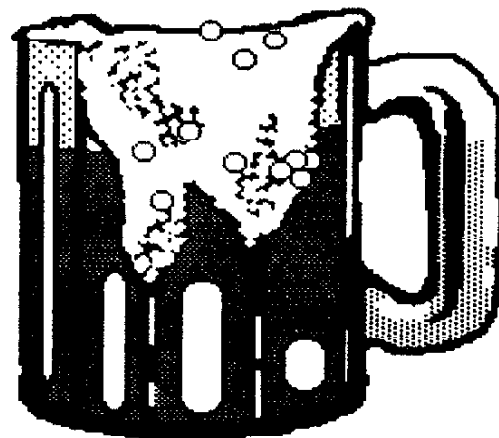
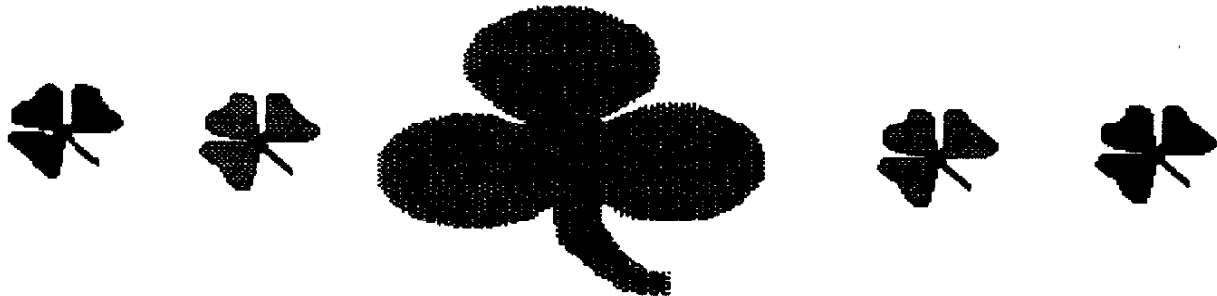


# TI - D - BITS

PHILADELPHIA AREA USERS GROUP NEWSLETTER  
COVERING THE TI99/4A  
AND MYARC 9640 COMPUTERS

## MARCH 1992

Volume 12 Number 3



The Philadelphia Area TI-99/4A Users' Group meets twice a month. On the first Saturday of each month, at The Church of the Atonement, 6200 Green St. Germantown (Corner of Green St and Walnut Lane) at 10 A.M. And on the third Saturday of each month, we meet at Drexel University, in Matheson Hall at 34th and Marker St. Phila. Pa Check the room chart posted at Matheson Hall for the current Room No. Membership to The Philadelphia Area TI-99/4A Users' Group is available to all. We invite anyone that is interested in the TI-99/4A to visit us. Stop in and see what is available to you for your TI and how membership can benefit you!

Current executive board consists of:

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**PROGRAM**

Barry Traver

REMEMBER to be considerate when calling any of the above people. Limit your calls to the early evening hours. (6pm to 9pm)

The opinions expressed herein are those of the individual authors are not necessarily those of the Philadelphia Area TI-99/4A Users' Group or its officers. Nor is the Philadelphia Area TI-99/4A Users' Group or any of its officers responsible for any damage, inconvenience, or loss which may result as a consequence of the use of any written material herein.

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The editor of TI-d-Bits or the executive board of The Philadelphia area TI-99/4a Users' Group reserve the right to reject any material submitted for publication for any reasons.

The Philadelphia Area TI-99/4A Users' Group's program library is available to all active members at NO CHARGE for copying to your disk. A charge of \$2.00 per disk is made for club supplied disks for members. Non members may obtain copies of the library for a fee of \$5.00 per disk. A catalog of the library's contents is given to all new members upon request and updates will appear in this publication from time to time. To obtain material from the library, contact the librarian for the best procedure to obtain your requests.

TI WORLD NEWS

Taken Fm THE SUNCOAST BEEPE  
TI IBM User'S Group Newsletter

Compiled by Jim Peterson

Since PC Transfer has long been unavailable, due to the failure of JP Software to fill orders or answer inquiries, it is welcome news that Bruce Harrison has released Smart Connect, a program to transfer files between TI and PC files into increments small enough to be loaded into TI-Writer. The program is available for \$10.00, which includes shipping and Handling, from Harrison Software, 5705 40th Place, Hyattsville MD 20781. Also the price of their unique Word Processor has been reduced from \$20.00 to \$14.00, which includes PP&M.

Jerry Coffey has reached an agreement with J. Peter Hoddie to distribute JP Software programs. He will also work with buyers who have paid for but never received products from JP Software; in these cases he requests that the purchaser send him as much information as possible, including xerox copies of checks, statements, etc. His address is: 9119 Tetterton Ave., Vienna Va 22182.

By request of the Southern Nevada Users's Group, the TI SYSOP of Delphi, Jerry Coffey, has agreed to set up a newsletter section where TI user groups can upload their newsletters. SNUG intends to upload their newsletter and to cease mailing hard copies to other groups, which has become too expensive. They are urging other groups to do the same.

SNUG has also amended their constitution to include "PC and compatibles". This may mean that their newsletter will soon be of little interest to TI users. They have observed that when a TI group opens its doors to other computers - SunCoast, Brevard, Broward, etc. - their newsletters soon drop any mention of the TI. Florida used to be a major center of TI activity, but only the Miami group seems to be very active these days. The Daytona group

survives only as an informal get-together, and several others have been swallowed up by Big Blue.

Asgard Software has released Thumbnails, to organize, catalog and convert MacPaint pictures; Starbase Raiders, an arcade style game; and Gofer, a utility for use with Page Pro 99. The price of each is \$12.95 plus \$3.00 shipping and handling.

The Channel 99 Users Group in Hamilton, Ontario will probably dissolve at the end of the year due to the unwillingness of anyone to serve as officers or editor. The numerous TI groups in Canada do not have much contact with the U.S. groups since the cost of mailing newsletters across the border became too high.

Don O'Neal's DIGI-PORT is a cable which plugs into the TI, CorComp or Myarc parallel port and allows you to play, through an external amplifier, 8-bit digitized sounds ported over from IBM, MacIntosh, Amiga, Atari ST, SoundBlaster or whatever. The software, which is supplied, will also play the sounds through the TI-99/4A's own sound generator, but only a 5-bit accuracy. The TI with memory expansion alone can only play 10 seconds of digitized sound, but when augmented with additional memory it can play much longer, up to 10 minutes or more. Also supplied in the package are 10 disks in a choice of SS/SD containing short sounds for the TI-99/4A alone, DS/SD containing longer sounds for the 4A with 80-column card, DS/DD with still longer sounds for the MEMEX, RAMBO or Geneve, or DS/QD with longer sounds. The price is \$39.95 US, from OPA, G432 Jarvis St. Toronto, ONT, Canada M4Y-2H3. OPA also apparently offers additional sound disks.

Asgard Software has announced a much improved Version 2.0 of the Asgard Mouse, and much improved software to go with it. There are no compatibility problems with programs written for the old Mouse. Current owners can obtain the new software by returning the mouse disk with \$7.50, which includes postage. They can upgrade to the new Mouse by returning

the old version, providing it is serviceable, together with the adapter cable and \$15.00 plus \$3.00 shipping and handling. The Asgard Mouse, with software, can be purchased for \$49.95 PLUS \$5.00 shipping and Handling.

Asgard has also released the Mouse Development Package, which enables programers to add mouse support to their programs. The price is \$14.95 plus \$3.00 shipping and Handling.

Here are some new things that were at the Chicago TI Faire. I got this out of an article that appeared in Nov.'s MICROpendium. One thing is Sound F/X by Barry Boone, digitized sound similar to DIGI-PORT in the article above. Also there is TIM converter for TIM 80-column DEVICE; POP-cart, a device to put 5-7 of your favorite cartridges and even some disk based programs in one cartridge to be selected by on-screen menu. These are some of the many pieces of hardware and software that are available. Oh yes, the TI is still alive here in Florida. One of the main reasons for inviting the PC was to maintain the group. ...Cliff Roche

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## TI MPS TIPS

By Steve Zimmerman  
Source was GENIE

One of the most useful features of Multiplan (and one that I miss on my Tandy 200 portable!) is WINDOWS! Windows are a BIG THING now--just read the magazine reviews and ads for programs such as Framework and Symphony. Windows enable you to see two parts of the screen, in different areas of the worksheet, at the same time. Sounds simple enough, but what good is it? Well let's say that you have a worksheet with about 60 rows of labels in Column 1, and that you enter data for each day in a month in columns 2-32. since basic column width shows only 4 columns, you can see the labels only while entering the first 3 days data. If you make the columns narrower, of course you can see more -- if the numbers aren't too long! If the numbers are too long, and

you make the columns narrow you just see "\*\*\*\*\*", an error symbol which mean that you have too many numbers to display in that column width. To enable you to enter later columns of data in the proper rows, you need to create a window.

To do this, position your cursor (the cell pionter) in R1C2 (one column to the right of your labels, and hit the W key (for Windows). On the next menu, you want to key S (for Split). On the next menu, key V for vertical, and Multiplan will respond with "at column 2", Linked yes no, with the NO highlighted. Use the tab (Ctrl 2) to move the command cursor from the 2 in "at column" to the Linked field, key Y to link the windows, and then key Enter. With practice, this command sequence becomes W S V Tab Y Enter You now have a window, linked vertically. As you move the cell pointer down in the active window (the one you just created), the lables move along. As you move the cell pointer to the right, columns will disappear on the left side of the second window, but the lables will remain in view. To 'uncreat' this window, key W (for Windows) C (for Close); Multiplan will respond with #2, key Enter, and the window closes.

You can do the same thing with horizontal windows, if you have labels across the top and you want to see them as you move up and down. One thing you cannot do, however, is to link windows which intersect in the same cells. R1C1 cannot be in 2 linked windows, one for R1 (horizontal) and one for C1 (vertical).

You can move the cell pointer between windows by using Ctrl 6 (change window), which makes a different window the active window. Ctrl 6 again will take you back to the orginal active window.

I hope that this 'raises the shades' for those of you with windowing questions! To cover some other questions, I don't know of any way to load the recalc routines when you start out in Multiplan. This will, of course, cause those with only one

drive to have to swap disks, starting with the Multiplan disk, then your data disk, and then back to the Multiplan disk to load the recal routines. The program will also have to access the system disk to set up Names, to do Xternal copies, to show you your disk directory, and to load the routines for logical operators. It appears that these are handled by some type of verlay, which is loaded from the system disk only when needed. I don't know for sure, but it is possible that one or more of these routines uses the same (or overlapping) addresses in memory. Oh yes, one more thing which requires access to the Multiplan system disk is the Help files. These can be quite handy, thought! To get Help, just move your command line cursor to the command you need Help with, and key Fctn ?. To get Help with Help, move the command cursor to Help and hit Enter

One more handy hint on recalculation -- to recalculate a single cell, move your cell pointer to that cell, key E (for Edit), DON'T CHANGE ANYTHING, and hit Enter. This will cause the contents of THAT CELL ONLY to be recalculated. Of course, if you left recalc turned on....

Other handy hints -- to Un-Name Names, enter the Name, and delete the reference in the "to refer to" field -- this deletes the name by making it refer to nothing. To delete an Xternal reference or link, the same procedure is used. You enter X (for Xternal), C (for Copy), from sheet (sheetname), Name (enter the name), to:(delete anything in this field), linked (yes), Enter. This redefines the Xternal copy link to refer to nothing, and the value placed in the cell by the Xternal Copy command will disappear, and the cell will now be unlocked. To change the target of an Xternal copy, use the same procedure, but specify the new cell or cells in the "to:" field. Since each cell or range on the supporting sheet can have only one target (on the dependent sheet), the old link will be replaced by the new.

## SPECIAL TI EQUIPMENT SALE

To be held on Sat. Mar. 7th  
at the Church of the ATONMENT

Rice Hall will be selling all of his equipment. A complete GENEVE system and a TI99/4A system and software plus many other items of interest. This is a good opportunity to pick up that part of your system that you never got around to getting for one reason or another.

## ANOTHER LARGE SALE OF TI EQUIPMENT

The following is a list of TI Equipment and Software and Books being sold by Peter J Lisko Jr. His phone number where he can be reached for those that are interested is on the next page along with the equipment & cartrages. Check it out the price might be just right.

The BOOKS that he has available are as follows:

1. All of the documents that came with the hardware and software listed on the next page.
2. All of the documentation that was provided by Texas Instruments with the console.
3. Using and Programming the TI99/4A.
4. Learning TI99/4A Home Computer Assembly Lanuage.
5. The Elementary TI99/4A.
6. Programmers Reference Giude To the TI99/4a.
7. Compute's First Book Of TI Games.

This Listing is Continued on the next page....> > > > >

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TI 99/4A For Sale  
INCLUDING ALL OF THE FOLLOWING

If you are interested contact  
Peter J. Lisko Jr  
609-589-6761

TI 99/4A Console

Expansion Box equipped as follows:

- CorComp RS232, with 2 serial and 1 parallel
- Two Teak disk drives (one additional spare) and a TI controller
- 32K Memory card

Software:

Applications-

Extended Basic  
Editor Assembler  
Multiplan  
TI Writer  
Disk Manager 2 & Disk Manager 2000  
Terminal Emulator II  
II LOGO II  
Home Budget Manager  
Personal Record Keeping  
Personal Real Estate  
Home Financial Decision  
Tax & Investment Record Keeping  
Securities Analysis

Games-

A-MAZE-ING  
Popeye  
Jaw Breaker  
Story Machine  
The Attack  
TRIS  
Star Runner  
Adventure  
Face Maker  
Video Game One

Education-

Early Reading  
Reading Fun  
Early Learning Fun  
Alligator Mix  
Aline Addition

There are also ten diskettes full of other games !!!

Miscellaneous:

Voice module  
Console Cover  
300 BAUD Modem  
TI Joy Sticks  
Four new boxes of diskettes; many used diskettes

**TI-BASE Tutorial 2 Page 5**  
**NorthCoast 99'ers (C) Martin A. Smoley**

I can't believe I'm on page 5. Well, since I'm using up so much Newsletter space, here is a promo for my sponsor.

**Join The NorthCoast 99'ers UG**

NorthCoast has 3500 plus programs in it's library and produces this great little Newsletter. You can take full advantage of the club's services by mail, and you will be certain of receiving my wonderful tutorials in the future. The membership cost for someone living in the continental United States is only \$15.00. You can send your membership fee to me, Martin A. Smoley, 6149 Bryson Drive, Mentor, Ohio, 44060. Make all checks payable to NorthCoast 99'ers User Group, DO NOT send cash, and I'll expedite your membership personally.

"OK, NUNTST2, line 22." When we get to this point TIB is looking at the first record in NUNTST2, which we have SELECTED in slot #2. Therefore, in line 22, IF the value in TESTID matches or is equal to the value in ID, then TIB will execute all the lines between the IF (line 22) and the ENDIF (line 29). Remember, TESTID holds the ID number which matches the LN, FN and MI we just printed in from the Db TNAMES. ID holds the ID number from the current record of the DB TNTST2. I will not follow the program accurately because TIB will not find a match to make the IF true until the sixth record of this Db. So lets say it finds a match which makes line 22 true. Line 23 prints the information held in TDATE, NUM1, NUM2, and ID under the persons name from TNAMES. Lines 25 and 26 make up an accumulator that keeps a running total of the NUM1 part of any matching records. Similarly lines 27 and 28 keep a running total of the numbers in NUM2 if the ID match is true. Coming from line 28 to line 29, TIB ignores 29 and goes directly to line 30. This line tells TIB to MOVE its pointer to the next record in the file. So we are now looking at the next record in the Db TNTST2. The ENDWHILE in line 31 is not ignored by TIB, and TIB is sent back to line 21 to test the new ID we now have against TESTID which remains the same. This loop goes around and around. Each time it does, it moves to the next record and then checks for (EOF). If its not the End Of File, and it has data to work on it immediately tests to see IF the ID numbers match, etc. When it runs out of data or hits the (EOF), line 21 sends TIB directly to line 32, the first statement after the ENDWHILE. TIB then puts the dashed line into TEMP and prints it. TIB then prints the current date (CDATE), which you entered at the beginning of that other CF, the totals in TNUM1 and TNUM2, and the word TOTAL. In lines 37 and 38 TIB turns Italics off, at the printer. We then RETURN to that other CF named TNTST2. In doing so we throw away all the LOCALs we initialized in this CF. When we land back in the CF named TNTST2 we land on line 49, which changes the screen colors. Line 50 WRITES this CFs name to the screen over screen line 17, which was left there by that other CF. Line 51 SELECTs slot #1, so we are once again working with TNAMES. Line 51 MOVES TIBs pointer to the next record, for a new name, and line 53 sends us back to line 42 to start the whole process over

again. These two loops will ratchet through the names in TNAMES one at a time, and for each name in TNAMES, will completely search TNTST2 for any information that is related to that name by comparing ID numbers in TNAMES to ID numbers in TNTST2. It will continue to search until it runs out of names, or records, in TNAMES. At that time 42 will send TIB to line 54. ALL Dbs will be CLOSED, things that were turned off will be turned back on and the whole thing is finished. In line 58 you are RETURNed to the Dot Prompt. That just about raps this tutorial up except for a few things I said I'd get back to. I threw around a lot of control codes in this set of CFs. If your using FunnelWeb to produce your CFs, you can carry these ideas back to the LABEL program we did last month. Fire up FunnelWeb and retype the CF called LDLS1/C, but this time name it LBS2/C. There are only about 32 lines and most of them are very short. Leave out the present line that reads LOCAL BLNK C 1. Next, add lines 37, 38 and 39 from TNTST2. Insert them between the line that says TOP and WHILE .NOT.(EOF). This will cause your printer to print in Emphasized and Doublestrike Mode. If you don't like that, try what I did in line 43. You can concatenate ( | ) control codes on the front and rear of a character string. There are lots of ways to do it. Before my mind goes completely I'm giving up. I copied the printout from this months stuff below. I'd also like to add that this set of CFs make a nice club demo.

<b>Vivannovitch Elexxie I. 0712881</b>			
03/16/88	100.11	100.22	0712881
<hr/>			
09/11/88	100.11	100.22	TOTAL
<b>Smoley Martin A. 0713831</b>			
01/21/88	800.11	800.22	0713831
02/29/88	200.11	200.22	0713831
06/17/88	1000.11	1000.22	0713831
08/03/88	1200.11	1200.22	0713831
<hr/>			
09/11/88	3200.44	3200.88	TOTAL
<b>Aardvark Grant E. 0717851</b>			
06/06/88	600.11	600.22	0717851
08/27/88	300.11	300.22	0717851
<hr/>			
09/11/88	900.22	900.44	TOTAL
<b>Janes Quincy W. 0820871</b>			
03/03/88	400.11	400.22	0820871
05/12/88	900.11	900.22	0820871
<hr/>			
09/11/88	1300.22	1300.44	TOTAL
<b>Whitman Raymond (Slim) A. 0921861</b>			
12/30/87	500.11	500.22	0921861
03/01/88	1100.11	1100.22	0921861
04/22/88	700.11	700.22	0921861
<hr/>			
09/11/88	2300.33	2300.66	TOTAL

**Continued Next Page.**

**TI-BASE - From INSCEBOT  
TUTORIAL 3 By Martin Smoley  
NorthCoast 99'ers - Oct. 1, 1988  
Copyright 1988 By Martin A. Smoley**

I am reserving the copyright on this material, but I will allow the copying of this material by anyone under the following conditions. (1) It must be copied in its entirety with no changes. (2) If it is retyped, credit must be given to myself and the NorthCoast 99ers, as above. (3) The last major condition is that there may not be any profit directly involved in the copying or transfer of this material. In other words, Clubs can use it in their newsletters and you can give a copy to your friend as long as its free.

```

SET TALK OFF
*
*           9/12/88  WHILE
* Command File WHTST3  ENDWHILE
*   Save as WHTST3/C  DOCASE
*                   ENDCASE
CLOSE ALL
LOCAL ? N 2 0
LOCAL SEL N 2 0
REPLACE ? WITH 0
WHILE .NOT. (?)
  CLEAR
  WRITE 2,8,"** Make A Selection **"
  WRITE 4,10,"> 0 < To Quit CF"
  WRITE 6,10,"> 1 < DO WHTST4"
  WRITE 8,10,"> 2 < DO INITPR"
  WRITE 10,10,"> 3 < SEL. THREE"
  WRITE 12,10,"> 4 < SEL. FOUR"
  WRITE 22,4,"Enter 0-4"
  READ 22,15,SEL
  WRITE 22,3,"
  DOCASE
    CASE SEL = 0
      WRITE 18,10,"Have a nice day"
      REPLACE ? WITH 1
      BREAK
    CASE SEL = 1
      WRITE 18,15,"Number 1"
      DO WHTST4
      BREAK
    CASE SEL = 2
      WRITE 18,15,"Number 2"
      DO INITPR
      BREAK
    CASE SEL = 3
      WRITE 18,15,"Number 3"
      BREAK
    CASE SEL = 4
      WRITE 18,15,"Number 4"
      BREAK
  ENDCASE
ENDWHILE
CLEAR
CLOSE ALL
SET TALK ON
RETURN

```

This month I'll attack the DOCASE, ENDCASE and a couple of additional tidbits. This tutorial will finish off almost all of the major points in the TIB Manual. Hopefully at that point you will have some idea what is going on with this language. Future tutorials will be less wordy and contain more intricate programming. I will also try to touch on the items we didn't cover in the manual so far.

The CF named WHTST3 is listed to the left. It is the beginning of TIBs' menu capability and many other things which can be handled by combinations of WHILE, DOCASE and IF statements. Let's hit the high points. LOCAL ? N 2 0, initializes a local variable named "?". I named it ? because I couldn't come up with a good name for it, as in SEL which stands for selection. ? is a Numeric Variable with a size of 2 and 0 decimal places. A Numeric Variable can also be used as a Boolean Operator (if you're careful). A Boolean Operator is just something that transmits a True or False to TIB. To TIB and to many many programs and computers, False is represented by a Zero "0", and True is represented by a one "1". When we REPLACE ? WITH 0, ? is both a Numeric Variable which contains the value 0 and a Boolean Operator which represents False. WHILE statements need Boolean Operators to decide whether to execute the lines following the WHILE statement or skip them all and go directly to the statement after the ENDWHILE. In this case WHILE .NOT. (?) means WHILE ? is NOT true, do the statements following the WHILE. Because we placed a 0 in ? previously, it is False (or not true), so the WHILE will continue to loop until we change ? to a 1 or True, which you can do in the CASE SELECTION number 0. If you grasp this logic, you can see why I named it ? and why I said be careful. If you don't grasp the idea, just type things in as you see them. There will be more chances to sort out program logic in the future. When we enter the WHILE loop we CLEAR the screen and display a menu which can contain anything you wish TIB to do for you. At the bottom of the input screen TIB asks for your selection. Entering a number from 0 to 4 will set the variable SEL equal to that number. TIB then blanks out line 22 on your monitor and goes into the DOCASE routine. In the DOCASE, TIB goes to the first CASE and compares the value in SEL to the value on the right side of the equal sign. Therefore, if you selected 0 when asked for your choice, TIB would find a True match when it hit the first CASE comparison and would execute the lines between that CASE and the BREAK directly after it. In this case it would display the message "Have a nice day" and REPLACE ? WITH 1, which makes the variable ? True. When TIB hits the BREAK after REPLACE ? WITH 1 it goes to the ENDCASE. In this instance it would then go to the ENDWHILE which sends TIB back to the beginning of the WHILE loop. This time when we hit the WHILE .NOT. ? the ? equals 1 or True so the WHILE loop does not execute and the program goes to the next directive after the ENDWHILE. "I know that is a roundabout way to get here, but the computer can do it a lot faster than I can explain it." If you had selected 0, TIB would then finish and leave this CF which would return you to the DP. If, however, you had chosen any other number, TIB would have performed whatever tasks were present between the CASE that matched the SELECTION and the BREAK that followed it. For example, entering a 2 would DO the CF named WHTST4, or 3 would DO the CF named INITPR. I hope to eventually show you how to put a complete system together that will allow you to maintain and use a membership list for home, club, church or work, using menus and small CFs to do the work for you.

Continued Next Month.



TIPS FROM THE TIGERCUB

#40

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Over 130 original programs in Basic and Extended Basic, available on cassette or disk, only \$3.00 each plus \$1.50 per order for PPM. Entertainment, education, programmer's utilities. Descriptive catalog \$1.00. deductible from your first order.

Tips from The Tigercub, a full disk containing the complete contents of this newsletter Nos. 1 through 14, 50 original programs and files, just \$15 postpaid. Tips from the Tigercub Vol. 2, another diskfull, complete contents of Nos. 15 through 24, over 60 files and programs, also just \$15 postpaid.

\*\*\*\*\*  
\* \* \* \* \*  
\* Tips from the Tigercub \*  
\* Vol. 3 is now ready. \*  
\* Another 62 programs, \*  
\* routines, tips, tricks. \*  
\* from Nos. 25 thru 32. \*  
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\* two Tips disks \$27 or \*  
\* all 3 for \$35 postpaid. \*  
\* \* \* \* \*

\*\*\*\*\*  
Nuts & Bolts (No. 1), a full disk of 100 Extended Basic utility subprograms in merge format, ready to merge into

your own programs. Plus the Tigercub Menuloader, 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 full disk of 108 utility subprograms in merge format, all new and fully compatible with the last, and with 10 pages of documentation and examples. Also \$19.95 postpaid, or both Nuts Bolts disks for \$37 postpaid.

Tigercub Full Disk Collections, 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 with some of the best public domain programs of 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!

TIGERCUB'S BEST, PROGRAMMING TUTOR, PROGRAMMER'S UTILITIES, BRAIN GAMES, BRAIN TEASERS, BRAIN BUSTERS!, MANEUVERING GAMES, ACTION REFLEX AND CONCENTRATION, TWO-PLAYER GAMES, KID'S GAMES, MORE GAMES, WORD GAMES, ELEMENTARY MATH, MIDDLE/HIGH SCHOOL MATH, VOCABULARY AND READING, MUSICAL EDUCATION, KALEIDOSCOPIES AND DISPLAYS

For descriptions, send a dollar for my catalog!

The READFILE subprogram on my Nuts & Bolts #2 disk has a backward parentheses in line 21161. This is the corrected line -

```
21161 DISPLAY AT(17,1):"OPEN
PRINTER #":"NAME? " :: ACCE
PT AT(17,15)VALIDATE(DIGIT)S
IZE(-3):P :: ACCEPT AT(18,7)
:P$ :: OPEN #P:P$ :: GOTO 21
163
```

When Texas Instruments developed Extended Basic, they took away the ability of Basic to redefine or color the characters in sets 15 and 16. ASCII 144 to 159. in order to make room in memory for sprites (they did let us have color set 0 instead. That is why Basic programs which use sets 15 and 16 will crash if you try to run them in XBasic.

Finally, John Behnke published in the Chicago Times newsletter an amazing routine which gave us back those missing sets. His routine was 13 sectors long. Recently, Richard Heath published in the L.A. newsletter a shortened version. And, without having any idea how it works, I have managed to scrunch it down to only 4 sectors -

```
1 CALL BXB
29999 !BXB by Jim Peterson,
adapted from VDPUTIL2 by Joh
n Behnke/Richard Heath
30000 SUB BXB :: CALL INIT :
: CALL LOAD(8194,37,194,63,2
40)
30001 CALL LOAD(16368,80,79,
67,72,65,82,37,58,80,79,75,6
9,86,32,37,168)
30002 !
30003 FOR J=1 TO 136 :: CALL
LOAD(9529+J.ASC(SEG$(J)\[J$
,J,1))):: NEXT J :: SUBEND
30004 SUB CHAR(A,A$):: CALL
LOAD(9500,A):: CALL LINK("PO
CHAR",A$):: SUBEND
30005 SUB COLOR(A,B,C):: CAL
L LOAD(9492,8,15+A,(B-1)*16+
C-1)
30006 CALL LINK("POKEV"):: S
UBEND
```

Note than line 30002 is missing. That's because there is no way to key it in. Once again we need a program that writes a program -  
100 FOR J=1 TO 136 :: READ A

```

:: M$=M$&CHR$(A):: NEXT J
110 OPEN #1:"DSK1.BXBDATA",V
ARIABLE 163,OUTPUT :: PRINT
#1:CHR$(117)&CHR$(50)&"[\[ ]
$"&CHR$(190)&CHR$(199)&CHR$(
136)&M$&CHR$(0)
120 PRINT #1:CHR$(255)&CHR$(
255):: CLOSE #1
130 DATA 2,224,37,20,3,0,0,0
,2,5,48,48,2,6,37,2,205,133,
2,134,37,17
140 DATA 17,252,4,192,2,1,0,
1,2,2,37,1,2,3,18,0,212,131,
4,32,32,20
150 DATA 208,4,9,80,2,32,3,0
,2,1,37,2,2,2,0,8,2,7,11,0,2
,8,7,0,193
160 DATA 1,192,193,193,180,9
7,133,145,135,21,1,113,136,6
,198,145
170 DATA 135,21,1,113,136,21
0,70,10,198,177,137,220,198,
2,131,37,10
180 DATA 17,240,4,32,32,36,1
6,6,2,224,37,20,3,0,0,0,4,32
,32,32,4
190 DATA 192,216,0,131,124,2
,224,131,224,4,96,0,112

```

RUN that to create a file BXBDATA on the disk. Then load the BXB program, and enter MERGE DSK1.BXBDATA. The unprintable line will pop into place. SAVE this completed BXB routine in MERGE format, and merge it into any Basic-only program. If you want, the result can be run through a Compactor program and turned into multi-statement program lines for more speed.

Or, you can write an Extended Basic program using all 16 character sets for graphics and color - actually 17, because set 0 is also available. Even the characters 24 through 31 can be redefined! Craig Miller has warned against fooling around in that area of memory, but there seems to be no problem with redefining the cursor (30) or the edge character (31).

Sprites can only use characters between 32 and 143 and their color cannot be changed with CALL COLOR(#, \_). I have not found any other bugs, but have not had time for much experimenting.

Here's an easy Tigercub challenge - run this one in Basic, not Extended Basic.

```

>LIST
100 DISPLAY AT(1,1):0
>RUN
0
0
Why did it print the zero twice?

```

I wrote this next one primarily for blind users. It converts each PRINT or DISPLAY directly to speech output and also provides a speech prompt for INPUTs.

```

100 !PRINT SPEAKER by Jim Peterson - to add OPEN #1:"SPEECH",OUTPUT and convert PRINT and DISPLAY statements to PRINT #1
110 !Also writes a PRINT #1 for INPUT prompts
120 !Program to be converted must first be SAVED in MERGE format. Recommend it be RE Sequenced before SAVEing, to make room for INPUT lines
130 PS$=CHR$(156)&CHR$(253)&CHR$(200)&CHR$(1)&"1"&CHR$(181)
140 DISPLAY AT(3,1)ERASE ALL:"INPUT FILENAME?":"DSK" :: ACCEPT AT(4,4):IF$ :: OPEN #1:"DSK"&IF$,INPUT ,VARIABLE 163
150 DISPLAY AT(5,1):"OUTPUT FILENAME?":"DSK" :: ACCEPT AT(6,4):OF$ :: OPEN #2:"DSK"&OF$,OUTPUT,VARIABLE 163
160 PRINT #2:CHR$(0)&CHR$(1)&CHR$(159)&CHR$(253)&CHR$(200)&CHR$(1)&"1"&CHR$(181)&CHR$(199)&CHR$(6)&"SPEECH"&CHR$(179)&CHR$(247)&CHR$(0)
170 LINPUT #1:M$ :: P=POS(M$

```

```

.CHR$(156),3):: A=POS(M$,CHR$(162),3):: Z=POS(M$,CHR$(181),3)
180 I=POS(M$,CHR$(146),1):: IF I=0 THEN 210 :: IF Z=0 OR Z<I THEN PRINT #2:M$ :: GOT 0 240
190 MZ$=SEG$(M$,1,1)&SEG$(M$,2,1)&PS$&SEG$(M$,I+1,Z-I-1)&CHR$(0):: PRINT #2:MZ$
200 PRINT #2:SEG$(M$,1,1)&CHR$(ASC(SEG$(M$,2,1))+1)&SEG$(M$,3,255):: GOTO 240
210 IF P+A=0 THEN PRINT #2:M$ :: GOT 240
220 M=MAX(P,A)
230 M$=SEG$(M$,1,2)&PS$&SEG$(M$,M+1,255):: PRINT #2:M$
240 IF EOF(1)<>1 THEN 170 ELSE CLOSE #1 :: CLOSE #2
250 DISPLAY AT(12,1)ERASE ALL:"Type NEW and Enter" :: DISPLAY AT(15,1):"Type MERGE DSK":OF$ :: END
*****

```

#### MOLLY DARLING

```

100 CALL CLEAR :: CALL SCREEN(5):: FOR SE=1 TO 12 :: CALL COLOR(SE,16,5):: NEXT SE
110 DISPLAY AT(3,8):"MOLLY DARLING": " Written and performed by": :TAB(9):"Eddy Arnold" :: DISPLAY AT(24,1):"Programmed by Jim Peterson"
120 FOR D=1 TO 200 :: NEXT D :: DISPLAY AT(12,1):"Just a moment.....": ".....looking for my music..."
130 DIM N(100),N2(100),A(250),B(250),C(250):: F=110 :: FOR J=1 TO 80 :: N(J)=INT(F*.059463094^(J-1)+.5):: NEXT J
140 DATA 16,11,8,16,8,11,16,4,11,18,11,8
150 DATA 20,16,11,23,11,16,25,21,16,29,16,21
160 DATA 23,20,16,23,16,20,23,11,16,23,16,11
170 DATA 20,11,16,20,16,11,20,8,11,20,11,8
180 DATA 20,11,16,25,16,11,23,11,16,20,8,4
190 DATA 18,16,10,18,10,16,18,16,10,18,11,16
200 DATA 18,15,11,18,9,15,18,11,9,18,9,3

```

```

210 DATA 28.8.1.28.13.8.28.8
,13,28,13,4
220 DATA 27,20,18,27,18,20,2
0,18,12,20,12,18
230 DATA 25,21,16,25,16,21,2
5,13,16,25,16,13
240 DATA 27,23,21,27,21,23,2
7,23,18,27,18,21
250 DATA 28,23,20,28,20,23,2
8,20,16,27,16,20
260 DATA 30,21,13,28,13,21,2
7,21,13,25,13,21
270 DATA 23,20,16,23,16,20,2
0,11,16,20,16,11
280 DATA 30,23,13,28,13,23,2
3,20,13,20,13,16
290 DATA 25,21,16,25,16,21,2
5,21,16,27,16,21
300 DATA 28,23,20,20,16,11,1
8,15,11,20,11,15
310 DATA 16,11,8,16,8,11,16,
9,1,16,1,9
320 DATA 16,11,8,16,8,11,16,
1.8.16.13.1
330 DATA 25,21,16,25,16,13,2
5,13,9,25,9,4
340 DATA 23,20,16,23,16,11,2
3,11,8,23,8,4
350 DATA 21,18,11,21,11,9,21
,9,6,20,6,3
360 DATA 21,16,11,20,16,11,2
0,11,8,20,8,4
370 DATA 18,13,10,18,10,6,18
,6,1,20,13,10
380 DATA 22,18,13,28,22,18,2
7,18,22,25,22,18
390 DATA 23,18,15,23,15,11,2
3,11,6,23,6,3
400 DATA 23,21,15,23,15,11,2
3,11,9,23,9,6
410 DATA 16,13,8,16,8,13,16,
13,8,18,13,9
420 DATA 20,11,8,21,8,11,20,
11,8,10,11,6
430 RESTORE 140 :: T=16 :: G
OSUB 480 :: RESTORE 140 :: T
=4 :: GOSUB 480 :: RESTORE 1
80 :: T=12 :: GOSUB 480 :: R
ESTORE 140 :: T=16 :: GOSUB
480
440 RESTORE 210 :: T=28 :: G
OSUB 480 :: RESTORE 170 :: T
=4 :: GOSUB 480 :: RESTORE 2
50 :: T=4 :: GOSUB 480 :: RE
STORE 280 :: T=4 :: GOSUB 48
0 :: RESTORE 190 :: T=8
450 COSUB 400 :: RESTORE 140

```

```

:: T=16 :: GOSUB 480 :: RES
TORE 290 :: T=48 :: GOSUB 48
0 :: RESTORE 140 :: T=16 ::
GOSUB 480 :: RESTORE 410 ::
T=8 :: GOSUB 480
460 RESTORE 310 :: T=8 :: GO
SUB 480 :: GOTO 490
470 GOTO 490
480 FOR J=1 TO T :: X=X+1 ::
READ A(X),B(X),C(X):: A(X)=
A(X)+12 :: B(X)=B(X)+12 :: C
(X)=C(X)+12 :: NEXT J :: RET
URN
490 DISPLAY AT(10,1):"Contro
l volume of 3 voices":"using
1, 2 and 3 keys for":"loude
r and Q, W and E for":"softe
r.":"
500 DISPLAY AT(15,1):"Contro
l speed using `F` for":"fast
er and `S` for slower."
510 DISPLAY AT(18,1):"Change
key using `A` for":"higher
and `D` for lower."
520 DISPLAY AT(21,1):"Press
`Z` for minor key, `X`:"for
major key." :: V1,V2,V3=10
:: F,P,Y=0 :: X=200
530 FOR J=1 TO 192 :: CALL S
OUND(-999,N(A(J)-Y),V1,N(B(J
)-Y),V2,N(C(J)-Y),V3):: FOR
T=1 TO X/50 :: P=1`X :: NEXT
T
540 CALL KEY(O,K,S):: IF S<1
THEN 710 :: ON POS("123QWEF
SADZX",CHR$(K),1)+1 GOTO 710
.550.560.570.580.590.600.610
.620,630,650,670,690
550 V1=V1-1-(V1=0):: GOTO 71
0
560 V2=V2-2-(V2=0)*2 :: GOTO
710
570 V3=V3-2-(V3=0)*2 :: GOTO
710
580 V1=V1+2+(V1=30)*2 :: GOT
O 710
590 V2=V2+2+(V2=30)*2 :: GOT
O 710
600 V3=V3+2+(V3=30)*2 :: GOT
O 710
610 X=X-20-(X<2)*20 :: GOTO
710
620 X=X+20 :: GOTO 710
630 IF F=1 THEN GOSUB 700
640 Y=Y-1-(Y=-20):: GOTO 710
650 IF F=1 THEN GOSUB 700
660 Y=Y+1+(Y=6):: GOTO 710

```

```

670 IF F=1 THEN 710 :: GOSUB
680 :: GOTO 710
680 F=1 :: Y=0 :: FOR W=3 TO
27 STEP 12 :: N2(W)=N(W)::
N(W)=N(W-1):: N2(W+5)=N(W+5)
:: N(W+5)=N(W+4):: N2(W+10)=
N(W+10):: N(W+10)=N(W+9):: N
EXT W :: RETURN
690 IF F=0 THEN 710 :: GOSUB
700 :: GOTO 710
700 F=0 :: FOR W=3 TO 27 STE
P 12 :: N(W)=N2(W):: N(W+5)=
N2(W+5):: N(W+10)=N2(W+10)::
NEXT W :: RETURN
710 NEXT J :: J=192 :: FOR V
=10 TO 30 :: CALL SOUND(-999
,N(A(J)-Y),V,N(B(J)-Y),V,N(C
(J)-Y),V):: NEXT V :: FOR D=
1 TO 500 :: NEXT D :: GOTO 5
30

```

MEMORY FULL

Jim Peterson

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