

# THE NATIONAL NINETY-NINER

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PUBLISHED FOR TI 99/4A HOME COMPUTER OWNERS BY

THE 99ER'S ASSOCIATION  
3535 SO. H ST., #93  
BAKERSFIELD, CALIF. 93304  
(805) 397-4361  
DON VEITH - EDITOR/PRESIDENT

## ANNOUNCEMENTS

### A NOTE TO ALL SUBSCRIBING USERS GROUPS

Please direct all correspondence to the letterhead address. All subscriber assistance and other requests for information will now be handled from Bakersfield. If the newsletter is being forwarded to the wrong address, please notify Luci Veith of the correct address. Please advise Luci if you are missing any issues of the newsletter.

### THE 99'ERS ASSOCIATION NATIONAL LIBRARY

Our organization is seeking programs for inclusion in THE 99'ERS ASSOCIATION National Software Library. The programs forwarded for inclusion in the Library must be accompanied by a Public Domain Statement. The Public Domain Form may be obtained by writing to our Bakersfield address.

Programs are being accepted for the Extended Basic, Forth, Assembly, and Pascal languages. Forward all programs to our Librarian, Curt Purdy, at the address below. We have been asked by some individuals what they will receive for donating programs to our National software Library? A catalog of exchange programs is available to individuals who submit software for inclusion in our Library.

Forward the programs you wish to donate to Curt at the address listed below. Please include a self addressed, stamped envelope with the programs you forward on disk or cassette. The envelope will be used to mail the exchange catalog and order blank back to you. Select the programs you desire and return the list to Curt. He will load the selections marked on the order blank onto your disk or cassette and forward the complete package back to you once more. Please select an equivalent number of programs for those you donated.

Do not write letters to Curt requesting an Exchange Catalog prior to submitting software. All such requests will graciously be declined. Contact Curt Purdy at the address below. We appreciate your support of our efforts to create a National Software Library.

THE 99'ERS ASSOCIATION  
NATIONAL SOFTWARE LIBRARY  
708A - 25TH ST  
COLUMBUS, GA 31904

### BACK ISSUES OF THE NATIONAL NINETY-NINER

BACK ISSUES OF THE NATIONAL NINETY-NINER WILL BE AVAILABLE APPROXIMATELY FEBRUARY 20, 1985. OUR PRINTER IS CURRENTLY PREPARING THE ISSUES FOR DISTRIBUTION. ALL THE BACK ISSUES OF OUR NEWSLETTERS (13 TOTAL - NOVEMBER, 1983 TO DECEMBER, 1984.) WILL BE INCLUDED IN ONE PACKAGE FOR YOUR CONVENIENCE. PLEASE ALLOW FOUR (4) TO SIX (6) WEEKS DELIVERY TIME AFTER FORWARDING YOUR CHECK TO OUR ORGANIZATION. ALL SHIPPING AND HANDLING EXPENSES ARE INCLUDED IN THE \$10.00 CHARGE. IF YOU DESIRE TO ORDER YOUR SET OF BACK ISSUES OF THE NATIONAL NINETY-NINER, PLEASE FORWARD YOUR CHECK FOR \$10.00 TO:

THE 99'ERS ASSOCIATION  
DEPT BNL  
3535 SO. H ST., #93  
BAKERSFIELD, CA 93304

### EQUIPMENT FOR SALE BY THIS ORGANIZATION By Don Veith - Editor

Our organization was supplied with several of CorComp's RS-232 version of the 9900 Micro Expansion System. The equipment was supplied by a generous person under an agreement we would not disclose their name. The remaining few units not purchased by staff members were listed for sale on the back page of our December issue. Any individual or organization may purchase one of these units. They will be sold on a first come, first serve basis. Contact us at the above address if you are interested in purchasing one of the CorComp RS-232 versions of the 9900 MES.

We also have 29 Joyprint I units available for sale as outlined in the next article. The units are here in Bakersfield and are for sale to any interested purchaser. A small portion of the purchase price is also being donated to help defray the cost of operating the newsletter. We are an open and honest publication working hard to maintain our neutral posture. Our only desire is to produce a quality publication for interested owners and Users Groups supporting the 99/4A. We do not engage in public dialogs from the pages of our newsletter about the antics of other publishers or Users Groups. We shall operate this newsletter in a manner we consider proper and continue to maintain our neutral stature trying to keep our readers informed and updated on activities relating to the TI-99/4A.

A personal thank you is owed to all THE 99'ERS ASSOCIATION staff, all of our subscribers, and the many unselfish people who have supported the 99/4A in an effort to maintain communications among owners of the finest Home Computer manufactured.

## MINIED AND JOYPRINT AVAILABLE

NOTE: The Mini Editor word processor has been revamped and renamed. It was renamed Word Master I and includes the ability to embed printer format controls directly into your text. The Mini Editor review in the newsletter Review Section was done on the earlier version which did not possess the printer enhancements.

OUR ORIGINAL ARTICLE STARTED HERE - A new Word Processor program called MINIED is available for owners of the TI-99/4A. The minimum hardware requirements are the Home Computer, Cassette Recorder, and Mini Memory Command Module. The MINIED can also be used with a full Peripheral Expansion System. Some features of MINIED are:

1. Screen Text Editing (24 by 40 line character picture).
2. Text Editing of over 9500 characters (Upper And Lower Case).
3. Insert or delete characters or lines.
4. Move or copy strings of text.
5. Search for selected information.
6. All control functions are programmed into the Function and Control keys.
7. Load or save buffer text to any Peripheral.
8. Print text via an RS-232 card, JOYPRINT, or MISSING LINK interface (Interface type must be specified with software order.)
9. Roll screen up or down to review text.

The bonus of this software package is its 30 page instruction manual. It includes an excellent table of contents to aid in locating explanations on the software's features. The explanations not only include a listing of each key function but an overlay diagram showing each key's position. Each page of instructions illustrates what will appear on the user's screen while performing a task. The drawings provided for each function are accurate and concise. An outstanding value for a reasonable price.

The firm producing MINIED also has developed a unique serial interface using the joystick port called JOYPRINT. The JOYPRINT unit plugs into the TI-99/4A Video Modulator output. A short cord is connected to the joystick port with the Video Modulator cord inserted into the back of the unit. JOYPRINT will run a serial interface printer from its 25 pin serial interface port for individuals with a minimum system configuration. The unit's baud rate extends from 110 to 19,200. A parallel version of the unit called JOYPRINT II will be available from this firm in the near future. The serial version will be called JOYPRINT I at that time. This publication will print a notification when JOYPRINT II is available.

Software is required to access and operate the JOYPRINT unit. As previously mentioned, MINIED has the necessary software included to run this unit and you must specify this option when ordering the software. The firm has MICROPRINT I, II, III available to operate the JOYPRINT unit. This software configures the JOYPRINT unit's output based upon your selections and the device you are using. It provides selectable start/stop bits, data length, and odd/even parity. The details on each version of MICROPRINT are listed below:

- I - Requires 99/4A, Cassette, and Mini Memory
- II - Requires 99-4A, Cassette, Extended Memory, Extended Basic Command Module
- III - Requires 99/4A, Cassette, Extended Memory, Editor/Assembler Command Module

The purchase prices for MINIED, JOYPRINT, and MICROPRINT are outlined in the table below. Please note the special offer on the MINIED and JOYPRINT units if ordered together. Shipping and handling charges of \$2.00 is required on each product ordered.

<u>PRODUCT</u>	<u>PRICE</u>
MINIED	\$19.95 each
JOYPRINT	\$59.95 each
MICROPRINT	\$ 9.95 each

The Joyprint I is available for \$39.95, plus \$3.50 for shipping and handling, through THE 99'ERS ASSOCIATION. The software interface program for Mini Memory, Editor Assembler, or Extended Basic is included in this purchase price. Please specify which interface program you desire and forward either a disk or cassette to record the program onto for return. The disk or cassette will be shipped back to you with the Joyprint I interface unit.

Word Master I may be obtained from Model Masters, 22411 Mt. Laurel Way, Diamond Bar, Calif. 91765.

## DHEIN'S HARDWARE

This supplier will have a new catalog available by the time this newsletter reaches each reader. The firm still has most of the software available that TI issued. An excellent selection of third party software is also available. Prices in the preliminary pricing sheets appear comparable or less than other suppliers. The firm has several options available for the purchase of a TI Expansion System from TI's original options to CorComp's DS/DD Disk Controller Card and Teac disk drives. Write Ann and Darryl Dhein for their new catalog. We found them to be very helpful and courteous during our telephone conversation. You may contact the firm at:

DHEIN'S HARDWARE  
7 W. AIRLINE HWY  
COR. OF HWYS 57 AND 63  
WATERLOO, IA 50701  
(319) 232-6225

## USERS GROUP REORGANIZATION

The Tri-State Users Group of Lincoln, Rhode Island has been disbanded. A new Users Group has been started to continue in the place of Tri-State. The North Eastern 99'ers is the name of the succeeding organization. Make note of the new address and contact person on your mailing list. The new information is:

NORTHEAST EASTERN 99'ERS  
76 HERSCHEL STREET  
PROVIDENCE, RHODE ISLAND 02909  
(403) 695-6342

## FREWARE DISTRIBUTION OF SOFTWARE

Two excellent programs have been released to freeware distribution. In this method of distribution, the program has an advertising header and copies are circulated from person to person. The author establishes a suggested price and asks each person obtaining a copy to forward a suggested donation if they LIKE AND USE the program. This system works on the basis that people will obtain excellent quality software and be willing to provide a small fee for the privilege of receiving the software at a price less than they would have to pay if the software were distributed commercially. The programs mentioned are available from Frederick Hawkins of the Lehigh 99'ers and Danny Michaels of the Shoals 99'ers.

If you are interested in obtaining a copy of X DISASM, Frederick Hawkins will supply it for \$7.00. He requests \$10.00 for the manual which is available in two sizes. IF YOU HAVE A COPY FROM RADICAL DISTRIBUTION, be honest and send him the requested funds. Respect the other person's right to copyright their work and charge reasonable fees for good software. Reserve the right to notify the rest of us when a piece of software is not what it is represented to be or a commercial establishment handles themselves in a less than credible manner. You may contact Mr. Hawkins at the address below:

FREDERICK HAWKINS  
1020 N. 6th St.  
ALLENTOWN, PA 18102

Danny Michael has placed NEATLIST, an Assembly Language utility program for X/B, and Version 2.0 of his Screen Dump program into Freeware distribution. The programs are available directly from Mr. Michaels. There is no expense to the requesting party for the Screen Dump software. NEATLIST is offered under a different concept. You send a disk to the address listed below and copies of the programs are returned to you for your personal use. If you decide the program is of value and you plan to use it, then forward a donation to Danny. To quote his letter, "Pay what you want, up to a maximum of \$10.00."

When you mail your disk to obtain the programs, include a return address label and sufficient postage for the return of your disk and mailer. In a telephone conversation with Danny on February 3, 1985, he stated he can handle any type of disk formatting from SS/SD TO DS/DD. Users Groups may obtain the programs for their libraries and distribution to their members. Contact Danny for copies of the software at:

DANNY MICHAEL  
RT. 9, BOX 460  
FLORENCE, AL 35630

Once again, please forward the suggested donations these gentlemen. Take a moment to include a note thanking these gentlemen for making the software available to all 99/4A owners.

## WORLD of DOOM By SYMBIOTECH, INC.

Enter into the WORLD of DOOM, that unique series of computer recreation programs designed exclusively for TI-99/4A users, who are seeking the ultimate "BIG GAME" challenge.

A simple command system with Hi-Res graphics and 3-D maze displays, provide you with lots of playing enjoyment. You are the leader of a four party group which consists of different types of characters. Each character is endowed with various degrees of intelligence, wisdom, strength and other attributes that will see them through the perils of a quest. During a quest, the characters will explore a special region within the Land of Agnar, searching for carefully guarded treasures and weapons. Some characters are good fighters. Others can cast magical spells of different types.

In our current catalog, we discuss the various products we have to offer based on your playing ability. Our Basic Quest is designed for the new adventurer, young or old, who is a novice at dungeon fantasy games. You will develop valuable skills in reading text and designing maps. It's great in aiding the imaginative mind and increasing good eye-hand coordination. Lots of building in common sense. Ages 9 and up.

For the competitive player we offer the Tournament Package. Each of the three separate games has its own uniqueness and increased complexity. Through scoring, you are able to match wits against your opponents. Ideal for User Groups. For the individual player who is a seasoned dungeon adventurer, we offer our three scenarios. Puzzles a plenty await you - tough ones and mazes mysterious enough to drive one mad.

As a special introductory offer, the Basic Quest is \$9.95 (retail \$14.95) for a limited time only. For our catalog, please send \$1.00, which may be deducted from your first order, to the address below. Symbiotech looks forward to expanding your enjoyment of dungeon fantasy games. The challenge is yours. Take it!

SYMBIOTECH, INC.  
Dept DD  
Roscoe, IL 61073-0320

## ARTICLES

### TIGERCUB TIPS FOR BEGINNERS

By Jim Peterson

**TIP # 1** - Don't use EDIT! There are two ways to bring a program to the screen. You may type EDIT, the line number, and press Enter...or you may just type the line number and press FCTN together with the down-arrow or up-arrow keys. When you graduate to Extended basic, you will find that you can only use the second method. Then while you are trying to break the EDIT habit, you are apt to become confused, type the line number, hit Enter...and delete the line completely!

**TIP # 2** - Don't waste time typing LET. The computer understands X=1 as readily as LET X=1. You do not have to leave a space after the line number - the computer will do it for you. In Extended Basic, you don't have to leave a space before and after the :: statement separators - the computer will do that for you too, moving the statements to additional lines if necessary.

When programming in Basic, don't use character sets 15 and 16 (ASCII codes 144-159) unless you really need them for colors and redefined colors. And if you use multiple colons to scroll the screen, put a space between them : : (or better yet : ; ; ;). Then your program will usually also run without modification in Extended Basic.

**TIP # 3** - If you have the Extended Basic module, why not leave it plugged in and select the Extended Basic option even when you are programming in Basic? This will allow you to type 5 lines on a line number (unless you put too many short items in a DATA statement), and the Extended Basic will accept input of your program lines much faster, especially when the program gets long. It also accepts changes and deletions much more quickly, and is useful when you want to delete a large number of lines. It will quickly tell you how much memory you have left with the SIZE command (but you'll have more in Basic) and will bring your rejected input back to your screen for correction, with FCTN 8. It will also run your program, if you stay away from character sets 15 and 16 watching those double colons. In Basic, you can write:

```
100 PRINT "HELLO"::::::::::"GOODBYE"
```

to scroll between the lines of print. In Extended Basic, the double colon :: is used to separate multiple line statements. When you load a Basic program in Extended Basic, you will usually find that the computer will rearrange the colons "HELLO" : : : "GOODBYE" and run the program properly. But sometimes, especially if you put colons in front, as 100 PRINT :: "HELLO", the computer may have become confused and give you some very puzzling error messages. On rare occasions it may even rearrange the colons into strings of double sets :: :: and that will lock it up completely! So, even when programming in Basic it is a good idea to separate your colons : : - or better yet, : ; ; : or : \$ ; \$ . To get the computer to read the CALL KEY input as upper case letters, even if the Alpha lock is up, just use key-unit 3 - CALL KEY(3,K,S). To cancel it use key-unit 5.

**TIP # 4** - To get the computer to hold 24 lines of text on the screen without jumping the first line off the top, just put a semi-colon at the end of the 24th line. You don't have to restore anything with the RESTORE statement. In other words, you don't have to READ a DATA statement before you can RESTORE it. You can write your program to optionally or randomly RESTORE any of your DATA statements and thus begin reading DATA from any DATA statement. TI Basic will let you use RESTORE in a variable name. I never use it in a program, but I do try to remember to use it in temporary debugging routines, in utility routines which I will save to merge or build other programs around, in modifying other people's programs, etc. That way, I don't breed new bugs by duplicating a variable name that is already in the program. Are you tired of that blankety blinking black cursor? This won't work in Basic, but if you are in Extended Basic, try 100 CALL COLOR(0,11,1) or any other color combination.

**TIP # 5** - Have you ever spent an hour looking for a bug, and finally found that you had types an O for an 0, or vice versa? I'll never understand why Texas Instruments didn't slash the 0. You can easily do it with this line, 1 CALL CHAR(48,"003A444C546444B8"). Trouble is, any redefined character with an ASCII code below 128 will only be redefined while the program is running, so your 0's will still be slashed while you are keying in a program or listing it. However, you can add a temporary line 2 GOTO 2, then key in or list a screenful of program lines, type RUN, and watch to make sure all your 0's become slashed and your O's do not. Here is another handy debugging routine. Right after the first CALL CLEAR, put these temporary lines: 101 FOR =1 TO 4 102 CALL COLOR(,16,1) 103 NEXT 104 GOTO 104 Then type LIST. As soon as the lines have scrolled to the top of the screen, stop the list with FCTN 4. Type RUN. All the numbers and punctuation will turn white. Check for I's instead of l's and O's instead of 0's or vice versa, equal numbers of opening and closing parenthesis, misplaced commas, etc. Then break with FCTN 4, LIST (the last line on the screen) and hyphen, Enter, stop it again, etc. Have you ever been typing in a program, and the computer suddenly jumped back to the title screen, and you were sure that you didn't have a finger anywhere near that infernal QUIT key? But maybe you were drinking coffee with one hand and trying to press FCTN ! with the other? So, if you don't have anything valuable in the computer right now, try pressing FCTN, space bar, H and N all at the same time. Oops! There are other combinations that will do the same. Another useless bit of information - try FCTN, 5, 6, and 7 all at the same time. Break! However, if you have Extended Basic and Memory Expansion, you can avoid these problems with Craig Miller's great discovery - CALL INIT :: CAL LOAD(-31806,16). Type that in before you begin programming, and you will never again lose a program to that d..n FCTN = key! Also, put it in as one of the first program lines and your program will be kidproofed against the open-palm press-all technique. Another extremely useful one from Craig Miller is CALL PEEK(-28672,A). If the Speech Synthesizer is attached, A will equal 96, otherwise it will equal 0. If you are putting optional speech in an XBasic program, you can avoid those silent pauses by putting that CALLPEEK at the beginning of the program, and then a line with IF A=0 THEN .... before each CALL SAY to skip over it if the synthesizer is not on.

**TIP # 6** - I have found frequent use for Craig's routine CALL INIT :: CALL LOAD(-31888,63,255). This shuts down all of the disk files and makes it possible to load programs over 12K long from tape, and copy them back to tape, without having to physically disconnect the drives.

TIP # 7 - Here's a lifesaver. It's 2:00 A.M., you just got the last bug out of your new program, you sleepily put a new cassette in the recorder, type OLD CS1, hit ENTER, and type SAVE CS1! But all is not lost - just type Shift E, hit Enter, get an IO error message, and start over. This works in Basic but not in Extended Basic unless you have Memory Expansion. Did you ever absent-mindedly type SAVE CS1 instead of OLD CS1, push RECORD, and not realize it until you had erased a program from the cassette? Did you know that the cassette has two tabs on the back edge that can be removed to keep that from happening? Just slip the tip of a knife blade under them and pry up to snap them off. Each side of the cassette is protected by the tab on its back left edge; when the tab is removed, the recorder's RECORD button can't be pushed down. Later on, if you want to record over the side, just put a bit of tape over the hole. If you are using a black and white TV for a monitor, you can get a sharper screen by starting your program with 1 CALL SCREEN(15).

TIP # 8 - One of Tigercub's challenges was to write the Extended Basic statement IF X=1 THEN Y=7 ELSE IF X=2 THEN Y=33 ELSE IF X=3 THEN Y=19 ELSE IF X=4 THEN Y=21 in Basic. My solution was Y=VAL(SEE\$( "077331921",X\*2-1,2)). Jim Johnston in the K\*3 Users Group came up with a better method which does not require that the values of x be in sequence - Y=ABS(7\*X=1+33\*(X=2)+(19WX=3))+(2 1W(X=4)).

If you enjoyed these Tips from Jim, write for a catalog and purchase some of his programs. He provides his Tips at no expense to the Users Groups. He is very seriously contemplating closing Tigercub Software if his business does not increase. This would be a tremendous loss for each of us if Jim no longer produces and distributes his Tips. Write to Jim at TIGERCUB SOFTWARE, 156 COLLINGWOOD AVE., COLUMBUS, OHIO, 43213. Check out his NUTS & BOLTS disk of routines for use in programming. We have found these routines invaluable for the price of \$15.95.

### PERSONAL PEARL (REQUIRES MORNING STAR CP/M CARD)

By Don Veith, Editor

Personal Pearl provides an excellent tutorial via the system's WELCOME disk. It is assumed, by the authors, that the reader has limited knowledge about storing or retrieving information with a computer. Your first heavy duty decision is to decide whether your monitor is monochrome or color. From that decision, the WELCOME disk provides a walk through of all the features available with the software. Personal Pearl is utilized to design forms and reports, enter data into the forms and reports created, and to produce the reports. Five (5) lessons in the Easy Tutorial provide an introduction to the basic elements of form design, data entry, and report printing. It is a true database which has been sadly lacking from the software available for the TI-99/4 due to its limited memory expansion capacity.

The documentation provided with Personal Pearl is quite explicit and very easy to follow. For example, it walks you through the procedures on how to create an address form very explicitly including recommending the number of underscores for each data entry line on the form. The reference material leads you through an Easy Tutorial stage into the Advanced Tutorial section. An unusual feature found only in quality software is an Index for each Section of the manual. Personal Pearl provides the average person with the ability to create their own customized data base including every form from input to report generation. Files may be sorted and rearranged by a prespecified field defined in the database. Personal Pearl's sort and database capabilities are more sophisticated than average database programs and less than a true database program such as dBASE II.

Personal Pearl's Reference Section contains additional information on how to use the software more effectively. The Chapters start with general reference information and continue through the advanced features of the software including multiple form processing. Other subjects covered include a file maintenance program, operating system file maintenance and security features of the software. The appendices contain the usual messages and codes required to interpret why you made that error in data entry or procedure causing the computer to reject your input and squawk loudly.

An important feature of any excellent software package is a HELP feature. Help features are really of no value unless they (1) may be called upon with ease and (2) provide answers that do not require the user to have authored a Doctoral Thesis in some esoteric and unheard of Computer feature or operating system. I happily report the Help function can be invoked by simply typing a "?". The report codes are well documented in the Reference Section and you can actually understand and comprehend what you are reading without an interpreter. My hat off to the software authors for making this Help feature very usable.

What else is there? Well, sample forms are included to help you get started designing your own forms. A section at the rear of your Reference Manual even discusses some additional hints on how to more effectively use the sample forms. It becomes much easier to create a form if you are able to review an example on your computer screen. This procedure allows the user to modify the form in a manner suitable for their personal use. One is able to accept or reject features offered by the software writer. The sample forms are ready for use and are effective. In fact, your first practice form is The Appointment Calendar to get yourself organized. It can create a complete calendar including dates, times, individual being met, purpose of meeting, and a comments section. The Cash Disbursements Journal System offers a form for data input to create a total history of financial transactions, tax deductible items, and expense summaries. The People Information System allows the user to create an index of individuals from which mailing labels, a telephone list, or small personal profile on each person can be extracted. The latter item is a feature everyone can utilize, especially during the Holiday Season with its extensive mailing demands.

Personal Pearl is an excellent piece of software for the business oriented user or private citizen who wishes to reorganize their life. A solution to setting up an 80 column window to eliminate the necessary scrolling would make this software an excellent addition to your CP/M library. The problem lies in the TI's 40 column window and not in Personal Pearl or Morning Star's CP/M Card. Most of the time one can compensate for TI's decision not to provide an 80 column window for the 99/4A. The software written by Morning Star to support their Card compensates for this window and nicely limits its output to 40 columns. In working with Personal Pearl, a very highly recommended piece of software, you are immediately forced to scroll back and forth to read the lines of text in Pearl's tutorial. I personally find this limitation quite bothersome. I wonder if a true 80 column display will ever be available for the /4A in the immediate future.

Personal Pearl provides the average person with a unique way to create their own forms without outside assistance. Continued use of any excellent software tool only increases ones ability to utilize more of its features. Problems arise when the software cannot deliver what is promised. Personal Pearl does deliver all it promises and much more depending on the willingness of the user to learn about Personal Pearl's features.

TIPS FROM THE TIGERCUB #18

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TIGERCUB SOFTWARE

155 Collingwood Ave.

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.

My new catalog #5 is now available for \$1.00, which is deductible from your first order. It contains over 130 programs in Basic and Extended Basic at only \$3.00 each (plus \$1.50 per order for cassette, packing and postage, or \$3.00 for diskette, PP&M). The entire contents of Tips from the Tigercub Nos. 1 through 14, with more added, are now available as a full disk of 50 programs, routines and files for only \$15.00 postpaid.

Nuts & Bolts is a diskfull of 100 (that's right, 100!) XBasic utility subprograms in MERGE format, ready for you to merge into your own programs. Contents include 13 type fonts, 14 text display routines, 12 sorts and shuffles, 9 data saving and reading routines, 9 wipes, 8 pauses, 6 music, 2 protection, etc., etc., all for just \$19.95 postpaid!

New programs this month - TCX-1058 SCRUM, now available in Extended Basic. I'm told that this challenging puzzle-game has been programmed for other computers under the name Merlin. I haven't seen it, but I don't think you can beat my version - it's 511 puzzles in one! TCX-1137 SOUNDMAKER, a very versatile utility program to develop sound effects, then save them in the form of actual program lines. Requires Extended Basic; disk only.

I must first thank all those newsletter editors and other users' group officers who are trying so hard to help me keep my kitchen table enterprise alive. One users group reprinted my entire catalog in their newsletter, another is putting it on their BBS, another made me an honorary life member, many others have mentioned and recommended my software in their newsletters. Unfortunately, all that support hasn't helped very much. From reading the editorials in many newsletters, I can easily see that most users groups consist of a few dedicated hard-working individuals and a lot of....well, frankly, freeloaders. And freeloaders don't buy software! To borrow a few quotable quotes from the newsletters, "too many getters and not enough givers", and "users are users!". That is why users groups are fading away, software producers are going out of business, and the TI-99/4A will die before its time.

In the last Tips, I mentioned the one remaining bug in my 28-Column Converter. I have found a fix for it. The version published in Tips #15 was a horrible example of sloppy programming, so I have rewritten it entirely -

```

100 DISPLAY AT(1,4)ERASE ALL
:"28-COLUMN CONVERTER" :: DI
SPLAY AT(3,12):"by Jim Peter
110 DISPLAY AT(5,1):" To con
vert a program, saved:"with
LIST "DSK1.FILENAME" :":i
nto 28-column format which":
"can be merged into the text
"
120 DISPLAY AT(9,1):"buffer
of TI-Writer."
130 DISPLAY AT(11,1):" Optio
nally with transliter-": "ate
d @, &, %, ^ and . for": "pri
nting from formatter": "mode.
"
140 DISPLAY AT(16,1):" Progr
am should be RES in": "steps
of 10 starting at 100": "befo
re LISTING to disk."
150 DISPLAY AT(20,1):" Do yo
u want to print the": "file f
rom the": " (E)ditor?": " (F)o
rmatter?"
160 ACCEPT AT(24,1)VALIDATE(
"EF")BEEP:Q$
170 LN=100 :: CALL CLEAR ::
INPUT "What is the FILENAME?
DSK1.":FN$ :: FN$="DS
K1."&FN$ :: PRINT ::
180 INPUT "what is the new F
ILENAME? DSK1.":PN$ :: PN$
="DSK1."&PN$ :: OPEN #1:FN$,
DISPLAY ,VARIABLE B0,INPUT :
: OPEN #2:PN$,DISPLAY ,VARI
BLE B0,OUTPUT
190 IF Q$="E" THEN 200 :: PR
INT #2:".TL 126:94;" :: PRIN
T #2:".TL 123:64;" :: PRINT
#2:".TL 125:38;" :: PRINT #2
:".TL 124:42;" :: PRINT #2:"
"
200 IF EOF(1)=1 THEN 300 ::
LINPUT #1:A$
210 IF LEN(A$)<80 THEN LN=LN
+10 :: GOTO 260
220 LINPUT #1:B$ :: IF POS(B
$,STR$(LN),1)=1 THEN FLAG=1
:: LN=LN+10 :: GOTO 260
230 A$=A$&B$ :: IF LEN(A$)<1
60 THEN LN=LN+10 :: GOTO 260
240 LINPUT #1:B$ :: IF POS(B
$,STR$(LN),1)=1 THEN FLAG=1
:: LN=LN+10 :: GOTO 260
250 A$=A$&B$ :: LN=LN+10
260 S=1
270 L$=SEG$(A$,S,28):: IF Q$
="E" THEN 280 :: GOSUB 320
280 IF L$<>" " THEN 290 :: IF
FLAG=1 THEN FLAG=0 :: A$=B$
:: GOTO 210 :: ELSE GOTO 20
0
290 PRINT #2:L$ :: S=S+28 ::
GOTO 270
300 IF Q$="E" THEN 310 :: PR
INT #2:".FI;AD;"
310 CLOSE #1 :: CLOSE #2 ::
END
320 DATA (see instructions!)
330 RESTORE 320 :: FOR W=1 T
O 5 :: READ CH$,R$
340 X=POS(L$,CH$,1):: IF X=0
THEN 360
350 L$=SEG$(L$,1,X-1)&R$&SEG
$(L$,X+1,LEN(L$)): GOTO 340
360 NEXT W :: RETURN

```

The DATA elements to be typed in line 320, separated by commas, are - the "at" sign above the 2, the left brace on the front of the F key, the ampersand above the 7, the right brace on the front of the 6, the carat sign above the 6, the tilde on the front of the M, the asterisk above the 8, the whatsit? on the front of the A, the period, and the backslash on the front of the Z. If you don't want to revert to FILL and ADJUST, delete the second statement in line 300.

Beware the A6 bug! The asterisk in the above program is transliterated because of an odd quirk of TI-Writer which causes it to change A\*256 into A6! It happened to me, and I've seen it in two published programs. If my Autoloader gives you a couple of asterisks instead of the number of sectors, it's because you have files over 99 sectors long. You can change the image in line 170 to ### if you want to.

Here is probably the last word on the challenge to write a 1-line XBasic program which would scramble the numbers 1 to 255 into a random sequence without duplication. This one runs in 17 seconds!

```

100 ! FROM TISOFT (BELGIUM)           : CALL PEEK(-31808,J):: K=R(
NEWSLETTER V.6 #4 JULY-SEPT         J):: R(J)=R(I):: R(I)/K :: N
84 - ANONYMOUS                       EXT I
110 DIM R(255):: FOR I=0 TO          120 FOR J=0 TO 255 :: PRINT
255 :: R(I)=I :: NEXT I :: F        R(J);:: NEXT J
OR I=0 TO 255 :: RANDOMIZE :

```

I believe that Craig Miller is due the credit for publishing the PEEK used in that routine. He also found a PEEK to get two random numbers, which I fooled around with until I discovered I had a mosquito trapped behind my TV screen.

```

100 ! MOSQUITO by Jim Peter          E(#1,42,2,100,100)
son from a PEEK by Craig Mil        120 RANDOMIZE :: CALL PEEK(-
ler                                  31808,A,B):: CALL MOTION(#1,
110 CALL CLEAR :: CALL SPRIT        A-128,B-128):: GOTO 120

```

If you're worried about the mosquito getting out, you can put a screen on the window by adding a statement to line 110 - CALL CHAR(32,"FF888888FF888888")

Here's one for the kiddies -

```

100 REM - DANCING STICKMAN p        440 CALL COLOR(5,7,16)
rogrammed by Jim Peterson          450 RETURN
110 CALL CLEAR                      460 CALL COLOR(4,1,1)
120 DIM S(26),T(60),NN(60)         470 CALL COLOR(5,1,1)
130 FOR CH=48 TO 80 STEP 8          480 CALL COLOR(6,16,5)
140 CALL CHAR(CH,"00002B107C       490 CALL COLOR(7,16,7)
102B")
150 NEXT CH                          500 GOSUB 560
160 GOSUB 590                        510 CALL COLOR(6,1,1)
170 FOR SET=3 TO 7                  520 CALL COLOR(7,1,1)
180 CALL COLOR(SET,1,1)             530 CALL COLOR(4,16,7)
190 NEXT SET                          540 CALL COLOR(5,5,16)
200 DATA " H 000 P", " H          550 RETURN
000 P", " H 0 P", " 00            560 FOR D=1 TO 30
0000000", " 8 000 @", " 8        570 NEXT D
000 @", "
210 DATA " 88 000 @@", " H        580 RETURN
HH000PPP", " H 8 @ P", " H        590 F=262
8 @ P", "HHH 8 @ PPP", "
8 @", " 8 @", " 888
@@@
220 PRINT " dancing stic           600 FOR N=1 TO 25
kman": : : :
230 RESTORE 200                      610 S(N)=INT(F*1.059463094^N
)
240 FOR J=1 TO 14                    620 NEXT M
250 READ A$                          630 S(26)=40000
260 PRINT TAB(8);A$                 640 RESTORE 740
270 NEXT J                            650 FOR J=1 TO 60
280 CALL COLOR(3,16,5)              660 READ T(J),NN(J)
290 CALL COLOR(4,16,7)              670 NEXT J
300 CALL COLOR(5,5,16)              680 RETURN
310 GOTO 690                          690 FOR J=1 TO 60
320 ON INT(3*RND+1)GOSUB 340         700 CALL SOUND(T(J)*100,S(NN
(J)),0,S(NN(J))+5,5)
400,460                               710 GOSUB 320
330 RETURN                            720 NEXT J
340 CALL COLOR(4,1,1)                730 GOTO 690
350 CALL COLOR(6,16,5)              740 DATA 4,8,4,13,4,13,4,15,
4,17,4,13,4,17,4,15,4,12,4,1
3,4,13,4,15,4,17,8,13,4,12
360 GOSUB 560                        750 DATA 4,8,4,13,4,13,4,15,
4,17,4,18,4,17,4,15,4,13,4,1
2,4,8,4,10,4,12,8,13,4,13,4,
26
370 CALL COLOR(6,1,1)              760 DATA 4,10,4,12,4,10,4,9,
4,10,4,12,8,13,4,8,4,10,4,8,
4,6,4,5,4,6,8,8
380 CALL COLOR(4,16,7)              770 DATA 4,10,4,12,4,10,4,9,
4,10,4,12,4,13,4,10,4,8,4,13
4,12,4,15,8,13,4,13,4,26
390 RETURN
400 CALL COLOR(5,1,1)
410 CALL COLOR(7,16,7)
420 GOSUB 560
430 CALL COLOR(7,1,1)

```

I used to sign off with "happy hackin'", but the vandals and thieves have made hacking a disreputable word, so  
Meowwww

The Tigercub  
Jim Peterson

**PASCAL NOTES**  
By Edgar Scheann - JSC Users Group (JUG)

This month we will take a look at TI's Utility Package for the P-System. This is a collection of files which are supplied on the SDSC package for the P-System. If you have a DS/DD disk drive, all of the utilities can be included on your main P-System disk. If you only have SD drives though, you might want to select a few of the more useful utilities for your main system disk and leave the others on a separate utility disk in case you ever need them. In this article I will try to elaborate further on the functions of each of the TI utilities.

**MODRS232** - I found myself using this utility more than any other. My printer configuration does not match the RS232/2.BA=9600,DA=7,PA=0,EC which is the P-System default. As a result, every time I needed to use my printer I first had to execute MODRS232 to change the configuration. Like most of the utilities, this one can be executed by selecting the X command from the main system menu. I finally got tired of waiting for the screen prompts and typing my configuration (plus if I also wanted to change the REMIN/REMOUT specification, I had to run the program twice).

Fortunately TI supplied the text for MODRS232 with the utility package. I edited this file, deleted the screen displays and prompts and hard coded my device configurations for my printer and communication port. After compiling my modified version, I saved it as FIXRS232 on my system disk. Now after booting the P-System I merely have to Xecute FIXRS232 and my devices are configured the way I like them.

**SETLTYPE** - This stands for Set Language Type. The two language types supported are PSEUDO and M\_9900. What this utility really does is set a flag in a program's code file to control where it is loaded. PSEUDO language type programs may be loaded into VDP or CPU memory at the P-System loader's discretion. M\_9900 language type programs are forced to be loaded into CPU RAM.

If a program includes assembly language routines, it must be loaded into CPU RAM to run. Programs with only Pseudo code can run effectively from either. The interpreter which is on the P-Code card fetches pseudo code instructions and performs the proper execution. Assembly routines however execute their instructions in place independently of the interpreter and must be in CPU RAM because VDP RAM does not support in place execution.

Programs like MODRS232 must also be set for M\_9900 language type even though no assembly language routines are included. The descriptions of the RS232 devices are kept in VDP memory and MODRS232 modifies these descriptions. The interpreter maintains only one pointer for the next byte to be read from VDP RAM and if a program resides in VDP RAM, it cannot modify VDP RAM without confusing the interpreter. When a program is compiled, it will be a PSEUDO language type, so in the case of programs like my FIXRS232, it is necessary to use SETLTYPE to change the language type before executing the program.

If you have expansion memory, you might want to consider using SETLTYPE to change all of your programs to M\_9900 type to ensure that they will be loaded into CPU memory rather than VDP. Memory accesses from CPU RAM are slightly faster than from VDP RAM, so this may help speed up your program a little.

**LIBRARY** - This is a very useful utility which allows you to create, copy, and modify libraries. Libraries are collections of compiled routines that you can reference in your Pascal programs. Procedures must be declared as externals and units must be referenced with the USES statement. The advantage of using libraries is that you do not have to wait for the compiler to compile the text of a routine every time you use it. The disadvantage is that you have to run the Linker after you compile your main program to include the library routines you need.

The recommended procedure for adding units to an existing library is to first create a new library, copy the old library to the new one, then add new units to the new library. After your updates are finished, then rename the new library with the old library name (or delete the old library if you prefer). As pointed out by G. S. Romano in a previous issue of this newsletter, this procedure is required when adding units to the SYSTEM.LIBRARY which is supplied with the PHDS063 package.

**MARKDUPDIR** - This utility allows you to create a duplicate directory on a disk that does not already have one. I do not recommend using this utility at all. If you want to keep duplicate directories on your disks (which I do recommend), I suggest that you select the duplicate directory option of the Filer when you use the Zero command to initialize the disk directory.

The problem with MARKDUPDIR is that your duplicate directory can only be in blocks 6 to 9 of your disk. If you have been using your disk without duplicate directories, these blocks are probably used by a file. Before running MARKDUPDIR you will have to relocate any information in this area to free it up for directory use. Fortunately MARKDUPDIR gives some prompts to warn you that this area will be used however it has no built in features to relocate this area for you.

**COPYDUPDIR** - This utility allows you to restore your master directory from the backup directory in blocks 6-9. I only recommend using this utility if you are sure your master directory is blown and you have no other alternative. After all it is possible that your backup directory is also blown and you could make matters worse. Remember, this utility replaces your master directory with the backup and once it is done, the master is gone.

If you have to use this utility and you can access some of your files, I recommend recovering everything you can with normal file transfers first then use this utility to try to recover the rest of your disk. You might also want to make a backup copy of your disk with a sector copy program if you have one before using this utility.

**RECOVER** - If you do not have a backup directory or if it too is damaged, this utility may help recover more of the files on your disk. Again I recommend that it be used only as a last resort and only after you have made a backup copy of your original disk and recovered as many files as possible by normal file transfer methods.

**DIFORMAT** - This utility will format a disk. It is not compatible with CorComp's implementation of DS/DD control so 360 blocks (720 sectors) is as much as can be formatted with this program. It is faster than the TI or CorComp disk manager because it does not verify the integrity of the sectors after the disk is formatted. Remember that whether you use this program or the TI or the CorComp disk manager, you will have to run the Filer's Zero command before you can use the disk.

**DECODE & PATCH** - These are useful utilities if you need to analyze or modify an existing program and do not have access to the original text. If you are thinking about using either of these programs, I recommend that you obtain a copy of the P-System Internal Architecture Guide from SofTech Microsystems.

**SETUP** - This utility lets you change some of the P-System defaults. The most useful part of it is the definition of the function keys. If you want to make the P-System use of the function keys compatible with some other application package (like TI Writer for example) that you use regularly, you can use this program to redefine the function keys. When you get through running SETUP, your new definitions will be in a file called NEW.MISCINFO. Use the Filer Change command to rename this file SYSTEM.MISCINFO and the system will automatically reference this file on reboot.

**XDISK & DSKTOCASS** - My recommendation is to forget about these utilities. Anyone who uses the computer for programming in Basic quickly outgrows cassettes and I do not think anyone should even start to use the P-System without at least one disk drive and two are really better for real enjoyment.

In summary, I would recommend that you include the LIBRARY and SETLTYPE utilities on your system disk. If you need to change the RS232 definitions for your printer, I recommend you modify MODRS232 to eliminate the keyboard entry and include this version on your system disk. I prefer to use the TI or CorComp disk managers for formatting rather than DFORMAT because DFORMAT does not verify the sectors. The other utilities are used so infrequently that it is probably better to keep them on a separate disk so they do not take up space on your system disk.

### SPRITE-TO-SPRITE COINCIDENCE IN ASSEMBLY LANGUAGE

By John Phillips

Many of you have written me wanting clues as to how sprite coincidence operates. To answer your questions, I have written a small program with a subroutine that checks for sprite coincidence. Feel free to use this subroutine in your own programs.

This program places two sprites on the screen and sets them in automotion towards each other. When the sprites collide to within 1 pixel of each other, they stop and the program waits for you to press a key. Once a key is pressed, the program starts over.

The subroutine is called with a Branch and Link statement. Following the BL, are 3 data statements. The first two give the sprite numbers to check, and the third is the pixel tolerance range. The program lists a tolerance of 1, which means the sprites must be within 1 pixel of each other to work. You, of course, may change this tolerance value to anything you like or need.

I have used this subroutine in countless programs (Hopper, Moonmine, Burgertime, etc.). This should do nicely for your programs as well!

John Phillips

```
DEF HITIT
REF VMBW, VSBW, VMBR, VSBR, KSCAN
*****
* THIS IS AN EXAMPLE OF HOW TO SIMULATE
* THE "CALL COINC" STATEMENT OF EXTENDED
* BASIC IN ASSEMBLY LANGUAGE. TO CALL *
* THIS ROUTINE, JUST:
*
*   BL @COINC CALL SUBROUTINE
*   DATA 1,2 GIVE SPRITE NUMBERS
*   DATA 4 TOLERANCE PIXEL VALUE
*
* PLEASE REMEMBER THAT THE SPRITES ARE*
* NUMBERED 1 THROUGH 32 FOR THIS *
* ROUTINE. A VALUE OF ZERO IS IGNORED.*
*****
SAL EQU >300 ATTRIBUTE LIST
SVT EQU >780 VELOCITY TABLE
MOTION EQU >837A NEED TO MOVE SPRITES
SDL EQU >400 SPRITE DESCRIPTORS
KEYBRD EQU >8374 WHICH KEY UNIT TO SCAN
KEY EQU >8375 RETURNED VALUE
*
SPRPAT DATA >007E,>7E7E,>7E7E,>7E00 SOLID SQUARE FOR SPRITE 1
DATA >FFB1,>8181,>8181,>81FF OPEN SQUARE FOR SPRITE 2
*
SALINI DATA >6020,>800F SAL DATA FOR SPRITE 1
DATA >60E0,>8101 SAL DATA FOR SPRITE 2
DATA >D0D0 DISABLE ALL OTHER SPRITES
SPRVEL DATA >0005,>00FA X VELOCITIES
*
H00 BYTE >00
H01 BYTE >01
H02 BYTE >02 NUMBER OF SPRITES TO MOVE
HFF BYTE >FF NO KEY PRESS VALUE
*
```

```

EVEN
*****
* INITIALIZATIONS - GET SPRITES ON!! *
*****
HITIT  LIM1 0          DISABLE INTERRUPTS
      LWPI >8300      LOAD MY WORKSPACE
      LI R0,SDL       PLACE SPRITE PATTERNS
      LI R1,SPRPAT    POINT TO PATTERN DATA
      LI R2,16        ENOUGH FOR 2 SPRITES!
      BLWP @VMBW      NOW WE HAVE PATTERNS
*
      LI R0,SAL       NOW PUT SPRITES ON SCREEN
      LI R1,SALINI    POINT TO THE SAL DATA
      LI R2,9         2 SPRITES + DISABLER
      BLWP @VMBW      VOILA! SPRITES ON SCREEN
*
      LI R0,SVT       NOW SET IN MOTION TOWARDS EACH OTHER!
      LI R1,SPRVEL    POINT TO VELOCITY DATA
      LI R2,2         TWO BYTES!
      BLWP @VMBW      THERE GOES SPRITE 1!
      AI R0,4         NOW FOR SPRITE 2
      AI R1,2         POINT TO HIS VELOCITY DATA
      BLWP @VMBW      THERE GOES SPRITE 2!
*
      MOV @H02,@MOTION WE HAVE TO SAY HOW MANY IN AUTOMOTION
      LIM1 2          AND TURN ON THE INTERRUPTS TO MOVE!
*
LOOP   BL @COINC      TEST COINCIDENCE
      DATA 2,1      SPRITE 2 VERSUS SPRITE 1
      DATA 1        ALLOW 1 PIXEL, ONLY FOR TOLERANCE
*
      JMP LOOP        WAIT UNTIL THEY HIT!
*****
* SUBROUTINE TO TEST COINCIDENCE ON TWO
* SPRITES. *
*****
COINC  MOV *R11+,R3   GET FIRST SPRITE
      JEQ NOCOS       ZERO NOT ALLOWED
      MOV *R11+,R4   GET SECOND SPRITE
      JEQ NOCOS       ZERO NOT ALLOWED
      MOV *R11+,R9   GET TOLERANCE
      JEQ NOCOS       ZERO NOT ALLOWED
      LIM1 0         DISABLE FOR VDP READ
*
      DEC R3         NOW MAKE ZERO BASED
      SLA R3,2       MULTIPLY BY 4
      AI R3,SAL      POINTS TO THIS SPRITE'S SAL
      MOV R3,R0      GET READY TO READ
      LI R1,5*2+>8300 READ Y,X INTO R5
      LI R2,2        READ Y,X BYTES
      BLWP @VMBW     HAVE THE FIRST SPRITE
*
      DEC R4         NOW MAKE ZERO BASED
      SLA R4,2       MULTIPLY BY 4
      AI R4,SAL      POINTS TO THIS SPRITE'S SAL
      MOV R4,R0      GET READY TO READ
      LI R1,7*2+>8300 READ Y,X INTO R7
      LI R2,2        READ Y,X BYTES
      BLWP @VMBW     HAVE THE SECOND SPRITE
      LIM1 2         ENABLE INTERRUPTS AGAIN
*
      AI R5,>0404     ADJUST SPRITE POSITION TO CENTER
      MOV R5,R6       COPY ITS Y,X
      SRL R5,6        Y IN 5
      ANDI R6,>00FF   X IN 6
*
      AI R7,>0404     ADJUST SPRITE POSITION TO CENTER
      MOV R7,R8       COPY ITS Y,X
      SRL R7,8        Y IN 7
      ANDI R8,>00FF   X IN 8
*
      S R5,R7        Y DELTA
      ABS R7          FORCE POSITIVE
      S R6,R8        X DELTA
      ABS R8          FORCE POSITIVE
      C R7,R9        WITHIN Y TOLERANCE?
      JH NOCOS       NO, SO NO COINCIDENCE
      C R8,R9        WITHIN X TOLERANCE?
      JH NOCOS       NO, SO NO COINCIDENCE

```

```

*
* AT THIS POINT, WE HAVE DETECTED A COINCIDENCE *
*
      MOVB @H00,@MOTION STOP SPRITES WHERE THEY ARE!
      MOVB @H00,@KEYBRD SCAN WHOLE KEYBOARD
WAIT  LIM1 0          DISABLE INTERRUPTS
      BLMP @KSCAN      AND SCAN
      LIM1 2          ENABLE AGAIN
      CB @KEY,@HFF    KEY DOWN?
      JEQ WAIT        NOT YET
      B @HITIT        YES, SO RESTART!
*
* AT THIS POINT, NO COINCIDENCE HAS BEEN DETECTED *
*
NOCOS B $R11
*
      END HITIT        LOAD AND GO!

```

## PRINT STATEMENTS

BY REGENA

I recently returned from an interesting trip to Japan. I was able to meet some TI owners there and to speak to a Commodore Users Group at an Air Force base. Just like our Users Groups here, TI owners are friendly and willing to share information. I think because we have a computer that is no longer being sold, our Users Groups are even more important. I'll probably continue to write programs for the TI even if the magazines decide not to support "our" computer.

While I was in Japan I bought my latest computer--an MSX computer. I like the idea of a "standardized" computer; no matter what brand of MSX computer you get you can use any MSX software (and the computer costs less than \$300.00). For example, the MSX Pac Man cartridge can fit into a National computer as well as a Hitachi. One cassette can be loaded by twelve different brands of computers. The different brands simply offer different features. For example, one computer features the TV with a built-in computer. Another brand features interfacing with a videodisk, and another emphasizes interfacing with a sound synthesizer. I purchased a Hitachi MB-H2 which has a carrying handle and a built-in cassette recorder. It also has a built-in music program, a self running demonstration program, and a built-in graphics program like the Mac-Paint program with color.

MSX BASIC has the nice graphics commands like LINE, CIRCLE, and PAINT plus sprites like our Extended Basic. The sound chip is the same as the one used in the TI, so the commands are similar. Besides the English letters on the keyboard, there are two sets of Japanese characters plus a set of graphics like the Commodore graphics. It looks like a lot of fun to program, and I hope to be able to start commercial programming in MSX BASIC soon.

Meanwhile, back to TI Basic. This month I'm going to go back and review the first statement you learned -- PRINT. PRINT is so important because that is the command to get output, or to write something on the screen. If you tell the computer to print something in quotes, it will print exactly what is in the quotes. I would like to remind you to plan your longer lines so you do not split words during the printing -- or so the spacing looks good. Here is an example:

```
100 PRINT "THIS IS THE EXAMP
      LE OF A LONG LINE."
```

When this line is executed, the sentence is longer than our 28-column width, so your output will look like this:

```
THIS IS AN EXAMPLE OF A LONG
LINE.
```

Anybody that runs this program can probably understand what is meant, but it doesn't look as nice as it could. Simply add spaces in your PRINT statement so the line will be divided where there are spaces and not split a word:

```
100 PRINT "THIS IS THE EXAMP
      LE OF A LONG LINE."
```

Now, take a look at this example.

```
110 PRINT "HERE IS ANOTHER E
      XAMPLE OF A LONG LINE."
```

Your PRINT command looks fine, and the output will be like this:

```
HERE IS ANOTHER EXAMPLE OF A
LONG LINE.
```

Notice that the second line is indented because the quotation was separated after "A" and before the space. This time you can adjust the printing by leaving out that space between words that causes the indentation:

```
110 PRINT "HERE IS ANOTHER E
      XAMPLE OF ALONG LINE."
```

Don't ruin your programming efforts by having an otherwise super program mixed up with an amateur job of printing.

Another reminder about the PRINT statement is to remember how to use the colon as a print separator. The colon always means to go to the next line. You may use more than one colon, and mix up colons with quotes and variables. To print several blank lines, you can use several methods:

```
200 PRINT OR 300 FOR L=1 TO 5
210 PRINT 310 PRINT
220 PRINT 320 NEXT L
230 PRINT
240 PRINT
```

or using colons in TI Basic -- 400 PRINT :::::

The colon is handy in double-spacing the printing on the screen. For example,

```
500 PRINT : "HELLO!"
510 PRINT : "THIS IS"
520 PRINT : "DOUBLE SPACING"
```

If you want to conserve space, you can combine print statements (up to the four-line length that is accepted for statements). Remember that the colon means to go to the next line.

```
600 PRINT "HI THERE.": "THIS
IS": "SOME SINGLE SPACING": "P
RINTING."
```

Our double-spacing example would be like this.

```
700 PRINT : "HELLO!": "THIS I
S": "DOUBLE SPACING."
```

There are several ways you can indent printing from the left margin. I usually use spaces within quotes for a few spaces and the TAB function for more blank spaces.

```
800 PRINT " CHOOSE"
810 PRINT TAB(10); "INDENTED"
```

You can combine TABs anywhere in the PRINT instructions:

```
820 PRINT TAB(5); "ONE"; TAB(1
2); "TWO"; TAB(20); "THREE"
```

And of course you can combine TABs, commas, semi-colons, and colons to get your printing to do exactly what you want it to do. Although it is easier to have each PRINTed word or phrase in its own PRINT statement, if you need to conserve space you can combine several lines into one PRINT command. Until next time--have fun PRINTING.

### THE (TI) FORTH DIMENSION

By Jeff Stanford - JSC User's Group

When TI-Forth became available at the beginning of last year, I purchased a copy for myself immediately. I had a prior experience with Forth. Before TI Forth's release, a friend of mine purchased a copy of a Forth source listing. After entering it, he gave me a copy of his absolute (error free source code) to test and evaluate. His fig-Forth was fun to play with, but it lacked an editor and its disk interface was not very efficient or reliable. After a period of time, I determined his fig-Forth could provide tremendous power for my computer if it were only expanded. I then put it aside and returned to learning Assembly Language. Texas Instruments introduced TI Forth, I had something to get excited about. With TI-Forth's power, what was taking me days to do in assembly language now only took mere hours. But even in this abundance of new power for the 99/4A, a flaw still existed. The documentation included with TI-Forth, in classic Texas Instruments form, was designed not to be an instructive text, but rather to serve as a reference manual for the experienced Forth programmer (a la EDITOR/ASSEMBLER). At least, the writers had the decency to mention this and to give some source materials for the intrepid novice.

What I plan to do with this series of tutorials is to share my experiences with TI-Forth. The series of articles will take complete novices and introduce them to the power of this exciting language. To get my tutorial off to a good start, I have decided to cover the books that will be used as source materials first. This is not to imply that these are the best available, but rather they are the books that I have purchased and found useful to learn more about Forth.

#### STARTING FORTH By Leo Brodie ( PRENTICE-HALL )

This is, in my own opinion, the foremost text on Forth for both the beginner and the expert alike. Mr. Brodie writes in a very readable style. The cartoon characters he uses for each of the Forth words make great learning aids. The book is jam packed with general information as well as useful hints and footnotes. Differences between TI-Forth and standard Forth discussed by Brodie in the book are illustrated in the TI-Forth manual ( Appendix C ).

#### THE COMPLETE FORTH By Alan Winfield ( WILEY PRESS )

This book has several pluses which make it a good text on Forth. First, Mr. Winfield has packed it with a generous amount of examples. He included several examples showing equivalent program segments in Basic and Forth. He also devoted a large part of his book to the handling of INPUT and OUTPUT of both numbers and strings including an excellent development of a string variable. Finally, I like the inclusion of a Forth programmers reference card in the back of the book.

This book's strong points are its appendices which have a lot of information in them and the examples Mr. Hogan uses to get his point across.

There are two additional books that I recommend for further reading by the advanced programmers among our readers.

THINKING FORTH By Leo Brodie ( PRENTICE-HALL )

This is Mr. Brodie's second book on Forth and continues the work he started in his first book "STARTING FORTH." This book is devoted to Forth style and problem analysis/solving. Again it is full of tips and still more cartoons.

THREADED INTERPRETED LANGUAGES By R. G. Loeliger ( BYTE BOOKS )

This is a book for the experienced computer hacker who wants to learn how Forth works and how to write their own fast and compact version of a Forth-like language.

I would like to close this month's article by stating that any questions sent to me through this newsletter will be answered in one of two methods. Either (1) through the tutorial articles if it is of general interest or (2) directly if the question also includes a self addressed, stamped envelope. Please forward all your questions to the newsletter address.

NEXT MONTH: NUMBERS AND EQUATIONS

## REVIEWS

### MINI EDITOR FROM MODEL MASTERS

By Michael Christie - New Horizons

Historical Prelude: I received my computer as a gift in October of 1983. I immediately thought about the many word processing tasks that I could perform. It didn't take long to realize that word processing capability was not financially feasible at that time.

In the Spring of 1984, I was commissioned to do some limited file processing and indexing. I used that as an excuse to buy a printer -- a Smith Corona TP1, under \$300 at Toys 'R Us. This caused me to investigate WP again. I found an ad from TEX-COMP describing TI MINI WRITER, a cassette based word processing program that appeared to be manufactured by Texas Instruments. I mailed my \$20.00 and waited.

Upon arrival, MINI WRITER was used three times and put away in disgust. A few months later, I pulled it out to see if I could work around the shortcomings that I found in the program. After some experimentation I began using the program often for correspondence and other tasks. I prepared an article for the club newsletter when I discovered that the manufacturer had introduced an improved version called MINI EDITOR. I borrowed a copy of MINI EDITOR to update my review. (Now we are all caught up.)

MINI EDITOR can be best described as a text editor that requires only a cassette recorder and the Mini Memory Command Module. While I find it satisfactory for my uses, I must point out the weaknesses that it has and how to work around them.

First, text storage is limited to less than 10,000 characters, about two full type-written pages. That's plenty of room for most letters, and anything longer can be prepared in sections. Second, there is no capability to set margins or line length. The 80 column line is standard (more about how I set "margins" later). Third, most editing functions operate on a line-by-line basis.

So what is great about MINI EDITOR? It offers many capabilities like inserting and deleting characters or whole lines. The program can search for character strings in a document and can copy and move lines or groups of lines. Note that the copy and move functions affect only entire lines, not sections of lines. Moving a sentence that is one and a half lines long can be done by moving one line and retyping the remainder, or by moving two lines and deleting the unwanted portion of the second line. Editing and writing is done in a 24 line by 80 character window that scrolls up and down plus to the right and left.

Professional word processing programs use line and character counters to help the typist envision the final form of the document. MINI EDITOR has none but I found a way to make my own. I fill the first line of my text with 10 "1's", 10 "2's", etc. through 10 "8's". This gives me a character count with each group of like numbers representing one inch. I generally begin each line at the 11th character and try to end near the 70th. I can then number my lines in the left margin. As my text exceeds 24 lines and my character counter disappears off the top of the screen, I simply type a new counter in the middle of the text. Before I print the document, I go through and delete all my counters.

MINI EDITOR does not offer word wrap so a typist must keep an eye on the screen when nearing the end of a line. A beep sounds about five characters before the end of a line. If you keep on typing, your word will continue on the next line. However, when inserting characters into an already full line, the characters at the end of the line do not jump to the next line. Instead they disappear. Model Masters offers JOYPRINT which apparently allows users to send to a serial or parallel printer through the joystick port, eliminating the need for an RS-232 interface. The manual does not explain what JOYPRINT is or how you can obtain one. Phone calls to TEX-COMP have not helped solve this mystery.

If you have a printer and the Mini Memory Module but haven't installed the 32K memory you might find MINI EDITOR an important program. (MINI EDITOR can save and load from text files from both disk and cassette.) Just know that it will require some work on your part to be fully utilized. EDITOR'S NOTE: JOYPRINT I, the serial version is available from THE 99'ERS ASSOCIATION. Details are available on Page 2 of THIS newsletter. The price is \$42.50 which includes all shipping and handling via UPS.

## KORE ON CORCOMP DISK CONTROLLER CARD By Darrell Ingold

In the last article I covered setting up the controller card. Now let's talk about using it. Another month has passed and I am now more than ever dependent on this new card. Its format is easier to use than the TI and it is especially a time-saver on copying multiple files. First, we will consider the Disk Utilities. From a menu one can select the option of catalog, copy disk, rename or initialize. The catalog does not roll off the screen; it is multi-paged, if necessary, but the pages can be turned back and forth with a touch of the arrow key. Copying is done on a sector by sector basis and an entire double-sided/double-density, fully loaded (360K) disk can be copied in about 8 minutes with dual disk drive. Renaming and initializing are as easy as inputting a-b-c. When initializing a new disk one other option given is to include the disk manager program (98 blocks) on the disk. This, of course, eliminates the need for getting out the disk manager diskette everytime you want to catalog a disk. With the 1440 sectors per DS/DD disk there is no space problem.

The File Utilities is one of the greatest innovations over the TI. Menu options include a Load and Run (for Assembly file) but all other functions can be done simultaneously. When the disk is cataloged for File Utilities, you can opt to have any files copied, renamed, deleted or (un)protected. The command column allows the options of Copy, Delete or Move (this allows for a copy to be moved to another disk and then deleted on this one). The default is, of course, no change. The filenames may be altered as necessary. The Protection column can be changed from protected to unprotected (or vice-versa) but can also be Temporarily unprotected for a copy then automatically re-protected! These features are a real time-saver. All these things are done on the same screen for each page of files.

Another feature of the card is a Configure Manager which allows you to set up the configuration of the utilities to suit your particular type and number of drives as well as an output configuration such as to a printer. It also allows selection of screen & text color. All the information can then be stored permanently as part of the Disk Manager.

Disk and Disk Drive tests, read only or read/write destructive type, can also be selected. CorComp has also included an item called Tool Shed Utilities that allow access to assembly language subprograms such as MPEEK, MPOKE etc.

Time simply has not allowed me the luxury to explore every single one of the above mentioned aspects. All the ones that I use everyday routinely, are superb. This controller card has been a real boost not only to the usefulness of the TI system, but has even improved its social image among the snobbish IBM users! I do heartily recommend the use of the Teac 55B half height drives with the card. They are available from a number of computer suppliers (since they are also compatible with IBM and others) from \$125 each. Check your current issue of BYTE magazine for ads. If you still have any doubts about the value of CorComp's controller card....just ask the man who drives one!

## CORCOMP 9900 MICRO-EXPANSION SYSTEM By Darrell Ingold

Only a couple of weeks ago I was lamenting that my locker where I work at the fire station was all cluttered up with trivial things such as fire helmets, boots etc. to the point that it would be impossible to fit an entire TI expansion box in it along with the computer and 9" TV already there. Suddenly the CorComp 9900 Micro-Expansion System came to my rescue! The capabilities of my entire TI box (except the P-code card) came packaged in a 6"x6"x2" black box that plugged into the side of my console. The disk drive (stand alone type) could be simply plugged into the box and set neatly to the back of my locker, still within reach. Here we have the ultimate firehouse locker expansion system! Now all I had to get rid of was my little orange helmet that I use on grass fires and there was room for my whole system! I never did like grass fires anyhow.

The next question you might ask is does it work. Yes; and it does so with a deafening silence. There is no cooling fan constantly running as with the TI box. I had only a vintage TI stand alone SS/SD drive to try it out with but I am told that it works equally as well as my CorComp card I have in my big system at home on DS/DD also. With my recently acquired stand alone drive box I soon hope to install a set of half heights from Teac to match my home system. (Please don't mention this to my wife). The first night I had the new system in my locker I spent the entire evening writing letters on TI-Writer and updating tax information on Multi-Plan. When I arrived home I simply copied the files to my regular file disks and printed out the letters in time for the morning post.

The only drawback that I have found thus far is that when the stand alone drive is running I get interference on my TV monitor. This may be my TV and in the near future I will experiment further to see if it can be alleviated. If you do decide to try one of these little boxes keep in mind that they can be purchased as RS232 interfaces only and can be later factory up-graded to include the 32K memory and disk controller. They come with one serial and one parallel port but for just several dollars more can have added a second serial port. Incidentally, be careful not to shout at each other over the silence.

## HINTS 'N TIPS

### TOURE DE BOARDS

By Ron Albright, M.D. -Valley 99'ers

#### THE CHICAGO TI99/4A USERS GROUP BULLETIN BOARD

For a free ISAM (Indexed Sequential Access Method?) file system demo disk, send a blank disk to Software Tools, POB 191, Newton, MA 02168.

TI-Writer lets you change screen colors, but the E/A editor does not. For a free listing of a short Assm. language program to change E/A colors, send a SASE to: Tom Freeman, 515 Alma Real Dr., Pacific Palisades, CA 90272.

TI Users have had some difficulty getting started with the Gemini 10-X printer, apparently because the manual makes no mention of the TI. This has been corrected in a new manual which I am told is available free to 10-X owners. Write to: Gemini User's Manual, Star Micronics, Inc, POB 1630, El Toro, CA 92630, Attn: Greg Foran. Phone: (214) 456-0052.

All of the above were gathered at various recent times from the SOURCE, as was the following:

There is a new, online TI-99/4A magazine for subscribers of the SOURCE. I have checked this one out, and it is TERRIFIC! Callers can choose from a menu of programs, tips, information, TI gossip, etc. Mike Amundsen, a TI User from Ohio, has put this monthly service together, and SOURCE subscribers can reach it directly from the SOURCE prompt:

```
-> WHOM;BASICV SFILES>TI5361>SUBFILE 99
```

BASICALLY YOURS: Rich Klein

If you are stuck on something, or just need to know what a specific command or function does, then I may be of some assistance. Last month, the mailing address of the users group was given for correspondence to this article. While this still applies, it may be inconvenient for some of you. If so, write direct to me at 980 Countryside Dr. #107, Palatine, IL. 60067.

I did get asked a question from a person who was not a member of the group. He asked the following question:

Q: What is an array?

A: An array is simply a list of items or a table which is handled with special variables called subscripted variables. These variables are used to eliminate programming hassles which would result if they were not available for use. To use a subscripted variable, you must first reserve memory space in the computers memory by DIMensioning that variable. For example, if you wanted to reserve space for twenty numbers you might write the statement:

```
100 DIM D(20)
```

You could put a 19 in there since 0 is a valid subscript to the computer, but for simplicity's sake we'll say 20. On a TI console you may use subscripted variables without DIMensioning them as long as no more than ten items are placed in there. Nice of them wasn't it? See you next month!

WELCOME TO THE SPIRIT OF 99  
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Terminal Emulator II Tutorial  
Written By Kevin Lillard For TIBBS

Terminal Emulator II, the main terminal program for the TI-99/4A, will respond to most of the standard ASCII format codes. However, there are additional codes which will allow you to make these machines change screen colors and talk (if the TI-99/4A has a Solid State Speech Synthesizer attached).

There are two or three ways to run these codes. You can use the keyboard, use TI-WRITER, or use the CHR\$ function in TI BASIC. For this explanation, we'll start by using ASCII numbers in decimal form. We'll also show you how to use the TEII and TI-WRITER keyboards to do the same thing. Remember that TI-WRITER has a Special Character Mode that allows you to type in "invisible" control characters. Type in a Control-U to go to that mode.

First, the most basic codes (which should work anywhere, by the way). ASCII 1 will place the cursor at the upper left hand corner of the screen, its HOME position. Use Control-A in TEII, and CHR\$(1) in BASIC. In TI-WRITER, it is Shift-A in special mode. ASCII 12 does the same thing, but also clears the screen. Control-L in TEII, CHR\$ in BASIC, Shift-L in TI-WRITER special mode ASCII 7 is the old teletype BELL command It will produce a beep from your monitor Control-G in TEII, CHR\$(7) in BASIC, Shift-G in TI-WRITER special mode.

To change TEII screen colors, you start with the "Extended Write." That's the way TI describes the series of characters you have to give to the software to it will carry out a command. The extended write starts with these ASCII characters:

```
@27@71@127@27@40@
```

```
@27@41@
```

Let's explain what those numbers mean. The "27" represents ASCII character number 27, called the "ESCAPE" character. The "71" is ASCII character number 71, a capital "G". This follows for all the numbers in this list.

After the "40", you put a character to tell TEII what you want to do. Then, more INstructions, then the "27" and "41" to tell TEII to start carrying out the instructions.

To change screen colors, you must put three characters after the "40": a 43, to tell TEII what you want to do, then a character to represent the color letters you want, and another character for the screen color you want. To change your screen colors, first you need this list of color codes:

32--Transparent	36--Dark Blue	40--Medium Red	44--Dark Green
33--Black	37--Light Blue	41--Light Red	45--Magenta
34--Medium Green	38--Dark Red	42--Dark Yellow	46--Gray
35--Light Green	39--Cyan	43--Light Yellow	47--White

To set screen colors with Terminal Emulator II, you need to send the right series of characters. Let's say you want to have white letters on a dark blue screen. Here's the extended write you need:

```
@27@71@127@27@40@43@47@36@27@41@
```

There are three ways to do this. First, using a BASIC program:

When you get the ">" Source prompt type "ENTER TEST", and when the system tells you to "Enter text:", leave TEII, go to BASIC, and run the following program

```
100 OPEN #1:"RS232"  
110 PRINT #1:CHR$(27)&CHR$(71)&CHR$(127)&CHR$(27)&CHR$(40)&CHR$(43)  
&CHR$(47)&CHR$(36)&CHR$(27)&CHR$(41)  
120 PRINT #1:      :  
130 CLOSE #1
```

Then, type "TY TEST", and your screen will change colors. To have your screen change colors automatically on logon, enter a C\_ID file that consists of the command "TY TEST", and you'll have a white-on-blue screen every time you're on The Source.

The second way: in TEII, type these characters:

```
@Control-Period@Shift-6@Function-V@ @Control-Period@Left Parenthesis@ @Plus Sign@Slash@Dollar Sign@Control-Period@Right Parenthesis@
```

The third way, in TI-WRITER, is the same as in TEII, except for the Escape characters. In TEII, they are typed in with a Control-Period. In TI-WRITER, you go to Special Character Mode by typing a Control-U, type a Function-R, then a Control-U again to get back to standard mode.

Note from Ralph: Don't expect these tricks to work on TIBBS. We filter out all control characters before retransmitting messages. This is done to keep inconsiderate users from abusing the unique features built into TEII.

## LATE ' ITEMS

### WORD PROCESSOR PROGRAM AVAILABLE FROM 99ER'S ASSOCIATION

Gene Thomas of Little Rock, Arkansas has decided to make a Word Processing Program available to Users Groups, individuals, and subscribers of this newsletter. The program is called LETTERTEX1 and requires Extended Basic plus Expansion Memory. Gene has decided to make the program available to Users Groups for a one time charge of \$15.00. The \$15.00 price to the Users Groups includes the disk with the software, disk mailer, and all postage paid from our Bakersfield address. There are no restrictions on reproduction of the software by the Users Groups for their members. Gene encourages each Users Group to purchase the program for their software library.

Individual subscribers to THE 99'ERS ASSOCIATION may obtain their personal copy by forwarding their disk and \$5.00 to Bakersfield. We will pay the return postage if you include a return label for us to place onto your mailer. Any individual who is not a subscriber may obtain their personal copy by forwarding a disk and \$10.00. We will also pay your return postage expenses. Please allow approximately two (2) weeks from the time you mail your request until the package is returned to your address.

LETTERTEX1 is an excellent Word Processing program. It nicely fills the void for letters one (1) to three (3) pages in length. The opening statement allows the user to set the program for a color or black and white monitor. You are then requested to specify a line length for your letter. The program recommends a line length of 60 characters (left and right margins of ten (10) characters).

The menu appears after selecting your line length. The menu includes the features listed below:

- |                            |                             |
|----------------------------|-----------------------------|
| 1) Load file               | 2) Save file                |
| 3) Write to text           | 4) Edit text lines          |
| 5) Delete file             | 6) Review text (on screen)  |
| 7) Print text (on printer) | 8) Files > Read from Disk 1 |
| 9) Quit                    |                             |

The printer option allows the user to select either draft or final copy. The start and end text lines are requested prior to starting the print job. The program also allows the selection of various types of print styles. The program was set up to operate with a Gemini 10X printer. The print commands can easily be adapted to support other printer types by the program user. If you desire a copy of LETTERTEX1, ask your Software Librarian to contact THE 99'ERS ASSOCIATION and obtain a copy for your U6 Library. Individual copies for non subscribing individuals are available for \$10.00.

### DaTaBioTics ANNOUNCES PRODUCTS AVAILABLE 2nd QTR - 1985

The information on Pages 17 and 18 was provided by Databiotics. All requests for information on the products may be forwarded to the address below:

DaTaBioTics  
P.O. Box 1194  
Palos Verdes, Ca 90274

DaTaBioTics

PRESENTS:

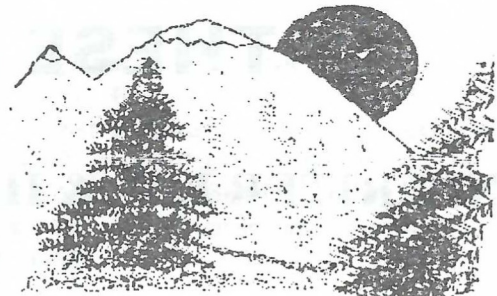
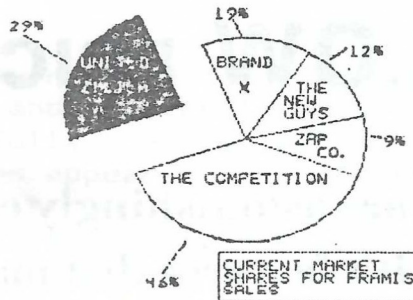
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Scroll Up & Down	X	X	X	X	X
Window Right	X	X	X	X	X
Scroll Left & Right	X	X	X	X	X
Save/Load To Disk	X	X	X	X	X
12K + Text Buffer	X	X	X		
Save/Load To Cassette	X	X	X	X	X
Mini Memory Not Required		X	X	X	
Printer Format Commands	X	X	X		
Proportional Spacing		X	X		
Left/Right Justification		X	X		
Word Wrap		X	X		
Variable Line Length	X	X	X		
"Chain" Print Files		X	X		
Parallel Printer Interface			X		

\* MINIWRITER I, II, & III ALSO WORK ON LATE MODEL 99/4A CONSOLES

## TEX-BUG NEWS

By Darrell Ingold, President

Tex-Bug is off to a great start for 1985. Our renewal rate is quite high and attendance at the meetings is averaging over 20! The meetings have produced a lot of interesting questions and answers for many members. There have been door prizes, refreshments and a variety of demonstrations. Some used equipment has changed hands at these gatherings also. Incidentally, there are still some pieces of hardware available locally (used) from members and others. There are at least 2 consoles (\$50), and an expansion box w/32k card disk drive controller card (\$300), one P-code card(\$100), a TI tape recorder and possibly more. This information becomes available at the meetings from different sources. It pays to be there. The meetings start at 7:00 p.m. and conclude by 8:30 p.m.

I would like to get some feedback from you, the members on the new club newsletter. Is it worthwhile to you? My home number is 399-8686.

I have recently reviewed a database program for disk that is quite comprehensive and appears to be excellent for large record-keeping jobs. It is fully user-defined (that means that you get to decide what categories appear on the screen and just how they are arranged) and it runs in extended basic. This program will be demonstrated at the April meeting. Several of our members have already ordered one from the company.

This time of year really brings to mind the need for accurate, thorough record-keeping. Just ask your Uncle Sam. As many of us gather our documents together for our annual trip to the tax accountant we are reminded of last years resolutions to keep better records! NOW is the right time to start for 1985. There is no better software around for this job than the TI Microsoft Multiplan. They are available from Toys R Us for \$89.95. I also know of 2 that are available for \$49.95 in the city of Hawthorne (L.A.). Using last year's tax return to set up the various categories by month for data is the easiest way to go about the job. Remember, you can define calculations on the spreadsheet which will be done automatically...such as totals, averages etc. This is a really powerful program. Yes it does require disk drive and 32K memory...but if you bought it for the sole purpose of tax related record-keeping it may be tax deductible next year!

I would like to encourage you to patronize our software library. The programs start at \$1.00 and go down from there depending on just how many at a time that you purchase. They are available on tape or disk, which you must furnish for the programs to be copied onto. Our club librarian, Alice Floyd, has put together a beautiful catalog that gives you a brief description of most programs plus a run down on the type of equipment needed to run each program. There is a slight charge for the catalog. More programs are already being exchanged and will be available later this year. Alice lives in Terra Bella but is most always here for the monthly meeting.

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**PUBLISHED BY THE 99'ERS ASSOCIATION**

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