THE TORPET

BULLETIN OF THE TORONTO PET USERS GROUP No. 11 June 1982

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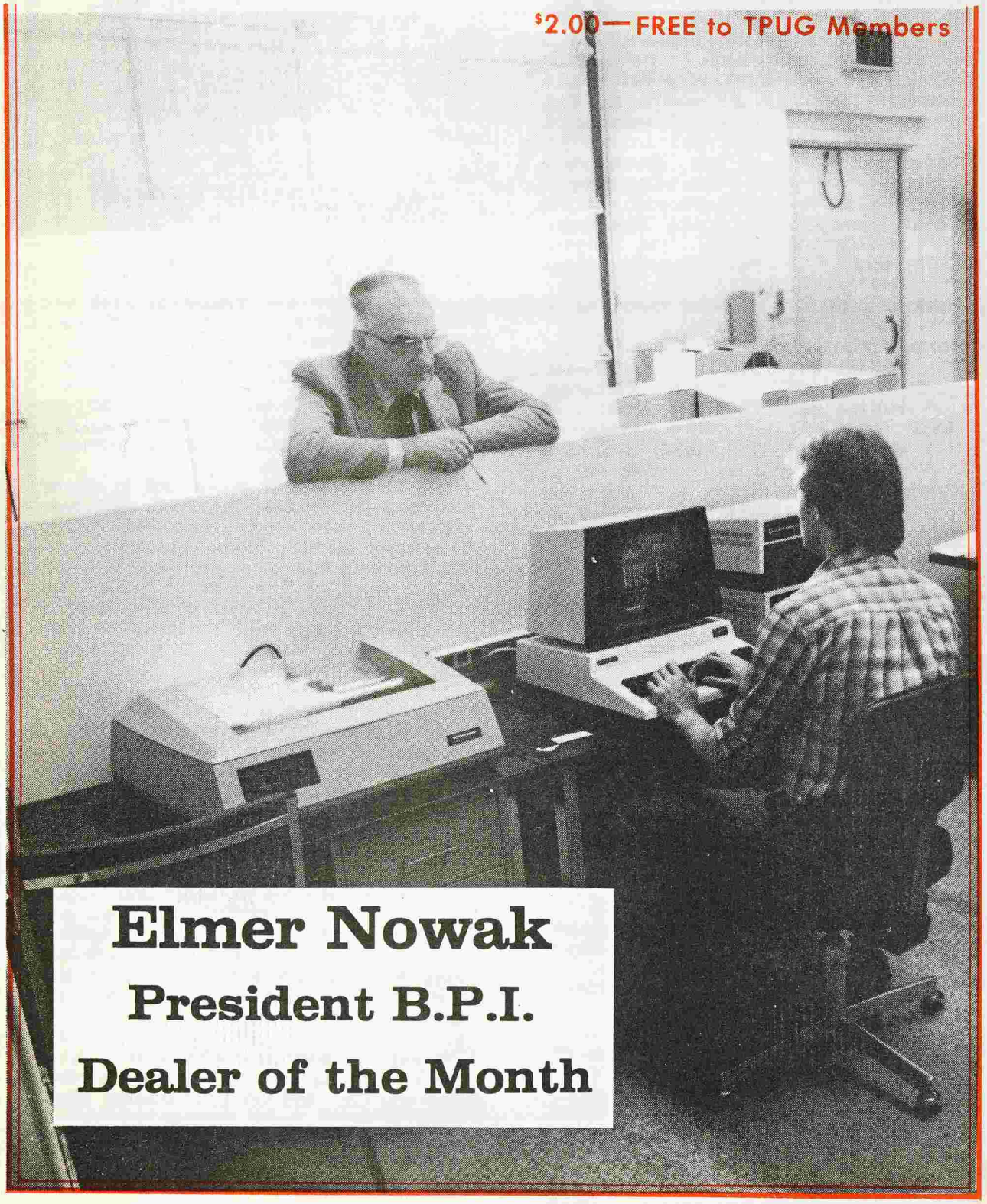

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Dealer of the Month

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MACHINE LANGUAGE GROUP

FOR INFORMATION ON
THE MACHINE LANGUAGE GROUP
CALL JIM CARSWELL
(416) 531-9909

CALENDAR

The last Westside Chapter meeting scheduled for this year will be on Wednesday the 23rd of June at Sheridan Colege on Trafalgar Road 2 miles north of the QEW. The meeting starts at 7:30 p.m.

MEMBERSHIP REPORT

by Chris Bennett

It is now the middle of June and the membership is over 1500. Of this, 800 are in the Toronto area and attend meetings. This leaves about 700 members who live out of town and benefit from the TORPET and club library. Also, we have 1100 Canadian members, 400 members in the U.S.A. and 12 members overseas.

At this time I would like to clarify the membership fees for TPUG. The fees are paid on an annual basis. This means that if you join in February of 1982, your membership for next year will be due at the END of February of 1983. This is going to help us at renewal time since all the members will not become due at the same time as they did in September last year.

The membership fees are as follows:
Canadian Associate members $15.
U.S. Associate members $15 in U.S. funds.
Overseas Associate members $20 in U.S. funds.
Canadian Student members $10.
Canadian Regular members $20.

These fees are in effect until August of 1982. After August/82, the Student and Regular member fees will be increasing to $20 and $30 respectively. Until that time they remain $10 and $20. If you wish to renew at either the all day copy session or at the last West-end meeting for another year, you may do so at the old rate of $10 and $20. This will, in effect, add one year to your renewal date that you can find on your mailing label. (See TORPET issue number 10 for an explaination of the codes found on the mailing label.

READER'S CORNER

Letter to the Editor

Dear Bruce,

I have recently purchased the Moser ASSM/TED package through Jim Carswell at TPUG. I have been using the MAE ASSEMBLER learning aid published in the TORPET, Oct/81. You said you were interested in feedback regarding this article. Well, it has been indispensible for me! The manual that comes with the disk programs is written for people who already know how the assembler works - it is a reference for people who want to look up the syntax of a certain command or the meaning of an error message. It certainly is of no teaching value (there is not a single example of an assembled program in it). Without the learning aid article you published, it would be impossible for a person inexperienced with assemblers to proceed with such a program. I was absolutely delighted to see this article with so many examples illustrating the commands of this assembler.

A few things in the article needed more explanation I felt - although that all depends on the level of expertise of the reader I suppose. For instance, in example #25 in line 0090, those odd looking $0D $0A symbols are not explained. (I'm picking on very small things, you understand, this is not a criticism of the overall article.

A few things didn't work right until I finally (weeks later) figured them out. In the first assembled program, example #5 in line 1050, a space was inadvertently left between the line number and the word ADD in the TORPET listing. Of course, an experienced person would pick that up instantly, but as a novice typing it in exactly as seen, this seemingly minor error in typesetting gives all kinds of error messages which do not point to the problem line. The same example leaves out the last line which is supposed to have the .EN command to indicate the end of program.

So, after a rough start, I finally apreciated the many fine examples in the article. I also found an article that illustrates the use of this assembler very well in Compute, Feb/82 page 154. It is not a learning aid, but together with your article, it gives many good examples of the proper use of the commands in the Moser assembler.

Thanks again for all the work in publishing the article, Bruce.

Tom Hutchinson

MORE ON FAT FORTY

JUST ONE MORE ON FAT 40 CONVERSION...

by Peter Fischer

In previous TORPET issues, Dieter Demmer extensively described how you can convert the Fat 40 to a quasi 8032 with graphics keyboard. I've just converted mine as per instructions and encountered another little problem that may not apply to all Fat 40's. After fitting dip-switches in place of all the jumpers, an almost 8032 appeared on the screen but only when I left jumper 4 (right front) open. The lower case M and W were incomplete, and the cursor (when in the very first column of a line) left a thin vertical line on the end of the previous line. With jumper 4 'ON', I would get a clean 80 column cursor, but all the characters would disappear from the screen. It turned out that some Fat 40's have the UD4 (74S04) dot clock inverter bypassed. In fact, in my Fat 40, pins 10 & 11 were snipped off and jumpered at the bottom of the board. After I reinstated the chip, the 80 column display worked fine with all the proper jumpers on, and the PET still functioned O.K. in the 40 column mode.

For those of you that want to switch between both modes I should mention that it may not be necessary to switch UB8/PIN1 between the artwork and VCC as per TORPET issue number 7. Instead, I only have to open all jumpers of the screen memory addressing (front left). The PET then defaults to one of the 2 screen memory blocks. Good Luck!!!

BUTTERFIELD BOX

by Jim Butterfield

ASCII ME NO QUESTIONS

Commodore stores strings and data files in a code sometimes called ASCII but which I'll call PET-ASCII or PETSCII. It's not standard ASCII code. For most work it doesn't matter very much: whetever you store will be come back and be used without trouble in any Commodore machine. But when you want to talk with the outside world, you'll need to do a translation to standard ASCII.

ASCII - the American Standard Code for Information Interchange - is a code which uses seven bits for information. There's an extra bit which may be left empty or used for error-checking in the form of parity. If you receive from someone - say over a telecommuncations line - you can throw away the extra bit and won't lose any information.

PETSCII, on the other hand, uses all eight bits. Where ASCII cannot use more than 128 different characters, PETSCII has up to 256. This includes special characters that we all know and love such as the cursor movements, screen clear/home, and other goodies such as bell-ringing and window-making.

Does this make PETSCII better than ASCII? No: it was just designed for a different purpose. But when we wish to talk with foreign machines like Univac, IBM or a Centronics printer, there will be a need to translate.

Points of difference

When the PET is in text mode - upper and lower case - the two codes are similar in structure but different in detail.

Numeric digits 0 to 9 are identical. So are many of the important "control" characters: Space, Return and many punctuation characters.

The alphabet has points of difference. Upper case letters in PETSCII use the extra bit that ASCII doesn't have. This seems to work: if you send HELLO, most ASCII devices will drop the extra bit and print HELLO. But to do the job properly, we should convert upper case alphabetics by subtracting decimal 128 from their ASC value: that will yield true ASCII.

Lower case letters are a little annoying. They use the same combinations that in ASCII would be upper case letters. Result: lower case characters will print as capital letters if you send them out in the PETSCII form. To translate PETSCII lower case to ASCII lower case, we must add decimal 32 to the ASC value.

All of this is annoying to do in Basic, although we'll touch on methods in a moment. It can be done readily in Machine Language or in hardware interfaces.

Why?

How did this happen? Is it a devious plot by Commodore to pressure you into buying their printers? Not really: it just happened as the PET grew from a tiny machine to a big bruiser.

In the beginning (remember those tiny keyboards? Oh, you still have one ... excuse me) ... in the beginning, the PET was targeted for upper case and graphics only. If you typed on the keyboard, you'd get upper case. If you held down the shift key, you'd get graphics. If you found the switch (POKE 59468,14) that would take you to upper/lower case, you ended up with an inverted keyboard - you had to hold down SHIFT to get lower case letters.

It seems to me that Commodore were hot on the graphics side and didn't expect to see text mode used very much. They hadn't heard from Steve Punter yet.

Back in those dim reaches of the past everything seemed OK. If you typed HELLO and sent it to a printer, it would print upper case HELLO. You didn't expect those early non-Commodore printers to handle graphics, so it didn't matter that they were an oddball non-ASCII code using that extra bit.

I think that Commodore found themselves in a pickle when they discovered that text was really of value and interest. People wouldn't accept "upside-down" keyboards; so that machine had to do a flip when you switched character sets. In graphics mode, you

continuted next page-

continued from page 4

could tap the X key and get capital X; but in graphics mode, if you did the same thing you'd get lower case x.

We're into a near-paradox. If the same key - and thus the same character withing the PET - sometimes represents upper case and sometimes lower, things start shifting in meaning. The original upper case characters - perfectly correct in true ASCII - now became lower case characters and won't match ASCII.

At this point, Commodore could have redesigned and left previous users high and dry. They chose to keep a fair amount of compatibility and live with a non-standard code - PETSCII.

With the benefit of hindsight, we can all think of really good advice that we might have given the original PET design team. Using lower case and graphics, with lower case in its proper ASCII slot, might have been a good one. Then again, maybe not. Would TOKER look as good in lower case?

Conversion

In Basic, you can do conversions by changing each character (ouch!) to its ASC value, converting, and then rebuilding it with the CHR$ function. A few IF statements will cover the conversion nicely; or for speed, a table lookup will do the job.

If you have machine language skills, the job's a little easier since the characters will be available directly in binary and your arithmetic can be a couple of tests and judicious use of the logical operators, AND, ORA, and EOR.

And exactly the same skills can be brought to bear in hardware: the same tests and changes can be done with ''gates''.

Conclusion

It happened mostly by accident. Sometimes it's annoying to have a nonstandard code, but it's not crippling; the techniques are available to fix the interfacing problems.

Jim Butterfield
Toronto

Reviews

Disk File Box

Review by David A. Hook

As a diskette collection grows, so does the need for a sturdy, high-quality storage box. After three or four boxes worth, the MINIKAS-ETTE/10 style becomes frustrating. There are fancy library cases which cost $40, but don't really hold the 50-disk capacity claimed.

To the rescue is the Rubbermaid Drawer Opening Card File. The largest of the three sizes is designed for 5x8 file cards, and is the one I'm using. Overall size is about 9-3/4 inches wide by 7 inches high and 16-1/2 inches deep.

It is made from high-impact plastic (thickness 3/16-inch) for the outer sleeve. The pull-out drawer has an adjustable "stop" to secure any number of diskettes inside. The unit is commercial quality and may be interlocked both vertically and horizontally with other units.

I have over 70 disks inside, and another 30 could fit comfortably.

As with all Rubbermaid products, both the design and the appearance are aesthetically pleasing. The off-white colour should fit in either office or home comfortably.

Since this is a file card box, the 8-inch width does leave some space for the disks to slip around. A piece of cardboard inside will solve this. The extraordinary depth should be noted also--a blessing for capacity, but unlikely to fit on a normal shelf, for example.

Once you've accumulated more than 30 disks in your collection, a box like this is a good idea. I can recommend this box with no reservations.

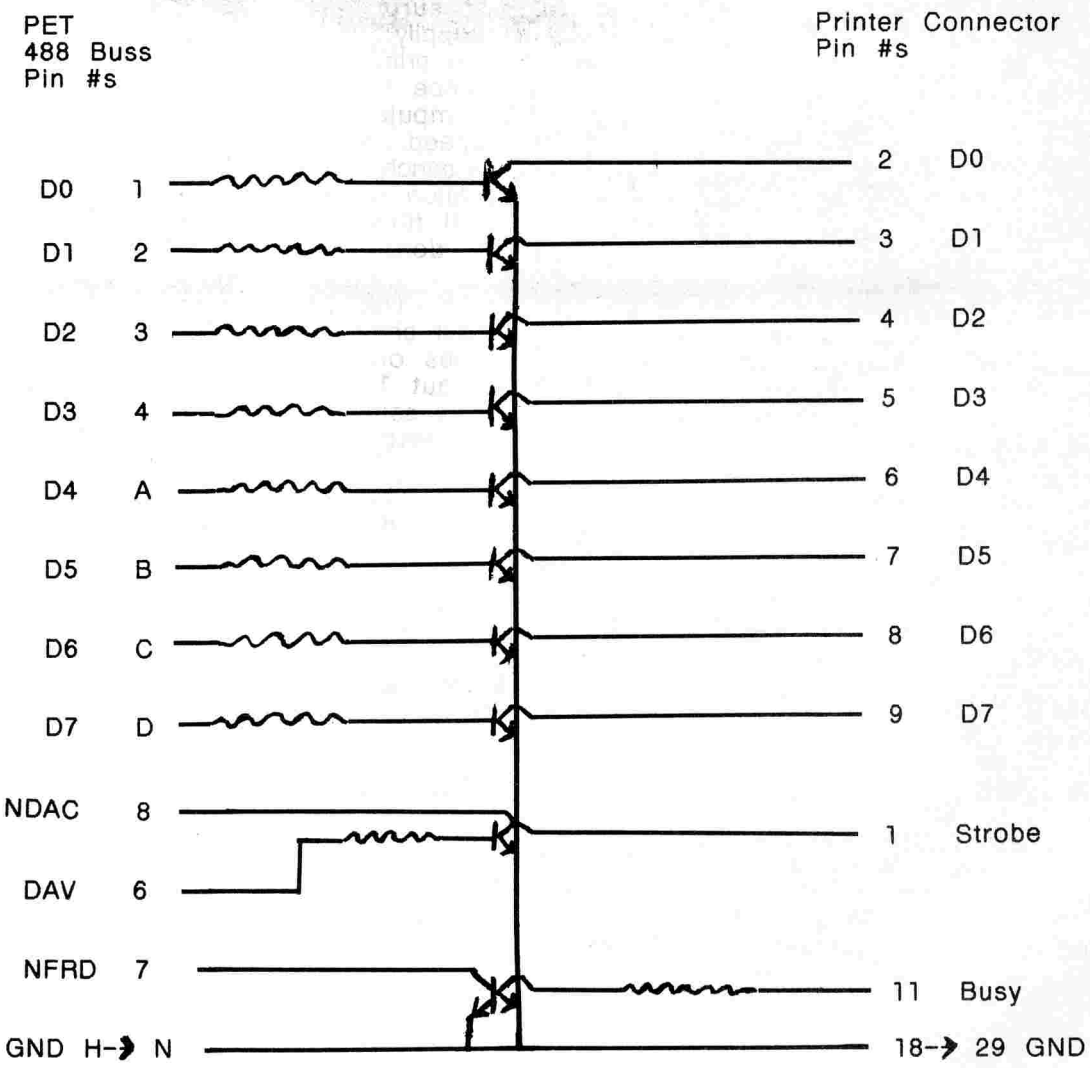
This product is normally sold through distributors to the commercial market. I've been told the retail price is around $40. You may get further information from:

John McCusker
Sales Manager, Commercial Products
Rubbermaid Canada Inc.
2562 Stanfield Road
MISSISSAUGA, Ontario
L4Y 1S5 (416) 279-1010

The card file is manufactured in the U.S.A.

by: Rubbermaid
Commercial Products Inc
Winchester, VA 22601

Ultra Cheap 488 to Printer Interface



Resistors 68k 1/4 watt

Transistors 2N4401

PET Connector Edac 307-024-500-202

Printer Connector Amphenol 57-10360

By Harold Anderson

If you have ever looked at the handshake sequence for a 488 buss and a parallel printer port (used by Centronics and Epson, among others) you will notice a striking similarity. If you are willing to live without the 488 buss capability of turning the printer on and off by the "listen" and "unlisten" commands the interface need only consist of a set of inverters.

On the 488 buss, the computer sends out a byte on 8 parallel lines in inverted logic (i.e. a 1 is low and a 0 is high). The computer then drops the DAV (data valid) line to indicate that the byte is to be read by the printer. The computer detects that the printer is busy by looking for a low level on the NRFD (not ready for data) line. The printer is busy when it is printing a line since it cannot read in a new line until it has printed the contents of its line buffer memory.

On the printer side of things the printer reads a byte from 8 parallel lines when the strobe line goes high. This is essentially an instantaneous transfer, requiring less than a microsecond. The printer signals the computer that it is busy with a high level on the "busy" line.

The accompanying diagram shows how the two sets of signals can be made to talk to each other properly, using 10 cheap transistors (15 cents) and a few resistors. this could have been done with ICs but that would have required the use of a power supply or the borrowing of power from either the computer or the printer. Since the pins on both the printer and the 488 buss go high in the absence of a drive signal an NPN transistor can be used with no power supply.

One thing that should be noted when using this interface is that the printer is always listening and will read whatever comes out of the 488 buss port.Because of this you should not try to run anything else on the 488 buss at the same time.The other major problem is that when the PET tries to make the printer listen, it sends out a pair of characters which the printer interprets as "$" and when the PET tries to make the printer unlisten it sends out a pair of characters which the printer interprets as "?$".This is not a great problem for listings and general use, but if you want something to look good, you had better turn the printer on permanently with the following statement:OPEN4,4:CMD4.After this the computer directs all print statement output to the printer.To turn the printer off without complaints from the computer use this statement: PRINT#4,"":CLOSE4.

One feature of this interface that is surprising is that the computer will happily pour data into the interface with the printer switched off (or even removed). Since the busy signal never occurs the computer outputs the data at maximum speed. Thus if the computer is printing a bunch of stuff that you don't want, merely switch the printer off and the computer will finish the job in jig time. When it is done turn the printer back on.

The interface which I made, was built onto the card edge connector which goes onto the 488 buss and measured about 1.5 x 3 inches. Since you need only send 11 lines to the printer I would suggest that you don't bother with ribbon cable unless you have easy access to the proper crimping tools. I used #24 flex hookup wire.

The printer that I used this interface on is an Epson MX80 FT. Since I don't have a disc I find it quite sufficient.

Significant Improvement On the Above

Since I sent you that article on the ultra cheap 488 to printer interface I have found a simple and significant improvement.

If a signal diode such as a 1n4148 is connected with its cathode to the 488 buss ATN line (PET connector pin #11) and its anode to the printer strobe line it will block the transfer of buss control commands to the printer buffer. This eliminates the problems mentioned in the article in which a listen and unlisten signal are printed as a ''$'' and a ''?$'' respectively. Elimination of this problem means you do not have to go into CMD4 mode to get reasonable results on mulitple short prints.

The modification works because the ATN line is low during 488 buss control commands. The presence of the diode from the ATN line clamps the printer strobe line low and thus prevents loading of the print buffer.

Macotronics M—650

by Peter Fischer

(A RADIO TELETYPE TRANSCEIVE PROGRAM FOR AMATEUR RADIO)

The M-650 is a machine language package for the transmission and reception of ASCII or Baudot Radio-Teletype transmissions as commonly used by radio amateur operators. As I noticed an increased number of radio "Hams" in TPUG I thought this program would be of interest. The M-650 package can be purchased from Macotronics, Hughson, CA 95326, along with or without the optional interface hardware, for approximately $200. A small interface is needed to decode or encode the two-tone signals to and from digital levels similar to those of a modem. Thus, the received shortwave two-tone transmissions are decoded into 5V logic levels and read into the PET'S user port. When transmitting, the PET'S logic levels of the user port are encoded into a two-tone signal and are transmitted via radiowaves.

Once the Macotronics M-650 program is loaded, the PET time is set (universal time) and the program started. The initial dialogue permits the selection of ASCII or Baudot codes and preprogramming of up to 8 messages of 255 characters in length. Also, the station call letters can be input for the purpose of morse-code identification. The program then jumps to the receive mode, which occupies the lower half (8 lines) of the split screen. While RTTY signals are reading in, a reply text can be typed simultaneously and is visible on the upper half (6 lines) of the screen. However, up to 26 lines of text can be pretyped into the transmit buffer. When the transmit mode is enabled from the keyboard, the buffered text is sent at full speed. The program has numerous features which are briefly summarized as follows:

KEY MODE FUNCTION
A SEND Sends morse code identification
B RECEIVE Returns to BASIC
C R Clears receive buffer
D S/R Inserts Blanks/Baudot-LTRS between characters
E R End of message creation
I S Sends current UTC-Time in RTTY and CW-ID
in morsecode
K R Sends receive Buffer to Cassette
M R Sends a preprogrammed message (#1-8)
N R No unshift on space (Baudot RTTY)
O R/S Turns off 'Blanks'-insertion
P S Puts contents of receive buffer into send-buffer
L R Loads receive buffer from tape
R S Transfers to receive-mode
S R Transfer to send-mode
T S/R Reverses mark/space detection
U S/R Select automatic 'unshift on space' (Baudot Mode)
1-8 S/R Pressing shift plus the "#" sends preprogrammed
message to send buffer
/ S/R Selects Baudrate of 45.45 (60WPM in Baudot Mode)
* S/R Selects Baudrate of 50.0 (66 WPM)
+ S/R Selects Baudrate of 56.9 (75 WPM)
S/R Selects Beaudrate of 74.2 (100WPM)

*** In the ASCII mode, 110 Baud are selected automatically.

The program works very well and could potentially be used for phone-line transmissions. The reception and transmission of the teletype code is reliable and usually only suffers under poor radiopropagation conditions. My program version is from 1980 and was revamped by me for BASIC 4.0. A Basic 4.0 version is available from Macotronics too. Recently I switched to a FAT-40, and a major machine language revamp of the program was necessary. I am not sure if Macotronics has a FAT-40 version available but I would think they do by now. The M-650 is a worthwhile program package for RTTY and I can recommend it to those of you that have radio-teletype in mind.

A Cheap Diskette Storage File

(Elmer Nowak showed me a cheap, and I think good one. Checkout cheap tool boxes. Just throwaway the top tray. Many even come with locks. K-mart, Canadian Tire, etc., are all good sources. The diskettes fit perfectly and a piece of styrofoam holds them upright. -ed).

"My wife has a quotation that she keeps repeating. 'I am cuter than a computer.'" -P. W. Kelley

Questions and Answers

by Chris Bennett

Over the past several weeks, I have received many queries in the mail from TPUG members. Many times the same question is asked. I hope this will help other members who have had the same problem.

Ques: Is the membership for one year or more?

Ans: The Membership covers one year from the date of payment. For a description of the codes on the mailing label, see page 4 of issue #10 of the TORPET.

Ques: Where is the information on how to access disks?

Ans: There is an article in this issue of the TORPET that describes how to order both disks and tapes from the club library.

Ques: Are the TPUG programs in the public domain?

Ans: YES. If a copywritten program gets into the library and we later find out about it, we then remove that program from the club disks.

Ques: Is there a wordprocessor for the VIC and can a printer be attached?

Ans: The above were two separate questions which can be answered as one. Last week, I saw both a wordprocessor and printer being used on a VIC. Any printer with a parallel interface (Epson, Centronics etc.) can be attached to the VIC with a special cable supplied by Richvale Telecommunications. They also have a version of their RTC wordprocessor working on the VIC. This version requires a 16K memory expansion and support both tape and disk storage.

Ques: What is the address of HAL Laboratories?

Ans: Try Systems Formulate Co. at 415/969-7499 (CA).

Ques: How do I get on the copy tree?

Ans: Call Bruce Beach. His phone number is on the front inside cover.

Ques: Can you bill me for disks, TORPETs, membership etc?

Ans: No. Payment must be by cheque or money order paid in advance. We do not have an accounts receivable section.

Ques: How many issues of the TORPET have been published?

Ans: This issue is the eleventh. However only issue number 5 to 10 can be ordered. The others are out of print.

Ques: Are there any descriptions of the programs in the library?

Ans: For most of the programs, there is no documentation. However, some of them have been described in various issues of the TORPET.

Ques: Do you have many VIC users?

Ans: This is difficult to answer with exact numbers because we have not sent out a questionaire. However, based on the contents of letters I have received, I would estimate about 500 to 600 VIC users out of 1600 members. About 35 percent of new members joining seem to own VICs.

Ques: Should I go out and buy a SuperPET?

Ans: The SuperPET offers a few features not found in the 8032. These include the RS-232 port, 64K of memory paged at Hex 9000 and Waterloo FORTRAN, BASIC, PASCAL, APL, COBOL AND 6809 ASSEMBLER. If you need any of these features and they are not available from anywhere else at a reasonable cost then, yes you probably should buy a SuperPET.

How to Submit Programs

A number of people have asked how to submit programs and/or articles to TPUG. Programs can be sent to us either on disk or tape. The disk/tape will be returned as long as you have enclosed your name and address. Supporting documentation can be sent in any format desired. Wordpro on disk is the best way, but anything legible will be accepted.

Send all programs/articles to:
Toronto Pet Users Group
c/o Chris Bennett
381 Lawrence Avenue West
Toronto, Ontario, Canada
M5M 1B9

The Universal Language Machine

By Bruce M. Beach

Now and again there appears on the landscape of history an invention that changes the course of history. In retrospect we can recognize the affect of these devices, but sometimes in the beginning we stand so close to them that their significance goes unnoticed.

There is an anecdotal story about the world's fair in Paris. The greatest single attraction was the world's largest cheese. Great crowds came to see this cheese but they all passed by, as uninteresting, a novelty being shown at the next table by a Mr. Thomas Edison. The electric light.

Gun powder, the airplane, splitting of the atom, and even the computer. Who could see the far reaching implications of these inventions at the time of their birth? It is said that Mr. Watson the founder of I.B.M. felt that there were probably less than a dozen potential customers for the computer, world wide.

The real significance of an invention is not its designed purpose but rather the social change which it causes. Was it electricity that eliminated slavery? Television that broke the back of parochial prejudices? The internal combustion engine that created the megapolises? The airplane that tolled the end of imperialism? The atomic bomb that will cause man to have to create a world government? All these views have been espoused by some social historian.

Many social historians feel that one of the inventions that caused great social change was the invention of movable type by Gutenberg. To this single invention there is often contributed the rise of democracy, the breaking of the stranglehold of the priestly classes, the wide spread of learning to the masses, and the general means of the development of technological society.

Before Gutenberg there had of course been reading and writing. There had even been printing using carved blocks of wood. The thing that was novel about Gutenberg's invention was the ability to rearrange the type in an infinite number of new arrangements. This greatly reduced the time, and therefore the cost, required to print new text.

As time went on there were significant improvements made upon Gutenberg's invention. Merganthaller mechanized the method of sorting the individual letters back out, and of assembling them into new lines of type, from which we get the name of his machine, the Linotype.

Both of these techniques were used to create letters that were inked and pressed onto paper by what was called the letterpress. The Merganthaler technique, because it recast the lines in lead each time, was called a hot metal or hot type system.

With the development of electronics there came into popular use, after the second world war, a photographic method of flashing any series of characters onto photographic paper. This became known as cold type and was mostly used in conjunction with an ancient printing technique known as lithography.

Lithography works on the principle that oil and water don't mix. Either directly or photographically an image, that is sensitive to an oil based ink, is created, on a paper or metal plate. The rest of the surface is continuously wiped clean by a water solution. This image is then offset (hence the common reference to the process) onto a rubber blanket and from there onto the paper.

Other new printing processes are being tried with some success. These range from ink jet printing, to xerography, to direct lazer printing. The greatest, and most time saving printing innovation in recent years, however, has been in the pre-press area. It was the advent of the word processor and the electronic capture and transfer of text.

All of these innovations, however, have continued to use Gutenberg's concept of a predefined and finite set of type. Now, there comes upon the scene, a new innovation that may have as much new social significance for the whole of mankind as movable type did originally. It is infinite variety of type.

How is this important? Well, one of the greatest causes of conflict among mankind has been the lack of a common language. A universal auxillary language will promote both wider human understanding and economic benefit through the spread of technological knowledge. A universal auxillary language is one that everyone learns in addition to their mother tongue so that everyone can understand everyone else, anywhere.

With the Gutenberg system, and its descendants, one had only specific typefaces for specific languages. A given machine was limited to whatever its designers had originally provided. It might be able to do English and Japanese but then Farsi and Urdu or Egyptian Hieroglyphics would be another matter.

In order to to spread a universal language it is necessary to be able to write in the type of all the existing languages. What is it that will permit this boon? It is the infinite matrix printer.

Most of the readers will be familiar with dot matrix printers but they will say, "What is an infinite matrix printer?" Well, whereas a dot matrix printer sets down a fixed number of dots, say 7 x 9, in a given area, an infinite matrix printer allows one to put down as many dots as they desire, and in any pattern they desire. You could easily put down over 10,000 dots in a square inch. This allows you to put out any shape character of that you wish.

What you are looking at right now was typeset on an infinite matrix printer. The difference between typesetting and typewriting (or the output from a line printer) is the ability to do letter spacing, word spacing, and hyphenation and justification. All of these abilities are present or coming in the machine that set this type.

Many typesetting machines will also allow one to select a variety of faces and type sizes. This is also present in the infinite matrix typesetter, with even expanded capabilites under development.

There are four things that are radically different about the new system being described.

One. It sets its type on bondpaper, and it is for this reason that it is referred to as a bondpaper typesetter. This alone is a very significant improvement over the old systems. The cost of silver based photographic film has gone up greatly in the last few years.

Silver based film also requires chemicals for its development, which is an additional cost. And the chemicals are messy and inconvenient to use. They also make the paper wet and one must then dry the paper or wait for it to dry.

Add to these costs and inconveniences the fact that one cannot see their results until they develop the paper, and the fact that there is a very great wastage of paper everytime one starts, stops, makes a mistake, accidently gets some light in, or has a problem with the chemicals, and you can see some of the real attraction of a bond paper typesetter over a phototypesetter.

Two. The bondpaper typesetter is several times faster than other typesetters in its price range. While its quality is never as high as the phototypesetter's it can even speed up from its usual very good high speed quality to put out a very fast draft quality.

Three. The bond paper typesetter will be able to define and print new designs of type styles and faces without a hardware change. While this is interesting, and in the long run may have the greatest social significance, it is not this designed purpose that will attract most of its initial users.

Four. For many applications, the cost/performance ratio of the bondpaper typesetter is substantially higher than any other presently used technology. While there are faster and higher quality systems that cost much, much more there is nowhere else one that can begin to give this kind of quality, speed, and performance, in a system that includes a general purpose computer, and disk storage, and all for less than $12,000.

With further improvements, as this technology becomes widespread, its new convenience, low cost, and reliability will perhaps be almost as significant as movable type, and the word processors themselves, have been in spreading technological knowledge and human understanding among mankind.

COPY TREE

Bruce M. Beach

The copy tree continues to grow. Some dealers have had many branches. I too have been getting requests from far off places. These are a bit difficult to service. I am inclined to say to them, "Just buy the whole set from the club library." However, this hardly seems in the spirit of the tree.

I suppose if any **club member** contacts me we will try to find an open branch for them. There should be more and more open branches all the time. For foreign members, some of our dealers will arrange this for you if you will buy the diskettes from them. Diskettes may cost you a little more this way but with duty and customs hastle it hardly makes sense to do it otherwise.

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$10 This Summer

edited by Ellen Strasma and Bruce Beach

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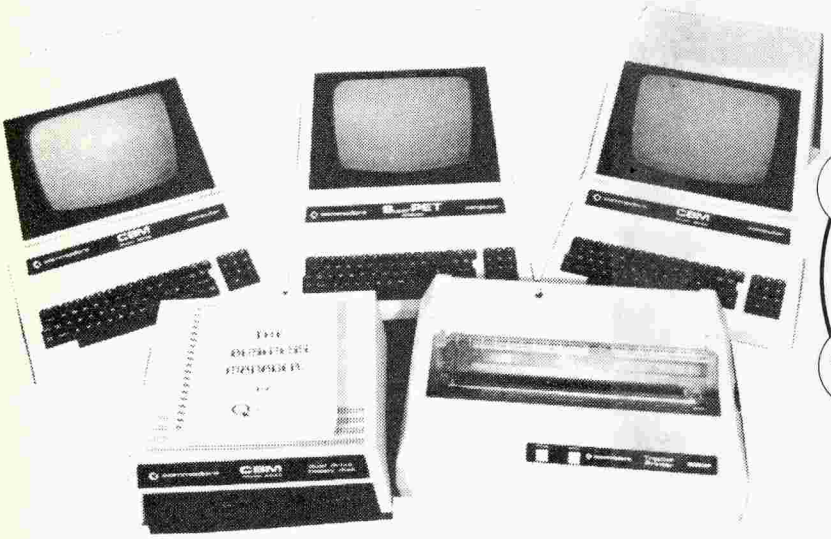

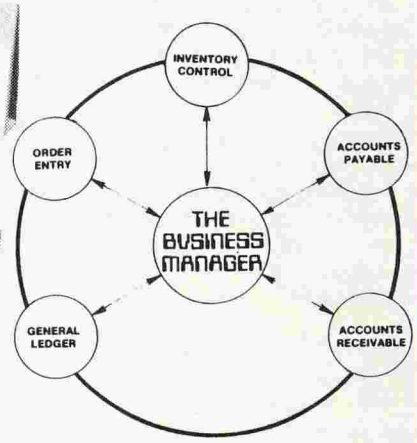

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ECOO Observations

A Picture Story by John Easton

What's on next? / where's my projector!! / just lost another drive / who's on 9? / Seymour who? / this will never replace coffee / two-for-one? / where's 312? / one-bit processors and 9" floppy disks .... After two days of VERY mixed observations, the prospect of 9" floppy's even SMELT good.

From these observations one might rapidly deduce that what started out the usual assignment to 'cover the main speakers - and don't get the microphone up their nose' routine somewhat blurred over the period of three days (or was it four?) into a harried round of trying to discover the latest hiding place in the OISE warren of higher triviation where one might conveniently gather just ONE MORE group of pedagogues to discuss the implications of these here micro-things on just ONE MORE group of students (or turtles, or janitors, or trustees, or even the harassed clerks in the office of good old PS 29). So if you think you're about to get any sort of coherent observations from THIS source, hah! I laugh, - my Leica laughs - and all the Beavers say AMEN!

Observations? and learned ones at that! You can't be serious! Many, many bodies in too many places discussing too many things to make much valuable sense. When you gather some 1200 computer nuts together ... well, just picture the usual coffee-break mob at our normal Central meeting, spread that over three (and sometimes five) floors at OISE, stick a Butterfield in some 16 to 32 classrooms at a time (how about that - Butterfield in Binary) and you might get some idea of the general excitement and interchange of ideas that was generated.

I do however remember being slightly suspicious of the CEM presentation. This group have thru careful phrasing of P/R releases lead the unwary to believe that they were in effect THE chosen producers of this marvellous computer we have come to know as the BIONIC BEAVER. Well, it just ain't so - whenever our politicians and committees that study (at $$$$$$$$/day) such things make up their minds as to the final practical requirements of this wonderful boon to humanity (or at least to Canadian Hi-tech Lobby Groups) I'm prepared to bet that at least 6 manufacturers will meet the specifications. But at what price?? And I'd go further to wager that PRACTICAL COST considerations will have us right back at square one with Commodore (at least in Ontario) a leading contender for the Educational Market they have already so successfully established.

And so - on to other 'observations'..

For you who might have participated in the Ministry of Education's call for Exemplary Programs, Lorne Smith supplied the following statistics:

total proposals - 484

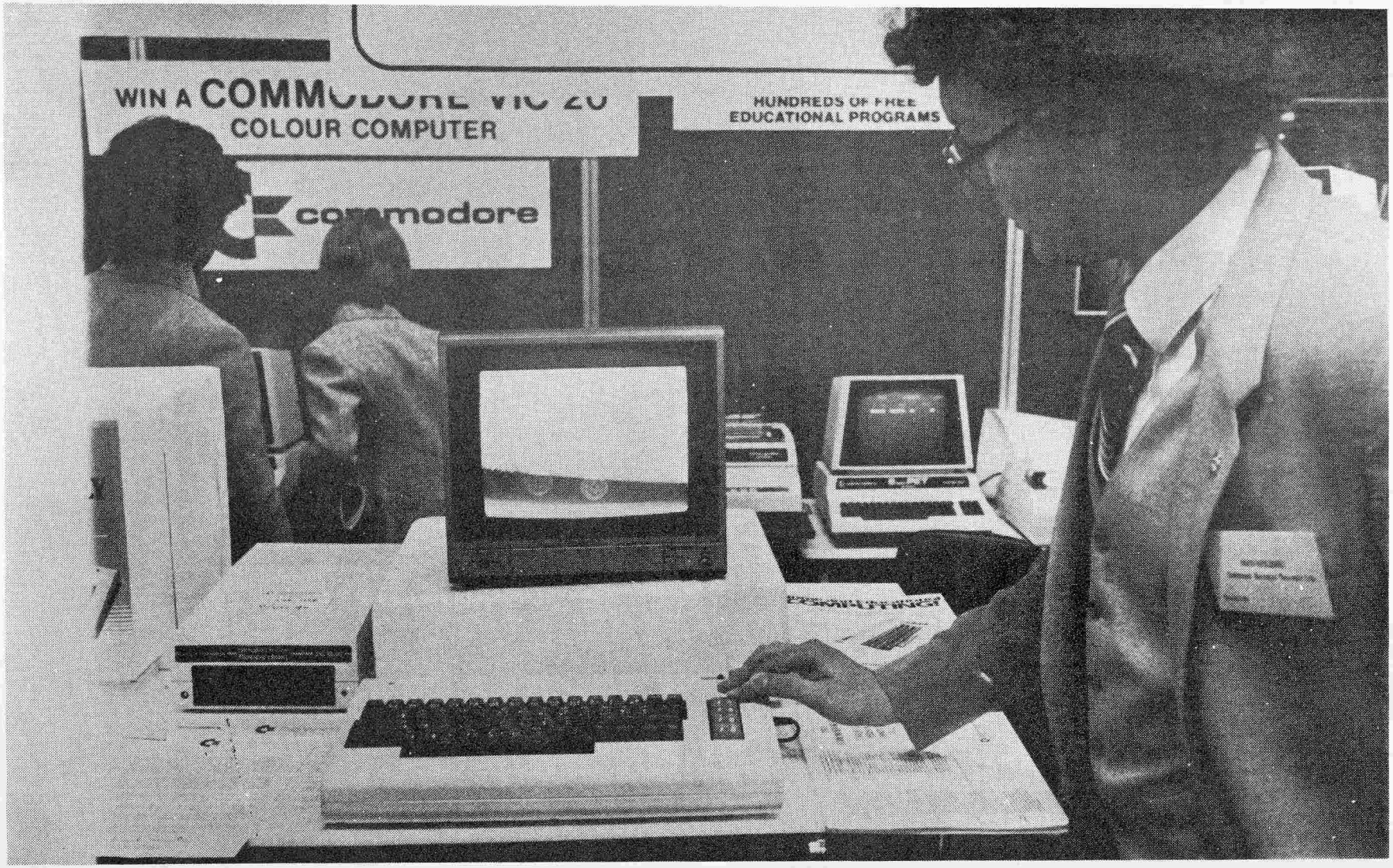
Breakdown of subject areas:

Math. - 21%
Sciences - 18%
English - 13%
Other languages - 3%
Social Sciences - 15%
Business Studies - 5%
Technical - 5%
Special Ed. - 7%
Misc. (Arts, Phys.Ed., Music) - 3%

Grade level breakdown of subjects : (Note - because of grade-level overlap, percentage totals more than 100.)

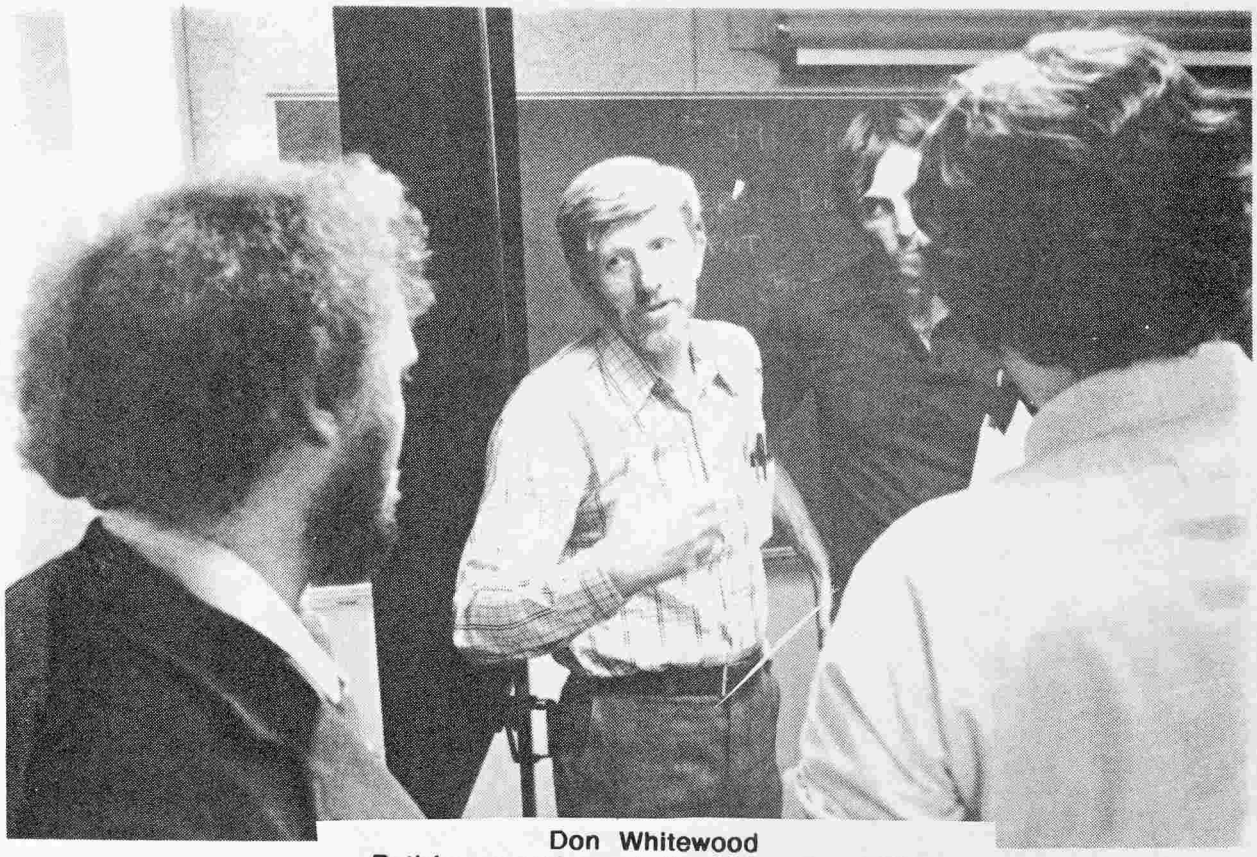
Primary - 15%
Junior - 20%
Intermediate - 39%
Senior - 38%

And, of course you all want to know the projected cost estimates of providing these exemplary programs. Well, the best we can do is tell you the range - from uneder $50.00 to over $170,000.00. Which isn't really much help to the struggling entrepreneur - but because it's MY tax dollar, I certainly hope SOMEONE up there encourages that whiz who figured $43.95 would just about take care of expenses. Why, at that rate, he's already $27.00 up on Chris Bennett and HIS fling at the Commercial market.



Dave Berescowski?

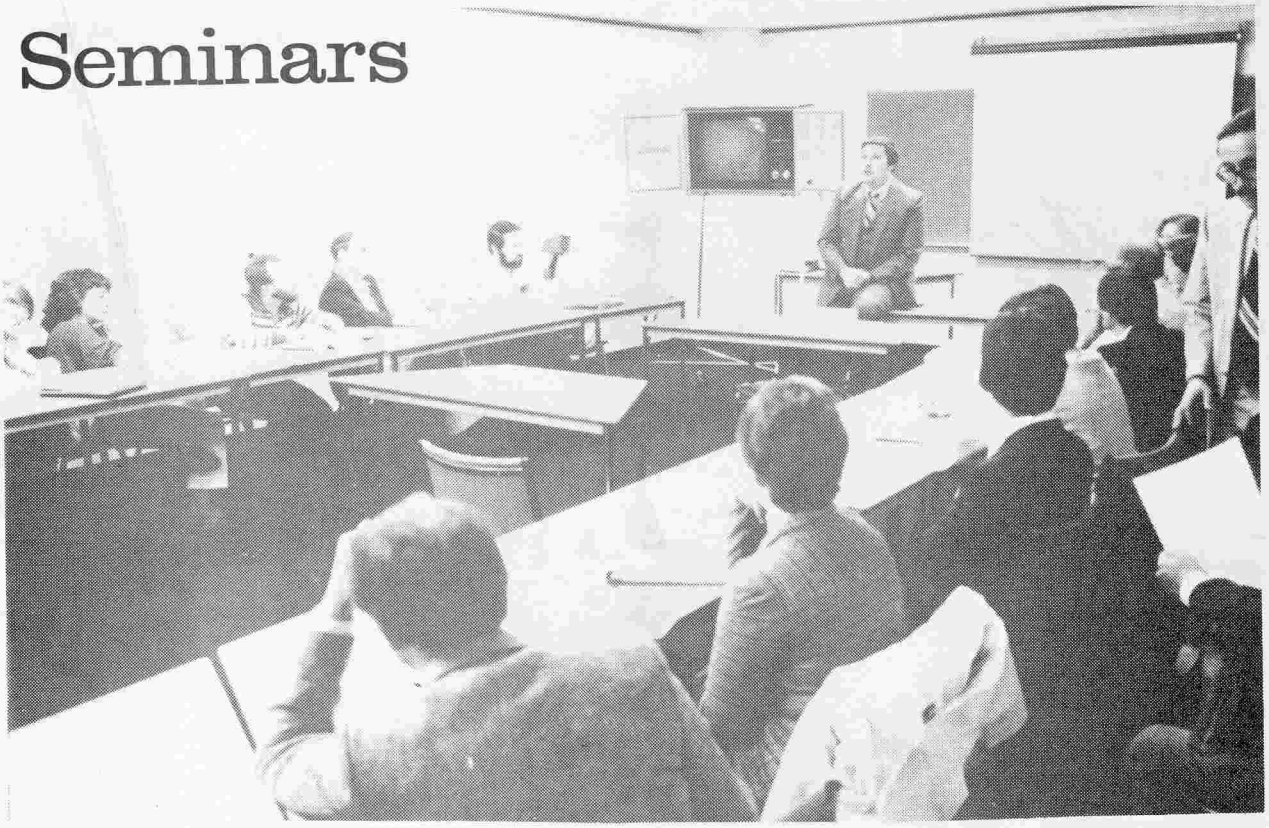
Preview of the VIC 64



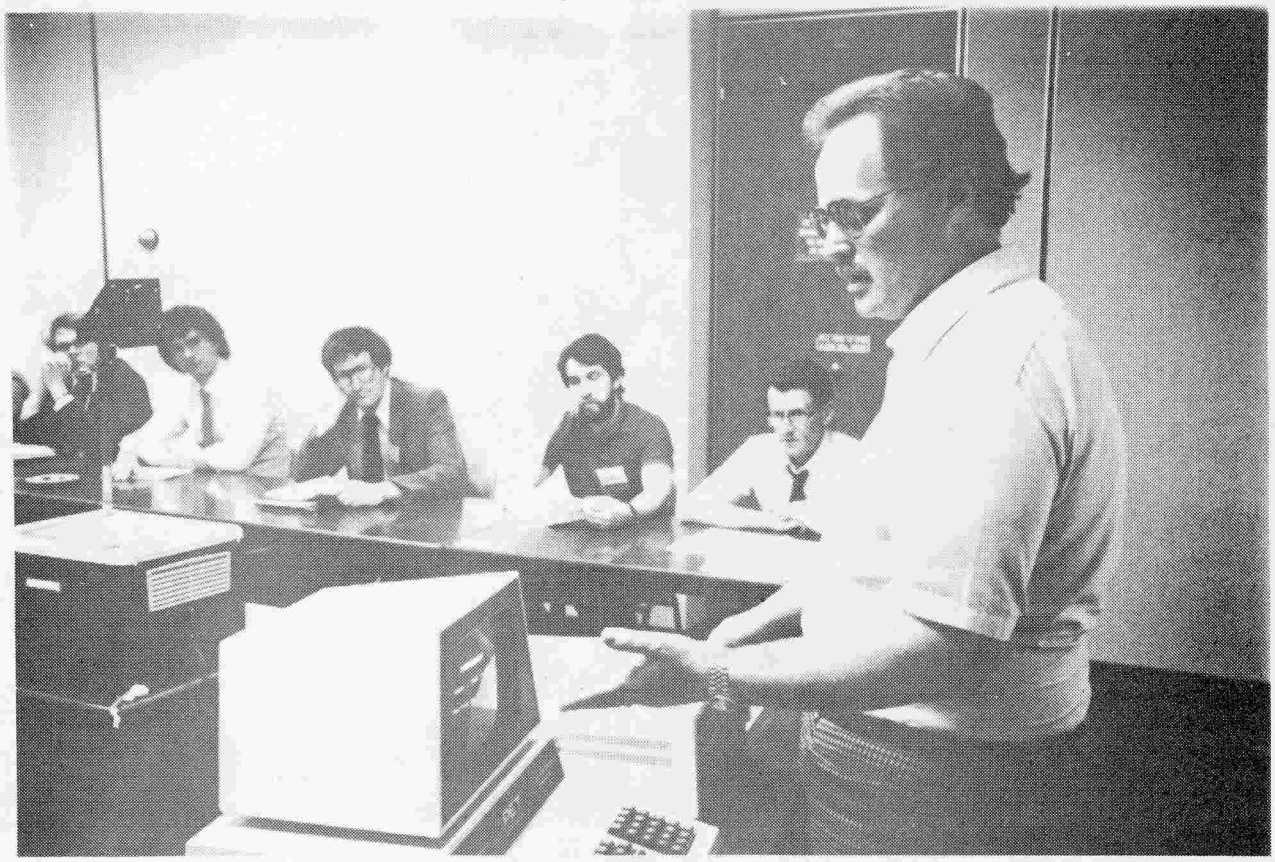
Don Whitewood
Retiring member of the Executive TPUG
Thanks a lot for your many fine efforts. Don!

Don and Bob Drake– Past president of ECOO

Seminars

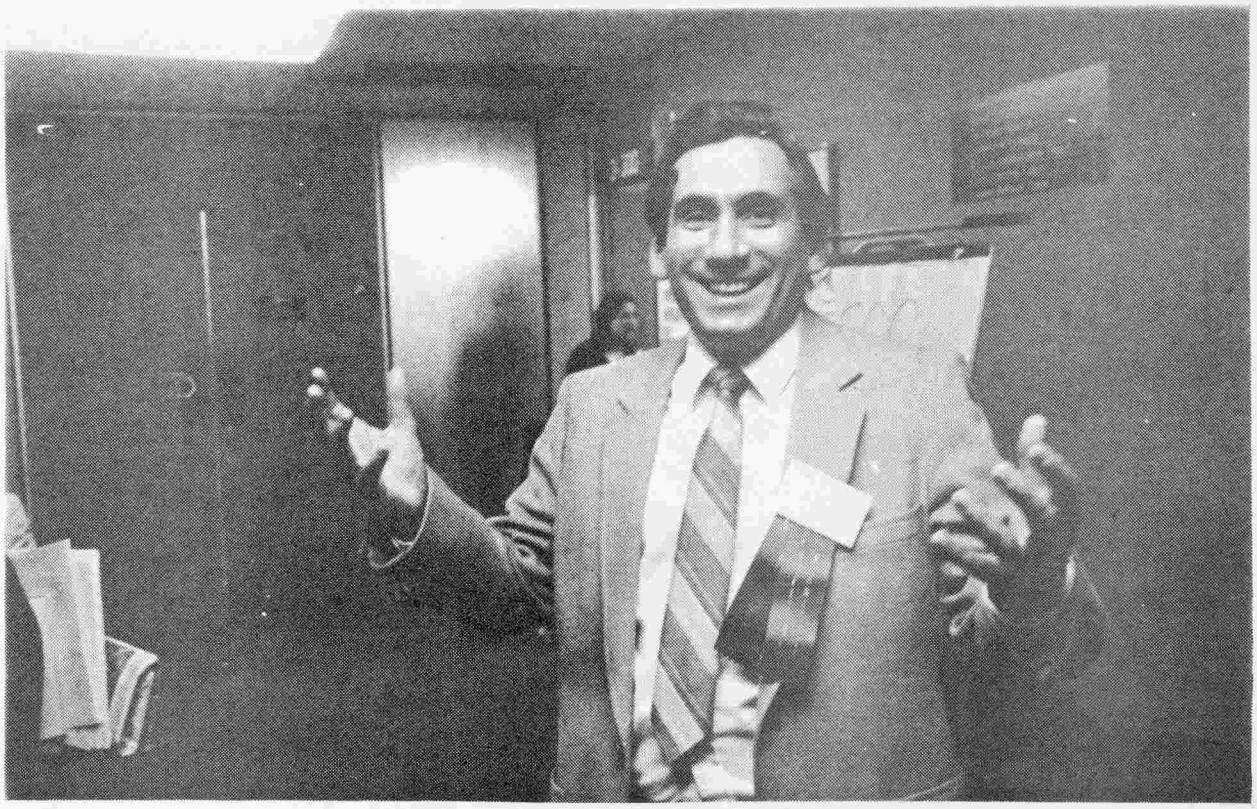


Joe Curtis
Metro Separate School Board



Bob Drake
Brantford C.I.

Don Whitewood and Bob Drake



Guy Leger, Metro Separate School Board
Co-coordinator (sic) of the the conference equipment, etc.

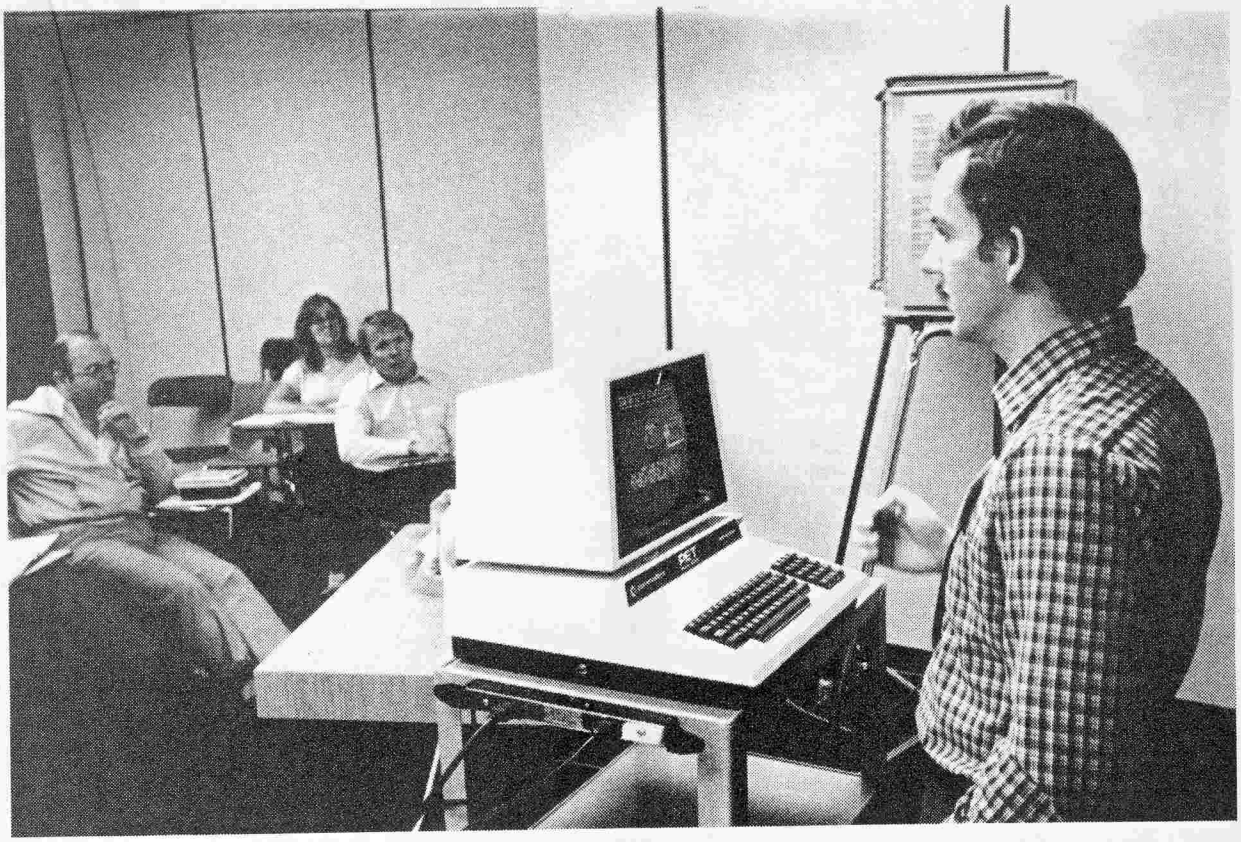
Crowds

Joe Vayda
Typical Presentation

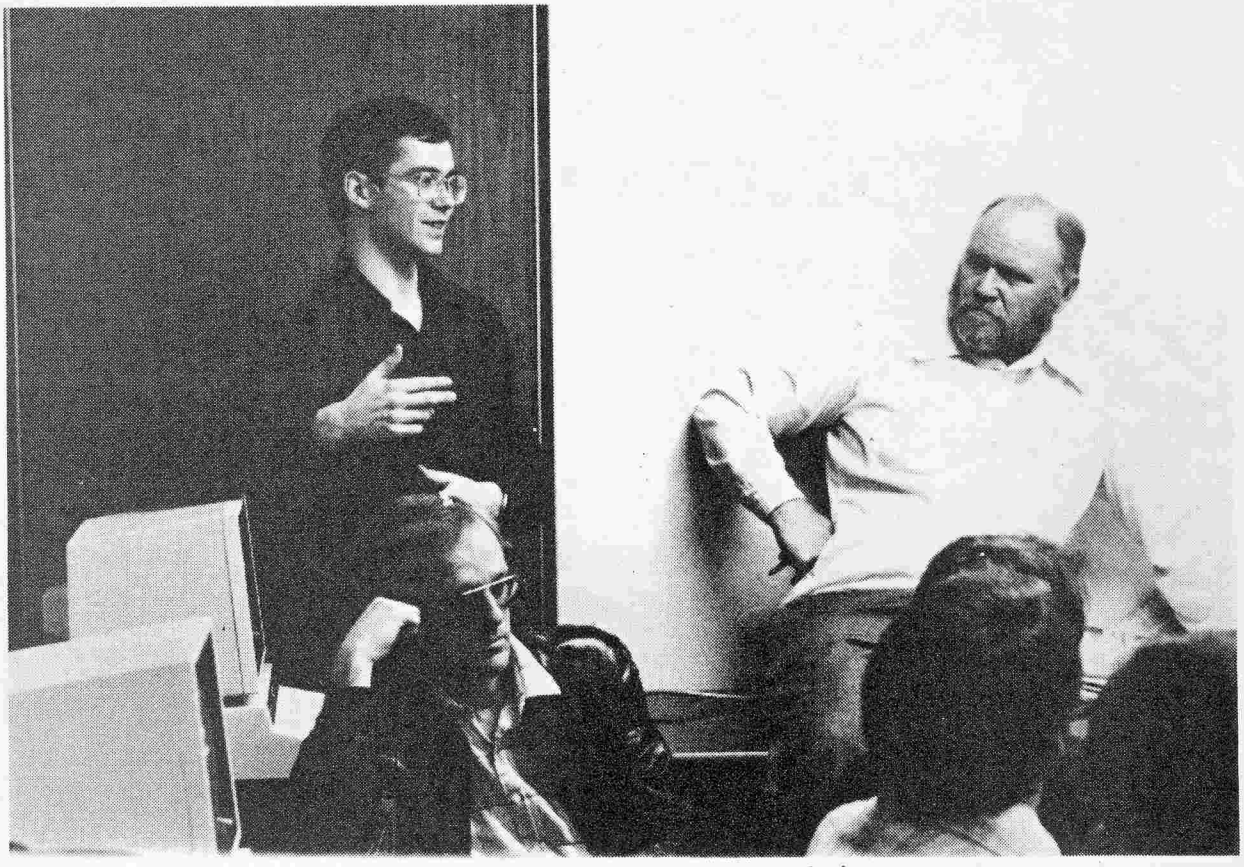
System Presentations

Dylan Yolles
Wordpro Demo with Joe Vayda

Joe Vayda
The other half of that demo



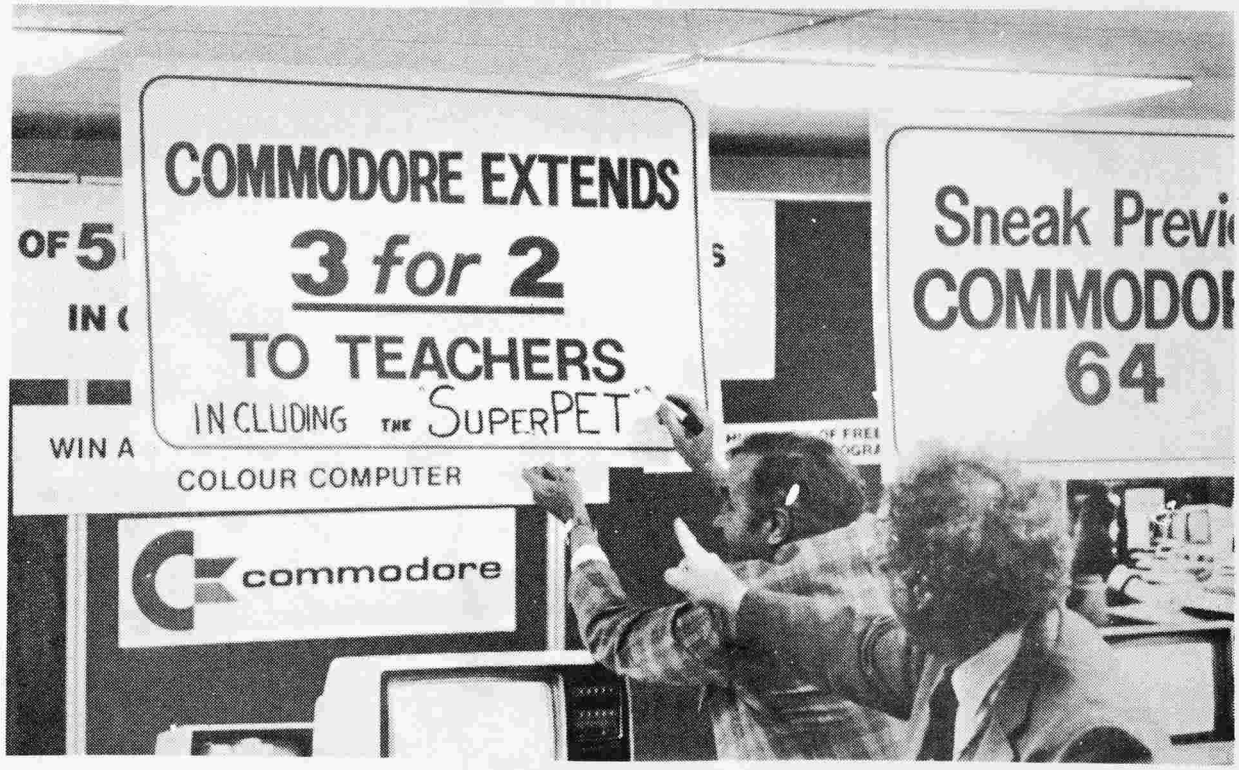
Ted Bangay of Sheridan College
Demonstrating Micro Math



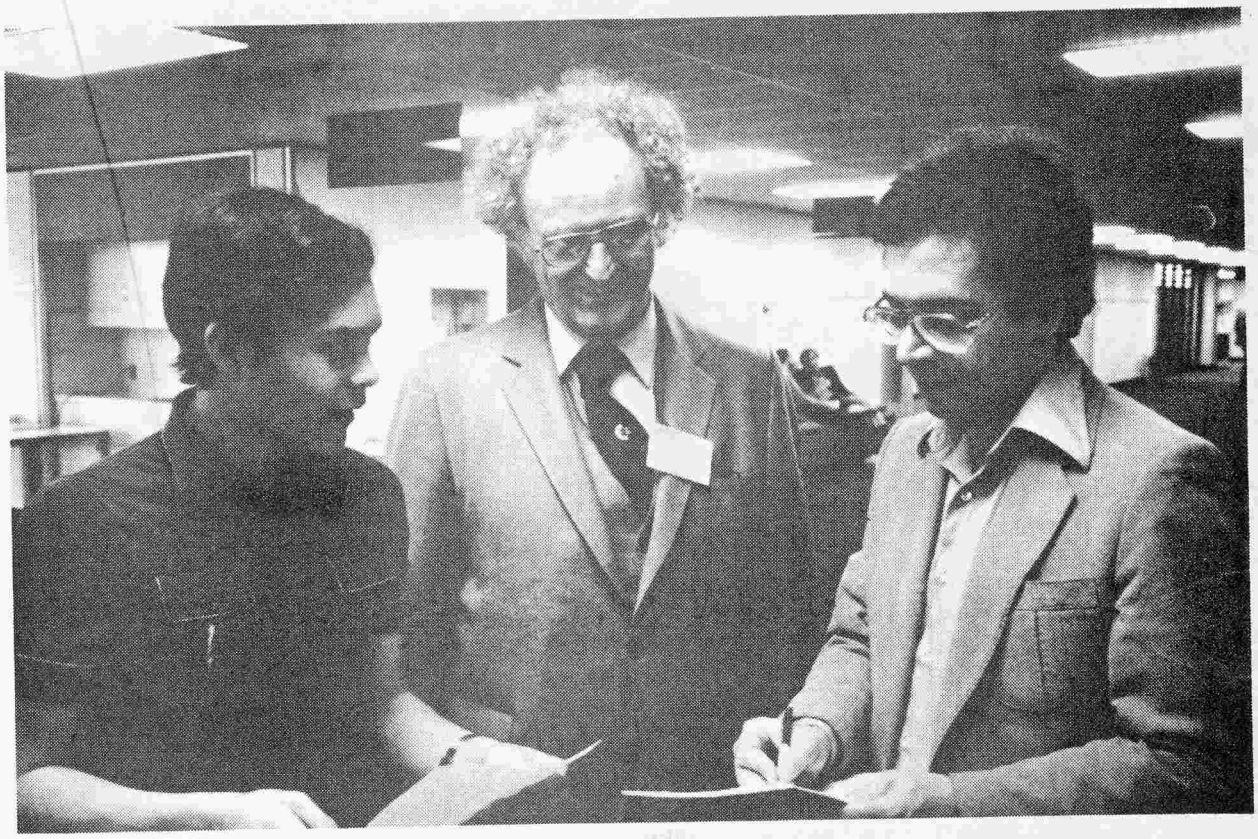
Jim Law of Batteries Included
Demonstrating the Arbiter Syste

The Commodore Booth

The Commodore Booth
Did you notice that Peter Smith makes it into everyone of the following pictures?



Frank Winters, Commodore and Peter of course



Troy Hacker Peter Smith Gerry Gold

Peter Smith, RTC Joe Ferrarri, Commodore Bill MacLean, BMB

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TORPET NOW MONTHLY

If you have been a member of TPUG for a year or more, you will have noticed a change in the TORPET. One main difference is that it is coming out monthly. Before, we were lucky if one came out every three months. Another change is the size of the last two issues. In both cases we printed only 32 pages instead of 48 pages.

In the future, we expect to print one large 48 or 64 page issue followed by two 16 or 32 page issues. The large issues will contain a summary of all the disks available from the club library plus other special features that require more space than normal. (This one is so big simply because we couldn't get it all in a smaller one. -ed)

At the moment, we have four people working on the TORPET. We can, however, use as much help as possible. We always need people to write articles and reviews on PET and VIC products. The more people that work for the TORPET, the better our club newsletter will be. So don't be shy, send us anything you think could be interesting or just volunteer to help us in the production of the TORPET.

The following is the schedule we hope to follow for the next few months:

June issue #11 - Present issue
August issue #12 - 48/64 page
September issue #13 - 16/32 page
October issue #14 - 16/32 page
Nov/Dec issue #15 - 48/32 page

Whether we can keep to the above schedule will depend a lot on you, the members of TPUG. If we get good articles and reviews sent to us, we will put out an interesting newsletter on a regular schedule.

MIDNITE SOFTWARE GAZETTE

Spring 1982
#8 continued

The Midnite Software Gazette is published quarterly by the Central Illinois Pet Users Group, & paid for by donations & ads from readers. There is a program exchange through ATUG, the ASM/TED user group, c/o Brent Anderson, 200 S. Century, Rantoul IL 61866 (217/893-4577). The editors of the Midnite Software Gazette, Jim & Ellen Strasma, may be reached at P.O. Box 647, Pawnee IL 62558 (217/625-7494). CBM, PET & VIC are trademarks of Commodore Business Machines, Inc.

CIPUG contributors for this issue are Brent Anderson (BA), Mark Niggemann (MN), John O'Hare (JOH), Jim Oldfield (JO), Michael Phillips (MP), Jim (JS) & Ellen (ES) Strasma, & Monty Throneberg (MT). We also thank all those whose names appear beside their comments & reviews for their help in making this issue.

COMMODORE NOTES

Commodore may be working on a 4 color printer.-Lyle Phillips

NEW DISK DRIVES FINALLY HERE:

The big news at Commodore this month is that they are finally shipping the 8250 double-sided floppy DISK DRIVE & 5 & 7.5 Megabyte WINCHESTER HARD DISKS, (the D9060 & D9090 respectively). The 8250 will sell for $2195, the D9060 for $2995, & the D9090 for $3495. The VIC DISK is in beta test sites, & in government testing, but no release date has been set yet.

The new hard disks, dubbed DOS 3.0, will allow a single file to fill several Megabytes, & the 8250, now called DOS 2.7, will allow a file to span both sides of a diskette (about 1 Megabyte). Backing up a file that large can be time-consuming & difficult; one apparent solution is suggested by a recent Commodore announcement that they plan to build a streaming tape drive (quite unlike your VIC cassette drive). It should be able to backup a 7.5 Meg disk in about 10 minutes, if it can be suitably connected. As usual, the new powers bring some incompatibility. DOS 2.7 & DOS 3.0 relative files are different than other DOS 2 relative files. However, the 8250 can be set to use ordinary DOS 2.5 files, & comes with a COPY utility to upgrade files to the new DOS. -JS

SUPERPET UPGRADE COMING:

The SuperPET is in production again; owners can expect a free upgrade about July containing an interpreted COBOL. Eventually, there may also be new ROMs available to make slight changes in the communications code & to include COBOL in the menu. Since most, if not all SuperPETs, have EPROMS instead of ROMs, that upgrade could be a quick, cheap chore for owners with EPROM burners. -JS

EXPANDED VIC LINE COMING...EVENTUALLY:

The VIC-20 is selling well now; our local dealer can't get nearly enough of them, even though Commodore is making 20,000 a month. If you've been holding off on VIC, waiting for the $595 Commodore 64, plan on waiting until at

least July. Some prototypes & a preliminary manual have been seen outside the company, but it is NOT in production yet. The 64 will run VIC peripherals, with an IEEE adapter for PET peripherals also planned.

As for the EMULATOR, the mystery machine that might be able to load APPLE, CP/M, & TRS-80 disk programs, no further news exists yet, except that one of the machines it WILL be able to emulate is the existing Commodore PET...

Lyle Phillips reports that 40 & 80 column VICs are said to exist in Germany. However, Commodore U.S. reports no plans to upgrade the VIC to 40 columns here, nor will its cartridges run on the Commodore 64; even the connectors will be different. However, the VIC-20 WILL continue to be made. The $150 ULTIMAX, based on the 64, but with a tiny memory & no standard BASIC, may end up good for games & cheaper than VIC, but will take some added options to be what I would call a real computer. -JS

COMMODORE 64 & PET-2 WILL SHARE FEATURES:

The PET 2 may have a detachable keyboard. Formerly known as the Porche PET, it will also share some features with the 64. Both will have color displays with numerous graphics modes, including one featuring 320 x 200 dots in 4 colors, & another with 16 colors. They will have synthesized music capability, & turtle graphics (renamed "sprites"). Eight sprites can be controlled at once, or via trickery, 256 at once. If a sprite collides with anything, an interrupt is generated to handle it. The 64 (obviously) has 64K of RAM memory, while the PET 2 is said to offer either 128K or 256K, using a new 6509 processor. It may be as fast as 3 megahertz (triple the current PET's speed). The new chip uses a built-in 8-bit port at location 0 for memory management. Four bits are set to select from which 64K bank the next instruction will come, & the other 4 bits select which bank contains the data for that instruction. That means the new chip will quickly & easily address 1 Megabyte of main memory (the entire contents of an 8050 disk unit!) Both the 64 & PET 2 will have 40 column by 25 line screens. There should also be a CBM 2, with an 80 column black/green screen.-JS

DEALER NOTES

ECLECTIC SYSTEMS CORP. They said over the phone that they will match or even beat most other mail order houses. I ordered an RS232 interface from them. They told me what day I should receive it: they were right on the nose. Since they sell more products than they advertise, use their toll-free number to find out. I am for sure going to buy from them again! -MN

FSS & HAYDEN. I've bought a lot of programs in UK & USA, & there were only 2 companies with no reply: HAYDEN & FSS. Six months ago I wrote to FSS software to order 2 of their programs NUCLEAR WAR & DEATHRACE 2001, enclosing $32 (airmail price). As they didn't answer, I sent another letter - no reply! I finallly called them 2 months ago (**very** expensive!!!). A friendly man on the phone told me something must have gone wrong; he searched in his office & found my letter. He apologized to me & promised to ship my software immediately, but I STILL don't have their programs. If you had good dealings with them, could someone remind FSS of my order? -Fritz Schafer (West Germany)

SUPERSOFT. In the UK there is a superb software company for PETs only, named SUPERSOFT. Most of my good programs I bought from them (SUPER-GLOOPER PACMAN, ASTEROIDS, COSMIADS GALAXIANS, COSMIC JAILBREAK, MEREORITES, ...). You can buy a SUPERSOFT program without worrying whether it will be good. **Every** one of their programs is superb & well worth the money. -Fritz Schafer

(Among SUPERSOFT's current offerings is SUPERSORT, with advertised features identical to my own program originally of that name. Their asking price is double my own. You might want to think twice before buying theirs. I've written them, as you might expect, but they haven't cared to reply. Anyone want to be a British dealer for the legitimate version at a fair price? Also note that some of the games mentioned above are from Commodore's Public Domain arcade series. -JS)

Need parts for a 2031/2040/4040 disk drive that Commodore can't supply? Try contacting the manufacturer directly: SHUGART ASSOCIATES, 475 Oakmead Pkwy., Sunnyvale CA 94086 (408/733-0100). Ask for Ivy Lewis. -Dick Immers

Updates on:

AB COMPUTERS.

REVIEW #1) Probably one of the most recognized mail order dealers for Commodore equipment & related hardware/software in the country. Ever since they have moved, though, it has taken a long time to get orders filled. It took them four months to send me the SUPERGRAPHICS software, which didn't work right. Luckily, I was able to fix it. I have heard many other people with similar complaints. A friend has a small suggestion to make: start using computers to handle orders! They currently are hand writing orders. I like most of the software/hardware that AB sells, but I cannot tolerate ultra-long waiting times. -MN

REVIEW #2) No store here (in San Antonio, Texas) handles Commodore except as a side line for schools... Most of us buy our equipment from A.B., & in general, A.B. has been a good, reliable source, but lately they do seem to be taking an awful long time to make shipment after the order is placed. -Larry Williams

COMPUTER MAIL ORDER.

REVIEW #1: Following the favorable review in **Midnite #4**, I confidently sent them an air mail order on 12/15/81. What a mess! Although my order said I have a 4032, on 1/19/82 I received a postcard asking what version of BASIC I have...(all 4032's have BASIC 4). I immediately sent them a telegram saying I had BASIC 4 & reminding them to send my order by air mail. (Because sea mail to New Zealand takes 4-6 months, I had sent an extra $11 for air mail). On 1/30/82, I received another postcard (same question).... I immediately sent a postcard (with the same answer). Several weeks passed with no word. I wrote to them for the fourth... fifth... sixth time. Again no word. At last, on 3/27/82 I received a post card (air mail!) saying that my order had been sent sea mail on 11 February. 0
There was no explanation why it had not been sent air mail & no offer to refund my $11. Tsk, tsk. Out of 8-9 mail-order firms with whom I have dealt, COMPUTER MAIL ORDER is unquestionably the worst. I'll be lucky to receive my order before mid-July (7 months after my order).... My big worry is what to do if the POWER chip I ordered doesn't work. I don't dare sent it back to CMO -- I suppose I'll have to try sending it direct to Professional Software. Oh, dear. -Steven Darnold of New Zealand

REVIEW #2: They have the lowest prices advertised on most Commodore equipment, with a toll-free number to place orders or make inquiries. Most people that I know have dealt with them have given them high praise. I got a VIC 8k expander from them; however, it took them quite a while before they got it to me. They made a mistake the first time they sent it; instead of a VIC 8k expander, I got an ATARI (tm) 16k module. I called them to explain the problem, & was placed on back order for awhile when I sent the ATARI (tm) module back. I finally received it one month later. I would order from them again, but not order many items in the VIC product line -MN

SKYLES ELECTRIC WORKS. "Let me add my own plug for Skyles. I've had memory problems - real strange ones - on two occasions. Both times S.E.W. fixed the problems quickly & at no cost! They ship their products fast, too." -Bruce Jaeger

PROGRAMMING NOTES

To get a selective directory off both disk drives at once, either from the Wedge or from a PRINT# command, use a comma instead of a colon after the dollar sign: (Arthur Cochrane)

wedge$0:whatever
plus
wedge$1:whatever
becomes
wedge$,whatever

SuperPET & 8096

Both SuperPET & 8096 have 64K extra RAM in overlaid blocks on top of the normal 32K & xK ROM. But BEWARE, programs such as WORDPRO 5 & WORDCRAFT 8096 written to make use of memory expansion, work on 8096 but NOT on SuperPET.

It's a long story, but a computer like PET (with 8 bit bytes & using 2 byte addressing) can only address up to 64K. Hence, special arrangements must made to allow this expansion (by making) more than one area of memory share addresses & switch these blocks into & out of use. The trouble is use of extra memory is implemented in different ways in the two machines. -Paul Dixon, from **Hardcopy**

CAUTION!! Does your 8032 screen image suddenly shrink while becoming brighter? This is not a good thing. It may mean that the phosphorus is being burnt off the back of your screen. **Turn off the power as fast as you can.** Reload, but don't run your program & examine the listing. Look for & remove: POKE 59468,62. -Paul Dixon, from **Hardcopy**

MODEM NOTES

PBBS#1 in Michigan is probably defunct. Fred Hambrecht, its founder, may have left the area. PBBS#2 in Milwaukee was also down for a while in March. I don't know if it's back up yet or not. -JS

Two new PBBS's using Steve Punter's programs are said to be up or coming. One is sponsored by Keith Peterson of Commodore Chicago. It has been hooked up to his home phone, but he has other plans for it soon. The other is awaiting Punter's software, but should be up by the time you read this. It is sponsored by Tim & Phyl Tremmel of SEWPUG (Southeastern Wisconsin PUG) in Racine, Wisconsin. The number will be 414/554-9520. Tim is also on THE SOURCE, #TCF059. -JS

For all you TEXAS modem owners, read the CHUG announcement under USER GROUP NOTES about a new Modem Group in the Houston area. -ES

READERS' NOTES

"I was saddened to hear about Cursor terminating their operation, since I have subscribed since their inception. Even though I wasn't interested in a lot of their programs, it's like the end of an era. Given Commodore's production & marketing policies, it's no wonder the software people have deserted us in droves. It's really up to the User's Groups to maintain some cohesiveness & support for the product. Unfortunately, since none of the main frames prior to 4.0 BASIC are still in production, our ranks will not grow to any substantial degree unless there is some standardization, equipment upgraded, compilers developed to handle other languages & most important of all, well organized User's Groups to be the impetus for continued support of the hobbyist & his equipment. There seems to be very little hobby type software for any of the new Commodore equipment. It appears Commodore isn't that interested in the hobbyist market any longer, but are addressing future development for business applications. The EMULATOR idea is good, but I would hope they remember to emulate their own equipment, not just CP/M, Apple, et al. (They did. -ED.)" -Hank Roth (Amateur Radio PET-Users)

VICNOTES
by John O'Hare

1) Commodore's new Programmers reference guide has several errors in it which may cause serious problems for most. Corrections are:
Page 89. Line 20 in the bottom program should read: 20 FOR L= 0to7:FOR M= 0to7.

Page 90. Line 5 at the top should read: 5 POKE 36869,255, not 36849.

Page 91. Line 100 in sample program needs an extra right parentheses at the end.

2) Here's a helpful tip if you're using HESCOM with an 8K expander:

Set the expander memory to $A000.
Load in HESCOM on VIC.
Type: POKE 56,192:RUN

When it finishes, type: POKE 55,0:POKE56,30:NEW

Now you have HESCOM loaded in a place where it will not bother BASIC, & doesn't need to be re-loaded everytime!

3) To do a soft reset on the VIC, type: SYS64802.

4) If you are having bad RF interference problems with the VIC, try this:

Carefully open up the VIC & locate the small 'pot' covered with blue enamel, right behind the video cable connecter. Turning this will adjust Video intensity and in some cases really improve the overall picture quality. -JOH

"The March issue of **Byte** has the 6116 static memory chip listed $7.95 each. Eight of these plus a few odds & ends should make a 16k memory available for less than $100. The 6116 was $15 at the end of 1981! I would be interested in hearing from anyone who has built any hardware." -Peter Farrow, from **Hardcopy**

"I love my VIC with color, sound & Hi Res graphics **very** much. I ordered many programs in the USA for my VIC. I'll give you some reviews over the programs that came ultra fast (only 2 weeks since my order, which is exactly the time for two airmail letters between Europe and USA)." (See AMOK and FRUIT FLY reviews) -Fritz Schafer (West Germany)

WANT ADS
Education

WANTED: Anyone working with the **HANDICAPPED** is requested to contact college student Constantinos Pattichis, 780 Montgomery St., Apt. 104, Fredericton, N.B. E3B 2V1 CANADA. He writes, "What I'm intending to do is work with the PET computer to change its normal keyboard to an EXPANDED KEYBOARD (used to accomodate people with motor or limb dysfunctions)...& also interface this with a SPEECH SYNTHESIZER for non-verbal disabled persons...(&) write some programs for young persons in their first steps of learning."

WANTED: We are a school district producing our own programs & we are presently are using a telex copier to copy our cassettes. What unit do most people use for high **speed DUPLICATION OF CASSETTE TAPES?** ---John Melchior, Parsippany-Troy Hills Township Schools, Ed. Resource Center, 1213 S. Beverwyck Rd., Parsippany NJ 07054

WANTED (or FOUND?): Families to come to a **FAMILY SUMMER COMPUTER CAMP** in WATSONVILLE, CALIFORNIA. According to Director Ed Pollock, this may be the first of its kind in the U.S.... Designed for the whole family to attend (ages 10-90), this 2-week summer day camp will be held daily Monday through Friday, 7:30-5:30, in two sessions: the first, July 12-23, & the second, August 2-13. Location is the 90-acre campus of Monte Vista Christian School at 2 School Way, Watsonville CA 95076. The camp will be mostly PET- (and VIC)-oriented, with guest speakers on various computers, & will offer courses in beginning & advanced BASIC, Pascal, FORTRAN, COBOL, COMAL, etc. Contact Ed Pollock, Director of Family Summer Computer Camp, in care of the school address (above) before June 25th for registration information. (Family discount prices available). -ES

Farming

WANTED: Anyone who has successfully chatted with **AGNET** in Nebraska using a PET 4032 & 8010 modem, & anyone with farm programs or VISICALC templates for PET is requested to contact Ed Frost, 307 E. Jefferson, Winchester IL 62694.

Hardware

WANTED: A 64K **CP/M BOARD** for PET that handles bank selection & other controls exactly the same way as on the 8096 memory expansion board. Ideally, it would mount out of the way under the video monitor like Madison Computer's CP/M board. Reason? So you can run both CP/M & the new 8096 programs (such as SILCON OFFICE) on the same board. -JS

WANTED: I am interested in **upgrading my 2001-8 PET from Upgrade BASIC (2.0) to BASIC 4.0.** However, I have the 28 pin ROM (6540) set, & need to find out how to modify it for that purpose. I would appreciate any information you have available on such a project. -Harold N. Kingsbury, Rt. 1, Box 99a, Avon MN 56310.

(ED: Check out the BETTER SOLUTIONS ad in **Compute!**, April 1982, p.81')

FOUND: New Life for Old PET's. One of the sad things about the original PET is that memory expansion cost, are prohibitive. The Skyles Electric Works 8K expansion alone costs $200, & this is the lowest price for 8K until now. I am working on a way to **interface a VIC 8K or 16k expander to the original PET ...for around $35.** This leaves only the 8K expander which lists for $60, but...is cheaper from mail order houses. The total cost of the interface & expander is about 50% the cost of any other memory expansion system. If you already own a VIC, the savings are even greater, since you can use the expander on either machine. To find out more about this interface, send a SASE to: PET Interface, 7417 Ryan Rd, Harvard IL 60033 or call MN at 815/399-1630 on the weekends. -MN

Utilities

WANTED: PROGRAM TO **WATCH the ADDRESS BUS** during execution of machine-language programs, & PAUSE when data AT a PARTICULAR ADDRESS is referenced or altered (not the same as setting a breakpoint for the program counter.) Might require a second PET, since so many machine-language programs trap IRQ on the host PET. -JS

WANTED: PROGRAM TO **WATCH the IEEE BUS** & COPY DATA going to or from a specified device. Would require a second PET or other hardware. One use would be to make a security copy of information going to the new Commodore hard disk. A nice added feature would be the ability to single-step the bus & display data. -JS

WANTED: MICROMON VERSION FOR THE 8096. Key problem is switching the banks in & out for PEEKs & POKEs (in for access, & out before PET crashes for lack of an operating system in the banked memory.) -JS

ASSEMBLER REVIEWS

PAL, $50 from Brad Templeton if you can get it. VERY exclusive piece of PET software! Few have it, but those I know, use it regularly. Much like POWER: extremely simple in concept, extremely flexible in use, & extremely powerful in skilled hands. Like POWER, it documents all key routines & variables, a great help. It comes as a 4K program assembled for various addresses. I use it in my DIAL-A-ROM alternately with POWER, which serves as its editor. This leaves the entire normal memory free for source code. PAL's own source code all fits in memory at once for editing. It easily assembles & stores itself as object code in under 10 seconds beyond disk access time, far faster than any other assembler I've used. Its syntax is like the CBM assembler, but its files are stored as ordinary BASIC. Has usual amenities: conditional assembly, sorted symbol table & pseudo-ops for all data, lacking only macros. The manual isn't for beginners but is excellent. I have written UNASSEMBLER for it, & MAE-to-PAL & CBM-to-PAL converters. Highly recommended. -JS

BOOK REVIEWS

COMPUTE'S FIRST BOOK OF PET/CBM, $13 from **Compute!** Magazine. Very good book which contains many useful utilities & articles from past issues of **Compute!** Also provides several useful memory maps & cross-maps. Even if you have all **Compute!** issues, it's very handy to have the 'best' together. Recommended. -JOH

(According to another caller, the book also includes all errors in the original articles - even the ones later corrected in followup notes. -ED.)

PET FUN AND GAMES, $10 from Osborne/McGraw Hill.

REVIEW #1: Disk copy of the games available directly from the CODE WORKS. Selected games from **Cursor** magazine. Easy to read listings, using the **Compute!** listing conventions. If you missed **Cursor** in the beginning, & you don't mind typing in (or buying) the programs, this is for you. -MN

REVIEW #2: Features large clear

type & is well illustrated; has Osborne's usual high quality printing & binding. A subtle benefit of this book for those who subscribed from the beginning, as I did, is that **Cursor** has fixed the programs in the book to work on current models. Now that **Cursor** is passing, I value this book as a keepsake. -JS

PROGRAMMING THE PET/CBM, by Raeto West; about $35 from Level Limited. BASIC & Assembly-language PET guide. Who on earth pays $35 for a paperback? You will, if you want the **latest** information for expert-level programming in BASIC & 6502 machine-language on PET/CBM computers. This is no book for a beginner; it uses hex notation in the fifth paragraph! On the other hand, it BEGINS where Osborne/McGraw-Hill's second CBM/PET Guide leaves off, & leaves virtually no high-level programming stone unturned in its 500 tightly-printed pages.

Skilled PET users will find it takes very careful reading to understand fully, but is worth the effort. For example, it documents entry points & register contents on entry & exit of each BASIC command, as well as other major routines called during execution. It is current through January, 1982, & seems entirely accurate --no small feat! It is the only adequate machine-language PET programming guide available so far.

Anyone who is deeply enough into PET to benefit from this book will use it daily as a dictionary-style reference guide. For a paperback, it's fairly well bound, but if I'm already paying twice the price of a U.S. book, I wish it were spiral or hard-bound. Larger print & white space on the pages would have been nice too, but imagine the cost then! Highly recommended. Anyone who programs the CBM/PET computers for a living MUST get a copy. -JS

BUSINESS REVIEWS: DATA BASE MANAGERS

DATA-PLUS. Apparently, CREATE-A-BASE has been bought by Professional Software, & will be now be sold under the name DATAPLUS. No word yet on whether the package has been changed, or what happens to customer support for buyers of CREATE-A-BASE. Professional Software promised me a review copy a month ago, but it hasn't appeared. (It's the least they could do, considering that my sort is in it without permission.) -JS

FILE CABINET 1.2, $60 from Progress Computers. Create/manage data in sequential files with 18 menu driven modules which use only 6K at a time. Fast ML sort with subsorts (by JS). User-defined default entries for current filename, printer device, & each file field. May combine files into new file & generate simple reports using file data. Allows extensive editing of files **& file structures, except** report format. Good screen prompts/error trapping. Fair manual describes typical uses.

MINUSES: It should say, "For DOS 2.0's sake, use NO spaces in file names." Report feature is clumsy to use. I prefer the modules to allow pausing/aborting output & successively to pull in previously named series of files. HOWEVER, its straight-forward, unprotected programming let me add these features. Its use of little memory & sequential files will work on BOTH my 40 column upgraded PET & my GRAPHIC 80. Not fancy, but a good buy of a work horse. -BA

THE MANAGER, $250 from CMD. Requires CBM disk & 8032. Protected by dongle. This file manager has become very popular in the 9 months or so it's been out. Had we been free to review the pre-release copy we saw last May, it would have received a rave review. Even now, it's a GOOD package, second only to SILICON OFFICE. For users who only need one file at a time (and already have WORDPRO), it should be quite adequate, perhaps even better than S.O., & certainly cheaper.

ADVANTAGES: Uses standard relative files, with nearly every desirable convenience for working with them included: sorts, searches, reports, screen dumps, dumps to WORD PRO, etc. Has well-done Commodore-recommended screen formatting, allowing you to easily design file formats on 1 or 2 display pages. Includes somewhat programmable arithmetic functions. Display variables are recalculated each time the record appears to conserve diskette space. It's other key advantage is its user-accessible BASIC code. Several of its machine-language modules have very useful skills, such as the ability to input strings up to 253 characters long, & then easily alter any portion of the string.

SHORTCOMINGS: CMD suggests users & dealers develop custom applications. It is, for example, possible to relate two files in a report, as in S.O., if the user writes a suitable program. Unfortunately, none of the SYS calls & parameters are documented. Dealers can obtain some added documentation from CMD, but most added powers will have to be figured out by studying program listings. This is the exact opposite of Human Engineered Software's approach. (HES could do well with a reference guide to THE MANAGER!) Other obvious lacks include any way to restructure a file, enter data from a sequential file (I wrote my own), or prevent duplicate records from being entered.

For those with more time than money, THE MANAGER is quite a bargain. I use

it myself for user-group information. Recommended. -JS

SILICON OFFICE, $999 from Bristol Software Factory. Requires CBM 8096 computer & 8050/8250 CBM disk drive. IEEE modem & printer optional. Claims to handle ALL the software needs of a small office, & nearly succeeds! Combines the first microcomputer database language on any microcomputer, relational data files, possibly the best micro-based word processor yet, & full remote control & communication via modem, all in a single 54K byte machine-language program (claimed to be the largest program ever written for a micro). Already outselling all other Business programs in Europe, where it has been available for 6 months.

SILICON OFFICE is the FIRST TRUE RELATIONAL DATABASE MANAGER for Commodore equipment. Up to 6 independently defined files may be defined & related in nearly any way, using both disk drives for data, plus any number of work disks. This allows several thousand records, or individual records of more than 1,500 characters, or combinations thereof.

As a true database LANGUAGE, it includes all the expected amenities: numeric & string variables or expressions, parentheses, arithmetic, comparisons, subsorts, high-speed wild card searches, IF-THEN, GOTO, built-in functions (notably a calendar), & the ability to work in both immediate & programmed modes.

As a WORD PROCESSOR, it has true multi-column printing capability, uses a virtual disk technique to link 120-150 page documents into a single file, can evaluate complex expressions at print time, & can add in ANY data from any current file. Text is continuously & RAPIDLY formatted as it will be printed, with horizontal scrolling on wide documents. Justifies text even within printed words, giving an extremely polished appearance to printouts.

As a TERMINAL, it is capable of doing, on a remote SILICON OFFICE system, nearly anything that could be done by a local operator of that system. However, the real power of the program is that all these powers are completely linked in a whole that is vastly more powerful than the sum of its very capable parts. The package even comes with a 2 year guarantee.

Documentation is excellent! Includes easily understood full-size bound training manual, plus a separate, very complete & well-organized reference manual in a binder durable enough for daily use. The program itself includes several help screens, with cross references to the manual. A diskette of sample screen masks, including all the usual accounting functions is also available. A help hotline, newsletter & videocassette training course are planned.

My main complaint is that the diskette cannot be copied, & comes with only one backup. Replacement diskettes are said to be available within 2 working days. Also disk data is stored using screen codes, requiring (simple) conversion to PET ASCII before use in ordinary programs.

Beginners can easily use SILICON OFFICE, but even expert programmers will be unable to exhaust its capabilities. If you could only have one program, this is the one to have! Of all the programs the **Midnite** has reviewed in two years, SILICON OFFICE is the VERY BEST. It is easily the most useful program I have ever seen! Nothing available for any other microcomputer even approaches its power. -JS

THE WIZ, $495 from Dr. Daley Software. Requires CBM 8032 & 8050 disk. CBM or ASCII printer optional. Uses ROM at $9000. Data manager package. THE WIZ contains several good & unusual touches, compared to most other data manager packages. For one thing, it is largely self-documenting, with a 125 screen manual on-line at all times. From almost anywhere in any module, 1-2 help screens are available to deal with any current problem. Another major advantage is its ability to handly truly HUGE numbers of records, organizing them on up to about 30 full 8050 diskettes, each containing between 2,000 & 10,000 records. However, each record is still limited to a more usual maximum size of 250 characters, allocated among up to 64 fields, with each field no larger than 78 characters. Another advantage of THE WIZ is its built-in plotting capability.

Like its most worthy competitors, THE WIZ uses Commodore's recommended screen input editor to design records, has programmable arithmetic, & handles simple reports. It also allows sorting on any field or combination of fields, & either fixed field or global searches, with or without regard to case of the text. Results may be sent to the screen, a printer, or WORDPRO-compatible disk file.

It is not intended to be modified, listed or even halted by the user, but it has enough documentation for programmers to read & write WIZ data from other BASIC programs, using supplied sample interface listings. Also includes a WIZ menu option to jump to a user-written module, & better yet, a claimed ability to read in data from a sequential file, which would avoid retyping when upgrading from a lesser data package.

THE WIZ has one other nice touch: its ROM comes in a small flat board that fits the 8096. Normally off, THE WIZ

automatically turns the ROM on at start-up & off at sign-off. The board has an empty ROM socket for whatever ROM you use when THE WIZ is inactive. (If you use the 8096, remember POKE40958,255; that will turn off THE WIZ ROM after using the 8096's added memory.)

I recommend THE WIZ to four groups: the new users, the non-programmers who never read manuals, the people who need graphs, & any user needing over 2000 ordinary-sized records in a single file. -JS

M.A.S. $495 from Commodore. Medical accounting system by Cimmarron. Requires 8032, 8050 disk & tractor-feed printer. Protected by dummy ROM at $9000. Able to do cash management, accounts receivable, billing, & Universal Insurance form C 4359 (11-78) for some physicians. LIMITS: The practioner must have under 100 patients a day total for all of 1-5 physicians together. The practice must also have some novel way of caring for poor folk, since Medicare & Medicaid do not appear to be provided for in the package.

FEATURES: Each physician carries a 'traveler', a little crib sheet of diagnostic & procedure codes commonly used, & which apply to a particular patient's current treatment. The traveler gives the secretary enough info to make out a bill and/or insurance form, either while the patient waits, or later. An end of day summary prints forms & an audit trail of the day's activities, then summarizes info into a journal. A similar process ends each month, with bill preparation.

ADVANTAGES: Reasonably userproof, menu oriented & "helpful" to the operator. For instance, the disk lite blinks on the disk drive you are supposed to use.Has nice display of the current time. More useful is the way it assures that no patient be entered into the system without a guarantor to pay bills. Better yet, guarantors can't be deleted until their bills are paid. Also includes quick methods to enter new patients, & handle one-time only patients.

A good feature is the ability to enter custom diagnostic & procedure codes, with 2 price levels for each treatment. Can make adjustments, such as fixing a billing error, with an audit trail for safety. A wide variety of special reports are also available, including guarantor aging (of bills), codes, referrals, & performance data on individual doctors, places of treatment, & outside services. Some aids for quick entry of redundant data and a quick option to print the most needed monthly reports are included. Manual is thorough & fairly easy to follow.

DISADVANTAGES: 1) manual buries some key operator requirements, such as the need to enter patient names as LASTNAME(slash)FIRSTNAME, & the special keys that enter default data. Needs a summary & specification sheet. 2) Insurance, referring physician, outside service, & place of treatment codes are assigned by the program, not selected by the user. 3) Release version refuses to recognize its own data disks, so backups have to be made outside the system. Consider this a preliminary review, since we have not yet seen MAS in daily use by a physician. It is not capable of handling ES's dad's allergy practice of 200 patients a day, nor his need for a quick handler for Medicaid forms. But for a more typical practice, it might be quite adequate. There is a competing program, called MARI, but its makers are unwilling to have it reviewed. Until they change their mind, give first consideration to MAS.-JS

MeDECS, ?? from IBME. (Caution: not seen by the reviewer.) IBME has developed a way to test a wide variety of hospital equipment, & keep track of maintenance information, using Commodore computers. Actually, a token HP 9845 is used as the central node of a distributed star network, with CBM 8096's at the points of the star, & VIC-20's as data entry terminals, all aided by a semi-automatic "smart cart" that handles the testing & maintenance.

One primary purpose of the package is to prove good maintenance in the event of negligence lawsuits. Another is to automate the reports hospitals have to file on such equipment. The package is leased, not purchased, & looks very good on paper. How about a customer review? -JS

VISICALC 8096, from your local dealer or user group. Has 69K RAM free for spreadsheets instead of the usual 10K. See discussion under COPYRIGHT NOTES. -ES

WORDCHECK, $200 from MCI. For all PETs with WORDPRO 3 & up. Greatly needed & fairly well done, although its vocabulary seems small. Identifies bad spellings without changing them ...an advantage, since most unknown words are correct.

File checking goes quickly, but updating the word list is SLOOOOOW. The screen display blames the delay on my SUBSORT (part of the package), but the trouble was in a BASIC subroutine. I redid it in machine language, & sent it to the company, once in December, & again in February. Since they still have not acknowledged it, don't count on getting the improved version. The lack of a reply may also say something about the after sale support you can expect; they are now 3 quarters behind on my SUBSORT royalties.)

Claims 3 printer options. ASCII lines

end incorrectly, with VERTICAL TAB, wasting reams of paper on most ASCII printers. Select PET printer option for ASCII printers. Word list contains names & addresses of author & company. Delete these for maximum vocabulary. Skinny forty models need changes in PEEK(151) values in "update". -JS

COMPILER REVIEWS

PC-BASIC Compiler, $??? from England. Uses a 4K library in ROM at $A000. Apparently generates true 6502 code. It does not allow dynamically allocated arrays. It also cannot compile programs much larger than 200 lines - it runs out of memory. The **Interface Age** benchmark takes 18' 33" to run in my 8032. The DTL version took 10' 26". The PC version takes 8' 01". -Lyle Phillips

PETSPEED, $300 from Commodore.

COMMENTS #1: PETspeed appends an 8K library. It is a 4 pass optimizing compiler. The break even point (on program size) is about 70 blocks (in the disk source file). -Lyle Phillips

COMMENTS #2: I have chatted with a happy user, who reports it is much faster than DTL BASIC, & handles almost anything. The main disadvantage is that it saves its dimensioned arrays as part of the program file, making many of the larger programs into disk hogs. A demo the PETSPEED people offer runs about twice as fast as the same program compiled by DTL BASIC.

PETspeed will probably end up with most of the market, but not just because of its speed. Its REAL advantage over DTL BASIC is that it does not require a run-time dongle on compiled programs. Being $50 cheaper doesn't hurt either. We hope someone will more formally review PETspeed for us next time, & that the DTL people have some improvements in mind to meet the new competition. (I'm still quite pleased with DTL BASIC.) -JS

For those willing to wait a bit, there are two more entries in the compiler sweepstakes. Professional Software has one coming soon. Price & features are all "to be announced". There is also a PET compiler of some kind available in Germany. I've seen it, & have heard it works well on small programs, running quickly, but hogging space. I have no idea where to order it or what it costs. -JS

Updates on:

DTL BASIC COMPILER. Reader James Mehl wrote in with further questions about DTL BASIC. He noticed a very negative review of it in the **TORPET**, (Toronto PUG's newsletter), & wondered if our tests were hard enough on it. Mehl supplied a test program, a fairly well optimized version of Commodore's "Display Track & Sector" program from the Commodore's system diskette. The original took 36 seconds to display a sector. Mehl's BASIC version takes 15 seconds. DTL BASIC took 110 seconds to compile Mehl's version, occupies 22 sectors instead of Mehl's 11, & displays a sector in 9 seconds ...not exactly a blinding improvement. However, this tests the compiler at its worst. Mehl's version performs far fewer calculations than the original, & has relatively few line numbers to deal with. Compilers shine best when the program involved is either: 1) badly coded, 2) huge, or 3) crunches lots of integer numbers.

DTL BASIC owners may essentially disregard the warning notice in the front of the manual about copying (so I was told when I protested to CMD about it). Rumor has it they are considering doing away with the required run-time dongle. Owners are urged to join me in lobbying for that change. -JS

TINY BASIC COMPILER: "I should have known better, but I purchased Abacus' TINY BASIC COMPILER. It was about the same quality as their **Machine Language Guide**(mediocre). -Bruce Jaeger

DISKETTE REVIEWS

ELEPHANT DISKETTES, about $25 per box of 10 from Leading Edge dealers (see Baker Enterprises ad in this issue). Made by Dennison Kybe. All varieties for CBM equipment (single- & dual-density, double-sided). ANSI-certified. 100% tested. Reinforced hub rings. Only out for past three months, but already, we are on our third order of 100 & find them both quiet & entirely reliable on ALL Commodore drives. Only the box seems cheap; it won't stand up to daily use. Considering the price, I can live with that. Recommended. -JS

EDUCATION REVIEWS

William L. Brown has developed what appears to be a helpful & inexpensive program package for school finances. Since it uses my SUBSORT, it will be reviewed by another reviewer next time. Meanwhile, it DOES exist & work. -JS

See SPRINTYPER Review for VIC under VIC

SOFTWARE REVIEWS
FIRMWARE REVIEWS

SM-KIT, $40 from A.B. Computers. 4K utility ROM. Requires BASIC 4. Remarkable bargain! Developed in Germany by SM Softwareverbund -Microcomputer. Useful features of SM-KIT include a set of powerful commands for appending programs from disk files to program in

memory, merging programs from disk files with a program in memory, & saving a portion of program in memory to disk. Has flexible directory display options: a filename printed in directory listing can be used as part of load command (similar to FETCH in BASIC-AID). These features simplify building & using BASIC subroutine libraries. Other extensions to BASIC slow execution time by 5-15%; SM-kit slows BASIC by less than 1%. All commands I have used actually work. Includes adequate 21 page manual. My only complaints: a CHANGE command was not included & it only supports printers with automatic linefeed. Highly recommended, nevertheless! -James B. Mehl

GAME REVIEWS

COSMIC COSMIADS, 7 pounds from AudioGenic. Extremely addicting, fast moving arcade game based on Galaxian. All machine language. Another one of the best games on the PET. Another bonus: it will run on (most-ed) all PET/CBM computers. Highly recommended. -JOH

COSMIC JAILBREAK, 7 pounds from AudioGenic. Another good arcade game in which you must stop aliens from rescuing their companions from the Cosmic Jail. Good, but a bit sluggish in action. -JOH

PETRISK, $12 from Pendulem Software. Computer version of RISK(tm) board game. Great graphic display of the world. Good game, but occasionally blows up if invalid commands are used. Recommended if you are a RISK player. -JOH

PHANTOM FIGHTER, $15 from Magic Carpet. Fast moving arcade game, loosely based on Defender. Fly your plane over the Superstition Mountains while blasting enemy invaders. Recommended. -JOH

SECTOR 3, $15 from Creative Computing Software. OLD or NEW roms, 24K. The PET version of Air Traffic Controller is finally here. You choose the length of your shift. You're then responsible for ALL 26 various types of aircraft falling under your control during the shift. Some take off, some land, & some just pass through. Aircraft (5 types) appear in real time on your radar screen & respond to all of your commands. Every conceivable option has gone into this game (even a suspend feature). Keeps you on your toes for hours. Highly recommended.-JOH

TARGET COMMAND, $10 from ComputerMat. Old or New roms, 8K. Arcade type game very similar to Missile Command. Good graphics & speed isn't too bad. Only complaint is that controls are very hard to use. -JOH

VORTEX, $15 from Magic Carpet. One of the best games I've seen on PET. Fast animated machine language graphics, fantastic sound & great action make this a game definitely worth buying. Object is to blast thru energy rings to get the alien. Highly Recommended. -JOH

WASPS, $10 from Magic Carpet. Fairly good game. Object is to destroy a moving wasp nest (and the wasps) using poison balloons. Good game for the price. -JOH

FURNITURE REVIEWS

COMPUCART , $895 from IBME. For all PETs. (CAUTION: not seen by the reviewer.) The Compucart appears to be a beautiful piece of birch & oak furniture, & also VERY functional. It holds a Commodore computer on a lazy susan, with room for a wide carriage printer on the right, with a disk drive slot & hanging file draw below it. The whole unit is movable, with carpet casters, & a 20 foot retractable power cord, complete with multiple outlets, single lighted power switch, & (apparently) a spike suppressor. A shelf pulls out below the printer to extend your work area, & the disk drive also slides out on a shelf. Overall size is 48 X 26 X 26 inches. Unit appears to be much better looking, & also more functional than the two desks reviewed last issue. It is also MUCH more expensive! So far, it's the only computer desk I've heard of that may be easily movable. Definitely worth checking into, & how about a customer review? -JS

MICRO WORK STATIONS. Texas Technical Services, Inc., have just taken on the regional distributorship of a micro work station (desk). It comes in a number of designs to suit different microcomputers. It is sturdier & cheaper than others we have seen. The feature I really like is that anyone can assemble it in just a few minutes. -Paul Dixon from CHUG's **Hardcopy**

HARDWARE REVIEWS

CBM 8096 EXPANSION MEMORY BOARD, $500 from Commodore. 64K RAM board that attaches as daughter board to the 8032. Not compatible with anything rising over two inches from main board. Has 4 banks of 16K each, with only 2 active at a time; these totally replace BASIC ROM address space. Requires extensive knowledge of machine-language to develop new uses, & even then is a real pain to program.

However, its primary importance is for prepackaged programs. Is already supported by several extremely powerful programs, including: SILICON OFFICE, VISICALC 8096, COMAL 1.00, UCSD PASCAL, WORDPRO 5 PLUS, & WORDCRAFT 8096. Most users can wait until they get one of the above before buying the board. However, if you need

commodore

SUPER-PET $2795.00

The Desktop Micro Mainframe

INCLUDES:
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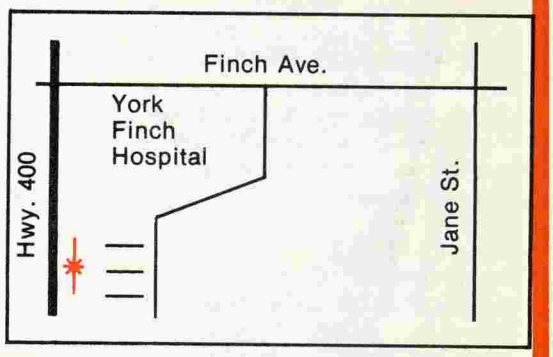

COMSPEC SYSTEMS
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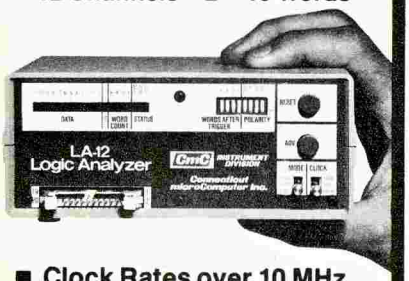

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PAL

Personal Assembly Language

written by Brad Templeton

PAL is a 6502 assembler for your PET CBM microcomputer that provides a new level of speed and convenience beyond other assemblers.

PAL is used by just typing in your assembler program like a BASIC one using the BASIC editing environment everyone knows so well. You can even use tools like POWER or BASIC AID to help you.

PAL is available for $70 Canadian or $60 American from
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PAL has all the features you want in an assembler including complex expressions, conditional assembly, file chaining, and relocatable output. Yet it fits in only 4k of memory and can be conveniently burned into an EPROM.

PAL comes complete with an automatic relocating version for BASIC 2.0 or 4.0 on a 4040 disk plus a forty-three page typeset manual.

Extremely convenient in use.
-Jim Butterfield

Use of PAL haas increased our assembler productivity five fold. A terrific program.
-Bill MacLean Designer of the Superpet

to run BASIC 2.0 or 40 column BASIC 4.0 on your 8032, the 8096 board comes with them on diskette. Alas, a bug in these supplied versions makes them shake on-screen; correct this with POKE 59520,5:POKE 59521,5. -JS

FURTHER NOTE: **Microcomputer Printout** (April '82) reports the 8096 now outsells the 8032 in Britain, because the added memory is required in order to run SILICON OFFICE. (See review under BUSINESS) -JS

MTU-130 $3000+, depending on options, from Micro Technology Unlimited. 6502 computer with disk. The MTU-130 has been a pleasant experience. The similarities between CBMs & MTUs can be quickly described. Both are 6502 based machines & the BASIC interpreter on both systems is an "enhanced" Microsoft BASIC.

A few aspects of the MTU-130 have been disappointing. No more software clock (best known as TI or TI$). The "too small" 10-character keyboard input buffer has dwindled to 1 character. Most importantly, my 80K computer provides 27.5K of available memory to application programs written in BASIC. Furthermore, 5K of machine language support programs, tucked away in ROM at $9000-$A3FF on RAM that would have been available to BASIC. Result: I lost 7.5K! (compared to 32K CBM)

Now for the brighter side: 480 x 256 hi resolution bit mapped graphic display (240x256 with 4 levels of gray scale); fiber optic light pen; ninety six character keyboard including 18 key numeric keypad, 5 cursor control keys & 8 special function keys; three key "system control" keypad; eight bit D-A converter; cassette interface; serial port (programmable) & 6522 type parallel user port.

Our configuration includes two megabytes of disk storage on two eight inch double-sided, double density floppy disks. Add on drives are available. The disk is very fast. A 32K program can load & begin execution in under 3 seconds. One Megabyte limit on file size. Data within any file can be randomly accessed to each byte (or field (or record)). Once positioned, data can be transferred in single bytes, by record, or in binary "block" format.

Has well documented procedure to add BASIC commands. Libraries of user-defined commands can be omitted if they are not required. CIL provides BASIC with 14 I/O commands, one of which allows the execution of any CODOS monitor command from BASIC. IGL provides 17 more graphics commands allowing BASIC programs to utilize the light pen, graphics crosshair cursor, & do standard line drawing. Another library (VGL-Virtual Graphics Library) optionally extends this graphic capability to include Virtual windows of graphic data.

CODOS (Channel Oriented Disk Operating System) provides a device independent file handling system. I/O is over logical software channels (0-9). Physical devices, such as: printers, serial peripherals, memory, disk storage, the console or custom peripherals, are assigned to channels. CODOS contains 36 built in commands. Most execute as "overlays" in a 256K block of high memory. These maintain disk file structures & provide an extended monitor. Any machine language program can become a system monitor command simply by SAVEing it.

Jump tables to entry points of the keyboard, text display & graphics display driver are fully documented. I was pleased to find tables of important page zero locations & a jump table of addresses providing a BASIC interface. MTU's notable commands include LEGEND (defines char. strings for display in eight rectangles corresponding to eight special function keys). The variable KEY (returns a value of 1-8 for function key depressed). ON KEY GOTO ... works very nicely.

Has an Instrument Synthesis Music Interpreter for high quality four-voice music; with an added D-A converter, stereo can be selected. MTU has a prototype speech digitizer board through which they have recorded phrases distributed with the system...very life-like, even to the southern accent!

In summary, most experiences with our "lavish" ergonomic micro have been pleasant. The disk based operating system & language processors are a wise design step, easing upgrades & providing for different languages. Everything of importance executes out of RAM, from the character font table to volume, pitch & duration of the key click. We have on order (from MTU) the 256K Datamover board. This product will allow the full utilization of MTU's extended addressing (128K Basic programs - 64K code, 64K data). In addition, it has on-board an 8 megahertz 68000 that can share tasks with the 6502. -MT

The MTU 130 is also a PET upgrade. Begin with added memory, then a disk or two, & finally the box. This may help those with machines that cannot otherwise be upgraded, such as original 8K PETs with Upgrade BASIC. That's one reason the 130 is included in this "all-PET" Gazette; the other is, MTU has supported PET for years with fine add-on equipment. -ed)

RIBBONS FOR CBM 2022/2023 PRINTER (#604-E-263), $1.78ea (1.63ea for 6, 18.36dz) from Quill Corporation. Same Nytronic Dye Black Intense nylon ribbons

which came packed with your printer & are so hard to get. Dark, long-lasting print, cheap, & quick service. Highly recommended. -BA

(Quill only sells to companies & churches, not individuals. -ed)nl> RS232C INTERFACE, $40 from Eclectic Systems. Converts User Port to RS232 voltages. I am using it right now with a STAR RS232 MODEM (see under MODEM REVIEWS) & I haven't had any problems. -MN

STARWRITER F-10/55 (letter quality) printer, about $1800-2300, plus interface (parallel or serial) from C. Itoh. 40cps Diablo friction-feed on 15" carriage. Bi-directional logic-seeking print with high speed tabs in all directions. Tractor & 55cps options. Diablo daisywheels & ribbons. Friction adequately feeds a few pages, then tractor needed. Noise level OK, except for a high-pitch when idle. Cheaper, 10 lbs lighter, & prints more clearly than Starwriter II. Its excellent print, especially with carbon ribbons, is loved by our electronic stencil scanner. Highly recommended. -BA

Update on:

2031 SINGLE DISK DRIVE. Data transfer rate for 2031 is about half that for 4040. I suspect this has to do with the 2031 being set so that one basic machine can be used with appropriate interface for both VIC & GPIB. -M.G. Ryschkewitsch

(NOTE: He's right; it is slower, but Commodore reports the VIC disk will be even slower, by about the same factor, due to its serial interface. Remember the tiny memory size & IC chip count in a 2031 relative to a 4040. Even so, it's still as fast as an Apple drive & has larger capacity. -JS)

LANGUAGE REVIEWS

COMAL 1.00, $495 from INSTRUTEK of Denmark for ROM Board version, price in RAM unknown. ROM version requires twelve inch screen. RAM version requires 8096 expansion memory board & CBM disk drive. Finally, COMAL comes into its own. If you tried Public Domain COMAL last Fall, & disliked its tiny 4K memory space, or the inconvenience of using separate edit & run modules to get more space, then take another look! COMAL now comes up with almost 39,000 bytes free in the RAM version! It has more commands than the earlier versions, which already included nearly every desirable feature of both BASIC & Pascal. COMAL is amazingly powerful; it has all the recommended control structures for structured programming, along with most of the usual programmer's aid functions. It even supports the CBM 8000 series expanded editing commands. The more notable commands are: multi-line IF...THEN...ELSE, CASE...WHEN...OTHERWISE, REPEAT...UNTIL, WHILE, FOR...NEXT...STEP, EXEC PROCedure (either as a subroutine or as a multi-line defined function, with global or local variables), INstring, printUSING, INTERRUPT (via SRQ on the IEEE bus), & LABELED lines. If you already know what these do, then you can understand why I like COMAL; if you are just beginning, you'd be a lot better off learning to program using these commands than any BASIC substitute.

Other marks of its excellence include: long variable names are allowed & kept distinct, lines are automatically indented to show structure, several command names are completed automatically if you omit a portion, the (SPACE) bar pauses both listings & disk CATalogs, added utilities can be merged directly into the language with a single command, all CBM disk functions, including relative files, are fully supported, & all syntax is fully checked each time a line is entered.

The main negative so far is lack of documentation; Len Lindsay has written an excellent manual, but there is much even he is still learning about COMAL (such as how to get back into it after exiting to the BASIC ROM monitor), & his manual is still some months from publication. The other obvious lack is BASIC 4's added disk commands; COMAL mostly uses Upgrade BASIC 2.0 syntax for disk control. If I can get source code for COMAL, I'm sure the disk commands can easily be added as an OPTION ROM.

Another OPTION ROM is already available, along with a matching RAM graphic board. Len Lindsay reports that the new board gives COMAL full TURTLE GRAPHICS in extremely high resolution, with two separate high resolution screens. According to a letter from Erling Nielsen of Instrutek, the board features 512 by 256 pixel resolution, controlled by extensions to COMAL. It has 32K memory of its own, giving 2 complete screens - one can be altered while the other is on display, & both are independent of the regular screen image.

COMAL is catching on like wildfire in Europe; many schools there refuse to buy a computer that cannot run it. And for the moment, only Commodore version 1.00 fully implements COMAL on a micro. Probably only Waterloo microBASIC on the SuperPET comes close to its power as a language for most PET users. Highly recommended. -JS

OS-96, $200 from A.B. Computers. Extended BASIC interpreter for the 8096 expansion memory board. Expands BASIC workspace to an apparent 64K bytes free, (32K reserved for program text, & 32K for variables.) Also adds several

enhancements to BASIC, & some new commands, including most of those in the SM-Kit, (see separate review.) Because variables are separate, changing program lines or chaining large modules after small ones doesn't clear them. The BASIC stack has been lengthened, allowing deeper nesting of loops & subroutines. Key sequences access the 8032 extended editing commands. Program lines & variable data may now be up to 255 bytes long. Spaces are automatically deleted from program lines, & reinserted on LISTing, with a further option moving each statement to a new line, properly indented for structure. New commands include: CLR only some variables, RESTORE data to a particular line & element, REDIMension arrays, ON ERROR GOTO...RESUME, DISPOSE (of stack entries), PRINT or INPUT at a screen location, printUSING, read disk CATALOGs into an array, INSTRing, & ELSE.

OS-96 is fully compatible with PET BASIC syntax & programs. However, ordinary program load addresses must be altered to work, & vice versa. Fortunately, a LOAD at option is included, but there is no matching SAVE at, so you'll still need something like POWER-AID's 'YOU' command to convert OS-96 programs back into a form usable on ordinary machines.

The cursor column is very significant to OS-96; this allows the 255 character lines, as well as automatic AUTO line numbers. However, I found the automatic AUTO quite disturbing, & would vastly rather it weren't automatic. Since programs & variables are kept in the 8096 add-on RAM, & OS-96 is located in the usual 32K RAM, none of the usual SYS calls or enhancement ROMs work.

The documentation I saw was preliminary, & will be improved. I found it adequate for those who already know PET BASIC, though it hints at undocumented commands. According to the instructions, OS-96 will be further enhanced later, to include at least the rest of the SM-Kit commands.

If you need a LOT of memory space free for programs to be written in a nearly standard PET BASIC, & can live with its slight inconveniences, OS-96 is for you. -JS

RPL, $81 complete, from Samurai Software. Debugger requires 80 column screen. RPL is very much like a compiled version of FORTH, even faster & smaller than its predecessor. However, unlike some compiled languages, its processed code (a 'p' code), can be logically interpreted by the optional debugger.

One of the best features of RPL is its full integration into BASIC's editor. All the usual ROM aids work with its source files. Also, unlike FORTH, it uses the full 80 column screen, & scrolling. RPL programs may be addressed anywhere in memory, & even burned into ROM.

RPL can definitely be used in serious programming. The review copy came with an amazing demo of guitar fingering, quickly showing every possible way to create every possible chord. Another article received since shows how to use the high-resolution plotting powers of the Spinwriter printer via RPL. The article also shows how to get around RPL's lack of decimal math by using BASIC & RPL together.

RPL is very well documented, with a very complete & easy-to-read manual. The optional debugger has every desirable feature, & has been widely praised by other reviewers. (You'll have to take their word for it, since it refuses to cooperate with my slightly non-standard Graphic keyboard 8032.)

My only complaint so far is that RPL is called structured, but lacks most of the structures of COMAL & PASCAL. Also, in order to preserve the BASIC editor, RPL uses some BASIC tokens to mean something entirely different in RPL. As a result, I find RPL programs anything but self-documenting. On the other hand, it has only about 3 dozen commands to memorize, & should be easier for most people to use than assembly language.

Commodore users are quite lucky to have both RPL & COMAL entirely to themselves right now. Both are excellent in their intended uses, far surpassing the BASICs & FORTHs they replace. If you like FORTH, I think you'll LOVE RPL, & if you like Hewlett Packard calculators, you really ought to give RPL a try. Recommended. -JS

MAGAZINE REVIEWS

COMAL Catalyst, free newsletter from COMAL PET Users Group when join. Published about quarterly. Good content. Crammed with rumors, announcements, reprinted articles, resources, & eventually programmer's tips (and I thought **Midnite** didn't have enough "white space" for readability!) Editor needs WORDCHECK or similar program. -ES

Hardcopy, free newsletter of the Commodore (Houston) Users Group (CHUG). Hopefully monthly. No subscription; $10/year suggested club membership donation. Director & Editor is John Walker, 8738 Wildforest, Houston TX 77088. First issue is small, short on content, & has an irregular format, but has two excellent columns: Dixonary, by Paul Dixon; & VIC-20 Corner by Peter J. Farrow (see their hints & reviews elsewhere). Likewise, it included **Midnite** #6's VIC SOFTWARE REVIEWS

(of course, we like it, content-wise!). We look forward to reprinting more news here in future issues. -ES

PEDisk Newsletter, free to registered PEDISK owners, from CGRS Microtech. First issue described new PEDISK programs: MAE, PAPERMATE, KM3 PASCAL, fullFORTH, WORDPRO, & a programmer's manual. Tells how to get current DOS 5, a bug in it, & a useful POKE to shut off the drive. Lists dealers. That's all --but a whole lot more than most vendors send registered owners of their products. -JS

Update on:

Interface Age now has monthly "Commodore Logbook" by someone named Mike Heck. The column is well done, & business oriented. That it has run for 10 months without PET owners noticing until last week shows IA had been neglecting Commodore. Welcome back, IA. -JS

MODEM REVIEWS

PRENTICE STAR RS232 MODEM, $130 from A.B. Computers for Prentice/Livermore Data Systems. Switchable between Full & Half-Duplex operation. Has Answer, Originate, & Test modes. LEDs indicate carrier detect, xmit, recv, & test. I have used it some locally & am impressed by it. All I need is a printer to be set for THE SOURCE(tm). -MN

Eastern House Software has sent a new TERMINAL program for review. However, it needs an RS232 board made by CGRS Microtech to run, which hasn't arrived yet. Meanwhile, the terminal program seems to have some fine features. Notable among these is the ability to download programs from almost any computer in ASCII form, & THEN tokenize them for use in PET, all automatically. -JS

UTILITIES REVIEWS

BASIC SOURCE CODE, $60 from Great Western Software Co. MAE-compatible disk version available at extra cost. Pseudo-source code for BASIC 4.0 on CBM 8032. Fully commented disassembly of BASIC itself, including meaningful labels (though not always official). Better yet, it includes cross references to equivalent addresses in Upgrade BASIC 2.0 for all major entry points. Although I have (but cannot disclose) the official CBM 4.0 source code, the pseudo-code is better commented than the real thing! It also covers the 8032, while official version is only for the "skinny 40" PET. Appears accurate. Comes in a sturdy binder on good paper, but unfortunately generated by a dot matrix printer. Recommended for serious programmers. -JS

DISK UTILITY PACK, $35 from Dick Immers. Complete disk recovery package, including reliable full-feature disk monitor worth the package price by itself. Disk catalog able to store enough data to quickly restore a diskette whose directory track has been lost. Also includes two utilities to save as much as possible from seriously damaged diskettes - one called EAT MY DISK works even on diskettes that can't be initialized (the dreaded 20 error on 18/0.) I even used it to read an 8050 diskette ID in a 4040 drive! Developed as a doctoral project, the result is exceptionally polished & reliable. Since directory portion uses my SUBSORT, BA is evaluating it separately in next **Midnite**. Highly recommended. -JS

HESCAT, $40 from HES. Requires 16K RAM & CBM disk. Disk cataloging program. VERY fast, both at reading disks, & in "wild card" searching for specific words or characters in filenames. Catalogs 3 disks a minute. Able to catalog 134 diskettes on a 4040 drive, or 214 on an 8050. Not limited to memory capacity. Uses 2 digit code separate from diskette ID to identify disk (to allow duplicate ID's in the catalog). It suggests you assign same code as the ID, but doesn't tell you ID number until after you select a code. As usual with HES, instructions are excellent, including complete BASIC program listings, 6502 source code, line by line comments, & variable assignments. Highly recommended unless you: 1) Have my SUBSORT program & are content with its LIBRARY demo, or 2) need the added data security offered by Dick Immer's DISK UTILITY PACK above. -JS

HESCOUNT, $24 from HES. Versions for any PET or VIC. Utility program that aids efficient programming by identifying oft-executed line numbers in a running program. Use is a bit complicated compared to other HES programs, but may be worth the trouble if your programs seem slow for no good reason. Personally, I find POWER's TRC function adequate for the same purpose. -JS

SYSRES, $87 (Can.) from Cansoft Data Inc. Requires CBM disk & 8K RAM. Copy-protected.

REVIEW #1: Source code available for $150 extra. Program manipulation system a la TOOLKIT, COMMAND-O & POWER, but there the comparison ends. This one does it all. Extended DOS support system, plus about 35 editor commands. Among the best is CHANGE. Offers true disk merge, & ends conversion printing problems on ASCII printers. Key definition provides up to 15 keys & 255 bytes. PUT sends program to disk as sequential file, & GET retrieves it. Full refund for unsatisfied customers. Cansoft is a remarkable company, with a remarkable

product. -Stan Spence

REVIEW #2: Programmed to allow 3 copies to be made. 8K loads 4 ways: top of 16K, top of 32K, half at top of 32K & half at $9000, all at $9000. Modified EXTRAMON included that avoids locations 0-2 (SYSRES uses them to repeat keys). Disk commands can take file names from a directory. Programs can list on printer without loading. Relative files can be read to the screen. CHANGE is able to find all instances of /a$/ without also matching /ba$/. Renumbers GO(space)TO statements. Compared to POWER or BASIC-AID, though, SYSRES does not offer much more. Has to be loaded from disk each time, & uses 8K of RAM. -Arthur Cochrane

VIC REVIEWS
VIC-20 CORNER
by Peter J. Farrow
(taken from Hardcopy, the CHUG newsletter)

"If you are already a VIC-20 owner, then you are familiar with the shortage of both software & hardware for this fine machine. The good news is that there are new additions almost daily. Since many of us VIC-20 owners are basically "cheap," some first hand experience reports may help you channel your resources effectively." (See his reviews below -ES)

Books

VIC-20 PROGRAMMER'S REFERENCE GUIDE, $16.95 from Commodore & Howard W. Sams. REVIEW #1: Very good book for the person who wants to know more than the 'Beginners Guide' tells them. Sections cover programming, machine language, graphics (hi-res, programmable characters & multi-color mode), vic I/O, & 11 useful appendices. Very good & informative book, but with some 'errors' that may confuse many people. Recommended. -JOH

REVIEW #2: The most complete guide I have seen for the VIC to date. Starts out for the programming novice & ends up with some very good info for the advanced programmer. There are a few errors of course, but they are very minor. My only complaint is that they only gave KERNAL ROM routines & no other routines were mentioned. Includes schematics of the VIC. Very well presented. -MN

Business

UN-WORD PROCESSOR, $12.95 from Midwest Micro. This, as the name suggests, is vaguely related to a word processor. By using a line number at least every four VIC screen lines, text may be directed to the VIC-1515 printer or a RS232 device. Printed line length can be varied with a poke & normal screen editing makes the system flexible. -Peter J. Farrow, from **Hardcopy**

Education

FLASHCARD QUIZ , $7.95 from Academy. This tape comes with "States & Capitals" plus instructions on how to make your own tests. The program keeps score & gives re-tests of missed questions. -Peter J. Farrow, from **Hardcopy**

SPRINTYPER, $5 from Transonic Laboratories. Any VIC. Typing aid. Uses color & sound to retain interest in random, but sensible, test sentences. Remembers & reports typing speed (WPM), best speed, average errors, & number of sentences tried. Automatically adjusts for user skill. Disables keys that aren't on a normal typewriter, & tests all normal typing keys. SPRINTYPER is the first truly useful program I've seen for the VIC, & a real bargain. Highly recommended. -JS

TYPING TUTOR, $9.95 from Academy. Eight level touch typing tape that automatically increases in difficulty as one's skill improves. Errors & typing speed are given thus providing instant feedback. -Peter J. Farrow, from **Hardcopy**

VIC GAMES

ALIEN PANIC, $10 from Nufekop. Very good & colorful game similar to Apple Panic. You run up & down ladders in a five story maze digging holes to trap the 'alien'. When an alien falls in a hole, you must knock him thru it down to the next level, & so on until he hits the bottom & you are awarded 150 points. A bargain at $10. Recommended. -JOH.

AMOK, $19 from UMI. (See M#6) 3K. Machine Language. Incredibly good arcade game. Didn't believe such a superb program would fit in 3K. You fight various robots that have run amok. Very tricky HiRes graphics & sound. Not cheap, but well worth the money! -Fritz Schafer

BLUE MEANIES FROM OUTER SPACE, $10 from Commodore. Fair use of Hi-res graphics & sound. Very similar in playing style to arcade DEFENDER, since there are many controls to keep track of. After you kill 20 Meanies, they get even meaner! Not a bad game for the price. -MN

DRAGON MAZE, $20 from UMI. You are trapped in a maze & must get to the other side where the exit is; but you can only see the wall so far ahead of you & there is only one way out. Also, the monster sniffs you out & tries to eat you. They also can go thru the walls. -MP

FABULOUS FOUR I, $60 from UMI. Contains four games. Star Wars, a bit boring & hard to play, but plays the whole star wars theme at beginning which makes it a little better. Dragons Maze is a fairly good game in which you attempt to escape from a maze containing a killer dragon. Laser War, not very good, would never buy this game alone. Invader Fall (Requires

3K expander) is probably the best game in this package, you shoot down falling invaders & an occasional saucer who fires back. This game I would recomend. Nice package, but again, it's just a little too expensive. -JOH

FRUIT FLY, $13 from MIS. 3K. BASIC.

REVIEW #1: Requires (ATARI) joystick, but can easily be converted to keyboard control. You have to eradicate insects, but don't shoot the helicopter. HiRes graphics & sound. Good value for the money. -Fritz Schafer

REVIEW #2: In this game a helicopter (controlled by VIC) & a 'poison shooter' (controlled by you), team up to destroy a swarm of fruit flies popping up everywhere. Eventually you will be overrun or accidentally hit the helicopter & that's it. Fairly good game. -JOH

GLOBBLER, $25 from UMI. No joystick option.

REVIEW #1: You control a centipede type of worm thru a field of mushrooms & poison toadstools & must eat the mushrooms to go into another field. More advanced. Really fun after awhile. -MP

REVIEW #2: Sometimes when the playing field is set up, the worm will run into a block the first thing. Grossly overpriced & underdeveloped. -MN

JOURNEY, $10 from Nufekop. Game in which you must travel down a canyon hitting fuel pods to stay alive. Not a very good game as it gets boring in a few minutes. With all the good games available, I wouldn't recommend buying this one. -JOH

KRAZY KONG, $10 from Nufekop. Game patterned loosely after Donkey Kong. You attempt to get to the top of a series of inclined girder while jumping over the barrels Kong is rolling down. When you get to the top, you jump up & grab the girl & move on to the next level. Good game. -JOH

PLANET DEFENSE, $20 from CFI. 3K. BASIC. You must prevent aliens from landing & destroy their mother ship. Funny sound, but no HiRes graphics. Too expensive. -MN

RESCUE FROM NUFON, $10 from Nufekop. Object of this game is to rescue 30 human captives from a 5 story alien building of over 100 rooms. In rooms you may find humans, elevators, any one of a number of different aliens, or nothing. Rooms, aliens & humans are all graphically displayed. Very good game, especially for a 5K Vic. Recommended. -JOH.

SLITHER, $10 from Commodore. Jim Butterfield's ARROW program re-written for the VIC. Worm goes around playing field eating (or trying to eat) blocks that appear on the screen worth up to 9 points. Tail grows each time you eat a block. A second more challenging version called SUPER SLITHER is also included. The only thing I found wrong with it is that it doesn't use joystick. Good. -MN

3D MAZE, $15 from UMI. Different type of maze game in which you are given a 3D view of the maze from the inside. Good game, but over priced. -JOH

TUNNEL PATROL, $13 from MIS. In this one you run around a maze gathering energy crystals & fighting a bat type creature which pops up at random. Game is good at first, but just seems to get a bit boring after a little while. Some may like it, & others won't. -JOH

VIC PAC 3, $20 from Skyles Electric Works. 3 games: Indi-500 (sic), Depth Charge, & Gunfight. Indi-500 runs a bit slow & gives you no control over speed. Depth Charge is a total waste, too slow & poor graphics. Gunfight is probably the only good game in this pac, graphics are very good, & game runs a bit slow but is very playable. Not recommended, although I would buy gunfight if they sold it separately for a third of the price of the package. -JOH

VIKMAN, $10 from Nufekop. PacMan type game. Graphics are excellent. Nice feature allows you to chose number of monsters. Available in keyboard or joystick versions (as is all Nufekop software). Game is good, but the 'pacman' is very difficult to control. You must direct it to turn exactly at an intersection or the 'pacman' will stop dead. Also monsters seem to move too randomly. Good, but most will be frustrated by awkward control. -JOH

Game Cartridges

DRAW POKER, $30 from Commodore. Not a real poker game, but rather a game in which you win an amount based on the 'odds' of your hand coming up. Even so, it's fun to play, & the card graphics & sound effects (which are more like music) make this a worthwhile game to have. Recommended. -JOH

METEOR RUN, $40 from UMI. Game similar in some respects to Defender. You fly around in space blasting chunks of space rocks & fighting an occasional alien lander who attempts to blast you. Has radar display at top. Graphics are superb, especially when ship is hit. Very good game, but not really sure it's worth $40. At $30, I'd buy it right away. Still, I think most would enjoy it. -JOH

MIDNITE DRIVE, $30 from Commodore. Commodore version of Night Driver. Probably the best done version I've seen on a computer. Speedometer & Tachometer are shown as real guages with moving 'needles'. You must all use accelerator & shift thru 4 gears. Very colorful & very well done. Recommended -JOH.

SUPER SLOT MACHINE, $30 from Commodore.

REVIEW #1) One armed bandit for your VIC. Good use of graphics & sound. Can use joystick to get the feel of pulling the lever. In all truth, I didn't like the ATARI (tm) home system slot machine game & wonder why waste programming time to develop something like this. Still, it played very well. If you play the slots in Vegas, you might like this one. -MN

REVIEW #2) Fast moving, with unbelievable graphics & sound. Even has a display of a little man standing in front of a slot machine who pulls the lever for you. Recommended. -JOH

VIC AVENGERS, $30 from Commodore.

REVIEW #1: This IS space invaders for the Vic-20. The same in every way as the arcade version, with the addition of color graphics! Very well done & highly recommended.-JOH

REVIEW #2: Invaders change color as they get closer to you. Super use of HI-RES & sound. I'm disappointed that Commodore didn't make a souped up version like those found in arcades today. Still, it's the best one I've seen. -MN

VIC SUPER ALIEN,$30 from Commodore. You run around a maze inflating balloons to 'trap' aliens. When an alien is trapped, you must run to the balloon & deflate it to crush alien inside. Fair game, but 'score' display tends to run off the top of the screen on most TV's, & the aliens' totally random movement lets the game become boring too quickly. Would have been a lot better if aliens came after you. Fair. -JOH

REVIEW #2: Joystick option. Four aliens who will eat you if you don't catch them first. If you don't deflate the balloon quickly, the monster could still break out to eat you. I got killed this way several times when I first played it. Not a bad alternative to PACMAN. -MN

Utilities

HESCOM, $50 from HES. Not a game. Includes user-port to user-port cable & software for both PET & VIC. Can be used to send data or programs between PET & another PET, VIC & a PET, or between 2 VIC's. Very handy utility program to have, especially if you have a disk on the PET (in which case it's the next best thing to a disk on a VIC!). I use it all the time. Recommended. -JOH

(HES recently provided a revised version of HESCOM with an easier-to-use version of the program. No more pokes needed in selecting options. -JS)

HESCOUNT, $24 from HES. Versions for any PET or VIC. See under UTILITIES REVIEWS. -ES

HELP

Your editors, Jim & Ellen Strasma are pleased (& relieved) to announce that the new third edition of the Osborne/McGraw-Hill Guides for the PET/CBM computers is through the proof stage & now supposed to be available in June. To go along with this 3rd edition, there is a special HELP disk of Public Domain & donated software to guide beginners in more advanced applications of CBM/PET computers. Copies of this diskette are now available. Users are welcome to obtain the disk through any user group that has it, (such as ATUG for 4040 format, or Baker Enterprises for 8050 format). Otherwise, it will cost you $15, direct from the Strasmas.

CURRENT CONTENTS OF THE HELP DISK:

First, several of the longer programs from the book itself, to save typing time & errors:**(ascii.fix.bas, border.print, concatest, date, minimail30oc, modem, name&address, seq.mail.b4, seq.num.b4, window)**

Then comes our choices for "The best of Public Domain" from the ATUG exchange. These include:

Mail List 4040 Excellent relative record handler by Chris Bennet of TPUG; revision & instructions by JS.

Basic Aid 4.0C Programmer's Aid package in 4 versions, by Commodore Canada, revision & instructions by ATUG.

Backup Disk Utility by Jim Butterfield of TPUG

Bar Graph 2.4 to screen & printer by John Easton of TPUG.

Cass.data.copy Moves data from tape to disk, by JS.

CBM 4032 v2 Makes 8032 a 4032, by Chuan Chee of TPUG.

Copy/All Better Unit to Unit, by Jim Butterfield.

Datamaker Data statements from object code, from PET Gazette.

Draw Etch a Sketch, from Penninsula School.

Eater Game, optional joystick, originally by Ann Arbor PUG

Mandala Kaleidoscope, by Bill Seiler.

Micromon-D Extended monitor, by Seiler & ATUG.

Petsong 3.2 Music player, from PET Gazette.

Procep.Editor Input editor, from Procep

Reiread Reads relative files, by Jim Butterfield

Scopy Scratch/Copy disk utility, by Keith Peterson

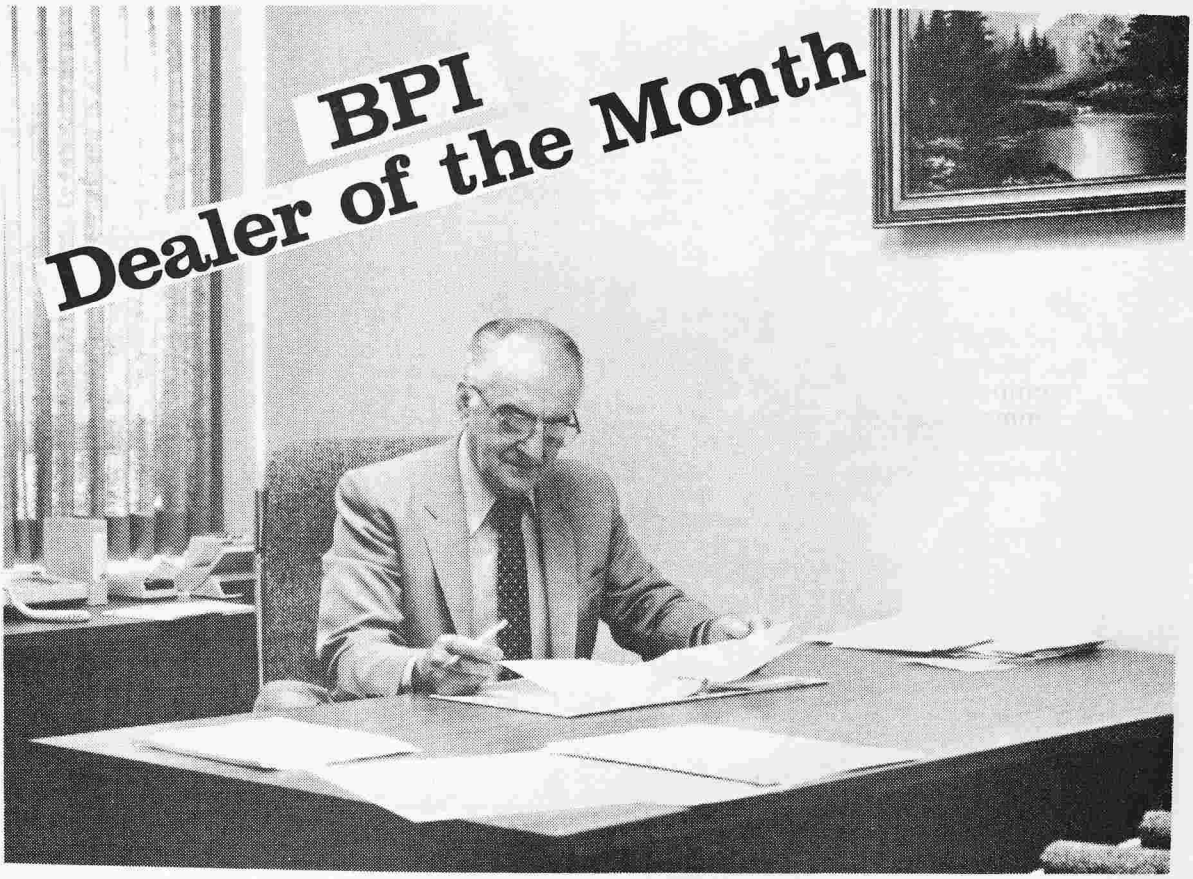
SoupCompares binary disk files, by Henry Troup

Terminal Modem controller, by Steve Punter of TPUG

Word Pro Printer for those without..., by Robert Baker

The 8050 version of the diskette adds Bennet's 8050 Mailing List, doubling capacity, but lacking many features.

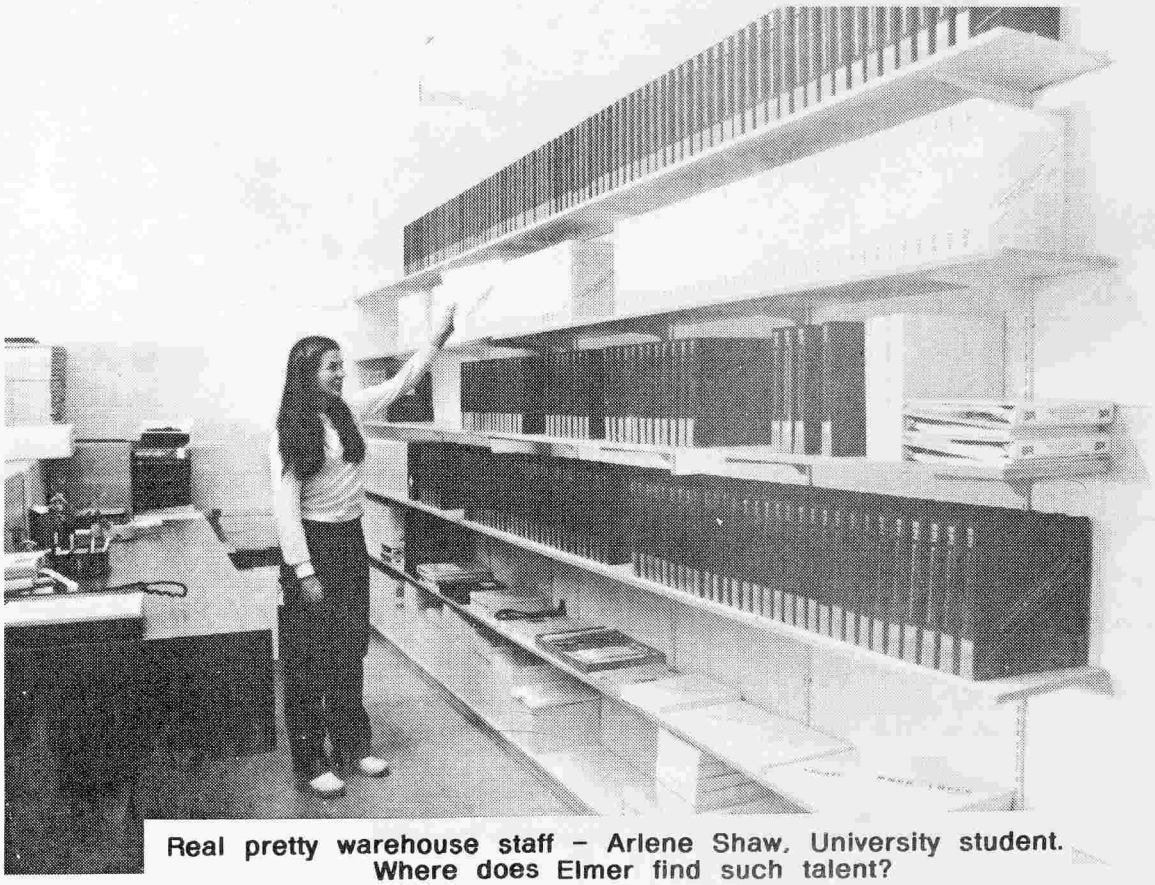
BPI
Dealer of the Month



OUR DEALER OF THE MONTH
ElmerNowak, President of BPI

BPI holds seminars and dealer training sessions (chicken dinner included!) - While Brian Gibbs (Chartered Accontant) is trying to illustrate a point (everyone thought the cameraman was more important.) Counter clockwise - Joe Casale, Wayne Yeo, Scott Anoir, & Bruce McAnsh - from Comspec Systems, Toronto, Brian Gibs C.A. at blackobard, Elmer Nowak (how did he get into this picture?), Bob Borden, Chuck Roberts, from International Computer Systems, St. Catherines.

Office & Staff
Jennifer Park - Office Manager
Elmer, Sitting next to Diane Shaw - Customer Support
Doug Marks, Alex Wange, Jeff Bunny - Programming and Software



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