THE

SPRITE

a monthly newsletter of

THE 9900 USER'S GROUP, INC.

A voluntary organization for the
sharing of knowledge and
resources of people having
interests in, or ownership of
9900 processor based Home
Computers.

THE GROUP OFFICERS and STAFF:

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TI*BBS BULLETIN BOARD:

The Bulletin Board is available to all callers at no charge. Common courtesies prevail. The BBS is up most days 8AM – 11PM. The phone # for the BBS is 609-435-7301.

INTRODUCTION:

This next meeting (past tense for some) will be reorganization nite!! We will atempt to discuss our future. We will attempt to set up committees and delegate! We desperately need the following committees: NEWSLETTER COMMITTEE, LIBRARY COMMITTEE (almost done here, we need to boost the cassette end), GENERAL MEETING COMMITTEE (don't laugh at that, I'll explain). The General Meeting committe will oversea many things. They will co-ordinate who brings in what equipment as well as co-ordinate tables and chairs and clean-up responsibility. They don't necessarilly have to do all but make sure all gets done. We would like to see 4 systems minimum at each meeting. We used to have 2 or 3 at Moorestown in the old days and Marlton is a whole lot bigger! We could use a basic system with cassette recorder as well as a system with 32k/RS232 and/or printer. A disk system of any configuration is also needed for the 'front'. The more people that sign up the merrier! That is if 9 people sign up then the General Meeting committee will whittle that down to 4 or 5. The remaining people will, after being contacted, be rescheduled some few months down the road etc. etc. The idea is the more people sign up the better chance we have of providing a 'Full' program for the evening. There should be NO committee of less than 4 people, we hope. Come on now. Everybody chip in. If everyone signed up to bring in their system that would probably work out such that each member would probably bring in their system about ONCE IN TWO YEARS!! That's with 4 systems per meeting too! Mmmmm. It'll be tough to come up with excuses for TWO years!

This will not be a 'business meeting' per se. We have definite objectives and goals to achieve. Requests and demands on all will be forthcoming. We will NOT be stopping to get into debates. Let the committees debate. We have a lot of work to do. We along with the Users Groups up north want to make a showing at th TRENTON STATE FAIRE. Now that's pretty much in OUR back yard. We should capitalize on that. Hence, we need volunteers for that. At least 4 people. Of those at least two who can stay all day. It could be arranged to do just an aftenoon but the possibilities to gain membership (and talent) should not be overlooked.

There ya have it. Leave notes on the groups BBS (609-435-7301) call any of the officers and when the committees get in gear they will appear here and a contact point will be established for each of them. I have to make something very clear here. We are in a big push to enhance our library. We will NOT however become a massive swap copy group of everything in sight. There is so much talent in the audiences of all User Groups that sucking up 'copyrighted' programs just to 'have them' wastes valuable disk space. We can produce. Splinter groups should sharpen their pencils and tackle those 'tuff ones.' Have contests to see who can make 'that' program even shorter, or better. Let's DO IT!

BASIC BASIC: by M Baker

How much memory? A tip worth repeating. While in TI BASIC there is no command to let us know how much RAM (Random Access Memory) is left such as the SIZE command in Extended Basic but by using a short routine we can find out. This routine can be used in a program to let us know how much RAM is used AFTER we have run a program and set up variables and filled arrays. Here it is:

```
1 A=A+B
2 GOSUB 1
```

If you type it in as is use RUN to get it going. If it's imbedded in a program then for either case you'll get the message * MEMORY FULL IN 1 * (or whatever line # A+A+B is) after which you enter PRINT A and voila, there's how much RAM is left. Don't forget that if you use this in a program use a variable that is NOT used in your program. The variable 'A' is almost always used. Now that your using it how come that happens? Why doesn't the GOSUB have a RETURN?

Still using EDIT 100 or EDIT 220 etc to edit programs while in TI BASIC? Well, you can upgrade and do it just like in Extended BASIC. Merely ENTER a line number, hold down the FCTN key and press either E or X (up or down arrow). Isn't that nice? How come ma TI never told us that?

Do you know what happens when two nybbles get together? They BYTE! (boooooooh, hsss!)

TIGERCUB SOFTWARE:

Hello? Knock Knock. Who's there? TIGERCUB! TIGER who? No No I said Ty yer cub up he's chewing my shoe! And if you folks don't start feeding TIGERCUB he will be eating shoes! THE catalog is available to see via the group. Each program is a mere 82/100th's of one cent per day for the year. I mean you could have TWO programs for only slightly more than 1 and 1/2 cents per day for a year! No interest no carrying charge. Simply prepay your balance in full at time of purchase!

MINI-MEMORY OWNERS: dead battery?

If the battery in your Mini-memory fails it'll cost $35.00 including shipping & handling if you ship it off to TI. If you find a good technician it'll cost you the price of the battery (abt $7 I guess) plus 'maybe' his time. After all, if the battery has gone bad the Mini-memory is probably way out of warranty and it won't hurt to open the module.

TIPS FROM
THE
TIGERCUB
No. 14

Distributed by Tigercub Software to
users groups for promotional purposes
and in exchange for their newsletters.

Tigercub Software, 156 Collingwood
Ave., Columbus OHIO 43213, has over 130
original programs available at only
$3.00 each. My catalog is available for
$1.00 which may be deducted from your
first order.

It has come to my attention that the
members of some users groups have never
heard of my kitchen-table enterprise,
although their group has been receiving
my newsletter for several months. It
appears that many users groups have no
method of making available to their
members the information from newsletters
which they receive in exchange.

My software business is a failure, and
my Tips are a complete failure as a
promotional effort. During the month of
July I received a total of 31 requests
for my catalog, of which only 9 were the
result of newsletter publicity. I do not
want to discontinue these Tips, because
of the many interesting newsletters that
I receive in exchange. However, I can no
longer afford to distribute them to
those groups which never give any indi-
cation that my Tips are reaching their
members.

You may have observed that the
Tigercub now possesses a Gemini 10X
printer. The only fault I could find
with it was that it wouldn't print
Chinese, so I remedied that defect with
this little program.

```
100 !THIS ROUTINE INITIALIZE
S THE GEMINI 10X TO PRINT 'C
HINESE' UNTIL IT IS TURNED O
FF - by Jim Peterson
110 OPEN #1:"PIO"
```

```
120 PRINT #1:CHR$(27);CHR$(4
2);CHR$(0);:: CALL CLEAR
130 FOR CH=65 TO 90 :: PRINT
"WORKING..." :: FOR J=1 TO
7 :: FOR L=1 TO 9 :: RANDOMI
ZE :: IF (INT(3$RND+1)<3)+((
L>1)$(D(J,L-1)>0))THEN 150
140 D(J,L),D(J,10-L)=(1+ABS(
J>1))^J
150 NEXT L
160 NEXT J
170 FOR L=1 TO 9 :: FOR J=1
TO 7 :: X(L)=X(L)+D(J,L):: N
EXT J :: NEXT L
180 PRINT #1:CHR$(27);CHR$(4
2);CHR$(1);CHR$(CH);CHR$(1);
CHR$(X(1));CHR$(X(2));CHR$(X
(3));CHR$(X(4));CHR$(X(5));C
HR$(X(6));CHR$(X(7));CHR$(X(
8));CHR$(X(9))
190 FOR J=1 TO 7 :: FOR L=1
TO 9 :: D(J,L)=0 :: NEXT L :
: NEXT J
200 FOR L=1 TO 9 :: X(L)=0 :
: NEXT L :: NEXT CH
210 PRINT #1:CHR$(27);CHR$(3
6);CHR$(1);
220 PRINT #1:CHR$(27);CHR$(8
7);CHR$(1)
230 PRINT #1:CHR$(27);CHR$(7
1)
240 STOP
```

Now, without turning off the printer,
type LIST "PIO" or run any program that
puts out text to the printer. It won't
fool a Chinaman but it might impress
your friends.

Here's a little something for you who
own the Terminal Emulator II and the
Speech Synthesizer. Maybe our
Congressmen could use it to help them
discuss the national debt.

```
100 CALL CLEAR
110 PRINT TAB(7);"NUMBER SPE
AKER": : :"by Jim Peterson":
"    of Tigercub Software"
: : :
120 PRINT " This program wil
l print any":" number of les
s than 67":"digits in number
s and in"
130 PRINT "words, and will s
peak the":"words.": : : :" R
equires Terminal Emulator":"
II and Speech Synthesizer.":
: :
140 CALL CHAR(39,"0000000000
301020")
```

```
150 OPEN #1:"SPEECH",OUTPUT
160 DIM HIGH$(21),NN$(23)
170 DATA ONE,TWO,THREE,FOUR,
FIVE,SIX,SEVEN,EIGHT,NINE
180 DATA TEN,ELEVEN,TWELVE,T
HIRTEEN,FOURTEEN,FIFTEEN,SIX
TEEN,SEVENTEEN,EIGHTEEN,NINE
TEEN
190 DATA TWENTY,THIRTY,FORTY
,FIFTY,SIXTY,SEVENTY,EIGHTY,
NINETY
200 DATA THOUSAND,MILLION,BI
LLION,TRILLION,QUADRILLION,Q
UINTILLION,SEXTILLION,SEPTIL
LION,OCTILLION,NONILLION
210 DATA DECILLION,UNDECILLI
ON,DUODECILLION,TREDECILLION
,QUATTUORDECILLION,QUINDECIL
LION,SEXTEDECILLION
220 DATA SEPTENDECILLION,OCT
ODECILLION,NOVEMDECILLION,VI
GINTILLION
230 FOR J=1 TO 9
240 READ ONES$(J)
250 NEXT J
260 FOR J=1 TO 10
270 READ TEENS$(J)
280 NEXT J
290 FOR J=1 TO 8
300 READ TENS$(J)
310 NEXT J
320 FOR J=1 TO 21
330 READ HIGH$(J)
340 NEXT J
350 PRINT : : :
360 PRINT #1:"NUMBER"
370 INPUT "NUMBER? ":N$
380 L=LEN(N$)
390 FOR J=1 TO L
400 IF POS("0123456789",SEG$
(N$,J,1),1)=0 THEN 360
410 NEXT J
420 IF (VAL(N$)(1)+(VAL(N$)<
)INT(VAL(N$)))THEN 360
430 IF L<67 THEN 470
440 PRINT "HEY! I CAN ONLY C
OUNT TO A":"VIGINTILLION!":
:
450 PRINT #1:"HAY I CAN ONLY
COUNT TO A VIGINTILLION"
460 GOTO 360
470 IF VAL(N$)>0 THEN 510
480 PRINT : :"ZERO": :
490 PRINT #1:"ZERO"
500 GOTO 360
510 IF L/3=INT(L/3)THEN 540
520 N$="0"&N$
530 GOTO 380
540 X=L/3
550 FOR J=1 TO L STEP 3
560 JJ=JJ+1
570 NN$(JJ)=SEG$(N$,J,3)
```

```
580 IF J>1 THEN 610
590 P$=STR$(VAL(NN$(JJ)))
600 GOTO 620
610 P$=P$&" "&NN$(JJ)
620 NEXT J
630 PRINT : : :P$: : :
640 FOR J=1 TO X
650 GOSUB 670
660 GOTO 1150
670 IF VAL(NN$(J))<>0 THEN 7
10
680 A$=""
690 FLAG=1
700 GOTO 1140
710 FLAG=0
720 H=VAL(SEG$(NN$(J),1,1))
730 T=VAL(SEG$(NN$(J),2,2))
740 TT=VAL(SEG$(NN$(J),2,1))
-1
750 VV=VAL(SEG$(NN$(J),3,1))
760 IF T=0 THEN 1000
770 IF T>9 THEN 810
780 A$=ONE$(T)
790 SP$=A$
800 GOTO 1000
810 IF T>19 THEN 880
820 A$=TEEN$(T-9)
830 IF T<>19 THEN 860
840 SP$="NINE TEEN"
850 GOTO 1000
860 SP$=A$
870 GOTO 1000
880 IF VV<>0 THEN 950
890 A$=TENS(TT)
900 IF TT<>8 THEN 930
910 SP$="NINE TEE"
920 GOTO 1000
930 SP$=A$
940 GOTO 1000
950 A$=TENS(TT)&"-"&ONE$(VV)
960 IF TT<>8 THEN 990
970 SP$="NINE TEE"&ONE$(VV)
980 GOTO 1000
990 SP$=A$
1000 IF H=0 THEN 1080
1010 IF T=0 THEN 1050
1020 A$=ONE$(H)&" HUNDRED &
"&A$
1030 SP$=ONE$(H)&" HUNDRED &
"&SP$
1040 GOTO 1140
1050 A$=ONE$(H)&" HUNDRED"
1060 SP$=A$
1070 GOTO 1140
1080 IF (J<X)+(T=0)+(VAL(N$)
<100)THEN 1140
1090 A$=" & "&A$
1100 IF (TT<>8)&(T<>19)THEN
1130
1110 SP$=" & "&SP$
1120 GOTO 1140
1130 SP$=A$
```

```
1140 RETURN
1150 PRINT A$
1160 IF FLAG=1 THEN 1200
1170 PRINT #1:SP$
1180 PRINT HIGH$(X-J)
1190 PRINT #1:HIGH$(X-J)
1200 GOSUB 670
1210 NEXT J
1220 PRINT B$
1230 A$=""
1240 JJ=0
1250 B$=""
1260 P$=""
1270 FOR D=1 TO 500
1280 NEXT D
1290 GOTO 350
```

I hope you noticed that all those zeros were neatly slashed so that you wouldn't mistake them for O's. Here's a little routine that will set up your printer to slash the 0's until you turn it off.

```
100 OPEN #1:"PIO"
110 PRINT #1:CHR$(27);CHR$(4
2);CHR$(0);
120 PRINT #1:CHR$(27);CHR$(4
2);CHR$(1);CHR$(48);CHR$(0);
CHR$(92);CHR$(34);CHR$(81);C
HR$(8);CHR$(69);CHR$(2);CHR$
(65);CHR$(34);CHR$(28)
130 PRINT #1:CHR$(27);CHR$(3
6);CHR$(1)
140 STOP
```

And, somebody might get mad if I don't include a little music -

```
100 REM - BELL MUSIC progra
med by Jim Peterson
110 CALL CLEAR :: CALL SCREE
N(5):: RANDOMIZE
120 FOR CH=96 TO 136 STEP 4
:: FOR L=1 TO 4 :: X$=SEG$("
0018243C425A667E8199A5BDC3DB
E7FF",INT(16*RND+1)*2-1,2)::
 B$=B$&X$ :: C$=X$&C$ :: NEX
T L
130 D$=B$&C$ :: Z$=RPT$(D$,4
)
140 CALL CHAR(CH,Z$):: B$,C$
,Z$=NUL$ :: CALL MAGNIFY(4):
: CALL SPRITE(#CH/4-23,CH,IN
T(15*RND+2),255,255):: NEXT
CH
142 FOR J=1 TO 10 STEP 2 ::
X=9*RND-9*RND :: Y=9*RND-9*R
ND :: CALL MOTION(#J,X,Y,#J+
1,X,Y):: NEXT J
150 FOR J=1 TO 20
```

```
155 CALL COLOR(#INT(10*RND+1
),INT(15*RND+2))
160 FOR V=0 TO 16 STEP 4
170 ON J GOSUB 250,270,290,3
10,330,350,370,390,410,430,4
10,390,370,350,330,310,290,2
70,250,270,290,310,330,350
180 NEXT V
190 READ X
200 FOR D=1 TO X*5
210 NEXT D
220 NEXT J
230 RESTORE
240 GOTO 150
250 CALL SOUND(-999,131,V,52
3,V,131/2,30,-4,V)
260 RETURN
270 CALL SOUND(-999,165,V,16
7,V)
280 RETURN
290 CALL SOUND(-999,196,V,19
9,V)
300 RETURN
310 CALL SOUND(-999,262,V,26
5,V)
320 RETURN
330 CALL SOUND(-999,330,V,33
3,V)
340 RETURN
350 CALL SOUND(-999,392,V,39
4,V)
360 RETURN
370 CALL SOUND(-999,523,V,39
2,V,330,V)
380 RETURN
390 CALL SOUND(-999,659,V,66
6,V)
400 RETURN
410 CALL SOUND(-999,784,V,79
2,V)
420 RETURN
430 CALL SOUND(-999,1047,V,1
057,V)
440 RETURN
450 DATA 16,16,2,16,8,16,4,4
,16,2,16,4,16,8,8,16,2,2,16,
4,2,8,16
```

Just about MEMORY FULL, so
Happy hackin'
                    Jim Peterson

———

Ryte Data MEMBER HALIBURTON CHAMBER OF COMMERCE
BOX 210 MOUNTAIN STREET
HALIBURTON, ONTARIO KOM 1SO CANADA (705) 457-2774

31 JANUARY/85

Dear Users Group,

IMPORTANT ANNOUNCEMENT FOR ALL TI 99/4A OWNERS!

A NEW COMPUTER - based on the successor to the 99/4A: the "99/8", has been
developed by one of the foremost TI support companies. Fully hardware and
software compatible, this machine promises to revive the huge TI 99/4A world.
This new computer goes beyond the unreleased 99/8 in several important ways.
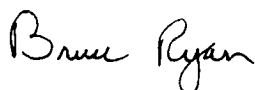
The formal release is scheduled for the June 85 Consumer Electronics Show.
Beta testing is slated to begin as soon as the printed circuit boards roll off
the production line. Full scale production hinges upon the interest and
response generated among TI users in North America. Being long term, die hard
TI enthusiasts, we intend on supporting this new machine fully. As the company
has not officially announced public availability and FINAL system features, we
have been asked to not reveal certain information at this time. The new
computer will be produced and marketed under a different company name as well.
We are working on determining the level of interest. To be first and foremost,
everyone is offered the first newsletter and initial users support for this
machine (and the 99/4A) free of charge. Write us with a self-addressed large
envelope - #10 or larger - and will send you the first copy free of charge.
Pass this along to your friends and associates. We would appreciate postage
costs - US stamps cannot be used from Canada.

You can be assured that your system will not become obsolete. We understand
that existing TI equipment can be used with this new computer! It was only a
matter of time before someone took advantage of the superb technology
represented by the 99/4A.

We would also like addresses of TI users groups you may know of. Several
groups have come to our attention that were not listed in our files. We are
also seeking assembly language programmers who wish to provide programs for
this true 16 bit - 10 megahertz computer. Code is fully compatible with the
9900 chip.

As per our last letter, we are interested in users group newsletters to provide
a forum for information resources among all TI owners here and abroad.

Looking forward,

Bruce Ryan

Bruce Ryan

F L I P P I E S

Everyone has heard about 'Flippies' and most people know what they are even if they don't use them. This article will explain to the rest what one is and perhaps give the incentive to make one, to those who have hesitated.

First off -What is a flippy ? It is a single sided floppy disk that has been altered so both sides can be used as a single sided initialized disk. Both sides are independent just as if each were a completely separate disk. There are reasons why people use them and reasons why some avoid using them. Some believe that if you turn a disk over and put information on the normally not used side, this will cause future problems. A disk normally rotates in a specific direction; let us say it is clockwise. A Double-sided disk on the other hand uses both sides but still rotates in just one direction. A flippy, when turned over, is now turning in the opposite direction that it normally turns. This is the crux of why some people will not construct and use flippies. They believe that disks were created to rotate in one direction and will become abrasive inside the disk sleeve, cause particles of the magnetic oxide to rub off, and destroy the disk's information if the direction of the rotation changed back and forth. You can compare it to a cat's fur that simply doesn't like being rubbed the wrong way. I personally do not know of a single case where this has happened. Problems in disks are usually traced to bad handling and not to the fact that it is a flippy. I mention all this because it will scare the faint-hearted not to try to follow the directions that come past this point. It will also get me off the hook if they do it wrong.

If you look in many leading computer magazines you will find advertisements for these devices that look just like hole punchers, for about $8.95. They are billed as a wonderful contraption that lets you 'Scientiffically' double your disk storage capacity. If you buy one, you have just wasted seven dollars. They are nothing more than hole punchers with something stuck on the side to help locate just where to make the punch. Don't blow your money on those things that you would have to wait five weeks for it to arrive anyway. Instead just follows the directions included here. Buy a regular hole puncher for about two dollars. If you are lucky, you will find one that has a plastic bottom part that will catch the holes as they are punched. If it doesn't you just have to be a little more careful.

Now look at the front of one of your floppy disks. You will see a rectangular notch about one inch down on the right side. Now look at the small hole on the same side of the jacket, but further down and closer in to the center hub circle. This smaller hole is where you will see the one soft sector hole when you rotate the disk manually. To turn a disk into a Flippy, you put the same one inch down notch and accompanying soft sector cut-out hole on the left side as a mirror image of the right side. Here is how you go about doing that. The most important part is in placing your alterations at the right place. One way to do this is to take a second disk (not the one you are altering) and after you have rotated it so you can see through the soft-sector hole, lay it backwards on top of the one you are going to alter. This will give the right place to mark the notch along the left edge as well as showing where to punch out the accompanying soft-sector hole. Remember also that the disk to be altered must have the soft-sector hole *punched* out on the other side too. Just to play it safe let me say that under no circumstances does the magnetic oxide disk get cut; only the sleeve which houses it.
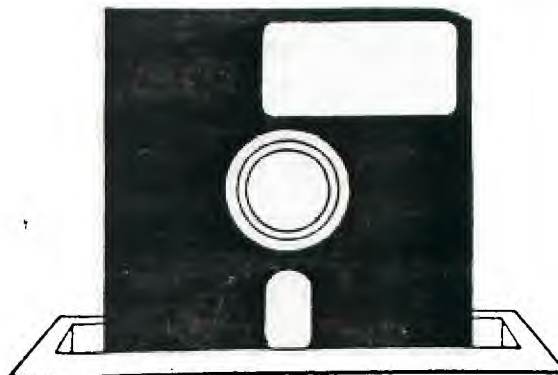
There are only two things left to point out that could cause you trouble if you aren't aware to watch out for them. Never should the oxide disk actually touch your hole puncher. You could easily scratch the oxide coating. A simple way to ensure this is to lift the envelope away from the disk proper and insert an appropiate width of paper in at the hub area so the puncher will only come in contact with paper instead of the oxide. The other thing to be careful of is when you punch the holes near the hub make sure the cut piece doesn't get loose and fall into the inside of the envelope. That too would cause scratches to the oxide and ruin your disk. That is why I said it would be good if your hole puncher is one that catches the holes that it cuts.

If you only have single sided disk drives then making your own Flippies is a very good economical way to get more room to store programs without buying another box of disks. As a way to convince people that doing this is NOT harmful, I would like to point out that some of the software that TI has lately put out comes on 'Flippy' type disks. Here is one last note to consider if you are the type to want backup disks of your valuable programs but you can't afford to buy an extra disk for every one. Say you have two single-sided disks of programs; call one AAA and the other BBB; make each into a flippy and put AAA's programs on the back of BBB, and vice versa. This way if one disk gets ruined, spilled on, stepped on, or whatever, you are still left with a complete copy of everything.

One final note about using a common round hole punch. Just glancing at your disk will let you know whether you are inserting Side 1 (the rectangular notch) or are using the flip Side 2 (the rounded notch). So now...go, be fruitful and multiply (your disk capacity).

Gary Matthews
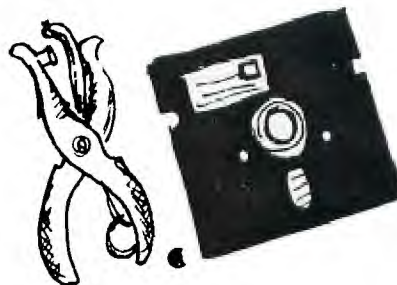
DISKS AND DRIVES

By T.D. Bell
The following article is reprinted from the
Central Ohio Ninety-Niners Inc. newsletter
SPIRIT OF 99 - FEBRUARY 1984

"Computerss are the pencils of the information age. Floppy disks are the paper. You are the brains.'
Popular Mythology!

Computers are the brains of the future, rendering men's minds obsolete.
Fact! Computers are so feeble minded they can not remember anything, they must write all information down or it's gone. While they may have no minds and absolutely no memories! They can however crunch, shuffle, and collate fantastic amounts of data and write thousands of words of paper in a split second. The paper?, a precision, glass smooth disk of magnetic crystals, thinner than a human hair.
(Three mils, 3/1000), that makes it "FLOPPY". Under ideal conditions these disks can remember forever.
Let's go back a little. Well before magnetic recording tape, there was Paper tape or cards with little patterns of punched holes to save, if the computer programs were saved at all. While this was very inexpensive and great for throwing out windows during parades, it did little to promote personal computing. It was also very fallible and slow. Then came cassette tape and very expensive 8" disks. While cassettes were faster, they were still relatively slow and there was no way to randomly access individual files.
Unless you know where the information was on the tape, you had to start at the beginning of the tape and go on until you or the computer found the file needed. The other option?, 8" disks developed by IBM, were too costly. Without the Mini Floppy technology developed by Shugart Associates, in 1976, which offered the first affordable 5 1/4" disk drive, personal computing might never have gotten into the home.
Disk Makeup! Not unlike audio casstte tape, floppy disks store information on magnetically charged iron oxide particles that coat the surface. Iron oxide is not ground up metal but clinically grown crystals, each having the ability to hold a magnetic charge. This is where the likeness ends.
The crystals that coat recording tape are aligned in the direction of the tape's travel allowing them to receive the highest degree of magnetization from the recording head. The crystals on the surface of a disk, although very similar to Type 1 recording tape, are in a random order due mostly to the way they are manufactured, and other various factors involved in the technology of disk recording. While the base film of a disk is about six times thicker than standard tape, the magnetic oxide coating over the base film is about three times thinner than standard tape. (Base film= 3/1000 of an inch, Magnetic oxide = 90/1000000 of an inch).
Quite simply, the reason for the thinness is less of a chance of spillover and overwrite of digital information and a better chance that old data has been completely erased when written over.
Digital information is recorded on a series of tracks (Concentric magnetic rings), not grooves, put there by the micro systems disk drive read/write head. That's right, when you buy them they really are blank. Each system formats a floppy according to it's own initialization or formatting program.
Most disks are rated to contain 48 tracks per inch (tpi), while the actual area used is only 40 tracks, (single density), or 96 tpi formatted to contain 80 tracks, (double density). The TI system uses single sided, single density. When a disk is formatted, track and sector information is written to the disk. Each track is divided into a number of

FIGURE 1
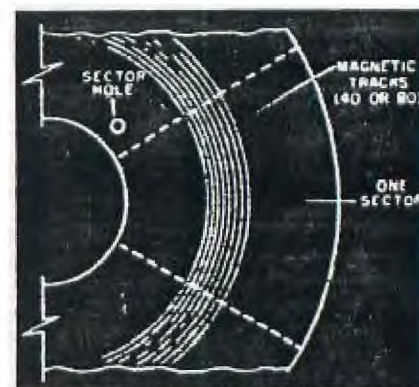
sectors, enabling it to store and locate information more easily. TI uses 358 sectors. Another section of the disk called the Directory stores the name of the file along with the track and sector location, where they can be found and the amount of free space available on the disk. The directory uses the track and sector information to access, almost instantaneously, any file at random. The read/write head searches out the correct data by using the timing hole as a guidepost and a "Format" (something like a ZIP code) as a destination. This is a vast improvement to serial storage used by cassettes.
The manufacturing of a floppy disk begins with a continuous sheet of plastic film called a "WEB"! This is run through a coating machine containing a slurry of 40% magnetic oxide and 60% of binders, resins, and lubricates. The coated sheets are then dried in large high temperature ovens and calendered to compress and polish the surface. The material is then rolled into 'BUTT ROLLS", then the procedure is repeated for the other side. To stablize the polyester base the disk then goes on a 24 hour visit to the curing ovens. Next a stamping machine cuts out the disk shape and the center hole along with any required index or sector holes. A bath in another chemical gives the disk more durability. At the same time in another part of the factory, little stylish jackets are being made from PVC,(that has been cured for 24 hours in heat chambers), to house and protect the disks. A non-woven synthetic liner is then welded into place as a bearing surface and cleaner for the disk. It is cut to size, folded into shape, with the flaps sonically welded. Centering, Indexing, and Write-protect holes are then punched out along with the Head-access slot. The disk is then slipped inside the jacket and tested by a certifying machine. This machine fills the entire surface of the disk with data and checks for errors.
Errors found on one side of the disk make it "Single-sided"; If errors are found on the second side, they are useless and trashed. The jacket will then go back for another disk. If no errors are found on either side they are 'expensive' (Humor-ar ar). This machine and its tests also determines single (a disk that is usable a low packing levels but cannot meet the rigid requirements of high capacity), or double density.
The last flap of the jacket is then sonically sealed and a hub-reinforcing ring added; labeling, packaging, and shipping follow.

FIVE MINUTE SCRAMBLE: via Amarillo 99/4A Users Group

```
#########################
* T P D I S R B V B P *    TURKEY
* I L Z C E C T W C P *    COMPUTER
* D E P W I U O Y O S *    CLUB
* E H S S R R D P M A *    TEXAS
* V N A K D Y U P P X *    BASIC
* A B E S N Y U R U E *    EDIT
* I Y C I X Z O Z T T *    PUZZLE
* R N Z L Z V Z E E L *    WORDS
* C C P L U Q E N R W *    ANSWER
#########################    HELP
```

SPREADSHEET PROGRAM: Part II by Bob Delpit

In this installment I will cover the "Calculate" subroutine. But first, there are a few changes to last months program segment on Data Entry. These changes and the lines affected are shown along with the new lines at the end of this article. They are:

1. Add a new one dimensional array, B(10) to the DIM statement, line 150
2. Combine options 4 and 5 into a single option 4, "Calculate Mode". Change title of option 3 to "Enter/Edit" Data. These changes are in line 200
3. In line 240 change the GOSUB line 3000 to 2990
4. Add line 2990.
5. Change the SIZE in the ACCEPT in the ACCEPT-statement, line 3050, from -4 to a -8.

After making these changes, key in the Calculate Mode Subroutine, lines 4000 to 4570. Here's how it works. When option 4 is selected from the main menu, the screen will change color to light yellow, and the parameter selection menu will appear on the screen with the cursor appearing opposite the "Operation" option. Each selection and its meaning is as follows:

1. Operation-Mathematical operation to be performed.
2. Row Op.-The math function is to be performed on rows.
3. Col. Op.-Same as 2 but performed on columns.
4. Enter Constant-Input a constant that is to be applied to each row or col. as selected in 2 and 3 above.
5. Put results in row #-Determines which row will contain the result. If the input constant in 4 above is other than 0, the result will be returned to each row and this option is bypassed.
6. Put result in col. #-Same as 5 above except for columns.
7. From Row #-First row that the function applies to.
8. Thru Row #-Last row that the function applies to.

9. From Column-Same as 7 but for columns.
10. Thru Col #-Same as 8 but for columns.

Each entry is accepted by pressing ENTER. When this is done, the cursor will disappear, and the next step is invisible. Don't despair, the computer is not 'hung up', it is waiting for your next instruction. There was insufficient room to paint them on screen so you will have to memorize them or make a note telling you what to do next. You have 3 choices as follows:

1. Press the FCTN key and either the up or down arrow key to restore tand move the cursor.
2. Press FCTN-6 (Proceed) to perform calculations and return to the main menu.
3. Press FCTN-5 (Begin) to return to the main menu without performing the calculation.

Choice #3 is used if you have returned to the Calculate Mode to inpsect your entries, but do not want to recalculate. This is important! If you use FCTN-6 the 2nd time, everything will be recalculated! It is a good idea to save the data before calculations are performed so that if you make a mistake in this mode you won't have to re-key in the data or go through the process of "backing out" the false computation. Of courde you cannot do this until you implement the SAVE subroutine, which will appear in next months installment. In the meantime, it is best to experiment with small amounts of data.

To illustrate the use of the Calculate Mode, let's use a hypothetical example. Assuming that you keyed in the new lines, merged them with lasts month's segment, and eliminated any keying errors, selc ectb option 3 from the main menu., and enter the following data:

No. of Rows:5 Row   No.3 name:Water
No. of Columns:3   Row No.4 name:Phone
Row 0 name:Items   Row No. 5 name:Total
Row 1 name:Lights   Column 1 name:Jan
Row 2 name Gas   Column 2 name:Feb
                           Column 3 name:Total

The screen will come up with the row and column names, and the default value ".00" in each cell. Enter the figures shown below in the boxed-in area.

ITEMS	JAN	FEB	TOTAL
Lights	125.25	23.60	48.45
Gas	118.75	20.45	39.20
Water	111.80	10.55	22.35
Phone	130.00	22.75	52.75
TOTAL	85.80	77.35	163.15

The dotted line separates the 3rd column, TOTAL, which is not visible until you scroll over. The unboxed numbers are the expected totals when you execute a sum row and sum column routine. The row and column summations are done separately. Proceed as follows:

After you make and accept the last entry, press R to return to the main menu, and then select option 4. When the Calculate Mode menu appears, make the following choices:

Operation: +	Thru row no.: 4
Operate on rows: Y	From column no.: 1
Operate on columns: N	Thru column no.: 2
Enter constant: 0	Put result in row no.: 5
From row no.: 1	Put result in column: 0

Then press FCTN-6. The calculation on rows will take place and return you to the main menu. If you want to inspect the result, select option 3. To make the column calculation, return to the Calculate Mode and make the following changes:

Operate on rows: N	Thru row no.: 5
Operate on columns: Y	

All other entries remain the same. Press FCTN-6 and the column calculations will take place. A future enhancement may be to do compound calculations (two or more calculations with a single command). However, the separate calculations are reasonably rapid and the multi-step process simplifies the program and provides much more flexibility in the type of operations that can be performed.

The program permits the four arithmetic operations plus raising a number to a power. This last includes fractional exponents which means you can also derive the root of a number. Thus the program can also be used for statistical analysis. Fractional exponents must be entered as decimals. For example, to take the square root of a number, enter 0.5 rather than 1/2, or the entry will not be accepted. The exponent is entered at the "Enter constant" row of the Calculate Mode menu.

Unused rows or columns may be used for temporary storage when performing compound operations. To illustrate, suppose that you had received a 10% rebate on your electric and gas bills for conservation of energy. To determine your net expenses, proceed as follows:

Using row operations, set up the calculate base for multiplying by a constant. Enter 0.1 as the constant, and multiply this by rows 1 and 2. Store the result in rows 6 and 7. Next, subtract row 6 from row 1 and row 7 from row 2. Finally, retotal the new numbers. Rows 6 and 7 can subsequently be erased by entering 0's in the affected data cells. With practice the procedure will become easy.

CORRECTIONS TO LAST MONTH'S PROGRAM LINES:

```
150 DIM A$(20,13),A(20,13),B$(3),B(11)

200 CALL CLEAR :: CALL SCREEN(6):: PRINT TAB(10);"MENU":
    : :"1.  INSPECT DISK":TAB(6);"2.  LOAD DATA":TAB(6);
    "3.  ENTER/EDIT DATA"

240 ON O GOSUB 1000,2000,2990,4000,5000,6000,7000

2990 IF SS=1 THEN 3030

3050 CALL HCHAR((R-Z)*2+3,X,91):: CALL HCHAR((R-Z)*2+
    3,Y,93):: ACCEPT AT((R-Z)*2+3,X-1)SIZE(-8)BEEP
    VALIDATE(NUMERIC:A(R,C+P)
```

CALCULATE SUBROUTINE

```
4000 CALL CLEAR :: CALL SCREEN(12):: PRINT TAB(8);"CALCULATE
     MODE": : : :
4005 PRINT "OPERATION(+,-,*,/, )    : ";B$(1): :"OPERATE ON
     ROWS (Y/N)    : ";B$(2): :"OPERATE ON COLUMNS    : ";
     B$(3): :
4010 PRINT "ENTER CONSTANT:";B(4):  :"PUT RESULT IN ROW
     NO.   :"; B(5): :"PUT RESULT IN COLUMN NO:";B(6): :
4015 PRINT "FROM ROW NO.              :";B(7): :"THRU ROW
     NO.              :";B(8): :
4020 PRINT "FROM COLUMN NO.           :";B(9): :"THRU COLUMN
     NO.           :";B(10)
4025 L=1
4030 IF L<4 THEN ACCEPT AT(L*2+3,26)SIZE(-2)BEEP:B$(L)::
     GOTO 4040
4035 IF L=4 THEN ACCEPT AT(11,17)SIZE(-8)BEEP VALIDATE
     (NUMERIC: B(4):: GOTO 4040
4037 IF L>4 THEN ACCEPT AT(L*2+3,26)SIZE(-2)BEEP
     VALIDATE(DIGIT): B(L)
4040 CALL KEY(0,K,S):: IF S=0 THEN 4040
4045 IF K=10 AND L<10 THEN L=L+1 :: GOTO 4030 ::
     IF K=10 AND L>10 THEN 4040
4050 IF K=11 AND L>1 THEN L=L-1 :: GOTO 4030
4052 IF K=12 THEN 4055 :: IF K=14 THEN 4090
4054 GOTO 4040
4055 R=B(7):: C=B(9)
4060 IF B$(1)="+" THEN 4100 :: IF B$(1)= "-" THEN 4200
     :: IF B$(1)="*" THEN 4300 :: IF B$(1)="/" THEN 4040
4062 IF B$(1)=" " THEN 4500
4070 C=C+1 :: R=B(7):: IF C>B(10)THEN 4090 ELSE 4060
4075 R=R+1 :: C=B(9):: IF R>B(8)THEN 4090 ELSE 4060
4090 Z=0 :: Q,C,SS=1
4095 RETURN
4100 IF B$(3)="Y" THEN 4150 :: IF B(4)>0 THEN 4120
4110 A(B(5),C)=A(B(5),C)+A(R,C):: R=R+1 :: IF R>B(8)
     THEN 4070 ELSE 4110
4120 A(R,C)=A(R,C)+B(4):: R=R+1 :: IF IF R>B(8) THEN
     4070 ELSE 4120
4150 IF B(4)>0 THEN 4170
```

```
4160 A(R,B(6))=A(R,B(6))+A(R,C):: C=C+1 :: IF C)B(10)
     THEN 4075 ELSE 4160
4170 A(R,C)=A(R,C)+B(4):: C=C+1 :: IF IF C)B(10) THEN
     4075 ELSE 4170
4200 IF B$(3)="Y" THEN 4150 :: IF B(4))0 THEN 4220
4210 A(B(5),C)=A(B(5),C)-A(R,C) :: R=R+1 :: IF R)B(8)
     THEN 4070 ELSE 4210
4220 A(R,C)=A(R,C)-B(4):: R=R+1 :: IF R)B(8) THEN 4070
     ELSE 4220
4250 IF B(4))0 THEN 4270 4260 A(R,B(6))=A(R,B(6))-A(R,C)
     :: C=C+1 :: IF C)B(10)THEN 4075 ELSE 4260
4270 A(R,C)=A(R,C)-B(4):: C=C+1 :: IF C)B(10) THEN 4075
     ELSE 4270 4300 IF B$(3)="Y" THEN 4350 :: IF B(4))0
     THEN 4320
4310 A(B(5),C)=A(B(5),C)*A(R,C):: R=R+1 :: IF R)B(8)
     THEN 4070 ELSE 4310
4320 A(R,C)=A(R,C)*B(4):: R=R+1 :: IF R)B(8) THEN 4070
     ELSE 4320
4350 IF B(4))0 THEN 4370
4360 A(R,B(6))=A(R,B(6))*A(R,C):: C=C+1 :: IF C)B(10)
     THEN 4075 ELSE 4360
4370 A(R,C)=A(R,C)*B(4):: C=C+1 :: IF C)B(10) THEN 4075
     ELSE 4370
4400 IF B$(3)="Y" THEN 4450 :: IF B(4))0 THEN 4420
4410 A(B(5,C)=A(B(5),C)/A(R,C):: R=R+1 :: IF R)B(8)
     THEN 4070 ELSE 4410
4420 A(R,C)=A(R,C)/B(4):: R=R+1 :: IF R)B(8) THEN 4070
     ELSE 4420
4450 IF B(4))0 THEN 4470
4460 A(R,B(6))=A(R,B(6))/A(R,C):: IF C)B(10) THEN 4075
     ELSE 4460
4470 A(R,C)=A(R,C)/B(4):: C=C+1 :: IF C)B(10)THEN 4075
     ELSE 4470
4500 IF B$(3)="Y" THEN 4550
4510 A(R,C)=A(R,C) B(4):: R=R+1 :: IF R)B(8)THEN 4070
     ELSE 4510
4550 A(R,C)=A(R,C) B(4):: C=C+1 :: IF C)B(10)THEN 4070
     ELSE 4550
```

NOTE: Use EXACTLY 24 'positions' between the FIRST quotation mark and the colon, on lines 4005, 4010, 4015, and 4020. EXCEPT for "ENTER CONSTANT"

NEWS AND STUFF!

There are some interesting things occurring. Some are an ADVANCED DIAGNOSTICS and SINGLE STEPPER from Miller's Graphics. The rumor is getting stronger and stronger that it's MYARC who will be manufacturing the 99/8 clone/upgrade. Is this where Craig Miller has found a 'home' for his OS??? MYARC is still busy in the back room. How about an updated DSDD contoller that has the Manager RESIDENT!! Do a catalog without using system RAM! Also, how about an expandable RAM card. Starts at 32k works it's way up to 128k on up to 256k and ....maybe, just maybe 512k!!!! THAT could be a tough act to follow.

There are some other new programs such as DISK+AID, BRICK BAT, FORTH utilities, and FORTH 2. Not to mention FAST FORTH. How _fast_ can things get? After a point, who cares?? I mean do I 'really' notice the difference between a millisecond and a microsecond?

USA TODAY: Did ya read the article on abandoned computers? Hmmm. When I talked with USA TODAY I gave her names and addresses of the CIN-DAY Group, the LA Group, the Washington DC Group and the Atlanta Group as well as MICROPENDIUM. I also sent her copies of newsletters of all those groups. Funny. I didn't see OUR name in there. Can't win for losing sometimes I guess. Still abandoned!

WILL THE 'REAL' AD PLEASE STAND UP!

Oh dear. I received an ad in the mail the other day. I never even took it out of the envelope to see who it was. I was too busy so I just stuck it back in my briefcase and planned to read it later and put it into the 'Next Newsletter' folder at home. Well, Murphy's Law interceded and the envelope, ad AND check, the WHOLE thing has simply vanished from the face of this earth! Sort of embarresing you could say. So, whoever you were please recontact the group.

MEETING DATES:

MONTH	GENERAL MEETING	SPLINTER MEETING
MAR	27	13
APR	30	15
MAY	29	14

NEW REGULAR MEMBER RATES EFFECTIVE:

Due to the eagle increasing his rates for transport we are now forced to do same. Look at the stamp on this newsletter to see what we mean. The new rates are effective immediately.

WHAT IS A COMPUTER?

Is it a high-tech adding machine? A game-playing gadget for kids? A mindless idiot-box? An intelligent machine? A warm-hearted friend? A coldly calculating enemy? A compliant slave? Or a demanding task-master?

The answer to each of the questions above is a resounding Yes, No and Maybe! For a computer can be any of those, and more besides, depending on how they are used and your individual outlook. Examples: A computer is certainly a high-tech adding machine, in that it can do all an old-fashioned adding machine ever could, and far more as well, all faster and more efficiently. A game machine? Sure - just look at all the game disks and cartridges that are on the market for the many kinds of computers. But while you're at it, look also at all the business, educational and self-improvement material available, in an ever-growing torrent. A mindless idiot-box and an intelligent machine at the same time? Sure - for a computer has some of the trappings of intelligence, as it can recognize the occurrence of certain events and take action on them. But only if it "knows" what to expect and how to react when and if that event happens. So, it can be a demanding task-master, in requiring precise instructions on everything. If it doesn't get those precise instructions, it won't respond as expected and might go into the infamous "lockup". But then it is also a slave that doesn't demand raises, overtime, time off with pay, seniority or promotions, doesn't question "why?", and is very seldom "out sick" from partying the night before. Friend or enemy? In the recent movie "War Games", the young hacker obviously got a lot of enjoyment from his computer, but came to let it rule his entire life, and (in the movie) almost destroyed the entire world. This illustrates something prevalent in every aspect of life - the need for a bit of moderation. And, by the way, computers are NOT going to take over the world. Remember that it takes a human to tell any computer precisely what to expect and what to do. For example, when there is an error in your charge card bill, there is only a microscopic chance that it is truly a computer error (even then, probably a power or component failure), but a very great chance that some human made a mistake while programming or entering data somewhere along the line. All of which affects how you feel about a computer.

As for intelligence - It don't got none! Sure, as mentioned before, it can recognize and act on events, and there are programs which can even "learn" from some events (If stove=hot then "don't touch again"). But real intelligence - what scientists call "intuitive reasoning" as compared to "logical reasoning" just isn't there. Chess programs are a great example - sure they can beat the socks off most of us, but I have heard of only one case where a computer could beat a chess Grand Master, and that while he was playing 25 simultaneous games at the time! The answer lies in a computer's reasoning process - it might take several hours to evaluate several million possible moves and responses, most of which would be totally useless for the particular situation. A good human chess player would, at most, consider only a few hundred and take only a few minutes in doing so. This is because the human player would immediately "intuitively" recognize some moves as illegal, many as useless, and from past experience know that certain ones would be less useful than others, so he wouldn't bother trying to analyze his opponent's response to them. This just goes to show you that people really are smarter than computers, and in some cases, even faster. All of which leads to the observation that a computer can, indeed, be a warm-hearted friend, but can also be a coldly calculating enemy if used incorrectly or without restraints. What's YOUR opinion of the situation?

K. Bitzer

MICRO 99 IS ON LINE

A NEW TI BASED BULLETIN BOARD, OPERATED BY ROBERT ORR OF MICRO PLUS, IS AVAILABLE FOR TI (AND NON-TI) COMPUTERS.

THE NUMBER, IN ATLANTA, IS (404) 768-0990. IT IS UP TWENTY-FOUR HOURS A DAY, EVERY DAY. THE B.B.S. IS A SERVICE FOR COMPUTER USERS, HAVING INFORMATION ON COMPUTERS REPLACEMENTS FOR THE TI HARDWARE, NEW SOFTWARE,EVENTS AND CLUB ACTIVITIES AND MUCH MORE.

THE SYSTEM IS A SOUTHSIDE SOFTWARE PRODUCT, WRITTEN BY BRIAN SANDERSON, AND IS RUN ON A TI WITH THREE 1/3 HEIGHT DISK DRIVES - MOUNTED IN THE P. BOX- THESE 1/3 HEIGHT DRIVES ARE NOT ON THE MARKET YET AND ARE BEING EVALUATED BY BOB FOR POSSIBLE USE WITH THE NEW SYSTEMS FROM MICRO PLUS.

CALL (404) 768-0990 AND EXPLORE THE WORLD OF TELECOMPUTING AND KEEP IN TOUCH.

```
100 CALL INIT
110 FOR A=1 TO 255 :: CALL LOAD(-31332,-A):: NEXT A
120 FOR A=1 TO 255 :: CALL LOAD(-31332,A):: NEXT A
130 FOR A=1 TO 255 :: CALL LOAD(-31332,A):: NEXT A
140 FOR A=1 TO 255 :: CALL LOAD(-31332,-A):: NEXT A
150 FOR @=1 TO 5
160 FOR A=1 TO 255 STEP 4 :: CALL LOAD(-31332,-A):: NEXT A
170 NEXT @
180 CALL SOUND(100,110,0)
190 FOR @=1 TO 5
200 FOR A=255 TO 1 STEP -5 :: CALL LOAD(-31332,A):: NEXT A
210 NEXT @
220 CALL Z
```

This article is designed to help beginning programmers to become familiar with the keyboard. These helpful ideas come from sources all over. Most of them are from people that find out on their own or from friends. The most used funtion I have found is the editing mode instead of typing [edit] and line number after just type line no. then hit fctn down arrow key. The line will then appear ready for editing. Also you do not have to go to the end of the line to enter correction as you do with the edit mode, you can just hit Enter. You can continue to list the program by scrolling with the Function arrow key down or up. With the Edit mode you can only go down. Another useful key is the redo key. This thing does miracles. It repeats last correct command again. Got a slow ex.basic game? Try entering CALL INIT :: CALL LOAD(-31878,0). This will speed up execution of the program. To further add time and work in ex. basic programming try using a NUM command. This will give your new line no. and a space with the number beginning at 100, going to 110. To change this enter NUM 10,1 or type any number you wish. Well, I hope you can use this info to help your programming.

Tinker ,SSUG (S.P.Bell)
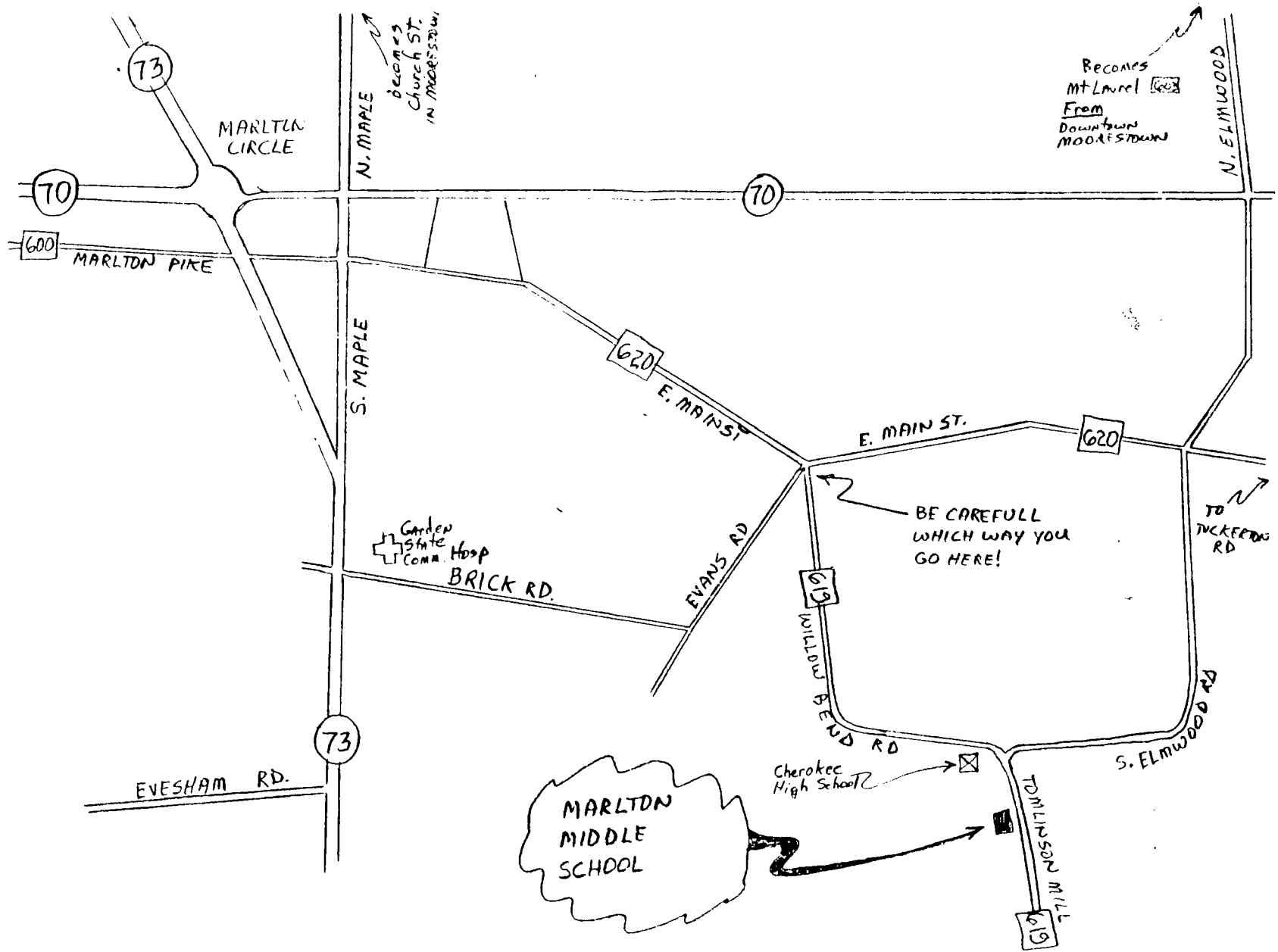
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