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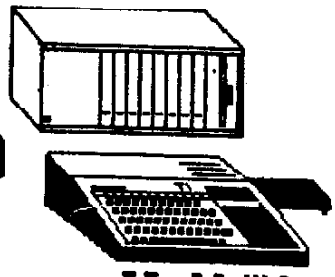

THE BREAD BOARD

OFFICIAL NEWLETTER OF THE
TIDEWATER 99/4 USER GROUP INC.
Post Office Box 1935
Newport News, VA. 23601

A Non-Profit Virginia Corporation dedicated to educating and enlightening TI-99/4 users to the full potential of home computing.

DALLAS TI HOME COMPUTER
1221 MOSSWOOD
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MEETING NOTICE: *The Southside Chapter meets every first and third Tuesday of each month at E.C.P.I. (Electronic Computer Programming Institute) located at 3661 East Virginia Beach Blvd. at Ingleside Ave. Educational classes start at 6:30 pm in room 206 followed by the regular meeting and discussion groups at 7:30 pm. For March, circle the 4th and 18th on your calendars for meeting nights.*

The Peninsula Chapter meets every second Tuesay of each month at Warwick High School, 51 Copeland Lane, Room 220-22. Formal meetings begin at 7:30 pm, with informal discussion before and after the meeting. Library is open to members during informal sessions. For March, the regular scheduled meeting is March 11th.

PUBLICATION NOTICE:
THE BREAD BOARD is published monthly by the officers of THE TIDEWATER 99/4 USERS GROUP for distribution free to its members only. There are no subscription fees and not available for sale. Entered as third class postage at Grafton, Va. under permit No 61. Reviews of products are the opionion of the contributing individual and may not reflect the views of the group, or its officers. A favorable review is not an endorsement, nor does the group, its officers and/or editors assume any liabilty for omissions or unfavorable reviews. Contrasting opinions are solicited and will be published if accepable. Any rebuttal or contrasting view received and deemed unacceptable or not publised due to space requirements, etc., will be acknowledged in the newsletter with information on how to obtain a copy (usuallly a return addressed envelope with proper postage.) Contributions in the form of reviews, articles, short original or public domain programs and/or classified items should be submitted to any club officer at any regular meeting (or within one week thereafter) for publication in the next newsletter.

* PENINSULA CHAPTER NEWS *

NOTES FROM THE PRESIDENT

We have had two well attended meetings with excellent presentations and one successful workshop so far this year. Several people have become new members. We now have a Program Committee with Terry Smithwick as chairman and a Newsletter Committee with Judy North as chairman. The combined newsletter mailing of the two chapters is over 200. This entitles us to bulk mailing privileges of 12.5 cents per copy postage and, if we can qualify as a non-profit educational corporation, this will be reduced by 4 cents. With this behind us we look to the near future. We still need a Membership Committee to encourage consistant attendence at meetings and involvement in all our activities and promote a continual growth. (I believe there are a lot more TI-99's out there than we know about.) I urge all members to serve on at least one of these committees. We hope the program committee will be able to line up programs for several meetings and workshops or software parties in the future. We intend for the Newsletter Committee to provide articles and help Don Andrews with the production of the newsletter. Obviously, these committees must coordinate their activities.

I have a recurring idea that somehow and somewhere we could put together a show where almost every member would bring and set up his/her TI-99 in a sort of booth and each person give a demonstration to the general public of one or two of the great variety of things our computers are capable of doing. This would have several benefits. It would show that the TI99 is not dead, but, on the contrary, is just about the most versatile home computer ever made and for that reason has great utility. It would provide a general education to the public in very graphic form of computer capabilities in general and the TI-99 in particular. It would encourage TI-99 owners to try some things they have not yet tried. The publicity would not hurt the club. And finally it may tend to increase the value of the equipment and software we now have, which would help in the event someone might have to sell it. I don't know whether this is a workable idea or not, but I would like some feedback. How about it?

Jim Trant

NOTES FROM THE VICE PRESIDENT:

I don't know where it is 1986 is taking us, but for me it seems to be a fast trip! Here we are preparing for St. Patrick's Day, and I'm still getting around to acknowledging Christmas Cards and don't even talk about the revolving charge accounts! I seem to have fallen behind in keeping up with everything we are offered by third party software and hardware for the TI 99/4. Judy North's presentation on TI ARTIST II was a good example of what is on the market. About the biggest item in the news is Miller Graphic's Gram Craker. Someone in our group is going to have to give a demo on this one! I would hope my budget would allow that someone to be me, but that's just another "I wish. . .". This makes the third newsletter we have gotten out as a merged group, and this issue will be the last of the "dry runs". In other words, NEXT MONTH - for sure- we will get our act together! Actually, I have been working closely with Ken McLaurin and Ken Woodcock in getting it together and the omissions would indicate that I didn't work closely enough! We have yet to receive your input as to what you want to see in the Newsletters. I have had a chance to read some from other groups and feel that ours, although on occasion does not have the individual contributions, stacks up with the best of them. (Now to work on those reader submitted items!) We want to welcome 3-M Company as a sponsor (advertizer) to the newsletter. Both our chapters now have 3-M disks in their libraries, a couple of interesting articles relating to disks, and an invitation to use the 3-M disk hot line (800) 328-9438 for answers to your disk related problems and questions. One of the first tips I was regarding the red write protect tabs: "Don't use them!" Also, please note our printer now has two locations on the peninsula to serve you.

Don Andrews

SECRETARY's REPORT:

Our workshop held Saturday, February 1, was a big success. Eight out of ten members who had ordered the parts, showed up to assemble their "homebrew module" at St. Steven's Episcopal Church. Those of of you who did not get in on this project may want to talk with those who did, and give it a try! If enough members are interested, we will place another order for the required parts thru the group. Any of the members of the Southside Chapter who missed the same project conducted by Ken Woodcock may give their name to Ken, who has agreed to pass the info along to Jim Trant who will place the order if enough are interested. Our thanks and appreciation are expressed to Ken who gave of his time and shared his ability in conducting this workshop.

The regualry scheduled meeting for February was held Tuesday, February 11th at the Warwick High School, and was promply called to order by the president Jim Trant, at 7:30p.m. In attendance were a bakers dozen (13) members and one visitor.

In the absence of both the club secretary and treasurer, a motion was made, seconded, and carried that the reports from these officers as printed in the newsletter be accepted as having been read. It was reported in "Old Business" that our bank account had not been changed to reflect our new name, so it was moved, seconded, and carried that both the bank and post office be properly notified of the change.

In "New Business", Don Andrews read two letters received during the month, one from the postal service requesting additional information on our original application for "non-profit status" in mailing our newsletters. It was moved that this information be researched and provided by the corporation, seconded and carried. The second correspondence was from 3-M Corporation offering merchandise in lieu of payment for an ad in newsletter. After much discussion as what per-centage of this package should be shared with the Tidewater Chapter, it was decided (by two seperate motions) that we should accept the offer from 3-M and have the Board of Directors for the Corporation prepare a resolution to establish policy in this regard, with emphasis to be placed on the equitable distribution of all revenues, material, or services received for the group, in proportion to the efforts exerted by the individual chapters.

It was pointed out by the president that our standing committees had become somewhat non-existant and that we were required to elect two representatives to serve on the board of directors of the Corporation. After unanimously electing Jim Trant and Vic Vogelsang as our directors, an appointment to chair the membership committee was tabled due to the small membership turnout. Appointed to serve as chairman of the Newsletter Committee was Judy North, and as Program Committee: Terry Smithwick. A motion was made by Terry Smithwick to offer a "reduced membership" fee to prospective members as a "subscription fee" to the newsletter. After some discussion, this motion was withdrawn. Discussion turned to the present status of our disk drive which we had received only an estimate, considered to be excessive, for repair with a "plus parts" phrase in estimate, making the already excessive estimate meaningless. Judy North agreed to negotiate a possible trade of our memory expnsion for a "PE Box". The business session of the meeting was adjourned at 8:10 p.m. and we were all treated to an interesting, informative, and well prepared presentation by Judy North on TI ARTIST II.

Earl Andrews

TREASURER's REPORT:

Reported Last Month. .	$110.97
Income	53.14
Outgo (Printing/Postage) .	72.84
Cash Balance on Hand . .	$ 91.27

Brad Long

NOTES FROM ANONYMOUS:

Would you believe I used to have a problem with public speaking? I would simply freeze up if I got in front of a group--forget what it was I wanted to say, and just be a bundle of nerves. Now it doesn't matter if it's in front of a croud, with my family, or with friends: I don't know when to SHUT UP!

PROGRAM NOTICE

Our program for March will be presented by Terry Smithwick. Terry's topic will be "Logic Structures in Extended Basic". This should be a subject we are all familiar with but still have a lot of questions. Perhaps this presentation will answer most of them. It promises to be another informative program. See you all there.

* SOUTHSIDE CHAPTER NEWS *

TREASURERS REPORT: Dick has completed his transfer audit and has provided the following report.

Balance brought forward		$549.30
Income; from dues		60.00
for legal fees PC		69.18
Sub total		678.48
Expenses; ½ postal,Vol 5-1		86.32
½ Vol 5-2(est)		36.00
Balance		$556.16

FROM THE LIBRARIAN: A number of new programs have been added to the library. There is still a need to add any freeware programs you may have to the library for distribution. For those not familiar with the term freeware, these are programs that are distributed free of charge by the originator with the understanding that should the user keep it, then the recommended fee as stated in the program should be sent to the originator. The library is still looking for additional programs that are of interest or may be of help to our members. Documentation is still important to understanding programs. Also,if you use a program from the library and can/or do change it, please feedback a copy to the library noting that changes have been made.

MEETING NOTES: The first meeting of the month included classes on starting FORTH. Classes on FORTH will continue during the first meeting of each month. The second meeting each month will include classes on Extended BASIC. Next months meeting will be on Functions, Rational and Logical Expressions, and using equations. Don't forget to bring your documentation to help follow along. There will be a special presentation during the March 18th meeting by Doctor Hal Breedlove on Video Display Terminal effects on the operators eyesight. Interested members are being asked to attend the Corporation board meeting to be held on March 11th, the same day and place as the Peninsula Chapter meeting. It was decided at the last meeting to persue the acquisition of a second half-height disk drive for the Chapter's computer. Make a note of the new TI parts telephone number (806) 741-3090.

FROM THE SYSOP: Based in the home of one of our southside members is TUG TIBBS, your own TI Electronic Bulletin Board. It presently boasts 58 members, including those from North Carolina, Delaware and New York.

On TUG TIBBS we not only share messages; we share TI news, want ads and programs. Yes, TUG TIBBS has Up/Down load capability of TI programs donated by other members or passed on by members from COMPUSERV or out-of-town TIBB's.

What do you need to get in on this Tele-Computering? - Just your computer, a RS-232 interface, a Modem and a TE II cartridge. If you plan on up or down loading programs, you will need a disk drive also.

GIVE IT A TRY, THE PHONE # IS 486-1484.

One note: since the cost of operating TUG TIBBS ($17 per month) is carried by the SYSOP, a one time donation of $10 is asked to become s member. GIVE IT A TRY.

SCREEN UTILITIES #1 - Billy Denny: I got the idea for this from the screen scroll program by John Behnke in the Bread Board. As well as down, this program scrolls right and left by CALL LINK("RIGHT,LEFT OR DOWN"). After the CALL LOAD command of the file you call the program. This is a nice extra for EXTENDED BASIC. It's in the library.

```
       DEF LEFT,RIGHT,DOWN
GPLWS  EQU >83E0
STATUS EQU >837C
VMBW   EQU >2024
VMBR   EQU >202C
RIGHT  LI R0,0          LOOP2  BLWP @VMBW
       LI R1,10000             AI R0,32
       LI R2,768               AI R1,32
       BLWP @VMBR              CI R0,768
       LI R0,1                 JLT LOOP2
       LI R1,10000             B @BTB
       LI R2,31         DOWN   LI R0,0
LOOP   BLWP @VMBW              LI R1,10000
       AI R0,32                LI R2,735
       AI R1,32                BLWP @VMBR
       CI R0,768               LI R0,32
       JLT LOOP                BLWP @VMBW
       B @BTB
LEFT   LI R0,0          BTB    CLR R0
       LI R1,10000             MOVB R0,@STATUS
       LI R2,768               LWPI GPLWS
       BLWP @VMBR              B @>0070
       LI R0,0
       LI R1,10001
       LI R2,31                END
```

```
      IDT 'UTILXB/S'
*****************************************************************
*              written by Ken Woodcock                          *
*                                                               *
* This program provides 5 assembly language routines that can be called *
* from XBASIC. They are: CALL LINK("PEEK$",ADD,A$)  CALL LINK("POKE$",  *
* ADD,A$()  CALL LINK("PEEKV$",ADD,A$)  CALL LINK("POKEV$",ADD,A$(,)    *
* and CALL LINK("MOVMEM",TYPE,FROMADD,TOADD,QTY). For the two PEEK's, A$ *
* must be initialized to contain the number of bytes to "PEEK" before   *
* issuing the CALL LINK. The two "POKES" operate with an array -A$(),   *
* Do not use element zero and make sure that the element following the  *
* last active one is null as this signals the routine to return to the  *
* XBASIC program. MOVMEM will move blocks of memory as specified by TYPE *
* 1-VDP to VDP 2-VDP to CPU 3-CPU to VDP 4-CPU to CPU  QTY is the number *
* of bytes to move. ADD is the address for the operation and for all    *
* routines it must be an integer from -32768 to 32767 - same as for     *
* CALL PEEK & CALL LOAD.                                        *
*****************************************************************
*
* this version for use with XBASIC
*****************************************
      DEF  PEEK$,POKE$,PEEKV$,POKEV$,MOVMEM
VSBW  EQU  >2020
VMBW  EQU  >2024
VSBR  EQU  >2028
VMBR  EQU  >202C
NUMREF EQU >200C
STRREF EQU >2014
XMLLNK EQU >2018
STRASG EQU >2010
FAC   EQU  >834A
STATUS EQU >837C
BF    BSS  256
WS    BSS  32
SAVE  BSS  2
PEEK$ MOV  R11,$SAVE
      LWPI WS
      CLR  R0
      LI   R1,1
      LI   R2,BF
      LI   R4,>FF00
      CLR  R5
      CLR  R6
      BLWP $NUMREF      get ADDRESS from CALL LINK
      BLWP $XMLLNK      convert to integer
      DATA >1288
      MOV  $FAC,R3      put ADDRESS into R3
      INC  R1           point to 2nd LINK variable (A$)
      MOV  R4,$BF       set max string length to 255
      BLWP $STRREF      put A$ into buffer
      MOVB @R2,R5       put length of A$ in R5
      JEQ  RETURN       if string length is zero return to basic
      SWPB R5           length to LSB
      LI   R6,BF+1      R6 points to 1st data location in BF
LOOP1 MOVB *R3+,*R6+    copy contents of memory to buffer
      DEC  R5           byte counter
      JNE  LOOP1        more bytes to move
      BLWP $STRASG      done, put buffer contents into A$
RETURN CLR  $STATUS
      LI   R11,>83E0
      MOV  @$SAVE,R11
      B    *R11
POKE$ MOV  R11,$SAVE
A6    LI   R1,2         2ND VARIABLE IN LINK LIST FOR STRREF
      LI   R2,BF
      INC  R0           GET NEXT ARRAY ELEMENT (START WITH #1)
      MOV  R4,$BF       MAX STRING LENGTH TO 1ST BYTE OF BUFFER
      BLWP $STRREF      READ ARRAY ELEMENT #(R0) INTO BUFFER
      MOVB @R2,R8       ACTUAL STRING LENGTH TO R8
      JEQ  RETURN       IF LENGTH =0 RETURN TO BASIC
      SWPB R8           PUT STRING LENGTH IN RIGHT BYTE
      MOV  R0,R5        save array element #
      LI   R1,BF+1      address of buffer for VMBW
      MOV  R8,R2        # of bytes for VMBW
      MOV  R3,R0        VDP address for VMBW
      BLWP $VMBW        poke buffer data to VDP
      CLR  R8
      MOV  R5,R0
      A    R2,R3        increment VDP address for next time
      JMP  A6           do it again
MOVMEM MOV R11,$SAVE    save return address
      LWPI WS
      CLR  R0
      LI   R1,2
      BL   $LOOP        get FROMADD
      MOV  $FAC,R5      put FROMADD into R5
      INC  R1
      BL   $LOOP        get TOADD
      MOV  $FAC,R6      put TOADD into R6
      INC  R1
      BL   $LOOP        get QTY
      MOV  $FAC,R2      put QTY into R2
      LI   R1,1
      BL   $LOOP        get TYPE
      MOV  $FAC,R4      put TYPE into R4
      CI   R4,1
      JEQ  VDPVDP       TYPE IS 1
      CI   R4,2
      JEQ  VDPCPU       TYPE is 2
      CI   R4,3
      JEQ  CPUVDP       TYPE is 3
      CI   R4,4
      JEQ  CPUCPU       TYPE is 4
      B    $RETURN
LOOP  BLWP $NUMREF      get number from "CALL LINK"
      BLWP $XMLLNK      convert number to integer
      DATA >1288        >1288 for XBASIC >1200 FOR E/A
      RT
VDPCPU MOV  R5,R0       put FROMADD into R0 for VSBR
V1    BLWP $VSBR        read byte from address in R0 into R1
      MOVB R1,*R6+      move that byte to CPU
      INC  R0           read next byte
```

```
        LI   R1,>0001     1ST  VARIABLE IN LINK LIST FOR NUMREF
        LI   R11,STATUS   STATUS BYTE
        L    R4,>FF00     MAXIMUM STRING LENGTH (255)
        CLR  R0
        LI   R2,BF        R2 CONTAINS BUFFER ADDRESS FOR STRREF
        CLR  R8
        CLR  R5
        BLWP @NUMREF      SET ADDRESS TO POKE TO
        BLWP @XMLLNK      CONVERT ADDRESS TO INTEGER
        DATA >1288
        MOV  @FAC,R3      PUT ADDRESS INTO R3
        LI   R1,>0002     2ND VARIABLE IN LINK LIST FOR STRREF
A5      INC  R0           GET NEXT ARRAY ELEMENT (START WITH #1)
        MOV  R4,@BF       MAX STRING LENGTH TO 1ST BYTE OF BUFFER
        BLWP @STRREF      READ ARRAY ELEMENT #(R0) INTO BUFFER
        MOVB @R2,R8       ACTUAL STRING LENGTH TO R8
        JEQ  RETURN       IF LENGTH =0 RETURN TO BASIC
X1      SWPB R8           PUT STRING LENGTH IN RIGHT BYTE
        LI   R5,BF+1      ADDRESS OF FIRST CHARACTER IN BUFFER
A4      MOVB @R5+,*R3+    MOVE BYTES FROM BUFFER TO MEMORY LOCATION
        DEC  R8           START WITH "X" BYTES
        JNE  A4           NOT AT ZERO YET
        JMP  A5           R8=0..MOVED ALL BYTES
PEEKV$  MOV  R11,@SAVE
        LWPI WS
        CLR  R0
        LI   R1,1
        LI   R2,BF
        LI   R4,>FF00
        CLR  R5
        CLR  R6
        BLWP @NUMREF      get ADDRESS from CALL LINK
        BLWP @XMLLNK      convert to integer
        DATA >1288
        MOV  @FAC,R3      put ADDRESS into R3
        CI   R3,>3FFF
        JGT  RETURN       return to Basic if ADDRESS too high
        INC  R1           point to 2nd LINK variable (A$)
        MOV  R4,@BF       set max string length to 255
        BLWP @STRREF      put A$ into buffer
        MOVB @R2,R5       put length of A$ in R5
        JEQ  RETURN       if string length is zero return to basic
        SWPB R5           length to LSB
        MOV  R3,R0        ADDRESS to R0 for VMBR
        LI   R1,BF+1      buffer address to R1 for VMBR
        MOV  R5,R2        # of bytes in R2 for VMBR
        BLWP @VMBR        VDP data moved into buffer
        CLR  R0           setup registers for STR2SG
        LI   R1,2
        LI   R2,BF
        BLWP @STR2SG      done. put buffer contents into A$
        JMP  RETURN
POKEV$  MOV  R11,@SAVE
        LWPI WS
        LI   R1,>0001     1ST  VARIABLE IN LINK LIST FOR NUMREF
        LI   R11,STATUS   STATUS BYTE
        LI   R4,>FF00     MAXIMUM STRING LENGTH (255)
        CLR  R0
        CLR  R8
        CLR  R5
        BLWP @NUMREF      GET ADDRESS TO POKE TO
        BLWP @XMLLNK      CONVERT ADDRESS TO INTEGER
        DATA >1288
        MOV  @FAC,R3      PUT ADDRESS INTO R3
```

```
        DEC  R2           have we moved all bytes?
        JNE  V1           no - do it again
        JMP  V3           yes - return to BASIC program
CPUVDP  MOV  R5,R0        put TOADD into R0
V2      MOVB *R5+,R1      move byte to R1 for writing to VDP
        BLWP @VSBW        write MSB in R1 to VDP address in R0
        INC  R0           location to write next byte
        DEC  R2           have we written all bytes?
        JNE  V2           no - do it again
V3      B    @RETURN       yes - return to BASIC program
CPUCPU  MOVB *R5+,*R6+    copy 1 byte at a time
        DEC  R2           all bytes moved?
        JNE  CPUCPU       no - do it again
        JMP  V3            yes - return to BASIC program
VDPVDP  MOV  R5,R0        FROMADD to R0
        BLWP @VSBR        read a byte
        MOV  R6,R0        TOADD to R0
        BLWP @VSBW        write a byte
        INC  R5           FROMADD +1
        INC  R6           TOADD +1
        DEC  R2           QTY -1
        JNE  VDPVDP       not zero-do it again
        JMP  V3
        END
```

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AN OPEN LETTER TO JIM PETERSON

While it is not our intention to appear non-appreciative in any way, and we do not like to look a gift horse in the mouth, we have had several inquiries from members if we could not print the TIGERCUB TIBS in the same 3 column (or when space permitted--2 column) format as the rest of our newsletter. Jim, you have been doing this column as what you call "promotional purpose". We consider it a greater contribution to our newsletter due to its professionalism. If you don't approve of our "changes", let us know. Our main concern is in making "TYPOS" in the process. Thanks again for your support and concern.

You will probably note that I was able to get all your material in, plus my own comments, all in the same two pages. I might add, you supplied the know-how.

Don Andrews

TIPS FROM THE TIGERCUB #31

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165 Collingswood Ave
TIGERCUB SOFTWARE Columbus, OH 43213

Distributed by Tigercub Software to TI-99/4A Users Groups for promotional purposes and in exchange for their newsletters. May be reprinted by non-profit users groups, with credit to Tigercub Software.

Over 130 original programs in Basic and Extended Basic, available on casette or disk, only $3.00 each plus $1.50 per order P&H. Entertainment, education, programmer's utilities. Descriptive catalog $1.00, deductable from your first order.

Tips from the Tigercub, a full disk containing the complete contents of this newsletter (Nos. 1 thru 14), 50 original programs and files, just $15.00 postpaid.

Tips from the Tigercub Vol. 2, another diskfull, complete contents of Nos. 15 thru 24, over 60 files and programs, also just $15. postpaid. Or, both for $27. postpaid.

Nuts Bolts (No. 1), a fill disk of 100 Extended Basic utility subprograms in merge format, ready to merge into your own programs. Plus the Tigercub Menu-loader, a tutorial on using subprograms, and 5 pages of documentation with an example of the use of each subprogram. All for just $19.95 postpaid.

Nuts Bolts No.2, another disk of 108 utility subprograms in merge format, all new and fully compatible with the last, and with 10 pages of documentaion and examples. Also $19.95 postpaid, or both Nuts Bolts Disks for $37. postpaid.

Tigercub full Disk Collection, just $12. postpaid! Each of these contains either 5 or 6 of my regular $3 catalog programs and the remaining disk space has been filled wiht som of the best public domain programs on the same category. I am NOT selling public domain programs - my own programs on these disks are greatly discounted from their usual price, and the public domain is a FREE bonus!

REFLEX CONCENTRATION	BRAIN TEASERS
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WORD GAMES (#) KID's	KALEIDOSCOPES and
GAMES (#) MORE GAMES	DISPLAYS

A few people have asked for a program that they could use to encode personal messages on BBS. Considering the current legal threats to BBS's I doubt that a SysOp will allow coded messages, but here is a coder/decoder to create code that should be quite difficult to crack. First we need another of those programs that write a program -

```
100 !CODEPRINT by Jim Peterson-creates a
    random code in a MERGE format program
    CODESTRING to be MERGEd intoCODEMAKER
110 FOR J=1 TO 254::N$=N$&CHR$(J)::NEXTJ
120 FOR J=1 TO 254::RANDOMIZE:: X=INT
    (RND#LEN(N$)+1):: C$=C$&SEG$(N$,X,1)
    :: $=SEG$(N$,1,X-1)&SEG$(N$,X+1,LEN
    (N$)):: NEXT J
130 OPEN #1:"DSK1.CODESTRING",VARIABLE
    163,OUTPUT :: PRINT #1:CHR$(0)&CHR$
    (1) &"C $"&CHR$(190)&CHR$(199)&CHR$
    (127)&CHR$(0)
140 PRINT #1:CHR$(0)&CHR$(2)&"C2$"&CHR$
    (190)&CHR$(199)&CHR$(127)&SEG$
    (C$,128,127 )&CHR$(0)
150 PRINT #1:CHR$(0)&CHR$(3)&"C$"&CHR$
    (190)& "C$"&CHR$(184)&"C2$"&CHR$
    (0):: PRINT #1:CHR$(255)&CHR$(255)::
    CLOSE #1 :: END
```

And now the coder/decoder--

```
100 !TIGERCUB CODEMAKER written by Jim
    Peterson
110 ! The MERGE format programs CODESTR
    ING created by the program CODEPRINT
    must be MERGEd into lines 1 - 3 of
    this program
120 DIM A$(254):: DISPLAY AT(3,6)ERASE
    ALL:"TIGERCUB CODEMAKER" :: DISPLAY
    AT(12 ,1):"Do you want to":"(1)
    Encode":"(2)Decode"
130 CALL KEY(0,K,ST):: IF K=49 THEN 140
    ELSE IF K=50 THEN 290 ELSE 130
140 OPEN #1:"DSK1.CODE",VARIABLE 254,
    OUTPUT
150 DISPLAY AT(5,6)ERASE ALL:"Type
    message in segments of ":"not more
    than 254 haracters":"and ENTER. When
    done, type"
160 DISPLAY AT(9,1):"END and ENTER. Type
    slowly":"to avoid skipped characters
    .":"Backspace with FCTN S to":" corr
    rect.": :"Press any key"
170 CALL KEY(0,K,ST):: IF ST=0 THEN 170
180 CALL CLEAR:: CALL LONGACCEPT(0,M$)::
    IF M$="END" THEN 280
190 DISPLAY AT(20,1):"WAIT, PLEASE -
    ENCODING" 200 FOR J=1 TO LEN(M$) 210
    A$(ASC(SEG$(C$,J,1)))=SEG$(M$,J,1)
200 FOR J=1 TO LEN(M$)
210 A$(ASC(SEG$(C$,J,1)))=SEG$(M$,J,1)
220 NEXT J
230 FOR J=1 TO 254 :: RANDOMIZE
240 IF A$(J)="" THEN A$(J)=CHR$(INT(26*
    RND+65))
250 CODE$=CODE$&A$(J)
260 NEXT J :: PRINT CODE$
270 PRINT #1:CODE$::CODE$="":FOR J=1 TO
    254 :: A$(J)="" :: NEXT J:: GOTO 180
280 CLOSE #1 :: END
290 OPEN #1:"DSK1.CODE",VARIABLE 254,INP
    UT::CALL CLEAR::DISPLAY AT (12,10):"
    AT(12,10):"DECODING"
300 LINPUT #1:CODE$:: FOR J=1 TO 254::M$
    =M$&SEG$(CODE$,ASC(SEG$(C$,J,1)),1):
    : NEXT J :: PRINT M$::: M$=""
310 IF EOF(1)<>1 THEN 300::CLOSE #1::END
320 SUB LONGACCEPT(L,M$)::X=0::IF L<>0
    THEN R=L ELSE R=R+1
330 M$="" :: C=3 :: CH=140 :: CALL CHAR
    (140,RPT$("0",14)&"FF")
340 CALL HCHAR(R,C,CH)::CH=CH+5+(CH=160)
    #25 :: CALL KEY(0,K,ST):: IF ST<1
    THEN 340
350 IF K<>8 THEN 370 :: X=X-1 :: C=C-1::
    IF C=2 THEN C=30 :: R=R-1
360 M$=SEG$(M$,1,LEN(M$)-1):: GOTO 340
370 IF K=13 THEN 410
380 X=X+1 :: M$=M$&CHR$(K)::CALL HCHAR
    (R,C,K):: IF X=254 THEN 410
390 C=C+1 :: IF C=31 THEN C=3 :: R=R+1::
    IF R=25 THEN CALL CLEAR :: R=1 400
    GOTO 340
410 R=0 :: SUBEND
```

Here is a simple little game I call Cover-Up. Use the #1 joystick, try to cover up the white square with the black square. Press the fire button to speed up, relaease it to slow down.

```
100 CALL CLEAR :: CALL CHAR(96,RPT$("F",
    64)):: CALL SPRITE (#1,96,5,92,124)
    ::CALL MAGNIFY (4)::CALL SPRITE(#2,
    96, 16, 100,100)
110 X=INT(20*RND)-INT(20*RND):: Y=INT
    (20*RND)-INT(20*RND):: CALL MOTION
    (#2,X, Y)::T=T+1::IF T=250 THEN 300
120 CALL JOYSPEED(1,1)::CALL COINC(#1,
    #2, 8,A)::IF A=-1 THEN 130 ELSE 110
130 Z=Z+1 :: DISPLAY AT(1,1):Z :: CALL
    SOUND(-50,500,5):: GOTO 120
300 CALL DELSPRITE(ALL):: DISPLAY AT(12,
    5):"YOUR SCORE IS "&STR$(Z)::DISPLAY
    AT(20,1):"PRESS ENTER TO PLAY AGAIN"
310 CALL KEY(0,K,S):: IF S=0 OR K<>13
    THEN 310 :: T,Z=0 :: GOTO 100
21110 SUB JOYSPEED(N,A):: CALL JOYST(N,
      X,Y):: CALL KEY(N,K,ST)::S=S+K/9-1
      ::S=S*ABS(S)>0):: IF S>30 THEN S=30
21111 CALL MOTION(#A,-(Y*S),X*S)::SUBEND
```

For a one-handed BREAK, if you cant reach FCTN 4, try FCTN with <J> and the space bar together.

If you like to call BBS's, try the TIBBS Spirit of 99 BBS in Columbus, Ohio on (614)451-0880 and leave me a "hello!"

Probably useless info - Holding down FCTN and CTRL together, and typing 1, 2, 3, 4, 5, will give ASCII codes 145 151, 133, and 148, which are the coces obtained from CTRL B, W, E, and T, the keys diagonally below the 1,2,3, and 5.

Occasionally someone sends me a program they have keyed in from my newsletter, and asks why it won't run, so I wrote this routine to help find the errors. It is also useful to check whether two copies of a program are identical, but only if they have not been resequenced.

```
100 !CHECKER by Jim Peterson-to compare
    two programs and list all differing
    lines to the printer
110 DISPLAY AT(12,1)ERASE ALL:"1st
    Program DSK/filename?":"DSK" ::
    ACCEPT AT(13, 4):F1$
120 DISPLAY AT(12,1)ERASE ALL:"2nd
    program DSK/filename?":"DSK" ::
    ACCEPT AT(13, 4):F2$
130 OPEN #1:"DSK"&F1$,INPUT:: DIM M$
    (500),CH(500):: OPEN #2:"PIO",VAR
    IABLE 255 :: PRINT #2:CHR$(15)
140 X=X+1 :: LINPUT #1:M$(X):: M$(X)=
    M$(X)&" ":: IF EOF(1)<>1 THEN 140::
    CLOSE #1 :: OPEN #1:"DSK"&F2$,INPUT
150 IF EOF(1)=1 THEN 230 :: LINPUT #1:X$
    :: X$=X$&" "
160 FOR Y=1 TO X
170 IF X$=M$(Y)THEN CH(Y)=1 :: GOTO 150
180 NEXT Y
190 P2=POS(X$," ",1)::P2$=SEG$(X$,1,P2-1)
200 FOR Y=2 TO X :: P1=POS(M$(Y)," ",1)::
    P1$=SEG$(M$(Y),1,P1-1)
210 IF P2$=P1$ THEN PRINT #2:"1st Program
    = ";M$(Y)::"2nd program = ";X$ ::
    CH(Y) =1 :: GOTO 150
220 NEXT Y :: PRINT #2:"2nd program =
    ";X$ :: GOTO 150
230 FOR J=1 TO X :: IF CH(J)=0 THEN PRINT
    #2:"1st Program = ";M$(J)
240 NEXT J
250 CLOSE #1 :: CLOSE #2
```

Here's a great idea that was printed and reprinted in several newsletters:

At the beginning of a program that will run only in Basic, add the lines--

```
1 IF PI=0 THEN (first line of program)
2 PRINT "YOU ARE IN EXTENDED BASIC":"THIS
  PROGRAM RONS ONLY IN BASIC"
3 STOP
```

The idea is that PI is a function in XBasic with the value of pi, but is just a variable name in Basic with an undefined value of 0.

The trouble is, it doesn't work! If PI is keyed in from Basic and saved, it is saved in token format as a variable name, and when loaded back into XBasic is still just a variable name. And if PI is save from XBasic, it is tokenized as a function, loads back into Basic as an unrecognized function and crashes! Can anyone come up with a way around that? The above is the answer to the Challenge in Tips #30. Lines 100 and 110 were keyed in and saved from Basic, and loaded back into XBasic, then lines 120 and 130 were keyed in.

Here is a handy PEEK that hasn't been published as widely as most of them:

```
100 CALL INIT
110 CALL PEEK(8192,X)!Thanks to Dale
    Loftis in the Orange County U6 News-
    letter!
120 PRINT X !If X=32 you are in Extended
    Basic; If X=165 you are in Basic
    with the Editor/Assembler or Mini
    Memory Module inserted.
```

And another 3-D sprite demo, just to make all the Apple polishers jealous. See if you can figure out how it works.

```
100  CALL CLEAR :: CALL SCREEN(5):: CALL
     CHAR(100,RPT$("F",64)):: CALL MAGNIFY
     (4):: FOR S=5 TO 9 :: CALL COLOR (S,
     16,1):: NEXT S
110 DISPLAY AT(3,3):"TIGERCUB SPRITE SHUF
    FLE" !By Jim Peterson
120 DATA 70,116,2,75,121,7,69,124,11,78,
    115,16
130 FOR J=5 TO 8 :: READ P(J,1),P(J,2),
    L(J)::CALL SPRITE(#J,100,L(J),P(J,1),
    P(J ,2)):: NEXT J :: N=45
140 DATA 5,6,7,8,8,5,6,7,7,8,5,6,6,7,8,5
150 RESTORE 140::FOR Y=5 TO 8::READ A,B,
    C,D
160 FOR J=1 TO N :: CALL LOCATE(#A,P(A,
    1)-J,P(A,2),#B,P(B,1),P(B,2)-J,#C,
    P(C,1)+J,P(C,2),#D,P(D,1),P(D,2)+J)::
    N=90:: NEXT J:: GOSUB 180
170 NEXT Y :: GOTO 150
180 FOR J=5 TO 7:: CALL POSITION(#J,P(J+
    1,1),P(J+1,2))::NEXT J::CALL POSITION
    (#8,P(5,1),P(5,2))
190 T=L(8)::L(8)=L(7)::L(7)=L(6)::L(6)=L
    (5):: L(5)=T
200 FOR J=5 TO 8:: CALL SPRITE(#J-4,100,
    L(J), P(J,1),P(J,2)):: NEXT J
210 FOR J=5 TO 8 :: CALL SPRITE(#J,100,
    L (J),P(J,1),P(J,2)):: NEXT J:: CALL
    DELSPRITE(#1,#2,#3,#4):: RETURN
```

Do you need some really REAL BIG letters on the screen? Just type your letter at the beep.

```
100 DIM X$(96):: CALL CLEAR :: FOR CH=33
    TO 89 STEP 8 :: FOR A=0 TO 7 !REAL
    BIG LETTERS by Jim Peterson
110 CALL CHARPAT(CH+A,X$(CH+A-32)):: CALL
    CHAR(CH+A,"0"):: L$=L$&RPT$(CHR$
    (CH+A) ,3):: NEXT A
120 FOR T=1 TO 3 :: R=R+1 :: DISPLAY AT
    (R,4):L$ ::NEXT T:: L$="":: NEXT CH
130 CH$(1)=RPT$("0",16):: CH$(2)=RPT$
    ("F",16)
140 CALL SOUND(100,500,0)
150 CALL KEY(0,CH,S):: IF S=0 OR CH>96
    THEN 150
160 CALL HEX_BIN(X$(CH-32),B$):: FOR J=9
    TO 64 :: CALL CHAR(J+32,CH$(VAL(SEG$
    (B$ ,J,1))+1))
170 NEXT J :: GOTO 140
180 SUB HEX_BIN(H$,B$)::HX$="0123456789A
    BCDEF":: BN$="0000X0001X0010X0011X01
    00X0101X0110X0111X1000X1001X1010X101
    1X1100X1101X 1110X1111"
190 FOR J=LEN(H$)TO 1 STEP -1 ::
    X$=SEG$(H$,J,1)
200 X=POS(HX$,X$,1)-1::T$=SEG$(BN$,X05+1,
    4)&T$ :: NEXT J :: B$=T$ :: SUBEND
```

THOUGHT FOR THE DAY:

The excuses for piracy are exactly the same as the excuses for shoplifting, but you probably won't have to tell them to the judge--in this world, at least.

And that is almost

MEMORY FULL

Jim Peterson

Now you may think that was a lot of work, typing in two pages of fine print with data and control characters with a high risk of errors. Well, I was going to type in the programs anyway,so I just experimented a little. Once I had them typed in, I just listed them to the disk (the way you would list them to the printer) and merged them in with the text using TI Writer. Now for me, this was something new! Perhaps you knew it all the time; but now will someone tell me how to do the reverse process? How do you convert a DISPLAY VARIABLE 80 file to a Basic (or XBasic) program?

As irony would have it, CHECEKER was the program I couldn'g get to work! I retyped it, listed it to compare with the original, found no typos, but always the same, "I/O ERROR 02 IN 130". Now I know that Jim sometimes prints corrections, as do all computer magazines with user type-in programs. I just hope I'm not adding to the "chain", in that it will become necessary for us to initiate a column to print the errors in previous newsletters.

Having previewed the programs, I can tell you of the error, so be prepared for the "bug" I'll have the orignal for your perusal at the meeting; maybe by then you have been able to get it to work. There is one other routine you should be aware of prior to keying it in. As short as the PEEK routine is, you will have to convert the ! statements if you want to check it in Basic. In Basic alone, you will get a response, BAD NAME IN 100, while if you leave the (!) statement you get, BAD NAME IN 110. Convert them to REM statements with a seperate line number. The message coder works, but I'm not sure if you can have more than one message on a disk, as the "coded" message is saved on the disk with the file name, CODE. I assume any second message erases the first. If you plan to use it, try this out, first. The sprite demo I used to "unwind", after all the stress buildup in typing in programs. Didn't try to figure it out, just relaxed. Another reason for leaving Jim's TIPS as they appear, is that in the format he has printed them, the program listings actually provide a check against typing errors. No, they won't tell you if you have hit an "A" instead of an "S", or if you used a colon for a semicolon; only if you left out a comma,or a bracket--by the length of the line. Regardless of how you enter the program, (spaces between seperators, or just run it all together, when you list it, (if there were no errors) it should appear on your screen just as it appears on the paper. Looking over my work, I don't see that it is any easier to copy, and the risks of errors outweigh any potential benefit realized in space. Copying programs by typing them in from a printed source, is always going to be a chore, and the answer to that one is to subscibe to the disk media when ordering a magazine, and order the software from the TIGERCUB in disk form.

PEEKs & POKEs

You're going to see a demonstration of an address this month, but I'm not going to say much about what is going on. See if you can follow the logic of the program, and next month I'll try and explain what's happening with this rather busy POKE.

The address is -31788. When you run the program, you'll see that this address possesses a great deal of control over Sprites. Line 120 is taken from the Extended Basic Manual under the Sprite subprogram section. It's an excellent program to help demonstrate this POKE.

When you start the program, the screen will be black. After it changes to gray, press any key. This process will repeat several times until the program ends. Have fun trying to figure out what the different POKE values are doing, and what activates them.

Besides the POKE, this program illustrates a very simple user-written Subprogram: CALL TOUCH. It's been my experience that people seem somewhat intimidated by this powerful programming tool. Maybe this program will show just how easy it is to incorporate your own CALLs in programs.

```
100 CALL CLEAR :: RANDOMIZE
:: CALL SCREEN(2):: CALL INI
T
110 S$="000809ICF1C0808" ::
 S$=S$& S$& S$& S$ :: CALL CHAR
(96,S$)
120 FOR A=1 TO 28 :: CALL SP
RITE(#A,96,INT(A/3)+3,92,124
,A*INT(RND*4.5)-2.25+A/2*SGN
(RND-.5),A*INT(RND*4.5)-2.25
+A/2*SGN(RND-.5)):: NEXT A
130 C=C+1 :: CALL SCREEN(15)
140 ON C GOTO 200,300,400,5
00,600,700
200 CALL LOAD(-31788,192)::
CALL TOUCH(C):: GOTO 120
300 CALL LOAD(-31788,225)::
CALL TOUCH(C):: GOTO 120
400 CALL LOAD(-31788,226)::
CALL TOUCH(C):: GOTO 120
500 CALL LOAD(-31788,227)::
CALL TOUCH(C):: GOTO 120
600 CALL LOAD(-31788,224)::
CALL TOUCH(C):: GOTO 120
700 CALL LOAD(-31788,160)::
CALL TOUCH(C):: END
1000 SUB TOUCH(C)
1010 CALL KEY(0,K,S):: IF S=
0 THEN 1010 :: IF C>1 THEN C
ALL DELSPRITE(ALL)
1020 CALL SCREEN(2)
1030 SUBEND
```

One value that can be POKEd at -31788, that's not used in the above program, is 232. This will put the computer in multicolor mode.

Enter the following program in XBasic, or Basic if either the Editor Assembler or Mini Memory module is plugged in. (You don't need the CALL INIT in Basic.)

```
100 CALL INIT
110 CALL LOAD(-31788,232)
120 INPUT A$
130 GOTO 120
```

In XBasic, FCTN 4 will return you to the normal mode. However, if you are operating out of Basic, you'll need to press FCTN 4, and then "in the blind" enter CALL LOAD(-31788,224) and press any key to get out of multicolor mode. The value 224 is the default value;i.e., the value you would find when you turn the computer on and perform a CALL PEEK at -31788.

I don't know of any real use for multicolor mode, but it does provide for some interesting displays.

Barry Ensley

LOSING YOURSELF IN TI ARTIST

Have you ever wished that you, who can't even draw a straight line, could create beautiful graphics on your computer and print them out on your printer? If so, I have the program for you. It is called TI-ARTIST and it will allow you to do just that. It is the most professional and sophisticated program that I have seen for the TI computer, with speed and functions that I didn't even know our orphan was capable of. The program is similar to Mac-Paint and Mouse-Paint by Apple, but it is in color as well as black and white.

TI-ARTIST requires disk drive, memory expansion, and one of the following: Extended Basic, Editor/Assembler, Mini Memory, TI-Writer, Corcomp Manager or Myarc Disk Controller. A printer is optional. Most printers can be used with this program including Epson compatibles, Prowriter compatibles, Okidata, and Axiom printers. It also requires an input device such as a joystick, but it can be used with Super Sketch or a mouse.

The instruction booklet is professionally done and very good. All functions are explained adequately, although sometimes the information you want is not where you expect to find it. There are so many functions available in the program, that I find myself referring to the booklet frequently. However, I think you could do quite well with no instructions at all. Only when you get into the more complex functions are the instructions necessary.

TI-ARTIST has a menu which is icon oriented, meaning that each function is indicated as a picture. Using the joystick, you can select the function of your choice. Pressing the space bar takes you back and forth between the menu and the drawing board. It is so easy to use that it hardly needs an explanation. Among the functions which are available are draw, point (particularly useful in Zoom mode), line (to draw a straight line), K-line (draws connected lines), rays, fill, frame (draws a rectangular frame), box (draws a filled rectangle), circle (draws an outlined circle), disc (draws a filled circle), swap (changes colors), invert (switches black and white in picture), alpha-num (prints text of different sizes), zoom (enlarges a protion of the picture for detailed work), mirror (draws four images at a time on the screen like a kaleidoscope), store (to save or load a screen), hard possible to change the brush style, the fill pattern, and the color. You can also erase in most modes by changing the plot/erase cursor.

In addition to the basic program there is an enhancement program which you enter by going to the main menu with FCTN-= then selecting (2) Enhancement. In this you are able to move, copy or flip portions of the picture you have created. You can also add text using fonts created with other programs such as Character Sets and Graphic Design. Slides (small graphics) can be used or created and instances (portions of pictures) can be loaded and incorporated in your picture or saved on disk from the picture you have created. This is a very powerful feature which can save a lot of time. It is possible to create a logo for your business or club, save it, and use it repeatedly in pictures, letterheads, newsletters, etc. The computer on the newsletter header was created this way. A set of slides (electronic symbols) is shown on the enhancement menu and can be used in the picture you are creating. Another slide set can be created from portions of your picture or a previously saved set can be loaded in for use. This gives you up to 24 small graphics to use.

One other feature which is available on the main menu is a conversion option. This allows you to take screens created by several different drawing programs and convert them to be used in TI-ARTIST. This is particularly useful if you ha another drawing program which has a feature that you need to create your drawing (for instance, Graphx has a feature which allows you to draw ellipses as well as circles).

I have had TI-ARTIST for about 2 months now and have been extremely pleased with it. It is easy to use, fast, fun, versatile, and a great value. It is definitely worth more than the $19.95 purchase price. If you have the desire to create graphics using your computer I think this program would be the answer.

Along with TI-ARTIST I purchased ARTIST EXTRAS. This floppy-floppy disk includes fonts, instances, and pictures as well as input device DSR's for joystick, Super Sketch, and a mouse. It is a valuable addition to TI-ARTIST.

TI-ARTIST is available from: INSCEBOT Inc., P. O. Box 260, Arnold, MD 21012. Include $19.95 plus $1.50 postage and handling. ARTIST EXTRAS is $6.95.

Judy North

DEDICATION OF ISSUE

We want to wish our club treasurer, Brad Long, who is presently hospitalized at Georgetown University, a very speedy recovery. We unerstand Brad may rem in the hospital for the next month or . for those individuals wishing to send a personal note, Brad's address will be: Room 5016-B, Georgetown University Hospital, 3800 Resort Road., N. W. Washington D. C. 20007. In the meantime, Brad, you are remembered in our prayers, and we have dedicated this issue of the Breadboard in