NORTHWEST OHIO 99'ER NEWS

Vol.3 No. 12 DECEMBER 1985

This newsletter is published jointly by OH-MI-TI and New Horizons TI-99/4A Home Computer Users' Groups. Material may be reproduced without permission provided the author and source are acknowledged. For more information concerning TI Users' Groups in the Northwest Ohio area, contact:

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********* TICOMM BBS 385-7484 **********
* SYSOP>>>DUD MILLS<<< *
* !!!!!!! 24-HRS. !!!!!! *
* SYSTEM OPERATING ON *
* CORCOMPS NEW !!!!!!!!!! *
* 9900 MICRO EXPANSION SYS *
*
****

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THE HAPPIEST OF HOLIDAYS TO YOU!

VICE PRESIDENTS CORNER

by Roger Biddle V.P.
OH-MI-TI

Last months meeting was very successful .with many members voicing their ideas, and suggestions. This sort of participation is very important from the standpoint of solid membership.

The article that appeared in last months newsletter, pertaining to the future of our club was the reason I'm sure. Let me assure you "as long as I see this type of involvement I see no problem of our club continuing for a long time to come." Let's continue this type of positive thinking. If it were not for User's Groups for our computer, where would we be " lost! ".

On November 2, I attended the TI-FAIRE held in Chicago. At this event I saw hundreds of people that were as interested in their computer as they were the day that they bought it. Many new software, and hardware packages were displayed for the curious, and available for sale. These software and hardware packages included everything for the beginner to the well seasoned programmer. Now your not going to find these products at your local " K-____ " store, but they are plentiful and available through mailorder houses, and software developers that advertise through various magazines, newsletters. BBS's. Compuserve, Source, that devote interest in the TI-99/4A. If you feel that the support for your computer isn't there, you are definitely not "tuned in". ATTEND YOUR CLUB MEETINGS, and become " tuned in ".

At our next meeting bring someone you know that has a TI, and not a member to the meeting with you. Our membership is very important to all of us as a vital source of information and knowledge that we can share with each other. Remember we all knew the same thing about computers once "nothing".

At last months it was voted to increase the yearly dues to 15.00. If you pay your dues at the December meeting, the club will give you a disk full of useful programs. This is the clubs way of saying thank you. Where else can you go and get inexspensive software, knowledge, and presentations for your computer? No question about it; " YOUR COMPUTER CLUB ".

I had the the opportunity to test the Ramdisk that was developed by Ron Gries, John Clulow, Dave Romer, and Jarvis Hill. now known as HORIZON MICRO-PERIPHERALS last month. The Ramdisk didn't have any major problems that John and Dave couldn't correct through software. The hardware worked flawlessly. This product will be in production has you read this newsletter. For details of the Ramdisk check your October newsletter page 6. It was remarkable how fast it speeds up the use of TI-WRITER, EDITOR ASSEMBLER, or your favorite program. Once you use a Ramdisk, you will be totally amazed.

We are very fortunate to have these gentlemen with their respective expertise in hardware, software, and design techniques as members and freinds of our clubs. As club members give them your full support in their work.

I hope to see everyone at the December meeting. If you can't make it let me say MERRY XMAS and let's make 1986 the best year for our club, and with your support I know we will.

ENJOY THE HOLIDAYS

OH-MI-TI NOMINATIONS

by Peggy Williams

The nominating committee, after a small amount of arm twisting, is happy to offer the following candidates for officers and board members for the coming year:

President	- Roger Biddle
V-President	- Bob Peters
Secretary	- Pat Hunsinger
Treasurer	- Dave Burkett
Board Member	- Hank Alvaro
	Jim Elfring
	Ed Menasian
	Dave Welty
	Peggy Williams

Before the election at the December meeting, nominations will be accepted from the floor. If you think you'd like to become more involved, this is a good way to give something back to the club. If there's someone you think would do a good job, December's meeting is the time to speak up. Above all, come to the meeting and let your wishes for the coming year be known!

DECEMBER OH-MI-TI MEETING

The next meeting will be held on December 13,1985 at Oregon No.2 firestation Oregon Ohio at 7:00 pm.

At this meeting we will elect our new officers for 1986. After that, there will be a presentation by Kent Sheets on the PLATO educational series software, along with other educational software.

It was decided at last months meeting that you are to bring some cookies or cupcakes for refreshments, the club will provide the beverages, for a little christmas party following the meeting.

If you have a new piece of software or hardware bring it along and show the others.

The club will be offering inexspensive software, a demo of the offering will be given.

Where else can you go and get inexspensive software, questions answered, and good solid support for your computer.

SEE YOU AT THE MEETING
ED.

SEASONS GREETINGS

TI USERS GROUP MEMBERS

HAPPY NEW YEAR

TIPS

Kent Sheets 12/85
OH-MI-TI

From: AVTI NEWSLETTER 9/85

When using TI Writer, sometimes trying to read a file is impossible becasue an error command is displayed, stating that the buffer is full. Or sometimes when writing a file, you might wonder how large can I make this file before obtainging a buffer full. In the FI mode, you'll get a buffer full at 92 sectors (about 3600 words). In NF mode, you'll get a buffer full at 119 sectors (3900 words). By using a catalog program to check the number of sectors, you'll be able to determine how much memory is left.

HAPPY HOLIDAYS FROM THE NEWSLETTER STAFF

NEW HORIZONS NEWS

by Bill Sager
New Horizons

The November meeting was attended by 68 members, with one new member joining and a number of people paying their 1986 memberships to be eligible for the big prize drawing at the January meeting. There will be a separate notice in this newsletter with all the details. Be sure you pay at the December meeting or mail your check for $15 to Earl Hoffis so you are included. With a chance at these great prizes plus another years worth of valuable users group activities you can't miss!

The club had three new disks available and sold 77 disks of programs. Donations were sent to several freeware authors of these programs. However, this does not replace a payment from the individual user of the program. Your payment should be sent direct to the author, whose name appears in the program and/or documentation if you are using the program.

Some of the members who attended the TI Faire in Chicago in early November reported on the event. The information once again shows that there is still a great deal of TI 99/4A activity among users groups, vendors, and independent software producers. Those members with expanded systems have a host of new options in both software and hardware. Check out the graphics and fonts that are in our newsletters as a sample.

Our thanks to John Clulow and Ron Gries for their informative presentations in November. John did a great job in covering some of the new programs available. It was especially nice projected on the large screen so that everyone in the room was able to see. We will be able to use this each meeting, so it should improve the presentations a great deal. Much thanks go to Earl Hoffis for arranging the use of this equipment through First Unity Church. Since equipment like this is way beyond the groups reach to buy or rent, not to mention transporting it, we are indeed fortunate that Unity Church is making it available to the New Horizons Users Group.

Those determined souls that stayed to the end were able to see Ron Gries build a "Super Duper Cart". We hope you learned enough to be able to tackle this project. In case anyone doesn't know, Ron's earlier device, "Super Cart" has actually been copied and is being produced commerically for TI users by a California firm. Save a few dollars and build it yourself. I'm sure the inventor would be able to answer a question or two. We are lucky to have Ron as a interested and active member of our group.

Elections will be held at the December meeting. A slate has been proposed and the names were in the last newsletter. Nominations from the floor are welcome. Just be sure the person is willing to serve in the position. The four officers are President, Vice President, Treasurer, and Secretary. If there is an area of interest that is not now being covered by the group, be sure to contact any of the 1986 officers and make your wishes known. By the same token, accept a project, give a presentation, write a piece for the newsletter or just pledge that you toowill help the group and not expect a few members and the officers to carry the load. Say "Yes" when you are called on.

A reminder to those who signed up to bring food for our holiday table - don't forget! You will be called the week of the meeting also. Anyone not at the November meeting or who did not sign up - you are more than welcome to bring a "treat to eat". Beverages will be furnished by the club.

The place to be December 14 at 2 PM is Unity Church for the New Horizons Users Group meeting and holiday gathering. May you all have a Joyous Holiday Season and a Very Happy New Year.

WIDE SCREEN

DEBUTS AT
NEW HORIZONS!
...A NEW VIDEO
PROJECTION DEVICE
COURTESY OF UNITY
CHURCH ALLOWS A 4
BY 4 FOOT COMPUTER
SCREEN...BIG ENOUGH
SO EVERYONE CAN SEE
...THIS WILL BE A
GREAT AID TO OUR
PRESENTATIONS..SEE
IT IN DECEMBER

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NEW HORIZONS' NEXT MEETING IS...

SATURDAY, DECEMBER 14 at 2:00 PM.

Unity Church, 3535 Executive Pky

Our traditional holiday festivities will be embellished by great presentations and copies of the new DISKAZEEN!

SESSION 1: Author/Publisher Michael Amundsen will demo his set of utilitits for enhancing Extended BASIC. The entire set, which includes many new graphics capabilities will be available for $5 at the meeting

SESSION 2: In response to a number of requests Don Turner will give an introduction to programming in the BASIC language. We we plan to do a lot more in the educational area in 1986, and Don will get us off to a great start.

DECEMBER USERS GROUP MEETING

ELECTION OF 1986 OFFICERS

HAPPY NEW YEAR

HAPPY NEW YEAR

HAPPY HOLIDAYS

NEW HORIZONS Out-Going President

by John G. Glulow
New Horizons

Bob Dilworth, Third New Horizons President. recently paraphrased a famous Calvin Coolidge statement, "I do not choose to run for President in 1928.", Bob, of course ammended the year to 1986. So that fateful, historic day, August 2, 1927, in which Coolidge made his statement to a small group of reporters at Rapid City, South Dakota, was indeed repeated here in Waterville, Ohio March 3, 1985.

Bob reportedly then started making statements like, "The business of America is business.", but this rambling was quickly brought to a halt by a salty remark by David R. Romer.

Seriously, Bob, on behalf of ALL New Horizons Computer Club members, THANK YOU for all of your time, energy, and the creative ideas you have given us throughout 1985. They have enriched all of our experiences with personal computing.

And thanks, too, for educating many of us on the famous sayings of Calvin Coolidge, 30th President of the United States of America.

ANOTHER JUDGE CRATER?

Dateline Perrysburg

John G. Glulow
New Horizons

MANY have been asking, "Whatever happened to Lehigh 99'er Users Group and YOU KNOW that guy who wrote those really neat articles?"

"You mean **FRED HAWKINS**?", I reply.

"Ya! and how about our year's subscription we were supposed to get for $6, Huh? Huh? Huh?"

"Well", I retort, "I told you they couldn't afford to do it for $6. Why don't you just count your blessings and forget about it!"

Well, folks, we finally got our latest issue of the Lehigh 99'er Computer Club Newsletter. NOT EVEN A MENTION OF FRED HAWKINS (aside from his signature). The editor is now someone named Pat Strunk.

OK. So I called this Pat Strunk person up and inquired about the whereabouts of Fred Hawkins. "Well", she said, "he's still around, but maybe he just got tired of writing the newsletter and maybe some people felt what he was writing was over most people's heads."

OK. OK. So I can accept that. But for my $6, Fred Hawkins was THE BEST WRITER that EVER wrote for any user group publication ANYWHERE. His piece on Gary Kaplan, in particular, occupies a prominant position in my collection of 99/4 memorabilia.

For all those who, like me, would like to have Fred Hawkins autograph, there is one at the end of this article. Rather than cutting it out, I'd recommend leaving it right in the newsletter so's you don't loose it.

Well, Fred, if you're reading this, why not sit back in your easy chair some night, suck back a few, and rip off one more for old time's sake!

> Fred Hawkins

MAIL BOX RETURNS

Kent Sheets 12/85

OH-MI-TI

Cleveland Area 99ers
Cursor CALL POKEV(108,126,129,165,129,165,153,129,126,)
STARBURST
153,66,36,129,129,36,66,153
UNDERLINE 0,0,0,0,0,0,0,254

NEWSLETTER SUBSCRIPTION DEAL
12 issues for only $ 6.00
to: TI USERS GROUP Newsletter c/o Frank Jenkins 19809 Gladstone Rd., Cleveland. OH 44122

NEW MAGAZINE-ON-DISK

TI-99/4A TRAVelER - a new magazine-on-disk, which includes over 700 sectors of programs and articles, 6 issue subscription for only $ 30.00 From:
BARRY TRAVER, EDITOR, GENIAL TRAVelER 835 Green Valley Dr. Philadelphia, PA 19128

THE ORPHAN CHRONICLES
by RON ALBRIGHT JR.

Order from MILLERS GRAPHICS 1475 W. cypress ave San Dimas, Ca. 91773 (714 599-1431) as order nr. B007 for $9.95 plus Shipping and handling 2.00

From No. AL 8 x 8
TIDBIT For those of you that are using monochrome monitors and like to use reverse video. here is an Extended Basic routine that will do it quick:

```
FOR I= 1 TO 12
CALL COLOR(I,16,2)
NEXT I
CALL SCREEN(2)
```

COME TO THE DECEMBER MEETING: FUN, REFRESHMENTS, FRIENDS

COMPUSERVE TI FORUM NEWS

downloaded from Compuserve
11/30/1985 by Roger Biddle
OH-MI-TI

29 November 1985
==========

SCOTT ADAMS COMES TO THE FORUM!
Scott Adams, the Chief Adventurer and creator of the Adventure module programs for the TI-99/4A and most probably on the TI PRO, will be having a conference here in the FORUM on Saturday, December 14, 1985, at 9:00PM EST. This should be a good one!
We also have finished the DL reorganization! Read the DL bulletin for details! GO TINEWS will provide help and news on downloading and new programs.
Your TI Forum Coordinators:

Jim Horn	76703,603
Jonathan Zittrain	76703,3022
Steve Davis	71555,603
Ronald Albright	75166,2473
Barry Traver	70436,373
Paul Charlton	75136,2256

FOR SALE RECIPE FILE

by Roger Biddle
OH-MI-TI

The RECIPE FILE program is a modern alternative to the old fashion cookbook.
The RECIPE FILE program eliminates time wasted "looking-up" recipes in file boxes, and needless paperwork. Within seconds, the average cook can plan and implement favorite recipes without the bother of paper and pencil. Just think "MOM'S APPLE PIE recipe" can never be lost or misplaced and available for copy to others in seconds. For the busy homemaker being able to plan a meal with the recipes at his/her fingertips will save hours a week in planning time.

For your copy send 6.00 to:

Roger Biddle
218 Dillrose Dr.
Northwood, Oh. 43619

GREETINGS FOR THE HOLIDAYS

NEW HORIZONS to Sell Issues at Meetings

An exciting new magazine-on-disk, which will include over 700 sectors of programs and articles in each issue, featuring authors like Mack McCormick, Jonathan Zittrain, Tom Weithofer, Tom Kennedy, Todd Kaplan, and last but not least Barry Traver.

The first issue (Sept. 1985) -- which will be available at the December New Horizons Meeting -- includes an article on TI ARTIST and GRAPHX by Ron Albright, assembly language articles by Mack McCormick on accessing the RS232, an article "TI+ME: Saving Tips on CompuServe" by CIS Wizop Jonathan Zittrain, two utilities by Tom Freeman (one to print DV80 files _sideways_ on your dot matrix printer, and the other to print two-column newsletter-style sheets with full justification), a versatile assembly language utility accessible from Extended BASIC called "RAW" (for "Read and Write") for single-sector disk access by Barry Traver, another utility by Barry to show DV80 files on your screen in 40-column text mode, a colorful game called HoleyMoley by John Behnke, plus much, much more.

Purchase of the Diskazine will make the owner elegible for special software bonus offerings. When you buy your disazine at the New Horizons Meeting, make sure you register your name and address with Norma.

The "diskazine" is actually priced less than some "freeware": you get a six-issue subscription for only $30 (that's over 4000 sectors, so that you are only paying less than 3/4 of a penny per sector!). This special price is only guaranteed through the end of 1985, after which time subscription rates may increase, so NOW is the time to send in your check.

The TI-99/4A TRAVelER is edited by Barry Traver, whose programs ahave appeared in various publications ("Giants and Dwarfs" in 99'er Home Computer Magazine, "Merge/Read"in Craig Miler's Smart Programmer, and "Numb/Conv" in Super 99 Monthly, where he is now a regular contributing staff writer). He was recently made a full sysop on the TI FORUM on CompuServe, where he earlier received the honor of being asked to serve as Chairman of the Expert Member Board.

The "diskazine" is being "published" on commercially-made SS/SD "flippies", so that the same format will work on everyone's disk system. Because of the medium employed (disk rather than cassette), it will be assumed that most subscribers will also have at least a 32K RAM card, Extended BASIC, and probably Editor/Assembler as well, and the ciontents of TRAVelER will be chosen accordingly. (In other words, you can expect something a bit more sophisticated than the TI BASIC programs which are generally all that is available in magazines and books in bookstores!)

THE TI BASIC SYMBOL TABLE

Bob Dilworth
New Horizons

Variables certainly are a blessing to any programmer. Without them even the simplest loop problem would be well-nigh impossbile. If you aren't convinced, try writing the equivalent of a FOR/NEXT loop without using a variable. While it may be a good exercise in logic, a steady diet would quickly fatten up even the leanest and meanest code.
Even though we all take variales for granted, I'm sure we've wondered just where in the computer they're stored, and how the 99/4A knows where they are and how to change tham. Let's write a simple little BASIC program that does nothing more than assign some values to two variables. We'll make one a string variable (i.e. a variable that will contain a string of letters), and another a numeric variable (one that will contain numbers).

```
10 OLD$ = "HELLO THERE"
20 NMBR = 5
```

Type in RUN to register the variables and their values. Now, if we type in PRINT OLD$, the words HELLO THERE will be printed on the next line. Similarly, if we type in PRINT NMBR the number 5 will be ,displayed.
So what, you may be asking about now. This is low level stuff. I agree, you're absolutley right. It does, however, get a little more interesting when you begin to explore VDP RAM to uncover how the computer stores and accesses its variables.

THE SYMBOL TABLE

The symbol table is the area in VDP RAM where the 99/4A stores the variables assigned during the execution of a BASIC program. In console BASIC, this table begins somewhere after address 0800 (hex). It also dynamically expands and contracts in size depending on what happens to individual variables during the execution of the BASIC progam. The address 833E (hex) in the CPU RAM scratch pad area always points to (contains the address of) the beginning of this table. How, then, are the variables stored in this area of VDP RAM? As our example, let's use the short program we previously discussed. The address contained in CPU RAM address 833E (hex) points to the beginning of the entry for the most recent variable interpreted by BASIC. In our example, this would be the variable NMBR. The entry is arraned in the following manner:

```
0004 3735 376A 4005 0000 0000 0000
```

This seven word (14 byte) area is interpreted as follows:

Word 1: 0004

The first '0' indicates this variale is numeric. A string variable would begin with an '8'. The second '0' indicates that the variable is not subscripted. In other words, it has not been defined as nmbr(1). The second byte '04' indicates that the variable name (NMBR) is four ASCII characters long.

Word 2: 3735

This is an address in VDP RAM where the beginning of the next tale entry begins. In our example, it points to the table entry for the variable OLD$.
Word 3: 376A

This is an address in VDP RAM where the actual string "NMBR" is located.

Words 4-7

This is the number 5 in RADIX 100 notation. RADIX 100 notation is used by the computer to represent floating point numbers. A semi-useful discussion of it can be found on page 279 of the Editor Assembler manual.

The second entry immediately follows the first. and is arranged in the following nammer:

```
8004 0000 3775 370A
```

As you can see, this entry is much shorter than the previous one. It breaks down as follows:

Word 1: 8004

The first '8' indicates that his is a string variable. The second '0' indicates that the variable is not subscripted. In other words, it has not been

CONT. 6

defined as OLD$(1). The second byte, '04' indicates that the variable name (OLD$) is four ASCII characters long.

Word 2: 0000

Link to the next table entry, if there is one. The zeros here indicate that this is the last variable in the table.

Word 3: 3775

Address in VDP RAM where the actual string of the variable name "OLD$" is located.

Word 4: 370A

Hex address in VDP RAM where the current contents of the variable "OLD$" are located. In this example the address opoints to the beginning of the string "HELLO THERE".

All together, then the symbol table entry would appear exactly as:

0004 3735 376A 4005 0000 0000 0000 8004 0000 3775 370A

SUBSCRIPTED VARIABLES

Subscripted and multi-dimisioned variables such as DIM A$(2,1,4) are similarly arranged, but unfortunately, it would take too much valuable space to enter into a complete discussion of their symbol table entry layout. Why don't we reserve that discussion for another time, and concentrate right now on simple numeric and string variables.

CHANGING THINGS

With this knowledge, we can access these areas in VDP RAM via an Assembly Language routine and really change things around. Such a routine is presented at theend of this article. The remaining discussion will deal directly with an explanation of how the routine works, and how to call it from TI Console Basic.

THE REDO ROUTINE

This program will demonstrate how to access the symbol table discussed above. It will change both the variable name and contents of one string and one numeric variable registered via a TI Console BASIC program. The Assembler routine is written for the Editor Assembler, and run via a CALL LINK statement from BASIC.
Using the Editor Assembler, type in the program as it is reprinted below. Assemble the prorgram, and call the object code DSK1.REDO/O. Leaving the Editor Assembler cartridge plugged in, enter TI BASIC and type in the following BASIC program:

```
10 OLD$ = "HELLO THERE"
20 NMBR = 5
30 CALL LOAD("DSK1.REDO/O")
```

RUN the program.

If you now type in PRINT OLD$, the string "HELLO THERE" wil be displayed. Typing in PRINT NMBR displays the number "5". To run the REDO program, simply type in CALL LINK("REDO"). The REDO program will change the variable name OLD$ to NEW$, and change the contents of the variable from "HELLO THERE" to "GODBYE NOW". The variable name NMBR will be changes to WXYZ, and the contents from "5" to 10.26070801. The old variable names OLD$ and NMBR are no longer registed in the symbol table. Typing in PRINT NEW$ and PRINT WXYZ will display the new variable contents. Typing in PRINT OLD$ will display a line of spaces; typing ind PRINT NMBR will display a "0".

And remember, there is no right to strike against the public safety by anybody, anywhere, any time--Calvin Coolidge in a telegram to Samuel Gompers, Persident of the American Federation of Labor on the occasion of the Boston Police strike, 9/14/19.

```
       AORG >3000
       DEF  REDO
       REF  VMBW,VMBR
WKSP   BSS  32
RETURN BSS  2
SYMTAB BSS  2
LENHLD DATA >0000
NEXT   BSS  2
NAME   BSS  2
STRNG  BSS  2
NAMLEN DATA >0000
TWO    EQU  >0002
NWNAME TEXT 'WXYZ'
NEWNUM DATA >400A.>1A07.>0801.>0000
STNAME TEXT 'NEW$'
NEWST  TEXT 'GOODBYE NOW'
**
**
REDO   MOV  R11,@RETURN     . SAVE RETURN ADDR IN R11
       LWPI WKSP            . LOAD OWN WORKSPACE
       MOV  @>833E,R8       . START OF NUMERIC VARIABLE TABLE ENTRY TO R8
       BL   @SUBRTN         . GO DO SUBRTN TO REPLACE VARIABLE NAME
       MOV  R8,R0           . ADDR OF THE NUMBER "5" IN RADIX 100 TO R0
       LI   R1,NEWNUM       . NEW RADIX 100 NUMBER ADDR
       LI   R2,8            . 8 (FOR 8 BYTES) TO R2
       BLWP @VMBW           . REPLACE OLD NMBR CONTENTS WITH NEW
       MOV  @STNAME,@NWNAME . MOVE STRING VAR NAME TO NWNAME
       MOV  @STNAME+2,@NWNAME+2
       MOV  @NEXT,R8        . START ADDR OF STRING VAR ENTRY TO R8
       BL   @SUBRTN         . GO DO SUBRTN TO REPLACE THE VAR NAME
       MOV  R8,R0           . ADDR OF BEGINNING OF STRNG CONTENTS
       LI   R1,STRNG        . ADDR OF HOLDER FOR THIS
       LI   R2,2            . TWO BYTES LONG
       BLWP @VMBR           . GO GET VAR STRING CONTENT ADDR FROM TABLE
       MOV  @STRNG,R0       . ADDR OF OLD VARIABLE STRING TO R0
       LI   R1,NEWST        . ADDR OF NEW VARIABLE STRING TO R1
       LI   R2,11           . ELEVEN BYTES LONG
       BLWP @VMBW           . REPLACE OLD WITH NEW STRING IN VDP RAM
       LWPI >83E0           . LOAD GPL WORKSPACE
       MOV  @RETURN,R11     . RESTORE RETURN ADDR
       B    *R11            . BYE!!
*
* SUBROUTINE SECTION *
*
SUBRTN CLR  @LENHLD         . CLEAR OUT HOLDING AREAS
       CLR  @NAMLEN
       MOV  R8,R0           . R8 HAS ADDR OF LEN OF VAR NAME
       LI   R1,LENHLD       . ADDR OF HOLDER FOR NAME LENGTH TO R1
       LI   R2,2            . ADDR IS TWO BYTES LONG
       BLWP @VMBR           . READ IN LENGTH OF VARIBALE NAME TO HOLDER A
       SWPB @LENHLD         . SWAP IT TO MOST SIGNIF BYTE
       MOVB @LENHLD,@NAMLEN . MOVE LENGTH TO NAMELENGTH HOLDER AREA
       SWPB @LENHLD         . PUT IN LEAST SIGNIF BYTE
       AI   R8,2            . ADD 2 TO THE ADDR IN R8
       MOV  R8,R0           . MOVE IT TO R0
       LI   R1,NEXT         . ADDR OF HOLDER FOR NEXT LINK IN S TABLE
       LI   R2,2            . IT'S 2 BYTES LONG
       BLWP @VMBR           . GO GET IT FROM VDP RAM
       AI   R8,2            . ADD 2 TO ADDR IN R8
       MOV  R8,R0           . STASH IT IN R0
       LI   R1,NAME         . HOLDER AREA FOR ADDR OF VARIABLE NAME
       LI   R2,2            . READ IN TWO BYTES
       BLWP @VMBR           . GO GET IT
       MOV  @NAME,R0        . MOVE ADDR OF VARIBALE NAME TO R0
       LI   R1,NWNAME       . ADDR OF NEW VARIABLE NAME TO R1
       MOV  @NAMLEN,R2      . LENGTH OF NAME TO R2
       BLWP @VMBW           . REPLACE IT
       AI   R8,2            . ADD 2 TO ADDR IN R8 TO POINT TO NEXT TABLE
       B    *R11            . RETURN TO MAIN ROUTINE
       END
```

THANK YOU PAUL SNEIDER

Unfortunately, Vice-President Paul Sneider will be leaving the VP position in 1986. Paul has provided some very interesting presentation topics for our meetings during 1985. And if you have enjoyed them, please let Paul know personally.

Many of our newer members may not know that Paul Sneider has been with our New Horizons Computer Club since its inception in early 1983. On behalf of our club, THANKS. Paul, for all of your contributions during the past three years!

A Review of the STEVE PATTERSON DISK

by John G. Clulow
New Horizons

In my opinion, the disk of programs assembled by Steve Patterson is perhaps the best deal going if you want to see some of the great things YOU can achieve with your computer in BASIC and Ext. BASIC. Steve will bring a quantity of his disks to the next New Horizons meeting, Dec. 14.

Many of the programs construct the graphics designs which have graced several past issues of our newsletters. Others are educational programs and still others are games. All are high quality, in the writer's opinion, and will worth the meager asking price for the disk.

Six years ago, when Norma and I first got involved with the TI, the International Users Group was the only way we had to exchange our programs with others. No money was involved -- it was all free. But the reason thousands of people sent in their programs for exchange was because they wanted to share them with other interested users, and to get the reactions, opinions, and suggestions for improvement from those other users. Frankly, for Norma and I, this was one of the most exciting periods of our involvement with the TI.

It is my feeling that now we are moving back again to a time like that. I think you'll see more disks like Steve's with programs users just want to share for the FUN of it -- not to make a million dollars on them. There's nothing wrong with making money, but there is a more enduring motivation behind much of what goes on in the TI computer community. And if things shift back that way, I, for one, will welcome it.

The list of Steve's programs really speak for themselves. Half of the fun you'll have is exploring them to find out what they do and maybe even how they work. And do take the time to let Steve know how you like his efforts -- maybe you can even get him to share a programming tip or two!

If you cannot attend the next meeting, you can still obtain a copy of the disk by either:

1) sending Steve a blank disk with return addressed mailer and $2 for documentation; or
2) sending Steve a disk of programs YOU have written (if you choose option 2 you can even skip the $2).

Steve Patterson
2351 Ragan Woods
Toledo, OH 43614

DSK1.BESTOF_SRP
31 Files Free 1 Used 359

Filename	Size	Type	P
(CLIFFJUMP	8	Program	U
(LASERBEAK	6	Program	U
(MEGATRON	7	Program	U
(OPTIMUS	7	Program	U
(RUMBLE	7	Program	U
(STARSCREM	9	Program	U
(SUNSTREAK	6	Program	U
BALLOONPOP	8	Program	U
BASCAT	6	Program	U
BLASTER	7	Program	U
CAPITAL	19	Program	U
CAT/LOAD	7	Program	U
COMBINER	8	Program	U
COPIER	9	Program	U
CRAYON	17	Program	U
DISKSWEEP	5	Program	U
ESCAPE	18	Program	U
LOAD	4	Program	U
METEOR-ZAP	10	Program	U
MT_SRP	11	Program	U
PRESIDENT6	27	Program	U
RALLY-TI	17	Program	U
RIVERUM	6	Dis/Var 80	U
RIVERUN	18	Program	U
SHRAPNEL	8	Program	U
SPACEBERT	36	Program	U
SPACEDODGE	8	Program	U
TI-TREE	16	Program	U
TIGRAPHICS	19	Program	U
TRANSLOAD	10	Program	U
TRAP	13	Program	U

DSK1.XTRA_BONUS
11 Files Free 156 Used 204

Filename	Size	Type	P
994AOHMITI	15	Program	U
ALIENS	39	Program	U
BASKETBALL	9	Program	U
B_SCRLDEMO	9	Program	U
B_SCRPRINT	4	Program	U
B_WORDPROS	8	Program	U
HUNTINGAME	33	Program	U
MODELPLANE	10	Program	U
SECHAMBERS	41	Program	U
SUBMAZE	27	Program	U
TOWER	7	Program	U

TK-WRITER REVISION

Kent Sheets 12/85

OH-MI-TI

From: JACKSON COUNTY 99ers

If you have TK-Writer from Tom Knight, there is now a modification to the LOAD program that will cut down the wait when switching from the Editor to the Formatter. This wait is caused by the assembly language program being loaded back into the computer when the load program is rebooted. This assembly language program, however, is still present in memory if you haven't done something like turn off the computer or run some other program. Convert your LOAD program by replacing line 100 and adding lines 102, 104, and 108. Line 100 checks to see if the assembly program is in memory. If not, it jumps to 108 and loads the program. If it is in memory, the REF/DEF table and last free address are loaded, and you can access the assembly code as usual. In plain talk, it will save a whole bunch of time.

```
100 CALL CLEAR :: CALL INIT :: CALL PEEK(-2043,A,B):: IF A<>84 OR B<>75 THEN 108
102 CALL LOAD(16360,85,84,73,76,73,84,250,212,70,79,82,77,65,84,250,132,69,68,73,84,79,82,250,22)
104 CALL LOAD(8196,63,232):: GOTO 110
108 CALL LOAD("DSK1.WRITER")
```

SOUND TIP

Kent Sheets 12/85

OH-MI-TI

From: AVTI Newsletter 8/85

Here is a listing of the values needed for a CALL SOUND statement in order to use your computer to dial a telephone number for you: 1=697 1209; 2=697 1336; 3=697 1447; 4=770 1209; 5=770 1336; 6=770 1447; 7=852 1209; 8=852 1336; 9=852 1447; 0=941 1336; *=941 1209; #=941 1447

By knowing these values, an extended basic program could be written to dial a phone number simply by placing the telephone reciever up to the tv or monitor speaker. (note: HCM has a program called "ELECTRONIC SECRETARY" which does just that.)

CHARACTER GRAPHICS WITH TI-WRITER

by Rod Cook
OH-MI-TI

Graphic characters can be defined in TI-WRITER and printed to the printer by using a combination of the transliterate command and the graphics control codes of the printer.

The transliterate command has the format:

.TL n:char#,char#,.....,char#

where n is the special character number and char# is the decimal number to be transmitted to the printer. For example, in the following command:

.TL 0:46,84,76

anytime the special chartacter "ò" is encountered in the text, the FORMATTER will transmit the numbers 46, 84 and 76 which in this case happen to be a period followed by a capital T and L. The value of char# can have any value between 0 and 255 although ASCII values only go up to 127.

The transliterate command will define the graphics for the character to be printed. One transliterate command per character will be required. Each command will have essentially two parts; the control codes to setup the printer into graphics mode and the data. For the purpose of illustration, the control codes discussed will be for an Epson MX 80. The control code for printer graphics is:

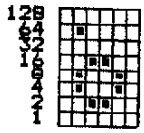
<ESC> "K" N1 N2

where <ESC> is the escape character, number 27 and "K" is number 75. N1 and N2 are numbers that are used to specify how many data numbers follow. This control code puts the printer into a graphics mode that prints 480 dots per 8 inches. An 80 character line is also 8 inches long, therefore 480/80 = 6. There are 6 dots per character and it will take six data numbers to specify the character. The control code portion of the transliterate command will look like this:

.TL 0:27,75,6,0,...data...

where N1 is 6 and N2 is 0 which tells the printer there will be 6 data numbers to follow.

The data numbers tell the printer which of the 8 pins to fire on the printhead for each of the six verticle rows of dots that make up the character. For example the graphics for the special character ò are coded as follows:



071110
6882

where in verticle row 1 none of the dots are on so they add up to zero. In verticle row two the dots at 4,8 and 64 are on so they add up to 76. In verticle row three 16 and 2 dots are on so they add up to 18 and so on with the remaining three verticle rows.

So the transliterate command to print the special character ò looks like this:

.TL 0:27,75,6,0,0,76,18,18,12,0

and anytime the special character for zero (shift 2 in the TI-WRITER special character mode) is encountered in the text by the FORMATTER the transliterated values will be sent to the printer which will result in the defined graphics character being printed.

The 6 by 8 grid that was printed above was printed this way. Four graphics characters are needed to build the grid. They are:

The respective definitions are:

```
.TL 65:27,75,6,0,255,128,128,
    128,128,128
.TL 66:27,75,6,0,255,0,0,0,0,0
.TL 67:27,75,6,0,128,128,128,
    128,128,128
.TL 68:27,75,6,0,255,128,188,
    188,188,128
```

so that anytime ASCII characters 65, 66, 67 or 68 are encountered in the text, the above graphics characters will be printed. ASCII character 65 is an A, 66 is a B, 67 is a C and 68 is a D. So to print the above grid, the following pattern of characters would be needed:

```
128 AAAAAAB
 64 ADAAAAB
 32 AAAAAAB
 16 AADDAAB
  8 ADAADAB
  4 ADAADAB
  2 AADDAAB
  1 AAAAAAB
    CCCCCC
```

Note the numbers will be printed just as they appear because they have not been redefined. Once the graphics have been printed the A thru D will have to be transliterated back their regular character if they are to be used in text. The following commands will do this:

```
.TL 65:65
.TL 66:66
.TL 67:67
.TL 68:68
```

There are some limitations as a result of working within the limits of the FORMATTER.

1. It appears the physical length of the transliterate command can not be greater than one line.
2. It also appears that each character is limited to 6 verticle rows of dots. I have not been able to print a character longer than 6 rows within the FORMATTER.
3. The FORMATTER insists on putting white space on the top and bottom of the page. To print graphics that are continuous from line to line, as is the grid above, requires a line spacing less than that of six lines per inch. To keep the same white space at the bottom of the page and on subsequent pages will require adjusting the line spacing after the graphics to compensate for smaller line spacing of the graphics.

REVIEW 4A/TALK

by Roger Biddle
OH-MI-TI

This program is a terminal emulator, 300-9600 baud, that covers X-MODEM and TEII protocol capable of download/upload to or from disk.

If you are a user of Compuserve, Source, or Poor Richards a local BBS that offers downloadable programs for the TI-99/4A this program is for you.

4A/TALK supports three file transfer methods. Manual transfer using the capture buffer and "keyboard" files which will transfer text to any other system. XMODEM file transfer protocol which will transfer any file to any other computer running an XMODEM program. And the Terminal Emulator II protocol which was used in the TI communications package and which can only be used for transfer between two TI-99/4A Home Computers.

CONT. 9

6 months ago when a you wanted to download a program or file from Compuserve if it was other than a text file it involved a couple of conversions and steps to be taken in order to accomplish the task. As far as other BBS it wasn't even offered to other computers, except (same as host system).

With 4A/TALK implementing XMODEM file transfer it is simple, and easy to do. Originally designed for computers that used the C/PM operating system, XMODEM has been extended to IBM PC and MACKINTOSH computers. The protocol was devised by Ward Christenson and provides a simple way of sending a file from one computer to another.

4A-TALK allows sending of files to a number of different computers using XMODEM protocol. Another advantage of using XMODEM is its speed. At 300 baud, 4A/TALK will send or receive a file at about 10 seconds per sector. This is more than twice as fast as Terminal Emulator II.

4A/TALK packages all the necessary software to make it a very powerful and easy to use Terminal program. It is completely menu driven, and when in doubt press control 7. This will display a Help screen showing you all the possible options, and what keys to press for the option. The functional keys include:

<fctn 1> Open print buffer.
<fctn 2> Close the print buffer.
<fctn 3> Toggle half/full duplex.
<fctn 4> Open/close capture buffer.
<fctn 5> Save /clear capture buffer.
<fctn 6> Open/close a keyboard file or set XON/XOFF chars.
<fctn 7> Catalog the disk.
<fctn 8> Redo the configuration.
<fctn 9> XMODEM file transfer.
<fctn 0> Run auto-dialer.
<fctn => Quit. Exits program.
<ctrl 1> Delete a file.
<ctrl 2> Send a file using TEII mode.
<ctrl 7> Display a Help screen
<fctn X> Send a carriage return and linefeed.
<fctn S> Send a backspace.
<fctn E> Send a form feed.
<fctn D> Send a record from keyboard file.
<enter> Send a carriage return.

As you can see 4A/TALK is a full featured communications package that is significantly easier to use than any other terminal programs I have tried. The going price is about 20.00 and in my opinion a very well written and thought out software package.

JOY TO THE

CUSTOMIZE MULTIPLAN

by DAVID ROMER
NEW HORIZONS

If you own and use MICROSOFT's MULTIPLAN for the 99/4a, you know that it is one of the best pieces of software written for the TI Home Computer. When the program was written MICROSOFT built some default values into the program based on certain assumptions. They assumed, 1) that you would probably be using only one disk drive and 2) that any printer you have would be operating through the RS/232 port. While it is, of course, possible to change these defaults by use of one or more OPTIONS commands, they must be altered each time you start up the program. The purpose of this article is to show you how, in just a few minutes, you can permanently alter these default values in the MULTIPLAN program itself and produce a MULTIPLAN system disk customized for your hardware configuration.

To accomplish this you will need the MPINTR file from your MULTIPLAN system disk, a disk sector editor like Advanced Diagnostics, Disk Fixer or Disko, and a blank diskette. Disko and Advanced Diags allow you to switch between and edit either a hexadecimal or an ASCII display of the disk values. Disk Fixer works only with hexadecimal numbers. So, if you use Disk Fixer, you will have to convert ASCII values for characters into hexadecimal numbers. All numbers in this article that are preceded by a > sign are hexadecimal numbers. For instance, >22 is the hexadecimal equivalent of 34. CAUTION!!! DO NOT attempt this procedure with your one and only copy of your system disk. Make a back-up copy first. The MPINTR file can be from the original MICROSOFT/TI system disk or from the enhanced MULTIPLAN system disk. The enhanced disk is available from the New Horizons UG as a club disk.

The second sector of the MPINTR file contains the default values for 1) the data disk drive 2) the OVERLAY volume and file name 3) the MPHLP volume and file name and 4) the printer assignment. The first byte of each entry is the length of the default entry, not counting the length byte. The location of the fields are:
In the original file:

Location	Entry
>55 - >5C	Data Disk Drive
>5D - >6E	OVERLAY info
>6F - >8A	MPHLP info
>8D - >E5	Printer info

In the enhanced file:

Location	Entry
>5B - >62	Data Disk Drive
>63 - >74	OVERLAY info
>75 - >90	MPHLP info
>C3 - >E6	Printer info

For example, to change the printer assignment to PIO the entry starting at byte >8D would be >03 >50 >49 >4F. Note that the length of >03 does not include itself. The other values are the hexadecimal numbers for the ASCII codes for P,I and O. The remainder of the printer field should be padded with the space character, >20. The other three fields are padded with zeros.

The easiest method of finding the correct sector of the file to edit is to initialize a blank diskette and copy only MPINTR onto it. If the initialization and copy work correctly MPINTR will start at sector >22. The sector to edit is sector >23. Edit the sector to your satisfaction and write it back to your copy of MPINTR. Then copy your new MPINTR onto your MULTIPLAN system disk. If all goes correctly, you now have a MULTIPLAN system disk customized for your disk drive and printer setup.

HI-RES GRAPHICS WITH X BASIC

Michael C. Amundsen

I can remember when I first bought my TI99. One of the great features was to be the high-quality graphics available through the TMS9918A video display chip. Little did I know that this hi-resolution capability was only available to those who were able to write assembly language programs!

The fact that the folks at TI who designed the TI BASIC langauge didn't account for my graphic desires (you know what I mean) hasn't stopped me from reaching my goal, however. Below are a series of XBASIC subprograms that take advantage of an excellent machine language routine that allows hi-res graphics from within any XBASIC program. These subprograms are simple and easy to use and, while they don't quite match the IBM PC in speed or the Apple II in colors, they give me one more reason to stay loyal to my TI99!

CONT. 10

THE PROBLEM

Everybody knows that TI has a hi-res graphics mode called "bit-map." So why can't we just enable a bit map mode from XBASIC? The reason has to do with how the operating system for the TI99 was set up.

TI folks at TI were determined to create a fully operational computer, complete wih bells and whistles in a limited amount of memory (16k). To do this, they worked out a plan where the area usually used by the screen could (VDP RAM) could also be used to store the actual BASIC program and all the info on the varaibles, arrays, etc. being created by the BASIC program. This is why TI BASIC programs must fit into the 16k of VDP RAM - they cannot take advantage of the EXPMEM even when it is turned on!

When TI XBASIC came along, the last problem was fixed. Now, the XBASIC cartridge would try to load the program into EXPMEM first, saving room in the VDP RAM for the expanded graphics of sprites, etc. Still, problems persisted, the symbol table (that holds all the variables, arrays, etc.) was kept in VDP RAM. This meant that any use of the bit-map mode would wipe out the variables of any XBASIC program! Still, no hi-res graphics.

MACHINE LANGUAGE TO THE RESUCE

The only way to use the bit-map graphics would be to write the entire program in TI Assembler since assembly language did not use the VDP RAM area that housed the screen info. But what about those of us who are not assembly-minded? Are we lost forever in "block-graphics and sprite-land?" The answer is NO, thanks to John Clulow of the New Horizons Group in Toledo, Ohio. A few years ago, the book Programs for the TI Home Computer, Edited by Steve Davis, contained an excellent program by John called PLOT. This program was an machine language routine that would allow pixel-to-pixel graphics from within any XBASIC program. This routine is a great example of how to solve thorny problems by sneaking in though the back door. While everyone was grumping about how to get bit-map mode to function from a BASIC program, John invented a short M/L routine that bypassed the need for bit-map mode altogether! For more on how John created the PLOT routine, see pages 79-83 of the above book.

SUBPROGRAMS MAKE IT WORK

It's one thing to be able to plot a dot anywhere on the screen. It's another thing to be able to draw a line from one point to another. What would be needed to have true graphics commands in XBASIC would be a series of CALL routines such as CALL LINE, CALL CIRCLE, CALL PIE_CHART, etc. TI XBASIC has just such a feature built in - the subprogram statements SUB, SUBEND and SUBEXIT. This advanced set of statements allows the XBASIC programmer to create new CALL commands with very little effort. The combination of the Clulow PLOT code and the use of subprograms will allow us to create a whole series of graphics commands for the TI.

After several weeks of research into computer graphics theory and several hours of trial and error computing, I have come up with a primary set of graphics commands for the TI. They are:

CALL LINE(X1,Y1,X2,Y2) - draws a line on the screen from pint X1,Y1 to point X2,Y2.

CALL BOX(R,C,W,L) - draws a box on the screen starting at row R, column C that is W blocks wide and L blocks long.

CALL CIRCLE(X,Y,R) - draws a circle on the screen that originates at point X,Y of R radius.

Additional routines that I came up with allow the creation of pie graphs (CALL PIE_PLOT); side-plotted bar graphs (CALL BAR_PLOT); and stock-type line charts (CALL STK_PLOT).

Space and time do not warrant explanation of all the commands, but there is one, CALL LINE, that deserves attention.

THE CLASSIC GRAPHICS ROUTINE

The problem of being able to draw a straight line between any two points is a classic one in computer graphics and, while there are many complicated algorithms to accomplish this, there is one tried and true one that always works - the Digital Differential Analyzer (DDA). The DDA is not the fastest or the most accurate, but it is the simplest and the most used line-drawing routine (a sort of bubble sort of computer graphics). Below is the XBASIC code for the TI version of the DDA:

```
100 SUB LINE(X1,Y1,X2,Y2)
! Figure'the dircection of plot
110 B=INT(ABS(X2-X1)
120 IF
      ABS(Y2-Y1)>B
    THEN
      B=ABS(Y2-Y1)
! Calculate the step value
130 XI=(X2-X1) ::
    YI=(Y2-Y1) ::
! Set initial values, plot
140 X=X1 ::
    Y=Y1 ::
150 CALL LINK("PLOT",X,Y)
! Plot rest of the line
160 FOR I=1 TO B ::
      X=X+XI ::
      Y=Y+YI ::
      CALL LINK("PLOT",X,Y) ::
    NEXT I
170 SUBEND
```

As you can see, the routine works by calculating the 'stepping values' needed to accurately plot a line bewteen the two given points. This stepping value is easily recognized in the 'stair-step' look of line plots on most computer screens. The actual resolution is affected by the size of the screen, size of the pixel resolution and the complexity of the algorithm. Since the TI screen allows 256 by 192 resoultion, you can get a fairly clear line in most cases. It's up to you to experiment.

USING THE COMMANDS

The last step in designing the routines is making them easy to use in any program. The best way to do this is to take advantage of another TI feature - MERGE Format.

I store all my subprograms on a disk in MERGE format. When I need to use one, I just pop the disk in the drive and MERGE the routine into my existing program. Since line numbers are not used in subprogram calls, I can put the routine anywhere in the program. The only caution is that I always check the line numbers of my subprogram and make sure that they do not overlap line numbers in my existing program!

DISK AVAILABLE

A disk containing the Clulow PLOT code, all the Graphics subprograms in MERGE format, documentaion and a handful of demos will be available through the New Horizons User Group. I will also be demonstrating these routines at the December meeting. If you have any questions about the graphics routines, or if you have come up with some of your own, fee free to contact me:

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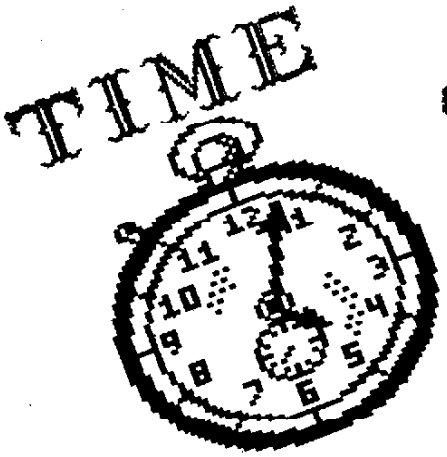

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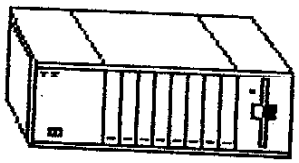

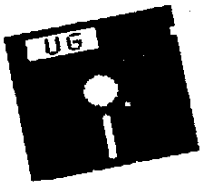

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$15.00