are not necessarily those of The Commodore Computer Club. The name "Commodore" is used with the permission of Commodore Business Machines Ltd.

Club meetings are normally held:
Workshop: first Tuesday of each month -- 7:00 p.m., Killarney Secondary School Cafeteria, 49th and Killarney; Business: third Tuesday of each month -- 7:00 p.m., Sunset Memorial Centre, 404 East 51st Ave.

These dates and locations are subject to change. For up-to-the-minute information on any changes, please call the club answer phone:

PET-3311 (738-3311)

DON'T FORGET THE SOFTWARE!

by James P. Harrison

Sometimes a computer can be a bit disappointing when you first get it home. You may have great expectations, but after turning it on, the machine just sits there and (usually) blinks. Naturally, you have to read the manual to get something to happen. This is less than satisfactory, because it would be nice to actually do something useful right away, without having to do a lot of study first.

That's why it's important to make a good choice of software with your machine. It's true that you will soon be writing your own programs, but if you choose a few commercial programs at the start, you'll be able to use your machine right away, and learn some useful tricks from these programs at the same time. I'd choose a word-processor, a spreadsheet, and an information storage package, as your three essential software products. You will probably want these eventually, and even if you plan to write such a package of your own, you should study examples of similar programs to see what other authors have considered important.

This brings us to the task of evaluating a program (software, to use the jargon). If we had our wish,

there would be no need for a manual - that is, the next step would be clearly displayed on the screen. In computing, we have coined a term for this: "user-friendly", or easy to use. This term is not to be confused with how complex it may be to do the task. Clearly, it is more complex to learn to use an accounting package than it is to play most games, but the programs themselves may or may not be easy to use.

As a specific example, let's look at an application that interests most people: information storage and retrieval. If we would propose to store some information on normal 4X6 file cards, we would simply write whatever we wish on each card, put them into a box, and pull out the appropriate one when needed. If we use a program (for example, SOLIDEX), to do the same job, some big advantages become apparent, such as quick and easy retrieval of individual cards, no matter in what order the original cards were placed. Using ordinary file cards for a name and address file would mean that we would have to look at every single card to find all persons resident in Vancouver, because the cards are (usually) placed in alphabetical order by last name.

Added flexibility is evident in that cards can be easily changed, printed

out, and selected, according to various criteria. Since the user must learn the system, ideally one would simply start up the program, and commence entering data, just as for file cards. If all "next steps" are shown on the screen, the user can get started without even opening the manual at all.

Programs that allow this, as well as other important features, are few indeed. Below is a list of things that you should look for, not as merely significant, but essential - remember, you may use the program for a long time:

1. Incorrectly entered data should cause an audible signal, an error message if appropriate, and return the user to the same position WITHOUT LOSING THE DISPLAY BY SCROLLING.
2. Menu selections are made simply by positioning a highlight or other pointer, rather than choosing a number.
3. Ability to cancel AT ANY TIME a particular operation. That means that for every spot where you can enter any keystroke, there should be a special key to press to exit immediately.

Continued on page 14

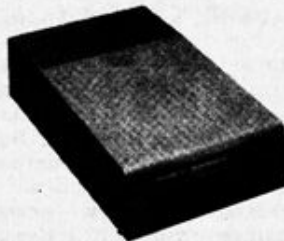
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THE GEMINI FILE

BY MR. MIKE

Well, Gemini fans, here we are again ...

If you've bought a Gemini printer, you've probably hooked it up to your favorite word processor where it can do an amazing number of things. In fact, the Gemini is capable of quite a lot of tricks which even some sophisticated WPs can't handle.

Yet, your Gemini can also do mundane things, like list programs, which is one of the great benefits of a printer. No longer do you have to spend hours glued to your TV or monitor trying to find that one bug in a 32K program — you can list it all out and take it to your easy chair where you can sit with a case of beer for hours instead.

If you have a Cardco interface with your Gemini, the listing is accomplished by: OPEN 4,4,2: CMD 4: LIST. This procedure also works with disc directories, after you LOAD "*",8. After doing a list, you should type the following line: PRINT #4,"":CLOSE4. This PRINT #4,"" business seems to be necessary with the Gemini to get things back to normal. If you're writing a program for your printer, this line should be the last item before the printer is closed or the program ends. Otherwise, you may not get the

last line which the program is to print. If the program is supposed to end after a FOR ... NEXT statement, then you should do PRINT #4,"" twice.

You might want to do some little goodies while listing out your programs with the line above. After all, the Gemini is capable of some truly mind-boggling stunts. Let's say you're listing a program with 40 million numbers in it, and you sure would like to see the zeros as "0"s, and not "O"s. Well, then you would change your listing line as follows:

```
OPEN 4,4,2: CMD 4: PRINT
CHR*(27) CHR*(86) CHR*(1): LIST
```

Presto! All the zeros in your program will look like the real thing. Let's say you want to list your program in the Gemini's smallest type (17 characters per inch) to save money on paper. Then you would type:

```
OPEN 4,4,2: CMD 4: PRINT
CHR*(27) CHR*(66) CHR*(3): LIST
```

You're probably wondering about the CHR*(27) which appears in both lines above. Well, this is the key to open untold mysteries. It's used for "expansion control codes" (I like to call it the "Escape Code" like the guys from Cardco.) Following this with various other "codes" makes your printer do a wide variety of

things. For example if you tell the printer to PRINT CHR*(27)"E" (you can type CHR*(69) for "E" which is the ASCII equivalent of "E"), then everything will be in the Emphasize print mode, which makes the type real black, just like in the Commodore Club News. CHR*(27)"F" or CHR*(27)CHR*(70) turns off the Emphasize mode. All this information is contained on pages 46-49 of the Operation Manual (Preliminary) which comes with Gemini, and pages 121-135 of the spiral-bound Gemini Users Manual which is included with some Gemini. If you didn't get one of the latter, they're on sale around town from Gemini dealers at prices ranging from \$12.95 to \$19.95.

Here is a program which makes use of some of these features. It will make copies of your disk directories in the tiny super-script type which is handy to paste on the disk jackets. I adapted it from an original program of C-64 librarian Glenn Hazlewood. Glenn has this program in the C-64 library along with others which will make directories for both sides of a disk. The version below works with a VIC-20, Cardco interface and Gemini-10 or 10-X printer. It is also in the recent VIC library disc release.

ITEMS OF CONSUMING INTEREST

Since our last issue, prices have been dropping on many Commodore and Commodore-related items. The 64 is now available locally for \$399 at "real dealers", which portends future price cuts, especially around Christmas time. The availability of the 64 and "packages" of varying descriptions is welcome news to those VIC owners who want to move up.

On the other hand, there are reportedly some VIC owners who are quite happy with their equipment, and think nothing of shelling out \$200 for 32K of memory, \$289 plus for a 40-80 column board, etc.

If you're interested in trying software before buying, one place to check out is the Video Station, at two locations: Hastings near Boundary and Westview Shopping Centre in North Van. They rent cartridges for \$4 a day (less for members), \$3 for cassettes, plus a refundable deposit. Most of the rentable VIC and 64 items fall into the category of games. They also rent VIC 20s for \$9.95 a day.

Another merchant carrying software for both the VIC and 64 is Neptune Electronics at 734-4263. Their prices are competitive (Quick Brown Fox for

\$88 vs. \$95 and up elsewhere, Cardco 6 slot expander for the VIC for \$119 vs. \$169). They also sell disks, buffers, printers, and monitors.

One of the advantages of being a member of the Commodore Computer Club is that various merchants are willing to give discounts on presentation of a valid membership card.

Joining this group is Key Computer of 1920 West Broadway, who will give a 10 per cent discount off any regular priced merchandise in the store. They stock many kinds of computers, printers, supplies, books, magazines and peripherals.

Another deal for CCC members (or any users' group, for that matter) comes from Optimizer-64, the locally produced publication for 64 owners. They'll give a discount off subscriptions if a certain number are ordered and delivered to one address. Phone 879-9171 and ask for details.

Optimizer, edited by Graeme Bennett (who designed the logo which was voted best by club members at the July business meeting), is almost a sell-out as far as its first issue is concerned. The second issue should be available in time for the Computer Fair.

```
1 REM THIS MAKES A TINY 2-COLUMN DIRECTORY ON A GEMINI
  PRINTER WITH CARDCO INTERFACE
2 REM
3 PRINTCHR*(28);"CCD) IS YOUR PRINTER ON?? IF NOT, THEN
  DO IT:";CHR*(144)
4 DIMD*(144)
5 OPEN15,8,15:OPEN4,4,0
6 PRINT#4,CHR*(27)CHR*(66)CHR*(3);CHR*(27)CHR*(83)CHR*(
  1);CHR*(27)CHR*(86)CHR*(1);
7 PRINT#4,CHR*(27)CHR*(65)CHR*(6);
8 PRINT"CCD)CCD)CCD)CCD)INSERT A DISK IN DRIVEAND THEN
  ";
9 PRINT"PRESS ANY KEY"
10 GETA$:IFA$=""THEN10
11 PRINT#15,"I":PRINT"(SC)"
12 C=0:OPEN2,8,0,"0":GET#2,A$,A$
13 GET#2,A$,A$,A$,B$:A=ASC(A+CHR*(0))+256:ASC(B+CHR*(
  0)):IFSTHEN21
14 E$="":IFTHEN#-MID$(STR$(A)+" ",2,3)
15 GET#2,A$:IFA$<>CHR*(34)AND#<>"B"THEN15
16 GOTD19
17 GET#2,A$:IFA$=""THEN20
18 IF (ASC(A#)AND127)<32THEN17
19 E$=E$+A$:GOTD17
20 E$=LEFT$(E$,25):D$(C)=E$:PRINT#4:C=C+1:GOTD13
21 PRINT#4,""D$(0)
22 N=(C-1)/2:FORI=1TON-1:PRINT#4,D$(I)" "D$(I+N):NEXT
  I
23 IFI=NTHENPRINT#4,D$(1):GOTD25
24 PRINT#4,D$(1)" "D$(I+N)
25 PRINT#4,"":PRINT#4,CHR*(27)"@":PRINT#4,"":CLOSE2
26 PRINT"(SC)WANT TO COPY ANOTHER (CR)DIRECTORY? (Y/N)"
27 GOTD28
28 GETD$:IFD$=""THEN28
29 IFA$="Y"THENCLR:RUN
30 END
```



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A LOOK AT BOOKS

By MICHAEL QUIGLEY

If you're the kind of person who compulsively visits all the local computer stores frequently, you've probably noticed a recent proliferation of books for and about the VIC-20 and Commodore 64.

Most of these books have one thing in common -- they're expensive. \$20 to \$25 is not an unusual price tag. And in my experience it doesn't take long, if you buy a lot of these books, to become either disappointed or frustrated with their contents (not to mention the loss of your money).

Take Machine Language for Beginners, a COMPUTE! Books publication which sells for about \$17.00, for example. One of the first things to do in this book is a short BASIC program which pokes machine language into the cassette buffer and prints the letter "A" to the screen. The VIC-20 version of this program doesn't work. The "Simple Assembler" which you can type in yourself from this book doesn't seem to work very well either.

Another expensive softcover on how to program arcade games is incomprehensible because the listings are taken off the 1525 printer which makes cursor control characters and the like

unintelligible by the time they have gone through several printing processes.

Many of the books available suffer from one problem: they are written in an obtuse kind of "computerese" aimed at a person who can "make all the right connections" or "read between the lines". (Books for the VIC particularly seem written either for the person who knows nothing, or the Ph.D. in Nuclear Physics.)

What is really needed is some kind of comprehensive, honest reviewing of books (not to mention software) for our favorite computers.

I was really surprised when one English publication not only gave a positive evaluation of Innovative Computing by Clifford Ramshaw (priced locally around \$15.00), but recommended it!

This book, which contains 30 programs -- mostly games -- for the unexpanded VIC, is a real disappointment, not only to experienced programmers who will find most of the games too simple, but to novices who will be frustrated by the considerable number of errors in the program listings. Most of these errors affect the complicated graphic displays, which is unfortunate, because the point

of most of the programs seems to be how one can make very intricate displays with the Commodore graphic symbols.

Aside from the botched-up listings (C-64 owners beware! A book of similar 64-based programs by Ramshaw has just been released!) and illiterate screen messages, this book deserves some kind of poor taste award for one of its games called Assassin, which, ironically, is one of the better programs. Its synopsis asks: "Have you ever wanted to be a lone sniper, hidden from view, but able to see your targets? Well, now here's your chance as you play assassin this exciting new game! Not only are people are target but cars, trucks and aeroplanes." Supposedly this will appeal to all the Oswalds and Hinckleys of the world.

Innovative Computing looks quite good, however, when compared with the wretched Tricks for VICs (Elcomp Publishing, around \$12.50). This book, published in West Germany, is by Sam D. Roberts according to its cover, even though it is actually written by Winfried Hofacker who might be termed a

Continued on page 15

COMPUTER COURSES

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BARRY BOGART

INTRODUCTION

Dick Barnes, the editor of the SuperPET Gazette, recently asked me why I went to the trouble of using a converted typewriter to print, using the serial port of my SuperPET. The answer? VALUE FOR MONEY! When I first bought a computer over a year ago, I put off getting any printer at all since I needed letter-quality and there was nothing short of \$3000 or so that would do the job. I use the computer a great deal for word processing, writing proposals, reports and brochures for my consulting business, writing articles, and producing camera-ready copy for the documentation of the software products I sell and even for the ads to promote them. However I did not want to spend \$3000 on even all that capability as I expected prices to come down.

THE CHOICE

In a few months the daisy-wheel printer world did change with the announcement of the Smith-Corona TP-1 printer, and of converters for the new Olivetti Praxis-35 electronic typewriter. Since then there has been slow progress in terms of enhanced capabilities, and some price reductions. (Although now a 'TP-2' has been announced and some of the newer Olivetti typewriters have integrated interfaces and there are several new conversions available from independents.) I looked very carefully at both the Smith-Corona and Olivetti machines and they turned out to be about the same price (about \$1200), speed (about 12 cps) and loudness (both too loud). The most important extras that the Praxis conversion offered were the keyboard (it can still be used as a typewriter - even while online); and the ability to use 10, 12 or 15 pitch. It also has a 'keyboard I/II switch which adds 13 additional characters - mainly french and other-language characters. A disadvantage of both machines is that they

use their own unique daisy-wheel designs rather than a standard Diablo/Qume. This means there is a limited number of fonts available and perhaps coincidentally, a higher cost. Currently Olivetti offers about 25 wheels and they cost about \$35 each (compared to several times that selection of standard wheels, at a fraction of the cost). Apart from that, I had found from previous experience (with ordinary typewriters) that Olivetti machines were reliable, while I was not so sure about the Smith-Corona line. Now I believe there are heavier-duty machines available that have integrated interfaces, 3 fixed pitches plus proportional spacing, standard wheels, and perhaps a little more speed; for in the region of \$1500. It pays to look around, and bear in mind that you will have to interface with Commodore's 'different' IEEE-488 or user port or the serial disk line of the '64. At the same time the Olivetti and Smith-Corona prices must be lower now than the \$1200 that they cost a year ago.

INSTALLATION

So I selected the Olivetti. I got the typewriter on sale at the time for about \$800 and the interface for about \$400 more. I elected to install the interface myself and avoid the \$50 installation charge. This turned out to be a mistake as, although the documentation on the required pin connections is adequate, the disassembly and reassembly instructions leave something to be desired. I recommend that everyone have the system installed by the vendor, if just to avoid potential hassles over warranties or just non-productive finger-pointing. I had considerable difficulty in getting the whole system to work together, but in retrospect the problems were all in the SuperPET software - not in the typewriter or interface. The main problem was in determining that several of the RS-232C pins on the SuperPET side have to be tied together so it can

function if the connected device does not do all the handshaking. (Basically on the SuperPET it is necessary to tie 6, 8 and 20 together so it handshakes with itself.) Once that was done, it was a simple matter to check out the rest with a logic probe. The interface uses just three lines - data, signal ground, and handshake. On my machine they are connected to respectively pin 2, 7 and 5. The interface allows baud rates of from 75 through 9600 to be set. It also allows the handshake line to be either logic 'HIGH' or 'LOW' to indicate 'stop sending'. Its buffer is only 64 bytes, and the line gets set HIGH (or LOW if desired) when it is about 75% full. These options are set by jumpers inside the box, which is about 4 1/2" by 8 1/2" and an inch thick. The SuperPET uses the 6551 ACIA chip which allows the baud rate and other parameters to be set under program control. The SuperPET software allows these parameters to be set either manually via a menu, or under program control. I have had the best success driving the printer using a 6502 program (both processors of the SuperPET have access to this chip), working on a character at a time. The next step for me is to add a buffer to the program to let the typewriter run at full speed. As the typewriter is relatively slow (about 110 baud), I can drive it from BASIC with no problem. I use PAPERCLIP and since it cannot directly access the serial port, I use it to create a file (in either true or Pet ASCII), and then print out that file with my 6502 program. That is somewhat inconvenient, but of course PAPERCLIP wasn't written to accommodate a Pet with a 6551. The Praxis-35 does have a half-spacing setting, and I have written a PAPERCLIP printer file and spool program to allow underlining, super- and subscripts, etc. The Keyboard I/II switch and pitch switch are hardware switches, so those parameters cannot be set under program control. However, I can control tabs and margins under program control and issue backspaces, half spaces, and a carriage return with or without a line feed. Some other interfaces for the Praxis allow even more control.

USING THE OLIVETTI WITH THE '64

To my knowledge no one has yet tied a converted Olivetti typewriter to a '64, but it should not be too difficult. There are two interfaces available from Olivetti for the Praxis-35: standard RS-232C serial (described above) and Centronics Parallel. Consequently any box that adds STANDARD RS-232C or Centronics Parallel capability to the '64, (or any PET for that matter), should be able to talk to the typewriter interface box. Of course the boxes available may vary in price and capability (for example usability from Word-PRO or Paperclip), and you should be sure that you and/or the vendor knows what you are doing before you put your money down. An upcoming article in 'Optimizer' should prove helpful in this regard (see bibliography).

PROBLEMS

I did have one strange problem with which I ignored for a long time, and later more serious problems which were corrected with a interface swap for only a \$50 service fee (well after the 90-day warranty period). The odd problem was that it was impossible to print periods in 'Keyboard-II' mode. For some reason, it was impossible to print a period in this mode. What printed instead was an upside-down question mark (normally got with a shifted period on the same key in KB-II mode (and incidentally used to start questions in spanish)). In other words, all periods were considered as uppercase in KB-II mode. This little bug of course made the printer worthless for foreign-language work, but I could ignore it for a while. After about 10 months more serious problems appeared (just as I was preparing camera-ready copy for the SuperPET reference card, as Murphy would have predicted). Now several keys got confused, printing out each others characters, even in ordinary typewriter mode. This was obviously a hardware problem that had to be fixed. Polson's service replaced my box and the

Continued on page 13

COMPUTERS & HAM RADIO

By Hu Reijne, VE7CHW.

Ham Radio and computers go together like apple pie and cheese. There are many programs available that can be used by home computers in conjunction with Amateur Radio. Some of these programs are used for logging the radio contacts that a ham makes in the course of an operating session. Other programs are written to read and send Morse Code, Baudot teletype code, or ASCII code. Another development is in packet radio, where packets of information are sent between hams or to a central bulletin board.

Other uses for computers in Ham Radio (this is commonly accepted slang for Amateur Radio Service) are for information retrieval, keeping time, filter design, antenna design and circuit design. Many repetitive calculations in these fields are possible, allowing you to print-out tables of various choices of values etc.

I am also a secretary-treasurer of the Richmond Amateur Radio Club and use the computer for this work. Printing mailing labels, balancing the books, membership lists sorting and up-dating are all possible.

In this article I would like to expand more on some of the features of logging hamradio contacts. A program I wrote for my PET has been used to log calls during the Telephone Pioneer QSO Party. OK a lot of jargon here, let me explain. Telephone Pioneers are a group of long service telephone employees, every winter those that are hams have a QSO party, or a contest where the object is to contact as many other Telephone Pioneers by Ham Radio as possible. Each member belongs to a Chapter and the score is based on multiplying the number of contacts by the number of Chapters contacted.

The program I use has a menu that gives six choices:

1. Log calls
2. Calculate score
3. Change mode or band
4. Change date
5. Close files
6. Print header

When logging calls I get a screen that first of all asks me for the call of the other station. It then searches a key file to see if he was worked already. This is currently written in basic but should be modified to a machine language routine to speed up the process. Any previous contacts come up on the screen along with the bands that they were made on. Duplicate contacts on the same band are then avoided. The next

prompt asks if I am working him and if so reads TI\$ for the time and proceeds with the other details. To enter the Chapter name and number I have programmed all the Chapters as data statements and the only entry required is a number. Similar tricks can be done using country or state abbreviations. After all the details are logged the computer writes the strings to disk and prints the entry on to a logsheet that will be submitted. My main reason for printing at this time is that if a power failure or similar problem should occur I still have a hard copy.

The second menu item calculates the number of chapters worked. I simply do this by changing a character in the chapter string from N to Y. When the computer reads through this it simply adds up the Y's. The number of contacts is incremented each time I log a call, so to get the score a simple multiplication is done.

The third item is a time saver. I did not want to enter repetitive information so I set up a menu item to enter the band and mode information. This information then automatically becomes part of the log detail but can easily be changed.

Changing the date only has to be

done once during the contest at 0000 hrs GMT. I did not persue automating this, but made it a menu item instead.

Closing files scratches the previous key-file and writes the new one to disk. As I don't have BASIC 4 in my PET (haven't seen a need for it with SYSRES) I cannot write relative files and append them. Therefore the data-file is left open while logging and closed at the end of the session. I use the day of the month and left\$(TI\$,4) as part of the title so there is no duplication of titles on the disk and I know the sequence of the data files.

Printing a header is required at the top of each new log sheet. I have chosen to do this manually. The computer alerts me when I reach the end of a page (every 30 contacts) and I then goto the menu to print a header on the next page.

I have elaborated somewhat on logging hamradio contest contacts. I am also working on another program to log regular contacts, but as these are not as hurried as the contests I haven't used the computer much leaving it for someone else to play games on. In a future article I'll go into some of the other aspects of Ham Radio and computers.

VIC LIBRARY BLURBS

Despite the fact that it's still sorta summer time, we got together in a cram session and whipped up VIC disc Number 5, to add to the ever-popular 1 through 4.

This one contains yet more graphic wizardry for the Super Expander, plus a couple of demos for your Gemini printer, including the Tiny Directory discussed elsewhere in another article.

Most of the games (and there are several) are from COMPUTE!, who recently clarified their stand towards "public domain". It appears COMPUTE!'s programs are all copyrighted, but you can distribute them to others as long as you aren't making any money off it (which is certainly the case with us), and the people to whom you give the programs have a copy of the magazine in which they were originally published. Now, since every sharp Commodore computer owner reads COMPUTE! zealously, we shouldn't have to worry about this part of the deal. (Strangely, programs published by Commodore themselves in their Power Play mag are "public domain" -- so what's the difference??)

Anyway, from COMPUTE! you'll find such popular (?) favorites as Demon Star, a neat game which I just realized will not work, because its sequential data file is not on the disc (AGH!!!!) -- have to do something about that double quick. There's also Potholes, Hungry Dragon (cute kids' game), Hawkmen of Dindrin, and Caves of Ice. Fighter Aces is for two joysticks (yes, you can do that on the VIC), and Mouse Face is an educational sort of game which makes use of the VIC's multi-colored characters. This disc will be transferred to tape shortly. Be warned, however, that some of the programs are intended for disc only, so we may have to do a bit of bashing to reconstruct the tape-only versions.

10	"VIC DT	U	PRG	2	"PRINT HEX/DEC	A	PRG
10	"VIC WEDGE	U	PRG	2	"RAM TEST	U	PRG
10	"DIRECTORY	U	PRG	12	"EDIT/TYPE	S	PRG
4	"PRG CLASS VIC	U	PRG	1	"FILL THE SCREEN"	PRG	
5	"S-X KINETIC	P	PRG	5	"DISK MENU	U	PRG
2	"S-X PWR SPIRAL	P	PRG	4	"HARGUE	P	PRG
4	"S-X PATTERNS	P	PRG	2	"WIZARD IN HAZE"	U	PRG
8	"AIR DEFENSE	G	PRG	2	"GENINI FACE	P	PRG
9	"LIFE	P	PRG	2	"WAIT/PADDLES	P	PRG
2	"RELOCATE SCRN	U	PRG	12	"SKY DIVER	G	PRG
12	"HARDMAN	G	PRG	9	"WIZARD IN HAZE"	U	PRG
11	"HUNGRY DRAGON	G	PRG	15	"FIGHTER ACES	AG	PRG
10	"POTHOLES/DISC	G	PRG	3	"NAME PLAY	G	PRG
10	"P2"	P	PRG	11	"MOUSE FACE	E	PRG
17	"CAVES OF ICE	AG	PRG	8	"SEES	S	PRG
8	"USBL	G	PRG	7	"HAWKMEN	G	PRG
11	"MYSTERY SPELL	G	PRG	10	"HAWK-2"	P	PRG
12	"DOTS	G	PRG	9	"SOBLIN	G	PRG
10	"DEMON STAR	G	PRG	12	"SKIER	G	PRG
4	"TINY DIRECTORY	U	PRG				

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Calc Result — A Review

BY NEILS HANSEN-TRIP

"Dammit!" I said, threw my pencil down, crumpled the 492nd sheet of paper, tossed the cat into the wastebasket and stormed out the door. Frustrated beyond hope by the need for repetitive calculations in manipulating my budget -- which, in itself, was not in good shape -- I had reached the teetering edge of sanity and decided it might be worth investing another \$200.00 in my 64. "After all," said I to myself, "that's what a computer does best."

I spent most of an afternoon poking around Conti's Main Street store, pestering the salesman: making him demonstrated the subtleties of several programs. I finally settled on Calc Result, an electronic spreadsheet package for the Commodore 64, published by Handic Software AB, Sweden. The package contains a ROM cartridge to keep you honest, a master disk, and a comprehensive manual.

After I had purchased the program, the salesman said that, if I had not used a spreadsheet before, I might want to get lost for a week learning how it works. This proved to be an understatement. In order to use the program to best advantage,

it is necessary to learn something like 49 commands. Fortunately, help is available readily. Pressing F7 slips you into command mode and F5 then loads a Help file for the appropriate functions. These Help files are on disk and are loaded each time they are required. They are not stored in RAM and do not consume working memory.

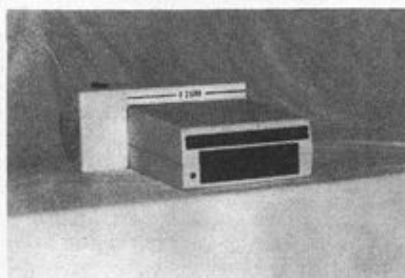
Some programs allow you the luxury of debating the fine points of the philosophy which states it is necessary to make a back-up disk before running the program. Usually, the temptation is to forget this essential step. Other programs will not permit a back-up to be made. Calc Result solves the dilemma for you. The only thing you can do with the master disk is to make regular working disks. This takes about eight to ten minutes. If you are working with a dual disk drive, you can also prepare a data disk, allowing additional file storage. The User Register stored on each program disk includes information such as colors of operation, language (choose from 8 -- does anyone know what Budmexsi is?), and device specifications. This register is

available in Command mode and can be changed readily if you want to change such things as foreground and background columns.

Once you have prepared your working program disk, you are ready to move on. The manual is arranged as a series of lessons or tutorials. There are two ways of approaching these lessons. Some may prefer to follow through methodically, learning each lesson in detail; others may choose to jump learning specific functions, not necessarily in the order provided. I had a third approach. I found it necessary to glue identifying tabs on the first page of each section. I then used a Word-Picker to highlight section 2.1.7 "correcting errors" in the index and waded boldly in trying to use the spreadsheet. After spending a lot of time learning by trial and error, with constant reference to section 2.1.7, I went back to learning from the manual.

Calc Result performs rapidly when only a small matrix is required, since the program uses only those cells that contain

Continued on page 13



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THE FUTURE IS HERE ... NOW

(Adapted from an article in the Los Angeles Times. All dollar figures are in U.S. funds.)

The ultimate symbol of man's arrival to the threshold of the future, robots have played an important part throughout popular culture. The future may now be here because a handful of companies are introducing the first generation of commercially produced personal robots.

Hero 1, a 2-foot-tall, 70-pound robot designed and marketed by Heath Co. (demonstrated recently at a Commodore Computer Club meeting) made its debut in stores last January. So did RB5X, created by RB Robot Corp. And a new firm called Androbot Inc. has two creations — B.O.B. (Brains on Board) and its less sophisticated brother, Topo. B.O.B.'s entry into stores has been delayed, but Topo began rolling into stores in March.

Manufacturers are optimistic that the industry will follow the highly successful patterns set by video games and home computers. However, some analysts and high-tech engineers caution that hope and hype may be outpacing product development.

One research and consulting firm specializing in personal computers has projected that the market for personal robots will total \$2 billion by 1990. That projection was based largely on the success of the personal computer industry, which soared from U.S. sales of \$200 million in 1978 (for hardware only) to \$4.3 billion in 1982.

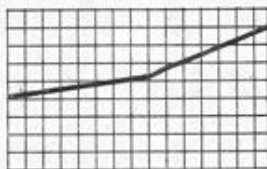
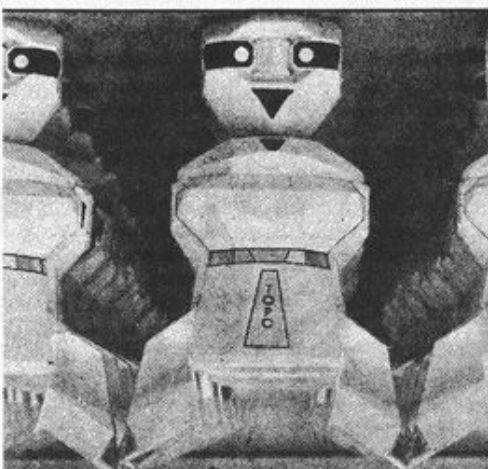
Despite the current difficulties of individual computer hardware and software companies, analysts say the industry remains strong. The U.S. hardware market is expected to reach \$22.5 billion by 1987. Moreover, Carl Helmers, the publisher of Robotics Age magazine estimates that the personal robot market eventually will reach 10% of the U.S.'s 5 million home-computer owners.

One robotics analyst with a

San Francisco firm is more cautious. "There is an enormous gap between publicity and reality. People are cranking out product, but the application is more as a toy."

But Robotics Age publisher Helmers warns against brushing off the personal robot as a mere toy. "In one sense, it's a rich man's toy," he said. "But then, so was color TV."

What has led to this brave new world of personal robots is the development of low-cost silicon chips and other technology for computers which has helped make an affordable personal robot possible. For instance, B.O.B., which looks like a 3-foot-tall polyethylene snowman (Topo is a virtual twin), will retail for \$2,995. Topo, which must be linked to a computer to operate, sells for \$795. RB5X, packaged in a two-foot-high aluminum cylinder topped with a clear dome and



looking a bit like R2D2, is priced at \$1,495. Hero 1 sells as a kit for \$1,500 or assembled for \$2,500.

Robot makers already offer a host of extra-cost options. An Androwagon for B.O.B. costs \$95. If you want your RB5X to have a better memory, RB Robots will sell you a larger memory option for \$125, and this fall it plans to offer a vacuum attachment for \$595.

Along with B.O.B., Androbot plans to introduce F.R.E.D. (Friendly Robot Educational Device), a mini-robot that, like Topo, is an extension of the home computer, and Androman, a video-game robot for children.

The robots are crammed with enough high-technology features to satisfy the most ardent computer enthusiast.



RB5X, created by RB Robot Corp., can be given oral instructions and pick up light objects with its "arms."

All, except Topo, have on-board programmable microprocessors (RB5X and B.O.B. need a separate programming terminal) and can be directed to move through a preset course. They can sense an object in their path and avoid it, and they can talk with varying degrees of proficiency, although RB5X requires a \$195 sound synthesis program to speak. Hero 1 can be programmed for rudimentary voice recognition. RB5X and B.O.B. offer voice recognition as extra-cost options. Hero 1 and RB5X can pick up light items with their arms.

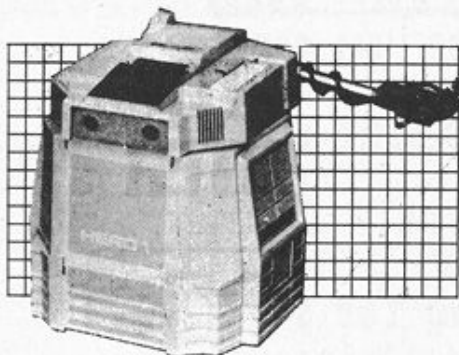
Other robots on the market include the \$300 X-1 kit by Robot Shack and DC-2, a 400-pound promotional model made by Android Amusement Corp., which sells for \$10,000 to \$15,000 depending on options. Next year, Robotics International plans to offer Genus 1 at around \$6,000.

Besides moving around and talking, these early models do not have many practical uses. Yet, their appeal seems to go beyond gadgetry.

Much of their attraction is their potential, however remote, to fulfill the fantasy of a machine that will perform the mundane tasks that burden most mortals. A machine that will fetch a drink from the refrigerator, wash the dishes, take out the garbage — and not complain or ask for a raise.

Consumers, in any case, do not seem to be disturbed by the lack of practical uses for the machines. By April, Heath had sold as many units as it had expected to sell in all of 1983. Sales already are in the thousands, and until recently customers had to wait as much as 30 days or more for delivery of their robots.

RB5X sales are expected to reach \$3 million to \$5 million this year, which roughly translates to between 2,000 and 3,000 unit sales, according to a source familiar with the firm. An Androbot spokesman said that company has sold about 600 Topo robots, mostly to schools that use it to teach basic computer skills.



Hero 1, a 2-foot-tall, 70-pound robot designed and marketed by Heath Co., can be operated by remote control and can be programmed to hold small items.

A COMPLEAT GUIDE TO MACHINE LANGUAGE PROGRAMMING ON THE PET

BY HAROLD BROCHMANN

(Continued from last issue)

THE SCREEN [1-3]

There are 1000 screen positions arranged in 25 lines of 40 columns. Each of these positions contains a symbol determined by which number is placed in the corresponding screen RAM byte.

POKE 32768,1

This will result in the letter "A" being displayed in the top left corner of the screen.

POKE 32769,2

... produces a "B" in the second screen position. Try POKEing your name on to the top line of the screen.

Here are two BASIC programs which you should try:

```
10 READ A: POKE 32768+X,A: X=X+11: GOTO 10
20 DATA 8, 5, 12, 15
```

```
10 FOR X=0 TO 255
20 POKE 32768+X, X
30 NEXT
```

When the PET PRINTs something, it is really POKEing appropriate bytes between 32768 and 33767.

Clear the screen, place an A in the top left corner and:

PRINT PEEK(32768)

This should yield a 1. 1 is the PET SCREEN CODE for the letter A. Many PET animations are produced by poking the screen with appropriate numbers.

PEEKING AT BASIC [1-4]

We are now going to do some systematic peeking at various parts of the BASIC storage area. First we will have a look at how and where a BASIC program is stored.

The easiest way to examine BASIC is to make use of the following program. In order to obtain consistent results, DO NOT USE ANY SPACES:

```
10 PRINT"HELLO"
20 Y=1025
30 FORX=YTOY+20
40 PRINTX,
50 P=PEEK(X)
50 PRINTP,
60 IFP=14THENP=20
60 PRINTCHR$(P)
70 NEXT
```

When this program is RUN you should get the following display:

```
1025 14
1026 4
1027 10
1028 0
1029 153
1030 34 "
1031 72 H
1032 69 E
1033 76 L
1034 76 L
1035 79 0
1036 34 "
1037 0
1038 25
1039 4
1040 20
```

```
1041 0
1042 89 Y
1043 178
1044 49
1045 48 0
```

You are looking at the first and a little of the second line of the BASIC program itself. The word HELLO together with opening and closing quotes is seen approximately in the middle of the screen.

Previously we looked at the SCREEN CODE for the various letters of the alphabet. The screen code for the letter H is 8. Here, however the letter H is stored using the number 72. Letters are stored in programmes using their ASCII representation. Notice that the difference between the screen code and ASCII code for letters is 64. The letters ASCII stand for AMERICAN STANDARD CODE FOR INFORMATION INTERCHANGE.

Actually, the PET does not use true ASCII. There are some differences. We refer to the PET version of ASCII as PETSCII!

PRINT ASC("H")

... will produce the number 72

PRINT CHR\$(72)

... will produce the letter H.

Byte 1037 is seen to contain a zero. This denotes the end of the first line of BASIC.

Bytes 1025 and 1026 contain the LINKS to the second line of BASIC:

PRINT 4#256 + 14

... will give 1038. Therefore the second line of BASIC starts at this address. The links at the beginning of the second line of BASIC are 25 and 4. These point to the third line of BASIC and so on.

By changing the value of Y in line 20 of the BASIC program and running it again you can look at the whole program. In this way you can verify that the END OF BASIC is indicated by three consecutive zeroes. The first one of these is the normal one found at the end of all lines, while the other two zeroes are zero links.

Bytes 1027 and 1028 contain the line number, in this case 10.

Byte 1029 contains a TOKEN. 153 is the token for the BASIC key word PRINT. All BASIC keywords, GOTO, FOR, DATA etc, are all stored in single bytes using a special code. The 178 in 1043, for example, is the token for = (equals).

POKEING AT BASIC. [1-5]

We have seen how it is possible to examine how a BASIC program is stored in memory using PEEKS. We will now POKE some of these locations to see how a program may be altered directly.

POKE 1032,65

Run the program to verify that that address 1032 has been altered. LIST the program to observe the effect.

POKE 1028,1

A COMPLEAT GUIDE

Cont. from
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This will change the first line number from 10 to $1\#256 + 10 = 266$. List the program to verify that this is so. Running the program illustrates that its operation has not been impaired despite the odd sequence of line numbers. Would be possible to write a program in which all lines are numbered zero?

POKE 1029 with a variety of numbers from 128 and up. After each, do a LIST. This will reveal the code numbers for the various BASIC key words.

It is suggested that you spend some time experimenting.

ASSIGNMENT [1-5]

This program will write another program. Try it. Now create your own version using the same technique.

```
10 DATA 34,4,10,0,153,34,65,32,80,82
20 DATA 79,71,82,65,77,32,87,82,73,84
30 DATA 73,78,71,32,80,82,79,71,82,65
40 DATA 77,34,0,40,4,20,0,155,0,0,0
100 FOR X=1025 TO 1065
110 :READ P: POKE X,P
120 NEXT
130 RUN
```

PEEKING AT DYNAMIC STRINGS [1-6]

We are now going to examine the way in which the PET stores STRING VARIABLES such as A\$="HELLO".

Strings are stored in one of two different locations depending on whether or not they form part of a program, or were entered from the keyboard in DIRECT MODE. Strings entered in direct mode are called DYNAMIC STRINGS and are stored at the top of RAM memory.

NEW your PET and re-enter this slightly modified version of the BASIC program we were experimenting with before. Again, in order to achieve consistency of results, do not use any spaces.

```
10 Y=32749 [USE Y=16384 FOR 16K PETS]
20 FORX=YTOY+18
30 PRINTX,
40 PRINTPEEK(X),
50 PRINTCHR$(PEEK(X))
60 NEXT
```

Now, make a direct entry from the keyboard:

```
A$="GEORGE"
```

Do NOT run the program now, because running a program destroys dynamic strings; rather, use GOTO 10.

You are looking at A\$, stored at the top of RAM. Enter: A\$="BILL" and GOTO 10 again. You will see that re-defining a string does not actually erase it, but rather, re-defines it.

A FIRST LOOK AT POINTERS [1-7]

We have seen that dynamic strings are stored at the top of RAM. Strings which are defined as part of a program are not re-defined separately but are simply defined as part of the program. In either case it is necessary for the PET to keep track of where they are stored.

The index that keeps track of where strings (as well as other variables) are stored is located at the end of the BASIC program. As the program increases or decreases in length by the addition or deletion of lines of BASIC, the location of this index moves up and down!

How then can we find out where the index is so that we can examine it? The answer is that we can find this index by looking at the START OF

The pointer to the variable index is located in bytes 42 and 43.

Turn the PET off and on again to "clean up the clutter" and enter this program:

```
10 A$="GEORGE"
20 Y=1024
30 FORX=YTOY+18
40 PRINTX,
50 PRINTPEEK(X),
60 PRINTCHR$(PEEK(X))
70 NEXT
```

Run the program. Now enter this command:

```
PRINT PEEK(43)*256 + PEEK(42)
```

This yields the result 1106. Replace the 1024 in line 20 with this number. Run the program again. This is what you get:

```
1106 65 A
1107 128
1108 6
1109 9
1110 4
...
```

Byte 1106 contains the string identifier, in this case A. Any string, or numeric variable, for that matter, can be identified by two letters. The 128 in byte 1107 indicates that this particular string only uses one letter for identification.

Byte 1108 contains a 6 because the string is six letters in length.

1109 and 1110 contains the location of the string.

```
PRINT 4*256 + 9 yields 1033.
```

List the program and change line 20 to:

```
20 Y=1033
```

Running the program now shows us where A\$ is defined.

PEEKING AT NUMERIC VARIABLES [1-8]

There are two ways of storing numerical values in the PET... as INTEGERS or as FLOATING POINT NUMBERS. Integers have a more limited range of values than do floating point numbers. To illustrate this, try entering QX=50000.

Integer values are stored in two bytes, while floating point numbers are stored in five bytes. The index to the numeric variables is also stored at the end of BASIC.

```
NEW
10 QX=260
20 Y=PEEK(43)*265 + PEEK(42)-3
30 FOR X=Y TO Y+10
40 :PRINT X,
50 :P=PEEK(X)
60 :IF P<>14 THEN PRINT CHR$(P)
70 NEXT
```

We see the three zeroes indicating the end of BASIC. Subtracting 128 from 209 gives us 81 which is PETSCII for Q.

The next location contains the second identifier for the integer variable, or as in this case, a zero.

The 1 and 4 provide the value for QX: $256*1 + 4 = 260$.

Change line 10 to read:

```
10 R=1
```

ribbon cable to the typewriter, and that problem went away as well as the upside-down question mark problem. I have gone through about 13 ribbons in the last year, and that translates to about 3 million characters printed and about a total of 70 hours. That is not very heavy use, but I am satisfied with its reliability. The only other typewriter problem I had was a daisy-wheel losing a 'petal' after a few months of infrequent use. Considering they cost \$35 and should normally last a few million characters, I expected a replacement. After some arm-twisting I did get a replacement for a nominal charge, and I have had no problem with it or any of the other wheels. That one example was obviously defective and I hope they sent it back to Italy for quality-control studies. One limitation the typewriter has is that it is of course just uses a pinch-roller feed rather than pin-feed. That means that it is not very appropriate for continuous forms as there will be some loss of registration due to creep. Of course you wouldn't use a converted typewriter to send out a thousand invoices anyway, but the feed does present problems with thick stock like envelopes, index cards, and some labels. There is sometimes some slippage as you approach the bottom of a thick document. But I have found a jury-rigged solution to this problem that works 99% of the time - I just use a rubber band at each end of the ball rod with the two smaller knurled rollers on it.

CONCLUSION

In conclusion I am quite satisfied with my converted Olivetti. My interest was in quality output and flexibility for a low cost, and I have had that capability for a year. The quality of these cheap printers is really outstanding - even 'crisper' type than I have seen from the expensive models. This article was printed using my system (the heading using the 'Orator' wheel at 10 pitch; the main text using the 'Letter Gothic' wheel at 12 pitch; and the Bibliography using the 'Mikron' wheel at 15 pitch). A

year ago I expected daisy-wheel prices to plummet, but that hasn't happened. What has happened is that competition has resulted in more choice and slightly lower prices, and best of all, more features and integration. I haven't looked, but I imagine that these cheap daisy-wheel printers will eventually force down the prices on the standard models from the established terminal manufacturers. Of course anytime you mix hardware from different manufacturers, you can expect some adjustment problems. That is why it is encouraging that Olivetti is using their own interface logic in the newer machines. Now if they or some other manufacturer would cooperate with Commodore to make them convenient to use, another source of potential problems would disappear. If you need high-quality printing at a low price, and don't mind the low printing speeds, you have to make a basic choice between having a converted typewriter or a 'proper' microcomputer printer. The latter will give you more bells and whistles like being able to control everything from a program, sense end-of-form, etc. But the former will give you a typewriter keyboard, which can be very handy for straight 'manual' typing of small jobs like envelope addresses. If I were to buy today I would be torn between the Praxis-41 and the Transtar, and I don't know which I would pick. One feature that I would hope for on any future printer interface is a large buffer so I could dump out a file and let the interface logic print it out independently as I did other work on the computer. That is the obvious place for a print buffer, and you can already see it coming.

NEW PRODUCTS

Making a few phone calls brought to light several new developments. The Praxis-35 now goes for about \$650 while the serial interface is \$450 and the Centronics-Parallel is \$350. A newer Olivetti, the Praxis-41 is designed by Olivetti as a terminal as well as a typewriter, and it has some integrated logic as well as an onboard keypad and control panel. A standard serial port is

built-in (I believe a parallel version will not be available) and the machine can be used as a keyboard as well as a printer (or by itself as a portable terminal). It is heavier duty than the '35 and is rated for 6 hours a day. It comes with a cover so should be somewhat quieter, but it runs at the same speed. It appears to have some other features, but the stories differed from salesman to salesman, so you should check it out yourself. These stories included mention of a buffer somewhere between 1K and 15K, a possibility that it prints bidirectionally, and prices from \$1000 to \$1300 plus \$350 for the interface. It looks like it might be a better deal than the '35, especially for more production - but shop around and look at the manuals. Some of the Vancouver dealers handling the Olivetti's are Modern Business Machines (972 Howe), Polson's (534 West Broadway), and Zenox, 28 East Pender. Our friends at Conti also seem to have a competitor worth looking at: a 'Transtar' which has 10, and 12 pitch and proportional spacing; runs at 16cps; is bidirectional and logic-seeking; and has a graphics mode. It has a standard Centronics interface, but comes with a converter which can be connected to the disk-drive of a '64, all for \$1399. I have heard that sharing the serial disk-drive line on the '64 allows offline/background printing direct from a disk file. The main problem with it is that it also uses non-standard daisy-wheels and there only appear to be 5 styles available from Transtar. One feature that I would look for on any future printer interface is a large buffer so I could dump out a file and let the interface logic print it out independently as I did other work on the computer. That is the obvious place for a print buffer, and you can already see it coming.

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- 'Interfacing Non-Standard Printers to the 64', Glen Hazlewood, "The Optimizer" (Future issue).

values or are referenced by formulae. As more cells are used, the calculations slow down. I have a matrix that is 60 x 200 and global recalculations for each entry take some 15 seconds. Still, this is faster than the old pen and paper, but I find the wait exasperating.

Calc Result has three areas of data storage. Internal RAM has sufficient memory in the 64 to store up to 1500 cells of information or about 1 full page. This space is normally enough for several pages since matrices of 63x254 are seldom used. When internal RAM is full, the overflow is saved in the work area on the program disk. In a dual drive, all completed work is stored on the data disk. In a single drive, the program and data disks are one and the same. A 1541 disk is capable of storing around 5000 cells of information, or three full pages.

Calc Result has many more interesting features. Some of these are: 63x254 cell matrix by 16 pages deep; ability to load Visicalc files; graphics command allows production of histograms; manual and automatic recalculation; split screen and windows; adjustable column width.

It is surprising to me how valuable these functions have become. When I first saw the complexity of the commands, I didn't think I would need most of them. As I became more familiar with the system, the possibilities for applications increased and I found myself using most of the commands.

Yes, Calc Result is a real LSD - Labour Saving Device. It didn't solve all of my problems, though. Function key F6 is supposed to provide a hard copy printout of the current file. However, when I pressed F6, as indicated in the manual, I was rewarded with the annoying reminder "Device Not Present". I gotta buy a printer someday.

PAPERCLIP: "Powerful & Economical"

One of the most practical applications of a microcomputer is that of word processing. With the aid of such a system, the creative mind can throw away his or her pencil and paper and create anything from drafts to final copy on a computer keyboard. The main advantage of using a word processor is the significant savings in speed when creating a document regardless of its length.

One of the most powerful and economical word processing packages available for the Commodore owner is Paperclip by Batteries Included. Paperclip permits the author to create and edit text with ease. This program provides the flexibility to correct your typing errors, rearrange parts of the document, search and replace words and view the final form of your document before you

print it out. This last feature alone can be a real paper saver. Some of the other advanced features provided include horizontal scrolling, column manipulation, alphanumeric sorting, right and left justification, automatic indentation and many more. Although most word processors are offered with limited printer support, Paperclip is supplied with support for at least twenty of the popular printers and, if your printer is not one of those included, Paperclip comes with a unique printer set-up routine, which allows the user to define their own printer file and use the best features their printer has to offer.

Overall, my personal experience with this package has been very favourable. Not only is the program "user friendly" and the

documentation on how to use Paperclip clear and concise, but the support offered by the company is very good with updates of the package available through the dealer without cost.

— Peter Jewesson



The club's new logo, designed by Graeme Bennett and chosen as the best by members at the July general meeting.

BLURBS *From page 8*

Programs in the VIC-20 library are classified as to type within a broad range. You will find these classifications as part of the disk directory or in the first program on each tape.

Classes are indicated on disk in the directory as the last character in the file name, ie; 14 "DISPLAY T&S U" PRG
The letter "U" in this case indicates that the program is a utility.

Classes are indicated on tape in the same way on a program named "DIRECTORY" at the

beginning of each tape. The general classifications are:

- A ASSEMBLER, MACHINE LANGUAGE
- B HOME ACCOUNTING, FINANCE, BUSINESS, WORD PROCESSING
- C TELECOMMUNICATIONS
- E EDUCATION
- G GAMES
- L LANGUAGES
- M MUSIC & SOUND EFFECTS
- P GRAPHICS & DEMOS
- U UTILITIES, AIDS, DOS, DATA BASE MANAGEMENT

These letter designators are also shown in the new library listing above.

— T.S.

BOOKS *Continued from page 6*

"computer dilettante". (Is this change of name an example of xenophobia?)

This book's typesetting is mediocre and there are numerous errors in grammar and spelling. There are some programs for "3.5K RAM" and others for "8K RAM", without specifying if 8K refers to the basic 5K VIC plus 3K expander. One of the 8K games — Bird Attack — doesn't work past about the fifth line, while another — Motodrom (a car race) is too hideous for words.

This book also describes several hardware projects which are written up in a kind of gobbledygook English which makes them all but inaccessible to the average VIC owner.

A COMPLEAT GUIDE *Continued from page 12*

Run. You will note that the variable identifier is now stored in PETSCII (82 for R), as opposed to PETSCII + 128 to indicate floating point vs integer variable. Again, the second identifier is zero.

The value for variable, 1, is contained in the next five bytes... 129, 0, 0, 0, 0.

A little experimenting allows us to determine the floating point binary form for some numbers:

Decimal	Binary floating point form
1	129 0 0 0 0
2	130 0 0 0 0
-1	129 128 0 0 0
-2	130 128 0 0 0
3	130 64 0 0 0
-3	130 192 0 0 0
0.5	128 0 0 0 0
0.8	128 76 0 0 0

These observations allow us to draw some conclusions with respect to these numbers.

The first byte contains 129 or more if the absolute value stored is greater than or equal to 1.

The second byte contains 128 or more if the value is negative.

There follows an illustration of how one converts the binary floating form:

138 122 192 0 0

into its decimal value, 1003.

Step 1. Ignore the trailing zeroes and for the moment, the first number, 138. Convert the remaining 122 and 192 into binary form:

01111010 11000000

Step 2. Note that the stored value is positive because the first digit of the binary form is zero.

Step 3. Make the first digit 1.

11111010 11000000

Step 4. Subtract 128 from the 138 in the first byte to give you 10. Therefore place a decimal point in the 10th position from the left.

1111101011.000000

Step 5. Enter: PRINT 1+2+8+32+64+128+256+512. This gives 1003.

ASSIGNMENT 1-8

Do some more exploring along the lines we have been doing to determine how integer numbers are stored. Try changing the value of R by poking the bytes which contain the value for R in floating point binary form, and then PRINT R.

(Continued in next issue)

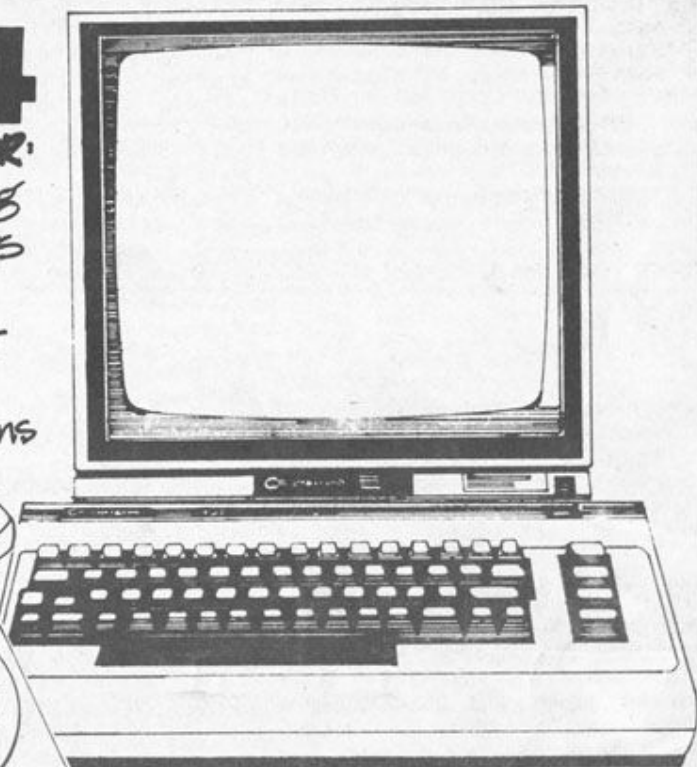
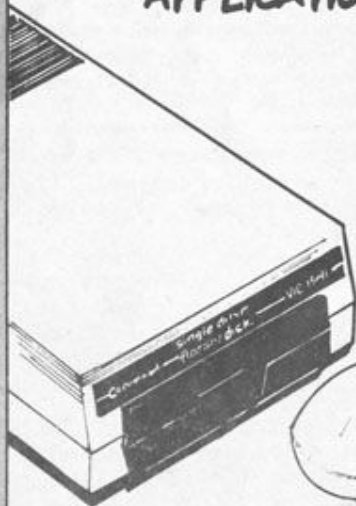
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