

THE NATIONAL NINETY-NINER

VOL III - NO. 4 - APRIL, 1986

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THE 99ER'S ASSOCIATION
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CREATED FOR TI 99/4A HOME COMPUTER OWNERS

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ANNOUNCEMENTS

BACK ISSUES OF THE NATIONAL NINETY-NINER

By Luci Veith

Back Issues - Volume I of THE NATIONAL NINETY-NINER are now available for immediate shipment. All the issues of our publication's first year (13 Issues Total - November, 1983 thru December, 1984) are together in one package for your convenience. We no longer have extra individual copies of our publication available for the period covered by Back Issues - Volume I. Therefore we choose to make these issues available in this special volume.

Issues of THE NATIONAL NINETY-NINER for the period of January thru December, 1985, are available for individual issue purchases. The price per issue is \$2.00. We will have a Back Issues - Volume II covering this period available during the 4th Quarter of 1986. Volume II will be available in a spiral bound edition for \$15.00 or loose leaf for \$12.00. We will place an announcement in THE NATIONAL NINETY-NINER if Volume II is available earlier than the 4th Quarter, 1986 time frame.

BACK ISSUES ORDERING INFORMATION

<u>ISSUE</u>	<u>AVAILABLE</u>	<u>BINDING</u>	<u>PRICE</u>
VOLUME I	IMMEDIATELY	LOOSE LEAF	\$10.00 **
VOLUME II	SEPTEMBER, 1986 *	SPIRAL	\$15.00 **
VOLUME II	SEPTEMBER, 1986 *	LOOSE LEAF	\$12.00 **

* - ESTIMATED DATE OF DELIVERY ** - ALL NON U.S. SUBSCRIBERS SEE P.S.

Please make your check or money order payable to THE 99'ERS ASSOCIATION. Our address is:

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PLEASE ALLOW FOUR (4) WEEKS DELIVERY TIME AFTER FORWARDING YOUR CHECK TO OUR ORGANIZATION. ALL SHIPPING AND HANDLING EXPENSES ARE INCLUDED IN THE INDICATED PRICES.

P.S. ALL SUBSCRIBERS, LIVING OUTSIDE THE UNITED STATES, SHOULD FORWARD AN ADDITIONAL \$6.00 PER VOLUME FOR SURFACE SHIPMENT OR \$12.00 FOR AIR MAIL.

99'ERS ASSOCIATION SUBSCRIBERS SURVEY FORM

By Don Veith

We try to keep both software and hardware developers informed of the 4A owner's opinions. This is accomplished through conversation with some of you, correspondence we receive, and other sources of information. We occasionally run a survey to also sample a larger base of people.

Each of you now has a very important chance to be heard. This task will require about 15 minutes of your time, another two (2) minutes to address an envelope, and a \$.22 out of pocket cash expenditure to mail the envelope. Your cooperation is required to make the results of the survey valid. If you review the survey form on Pages 10 and 11 of the newsletter, you will note that we DO NOT ASK YOU TO IDENTIFY YOURSELF!!! You may do so if you desire, but we are not asking for this information.

So please invest a bit of your time and fill out the form and return it by mail. I might suggest you make a copy of the form if you wish to compare your responses to the survey's results when they are published later this year. The survey forms may be mailed to our letterhead address. Thank you in advance for your cooperation in filling out and submitting your form.

FROM THE MAILBOX

PILGRIMS' PRIDE HAS MOVED

Scott O'Gorman, the owner of this firm, notified us that his move to new and larger quarters is completed. He is stocking shelves while the electricians, plumbers, and other craftsmen finish the new building around him. He stated that some of your orders may be delayed just a bit by the move and asked that you please be patient. A new telephone number has been installed FOR PLACING ORDERS ONLY!!!! The new number is 1-800-847-8833. This number has been installed as an experiment only and must pay its own way. Please do not use this number to call up and "SHOOT THE BREEZE ABOUT THE FIRM'S MOVE AND OTHER NONSENSE". Scott is still willing to provide technical assistance and answer questions. The number to call for CUSTOMER SERVICE is 1-215-441-4262. Honor Scott's request, do not abuse the 800 toll free number.

A new catalog is almost ready for mailing. If you desire a catalog, contact Scott and he will place you on his mailing list. A note of caution, most firms will only mail one catalog if you do not purchase any of their products. Look at it from their perspective for a moment. It costs money to create a catalog, price out all the items, obtain the necessary photo layouts, and then have a printer run it off. The cost of mailing anything has increased dramatically if you have not sent any items heavier than a letter recently. I added this information to simply inform some inquiring people why many firms do not send a second catalog.

The new addresses for Pilgrims' Pride are listed below:

ORDERING	RETAIL STORE
P.O. BOX 2	5 WILLIAMS LANE
HATBORO, PA 19040	HATBORO, PA 19040

ARTICLES

1985 FOR THE TI-99/4A

By Edgar Dohmann

As far as I am concerned, 1985 has been one of the best years for the TI-99/4A since its introduction. There have been lots of new products (both commercial and public domain) introduced. While the shakeout of developers and suppliers continues, new companies have filled the void and many of those remaining show new signs of growth and vigor. Price reductions of many hardware components have also been a boon to those wanting to expand their systems.

The "BIG 4" publishing and manufacturing companies for the TI-99/4A appear to be CorComp, Myarc, DataBioTics, and Millers Graphics. In addition to their already fine line of products, CorComp has introduced a Clock/Calendar, Triple Tech, and PDM (a diagnostic cartridge). Myarc has added a DS/DD Disk Controller and a 128K Memory Expansion to their product line. The Myarc Hard Disk Personality Card is still available, but while Myarc no longer sells completely assembled units, Model Masters in California will provide complete units along with an enhanced utility package.

Miller's Graphics has expanded their newsletter and book publishing into some superb hardware and software products: Advanced Diagnostics, Explorer, and GRAM KRACKER all hit the market in 1985. DataBioTics is the new kid on the block but in 1985 they brought us Minewriter I, II, and III, BITMAC, /4A TALK, and SUPER SPACE.

Besides these "BIG 4", a number of other commercial products came our way in 1985. Some of the most notable include: a 128K card from Morning Star Software, GRAPHX from R.L. and C.P. Davis in Australia, and Character Sets and Graphic Design from Dave Rose. Several other graphics drawing and printing programs were also produced in 1985 and a number of data base packages were also introduced. Adventure fans had a big year with several Infocom programs, a Tunnels of Doom Editor and several new Tunnels of Doom scenarios as well as an Adventure Editor and several new Adventure scenarios.

FREEMWARE made a big splash in 1985, thanks mainly to the efforts of Danny Michael of Florence, Alabama. Danny wrote 2 excellent programs, Neatlist and Screen Dump, decided to distribute them through FREEMWARE, and wrote several articles describing the concept. This got the FREEMWARE concept rolling and by year's end over 20 authors are marketing their wares in this manner. Some of these programs are equal to or better than commercial products and some even have better documentation.

MICROpendium has grown to 56 pages and is on the verge of being 64 pages. The quality of this magazine has improved with its size. I urge everyone to subscribe to this magazine--it's the ONLY monthly magazine devoted entirely to the 99/4A. Hardware prices for a number of products have fallen this past year. The glut of disk drives have driven the prices down to the point where almost everyone can afford to add a drive or two to their system. The price of many components has fallen this year also, especially the 8K byte RAM chips which have made many expansion projects affordable.

In the shakeout department we have seen the demise of the International Users Group and Vaughn Software. The official announcement of the IUG's collapse only confirmed what we all had known for over a year. For my \$12.00 subscription fee I received Vol 2, #3 (May/June 1984) of the Enthusiast '99. It goes into my trophy case as the most expensive magazine I have ever purchased.

Vaughn Software is leaving the 99/4A market for the "greener pastures" of the Amiga and 520ST markets. This seems to be a case of the clumsy tenderfoot shooting himself in the foot with his own gun. When Vaughn Software wanted out of their BITMAC marketing agreement with DataBioTics, they started marketing the program directly at a lower cost and tried to enlist the aid of user's groups in an anti-DataBioTics campaign. Fortunately few groups bit on the offer but in the wake of the controversy, most distributors (not knowing for sure who was right) refused to carry either the DataBioTics or the Vaughn Software version of the program.

Well now, if 1985 has been such an active and exciting year, what about 1986? Frankly I think it will be more of the same. All of the "BIG 4" have indicated that they are working on more new products for the /4A. The most exciting of which is the new computer announced at the TI-FAIRE by Myarc (if it is indeed produced). The FREEMWARE marketplace seems to be growing and the quality of the products seems to be improving as well.

The National Ninety Niner has finally gotten their printing problems solved and publication of this fine newsletter should be more timely next year. (EDITOR'S NOTE: Except for the printer's press breakdown in February which delayed the issue that month plus the March, 1984 issue and the Back Issues. I hope there are no further breakdowns ever! Murphy's Printer Law can find another print shop elsewhere to establish its residence.) This is a non profit organization (unlike other so-called national or international user's groups). As such they will continue to provide an unbiased source of reviews and tutorials. Because of their independent status, the "BIG 4" all respect and listen to the counsel of this group. While they may not always succeed, one of their goals is to encourage the "BIG 4" to produce compatible products.

There are a number of other sources of products and information for the /4A, some quite good and deserving of our support. The best way to find out about some of these other sources is to subscribe to the National Ninety Niner and MICROpendium, read some of the newsletters from other users groups, and attend your local group's meetings. While this coming year promises to be as exciting as 1985, it will only be so if we user's support the producers to encourage more innovation and development.

EXTENDING THE USE OF MEMORY

By Bill Haras - Pomona (CA) Users Group

If you are an Extended Basic programmer and need more RAM so you can add routines to your program, here's a bit of a solution. Enter the text of the screens in TI-Writer, then read them into an array from disk. Just use the command Display AT to ask for the portion of the array you need to display, not to actually contain the text in the double quotes. The Extended Basic Module has 24,488 bytes of program space available, 11,840 bytes of stack and 8,000 bytes for an Assembly Language program. The 24,488 bytes of Expansion Memory is the only place an Extended Basic program may be stored. This is also where the numeric arrays are stored. A string array or string variables are stored in the 11,840 bytes of memory. If your program has lots of stack bytes still available after the program has done its best to load arrays, etc., while running, then you could use that stack space for a string array containing the lines used for your program's screen displays.

The text for a screen is usually in a : 1) DATA statement, >2 PRINT statement, or 3) a DISPLAY AT statement all of which are taking up program space. An easy method of creating your screen display lines is to use the TI-Writer Editor. Extended Basic displays only 28 characters per line on the screen. To make TI-Writer compatible, simply adjust you left margin to 1 and your right margin to 28 and start entering your screen display information. Once the document is completed, you use the Print File option preceded by a C to save the lines created to disk (The command "C" in front of a file name "C DSK1.FILE" removes all the TI-Writer control codes that may have entered into the document while you were creating it.). A different file could be created for each screen (24 lines maximum) or one file for all the screen lines and commonly displayed screen line displays to total perhaps 300 lines. Also print the file to your printer with line numbers because you will need them for reference in your program.

In your program you could input this Display Variable 80 file created by TI-Writer near the beginning---into a String Array! When you need to display a screen or a few lines, just ask for the appropriate element (row/line) from the array in the PRINT or DISPLAY AT statement. Here is a file of screen lines I created to use in a program.

```

Line #
01      FAS-Tran Functions
02
03      1 Changes/File Utilities
04        -Customize Category Labels
05        -Correct Trans. File
06        -Combine/Copy/Convert File
07
08      2 Input Transactions
09
10      3 Reports Category Totals
11        -Trans. Rpt (no subtotals)
12        -Category Totals Report
13        -Save Category Totals
14        -Batch Update YEAR File
15
16      4 Sort Trans.  get reports
17        -incl/excl. totals
18        -save sorted transactions
19
20      5 Update Print YEAR info
21
22      6 Get Instructions
23
24      7 Return to Prior Menu
25        PRESS ANY KEY TO CONTINUE

```

Here is a demonstration of a program to use the above file (A MENU) basically.

```

100 OPTION BASE 1
110 DIM DISPLAY$(300)
120 OPEN #1:"DSK2.SCREEN2",I
INPUT ,DISPLAY ,VARIABLE 80
130 FOR A=1 TO 25 ! could be
    for 300 or whatever
140 LINPUT #1:DISPLAY$(A)
150 NEXT A
160 CLOSE #1
170 !
180 ! end of screens load
190 ! proceed with prog
    until you need to
    display something
200 CALL CLEAR
210 FOR A=1 TO 5
220 DISPLAY AT((A+1,1):DISPL
    AY$(A)
230 NEXT A
240 FOR A=1 TO 500
250 ! delay loop to hold
    message on screen
    for a period of time
260 NEXT A
270 ! this would display
    lines 1 through 5 only
280 !
290 DISPLAY AT(16,1):DISPLAY
    $$(25)
300 ! This would display
    only the 25th element
    of the array on line
    16 of the screen

```

The 25 lines read in by this program to the string array Stack Space ate up 1185 bytes. Reading in only the first 10 lines used up 855 bytes. The full 25 lines had a total of 440 characters. The lines with no characters took up about 5 bytes. The top 24 lines of a menu were a total of 414 characters or 17.25 characters per line. For the 17 lines with characters on them the average length was 24.35. Arrays work superfast using this technique and do not slow down displays. The loading of the screens does take some time as it is from disk. In the above program, it takes 4 seconds to read all 25 records (lines) and then display all 24 (not just 5).

You need to add a small loop, as illustrated in the demonstration program lines on 100-160, to load the array from a disk file. This is necessary if you read all the screen lines at once. A character of text in the program takes up a byte of memory space as it does in the array, but the string array has overhead bytes needed. For an array of 100 elements (one dimensional) about 100 bytes (of stack space mind you) is needed even if only one character is put into each element (1 or 28 or 100, or other). Numeric arrays carve off the bytes they need in Program space as soon as you DIMension the array. It does not matter how big the number, if any, that is put into the array element.

If you had 5,000 bytes of Stack Space free, you could load the string array of screen lines - 28 characters each (full 28) with 142 lines. This is about 6 full screens. (5,000-1,000 overhead =4,000 divided by 28 characters/line = 142 lines).

Normally a line is not fully 28 characters long so you get more lines. The blanks at the end of the lines read from the D/V 80 file are not loaded into the array, thus no bytes are used. The empty lines in the D/V 80 file take up only 5 bytes of array space.

For the above sample screen lines, the bytes were growing at a rate of 1.2 bytes per character added, since there are lines shorter than 28 and some (as one would normally expect) blank lines. This means that 5,000 bytes of Stack Space free could expect to hold 12 fairly full screens of information.

One could write a short program to create files of Internal Variable or Fixed 28 type, which would read the screens a bit faster and even allow Random Access to various screen lines in the file. One could reuse the string array in various parts of the program with input from disk of more screens.

This all may have been known to you, but it did again show me there seems to be no end to the ways one can squeeze a few more bytes out of program space. In a program I wrote, the numeric array was DIMensioned at (16,100) to hold a Spreadsheet of values (16 rows by 100 columns). It left program space of only 11,200 bytes, but all of the 11,840 bytes of Stack Space was almost totally unused.

By the way, there are assembly language programs to save and recall a screen. They run fast, but I only know how to use them by doing a file read for every screen individually, which meant a disk drive process for each screen, thereby causing a greater delay before the screen is displayable. Let me know if you want a copy of the assembly language programs as they are in the public domain and MICROpendium published them in May, 1985.

----E X P L O R E---- in Harms Way

PASCAL PRINTER SELECTOR

By Kenneth Randall

This is a Pascal program to change the printer type style. I had a difficult time learning how to do this so I thought others might also have the same problem.

PROGRAM PNTSET(INPUT,OUTPUT,PNTOUT); (This program will change the printer output format in accordance with user selected options. The output is controlled by the series of characters following "PNTOUT", in the WRITELIN statement of the "IF" select routine. For compressed mode, the line spacing is also changed.)

```
VAR
  A : CHAR;
  ST : STRING ;
  PNTOUT : TEXT ;
  BYPASS : BOOLEAN ;
  N,NI,BASE : INTEGER ;

BEGIN
  REWRITE (PNTOUT,'PRINTER:'); Enables runtime printer output
  BYPASS :=FALSE ;
  WRITELN (' To select desired format type in '); WRITELN (' any of the following : ELITe, PICA, ');
  WRITELN (' COMPressed, or PROPOrtional and ');
  WRITELN (' and then press "ENTER". ');
  READLN ( ST );

  WRITE(PNTOUT,CHR(27),CHR(64) ; Resets printer to standard options.

  IF ST = 'ELIT'
  THEN
    BASE := 1
  ELSE
    IF ST = 'PROP'
    THEN
      BEGIN
        WRITELN( PNTOUT,CHR(27),CHR(112),CHR(49) );
        BYPASS := TRUE
      END
    END
```

```

ELSE
  IF ST = 'COMP'
    THEN
      BEGIN
        BASE := 4 ;
        WRITE( PNTOUT,CHR(27),CHR(48) ) - Sets 1/8 inch spacing.
      END
    ELSE
      BASE := 0 ;
  IF NOT BYPASS
    THEN
      BEGIN
        WRITELN ( ' Do you want EXPANDED mode? Enter Y or N
        READLN ( A ) ;
        IF A = 'Y'
          THEN
            BASE := BASE +32
          END ;
      IF NOT BYPASS
        THEN
          BEGIN
            WRITELN( 'Select type weight. Type SINGLE, ' ) ;
            WRITELN( 'EMPHAsized, DOUble, or LETTER ' ) ;
            WRITELN( 'quality and press "ENTER". ' ) ;
            READLN ( ST ) ;      IF ST = 'EMPH'
              THEN
                N1 := 8
              ELSE
                IF ST = 'DOUB'
                  THEN
                    N1 := 16
                  ELSE
                    IF ST = 'LETT'
                      THEN
                        N1 := 24
                      ELSE
                        N1 := 0
          END ;
      IF NOT BYPASS
        THEN
          BEGIN
            N := BASE + N1 ;
            WRITELN (PNTOUT,CHR(27),CHR(33),CHR(N) )
          END
    END.

```

Written By Kenneth Crandall
 PUGET SOUND 99ERS

Edgar Dohmann is quite busy and was unable to write his Pascal Column this month. He choose to submit this article in hopes it would provide some answers on printer output. He plans to resume his column with the next issue. Editor

GETTING THE MOST OUT OF TI-WRITER

By Allan Burt - England

This information may be of interest to some of your readers. I make no claim as to the originality of the information. It is a collection of items gleaned from various sources plus some experimental work of my own.

For some time I have been dissatisfied with the TEXT FORMATTER in TI-Writer. The first problem was that it performed a form feed at the start - I have since discovered that this works fine if you start partway down a page, in which case it just rolls to the start of the next sheet. Most people start printing on a new sheet anyway.

After having spent some time disassembling the Formatter program and removing the offending form feed, I obtained a copy of TI-Writer II. The modification to solve the form feed problem was accomplished in the updated release by TI. Perhaps what is the best modification, true lower case screen letters, was also accomplished in the same update. The next problem was having to save to disk, load the Formatter program, reload the script and then print my document. Because the program does not stay on the FORMAT mode, it has to be reloaded before each printing. As a result, I tended to use the Editor mode for most of my work.

Prior to reading an article in HCM Magazine (August 1984), I used to prime the printer in the IMMEDIATE mode to set print face and emphasized printing. It was possible to do some simple formatting by utilizing the codes listed on Page 146 of the TI-Writer manual. This was limited to changing to wide type or compressed type, but that was about all.

The HCM article showed how to use the "CONTROL U" function to obtain other print instructions. This was a great improvement on what I could do previously. I could now setup for emphasized printing (CONTROL 'U', FUNCTION 'R', CONTROL 'U'). This is the equivalent of putting CHR\$(27);CHR\$(69) into print instructions. I could change to Italic print in midline and reset the printer and double strike words.

PLEASE NOTE: All print codes refer to the Gemini 10 printer - you should check your own printer manual for the codes required to set your particular printer.

Using this method, it was possible to use all the printer instructions which only required two CHR\$ codes. I was not able to utilize the three code instructions illustrated in HCM. I tried many methods to utilize the underline codes (CHR\$(27);CHR\$(45);CHR\$(1)), but to no avail. It appeared that CHR\$(27);CHR\$(45) was a default instruction which activated the underline and ignored the other CHR\$ codes used. The problem was finally solved with assistance from two friends. On my printer, a STAR DP 510 (Gemini 10 with parallel port), it is necessary to insert the third code in the control mode (CONTROL 'U', FUNCTION 'R', CONTROL 'U', SHIFT - the minus KEY, CONTROL 'U', SHIFT A) and to cancel by repeating the process but ending with SHIFT '2', CHR\$(0).

There is very little problem identifying the codes because they appear in a special tiny form of HEX code (Hexadecimal), except for CHR\$(10), which is screened as LF and CHR\$(13) as CR. It is necessary to use the CONTROL 'U' function to access characters lower than ASCII 31. All the other characters can be obtained direct from the keyboard. It is possible to obtain the CHR\$ above 96 by means of the CONTROL KEY MODE, SHIFT 1, which will print a lower case a. SHIFT 'full stop' prints"" or CHR\$(126).

I would like to draw attention to Page 98 of the TI-Writer Manual, "Special Character Mode". There are potentially two misleading statements on this page.

1. The third paragraph implies that you have to use the TRANSLITERATE Command if you wish to use a combination of two or more special codes. This we know to be untrue. As shown above, it is possible to input three character combinations.
2. The second error is the page reference at the end of paragraph three, see example on Page 121.....should read Page 107).

REPLACE STRING FUNCTION

This is a very useful function of the TI-Writer Editor. It can be used to simulate the Transliterate Function in the Formatter if you use a symbol such as "*" throughout your script for a frequently used print codes such as those used for underlining. When the script is finished use function 'BACK' to get into the command mode, type "RS", and follow the prompts to show the codes you wish to exchange for the asterisk. Press ENTER, and the cursor will be shown on the first occurrence of the asterisk. If you want all the occurrences to be changed, just enter the character "A" and the computer will go through the entire script replacing the asterisk with the underline codes.

This can be useful when you are using a borrowed printer which requires different codes than your own printer. I recently borrowed a "DAISYWHEEL" to print some of my TI-Writer files. I saved a great deal of time by using the "RS" function to convert my codes to those required by the different printer. There is one drawback to using "RS", it will reformat the line or paragraph in which it is used. So, if you have a carefully formatted and indented layout, it will left justify everything up to the next "CARRIAGE RETURN" or (CR).

MORE TIPS FOR THE "EDITOR"

1. Space can be saved on TI-Writer files by removing all the blank lines within the layout. Once you have decided how many blank lines are needed for each part of a document, you can place a number of Line Feeds at the end of the line preceding the blank area with the aid of CONTROL 'U' and SHIFT 'J' or CHR\$(10). This means that one record in the file can be used for one line of characters together with a number of blank lines. Each line of writing on the screen display requires one record in the file. Files are DISPLAY VARIABLE 80 which means each record can contain up to 80 characters or each blank line occupies one record.
2. Sometimes when finishing a line, there is not enough space to enter the Carriage Return (CR) without word wrap carrying the last word and the CR over to the next line. This can be avoided by using CONTROL 'U' and SHIFT 'M' (CHR\$(13)). Be sure you are not on the line above... "End Of File Version".... This method of inputting a CR will not put you on the next line. You have to "insert" a line first and then use the 'arrow keys' to move between lines. This method of using the CR is particularly useful when editing data tables. It does not produce an extra line that has to be deleted afterwards.
3. Most printers can be prevented from stopping when the paperout signal is activated. The Gemini 10 requires a CHR\$(27);"8" code. This is useful when printing single sheets because it allows you to print the bottom of the page. Make sure that you do not have too many lines, otherwise you will print on the platen. This is especially important if you are using a tip such as # 1 above. The line numbers at the side of the screen will not correspond with the actual number the printer will print.

FAIRWARE REVIEW

CATALOGING LIBRARY By Marty Kroll

Reviewed By Don Veith

A point must be made before I start this review. If you obtain a Fairware program from the author or another source, pay the requested donation if you feel the program is of value and you use it on a regular basis. There is a very distinct possibility that this exceptional source of very high quality software will cease to exist. Each of you, the individual 99/4A Home Computer owner, will suffer as Fairware software authors either remove their program(s) or simply do not develop any new programs. The solution to this problem lies strictly in the users hands, especially those who simply "conveniently forget to pay" or perhaps never intended to pay.

The programs that comprise the CATALOGING LIBRARY by Marty Kroll are all programmed in Assembly Language. The use of A/L provides an extremely fast operating program. An example is the cataloging of a disk just prior to its being added to the Master Disk files. One disk with 32 files loaded a disk catalog to the screen in 9 seconds while another with 51 files took only 15 seconds. In terms of speed, those numbers equate to about three (3) files per second which is not too shabby. The speed of execution is present in every task the program performs.

To load the Cataloging Program, insert your Editor/Assembler Module and select Option #3 or the "Load and Run Option". The disk Marty forwarded to me contained two (2) cataloging files. One file, CATLIB/EPS, is designed for use with Epson and Epson compatible printers such as the Gemini 10X or 56-10. The other file, CATLIB/OKI, obviously is for the Okidata series of printers. After selecting the Load and Run Option, the statement "File name?" will appear on your screen. You simply type "DSK1.CATLIB/EPS or /OKI", whichever is correct for your printer. You could change the correct printer filename to simply "CATLIB" instead of typing the extra four (4) characters each time you load the Disk Cataloging program.

After the program is loaded, a quite extensive menu of what functions the program can perform appears on your screen. A sample of the menu screen is shown below:

CATALOGING LIBRARY

```
A      ADD DISK TO CATALOG
B      DELETE DISK FROM CATALOG
C      DELETE ALL "t"emporary PROGRAMS
D      LIST DISK SUMMARY
E      LIST ALL PROGRAMS
F      SEARCH FOR & LIST A DISK
G      SEARCH FOR & LIST A PROGRAM
H      PRINT DISK SUMMARY
I      PRINT ALL PROGRAMS
J      PRINT ALL PROGRAMS - NO PAGE DIVISIONS
K      SEARCH FOR & PRINT A DISK
L      CHANGE PRINTING OPTIONS
M      SORT & SAVE DATA
N      CHANGE FOREGROUND/BACKGROUND COLORS
O      TERMINATE PROGRAM
```

YOUR CHOICE A <----Cursor

TOTAL DISKS = 0 TOTAL FILES = 0

Another interesting screen appears while you are waiting for the program to sort the items you just entered and saves the updated file to disk after it has completed the sorting process automatically. This small step saves you the task of saving the program when you are finished with updating the file. The Master Menu Screen that appears is shown below:

BY THE WAY ...

HAVE YOU SENT \$10.00 TO

MARTY KROLL JR.
218 KAPLAN AVE.
PITTSBURG, PA 15227

A nice delicate reminder that the author would like his compensation for the software he produced. In this case, you are receiving excellent value for a very small investment. The program allows you to search for an individual file by its name. The program comes back with the diskname the requested file is saved on. A very nice feature if you have an extensive and large disk file collection. This is especially true for those of you who have acquired Double-Sided, Double-Density disk capabilities.

Some other features are the program's ability to catalog up to 123 disks or 900 files, whichever limiting factor is reached first. I hope Marty is working on an update to handle the increased number of files on DS/DD diskettes. I loaded seven (7) diskettes with Extended Basic games and reached a file level of 450+ in those few disks. A bright red warning screen appears when the Cataloging Library programs storage limit is reached. When you are adding disks, the program warns you if another disk of the same name already exists in the catalog. The program can also catalog any "funny sectored" disks which appear not to be initialized or empty because sector one (1) may be defective.

A standard format of any disk in the catalog may be printed. The program file listing may be printed out in either regular or compressed print. The compressed print format allows you to print three columns of output thus saving paper. If you remember the main menu screen, the printer output can be either paged or unpagged. Simply depressing Function 4 will cause the printer output to cease. A red screen appears with a message to continue by pressing any key. Changing the printer codes is easy from the main menu. You may also utilize a disk fixer program like Millers Graphic's Advanced Diagnostics to change the printer information in the program. Marty provides the sector and address locations plus the code information in the enclosed instructions. There is one problem with the compressed print format. The output is printed too close to the left margin if you plan to place the printout in a three ring binder. Punching holes would eliminate some of your data. A simple solution is available for this problem. Simply readjust the left margin of your printer sufficiently to compensate for the margin required to allow the punching of holes for insertion in your three ring binder.

A file named "CATLIB/TIM" contains the instructions for the Cataloging Library program. All you have to do is run the program through the TI-Writer Text Formatter to obtain a copy of the instructions. Marty did all the work including a footer statement for numbering the pages. The instructions are quite complete and detailed. This is one of the finest efforts that I have observed in the preparation of the instructions that accompany programs in the Fairware Sector. This program would make an excellent addition to your program library. Marty also has a Disassembler for Assembly Language programs. Edgar Dohmann will be reviewing the program in a future issue.

OH SAY CAN YOU C

By Edgar Dohmann

AT LAST!!! Thanks to Clint Pulley of Burlington, Ontario, Canada we now have a REAL high-level language compiler for the TI-99/4A at an affordable price. Clint has developed a C compiler which he calls c99. This compiler is actually a subset of C and is based on the concepts and descriptions of Small-c. While it is a subset of C, it is a true compiler in that it generates TMS9900 machine code from source files written in C language.

I put C in the same category of languages as Fortran and Pascal. Basic was designed to be an interpretive language and even compilers written for Basic suffer somewhat because the language was not originally designed to be compiled. FORTH and p-code languages approach machine code execution speed but because they generate code for a pseudo-machine, generally run a factor of 2 slower than assembly language programs. Up until now, the only way to get machine code execution speed out of the /4A was to write your programs in assembly language (or buy an expensive Basic compiler and live with a unique version of Basic). Now, for the modest sum of \$20.00 you can obtain a c99 compiler from:

CLINT PULLEY 38 TOWNSEND AVE. BURLINGTON, ONTARIO CANADA L7T 1Y6

Clint has actually placed the c99 compiler into public domain for FREEMWARE distribution. He encourages people to use and distribute the compiler, libraries, and associated software and documentation provided on the distribution disk. Other than the \$20.00 contribution, he only asks for a complimentary copy of any useful applications programs developed with his compiler. While \$20.00 is more than most FREEMWARE authors are asking, I think this one is well worth the price. From experience, I can tell you that developing a compiler is significantly more work than most other FREEMWARE (and many commercial) authors have put into their programs. Furthermore, Clint's offering opens up a whole new realm of programming possibilities for us. The distribution disk includes a 10-page manual which can be printed with TI-Writer or the Editor/Assembler. This manual explains how to use the compiler and libraries. If you need a C reference manual, there are a number available. Both SAMS and McGraw-Hill have published excellent C Primers, Prentice Hall has a good C Programming Language reference book, and Prentice Hall has also published The Small-c Handbook by James Hendrix. If you are already familiar with high level languages like Fortran or Pascal, I would recommend the book by Hendrix. If you are trying to step up from Basic to a more formal high-level language then I would recommend one of the primers on C.

Clint has released a second disk containing an optimizer for the c99 compiler and some sample application programs. One is a breakout type of arcade game which provides a quite impressive demonstration of this compiler's power. Clint also promises to place everyone who sends him \$20.00 on a mailing list to receive notices of new releases. I strongly recommend supporting Clint in his efforts. His contribution to the TI-99/4A community is outstanding.

REVIEWS

THE ORPHAN CHRONICLES By Ron Albright, MD

BOOK REVIEW - By Don Veith, Editor

This publication is an excellent reference source for the 4A owner interested in a history of their computer. The book provides an excellent overview of the computer's history from its design inception in the late 1970's to its orphan status in the fall of 1985.

Texas Instruments, as many people are not aware, was the semi-conductor industry's leader for several years due to an excellent record of technical developments. TI made the first silicon transistor in 1954, the first integrated circuit in 1958, and the first Integrated Circuit based computer for the Air Force in 1961. TI set the same pace in the computer industry with another first, the TMS-1000 chip. The TMS-1000 is a 4-bit microprocessor chip that was utilized in hand held calculators and games. A trade war for control of the calculator market ensued. TI won the calculator war with a gentleman named Jack Trameil, driving his firm into bankruptcy. This man came back to haunt TI, but lets defer the story for now.

Texas Instruments then caught the industry totally by surprise. Instead of developing an 8-bit microprocessor chip which the industry expected, they developed the 16-bit TMS-9900. Their leap to hyperspace landed them in another galaxy and time frame totally separated from the other members of the semi conductor industry. The rest of the industry was just not ready to accept a 16-bit microprocessor and proceeded to develop 8-bit chips completely ignoring TI and its newly developed standard. An industry leader cannot allow all this research and development effort expended on this breakthrough to be wasted. Anyway, decisions were made to develop a product within the corporate structure to make use of the TMS-9900 microprocessor chip technology. Thus the kernel was created that later grew and was nourished into the TI-99/4A Home Computer.

You will have to purchase **THE ORPHAN CHRONICLES** to obtain additional details on this continuing saga. The book devotes 18% of its total pages to TI's portion of our computer's story. After telling TI's story, Dr. Albright discusses "Commercial Users Groups" versus "The Real Users Groups". The problems and controversy surrounding Charles La Fara's International Users Group (IUG) are reported fairly in the publication. My initial membership in any group supporting the 4A was with the IUG. Later, as a member and Users Group President, I had the privilege of speaking twice with Mr. La Fara. I can assure you that he was an excellent conversationalist and superbly represented their combined interests (both his and the IUG).

In the chapter named "Telecommunications", the author gives Texas Instruments credit for setting the pace in this area. TEX-NET was created by The Source Telecommunications Network and Texas Instruments. This exclusive service for owners of the TI-99/4A Home computer went online in late 1981. It is still in place and working although at a much diminished level from its peak. The development and rise of Comuserve and how it replaced the Source as the TI community's prime commercial communications service is another story. Dr. Albright is a SVSDP on the TIFORUM of Comuserve for those of you who are not subscribers of this service.

THE ORPHAN CHRONICLES continues to thread its way through the 4A's story. The subjects covered are where the third party after market support came from and how it developed to today's survivors. Commercial publications are covered in one chapter, much of which is devoted to Gary Kaplan and the 99'ER or HOME COMPUTER MAGAZINE. FREEMWARE, its origins, development, and concepts is outlined in another chapter. Future expectations for the 4A are covered in another chapter. The closing chapter provides advice on what to do should your favorite computer or piece of equipment become orphaned by its manufacturer. The ten steps outlined are excellent advice for any item abandoned by any firm. Just look what happened to KODAK and owners of its instant develop film and camera markets as decreed by a court of law no less!!!

A bonus section of the book, The Appendices, contain excellent reference lists of Bulletin Boards, Hardware and Software firms, Distributors/Dealers, TI Users Group List, Profit and Non Profit Sources for Assistance, and a good list of publications for the 4A. Ron did a good job of compiling the story on the 4A. He states in the Introduction that his original intent for distribution of the material was originally intended for 20 or so of his friends. Craig Miller read the draft and offered to publish it in book form. This statement by the author explains why some people and information are missing from the book. He is to be commended for maintaining his Introduction statement that "no good guys or villains exist in this book"!!!!

The book will cost you \$9.95 from your favorite dealer or direct from the publisher. Shipping and handling from the publisher total \$1.50. California residents MUST ALSO add \$.65 for sales tax. The publisher's address is:

MILLERS GRAPHICS 1475 W. CYPRESS AVE. SAN DIMAS, CA 91773

PRODUCT: "TRIPLE TECH" BOARD By CorComp PRICE: \$129.00

By Randall Page - Benton, Arkansas

The CORCOMP "TRIPLE TECH" Card has been released by CORCOMP for about six months. This review is not a professional work of art, just a user giving his two cents. Triple Tech is named for the three in one functioning of the card, but only takes one slot in the PEB. The Card's three functions are that it provides a connector for the TI Speech Synthesizer, and has a 64K Printer Buffer and a real-time Clock/Calendar.

The card was shipped by mail in a heavy cardboard box with the card surrounded by foam rubber. The Operations Manual was also inside the shipping container. The instructions were easy to follow. First, dismantle the speech synthesizer being careful not to touch any chip or connections. Then just plug the bare synthesizer board into the slot on the top of Triple Tech card. Next, place the card into the P-Box just like any other card. Note that no hard shell surrounds the card to protect it like your other TI cards. Power-up the PEB as you normally would and Triple Tech is ready to do it's job.

The printer buffer operation was disclosed as I looked at TRIPLE TECH. It can only work with the parallel port of the RS-232, so serial printers will have to have special parallel boards added to make use of the print buffer. This was never brought up in any of the advertisements. In fact it was written in UNISOURCE'S catalog that Triple Tech was "virtually compatible with any printer". When you read that, you think you've received both serial and parallel port capabilities. But no, you are left using the buffer linked via the PIO port of the RS-232. When a file is dumped to buffer, the file is routed from PIO to Triple Tech, and then to the printer. When dumping a 100 sectors of a DIS/VAR 80 file, all 100 sectors are placed into the buffer on the Triple Tech Card, and printing begins. The card feeds the printer as fast as it can handle print data. This is accomplished by the use of a CPU on the card. Yes, another CPU, the Triple tech uses a Z80 processor to perform the printer controls which allows your computer to perform other tasks. The only controls that a user can perform are the COPY AND CLEAR buttons on the card. They are accessible from the rear of the P-Box and provide for a duplicate copy of the entire buffer or a purge of the entire buffer. Access to these buttons is poor if you have your system set-up on a computer desk or have a TV on top of the PEB. If you press the CLEAR Button upon power-up, the buffer does a Self-Test of all 64K of its memory and the circuitry associated with the buffer.

The last section of Triple Tech is the Real Time Clock. When in a Basic or Extended Basic environment, you can make use of the Clock/Calendar. This is accomplished by four basic commands; Open, Print, Input, and Close. The clock is set with the command OPEN #1:"CLOCK", PRINT #FILE-NUMBER:"d,mm/DD/yy, hh:MM:SS". Now, the time can be read from the program or from a command line. Although I am sure the time can be read in machine language, no provision has been made by CorComp to disclose how it can be done. The clock can display day of the week, month, day, year, hour, minute, and second. You have control over which items are displayed by including or excluding them in your PRINT statement.

For a good/bad points comparison, we'll start with the good points first. The speech function works completely normal, and it is nice to have room on the desk to set things, plus your friends will really wonder "How can he do that, no Speech Synthesizer is hooked-up?" The Print Buffer does cut down on time wasted waiting for your computer to be released. Below are times for two types of files, Dis/Var 80 and Program. Also you can make multi copy print-outs with the use of the copy button and also you can check and see if everything is in good condition. The clock performs very well and is controllable in Basic or Extended Basic. This makes for a useful tool for programs that are already written and those left to write, I have a short ten line subroutine that can fit inside almost any program. When called, it Displays the time in the upper right hand portion of the screen.

Now to the bad points: the Speech Synthesizer does not have any, but that's the only section of the card that I have no complaints about. The Print Buffer is far from what I expected. For the hard earned greenbacks that I gave up I expect more flexibility. Luckily, I had a parallel printer, but what if I had not? Along with flexibility another problem occurred when I printed a program file. The time required to empty the computer is much slower than that of a DIS/VAR 80 file. In the comparisons below, the time for a program file of almost equal length (in sectors) to that of a Dis/Var 80 file was about 8 minutes slower. This becomes apparent when printing a program for debugging, although the time is decreased. This was not the biggest problem I came across. When using TI-WRITER, I often switch to Extended Basic or Editor/Assembler. Doing so while a print operation is still in progress resets the computer and the printing is stopped. This necessitates the cartridge to remain in the computer until all printing has stopped. The Clock/Calendar has great potential but I would like to see some Software along with it, especially a machine routine that could be used from Extended Basic. Finally, the card is a whole computer with a parallel port, so why not make use of the power of the Z80 microprocessor? Oh well, I'm sure someone out there is dreaming up some way to do just that. (ARTICLE CONTINUED ON PAGE 12)

THE 99'ERS ASSOCIATION SUBSCRIBER SURVEY FORM

CURRENT EQUIPMENT CONFIGURATION

1. 99/4A Home Computer(s): 1 ___ 2 3 ___ 4 ___ or more
2. Expansion System: TI 3rd Party: CorComp ___ Myarc ___
3. Memory Expansion Beyond Expansion System 32K: Foundation ___ Myarc Morning Star Software ___ Other ___
Amount of Memory: 128K 512K ___
4. Disk Drives: #: 1 ___ 2 More Than 3 ___ Type: 5S/SD ___ DS/SD DS/DD ___ Winchester ___
5. Modem: Baud Rate: 300 1200 ___ 2400 ___ Make: Anchor Hayes ___ Other ___
6. Number of Cartridges? TI 15 Atari 6 Navarone ___ Databiotics ___ Other ___
7. Hours per week on TI-99/4A? 2 ___ 4 ___ 6 ___ 10 15 ___ 20 ___ 30 or more ___
8. Commercial Communications? Compuserve ___ Source ___ Other ___ Hours Spent Online Per Month: ___
9. Do you call Bulletin Board Systems? Yes ___ No If yes, Local Area ___ Outside Local Area ___
10. How many times per month do you call a Bulletin Board system? _____
11. Have you ever called one of THE NATIONAL NINETY-NINER Bulletin Boards? Yes ___ No
11. If yes in #11, which BBS? #1 ___ #2 ___ #3 ___ #4 ___
13. Do you own another computer other than a TI-99/4A? Yes ___ No
14. If answer in #13 was yes, what brand? Apple ___ Epson ___ IBM ___ Sanyo ___ Other ___
15. Are you a member of a Users Group? Yes No ___
16. Do you use a computer other than the 4A in the course of your employment? Yes No ___
17. If the answer in #16 was yes, do you use: Personal Computer Mainframe Computer
18. If answer in #17 was Personal Computer, what brand do you use? Apple ___ IBM ___ Kaypro ___ Other ___
19. Hours per week on computers in course of employment: 2+ 4+ ___ 8+ ___ 12+ ___ 20+ ___ 30+ ___

NEW COMPUTER DEVELOPMENT

1. Do you plan to purchase the new computer manufactured by Myarc when it becomes available? Yes No ___
- IF YOU ANSWERED NO, PLEASE DO NOT ANSWER ANY MORE QUESTIONS ON THIS PAGE.
2. How much internal RAM Memory should the new Computer have available? _____
 3. If you could expand the memory of the computer, how much would your needs require? 256k 512K
1024K ___ 2048K ___ More than is listed ___
 4. How much are you willing to pay for this new computer? \$299 ___ \$499 \$699 ___ \$899 ___ More ___
 5. Do you think the Computer should have Quad Density Disk Drive capabilities? Yes No ___
 6. Would you like to have the computer be able to run software for other types of Computers? Yes No ___
 7. If the answer is Yes in #6, check the brands you feel are appropriate? APPLE II ___ IBM PC OTHER ___
 8. What do you feel is a fair market price for a price of hardware that allows you to run other computer's software?
\$199 \$349 ___ \$499 ___ \$599 ___ \$ ___
 9. Would you purchase the computer as: a standalone unit ___ or a component for your Existing TI Expansion System
 10. How soon would you purchase the computer after it became available? 1 week 1 month ___ 2 months ___ 3 months ___ 6 months ___ 1 year ___ more than 1 year ___
 11. Would you continue to use your 99/4A after purchase of the new computer? Yes No ___
 12. Do you think the existing Users Groups supporting the TI-99/4A should support the new computer? Yes No ___
 13. Should the Users Groups support the new computer? Only ___ As a SIG ___ support both 4A and new computer
 14. Do you believe that Fairware programs will be available for the new computer? Yes No ___
 15. Should the manufacturer make the design information available (open architecture concept like Apple or IBM PC) on the computer to encourage other firms to develop products? Yes No ___

Overall, I use my Triple Tech, and I like the freedom it gives me when doing a heavy load of printer work. If you have TK-WRITER then it is real easy to plan work so you don't have to remove the Extended Basic Cartridge.

I will be happy to hear from any of you about any trick you've found while using Triple Tech. Below are comparison for two type files, I selected one Extended Basic Program and one Dis/Var 80 file. I think you can see how well and how not so well the buffer works.

	DIS/VAR 80 58 SECTORS	PROGRAM 46 SECTORS
WITH BUFF	6.7 SEC	1:56.9 MIN
WITH OUT	7:08.5 MIN	9:41.1 MIN

P.S. If you have any questions or know something else about Triple Tech, please send me a note.

Randy Page Rt. 6 Box 50 Benton, AR. 72015

COMPUSERVE ARTICLE

REMOTE AND AUXILIARY KEYBOARDS FOR THE TI99/4A

By Allan Silversteen

This is a short note on the ability of the TI99/4A to accept a remote keyboard (RKB). The procedure is relatively simple but does require some manual dexterity. There are three options available: the first is a direct connection providing 2 active keyboards and no easy means of removal of the RKB; the second procedure requires more work and materials but provides a port for the RKB to be attached, this allows for easy removal and other possible upgrades (see last paragraph); and the third procedure requires less work than #2 but defeats the operation of the console keyboard (CKB) (only the RKB works).

WARNING: If you feel the least bit uncomfortable with a soldering iron then try to find someone to assist you in this project. Be advised only procedure #3 will not invalidate any warranties that might apply to the TI console.

The CKB is attached to the CPU Board by a 15 Pin in-line connector. Procedures #1 #2 involve putting a 15 conductor cable in parallel with the CKB. Ribbon Cable is preferred (Radio Shack 278-772 \$3.59 for 5 ft. or 278-773 \$16.95 25 ft (both 25 conductor cable). Procedure #3 requires removal of the CKB connector and attaching a prepared connector for the RKB. The Keyboard to be used is a direct replacement for the TI99/4A (albeit the beige rather than the Black Silver) it is available from Herbach Rademan Co. 401 E. Erie Ave. Phila., PA (for \$4.50 each Part No. TM 23K230). All procedures will require opening up the main console (7 Phillips Screws on the bottom of the console). Be sure the power to the console is disconnected first. Examine how the on/off switch goes together. At the top of the CKB is a series of 15 solder pads attached to the short 15 pin ribbon connector going to the CPU board. For procedure #3 just remove this ribbon connector and replace with the previously prepared one. For procedures #1 #2 you must solder 15 wires to the 15 solder pads on the CKB. ALWAYS CONSERVE THE NUMBERING SEQUENCE OF THE WIRES.

For procedure #1 the identical wires are soldered to the RKB and the CKB (pin 1 to wire 1 to pin 1, etc.). For procedure #2 several mating connectors are placed in this 15 wire cable. I used a 16 pin DIP socket at the console side and the same at the RKB side. CONSERVE THE WIRE/PIN NUMBERING SYSTEM. This will require about 18 inches of 15 conductor ribbon cable and (2) 16 pin DIP sockets. The two sockets are attached to each other by a 16 conductor Jumper cable. Jumper cable is RS 276-1982 \$3.99 for 18 inches, the headers if a longer extension is required are RS 276-1980 \$1.69, use the wire wrap 16 pin sockets and clip off excess leg. I keyed the sockets by filling pin #16 and cut the 16th leg on the ends of the jumper cable. A 15 pin D connector can also be used if heavy use of this port is expected (Similar to RS 276-1527 \$2.49 and mate to same).

Procedure #1 #3 will require a small slot (1/8" x 1") be filed into the lower console case to allow the exit of the ribbon cable. Procedure #2 will require a hole cut into the lower console case to accomodate the DIP socket or D connector. I used the right side near the front for this cut out. All solder connections and connectors were potted in Hot Glue for electrical and mechanical security.

I have one RKB with a 10 ft. cable that works well. The only advisory note I have is the Alpha Lock (A/L) key depressed on either KB in procedures #1 #2 will give capital letters on both KBs. I usually leave the A/L key up. The Major advantage of this system is the console may be located out of harm's way and the RKB located where it is required.

Estimated parts cost and labor time are:

Procedure #1 about \$10.00 for 18 inch extension 2 Hours
Procedure #2 about \$20.00 for 5 ft. Extension 3 Hours
Procedure #3 about \$10.00 for 5 ft Extension 1.5 Hours

The RKB can be prettied up by grinding off the metal tabs (before commencing the project) and using duct tape on the bottom and sides of the RKB (after

completion). The RKB can also be mounted in a box with Hot Glue if desired.

Future Potentials- Since procedure #2 allows access to the KB scan Lines the possibility of a Numeric Keypad, a Multi-position Joystick or even a more complex and useful Keyboard.

If you have any questions or need help with these procedures please contact me by writing to Allan Silversteen, 513 Toll Road, Oreland, PA 19075.

**SUBSCRIPTION FORM
FOR "THE NATIONAL NINETY-NINER"
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