PRESIDENTS CORNER

HAPPY NEW YEAR TO ALL OF YOU!

Each New Year I make myself promises, that although I try to keep, I never seem to be able to keep to the extent that I think I should. I guess that that may be true of many of us. So I think that one of my resolutions shall be to consider how much I do keep and be less critical of myself for those I don't keep.

Another of these resolutions, and the only other one I plan to bore you with concerns the club. We will be sending renewal notices to all members with renewal dates prior to Feb 1, 1984. I hope you have gotten enough out of the club to want to renew. Which brings up the resolution, I'd like to see us attempt to reach the thousands of people who have purchased a TI computer and need help to learn how to use it. I'm asking all of you to help. We're enclosing with the newsletter a meeting notice, that I'd like each of you to post in local K-Marts, Richways, supermarkets, etc. Places where they will let you, places where you purchased your computer or software, or places where new owners will get a chance to find out about us.

We are in need of help with running this club, it simply will not run itself. We need a Secretary, and an Education Chairman, and people to work on the committiees. We also need someone to start, or to help start a chapter on the South side of town, and someone to help me start a chapter on the West side. I know I've written this several times now but I hope someone will finally read this and fill in a slot, if I never ask, then I'll never get the help we need.

```
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****   C L U B    O F F I C E R S   ****

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Marshall Gordon	President
Gary Matthews	Vice-President
Elise Gordon	Secretary/Treasurer
Bill Kleinsorge	Program Chairman
Tom Boisseau	Newsletter Chairman
We need one	Education Chairman
Bob Willis	Library Chairman
We need one	Recruitment Chairman

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NEWSLETTERS EVERYWHERE

I have the good fortune to have been the depository for a number of the newsletters that this club recieves from other groups around the country. For you to hear me say that I would imagine some of your reactions to be something like,"Oh boy, I bet he has read all those things and has learned bunches of good things from them." If you think along those lines you would be half right. I have a lot of fun reading them and I have learned a few things, only I have not even read half of them yet.

At some of the meetings you will have noticed old issues of our newsletters on the wall with a couple from other groups. It would be impossible to even think of displaying a fair portion of those others like that, much less try to rotate which ones so a variety of current ones from around the country would be available. Someone came up with the bright idea of putting them in notebooks and I found that several large three ring binders did not cost as much as I feared. The end result is that now at our meetings everyone will have access to the newsletters that the club gets from all those other groups.

In case you are curious, our newsletter compares very well to just about anybody else's. The material in ours is for the largest portion original and not just a reprint from someone else's; although we are not above recognizing good stuff from another source and using it with proper credit of course. Most other groups' newsletters are very good about giving credit when using another's material. I am happy to say that a number of our articles have been reprinted around the country.

That's enough to say right now about all that except you now have another good reason to come to club meetings and look at the various newsletters from all over. In other issues of this newsletter I hope to feature and describe the different groups around the country. See you at the meeting.

Gary Matthews
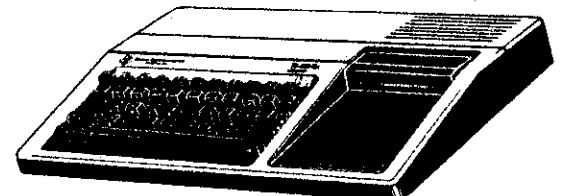
CASSETTE CABLES

Last year about Christmas and immediately thereafter, those cassette cables that hook up from the back of the computer and go to the microphone, remote, and earphone jacks of a standard cassette recorder were in short supply. In other words they were no where to be found. The wire connections for those cables were listed in one of the earliest A9CUG newsletters. I would like to repeat those connections now and elaborate a bit on how to make a cassette cable for yourself.

I realize that most everyone who receives this newsletter (that is our 230+ membership and the other clubs around the country) would probably not need a cable. It is my hope that all of you will have a good chance to spread this information around to those people wandering around in stores who couldn't pass up the chance to buy a computer for $49.00. Those are the people who can't find cassette cables, don't know about clubs like this one, and don't know what to do with the computer that they now have.

Here are the pin connections as if you already had a cable in your hand and you are looking at the part that plugs into the computer. That plug is called a female DB-9.
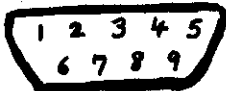
Pins 1 and 3 go to a miniature plug that fits into the microphone jack of a cassette recorder. Pin 1 connects to the tip of the plug and 3 goes to the longer shaft. For the other connections I will abbreviate tip-T and shaft-S. Connections 4 and 5 go to the remote plug; 4 to the S. and 5 to the T. This is the plug that is smaller (subminiature) than standard (miniature) and allows the computer to start and stop the tape. Most recorders have a space for the remote plug to go. If yours doesn't life has just been made inconvenient for you but not impossible.

This is a good time to mention another fact of life about the remote connection. T.I. wired it in such a way so as to be compatable with most (about 65%) of the recorders on the market. That still leaves you with one chance out of three of having a recorder with a remote configured the other way. If you find that this wiring will not activate your remote, no problem, just swap the wires that go to the tip and shaft of the remote for each other and it should work just fine.

Pins 6 and 7 attach to your standard size earphone plug (same size as the microphone plug) with 6 to S. and 7 to T.

The materials involved can be found at a Radio Shack or an electronics parts store. I find ribbon cable to be the most convenient wire to use. The DB-9 and other plugs have already been described.

You now have the information to make a CS1 cable. If you know someone who can't find one and doesn't want to mess with making one then give me a call and I will make one and sell it to them for $12.00. Gary Matthews 233-3076.

Now that the advertisement is out of the way let me mention some final points of interest. Pin #2 doesn't connect to anything. That still leaves pins 8 and 9. They are used if you want a DUAL cassette cable, that is CS1 and CS2. So, you might say, I have a remote plug to go to a second tape recorder, 8 to S. and 9 to T., but where is the microphone for the second recorder? The answer is that the microphone for the CS2 cable comes off the same wires as the first microphone plug. It is only the remote switches that are separate. Very few people ever find the need to use CS2. It is made for writing only and will not allow the inputting of programs or data. My advice is to forget CS2 and stick to making a CS1 cable.

Gary matthews

LOAD PROGRAM

At the last Atlanta 99/4A Computer Users Group meeting there was a mention of load programs. A load program (or at least the one that follows) allows the computer operator to power up his machine and upon selecting Extended BASIC, to give a menu of all the programs on that disk. The operator can then enter a number that corresponds with the program he wishes to run and that program will then load and run itself without additional commands.

The following is such a program. This author has seen many so-called "LOAD" programs, but this one is the finest that has appeared to his eyes. It is difficult to say to whom credit is due for this listing. Marshal Gordon did much work on an existing program by another author, and this writer made some additional minor changes as well. In any case we think you will find it usefull.

To run this program will require
Extended Basic, Memory Expansion, and
one or more disk drives. The program
occupies six disk sectors, but for the
convinience it gives, you will want to
put it on every disk.

```
100 OPTION BASE 1 :: DIM
PG$(20),T$(5):: CALL CLEAR
110 T$(1)="DIS/FIX" :: T$(2)="DIS/VAR"
:: T$(3)="INT/FIX" :: T$(4)="INT/VAR"
:: T$(5)="PROGRAM"
120 IMAGE ##
130 DISPLAY AT(1,9)ERASE ALL:"DISKETTE
MENU" :: DISPLAY AT(12,6):"DISK? (1-3):
" :: ACCEPT
AT(12,19)SIZE(-1)VALIDATE("123"):D$
140 D$="DSK"D$"." :: OPEN #1:D$,INPUT
,RELATIVE,INTERNAL :: INPUT #1:N$,A,J,K
:: DISPLAY AT(1,1)ERASE
ALL:SEG$(D$,1,4)" - DISKNAME= "N$;
150 DISPLAY AT(2,1):"AVAILABLE=";K;
"USED=";J-K:"PROG  FILENAME  SIZE
TYPE":"____ _____ ____ _____" ::
I=0
160 FOR X=1 TO 20 :: I=I+1 :: IF I>127
THEN K=X :: GOTO 230
170 INPUT #1:P$,A,J,B
180 IF LEN(P$)=0 THEN 210
190 DISPLAY AT(X+4,2):USING 120:X ::
DISPLAY AT(X+4,6):P$ :: PG$(X)=P$ ::
DISPLA Y AT(X+4,18):USING 120:J ::
DISPLAY AT(X+4,22):T$(ABS(A))
200 NEXT X
210 DISPLAY AT(X+4,1):" " :: DISPLAY
AT(X+4,2):USING 120:X :: DISPLAY
AT(X+4,6): "TERMINATE" :: DISPLAY
AT(X+6,1):" CHOICE? 1"
220 ACCEPT AT(X+6,10)SIZE(-2)VALIDATE
(DIGIT):K
230 IF K=X THEN CALL CLEAR :: CLOSE #1
:: END
240 IF K<1 OR K>20 OR LEN(PG$(K))=0
THEN 210
250 CLOSE #1
260 CALL INIT :: CALL PEEK(-31952,A,B)::
CALL PEEK(A6+B-65534,A,B):: C=A6+
B-65534 :: A$=D$PG$(K):: CALL LOAD
(C,LEN(A$))
270 FOR I=1 TO LEN(A$):: CALL
LOAD(C+I,ASC(SEG$(A$,I,1))):: NEXT I ::
CALL LOAD( C+I,0)
280 RUN "DSKX.1234567890"
```

END OF LISTING

Thomas H. Boisseau

ATLANTA EAST SIDE 99'ER
COMPUTER USERS GROUP UNDERWAY

The first geographic subgroup of the
A9CUG is now underway in Dekalb county.
The first two meetings of the group,
known as the East Side 99'er Computer
Users Group (ES9CUG), were held in the
Stone Mountain area in november and
December.

The November meeting featured a
presentation by the subgroup president
Ralph Danson on the numerous
capabilities of Extended BASIC for the
TI-99/4 and 4A, including sprites, the
ON ERROR capabilities, and the DISPLAY
AT statement. Ralph also showed off his
newest addition to his system -- a
Brother electronic typewriter with an
interface module that makes it a
daisy-wheel printer for his 99/4A. The
total cost for the typewriter and the
interface was about $600.

With a 200% increase in attendance, the
December meeting featured some lively
group discussions among the members.
More formal presentations were made by
Pat Hester and Bill Dickinson. Pat
demonstrated a spelling program written
in BASIC which uses the power of the
Terminal Emulator II cartridge and the
Speech Synthesizer to add speech. The
program, SPELLER, allows the user to
enter up to 50 words of his or her
choice - such as one's weekly school
spelling list - and will then orally ask
the student to spell each word. Options
included choosing the number of chances
the computer will give you to spell the
word correctly and entering a sentence
using the computer to say, when it asks
you to spell the word--just like in a
spelling bee. SPELLER is listed in the
July 99'er Home Computer Magazine or is
available from the A9CUG Program
Library.

Bill showed us the graphic adventure "A
Night Inside Ulysses' Mansion", which
runs from a cassette in console BASIC.
Actually, the adventure brings together
both graphic and text features. Each
screen displays the adventurer in a
different room in the mansion (as seen
from the ceiling), plus a text
description of the scene. Using the
keyboard, the adventurer can move
graphically around or out of the room
(to a new screen) or can type in other
two word commands, such as LOOK BOOKCASE
or OPEN SAFE. The results of the
commands will be graphically and/or
textually displayed. As far as plotting
is concerned, Bill says this program is
equal to any he has seen. At $14.95
from Walter J. Dolland (see ads in 99'er
Magazine), Bill says this adventure is
a great buy.

Perhaps the highlight of the meeting was
Bill's daughter demonstrating the test
function for MUNCHMAN. Pushing SHIFT 8
3 8 within three seconds after the title
screen appears will give you a screen
that allows you to choose the game
levels 0,1 or 2 (i.e., screens 1-20,
21-40, 41-60); the starting screen
within each level (0-19); and the number
of Munchman lives you want (1-9). If
you're like me, this option may be your

only chance to see the features of the higher levels of this game. We understand this same test function also works on ALPINER.

Incidentally, while we'er on the subject of game cartridges, if you don't spend all of your free time driving from store to store, you might be interested iin some new releases I've seen around Dekalb county. New cartridges include Burgertime, Super Demon Attack, and Return to Pirates Isle (the first Scott Adams adventure with graphics I've seen for the TI). Atarisoft cartridges for the 99/4A include Donkey Kong, PacMan, Defender, and Centipede. A Q-Bert cartridge for the 99/4A is now being shipped by Parker Brothers, and Tiger Electronics is offering Miner 2049'er. I've seen these at one or more of the following: Richway, Toys-R-Us, and Turtle's. It is probably good to try calling before driving, since titles and prices vary from store to store.

After its first two meetings, the ES9CUG is off to a great start, and we invite everyone - but especially you residents of Dekalb, Gwinnet, and Rockdale county - to our meetings. As a subgroup of the A9CUG, there is no additional membership charge for the East Side club. We do ask for a per-meeting donation of .50 ($1.00 for non-A9CUG members) to cover the cost of the room. We'll be meeting again at 7:30 pm Thursday, January 19, in the Dekalb College Library (building C of the central campus, on Indian Creek Road just north of Memorial Drive). After that we'll begin meeting on the first Thursday of each month, starting on March 1 (there will be no meeting in February). For further information, call 292-3427. We hope to see you soon.

Fred Kiehle

INFORMATION PLEASE
More About Cassette Files

Last month's newsletter had an article about approaching cassette files from a beginning level in order that you could prove to yourself that they work. Here again is that introductory program.

```
100 A$="AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA"
110 OPEN #1:"CS1",OUTPUT, DISPLAY,
FIXED 64
120 PRINT #1:A$
130 INPUT "DO IT AGAIN IF X=1 ":X
140 IF X=1 THEN 120
150 CLOSE #1
200 OPEN #2:"CS1",INPUT, DISPLAY,
FIXED 64
210 INPUT #2:Q$
220 PRINT Q$
230 INPUT "DO IT AGAIN IF Y=1 ":Y
240 IF Y=1 THEN 210
250 CLOSE #2
```

I will not be repeating all those basic definitions on cassette files from the first article. We will take up from where we ended and now do something useful with a cassette file.

Lists, lists, the world is full of lists: names, adresses, phone numbers, prices, inventory, and so on. What we are talking about are pieces of data. Those pieces of data make cassette files, or any other files useful.
For learning purposes we will keep things simple and just use names and numbers, and we will try to include that earlier program as much as possible. I will explain (1) what I intend to do, (2) how it works, and (3) the program itself.

(1). Names and phones numbers will be input into a program. They will be stored on a cassette file then later be brought back into the computer for viewing. Those activities mentioned lead into others which we will not go into. For example: we could alphabetize the list or allow for the opportunity to update any data. This program however, justs illustrates making a useful list with the ability to store it and bring it back later.

Feedback from our members will decide if these articles are worth pursuing and whether or not to go into further depth. Besides this, such response time will give me time to learn more.

(2). I will use an array to keep track of items going into the file and coming out. I will dimension it for thirty names and numbers.

DIM NAM$(30)
DIM NUM$(30)

If an array isn't slated to start counting at 1 (OPTION BASE 1) then it counts these 31 memory spaces as being from 0 to 30. We will use that 0(zero) position to store how many names and numbers we have used. We have allowed ourselves spaces for thirty names but I am going to use only five to make life easier. Every time we add a name to our list we will add 1 to X so X will be the number of names that we have. Once we have finished inputting we will store them on a cassette as a file. FIXED 64 will still be used because that should be long enough to hold any name and phone number.

At the begining of the program we need the choice of either inputting names or going straight to the part of the program that will bring back previosly entered names.

I will mention something here that I must take for granted later. When you input a file previously stored on cassette, you must start the tape at the same beginning spot that you did when you first stored it onto the tape. If you don't then your program doesn't have

a prayer of working. That is why you need a reliable tape counter or you would have to use short tapes and always start at the rewound beginning. Most of the explanation is over, let's start making the program.

```
1 CALL CLEAR
100 DIM NAM$(31)
110 DIM NUM$(31)
120 PRINT "ENTER 'Y' IF THIS IS A NEW
LISTING. ANY OTHER ENTRY    WILL START IN
PUTTING A        PREVIOUSLY SAVED FILE."
130 CALL KEY(0,KEY,STAT)
140 IF STAT=0 THEN 130
150 IF KEY<>89 THEN 500
160 X=0
170 X=X+1
180 INPUT "
INPUT FIRST AND LAST NAME OFPERSON ":NAM$
(X)
190 INPUT "TELEPHONE NUMBRER ":NUM$(X)
200 PRINT "
ENTER 'Y' FOR ANOTHER NAME  ANY OTHER ENT
RY WILL START  STORING SEQUENCE."
210 CALL KEY(0,KEY,STAT)
220 IF STAT=0 THEN 210
230 IF KEY=89 THEN 170
300 NAM$(0)=STR$(X)
310 NUM$(0)=STR$(X)
320 OPEN #1:"CS1",OUTPUT,INTERNAL,FIXED 64
330 X=0
340 PRINT #1:NAM$(X),NUM$(X)
350 X=X+1
360 IF VAL(NUM$(0))<>X-1 THEN 340
370 CLOSE #1
380 PRINT "
NOW WE GO BACK TO THE       BEGINNING MES
SAGE.                  "
390 GOTO 120
500 OPEN #2:"CS1",INPUT ,INTERNAL,FIXED 64
510 X=0
520 INPUT #2:NAM$(X),NUM$(X)
530 X=X+1
540 IF (X-1)=VAL(NUM$(0))THEN 600
550 GOTO 520
600 CLOSE #2
610 FOR ZZ=1 TO VAL(NUM$(0))
620 PRINT NAM$(ZZ):NUM$(ZZ)
630 NEXT ZZ
640 END
```

You see the program in front of you. It works. Now lets finish up a few details of the explanation.

You will notice that the introductory program used DISPLAY while this one uses INTERNAL. Using DISPLAY is great for proving the point of FIXED 64 and showing it as that original long string of A's. When manipulating data as we did, storage and retrieval becomes impractical unless you use the more efficient machine form 'INTERNAL'. That is another way of saying that the program will only half work if you use 'DISPLAY' and that I can't explain it any better.

You could use more names and bigger arrays. You could incorporate a real menu, but all that I leave to you. What you have now works and demonstrates a practical use of cassette files.

Gary Matthews

PRACTICALLY FREE SOFTWARE AVAILABLE ON DISK

Ralph Fowler, who has written Atlanta's first and perhaps the country's premier TI BBS program (T.I.B.B.S. 425-5254), has made an offer to share his collection of public domain software with others. His offer comes with reasonable but very strict instructions to keep the whole thing practical.

There are 19 double sided disks available. You cannot pick and choose your programs. Each INITIALIZED double side disk you send him will be filled up with BASIC, Extended BASIC, and assembly language programs at the cost of $3 per disk. This covers the wear and tear on his system. A double sided disk could hold between 20 to 40 programs. If you send him single sided disks ($1.75 each) they will be filled up till the space runs out. That means the last program will be a partial program and will not run. At first Ralph said he could fill up the back of a disk that had been initialized singly on both sides but practicality has made that impossible. If he was copying a double sided disk onto a single and the first side filled up; the second side would have to be finished off by manually selecting each of the remaining programs. If you have many people sending you dozens of disks, you could see how that would be totally impractical. Even if your system will not run double sided disks, it would be worth it to you to have a friend initialize them for you as double sided.

This offer may be withdrawn at any moment. The disks must be sent with a postage paid return envelope preferably padded for safe mail travel. Ralph suggested the return postage would cost 30 cents per disk, but he discovered that you could save yourself some money if go to the post office ahead of time and weigh them.

Do not even consider sending cassettes.

Ralph Fowler
P.O.BOX 383
Kennesaw, GA   30144

ROOKIE'S BASIC BELIEVE IT OR NOT

You can type a program without ever having to type another line number! Simply type NUM as the first entry before programming and each line will be automatically sequenced by 10 after ENTER is pushed.

BELIEVE IT OR NOT

You have written a program and in debugging have found that you must add line in the body of the program, and you want conformity in the line numbers. Simply type RES at the end of the program, and the program will be resequenced starting with 100. (RES 10 will resequence starting with 10).

BELIEVE IT OR NOT

You are running a program and much to your dismay come to a line error. Rather than typing LIST (line number), simply type the line number and push the function key and either the up arrow key or the down arrow key and the line will be recalled. Subsequent lines can be recalled either above or below the recalled line by hitting the respective arrow keys.

BELIEVE IT OR NOT

You want to list a program but only want to see a portion of the entire program. Simply type LIST -(line number) for a listing from the beginning of the program to the named line number. Type LIST (line number) - (line number) for a listing between the two named line numbers or, type LIST (line number)- for a listing from the named line number to the end of the program.

BELIEVE IT OR NOT

You want to know what line does what during a program run. Somply type TRACE, enter it, and run the program. Each line will be listed in the order it is executed within the program. Type UNTRACE and enter it to return to the normal mode.

BELIEVE IT OR NOT

L. Earning

The following article is reprinted from the July 1983 Cin-Day User's Group by Al Curran. For Atlanta users, the software described can be obtained from BRITT'S TWO WAY RADIO SERVICE 2508 N.ATLANTA RD.S.E.　SMYRNA.432-8006

RADIOTELETYPE
The wonderful world of telecommunications, which is known the world over as "Radioteletype", is rapidly appearing as a means of not only people to people contact but also computer to computer. Those of you who are licensed Radio Amateurs are already quite aware of the medium and are not newcomers to the field. However, those of you who are not licensed should not feel left out in the cold. Okay so you own a Texas Instruments 99/4A Home computer, a few peripherals, a pile of cassettes, loads of magazines and a handful of command modules. Is there nothing more? Have you ever heard some funny sounding noises on your all band radio reciever (standard AM broadcast up through 30 megahertz)? Well some of them are teletype being broadcast by a number of services such as Military, Weather, Ham radio, and Maritime. Most of those broadcasts are in English but on occasion you will hear one in a foreign language, all being done the same way. I assume most of you are familiar with the Western Union type communications where an operator types a message by perforating a tape, putting that tape into what is called a distributor and then transmits that same message over telephone lines to another city where the message is decoded, retyped by another operator, and delivered to the addressee, all in a very short time. Well those funny noises and toggling tones are teletype being transmitted via radio frequency. These tones are placed on the air by the sending station in much the same way as talking into a microphone or using a morse key then transmitted to the receiving station which then becomes "any station" and not listed to one destination. These signals are decoded by a special device, known as an "interface", which converts the analog type signal to digital thus making your computer a receive terminal. However, there is one other device that is needed and that is the Radioteletype (RTTY) program which produces the display protocol, various parameters for speed variations, date, real time clock, sending and receiving banners, split screens, message ports, and other aspects of the total function. These are all preprogrammed into the command module with a menu that steps you right through each function to simplify the operation.
There are a number of exciting things about this medium. First of all it is super inexpensive since you already have the computor and display monitor. The only other equipment that you need is the Interface and the Radioteletype Command module. I have found the Kantronics Interface and Hamsoft Radioteletype Command Module to be the best. Secondly, the equipment is quite simple to hook up because everything you need is right in the package, including excellent documentation. Now a whole new world of excitement and education in the field of communications has been opened. Some of you may even wish to study your "ham" ticket and join hundreds of thousands of radio amateurs around the world in this exciting and rewarding experience. But for the time being you can listen to and display all those radioteletype messages from ships at sea, satellite broadcasting telemetry, weather reports being sent from city to city, military amateur radio stations(MARS) and a host of other intriguing broadcasts. Now you have the opportunity to utilize your computer in a never ending area of education. I hope that everyone gets the chance to "read" the world of funny noises!

ASSEMBLY LANGUAGE
FROM EXTENDED BASIC

We have an Assembly Language group up and running, and I hope that this group will be able to develop information and programs that will benefit all of our members. In the meantime for those of you who like to program, here are some notes on memory and "PEEK" and "LOAD" addresses that can be used from either X-Basic or "Mini-Memory".

First a little about the TI 99/4A memory. In the console are two memories one is the "CPU", or Central Processing Unit, the other is the "VDP", or Video Display Processor. The VDP contains 1) the screen-image table (containing the actual display on the screen), 2)the pattern generator table (containing the pattern of each character), 3)the character color table (containing the foreground and background color of each character set), 4)the Sprite attribute list (containing all Sprite values), 5) 12K of free memory (RAM, for basic programming).

The 16,383 bytes contained in the VDP RAM are not directly addressable by the CPU, they are memory mapped (more on this in a later article). For this reason you cannot use Call Peek to look into VDP RAM. However for those of you who have "Mini-Memory", you can "CALL PEEKV" and "CALL POKEV" to get into the VDP RAM. To show you what this can do, try this little program. Plug either the Mini Memory Module, or the Editor/Assembler Module into the console and select "TI BASIC" and enter this program.

```
100 FOR T=1 TO 16
110 CALL POKEV(784,16+T)
120 NEXT T
```

This will load the color table into VDP RAM address >0310 and causes the background color of the space character on the screen to change color very, very rapidly. Be prepared to put a delay loop between lines 110 and 120 if you want to see the colors instead of a blur. Now you can start to see the speed of the 9900 chip.

Here's another program. This program is thanks to THE CENTRAL IOWA 99/4A USERS GROUP newsletter "4A FORUM".

For those of you who have the Mini Memory or Editor Assembler cartridge, here is a little program that allows you to see the screen in Normal Mode, Clear Mode (everything is there but is invisible), Text Mode, (40 characters across), Multicolor Mode (each character is made up of four blocks), and Bit Map Mode (you need the 4/A to see each pixel).

No need to know assembler to access these. After you run the program, press N,C,T,M,B (the screen may not be readable, but the keys still work).

```
100 PRINT "PRESS A KEY ===> N,C,T,M,B ":
110 CALL KEY(5,K,S)
120 IF K<>78 THEN 140
130 CALL POKEV(-32768,0)
140 IF K<>67 THEN 160
150 CALL POKEV(-32352,0)
160 IF K<>84 THEN 180
170 CALL POKEV(-32272,0,"",-30945,0)
180 IF K<>77 THEN 200
190 CALL POKEV(-32280,0)
200 IF K<>66 THEN 220
210 CALL POKEV(-32766,0)
220 GOTO 100
```

NOW --- back to the CPU, contained in this memory are 2 - 4K ROM (Read Only Memory) chips that contain the basic interpreter, operating system, and the Device Service Routines (which connect up the P-Box and it's cards), the Video Display Processor, the Sound Generator, the Speech Synthesizer and the CPU RAM Scratch Pad (a 256 byte RAM memory sector used by the CPU for almost instantaneous operations. Adding a 32K Memory Expansion Card gives you 65,535 bytes of CPU memory. To look at (PEEK) these memory address you must use either the Mini Memory, the Editor/Assembler, or the Extended Basic Module. In Ex-Basic you must "CALL INIT" then "CALL PEEK(#####,##)".

Address 0 to 32767 are positive numbers the same as the address (0 = 0, 32767 = 32767). The address from 32768 to 65535 are accessed by subtracting 65536 from the address number, resulting in a negative address number (32768 - 65536 = -32768, 45010 - 65536 = -20526, 65535 - 65536 = -1).

The form is "CALL PEEK(ADDRESS,RETURN VARIABLE)

Here are some locations to "PEEK" at, and what they do

(-31880,A) RANDOM NUMBER GENRATOR ("A" returns a random number between 0 and 99. You must use RANDOMIZE, first in a program to get a true random number.
(-31879,T) VIDEO DISPLAY PROCESSOR INTERRUPT TIMER ("T" returns a value that is sequentially generated every sixteenth of a second, from 0 thru 255)
(-31878,S) HIGHEST NUMBERED SPRITE IN MOTION. In version 100 XBASIC, this value is always 28. Program execution using this version can be speeded up by disabling the Sprites above the ones being used. A "CALL LOAD(-31878,A)" to POKE the number of the highest numbered moving sprite into this location disables all Sprites above 'A'. For version 110 this value is updated everytime a Sprite is put into motion.

(-31806,64) DISABLE SPRITE MOTION For 110 ("CALL LOAD(-31806,64)" disables all Sprite motion.
(-31877,C) VDP STATUS REGISTER (If C=32 there was a Sprite Coincidence. Using this instead of the "CALL COINC" will give you faster response to a Sprite Coincidence and more realistic action on the screen)
(-31808,A,B) DOUBLE RANDOM NUMBER GENERATOR ("A and B" will each return a different random number with values from 0 to 255. A RANDOMIZE statement must be executed first. This can be used to give you a random Sprite motion within the allowable range of -128 to 127 if you use the following:
CALL PEEK(-31808,A,B)
CALL MOTION(#1,A-128,B-128)
(-31806,16) DISABLE THE QUIT KEY ("FCTN" AND "="). At last, at last, at last, before starting to program use the following:
CALL INIT :: CALL LOAD(-31806,16) and no more QUIT key mistakes.
(-31806,32) SOUND GENERATOR STOP DISABLED ("CALL LOAD" this and a "CALL SOUND" statement will not turn off, also your console will lock up on the next sound or noise generated.
(-31806,0) Turns all bits off and sets the QUIT KEY, the Sound Generator, and the Sprite motion back to normal.
(-28672,A) If A returns a 96 then the spech synthesizer is attached. If A returns a 0 no speech synthesizer is attached. Saves having to ask.
(-31888,63,255) Disables the disk drives (load your program first) This "CALL LOAD" will gain you the memory being used by the disk drives (its like being able to CALL FILES(0)).
(-31888,55,215) To get the disk drives back (sometimes it doesn't work, as a last resort type "BYE").
(-31931,0) If you have saved a program in XBasic with the protect option and you cannot list or save it again, use this to unprotect the program.
(-31931,128) "CALL LOAD" this and you will protect it again.("CALL PEEK(-31931,P) will tell you if a program is protected.

If you find this type of information useful and can use it. I'd suggest you obtain a subscription to the
SMART PROGRAMMER by:

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

It costs $12.50 per year. He has promised memory maps, memory dumps, and other very interesting and useful data, the data on disabling the Function Quit is from him.

My thanks to MIKE of the BREVARD USERS GROUP (BUG), of Palm Bay, Florida for several of the memory locations used in this article.
           Marshall

MEMBERS HELP US ADVERTISE OUR MEETINGS

Members will find enclosed a sheet that can be cut into four pieces listing our next meeting date,time, and location.
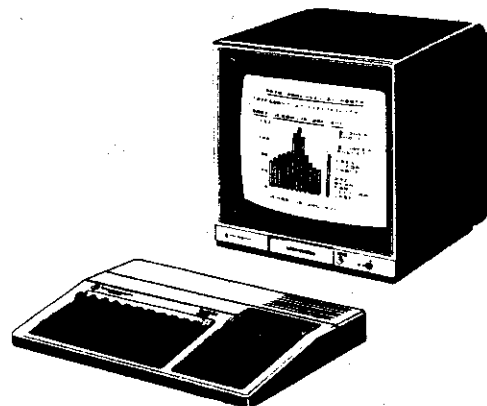PLEASE post these where ever you can (stores,arcades,bulletin boards).
There are several thousand T.I. owners in this city that do not know about our club. They need us and we need them!
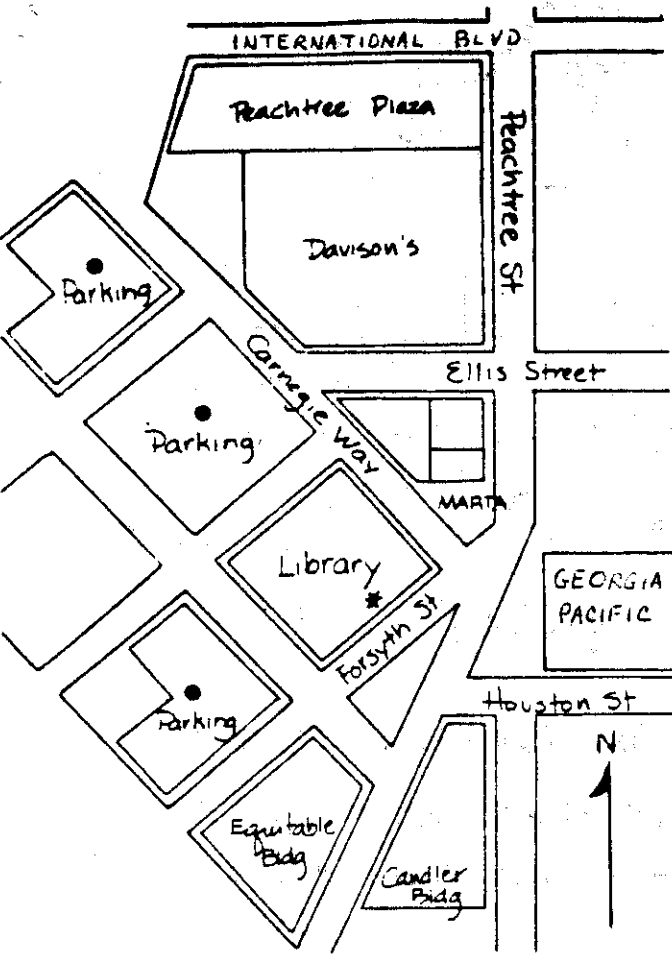
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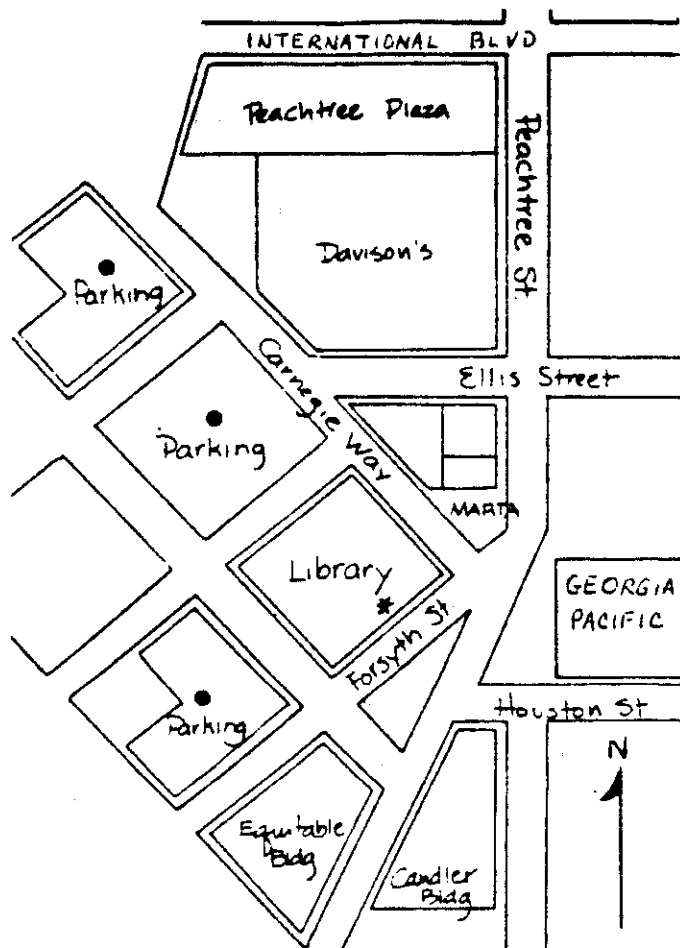## SUNDAY, JAN 22ND
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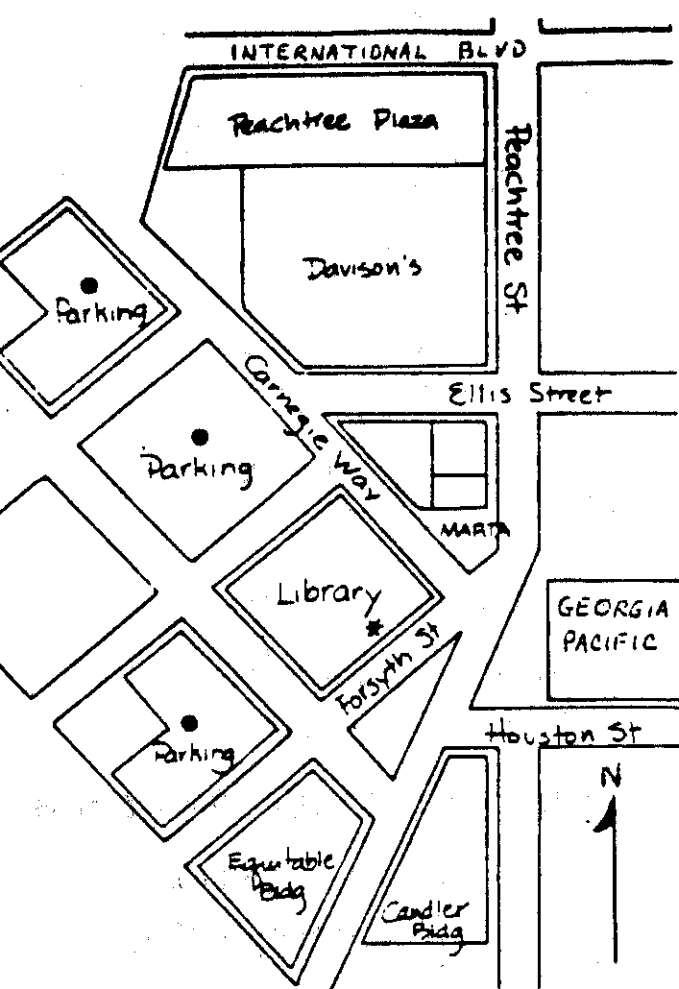(A DONATION WILL BE REQUESTED - MEMBERS - 50¢, NON-MEMBERS - $1.00)

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