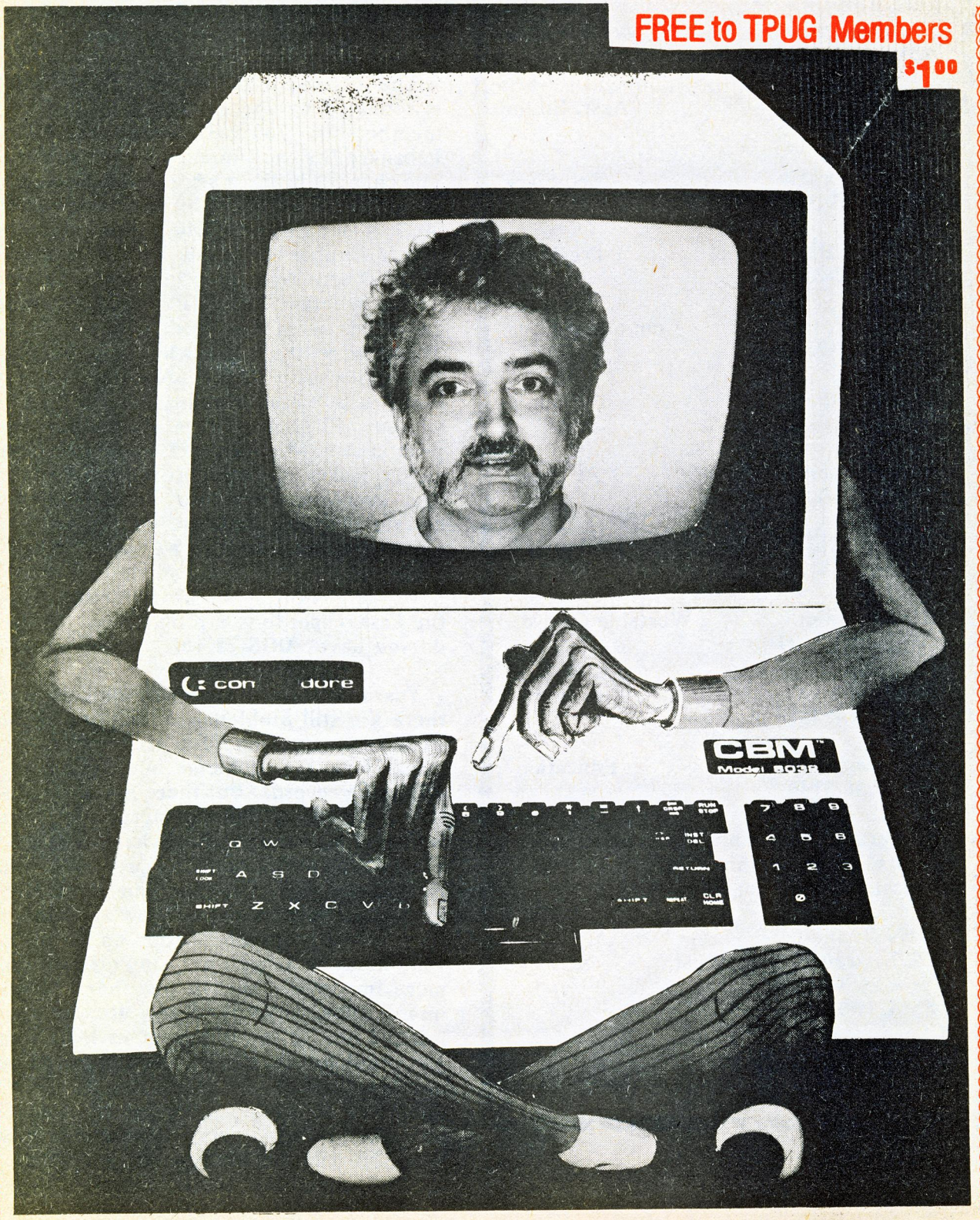
THE TORPET

BULLETIN OF THE TORONTO PET USERS GROUP ISSUE No. 6 JULY 1981

FREE to TPUG Members

$1.00



the TORPET

published by the

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PRESIDENT'S LETTER

In looking over the last year we have seen some incredible changes. There has been a tremendous increase in the number of machines used, and there have been a lot of changes in those machines.

The increase in the number of machines is reflected by the growth in your club's membership - 180 in October 1980, 300 in February '81, and now over 430 in June. The changes in the machines is reflected in the proliferation of model numbers - 8050, 8032, 4040, Epson MX80, - how many of you remember th old 8K PET with a cassette? There was no printer and all you had to mention was a 'Pet' and everyone knew just what you were talking about. Those were the days when our biggest problem was to find a program half way down a 30 minute tape and to load it without ST being over 12. With the proliferation of equipment there has been an explosion of problems. It used to be that everyone knew how to get around certain problems because we all had the same machine, and if we didn't know, Butterfield was working on it and would have the answer at the next meeting. Now the first response to a problem is - "What do you have? DOS 2? 16K? Basic what?"

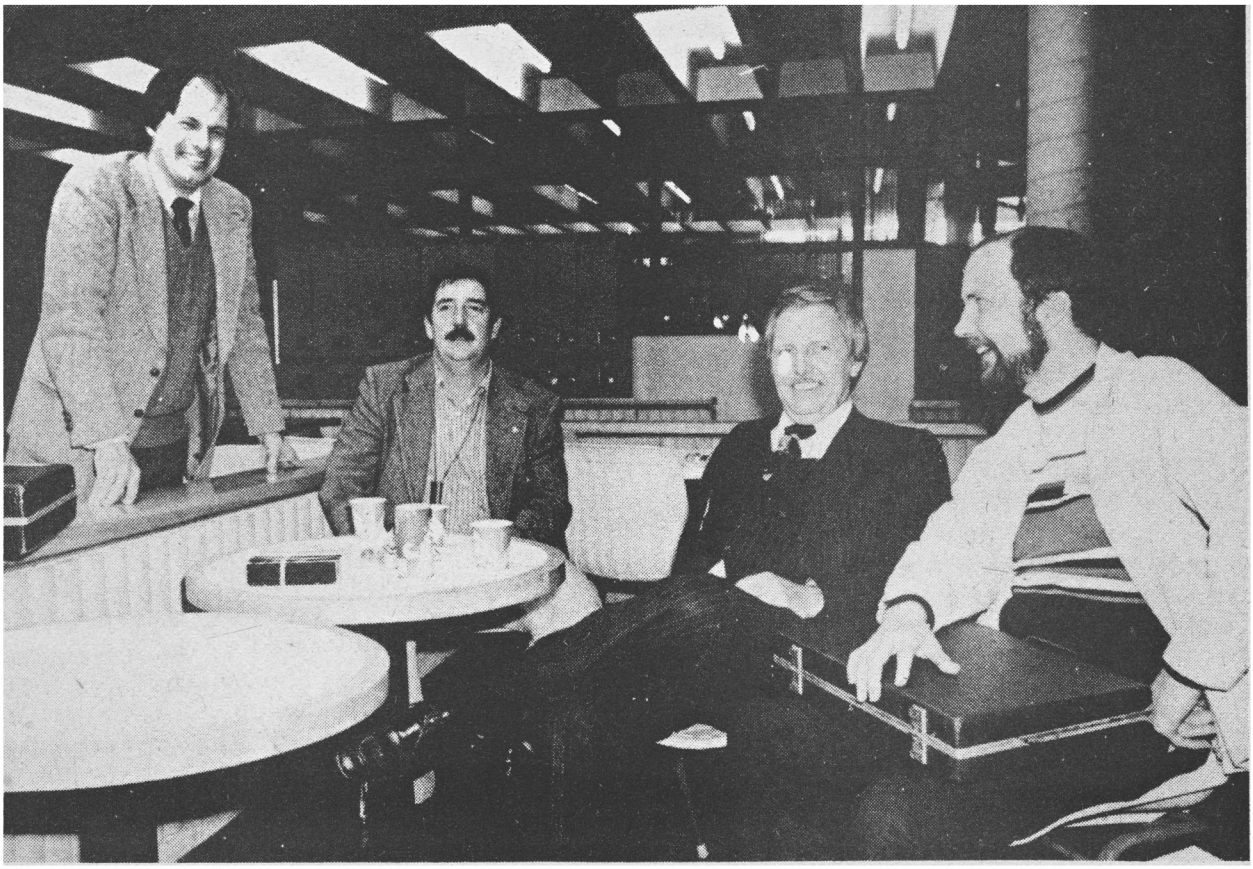
Yes, there have been new problems, and there are still problems coming out of the woodwork. Random files still aren't bug free. There are problems in entering and retrieving records. But there are also solutions. We can do far, far more today than we could a year ago. BMB has addressed some of the string handling problems. Jim Butterfield, Bill Twyman and Paul Higginbottom have shown us how to manage files, how to store information on 200, 500, 1000 items or more on a single disk, and more important, how to get them back - intact! Those of you who saw Jim Strasma learned how to sort them (or at least that you could sort them). But now that you've got them, what do you do with them? That's up to you! You've got the tools - let's see you use them. A computer is a beautiful solution looking for a problem. Can you make this solution work?

In the past year it has been TPUG's policy to bring you all together to find out how to cope with the tool we've been handed, how to cope with the technology, how to recognize the little problems that come with these tools and work around them. We have tried to show you what's new in the field and to stimulate your imagination. We have tried to help you execute those solutions born of your imagination, and how to step past the little problems blocking those solutions. We hope you have experienced the rewards of achievement, and we have tried to provide a forum for showing off those achievements.

Some of our members achievements include the introduction of a Bulletin Board. Gord Campbell was instrumental in getting one up and running and now Steve Punter has developed a very impressive Bulletin Board system. Dave Hook has accumulated an enormous number of programmes for our library, and more importantly, has supervised the distribution of a great many of them through the copy sessions. Chris Bennett has made a huge number of them available to members on a mail order basis, and Peter Smith has made them available to our many 'cassette' members. The growth of our membership has resulted in two separate groups. Jim Hindson has taken on the running of the West Chapter which continues to meet at Sheridan.

So I think we have, in the past year, offered our members the encouragement and opportunity to grow. We have provided a helping hand, the 'best of Butterfield', an outlet for achievement and some recognition of that achievement. And we've had a lot of fun doing it!! I want to continue with that policy in the future.

What about the future? There are certain problems which we face as well as tremendous opportunities. We are faced



An informal gathering at Sheridan College before a Westside Chapter Meeting. Left to right- TPUG president Michael Bonnycastle; a regular visitor Jim White; ye olde TORPET editor yours truly Bruce Beach; and our communications expert and member of the executive Gord Campbell.

with a growing membership of inquisitive, demanding, highly intellegent, informed and active people; a proliferation of equipment, an enormous library of programmes and a changing environment. The administrative job of reaching you all and answering your needs is becoming overwhelming. Organizing separate meetings is a must. There are those with very basic questions who must be satisfied by the forum we provide, as well as the more advanced user with more sophisticated problems. I hope the bulletin boards will become a means of communication, or a method of satisfying certain enquiries. The distribution of our library is planned for the fall (October) through an all day (Saturday) 'Faire', at which the entire contents of the library will be available (in sections) to members for copying. This fall there will again be the 'Best of Butterfield' and a machine language group. There will be a newsletter. There may be a Vic group and I'm sure we'll hear more about the Micro-Mainframe, or Super-Pet or whatever it's called. We'll hear more about finished, application software - there's not much yet - but more and more products like 'The Manager' will be coming available and we'll talk about these. And I'm sure we'll be facing the problems of protecting commercial software, distributing non-commercial software, and distinguishing between the two of them. I'm sure there'll be another DOS and there'll be lots of new equipment - add on's such as more memory, more disk capacity, and all those super speed-ups that come in an ROM chip and let you scroll through a listing, renumber your programme selectivly and find every occurance of 'WHATSIT' or 'X$' or that GOSUB you meant to change but forgot about in version 37.23. There may be compilers that compile your Basic programmes so they run five times faster or scramblers to prevent copying.

But most important - we'll be there.

We'll look forward to seeing you all in the fall of '81 for an exciting season of computing and whatever turns you on.

'till then, cheers,

Michael Bonnycastle

SECRETARY'S LETTER

MEMBERSHIP

When this newsletter reaches you, it will mark the end of our first full year operating as a club. In that time we have grown from 150 members to a final total of 429. In order to make renewing the memberships as easy as possible for both the members and myself, I have created a special renewal notice which I will be sending out to all 1980/81 members. Some of you will have received these notices at the last meetings of the Central and West End groups. The rest will receive them in the mail. You will also receive a return envelope addressed to the club.

The renewal form will contain your Name and Address, Phone number(s), Membership number and Type of Membership. Please check that the information on the form is correct. Also we would like to have on our mail list each members FIRST name instead of an initial. The reason for this is that we will be sending out name tags based on the information found in our lists.

We would also like to know which meeting locations our members are attending or expect to attend next year. There is a place on the form to check off either the Central group or the West End group. If you attend both, check off both boxes. In some cases we will use this information to send selective mailings as has been the case this year.

VIC GROUP

By the time this newsletter reaches you the new colour computer from Commodore should be available in Canada. It has been selling in the U.S. for about 2 months now and even longer in Japan. A number of people have shown interest in particpating in a special interest group concentrating just on the VIC-20. If you wish to be kept informed about this group, please let us know. For those of you that have indicated on the membership application or renewal forms that you already own a VIC, we will assume that you wish to receive this information. For those who do not as yet own a VIC but would like to be kept informed, please send a letter or postcard Toronto VIC Users Group
c/o Chris Bennett
381 Lawrence Avenue West
Toronto, Ontario
M5M 1B9

MEETING NEWS
CENTRAL CHAPTER

meeting June 10, 1981

The final meeting of the season was held on June 10 at Leaside High School with about 200 in attendance. Carl Hildon started off and showed how the String Thing works. This was written up in the last Transactor, and the coding was included last month as well as this month on the copy session disk.

Jim Butterfield then showed Chung Che's program which turns your 80 column monster into a friendly, 40 column machine on which you can play star wars and other important stuff like that. He also demonstrated 'Stack Sniffer' - to examine the contents of the stack and point out unclosed for-next loops or gosubs from which the programme had never returned. Finally he gave us 'Word Pro Buster' which splits a Word-Pro file into several smaller files.

Steve Punter was next and he demonstrated a very smooth Bulletin Board which he has written and which has the capability of down-loading and up-loading programmes, together with a number of other useful features.

After the break, the new directors were elected - see the masthead for the new list.

Dave Hook showed off a couple of new programmes which have been added to the library. Monopoly is one blockbuster which was loudly acclaimed. This was included with the evening's copy session. If you don't have it, get it!!

Bill Maclean and Jamie Whitewood showed off a new software product - The Manager - which does all the work in managing a data-base, and leaves the fun to you in building the system by specifying everything on the screen.

Finally Chris Bennett reminded us that you can renew your membership now for the coming year, and this is the last newsletter you'll get if you don't. Our year runs on a calendar basis, going from September to June, so everyone should get their renewal in for the next year.

Printer and Communication Interfaces for the CBM/PET

ADA1600 - Parallel NEC & Centronic Interface

ADA1450 - Serial Printer Adapter

ADA 730 - Parallel Interface for the Centronics 730 and 737 Printers

SADI - Serial Two-way communications, Parallel Printers & Serial Printers

For Information Contact

BATTERIES INCLUDED

71 McCaul St. Toronto 596-1405

BUTTERFIELD BOX

Booleans or How To Put Off A Decision

Some types of BASIC allow you to set more than one value in a single statement. You can type X=Y=0 and both values will be zeroed.

You can't do this in Microsoft Basic, but oddly enough, PET seems to accept X=Y=0 without saying something nasty like ?SYNTAX ERROR. The confusing part is that after you have done the above statement and print X and Y, you'll discover that they are not both zero. If you're starting with a NEW system, you will find that Y is indeed 0, but X is -1. Weird? No, but you gotta understand what's going on here.....

It becomes more understandable if you insert brackets to make it look logical: X=(Y=0) or even better X=(Y.LT.5). X is the result of a test: is Y zero, or is Y less than 5? So in this case, X equals TRUE or FALSE. True is stored as -1 and false as 0.

X is called a Boolean value when it's used this way. It can be quite handy: for one thing, it can organize your tests for you. you could code X=(Y.LT.7) and then later say IF X THEN ..... because X represents the result of the test: X is true or false. So IF X THEN... will complete execution of the line if X is true, but not if X is false.

We could defer a decision. Suppose we're inputting from a file. we know that ST will be set to 64 when the last character is delivered to us; but this is too early to use this value, since we have to do something with the character before we wrap everything up. On the other hand ..... if we don't test ST right away, it will probably change when we do some other task, like sending to the printer. What to do?

By using a Boolean, we could check ST early, and use the results of the test much later, when we're ready. We might code B=(ST=64) right after our input statement. B will be true if we've received our last character, and false otherwise. Off our program goes, outputs the character and does other odd jobs, and finally it's ready to see if there is any more input to be gotten. Boolean value B is still sitting there, so we can code IF B THEN .... close the files and quit. Or we could bring in another idea for Boolean values, the NOT function. This isn't a hard NOT to unravel: we can code IF NOT(B) THEN.... go back and input some more stuff. We read it as if B is not true, then .. etc. The brackets are not needed, so that NOTB is just as good except harder to read. I often use E as an error Boolean flag, which results in odd-looking coding, IF NOTE THEN STOP. Read NOTE as NOT(E) and you'll see how it makes sense.

I think that the handiest uses of Boolean values are in sorting out your logic. You can set up lots of Booleans and combine them as needed. You know the sort of horrible decision things that can happen, such as If Jane comes and Mary comes, then we have a barbecue, unless Harry comes without Barbara, in which case .... The combinations start to come thick and fast, and it's nice to have Boolean values around to keep track of them. For example, we could set up condition Booleans C1, C2, etc. and code....

```
C1=(M.GT.12)
C2=(Y.LT..GT.1980)
C3=(B$="STEVE PUNTER")
IF C1 AND C2 AND NOT C3 THEN .....
IF C1 AND NOT C2 THEN .....
..... and so on.
```

Do you see how it can clarify your coding? You'd have a devil of a time repeating each conditional test over and over again.

Try a Boolean today. You'll find it neat-making. Remember that some decisions can be very usefully delayed: "Never put off until tomorrow the things you can do the day after"....

Jim Butterfield, Toronto

THE BASIC BOX

by Chris Bennett

The **BASIC BOX** has been set up to answer the many questions that have come up about certain features of Commodore BASIC. In this column we will answer questions that have been sent in to the TORPET.

The BASIC BOX this issue will discuss the use of the Binary Search Technique, its advantages and disadvantages.

A binary search requires that the table be in either ascending or descending sequence. The search argument is first compared to the middle item in the table. Depending on whether it is greater than or less than that item, it is determined that the search argument belongs in either the upper or lower half of the table. That half of the table is then treated as if it were the whole table and the process is continued. Since the number of items which must be searched is reduced by one-half each time, this search is frequently much faster than a staight serial or sequential search for strictly random data.

Let us assume the following:

A$(1000)	is the table to be searched
SA$	is the search argument
NE	is the number of items in a$
FS	is -1 if found, and ZERO if not found

GOSUB 2000 calls the search routine

```
2000 I=1: J=NE
2010 IF IJ THEN FS=0: RETURN
2020 K=INT((I J 1)/2)
2030 IF SA$=A$(K) THEN FS=-1:
RETURN
2040 IF SA$
2040 IF SA$.LT.A$(K) THEN J=K-1:
GOTO 2010
2050 I=K 1
2060 GOTO 2010
```

In the above example, I and J point to the bottom and top of the range of keys being compared (Line 2000). If I is ever greater than J (Line 2010), then no match has occured and FS is set to Zero to indicate not found. The mid point of the table is then calculated in line 2020 and saved in K. The K'th element of A$ is then compared to SA$ in line 2030. If equal, then FS is set to -1 to indicate that the item has been found. If SA$ is less than that element, then J is set to point at the K'th element minus 1 and we go to 2010 to try again. If SA$ is greater, then I is set to point to the K'th element plus 1 and we go to 2010 to try again.

The major disadvantage of the binary search is that the array being searched must be kept in sequence. This is very time consuming in BASIC since many keys must be moved around just to add one item. However, if the items are relatively static and the table is large, this method is very fast.

Chris Bennett

If you have a problem send your question to:

THE BASIC BOX
c/o Toronto Pet Users Group
381 Lawrence Avenue West
Toronto, Ont. M5M 1B9

with a similar switch, with a similar connection to PET. Don't send us a review of Select-A-ROM unless you can prove it's original.

Along the same lines, we've heard from 2 reliable Dutch sources that U.S. copyrights are not respected in Holland. Both the Toolkit and Rabbit ROMs have been pirated there. Will sane authors send programs to Holland?-JS

No.2) CBM ETHICS: 2 users sent detailed articles about Commodore, and asked Midnite to comment. One article is from the March 2, 1981 issue of *Barron's*. The others are from the *OEM Computer Newspaper* for November 16, 1980 and March 16, 1981. The gist of the first article is that Commodore got some of its capital by shady, if not illegal, stock practices over several years. A second article tells how Commodore ditched its wholesale distributers. The third quotes Chuck Peddle as leaving Commodore out of boredom. The fourth says the parting wasn't amiable -- Peddle and Commodore are sueing each other for millions of dollars.

By all accounts, Commodore was in trouble in the mid '70s. Badly bruised by calculator wars, they found rescue in newly-acquired MOS Technology and Chuck Peddle's idea for PET. It was an instant success, marred only by total orientation to immediate, not long-run, profit. Commodore's top management is expert at making money, never mind how. Eventually, those used along the way left, employees, dealers, wholesalers... In my opinion, Commodore must either clean up its act, or move to greener fields. Meanwhile, the bosses have multi-millions, and like the rich throughout history, they fight over them. Commodore is unlikely to ever win a 'Good-Guy' award. That's OK when you're number 1, but not when you're number 3 and fading... To their credit, many low to middle eschelon Commodore employees are marvelously helpful -- Barron's implies the rot is at the top.

I marvel at how a company so run turns out such marvelous computers. Technically, PET is superior to Apple, and way ahead of TRS-80. Atari, with its kiddie Basic, isn't even in the same league. But with Peddle, Seiler, Yob, Lehr, Skyles and many others gone, prospects are dimmer. Buy your add-ons in standard RS232 versions. Then you'll always be able to use them no matter how the computer wars turn out -JS

PROPOSED STANDARDS

Programs which hope to be Commodore Approved in the U.K. must meet input standards. Here are the standards to consider:

1] Each screen to be titled in top line[s]

2] Status line to show what to do next, errors, what's happening

3] [shifted return] equals 'accept screen of info'

4] 'c' continues to next screen

5] full horizontal cursor control during field editing

6] [home]equals 'goto start of field no.1'

7] [clr] equals 'restore original screen contents'

8] [return] equals 'accept field, and goto next field'

9] [up] equals 'goto last field'; [down] equals 'goto next field'

10] [stop] equals 'goto menu or print 'help' message'

11] after [shifted return] or going beyond last field, allow 'accept or reject' of screen. If reject chosen, allow re-edit

12] sc$ is the screen data array

13] the [stop] key is to be disabled

Paul Higginbottom [Commodore Canad Canada], has written an Input Editor to aid in meeting the standards. [For more detail on the editor see previous issue of the TORPET -ed).

INVITATION TO IMPORTERS

Here's what Yanks are missing, as of Christmas '80, according to *Printout*. How about offering these products here? (prices approximate, at $2.45/Pound.)

TURNKEY ROMS. Auto-start; screen dump to printer or RAM; disables (stop) without stopping TI$; Commodore's 'Wedge' and 'Input Editor'. $294

SUPERCHIP. Co-exists with Toolkit. Programmable repeat, fancy insert, delete and scrolling. Protects up to 9 screen lines. (stop) key makes next key hit a control character. Retrace backs thru last 10 lines executed. Reverse and Movit do. Keypad becomes 10 user-defined functions. $110

MIKRO ASSEMBLER. 4k ROM. Edited via Basic, even with Toolkit. $123'

PIC CHIP. Fancy plotting with standard PET graphics. $123

BB DOS. Runs Computhink programs on Commodore disk! $368

NETKIT. Bidirectional RS232 interface

MIDNIGHT SOFTWARE GAZETTE

Once again, courtesy of Jim and Ellen Strasma, we present the Midnight Software Gazette. Jim and Ellen came to Toronto in May and Jim was the featured speaker at the Westside Chapter meeting. We were very pleased that we could have such distinguished and knowledgeable visitors as the Strasmas, from Michigan. Jim's presentation was greatly appreciated and we are all greatly indebted to both he and Ellen for the fine work they are doing with the Midnight Software Gazette.

Issue No. 3, *THE MIDNITE SOFTWARE GAZETTE*, Spring 1981

'Midnite': the hour when a small group of PET(tm) users in Central Illinois write a newly popular newsletter. Welcome to issue No.3. We now have readers as distant as New Zealand and Eire, a standing order for 50 copies from SCOPE in Texas, a floppy disk edition for TORPET*'s 370 [now over 400 members and we print 2000 for distribution- ed.] members in Toronto and 300 envelopes on hand to mail. Special thanks to* Cursor, *Micro*, and *Kilobaud* magazines for mentioning us.

Thanks to generous readers who helped with past printer bills. A 16-page issue costs $150 (about $100 more than we have). Have you noticed each issue has doubled in size? We see why no one else does this...Help!

International readers may now send $1US per addressed envelope, and we'll provide airmail stamps. We prefer No.10 business envelopes, no more than 4 at a time, and say on each envelope which issue goes inside. No envelope, no issue. By the way, similar 'SASE' newsletters are now available from Eastern House Software and Kobetek Systems Ltd.

This issue CIPUG welcomes 3 new reviewers: John O'hare (JDO), Jeff Porter (JP), and Jim Tucker (JT). Ellen Strasma (ES) is co-editor. Jim Strasma (JS), Jim Oldfield (JO) and Brent Anderson (BA) also contributed reviews.

HINTS

To undo 'new', using Toolkit, enter 'poke 1026,4:sys 50242', (or 46262 in Basic 4, 50227 in Basic 1). Then enter 'find it', and you will! (Peter Calver, in *Printout*)

Key locations in Invaders: $0E01 sets the speed you move and fire, normally 2. $0E09 controls invader firing speed, usually 4. $0E0E is the mother ship's speed, usually 6. Finally, $0623 is the character after missiles to erase them--try $66 for Wall Invaders. (Paul Higginbottom, Commodore Canada, in *Printout*)

Here's a way for programs to learn if your PET has 40 or 80 columns. 'wd=80 poke 8x4096÷4x256,ch:if peek(8x4096) ch then wd=40'-Jim Butterfield

EDITORIALS

No.1) Henry Chow wonders if a RAM board, (see ADOPT-A-ROM review) (see also SOFT ROM REVIEW- ed.)should exist. It certainly eliminates the need for dummy ROMs. Though useful ROMs could also be bypassed, thousands of PET owners gladly paid $50 for the convenience of Basic Programmer's Toolkit in ROM. Who wants to reload it after each reset, even from disk?

The best protection may be a good product, reasonably priced, with good support and documentation. Most folks don't cheat their helpers. Studying programs is how I learned. If micros are to make America a better place for common people, then programs must be understandable. Secrets are rarely helpful in this life. The programmers I most admire, write readable, changeable programs, even though it costs them sales. It's a matter of democracy, not capitalism.

There's also the question of cooperation. When CIPUG got HESLIST (see review), it didn't work with Basic 4's added commands. Two hours later, it did; everyone benefits. The same happened to Extramon via Jim Butterfield. Without co-operation, the fanciest micro game might still be Wumpus!

On the other hand, there's no excuse for selling the work of others as one's own. One solution is either cut them off from advertising or expose the theft. Sieg Deleu of Kobetek Systems, creator of Dial-A-ROM, reports he sold a DIAL-A-ROM to the company that shortly thereafter began advertising Select-A-ROM. Funny how they both switch 6 ROMs in a similar case,

with programmable code conversion. Makes input look as tho from keyboard. Uses memory port. $331

PANTEL CASSETTE DECK. PET compatible, with stable heads, tape counter, alignment tape, power/data LED, audible loading. $147

KINGSTON REPEAT KEY. Hardware - repeat key. Deluxe version has warm - reset key and audible tone on entry. $43 and $86

BAR CODE READER. $2,879!!!

Great, but amazingly expensive. Who pays those prices? It may cut costs if copies are produced here, mailing only royalties. (Sources not listed, as we've not seen the products. Full info in *Printout*.) -JS

USER NEWS

Dear Mr. Gazette,

Your name has been selected from a computer-generated list, and you may be the winner of a free ... oops, wrong form letter.

The Toronto Pet group is hanging together a Pet Bulletin Board System ... a little shaky yet, but running typically 8PM to 8AM. The number is 416/923-1917. -Jim Butterfield

(There are now several bulletin boards available in the Toronto area. See both the last issue and this issue of the *TORPET* -ed.)

Someone interested in starting a PET user group is DAN UNDERWOOD, of Phoenix AZ. He dabbles in astrology. Arizona PETters or astrology buffs may contact him at 3202 W. Roma Av., Phoenix AZ 85017

COMMODORE DEALERS are forming their own user group too, called DISC, and headquartered in Atlanta. It is intended to help dealers find and evaluate CBM software. Contact President Alex Amor, 50 W.

Part of the large attendance at the Westside chapter meeting May 20th. Guest speaker Rev. James Strasma explaining about his sort program.

68 AV. Miami, FL 33126 305/261-7866 or Philip Snedecor, Jr., 1119 Wilderness Trail, Richardson TX 75080 214/669-1758

PHILIP CHAO is starting a user group for user groups. He wants to copy every U.S. user group's library, to organize it all, and provide low cost copies. TPUG, which has over 100 disks, thinks he doesn't know what he's getting into. I agree, but it's still a good idea, and no crazier than the MIDNITE 6 months ago. He now has many of our ATUG disks, and 100 empty diskettes to hold what other user groups may send. Other users in upstate NY should probably help out. Write him at POB 387, Rochester NY 14642-JS

Anyone for a PYRAMID SCHEME? If so, write R. H. WAGNER, 5031 Hampton Ct., Westminster CA. 92683. Apparently Wagner has started a perpetual PET program pyramid in which those at the bottom of the list send exchangeable programs to those at the top. A gimmick, but cute. If my experience is typical, don't hold your breath waiting for the programs to pour in. (They have, but not because of the pyramid!) -JS

COMMODORE NEWS

Commodore has 2 names for Upgrade Basic. CIPUG calls it 3.0, since there is confusion as to whether 2.0 refers to it or the 019 ROM.

There is a DEALER HOTLINE now. The next time your dealer can't answer a PET question, ask them to call 800/523-5622, between 8:30 and 5:30 EST M-F. Friendly and well-informed.

According to 'hotline', Commodore's only source for 9" video tubes is phasing them out. That means all PETs may soon have 12" screens. Will this kill the 40 column PET? Commodore no longer stocks 40 column business-keyboard PETs. Bill Seiler once converted a 9" PET screen to 80 column operation with some cuts and jumpers on the video board, and add-on screen memory. Inventors, how about developing one for sale? Make it switchable between 40 and 80 columns, please -JS

Vacationing in May? BA and JS will be at the NATIONAL COMPUTER CONFERENCE in Chicago on May 4. That's the day Commodore plans to unveil a 'MICRO-MAINFRAME' and a 5-1/4" 5 megabyte hard disk. Corvus is advertising a hard disk for PET, but apparently this is different, and cheaper. The Micro-MMainframe is a 128k RAM machine, with 96k available for programs in Basic, APL, Fortran, Pascal and Assembly language. It was developed at Waterloo University in Ontario, and includes RS232 communications, and both 6502 and 6809 processors. Delivery by Christmas? JS hopes to see it at Waterloo on his way to a TPUG WEST meeting and church computer conference in Toronto, May 20-24.

The VOICE SYNTHESIZER looks like a 1930's AM radio. Commodore Chicago sells it with a disk program that gives it a 4000 word vocabulary. Lyle Phillips saw it and was "mildly impressed. It is better than the Radio Shack, but still sounded mechanical. Limited use. Perhaps for handicapped and education."

New products may do in others previously announced. 8096 is now just a 64k add-on for 8032, not a new model, and expected this summer. Basic won't know added memory is there, but revised Visicalcs and Word Pro's apparently will. Barring more changes, it may work with 40 col. PETs. 8062 and 8063 8" disks may not appear. They cost as much as a hard disk, and store less. A double-sided 2MB version of the 8050 is rumored.

Commodore has announced an INTEGER COMPILER for $150, intended to be out when you read this, and able to handle all PET commands. If it works, it will allow fast-running programs to be developed more easily, and make copyright notices more permanent.

Commodore's new plan for COPY PROTECTION is the Dongle, a cassette port connector that is serial-numbered and readable by software. If dongle number matched PET serial number, this would be a great idea, but it doesn't. To use 5 protected products, you'll need 5 dongles. Commodore already has trouble with cassette ports wearing out. On the other hand, this way any PET can run that one copy. Great for travelers with a PET in every port. Looks like a 'Dial-a-Dongle' in your future.

There are 2 BUGS in the 8050 DISK. 1)If

2 relative files with the same record length are open at once, 1 reading and the other writing, data may go to the wrong file. The cure is a short delay loop between reading and writing. 2)If, in using copy command on some (but not all) 8050s, you try to "copy d0 to d1" or vise versa, early units may quit with a false error after copying 8 files. Use Copy program instead.

Reader Gerald Key managed to do in the UK6 chip in his 2040 DISK while converting some files. The program to be converted existed on both drives, and UK6 wore itself out trying to decide which version to read.

Speaking of repairs, I highly recommend Commodore's SERVICE SCHOOL, tuition $350, for dealers only. Provides over 500 pages of repair instructions, 2 clip-on ROM-based testers, several test diskettes and cassettes, 3 days of instruction, and free lunch! Teacher Bob Fairbairn provides honest full answers to many tough questions. -JS

Let's hear about good COMMODORE DEALERS. Reader Candy Jens wrote praising A.B. Computers, of Montgomeryville, PA. for "good material, good prices, speedy delivery." CIPUG agrees. We've heard only good comments in 3 years of buying from them. NEECO, of Needham, MA, was listed as a "good guy" dealer in the old PET GAZETTE. JS affirms their wholesale division is still good to dealers. What about others? Computer Mail Order in Williamsport, PA, for instance? Anyone dealt with them?

HARDWARE REVIEWS:

CBM 8032 COMPUTER, $1795 from Commodore. 80 column screen, business keyboard, 32K. Great new features in include: repeating cursor control keys and bell, variable screen windows, can set screen at very low brightness, and have 3 more columns in Visicalc (no more claustrophobia with 40 col. version!). Negative factors include: unpleasant reading from inferior characters (5X8 dots instead of 8X8 on 40 col.); in office setting, can't set screen brightness high enough to read near windows; and noticeably cheaper, harder-to-use keyboard than early 32K-B PET version from High-Tech. Since High Tech keyboard sells for $30 retail, why did Commodore economize here? 'B' key has already quit; replacement keyboard coming.

All but 1 Basic ROM soldered in. Does this mean the company offering 3 Basics in 3 years will no longer change ROMs? Hard to believe. 4 missing sockets are worth less than $6. Some customers successfully insisted sockets be installed before accepting delivery. I recommend that; if Commodore has to fix several hundred, sockets may become standard again. In beauty, some like it; some don't. For games, have yet to see any with graphics.

Converted major business software package from Wang to PET last month; with its 80-col. screen, was far easier task than similar work done earlier on 40-col. screen. New screen and relative records of new 4040 and 8050 disks make many minicomputer programs usable on PET. In sum, the 8032 is improved, but chintzy in stupid ways. For business use, get it till next model comes. For home, save $500, unless Commodore abandons 40 column format. -J and ES

NOTE: The 2 CBM printers below exist, but need full reviews.

4022 PRINTER, $795 from Commodore. Replacement for 2022. Epson MX80 at heart, with PET graphics and formatting, and costs at least $150 more. In stock at dealer's an hour away, but none of us have dropped by yet. -JS

8024 PRINTER, $1700 from Commodore. FAST tractor - feed printer for business users who don't mind dot matrix, (7X7 and 7X9 available), and need 132 pica columns on 15" paper. 160 cps, bi-directional, logic-seeking, with high-speed slew. No PET graphics. 6 or 8 lines/inch. Enhanced characters available. Rear loading, with paper-out alarm. A quiet 58 db. Its maker, Tally, known for very good printers and gives immediate on-site service if needed. -JS

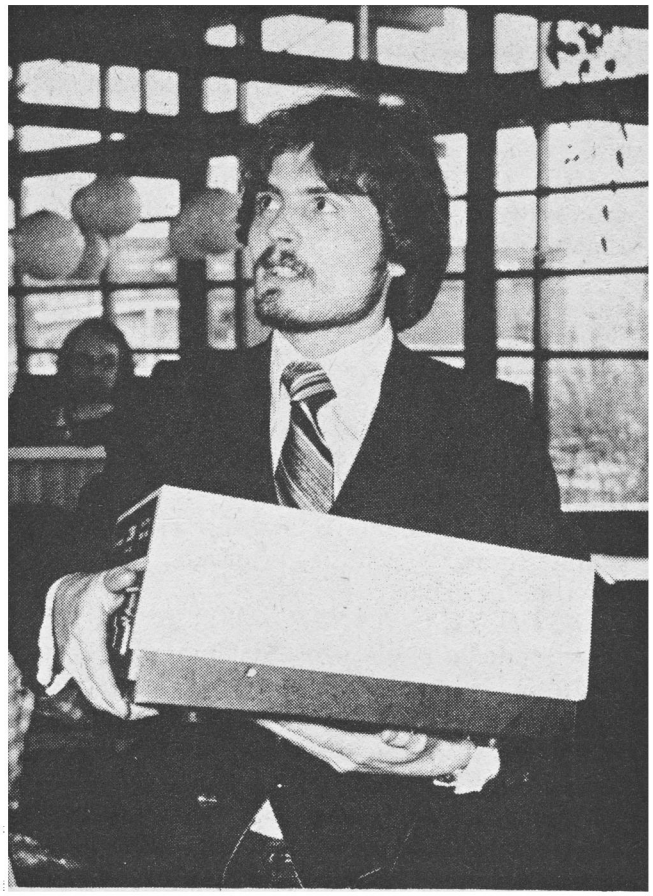
EPSON MX-80 PRINTER, $500-650, depending on dealer. 9x9 dot matrix. "An amazing animal ... simple ... close to correspondence - quality printing. I especially like the smaller printing in the 132 column format." -Lyle Phillips

Don't get Epson's IEEE interface. Ones we've seen substitute TRS-80 graphics for lower-case. Lyle uses, and likes PIE interface. We've also tried, but not yet succeeded with CMC 1600 interface. -JS

STARWRITER PRINTER, $1,390 - 2,000

depending on dealer, plus interface. 25 cps Diablo friction-feed mechanism, with electronics by C. Itoh of Japan. 15" carriage. Centronics parallel or RS232 serial versions available (I chose serial for its simpler cable). 65 db, so you may prefer it in closet! Bi-directional, logic-seeking printing, with high-speed tabs in all directions. As fast as 2023 in normal use. Higher speed, tractors, and sheet feeders optional. Use it with Word Pro, MAE, and for listings. Also includes Diablo's famous graphics plot capability. Friction-feed skewing noticable after 5 pages. Prints single sheets w/i 4 lines of page end w/o slipping. Excellent print quality (you're looking at it). (NOT in this magazine of course- *TORPET* ed.) Highly recommended -JS

1450 PRINTER INTERFACE, $130 from Connecticut Microcomputers, including case and power supply. Set for 300 baud, even parity, and one stop bit. Only baud rate is adjustable, with screwdriver and included program. Other settings changed by adding jumper block, but not documented. 1 instruction page. -JS



Karl Hildon shows how to 'tickle' a disk drive.

HARDWARE REVIEWS:

PIE-C PRINTER INTERFACE, $120 from Lem-Data Products. Corrects lowe case, and makes Epson MX-80 work with PET. Plugs vertically into PET's back with side IEEE edge connector on side. Be VERY careful not to flex it, as leverage of vertical mounting could crack mother board. Avoiding this problem costs $40 for extra PET -to- IEEE cable. Draws power from Epson, requiring jumper to connector from MX-80. Hookup may void MX-80 warrantee. Very good instructions, easily adjustable and works well -JS

More on *CBM MODEM* (see m no.2). Manual finally arrived (all 11 pages). 3 very short program listings, for using it PET to PET, PET to Source, and in testing. We're still underwhelmed -JS

PETTERM II MODEM PROGRAM, $90 (includes interface) from FSS Software. Makes PET a really intelligent terminal. For remote system being accessed, will accommodate: carriage return, carriage return and line feed, or just line feed; even, odd or mark parity; 300,150 or 110 baud; and full or half duplex. Big time saver is 'Learn', which stores message; then 'Message x' (your ID) and 'Message y' (your password) are sent to systems with 2 strokes each. 'Printer' sends all screen input to printer as well. Since PETTERM makes proper, problem - free connection to The Source, Micronet, etc., there is no reason for PET people to depend on The Source for software. Also available: PETTERM I ($80) and PETTERM III ($100). -Ed Ricchezza

More on *SOURCE* (see M no.2). "Evidently put their house in order, because documentation quite comprehensive. 'Mail' and 'Chat' features alone make cost worth while. For instance, the other night, sent a 'Mail' to a Los Angeles friend and had reply the following nite. Big thrill!" -Ed Ricchezza

TNW MODEM, $389 from TNW Corporation. "Hardware is great. Modem simply plugs into IEEE bus ... only 1 adjustment to make ... In 8 months I've had modem, almost all communications have been virtually error-free. Documentation ... can only be considered extravagant. TNW software package turns PET into reasonably intelligent terminal. CB2 sound option used for bell function. Allows numbers to be dialed directly from

keyboard ... software - selectable options include: case, baud rate, half or full duplex, parity, character set (ASCII or PET), control character display, etc ... Ability to dump to disk added as after - thought ... Willing to help or answer questions - if you get hold of right person." -Wayne Drouillard -TCI391

ADOPT - A - ROM RAM BOARD, $50-75 from Robert Mergy, 1163 Peterlynn Dr, San Diego CA 92154. 4k memory board that plugs into PET ROM socket. Write - protected until PET turned off. If enough readers write him, Bob will make some. Mine works very well. Imitates rarely needed ROMs, and stores new ROM programs, allowing me to test them before burning one. -JS

2114 RAM ADAPTER, $23 ($16 kit) from Optimized data systems. As needed, 4"x 4"x3" circuit board lets one replace 8 of 6550 RAM memory chips (4k) with longer lasting, more available, and cheaper 2114 RAMs (not included). Clear instructions, easily installed, hints to use adapter for cheap memory expansion or screen RAM replacement. Very reliable after 2 months use. -BA

REAL-TIME SPECTRUM ANALYZER, $600 from Eventide Clockworks. "I purchased my PET because of this analyzer." As electrical - accoustical engineer, I use this type of equipment to test and evaluate various accoustical environments. For price of board plus PET, you have piece of equipment which outperforms other real - time analyzers selling up to $5000. Software - based, so uses are unlimited. -Lyle Phillips

VISIBLE MEMORY, $495 (8032 model) from Micro Technology Unlimited. Versions for all PETs. "Fits inside Pet and allows each pixel to be controlled. Normal PET video can be used with or w/o graphics video. Software available or programmed from BASIC. All other programs unchanged. On 8-16K machines, when graphics not used, 8K video RAM can be used for programs." -Arthur Cochrane

WATANABE WX4671 DIGIPLOT PLOTTER, $1400 from Skyles Electric

DISK REVIEWS

DISKETTES: I've used Dysan, Scotch, Maxell, Memorex, Basf, Immac, Syncom and Verbatim, in order of reliability. I buy only Dysan and Scotch diskettes. Verbatims, usually fail to initialize, and are very noisy. I am rarely able to 'new' Verbatim diskettes. *Transactor* says Verbatim Datalife's are better. Commodore U.S. uses Dysans. I buy Scotch diskettes at $2.85 per box of 10 from A.B. Computers. If you must spend less, Robert Baker sells Memorex diskettes for $2 each. They usually work; received 1st bad one this week. -JS

STAY - FLAT MAILERS, $17 per 100, from Calumet Carton Co. Photo mailers, but size no.1 protects mini - diskettes. In a year of use, only 1 failed to arrive safely. (Folded in 1/2 and stuffed in a P.O. Box.) Reused 4 plus times with no hassles. Very highly recommended. -JS

HINT ON MAILING: X-rays may erase magnetic media. Wrapping in aluminum foil gives some protection, as does well - padded box.

ON DOUBLE - SIDING DISKETTES: Don't! 1) When flipped, the diskette rotates in reverse, pulling dirt back onto the surface from the pad; 2) Commodore says 2040 drives may write - thru to the reverse surface. -JS

HUB RING KIT, $10 from Meta Technologies. Reinforces diskette center hole. Plastic centering tool and 25 mylar rings 50 more rings are $5. Quick and easy. However, even more easy and precise to buy diskettes with rings included. Disks with a hub ring always work for us, no matter the brand. But what if the glue migrates? Because 2040 Shugart drives are rough on center holes, I recommend hub rings for diskettes likely to be abused. However, Commodore does NOT recommend them for high - precision 8050 Micropolis drives. -JS

DISKETTE CLEANERS: TOTAL rip-off. Whole design of disk drive is self - cleaning. Each diskette is lined with dirt - catching pad. If your drive is noisy, you may have dirty head pressure pad ($.25

MAGAZINE REVIEWS

Here are our opinions of magazines with PET material (monthly unless specified):

Byte, $19/yr. General (token PET coverage). When sold, quality did NOT suffer: still top - notch (if not best for non - PETters) magazine. If you consider price vs. pages per issue, it's a bargain. Why do I subscribe? The ads! -JO

Compute!, $20/yr. Best PET articles. PET GAZETTE section features some of best authors in PETdom (Butterfield, Baker, et al). Program listings, helpful programming tips and trouble shooting hardware and software PET makes good reading. If you subscribe to only 1 mag., COMPUTE! is it -JO

Computer Shopper, $10/yr. Newspaper format. Contains free ads for new/used computers, accessories and software for many micro - computers. Good source when want to buy or sell computer equipment on tight budget. I sold my Apple II and bought my 32k PET through them. Worth my subscription! -JO

Creative Computing, $20/yr. I read this cover to cover (except R.S. articles). Excellent reading material for beginning computer owner. Program listings in each issue (normally in BASIC) from games to utilities. Bi - monthly PET column by Gregory Yob. If you've never heard of it, where have you been? -JO

Infoworld, $18/yr, Biweekly. Timely news. Excellent software reviews, but none on PET. Recommended for those who like to keep completely up -to- date. -JS

Interface Age, $18/yr. Business oriente oriented, few PET ads or articles. Good general business articles. -JS

Kilobaud Microcomputing, $25/yr. Supports PET better than any other large - circulation magazine. Prominent PET-pourrie column for over 2 years. Devoted whole September '80 issue to PET. PET articles every month. Well balanced between hardware and software, personal, business, and educational users at all levels of skill. Recommended. -JS

MICRO, $18/yr. Oriented to 6502 assembly - language programs and hardware. New PET column, with 1-3 PET articles per month. Not for beginners, but my favorite since 6 mo. after I got my PET. Highly recommended. -JS

MIDNITE SOFTWARE GAZETTE, Donations, quarterly. "Remarkably informative and whimsical - a rare combination." -Paul Eckert

PRINTOUT, $45/10 issues. Independent PET magazine of Britain. Well done and glossy. All PET (great for morale). Very witty and informal. Lots of reviews. Fewer usable programs. Amazing list of available PET products, all VERY costly. -JS

TRANSACTOR, $11/yr, Bimonthly. Commodore Canada's newsletter. Official, and VERY informative. Issue 7's summary of PET info worth its weight in gold. Commodore Canada refunded money to Canadian PET owners foolish enough to order vol. 2 of U.S. PET USER CLUB NEWSLETTER. Commodore U.S. should give up, and import *Transactor*. -JS

BUSINESS REVIEWS

EDITOR'S NOTE: The following condensed from 3 page original. Joe deleted recommendation paragraph after receiving more dealer support. -JS

BEC ACCOUNTING SYSTEM, approx. $1000 from Business Equipment Compuserve. Needs 32k memory, CBM disk and printer. Interactive accounting package of 7 programs, including General ledger, Accounts receivable, Accounts payable and Payroll. Results of some programs automatically posted to others. Inventory, Job cost, and Mail list stand alone. GL handles up to 1,000 accounts and 4,400 transactions, using 2040 disk. All programs edit, add, delete, list files, print reports, etc. and follow Osborne accounting format.

3 companies on this system and reasonably satisfied, but hasn't been easy. Payroll does detailed reports, writes checks, 941 reports and W2's and provides current, quarterly, and year -to- date info on check stubs as well as the report. Details deductions. Data posted to GL journal automatically. Accurate and fairly fast. Only required inputs: number of regular and overtime units worked. Variable periods option.

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GL more difficult to implement. Documentation sketchy. Very difficult to determine when to post. Took 3 months to learn how to edit beginning or year -to-date balances. Fairly good prompts; however, used different names for same files.

Needs less capacity and less disk shuffling. Capacity severely restricted by time reading, sorting, and printing. At 1500 transactions, takes 7 hrs. to prepare monthly report.

Update ROM and disks corrected some bugs. Arrived sans documentation. Some account numbers had been changed. We stepped all over files to which we'd assigned those codes, causing tedious manual reconstruction. Update provides upper/lower case, but had to enter marital status in lower case or all deductions made from single tax tables.

Extended warranty is kindly voice on phone, sympathizing, and informing us if we modified any program part, our warranty was invalid. -Joe Suddoth

More on *COLUPAD*, see M no.2. Protected. Needs 32k. Features include: add, subtract, multiply, and divide 1 column by another; use constants, description and instruction file; merge data from 1 file to another; call and print each automatically numbered pad page (1 file) separately or entire 'book' with summaries, column and page subtotals, and totals; screen entry form; 24 column-40 row 'accountant's worksheet' format; accepts alpha and numeric column values. Good editing, but can't subtotal rows. -John Ellison

BUSINESS REVIEWS

FILE CABINET, $65 from Progress Computers. Data base manager, simple but with twist. 18 programs use PET overlay programming, filling only 6K at a time. Not ISAM, but FAST ml sort module makes it faster to use; Does multiple subsorts. Good manual if you know data bases. Menu - driver with excellent prompts and good error recover options. Special uses include: Word Pro 3 and 4 files read into it as data; optional 'PR' (print) module sends partial file to disk for Word Pro to load. Minus: no 'browse' function in 'Edit', (but can be done crudel crudely). Should have 'forward character suppression' at points to prevent goofs. All in all, a fair price for an excellent package. -JT

JINSAM 4.0 (for 4032), $300, and *JINSAM 8.0* (for 8032), $400 from Jini Micro Systems. Need basic 4 and Commodore disk with DOS 2. By far best database program for CBM systems currently available. No other software firm has 1 with as many features and applications. Unlimited record length, up to 5 prime keys and unlimited defined keys plus unparalled machine language sort. Highly taunted 'OZZ' no match for Jinsam. With 'OZZ', have limited access, no sorting, and more importantly, no support (i.e., customized modules). For $40 more each, Jinsam provides WORD PRO and Visicalc interfaces, extensive math and statistical applications, with more to come. Available for 40 or 80 column machines. -Lyle Phillips

MAC, $795 from Bob West Publications. Church database package, for 8032 and Commodore 8050 or 4040 disk. Allows practical maximum of 2000 members. Uses 80 column screen to great advantage, to show all data for member family at once; screenprint utility dumps it easily to printer. Very polished, and designed for easy, idiot - proof use, but more limiting than I like. Handles name, 3-line address, 2 phone numbers, S.S. class, 4 job/skill categories, pledge, year -to- date gifts, birthday, date of last attendance, and 1 'other' field. But not spouse name, kids' names, 12 month record of attendance, date of last pastoral visit, etc. Capital letters, commas, semi colons and colons cannot be used in data, but are allowed. Data cannot be sent to any other program. Reports in member number order or alphabetically by name, but not in zip code order. Enter weekly contributions by member number (with automatic updating of last attendance date), but cannot update by name. No auto allocation of available records. In summary, I wish JINSAM were as easy to use, but I'll stay with JINSAM for now, because it's not limited by these problems and costs half as much. However, MAC shows great promise. I hope West keeps working on it. -JS

WORD PRO 4, $300 from Professional Software. Protected. Needs 32K, disk. Uses dummy ROM at $9000. 'WORD PRO 3 for 80 column PET! PET word processing moved into professional market with this. All WORD PRO 3 features plus Begin Printing from any Page, and Output to Video to see your output before it goes on

paper.' -Mike Kouri

(WORD PRO 4 PLUS is just out. More money and new features.) -ES

DYNATEXT, $5 from Brent Anderson, 200 S. Century, Rantoul, IL. (JS's authorized PET version of Mitchell and Law's '79 'article of the year' word processor from Kilobaud.) 'OF all the inexpensive word processors, your Dynatext is the best. I have tried or purchased the CMC, the Petshack, the Computer Factory and WOrd Pro 1. When, and if, I get a floppy, I may learn to love Word Pro III, as you do. Meanwhile, I'll live with my present version of the M. and L. text editor with my embellishments.' -Harold Elrod

UTILITY REVIEWS

SUPERSORT, $35 from James Strasma, A.B. Computers, Eastern House Software, and Kobetek Systems Ltd. "Machine language sort for PET. Takes less than 1200 bytes at top of memory. Works with all current PET Basics and adjusts to any memory size as loads. Won't destroy other programs loaded into high memory. Can sort array of 3000 integers in less than 30 seconds.

Sorts any BASIC string or integer array in ascending or descending order. Some options are: arrays can be 1 or 2 dimensional, and sorts can be specified on any desired field in 2nd dimension; can subsort other fields when match found in prime sort field; and can sort by bit mapping, with 8 categories per byte. Options set with simple POKE statements prior to calling Supersort via SYS. Command area used to pass parameters consists of 13 bytes in 2nd cassette buffer. Avoids parts of buffer used by Basic and DOS.

During sort. 44 locations after 886 in buffer and 1st 44 locations in page zero are exchanged, then restored at end. Sorting only part of an array drastically speeds things up. Tell Supersort where real data ends and save up to 90f usual sort time. Puts null string elements at top of sorted array, away from user data. Program sets variable ST to indicate errors which occur. STOP key still enabled, allowing you to terminate execution.

I found it an excellent utility and apparently 'bullet proof.' Complete documentation, with very enlightening demo program. Worthwhile investment if you do any data manipulations. Why reinvent the wheel when you have this handy sort program? Source listing available from Jim Strasma ($10), once you've purchased Supersort." -Robert Baker

(Since JS is involved in Midnite, above condensed by JO from April, 1981 *Kilobaud Microcomputing*)

EDITOR/ASSEMBLER, $69 cassette from Elcomp Pub. Co. "Couldn't read instructions because copy was so bad." -Arthur Cochrane

HESLIST, $15 from Human Engineered Software. Needs CBM disk. Creates wonderfully structured listings from even the most crammed Basic programs. Does not recognize Basic 4's added commands as received, but soon will. Has amazingly good documentation. Easy to change for special needs. A must for programmers with ASCII printers. -JS

HESBAL and HESEDIT, $26 from HES. Assembler/editor. Basic and machine - language. Reasonably capable for its size. Only reasonable choice for PET owners limited to 8k of memory, or with non - Commodore disks or cassettes. Far better than Personal Software's assembler. However, takes fairly long time to load and save data and change from editor to assembler each time a mistake is found during assembly, even with disk. Includes Micromon (latest version of Extramon, ATUG's favorite PET monitor), which works on both Basic 3.0 and 4.0 PETs and features scrolling. -JS

(Micromon available in MAE source form from ATUG.) -JS

MAE for 8032, $170 from Eastern House Software. See 40 col. review in M no.1. Screen listings vastly easier to read with 80 cols. Notes errors with chime. Still my favorite assembler, due to many users with compatible assemblers on other 6502 computers, variety of programs developed by these users over 2 years, and author Carl Moser's continuing support. -JS

UTILITY REVIEWS

MONJANA/1, $98 from Elcomp Pub. Co. 2K ROM at $9000. "Has printer output, disassembler, transfer, relocator, single stepping, memory dump, etc. Doesn't interface to Commodore monitor. Extramon much better and cheaper and has more commands." -Arthur Cochrane

Jim Butterfield and Jim Strasma confab before the beginning of the Westside meeting at Sheridan College.

MACHINE LANGUAGE UTILITY PAC, $31 cassette from PS Software. "Has memory dump, disassembler (decimal output), screen print, hex - decimal conversion, Basic renumber and merge. Extramon again much better and easier to use." -Arthur Cochrane

TCL PASCAL, $350 from Commodore. For Basic 3.0 and Commodore disk. Supports printer. Uses dummy ROM at $A000. 8032 version recently announced. "Fantastic. Full -blown- USCD and much more. Well documented manual (quite thick)." -Lyle Phillips

Machine - language. Has 2 compilers: limited resident interactive one that does small projects easily; and disk version that is full Pascal with extensions, able to compile 3000 line programs. Can attach 10k run - time module of itself to object files, allowing them to be run on any 16k PET with Basic 3. Also links several object files into 1 program. Includes powerful screen editor much like Basic Aid. Very readable manual with many examples in 1 section, and brief guide for experienced users. -JS

KMMM PASCAL, $69 disk from AB Computers. "Very much like Tiny Pascal but Char, Boolean, and Text types also supported. Floating point said to be coming. Has interpreter but also translates p-code to 6502 machine code. Editor does not use screen editing, though." -Arthur Cochrane

TINY PASCAL, $35 disk, $40 cassette from Abacus Software. "Good for learning Pascal. Tape and disk supported. Trace and single step in Interpreter (listing available for modification). Editor and compiler in Basic, so SLOW, but can be modified. Editor uses Get instead of Input to read file; does not use screen editing. Only I/O is keyboard and screen. Has Mem (like Peek - Poke) and Call (like Sys) and decimal and hex input/output. Only Integer and array of Integer types allowed allowed." -Arthur Cochrane

MEM EXPLORER, $8 cassette from Micro Software Systems. "Prints out memory as ASCII and prints out keywords along with memory contents. Information in PET/CBM book and Basic program will do same thing." -Arthur Cochrane

REMpack, $10 from The Code Works. Removes all REMark statements, blanks, and leading colons from programs. Loads to high memory or 2nd cassette buffer; called by SYS. Works as advertised, and well documented in short manual with examples. Handy, though I'd rather have it in Toolkit. -JO

SYMBOLIC/STRUCTURED BASIC, $36 from Softside Software. "Editor and translator in Basic, so SLOW. Converts While (cond) Gosub x to 10 If not (con) Gosub x:Goto 10 and Else to If not (cond) then. Disliked slow editing, translating, loading. Not a screen editor. Good programming is better." -Arthur Cochrane

EDUCATION REVIEWS

GRADE AVERAGES, $12 from Educational Activities. "Exactly what promised. Takes numeric and letter grade grades, calculates and gives both numeric and letter grade average for each student; then ranks highest to lowest average. 'User friendly.' 2 drawbacks: no info. storage (updating), and must retype names each time entered. Still worth the money." -John Melchior

Educational programs BELOW for ANY 8K Pet, from MICRO-ED, Inc. GENERAL COMMENTS: Unless noted, $8/cassette 12 for $84. Protected. Catalog is instruction manual. Definitions built into programs. Clear, sound approaches to subject matter. Distinctive graphics/screen layout in problem presentations and feedback to student. Student can repeat problems until correct, ask for help, get detailed performance report, and as needed, choose difficulty level. Could use many programs/subroutines to teach other subjects. Worthwhile if need packaged education programs. -BA

TARGET MATH, Elementary. Add, subtract, multiply, divide. Super graphic feedback. Parachutist hits/misses target according to student's answer.

COUNT'EM, K-1st grade. Count pictured steam engines. Right answer chugs engine across screen. Wrong explodes it.

MATH SHOOTOUT, Elementary. Practice speed on add, subtract, multiply, divide. Graphic feedback on speed. Animated shootout with Bad Math Mac.

BAR GRAPH, Elementary. Graphs and varying information displayed. 10 problems require graphs to be read.

SUBJECT and PREDICATE, Elementary up. 20 random sentence problems identify simple/complete forms of subject/predicate.

CATCH THE RHYMING FISH, Elementary. Screen game. Catch fish whose word rhymes with problem or else your boat will sink.

DICTIONARY GUIDE WORDS, Elementary. 4 lessons. Put problem word between right guide word pair. PET flags pairs as used.

SPELLING WORDS IN CONTEXT, For each level of 2nd-6th grades. 36 lessons on 7 tapes($50). Teach spelling rule/pattern. 10 problems/lesson give sentences with desired words missing.

TROUBLESOME PRONOUNS, Elementary up. 20 problems in noun/pronoun agreement. Game decides number of points per right and wrong answer. Great flashing screen routine on right answer.

SYNONYM SERIES, Sr. Hi up. 3 tapes for $21. 15 lessons, 30 problems each. Match word and synonym. Flag matches. Graphic feedback. Big smile face or gremlin.

WORD DEMONS [TO/TOO/TWO], Elementary. Intro grabs attention (shoots out letters to spell word demons). 10 random problems/lesson in using demons correctly.

WORD DEMONS [LAY/LIE], Elementary up. 20 problems. Select right verb from pair. Fine graphic feedback. 'Word machine' visually processes stud student's answers.

DIRECTION and DISTANCE, Primary. Simple game teaches 8 directions (N, NE, etc). Also estimates distance.

GUIZINTA HOTEL, Elementary. Attractive game: Each elevator on screen stops only on certain floors. Choose right elevator to stop at 2 floors given in problem. (Teaches least common denominator.)

MATH SPIN, Elementary. Reaction response game chooses difficulty of multiplication problems generated for self/PET.

MATRIC, RECEIVED, BUT STILL BEING REVIEWED: from Cognitive Pro-

ducts ($100 pkg.). Adds 12 matrix commands to Basic 3.

GAME REVIEWS

ACTION GAMES, $8 from Creative Computing Software. Includes 6 games: Splat, Car race, Bowling, Tanks, Breakout, and Subs. All games are well done and use graphics, but about half won't run on 3.0 and 4.0 roms. Fair -JDO

B-1 BOMBER, $15 from Avalon Hill. Cassette. Needs 16k. Simple, but very challenging. Control altitude, heading, weapons, evasive action and electronics to penetrate Soviet defenses and drop nuclear bomb. Uses screen as teletype. Need good map of USSR west of Urals. Unprotected INPUTs -Gary Stone

NUKE WAR, $15 from Avalon Hill. Full-scale nuclear war strategy and planning game. Access to missile bases, bomber bases, nuclear subs, and defense missiles. Watch it tho, the computer has tricks. Fair -JDO

(Nuclear war is not an arcade game) -Mike Louder, paraphrased

DUNGEON OF DEATH, $8 from Instant Software. Fun for awhile, but games run too long, and get boring. Poor -JDO

ESCAPE FROM DEATH PLANET, $13 from Fantasy Games Software. Blast your way through storm troopers and killer robots as you try to rescue princess from 5-room space ship. Good graphics, and excellent sound effects. Good -JDO

EXPLORE, $20 from Channel Data. 4 adventures (Mall mixup, Tank battle, Spelunker, Beware, Haunted castle) plus self teaching practice adventure for beginners. Well written. Very good price. Recommended for everyone! Excellent -JDO

GREMLIN, $7 from Programma. You control a tank trying to destroy outposts before time runs out. Fun at first but lose interest quickly. Fair -JDO

HUNT, $20 from Programma. Mini adventure game, with 2 adventures, plus adventure builder program to create your own adventure. Good intro to programming; helps you understand how adventure games work. Fair -JDO

JURY HOSTAGE, $10 from USA. 2 games, 1 confusing, and both boring. Not recommended -JDO

LABYRINTH, $13 from Minnesota Micro Systems. Dungeon adventure. Explore castle (whose dimensions you pick) searching for chests of gold hidden on each level. Encounter ogres, goblins, spiders, and dragon. Objects help you reach your goal, such as swords, magic rings, keys. Good use of PET graphics; draws each level you explore. Very good game -JDO

RESCUE AT RIGEL, $20 from Automated Simulations. To win, you must fight guards through 6-level space station on your search for 11 hostages held captive by High Tollah. Good -JDO

SPACE INVADERS, $10 from CMS Software and free from user groups. By Commodore Japan. "Most addictive game I have ... in machine language. Just like the arcades." -JP

SWORD OF ZEDEK, $25 from Krell Software. Adventure in which you forge allies and gather treasure before RA (Master of Evil) attacks you. Would be good game w/o its many bugs. Fair -JDO

SWORDQUEST, $13 from Fantasy Games Software. Explore twisting corridors on your hazardous way to wizard's tomb, with hoards of demons and giant spiders to stop you. Luckily you have sword, bow and arrows, plus some magic arrows. If you make it, Jewels and Holy Sword are yours. Fair -JDO

TUNNEL VISION-KAT AND MOUSE, $8 from AB Computers. In TV, you try to escape from maze seen in perspective. In K and M, you see maze from above, and have to escape before cat catches you. Both use PET graphics well and are fun to play. Fair -JDO

ATUG NOTES:

ATUG is the ASM/TED and MAE Users' Group, devoted to developing assembly - language skills via Carl Moser's assemblers. Led by JS, it is CIPUG's only public exchange. MIDNITE readers may request ATUG diskettes that contain useful utilities. Please donate good machine - language routines, free of copyright, and in source form. Object programs and utilities are also acceptable, but mean more work for us. JS's 'Unassembler' article in *MICRO's* March issue tells how to turn an object program into MAE source form.

Newly available is ASM/TED compatible with MAE files, courtesy of TPUG. We'll provide it to registered ASM/TED owners. MAE, Macrotea, and ASM/TED

can now use the same diskettes. MAE also includes an ASM/TED save/load module.

We need a volume system like TORPET in Canada. They have 1 person in charge of each software category. They circulate a new programs diskette, and each volume manager pulls from these. Currently, we have 4 volumes: UA for MAE source files, UB for Basic and object files, UC for Copyright - restricted files, and UD for Documentation in Wordpro3 format. In addition, we have Arrival disks 00 and 01, WPUG WA and WB, TORPET's ML1, 1/81 and 2/81 disks, O'ventures, and 2 MAE source disks for Basic Aid 4, Micromon, Commodore UK's Input Editor and Commodore U.S.'s real - time universal ROM fix program. Any volunteers to manage a volume?

We've tried recently not to charge for ATUG disks. That let us exchange more programs without hassles. However, it can't work unless users send quality disks, in an easily returnable mailer, with as much U.S. postage inside as was needed on the outside, a return mailing label, and a clear note about exactly which disk is wanted. For UC, you must subscribe to MICRO and COMPUTE (you should anyway!). Most users have been donating $5-10 a disk. That helps a lot. If you can't send all asked, we'd prefer you send $10 for disk, mailer, copying and postage than to send an off - brand disk in a homebrew mailer. This week we sent out over 30 diskettes. At that volume, make it easy, please. -J and ES

RESOURCES

AB COMPUTERS P.O. Box 516, Montgomeryville PA 18936

ABACUS SOFTWARE P.O. Box 7211, Grand Rapids MI 49510

AUTOMATED SIMULATIONS P.O. Box 4232, Mountain View CA 94040

AVALON HILL 4517 Harford Rd., Baltimore MD 21214

BOB WEST PUBLICATIONS 34 W. Main St., Brevard NC 28712

BUSINESS ENHANCEMENT COMPUSERVE,1711 E.Valley Pkway,S.109,E Escondido CA 92027

BYTE magazine 70 Main St., Petersborough NH 03458

CALUMET CARTON CO. P.O. Box 405, South Holland IL 60473

CHANNEL DATA SYSTEMS 4141 State St., Santa Barbara CA 93017

CMS SOFTWARE 5115 Menefee Dr., Dallas TX 75277

THE CODE WORKS P.O. Box 550, Goleta CA 93116

COMMODORE CANADA 3370 Pharmacy Av., Agincourt ONT CAN M1W 2K4

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COMMODORE U.S.A. 950 Rittenhouse Rd., Norristown PA 19401

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COMPUTER SHOPPER magazine P.O. Box F, Titusville FL 32780

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CREATIVE COMPUTING magazine and software P.O. Box 789-M, Morristown NJ 07960

EASTERN HOUSE SOFTWARE 3239 Linda Dr., Winston - Salem NC 27106

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ETCETERA INTERNATIONAL P.O. Box G, Apex NC 27502

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TRANSACTOR magazine 3370 Pharmacy Av., Agincourt ONT CAN M1W 2K4

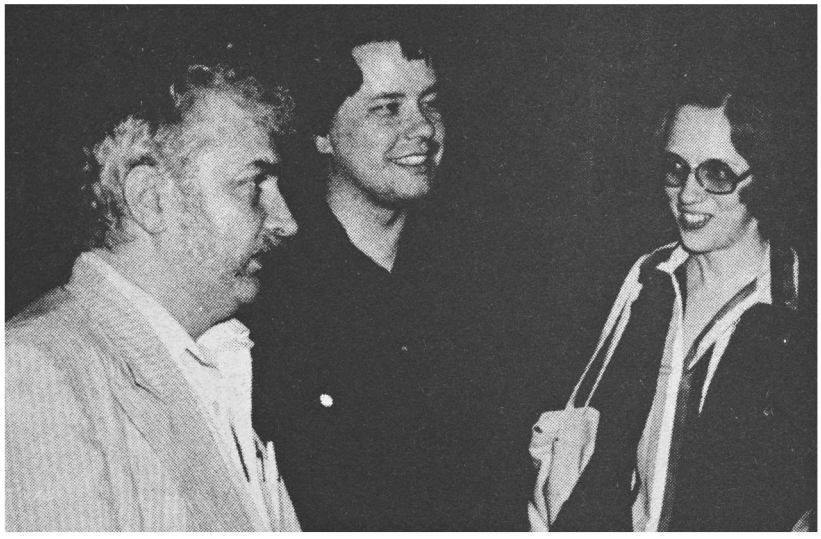
UNITED SOFTWARE OF AMERICA 750 3rd Av., New York NY 10017

REVIEWS BY MEMBERS

There is a great variety of hardware and software out there being used by our members. If you use some equipment or software that has not been reviewed in the TORPET, we would like to hear about it. Just send us an article (typed if possible) to the editor of TORPET. Some of the things we would like to know include:

- What is it? (Utility, Reset Switch etc.)
- Who produces/distributes it?
- Canadian cost
- Comments on how it works
- Would you recommend it for other people to buy?

Some of you out there have also developed your own special hardware or software. Let us know about it. Maybe someone else is also interested and you could help each other out. So why not send us a letter and let us know what you are working on.



Jim Butterfield and the Rev. and Mrs. James Strasma [Ellen] at breaktime at the Sheridan meeting.

CLASSIFIED

USED EQUIPMENT WHILE IT LASTS: CBM 2001 - 32K Computer, Business Keyboard Basic 4.0 - $1,300; CBM 2040 Disk Drive with DOS 2,0 - $1,200; CBM 2022 Printer with Tractor - $900; DATA A'GENT COMPUTER SYSTEMS - 624-6666 Mon to Fri from 9am to 5pm.

Classified 5 cents per word with $1 minimum.

UNASSEMBLER

by
David A. Hook
Club Librarian

At the May 13, 1981 main TPUG meeting, two major works were released. They are utilities which enable the recovery of Assembler-type 'source' code from any machine langage 'object' code.

Bill Seiler, ex-Commodore, and Silicon Valley PUG originated the version for the Commodore assembler. Jim Strasma, the Assm/Ted Users' Group co-ordinator, has provided the MAE Assembler version. The latter has been substantially enhanced from the original.

Well, what does it do? The M.L. afficionados are well aware of the utility of the disassembler in Supermon or Extramon. You may see how the program works by examining the 'assembler' mnemonics displayed.

However, no labels are shown to help with the tracing of the various routines. Without some gymnastics, the disassembly is little help in relocating the code elsewhere in memory. It's darn near impossible to get a rundown on variables and external ROM routines that are part of the program.

Unassembler makes up for all the above 'shortcomings'. The March 1981 issue of Micro magazine published Jim Strasma's MAE version, with a thorough explanation. Get this issue, use the programs on the May meeting disk and you're on your way.

I'll run through abbreviated step-step mechanics to aid in the documentat documentation, using the DUMP2 (also on May's disk, from Compute No.8, by Levinson).

1. Load/Run DOS Support.
2. Load and activate Supermon/ Extramon, then return to Basic.
3. Load 'DUMP2', using Wedge commands. We must be careful with Basic 4.0 disk commands, since our program may sit in 2nd cassette buffer.
4. Re-enter monitor to find end address:

.M 0028 0028
0028 01 04 C4 03 C4 03 C4 03

The fourth and third address (in hex) show where the DUMP2 finished loading ($03C4).

5. Published start address is SYS826, or $033A.
6. Use 'D' command to examine the start-to-end address. Addresses that don't disassemble properly could be ASCII

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Richvale Telecom.	10610 Bayview Ave. Unit 18	884-4165

messages or tables of jump addresses used by the program.

7. Prepare a table of hex start/end blocks that give alternately good/bad disassembly. These will be the file boundaries for the 'modules'. Each will be a separate file on disk. Here we have two such files: $033A-$03B6 (good) and $03B $03B7-$03C3 (bad). The latter turns out to be a series of ASCII characters.

8. We next move the code into high memory. Use the Transfer command:

.T 033A 03C3 633A (32K only).

9. Return to Basic and move top-memory down to protect program:

POKE 53,96:CLR

10. Load the Unassembler version MAE/CBM. List 3200- (MAE) or 62000- (CBM). The data statements shown signify the number of modules to work on and their location.

11. Change the first item to correspond to the number of good/bad files you have recorded. Then prepare a separate data statement for each, showing:

a) Hex start address where the file has been moved to ($633A)

b) Hex start address where it actually belongs ($033A)

c) Hex end address where it stops ($03B6)

d) File name followed by '.M1' (for module no.1)

Repeat for each file, changing module number to .M2, .M3, etc..

When a file doesn't disassemble properly (bad), tack on a '.W' (for WORD) at the very end. The Unassembler then won't try to incorrectly treat it as instructions. It will assign these as 'BYTE' pseudo-ops. Very handy!

Since the MAE version is more powerful, you must also include (as DATA), file names for .LABELS and a control file, '.CT'. The CBM version asks for a LABEL file name as an INPUT, but no .LIB file is built.

12. Place the data disk in Drive 0.

13. Run Unassembler. The screen displays the current address being worked on, and the number of labels created so far. As each module is finished, the disk file is written and the info is displayed. The LABEL file is then written and the program ends.

14. Examine the disk directory to observe the files created.

15. The MAE files need to be loaded into the Assembler program, renumbered, edited and re-written on the disk. Details are given in Strasma's article.

16. The CBM files are ready to go, after you create a '.LIB' file to assemble them in the correct order. Start with label file, then .M1 up to .M?.

17. You may now edit these files to your heart's content. All labels consist of a a 'Z' plus the hex address where the value came from. Use the FIND/CHANGE feature of the editor. Some possibilities:

a) Give standard names to locations routines: Z77 to TXTPTR, ZC389 to READY and ZFFD2 to PRT.

b) As you decipher the purpose of a subroutine, change the internal labels to identify their function.

c) Change the start location in the '.BA' or 'asterisk equals' statement. Maybe relocate for an EPROM?

d) Convert to Basic 4.0, using table of equivalent locations. Having a file of all external labels makes this easy. One change changes all.

There are more uses--you'll find them. Enjoy! The work is worth the rewards -- totally relocatable programs in a more readable form.

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LIBRARY DISK LISTINGS

The following is the directory listing of all the disks released this year. They include the meeting disks from DEC/80 to JUL/81 plus other special interest disks. They can be ordered through the mail by sending $10 for each disk to the address below. Do not send us a disk. The $10 includes one, plus all the programs and the cost of copying and mailing.

TORONTO PET USERS GROUP
c/o Chris Bennett
381 Lawrence Ave. West
Toronto, Ontario
M5M 1B9

dec/80

dos support 4.0
copy all
duckshoot
fawlty
pigs
labyrinth
card snap
morse
abacus
canary
print using
disk append
tombs-intro
tombs-game
ian's race (n)
format
kim's calendar
compactor
hallowe'en
espana
well tempered
fughetta
polonaise in bfl
gavotte&musette
spring song
minuet in g
the promenade
marche militaire
palindrome
sinfonia
sonata 1.82
duelin' banjos
reel
three tunes
danse caprice
eleanor rigby
silence
stairway
some jazz
some disco
some blues
more disco
some ballads
more blues
aid4
elephant

Blocks Free = 10

jan/81

aid explanation
basic aid2
basic aid4
income tax '80
v40.2.b
v40.4.b
v80.4.b
tax 80 ont v1.0
v40.2.s
v40.4.s
v80.4.s
v40.2.o
v40.4.o
v80.4.o
sc1.s i/o fix
demo 8032
e.g set-up 80col
sc1.s - old
wp3/4 inst1
wp3/4 inst2
tape.to.disk
list lt2
list lt2x
list gp2
list lp2
list lp2x
list lp4
aid4 c
aid2 c

Blocks Free = 186

feb/81

universal wedge
copy all
aid 2.1
graphix instr
graphics-loader
graphics-demo
library
mail list 4.0
mail list 2.0
format
update
print
menu
mail backup

Blocks Free = 431

mar/81

universal wedge
copy all
mission imp
car race 4.0
basic aid 4
aid instructions
afo with sound
change 8050
cbm 4032
tax 80 ont v2.0
relread
disk logger
memory calendar2

Blocks Free = 498

apr/81

universal wedge
copy all
easy edit/tape
easy edit/disk
easy edit/c
page1 eze edit
page2 eze edit
tax 80 ont v3.0
page3 eze edit
page4 eze edit
page5 eze edit
page6 eze edit
atari ii
cannata
journal
fast skip 2022
mail list 4.1
memo calendar
bar graph 2.4

Blocks Free = 412

may/81

universal wedge
copy all
unassembler.mae
unassembler.cbm
keyprint2
keyprint4§826
dump2
dump4
journal
lister
locksmith
bmbstringthing
stringthing.bin
contents
signon
exec hello
hello
build hello
neccl
mxcl
cross ref
crunch
src.ex hello.asm
mxcl.srce
neccl.srce
asm conv mos
com
applesoft loader
app load source
freq generator!
eric assm
8k
catalog 6
disk documenter
list duplicates
master 6
master 6D
search 6
diskutility
inputwindowdemo

Blocks Free = 123

jun/81

universal wedge
copy all
roulette
cbm 4032 c.chee
stack sniffer
stringthing.bin
wpro buster
bmbstringthing
micromonb9§1
micromon.ins
monopoly
lost dutch gold
spelunker
basic.humorous
ax-ref/sys24576
ohare's #1
ohare's #2
ohare's #3
hs.of.7.gables

Blocks Free = 49

jul/81

universal wedge
copy all
wizard's.castle
trip to atlantis
king.tut
sorcerers.castle
extra instr.
extramon9b(4)
extramon9g(4)
extramon9g(2)
extramon9b(2)
terminal.ieee
terminal.rs232
term.ieee
term.rs232
intelcom1
intelcom2
intelcom3
intelcom4
stock
stock 80 col
mail list 4040
4040 update
4040 format
4040 print
4040 menu
mail list 8050
8050 format
8050 update
8050 menu
8050 print
conv to ascii

Blocks Free = 50

best of michigan

universal wedge
qubic.alt
keno
mousemaze
kingdom/pics
quandry
dragon.maze!
clouzot!
snake.alt
spade.instructs
magic.square
spades
anti-air/bus
battleship.alt2
billiards!
clue
dog.star.adven
dominoes
draw.poker
dungeon 1.4
dungeon.alt3
m.b.instructions
madman.race
mille bourne
dice.pig
startrek.alt4
find.color
craps.odds
tank.war.alt
horserace
snowflake
wumpus.alt

Blocks Free = 9

adventure

advboot
advf 0
advf 1
advf 2
advf 3
advf 4
advf 5
advf 6
advf 7
advf 8
advf 9
advf 10
advf 11
advf 12
advf 13
advf 20
advf 21
advf 22
advf 23
advf 24
advf 25
advf 26
advf 27
advf 28
advf 29
advf 31
advkeys
advshor
advmap
advitm
adventure
universal wedge
tombs a-bnnycstl
tombs b-bnnycstl
explore-bttrfld
life
adv30 intro
adv30 game
quest 3.0
hammurabi
adventure-m.b.
adventure game
fishery
polut
power instruct
power simulation
kingdom/pics
dog.star.adven
dungeon 1.4
dungeon.alt3

Blocks Free = 12

education

universal wedge
africa asia
easy add subtr
20 questions
speed.reading
addition game
ask
big math 1.1
cash register
cryptogram
donuts
eliza
europe
fractions
french verbs
grammar
haiku 5
hangman
hangman(hjs)
math dice
math tutor
missing number
no
pets
spelling bee fil
states capitals
tachistoscope
us president qui
world capital qu
typing drill
vocab 1
hidden.words
animal
reader
story.problems
math.quiz
animal.data
not.so.easy
spelling.test
q's z's
display
histogram
edu-tilities
european capitol
fishery
flash cards
french
global
ice cream par
math iq
hangman 2

Blocks Free = 10

utilities

universal wedge
copy all
aid 2.1
supermon2.rel
supermon4.rel
supermon1.rel
supermon1/2/4ins
extramon9g§$1000
extramon9b§$1000
extramon inst
append/renum.rel
rom test--btfld
trace.rel(basic)
ramtest§$500
screen print
un-new/sys826
keysort2$7454
keysort2-2demo
keysort2-1demo
keysort2$1c54
low case list
disk append
disk mod/v1
disk id corrctor
disk peek
view bam

```
block get 1.0
bl get §$033a
keyprint/826
disk name (r)
copyprog
keymake
copydisk/sys973
tape test #
tape write (#)
copycat!sys934
copycat'sys934
aid instr7.6
(32k)basic-aid
disk logger
catalog
search
utinsel.rel
aid4
compactor
cassette.to.disk
datamaker
keysort.exe16/32
keysort.demo1
keysort.demo2
keysort.exe8k
cross-ref
basic.aid.exe
disk append-m.b.
print using
disk view
read.link
read-write.s/r's
dir.access.s/r's
port.display
descenders/2022
floppy.display
joystick.ctlr.
joystick.crsrs
extramon.4.0b
extramon.4.0g
mae/dos for 4.0
user.cookbook
utility 2.0
utility 4.0
demo
list lt2
list lt2x
list gp2
list lp2
list lp2x
list lp4
ins/del demo
v40.2.b
v40.4.b
v80.4.b
tape.to.disk
 relread
 dump seq file
 wp to upper
 Blocks Free = 39
```

```
music

universal wedge
copy all
lp:new rom music
music/old rom
76 trombones!
the entertainer!
invention 8!
when i'm 64!
water music!
allelujah!
march in d!
prel & fugue 2!
 sinfonia!
 invention # 11!
 starspgl banner!
 wonderland!
 music box dancer
 baroque fanfare!
 jingle bells! ,
 1950's medley!
 bumble bee!
 espana
 well tempered
 fughetta
 polonaise in bfl
 gavotte musette
 spring song
 minuet in g
 the promenade
 marche militaire
 palindrome
 sonata 1.82
 duelin' banjos
 reel
 three tunes
 danse caprice
 eleanor rigby
 silence
 stairway
 elephant
 tarantela
 minute waltz
 sound.demo!
 petsong
 sound.info!
 washington.post!
 petsong-bach
 sounds taps cb2
 joplin music
 petsong 1
 petsong 2

 Blocks Free = 180
```


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COMMAND-O and Soft ROM

Two Reviews by Chris Bennett

If you have BASIC 4.0 in your 40 column Pet or you own an 8032, Command-O is well worth considering as a programming and development aid. It sells for $100 in Canada and consists of a 4K ROM plus about 40 pages of documentation. Many of the features found in BASIC AID and the TOOLKIT are included plus many more. Some of the standard features include AUTO line numbering, DELETE multiple lines, FIND string value, HELP, TRACE and RENUMBER. It also contains some very useful features not found in other packages. One of these is the selective RENUMBER. This allows you to renumber a range of lines within your program without touching the line numbers around them. This is very useful if you want to keep your GOSUB calls going to the same line numbers. Another new feature is a built-in PRINT USING to format numbers. However this means that your program will not run on another machine unless it also contains the COMMAND-O chip. One of the most interesting features of this program is the ability to use the cursor-up and cursor-down keys to control the LIST to the screen. This feature is called scrolling and allows you to move foward or backwards through the program using the screen as a moving 'window' to the source code.

Other features include:

MERGE - Append a basic program onto the end of the one in memory.

MERGE# - Append a basic program after a certain line number.

EXECUTE - Load and run a program from disk.

SEND - Send commands over the command channel.

DUMP - Display all the non-array variables.

INITIALIZE - Initialize the disk drive(s).

There are also commands to KILL execution of COMMAND-O, others to turn on and off the special screen commands (SCROLL etc.). Also the STOP key can be used to eat characters. All characters to the right of the cursor are moved to the left and disappear into the cursor.

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For the 8032, there are a few additional features such as the ability to generate ASCII control codes by using the ESC key. Also, the additional screen commands (Delete line, Insert line and Graphics/Text mode) are easily accessable using the ESC key plus one other key.

Overall I found COMMAND-O quite useful. The documentation is presented very poorly. I would prefer a booklet like that supplied with the programmers toolkit. Also I would like to see the CHANGE function that is available in BASIC AID.

While on the subject of programmers development packages, there will be a product called 'POWER' available in 2 or 3 months. This is written by Brad Templeton and documented by Jim Butterfield. A full review will be provided in the next issue of TORPET. Many of the features in COMMAND-O will be found in POWER. However, POWER also contains such things as single stroke BASIC keywords, 80 character subroutines on one key and the selective RENUMBER. POWER has included the CHANGE function and has deleted the PRINT USING command. Program scrolling is also allowed. This product was shown in a computer show in England in the middle of June but will not be available in Canada until some time in September/October of this year. I hope to provide a complete review together with a comparison of the features between BASIC AID, COMMAND-O and POWER in the next issue of the TORPET.

The SOFT ROM is the third product I have reviewed that is manufactured by BMB Compuscience of Milton, Ontario. The other two were the Hardware Reset Break Switch reviewed in issue number 5 and the Power on/error Indicator reviewed in issue number 4. The SOFT ROM is distributed by Canadian Micro Distributers, 365 Main Street, Milton, Ontario, L9T 1P7. It should also be available at some of the local computer stores.

The SOFT ROM is a circuit board that plugs into one of the empty ROM sockets inside the PET. This board contains 4K of RAM an empty ROM socket, a five pin plug and a switch that can be attached to the side of the PET. Lets assume that this device has been installed in the 9 block ROM socket. You now have an extra 4K of memory from locations 9000 to 9FFF (Hex). Various utility programs can be loaded into this location where they will not be disturbed by BASIC. Also if you have programs which use a ROM in this location, you can save the various ROM routines on disk, then, when needed load them into the SOFT ROM, set the write protect switch and run the program. Some of the programs I have which use that location include Visicalc, Waterloo Basic, Wordcheck, Create-a-base and Command O.

To use this device, the SOFT ROM must be installed into the empty ROM socket. Next, the five pin plug is connected to the last five pins of the memory expansion port found inside the PET. Finally, the switch is attached to a convenient location on the side of the PET.

An option is available for those people who wish to enable the on-board ROM socket. This will allow you to either select the ROM in that socket or the 4K of RAM with the use of a switch. In my case, I have the Command-O ROM in that socket so that I don't have to load it in from disk when I need to use it. To enable this ROM socket, a trace on the circuit board must be cut and a Single Pole Double Throw switch is connected to three solder holes located on the circuit board. Now you can have your favorite ROM immediately available plus the ability to load any ROM image you need from tape or disk.

BULLETIN BOARDS

by Gord Campbell

MODEM 80 PURCHASES

A bulk purchase of Modem 80's has been arranged. The units are expected about July 6. I will be arranging for delivery to the participants.

The club has purchased four modems for use by the members. These will be rented for $20 per month on a first come, first served basis. I am administering the rentals. Call me at 492-9518 any evening until 11:00 p.m. if you are interested. This will let you find out what the bulletin boards are all about, and give you the capability of swapping programs over the phone lines.

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