



PITTSBURGH
P.U.G.
USERS GROUP

PERIPHERAL

VOLUME 5

MAY 84

NUMBER 22



"Go and wash that voice synthesizer
out with soap!"

MAY MEETING OF THE PITTSBURGH USER'S GROUP

Don't miss this meeting if you are at all interested in telecommunications. At our 7:00 pm public meeting, we plan to have a full scale program on the marriage of your 99/4A and Ma Bell. If all works out we plan to have a demonstration of COMPUSERVE and a special little surprise too! Also we will have our door prizes and a chance to win your very own MODEM!

Also please make note of the changes in the afternoon schedule. Basic class will start at 4:00 and run till 5:30. Extended basic will run from 5:00 to 6:00. Assembly will be from 4:00 to 5:00. TI-FORTH WILL MEET FROM 4:00 TILL 5:00!! TI-WRITER WILL RUN FROM 5:30 TO 6:00!!

The hour from 6:00 to 7:00 will be set aside strictly for the SIG's. As has been pointed out to me, in our zeal to organize classes to help the newer members we have slighted our more experienced members. They inadvertently have had their discussion time stripped in favor of the classes, which we hope to correct. During this time we hope to have volunteers field a question and answer session for those not involved in a SIG.

This schedule will be open to change in future months. If enough members show the interest and willingness to make it work, we will consider expanding the day as far back as 1:00 pm to accomodate additional programs. Keep in mind that extra help would be needed but we could do it!

PERIPHERAL NEWS

My heartiest congratulations to all of you who contributed to this month's PERIPHERAL! It is truly gratifying to see my belief in you justified. Now just don't sit back and say "aren't we swell?". Let's start thinking about June.

One thing would make my life alot easier. If at all possible, could you submit articles on a TI-WRITER DISK FILE, unformatted and set to 80 columns. From this I can grind things up to fit the newsletter and besides, I won't get blamed for misprints.(ha ha). Also, I'm going to try to establish a disk based morgue of all articles written so that reprints will be available by retrieving them from the club library.

All seriousness aside, your disks will be returned or replaced at your option, and it would eliminate a lot of extra typing for yours truly.

Special note to "THE PROGRAMMER": If you want to be anonymous to the membership, okay. But I would like your name and phone # on a confidential basis to check copy. i.e. in the program listing I hope that all the 0's(zero) and o's(letter) are right.

Keep up the good work, everyone,I love it.

Roy T Carlson

TREASURER'S REPORT APRIL 1984

ALL REPORTS ARE CALCULATED TO LAST DAY BEFORE THE MONTHLY MEETING.

MEMBERS MARKETPLACE

FOR SALE TI SPEAK & SPELL ON DISK.
GREAT FOR CHILDREN IN GRADES K TO
4. BEST OFFER! CALL DAVE GZESH
AFTER 6:00 PM AT 441-7423

FOR SALE TI SPEECH SYNTHESIZER \$55
CALL TED ANDERSON 881-7416

THIS SPACE WILL BE OPEN EACH MONTH
AT NO CHARGE TO OUR MEMBERS FOR
PRIVATE SALES, TRADES ETC. NO
VENDOR ADS PLEASE!

BEGINNING BALANCE	493.64
41 NEW MEMBERS	697.00
2 RENEWALS	24.00
MISCELANEOUS SALES (CASSETTES, DQM, ETC)	248.00
BULK MAIL ACCT BAL	61.02
TOTAL CASH	1523.66
ADMINISTRATIVE COSTS	
(BYLAWS AND APPL)	-54.00
(RENT)	-50.00
(DOOR PRIZE AND SUP)	-74.20
NEWSLETTER	177.10
LIBRARY	-190.00
CLUB PURCHASES (MODEM)	-83.95
BALANCE	398.46

HOT OFF THE WIRES BY JONATHAN ZITTRAIN

(Copyright 1984 Jonathan Zittrain May be reproduced with credit to the Pittsburgh Users Group and Jonathan Zittrain)

There is a new marketing company that is now handling all TI 9914A equipment. Call 'Triton Marketing' at 1-800-227-5257 for a free catalog of all software available. The old TI mailing list will not be used. This company will only distribute the remainder of TI's surplus software; it will not manufacture any new software.

(Important:.) It has been rumored that the much-in-demand p-Code cards are available from Triton Marketing at \$35.00. (editors note... to date this is denied by Triton) I urge anyone that knows Extended BASIC and is looking for a new language to look into p-Code system Pascal. Please call if you have any questions on this. We will try to devote a meeting to the subject of p-Code. I will also have an upcoming article on p-Code.

For anyone that has the Personal Record Keeping module, it will also enhance BASIC. TI has a manual on this; call 1-800-TI-CARES for more information. There is a company (KCR of Huntington, WV) that has been advertising the availability of a 4A clone. In the ad on page 156 of the April Computer Shopper they announce that a 'TI work-alike' and a '9918 legendary and enhanced version of the 9914A, 80K RAM, speech, much more' will be available soon. Does anyone know anything about KCR? Are they just another company on hold waiting on

CorComp? There isn't a phone number in the ad or I would give them a call. It seems an odd way to waste money (taking out ads in national publications for non-existent computers) if there's nothing behind it.

Similarly, there was a very interesting note on the Source (telecommunications service) about a new peripheral system from Myarc (the hard disk people). It's a double-density disk controller, a real time clock, and one or two half-height disk drives. Provisions include space for another CPU (TMS9995 or Intel's 8088). First production run late in May. Will start at around \$600. That's all it said; I will try to reach Myarc to confirm this and get more information.

We are thinking about starting a telecommunications group. I will reprint my article on telecommunications soon, and the next meeting will be centered on this interesting topic. Please call or write me so I can see how many people would be interested in a special interest group of this type. People thinking about taking the dive into a modem, or people having modems (and wanting to know what to do with them) would be welcome.

There is a CALL LOAD code in Extended BASIC that seems to free the 8K of extra memory from the 32K Memory Expansion Unit. Type (in the immediate mode):

```
SIZE  
CALL INIT  
CALL LOAD(-31866,33,0)  
SIZE
```

and check the results. Different values after the -31866, such as 160,63, will yield different numbers in the SIZE command.

If you have any comments, questions, crises, problems (computer related, of course!), etc., you can contact me at:

*Jonathan Zittrain, Vice president
136 Thornberry Drive
Pittsburgh, PA 15235
Telephone: (412)731-4895 Evenings and weekends*

The Adventure Realm

An Overview of the Adventure Series

NUMERIC ACCURACY

Users may find interest in the "Recreational Computing" article in the April Scientific American. This month's topic is precision and numeric accuracy in computing machinery. (Actually, I recommend the entire series.)

The central example is the continued squaring of the number 1.0000001 through 27 cycles. This procedure clearly reveals inaccuracies, as the quantity starts small and gets big, cumulating errors. Reported results range from a 1200% error in the IBM PC (!) to a .000009% error on a Cyber. In between are such as the Apple II at 96% error, and the TI30 (calculator) at about .025%.

Obviously the thing to do is try it on the 99/4. I did it in FORTH (because that's what I was playing with at the time--as the floating point routines are built-in, it shouldn't matter what language you access them from). I got an error of .000023%. The correct answer is 674530.4707 to ten places. The Cyber (this is a million + supercomputer, contender with the Cray as the greatest number-cruncher ever devised by man), running in double precision gets 674530.5363. The \$50 99/4 gets 674530.318. The Cyber is 6/100 high, the 99/4 is 15/100 low. Sort of makes you wonder about the intelligence of those who have made one of the most in-accurate computers available the "standard" business computer. (It is possible to program any computer that runs right to return accurate results. The results for Apple and IBM are primarily a consequence of the sloppy floating-point routines of Microsoft BASIC. The 8-bit hackers often claim Microsoft BASIC is the standard BASIC. Among their wild claims, Commodore also makes the same claim. In fact, there is only one standard published for BASIC, the ANSI Standard, and it is TI, rather than the others, which conforms. Unlike the other common BASICs, TI BASIC is also logically correct. See "A Bug in BASIC?", BYTE, January 1981, p. 188.)

LETS START AN ADVENTURE

R.M. Bies

Laura Black is sitting at a patio table at the Cafe Royal in Paris. Coming out of the cafe she sees a tall, sandy-haired man in his late thirties. He pauses and looks cautiously in all directions then looks directly at Laura. Without a moments hesitation, he walks to her table and introduces himself as Rolf Bergman. He then hands her a small envelope and asks her to hold it till he returns. He then disappears onto the crowded Paris street

???????? should Laura keep the envelope or drop it on the table?

Member: choose a response and then write a next scene after her choice. Bring it to the meeting or send it to Roy and we'll continue the adventure from there.

This month we will take a break from talking about a specific adventure and look at the Adventure Series collectively.

The Scott Adams Adventure Series is made up of thirteen adventures at the present time.

They are:

- | | |
|-----------------------|-----------------------------|
| 1) Adventure Land | 8) Pyramid of Doom |
| 2) Pirate's Adventure | 9) Ghost Town |
| 3) Mission Impossible | 10) Savage Island Part I |
| 4) Voodoo Castle | 11) Savage Island Part II |
| 5) The Count | 12) Golden Voyage |
| 6) Strange Odyssey | 13) ???????? |
| 7) Mystery Fun House | 14) Return to Pirate's Isle |

The newest addition to this list is adventure #14: "Return to Pirate's Isle." This is a special adventure in the series because it has added high-resolution graphics plus the usual text that the other adventures share in common.

I am missing information on adventure #13. Does one even exist? If you know something about this adventure, would you please let me know.

When I solve an adventure, I rate it using my own scale, which is as follows:

Area:

- A- 0-3 points for basic Idea.
- B- 0-3 points for quality of scenarios.
- C- 0-2 points for difficultness.
- D- 0-2 points for humor.

Using my scale I rate the adventures as follows:

Number:	Categories:				Total	Difficulty
	A	B	C	D		
#1	2.5	3	0	2	7.5	B
#2	2	2	1	1	6	B
#3	1	2	.5	.5	4	A
#4	3	3	1.5	2	9.5	M
#5	3	3	2	2	10	M
#6	1	1	0	0	2	M
#7	3	3	0	2	8	M
#8	3	3	2	2	10	M
#9	3	3	2	2	10	A
#10	3	2.5	2	1	8.5	A
#11	3	3	2	2	10	A
#12	3	3	1	2	9	A
#14	3	3	2	2	10	A

This list also shows the level of difficulty of the adventure as rated by Adventure International, the company that makes the adventures.

"B" stands for "Beginner". For these adventures, it usually takes five or more hours to solve. They are also good adventures to start with.

"M" stands for "Moderate". These take about five to ten hours to solve and have moderate problems in them.

LAST MEETING

The meeting was opened at 7.08 by president. Announced that Nancy Senay had volunteered to be corresponding secretary. Preliminary treasurers report give Door prizes and dollar raffle held, Winners of door prizes won "AZTEC CHALLENGE" and "MUSIC PROGRAM", donated by members to whom I apologize for getting their names. Winner of the Dollar Raffle received "TUNNELS OF DOGM".

After a discussion of the proposed new Bylaws, they were adopted by a sizable majority and will now be the rules of record for the group. Our grateful thanks to Dave Birek, Charles Strink, and Frank Miskevich who gave their time create the bylaws, and to Dan and Anita Hayes for preparing them for the printer.

After an open discussion of the open equipment policy, it was voted that the present policy of renting space at the Computer Bug be continued indefinitely and the log-on fee of \$2 per hour be continued.

After open discussion, it was approved by the membership to purchase a Dot-Matrix printer for the group's use with a ceiling of \$300. This printer will be housed with the group equipment.

Discussion of the Library policies became embroiled in opposing positions and the discussion finally was tabled with no decision. (see proposal from Executive for possible solution).

Introduction was made of new Creative Programming SIG. Idea is to take creative idea people, elaborators, and programmers and utilize their individual talents to come up with new and exciting programming.

George Due announced the organization of a TI-FORTH SIG. (see accompanying articles).

Meeting adjourned 8.39

MULTIPLAN IS BUGGED

TRIED AND TRUE MULTIPLAN for the TI 99/4A doesn't do everything perfectly. Although recursive multiplication gives same good result on Scientific American test as TI BASIC, its exponentiation ($1.0000001^{2^{27}}$) is not quite as good (674621.4635).

Worse is a real glitch in its SQRT (and $\wedge .5$) routine. All seems well except for arguments between .01 and .1. results in this range are a factor of ten too high!! Instead of .1, SQRT(.01) gives 1.0, etc. $\wedge .5$ gives same anomolous results as SQRT(). The only remedy I've found is to use $\wedge .4999999$ in place of SQRT or $\wedge .5$. some precision is lost in the ninth decimal place but the factor of ten error is avoided. The TI BASIC SQR routine does not share this problem.

TED ANDERSEN 840420

THE MSP 99 NEWSLETTER

DIAGNOSE YOUR TI-99/4A!!

Here's a short but effective little program for a rapid 'fault' diagnosis on the TI-99/4A. Simply type-in the program in Basic, run it and obey the instructions for a quick analysis of the primary systems of your TI-99/4A. You may get some interesting results!

```
10 RANDOMIZE
20 CALL CLEAR
40 PRINT "THIS IS A"
50 PRINT "COMPUTER DIAGNOSIS"
60 PRINT
70 PRINT "PRESS <ENTER> AFTER"
80 PRINT "EACH REPLY."
90 PRINT
100 PRINT "WHAT IS YOUR CODE NAME?"
110 INPUT N$
120 IF N$="" THEN 100
130 CALL CLEAR
140 PRINT "ALRIGHT, ";N$;","
150 PRINT "YOUR CODE NAME IS ACCEPTED."
160 PRINT "NOW, TYPE A FOUR DIGIT CODE"
170 PRINT "NUMBER, THEN PRESS <ENTER>."
180 PRINT
190 INPUT "WHAT IS YOUR NUMBER?":N
200 IF N>999 THEN 210 ELSE 220
210 IF N<10000 THEN 260
220 PRINT
230 PRINT "INVALID NUMBER! TRY AGAIN."
240 PRINT
250 GOTO 190
260 CALL CLEAR
270 PRINT "YOUR NAME IS: ";N$
280 PRINT
290 PRINT "YOUR NUMBER IS: ";N
300 PRINT
310 PRINT "IS THAT RIGHT? (Y/N)"
320 CALL KEY(0,A,ST)
330 IF ST=0 THEN 320
340 IF A<>89 THEN 20
350 CALL CLEAR
360 PRINT "O.K., ";N$;"," PRESS (C) TO"
370 PRINT "BEGIN A QUICK"
380 PRINT "HARDWARE CHECK."
390 CALL KEY(0,A,ST)
400 IF A<>67 THEN 390
410 CALL CLEAR
420 FOR T=1 TO INT(8*RND)+5
430 PRINT "LOCATION#";T;"= ACCEPTABLE"
440 FOR D=1 TO 300
450 NEXT D
460 NEXT T
470 PRINT "LOCATION#";T;"= ERROR DETECTED"
480 PRINT
490 PRINT "PRESS <ENTER> FOR HELP"
500 CALL KEY(0,KEY,STATUS)
510 IF KEY<>13 THEN 500
520 CALL CLEAR
530 PRINT N$;"," "DIAGNOSTICS SHOW"
540 PRINT "THAT YOUR COMPUTER HAS A"
550 FOR X=1 TO 27
560 READ P
570 PRINT CHR$(P);
580 FOR D=1 TO 200
590 NEXT D
600 NEXT X
610 PRINT
620 PRINT "PLEASE WAIT 15 SECONDS FOR A"
630 PRINT "COMPLETE DIAGNOSIS."
640 FOR D=1 TO 700
650 NEXT D
660 CALL CLEAR
670 FOR T=15 TO 1 STEP -1
680 PRINT "TIME:";T
690 FOR D=1 TO 200
700 NEXT D
710 CALL CLEAR
720 NEXT T
730 CALL CLEAR
740 CALL SCREEN(10)
750 REM **BE SURE YOUR ALPHA LOCK KEY IS DEPRESSED!**
760 A$="FFFFFFFFFFFFFF"
770 CALL CHAR(128,A$)
780 READ A,B,R
790 IF A=-1 THEN 820
800 CALL HCHAR(A,B,128,R)
810 GOTO 780
820 READ A,B,R
830 IF A=-1 THEN 860
840 CALL VCHAR(A,B,128,R)
850 GOTO 820
860 GOTO 860
870 DATA 83,69,86,69,82,69,32,73,78,84,69,82,78,65,76
880 DATA 32,77,65,76,70,85,78,67,84,73,79,78,2,3,5,2
890 DATA 9,5,2,15,5,2,21,5,6,3,5,6,9,5,6,15,5,8,16,1
900 DATA 9,17,1,10,18,1,11,19,1,11,21,5,11,27,4,14,3
910 DATA 5,14,9,5,14,15,5,14,27,4,18,3,4,18,27,4,23,9
920 DATA 5,23,15,5,23,21,5,23,27,4,-1,-1,-1,2,3,10,2
930 DATA 7,10,2,9,10,2,13,5,2,15,10,2,19,5,2,23,10,2
940 DATA 27,10,14,3,10,14,9,10,14,13,10,14,15,10,14
950 DATA 19,10,14,21,10,14,27,5,18,30,5,-1,-1,-1
```

LIBRARY

FIRST OF ALL WE WISH TO ANNOUNCE THAT THE LIBRARY COMMITTEE HAS COMPLETED THEIR MONUMENTAL TASK OF UPGRADING AND CATALOGGING THE GROUP LIBRARY. IT IS NOW AVAILABLE TO THE MEMBERSHIP.

Secondly, in light of the controversy that has disrupted and splintered our group, the EXECUTIVE BOARD has felt compelled to come up with a system for the library that will hopefully meet the desires of all, and eliminate the objections.

It is the recommendation of the EXECUTIVE BOARD that the following modifications be made in the handling of the group library.

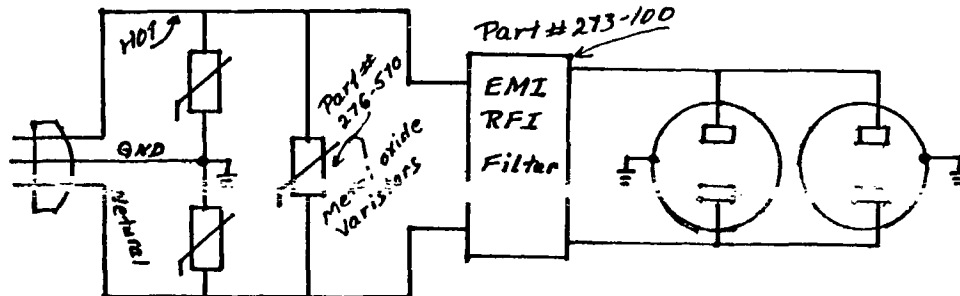
It should not be the responsibility of the Librarian or Committee to debug programs submitted to the library. This is the responsibility of the total membership. At the same time we recognize the desirability of a library of working, unbugged programs. Therefore we propose that a two tier system of programs be adopted.

Only programs that have been screened and approved by the Librarian will be entered into the official cataloged library files. All other programs will be available to the membership as experimental programs and so filed but not rigorously cataloged. Any improvements, debugged versions, etc shall be submitted (with rem documentation) on diskettes labeled "TO THE LIBRARIAN". ABSOLUTELY NO MODIFICATIONS, CORRECTIONS, ENHANCEMENTS, OF ANY TYPE ARE TO BE MADE TO EITHER OFFICIAL OR EXPERIMENTAL PROGRAMS BY ANY MEMBER EXCEPT THE LIBRARIAN. This should lighten the load of the Library Volunteers and eliminate the problems that have occurred in the past.

As to the cassette lend-out program, for the time being we will leave this to the discretion of those administering it. However we strongly suggest that they consider the possibility of only making copies as ordered from the members and charge what handling would be required.

In closing, we want to say that those people who dedicated so much time to the improvements in the Library are to be congratulated and profusely thanked.

Their devotion should shine as an example to all of us of the meaning of group spirit.



From the LA 99ers COMPUTER GROUP comes the schematic to build your own EMI/RFI & Transient Suppressor. If you only want a transient filter to protect against voltage spikes leave out the EMI/RFI filter. All parts can be purchased at Radio Shack.

TI USERS GROUP - EXECUTIVE BOARD MEETING APR 26

Meeting opened 8:26 Present:

Roy Carlson, President
Nancy Senay, Corresponding Secretary
Tippi Comden, recording Secretary
Arlene Gzesh, Treasurer
Jonathan Zittrain, V. Pres.

The following items were discussed:

1. Printer purchase - on which there is a \$300 limit. Suggested printers,
\$280 Epson RX 80
269 Gemini 10x
Both require a \$20 cable.
Roy will ask for bids on these two printers, should be decided by
June.

2. BBS

Jonathan has written a BBS program. Crawley's BBS is down. Should we
set up a BBS for the club? It will cost about \$800. We will need a P Box
with 232 card and 32K memory, console (maybe 3), auto answer modem, extended
basic,
double density double sided disk drive, cooling fan, private telephone line.
And an operator willing to oversee the operation. One who can program
is advisable.

How to finance? A raffle - with a P Box as a prize.

The program at the next meeting will be on communications, if the
membership gets all fired up on the possibilities, they will vote us the money
we need.

Suggestion: sell advertising space on the BBS - perhaps the vendors
will give us the equipment at cost.

3. Library

Tim Campbell resigned as Chairman of Library Committee but will
continue to work on the committee as a member.

Nancy will write him a letter accepting his resignation, and thanking
him for the work he has done in the past.

Roy will not appoint an interim Chairman as we will be having
elections in June. The new Librarian and committee will be responsible to the
Executive Committee. Library Committee members should work on copys, not on
original.

4. Elections

Elections will be held in June.

5. Meeting closed at 9:11.

"A" stands for "Advanced". The completion time differs greatly in these adventures from one player to another due to his own adventuring experience. These adventures contain harder and more involved problems than the other adventures do.

Well, I hope that you now have a general idea of what type of adventures are in the Adventure Series. I also hope that this will help you pick out the next (or first) adventure that is right for you.

I would like to thank all of you that have asked me for help on an adventure. The response was more than I had expected! I am always here when you need me. So if you have a problem with an adventure or just want to talk about an adventure, call me, Keith, at (412) 469-1713 or write to:

The Adventure Realm
c/o P.U.G.
P.O. Box 18124
Pittsburgh, PA 15236

RESIGNATION

Our Librarian Tim Campbell has submitted his resignation and it has been accepted by the Executive Board. Tim will continue to be active in the group and we welcome his expertise and ideas.

***** TI FORTH *****

Hello PUG,

I am the "PROGRAMMER" and I am going to be writing a column on TI FORTH for the newsletter. In this month's column we will be modifying FORTH so we can use the printer with it.

To begin, load either the -EDITOR or -64SUPPORT. Next type in EMPTY-BUFFERS DECIMAL and press ENTER then 72 EDIT. If your printer uses a serial interface insert or delete the appropriate characters on line 4 after "RS232." The syntax error is on line 5. To fix it change PAB_ADDR @ VSBW to PAB-ADDR @ VSBW. This applies to the 01NOV82 diskname version that the club is selling. To change the screen to support a parallel printer, put the following program in SCREEN 72. Next press FCTN 9. Then FLUSH and press ENTER and the screen will be saved to disk. Type in : XXX ; and press ENTER.

To see if the printer works, type in -PRINT and press ENTER. Type in SWCH 72 LIST UNSWCH and press ENTER. When you press enter you should get a printout of SCREEN 72. If it didn't work, type in FORGET XXX and press ENTER. Then re-edit SCREEN 72, MAKING CERTAIN THAT LINE 4 AND 5 IS CHANGED.

THE PROGRAMMER

SCREEN #72

```
0 ( ALTERNATE I/O SUPPORT FOR PIO PNTR 12JUL82 LCT)
1 0 CLOAD INDEX BASE->R DECIMAL 68 R->BASE CLOAD STAT
2 0 0 0 FILE>PIO BASE->R HEX
3 : SWCH >PIO PABS @ 10 + DUP PAB-ADDR ! 1-PAB-VBUF!
4 SET-PAB OUTPT F-D" PIO" OPN 3
5 PAB-ADDR @ VSBW 1 PAB-ADDR @ 5+ VSBW PAB-ADDR @ ALTOUT ! ;
6 : UNSWCH 0 ALTOUT ! CLSE;
7 : ?ASCII ( BLOCK# --- FLAG )
8     BLOCK 0 SWAP DUP 400 + SWAP
9     DO I C@ 20 > + I C@ DUP 20 < SWAP 7F >OR
10     IF DROP 0 LEAVE ENDIF LOOP ;
11 : TRIAD 0 SWAP SWCH 3 / 3 * DUP 3 + SWAP
12 DO I ?ASCII IF 1+ I LIST CR ENDIF LOOP
13 -DUP IF 3 SWAP - 14 * 0 DO CR LOOP
14 OF MESSAGE 0C EMIT ENDIF UNSWCH ;
15 R->BASE -->
```

61) While talking on the phone to a technician at TI, I discovered that TI accidentally shipped some prototype 248K memory cards (they look like 32K cards). These cards use a special trinary (rather than binary) circuit. To see if you have one (only fifteen were shipped), insert the Editor/Assembler cartridge, go to Edit mode, type 80 "X"s, use the Copy function to get 2 lines of "X"s (Fctn 9 C 1,1,1), then copy 2 lines giving 4 lines, 4 to 8, 8 to 16, etc. If you can get 3065 lines, then you have the 248K card (80 char x 3065 lines = 240K). If you only get 306 lines, then you have the 32K card (80 x 306 = 24K). Note that 8K is used for the Editor.

NOTES FROM TED ANDERSEN

RUMORS OF 248k TI MEMORY CARD TRACED TO 1 APRIL

SEVERAL USERS GROUP MEMBERS PUZZLED OVER APPARRENT SUPER MEMORY CAPACITY AT APRIL PUG MEETING. AN UNSIGNED NOTE SUGGESTED THAT AN INADVERTANT SHIPMENT OF 15 "TRINARY LOGIC" MEMORY BOARDS WITH 248k CAFACITY COULD HAVE FOUND ITS WAY TO LUCKY MEMBERS. THE SUGGESTED TEST OF INSTALLED MEMORY CAPACITY SOUNDS SIMPLE AND CONVINCING. THE LUCKY 15 COULD STORE OVER 3000 80 CHARACTER LINES (240k characters) WITH THE EDITOR ASSEMBLER EDITIOR AT ONE TIME. PROOF CONSISTS OF SEEING ALL LINES ON THE MONITOR AND EVEN FILLING A NEW DISK TO OVERFLOWING (90K) UPON FILE SAVE.

The bubble popped, however, when one member suggested that the illusion was a normal function of the editor which actually does not fill memory with repetitive strings but rather keeps track of your document with mirrors (pointers). Output to screen or disk, however, gives all appearances of full sequential content. This is a valuable insight. Further tests at home showed that TI-WRITER behaves identically to the Editor/Assembler in this respect and, as expected, the Foundation 128k card behaves just like the TI 32k card. So, if you ever want to know how many X's you can store at one time, rest assured that your trusty TI 99/4a can make it look like over 240k. Just don't try to do it without repetitive strings.

60x FASTER THAN BASIC

THIS TMS9900 DISASSEMBLER IS 100% MACHINE CODE. IT RUNS 60x FASTER THAN MY BASIC VERSION, WHICH APPEARED IN THE MARCH 1983 "99'ER MAGAZINE".

OUTPUT THE HEX ADDRESS, VALUE, MNEMONIC, AND OPERAND(S) TO SCREEN OR PRINTER.

DISK SYSTEM, MEMORY EXPANSION, AND EITHER MINI MEMORY OR EDITOR/ASSEMBLER REQUIRED.

DISK ONLY \$20.00

COOTER BUG

THIS COLORFUL NON-VIOLENT GAME RUNS IN CONSOLE BASIC. SIMPLE TO PLAY. EXCELLENT FOR YOUNG CHILDREN. ROLL THE DIE AND BUILD THE COOTERBUG. 1 TO 4 PLAYERS.

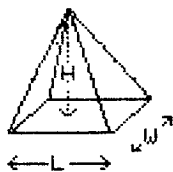
PROGRAM IS ENHANCED WITH OPTIONAL SPEECH. (SYNTHESIZER & TEII MODULE REQUIRED)

CASSETTE OR DISK \$12.00

GEOMETRIC SHAPES

GRAPHICALLY DISPLAYS GEOMETRIC SHAPES, WITH ALL DIMENSIONS LABELED. CALCULATES AREAS, VOLUMES, ETC. EXTENDED BASIC REQD.

VOLUME - RECTANGULAR PYRAMID



$$V = L \times W \times H / 3$$

$$\text{WIDTH} = 2.4$$

$$\text{LENGTH} = 3.75$$

$$\text{HEIGHT} = 9.3$$

$$\text{VOLUME} = 27.9$$

CASSETTE OR DISK \$15.00

GET ALL 3 PROGRAMS FOR \$40.00
ORDER ANY 2 AND DEDUCT \$3.00

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HANDLING AND POSTAGE (USA ONLY) INCLUDED

ECONOMY LETTER QUALITY

For some time, I have been fascinated by the possibility of a typewriter as a letter quality printer. Early on, the interfaces were for the IBM Selectric, at around \$500 for interface alone. Since, Olivetti has revolutionized typewriters with the introduction of the electronic daisy-wheel typewriter. Now the Japanese and others have followed with a plethora of similar machines--more reliable, and far less costly than the Selectric. A number of manufacturers now offer electronic typewriters with an interface built-in, or available as an accessory.

The original Olivettis (Praxix 30 and 35) have recently been offered by such as Ward's and Service Merchandise at very reasonable prices. Thus, I acquired one, and researched the interfaces available. One from California, retailing at \$149.95 was selected. It simply emulates the typewriter keyboard.

I find it serves me well. This, and any other of my notes printed in this issue, were done in various typefaces available.

This combination produces print quality the equal of any, but is relatively slow (about 10 cps) and would be too light for heavy production. If you already have an Olivetti Praxis, I recommend this gambit highly. If not, there may be a better approach available in another electronic typewriter which may (or may not) cost less for typewriter plus interface, and a somewhat higher-cost approach can be effected by the use of certain letter quality printers together with a keyboard.

The typewriter approach is less than optimal for program listing, as typewriters do not have the ASCII character set used in computers, so that some characters are substituted, or not printed. But if you have need for a portable typewriter and a printer, this is an economical solution.

People can order the kit directly from California if they wish. I will provide them at the same price. The installation manual contains errors... Installation is also available. Call 343-7421.

R.M. Bies

TI-FORTH

STARTING WITH THE MAY MEETING OF THE P.U.G., AN INFORMAL CLASS WILL BEGIN DEDICATED TO THE LANGUAGE OF TI-FORTH. SINCE THIS LANGUAGE IS NEW TO ALL OF US, THE CLASS WILL BE STRUCTURED AS A STUDY GROUP, DESIGNED TO OFFER EVERYONE AN OPPORTUNITY TO LEARN TO USE AND PROGRAM THIS POWERFUL NEW LANGUAGE. THIS LANGUAGE RUNS MANY TIMES FASTER THAN BASIC AND ALLOWS MUCH FULLER USE OF THE 99/4A. HERE IS A SHORT PROGRAM THAT DEMONSTRATES THE SPEED ADVANTAGE OF FORTH.

```
***EXTENDED BASIC***
100 FOR A=1 TO 30000
200 NEXT A
```

```
***TI-FORTH***
: TEST 30000 0 DO LOOP:
TEST
```

BOTH OF THESE PROGRAMS COUNT FROM 1 TO 30,000 AND THEN END. THE BASIC PROGRAM TAKES APPROXIMATELY 200 SECONDS...FORTH DOES IT IN 2.1 SECONDS!!

MY RECOMMENDATION FOR BASIC READING WOULD BE "STARTING FORTH" BY LEO BRODIE.

CALL ME IF YOU HAVE QUESTIONS, IDEAS, OR COMMENTS.

GEORGE DUE PH# 243-8868

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