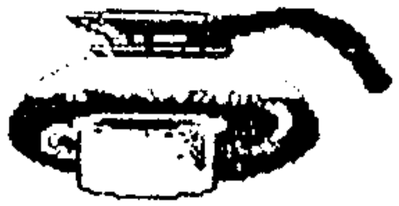
From: 4N U.G. NEVADA

POINT TO



PONDER...

LET'S ROUND UP THE MAVERICKS!

by Jim Peterson

A maverick, for the information of you tenderfeet, is a young Texas critter which has lost its mama. There are over a million of them hiding in the closets of America, and I think it's time for a roundup!

There are perhaps 200, possibly 300, TI user groups in the United States and elsewhere in the world. A few boast of several hundred members, but some have no more than a dozen, and I doubt that the average is more than 50 users actually paying dues and attending meetings. That computes to at most 15,000 members of the "organized" TI world. Of course, there are many others who keep in contact by subscribing to those magazines which support the TI, and still others who are kept up to date on new developments by the catalogs from the big mail order houses. Still, no matter how you compute it, there are certainly well over a million owners of the TI-99/4A who have no way of knowing that our computer is still alive and well.

These people have read that Texas Instruments abandoned the computer. They have seen the supplies of hardware and software disappear from the big retail stores. Many of them bought their computer during the final suicide sales, therefore never got on the mailing list for the Texas Instrument newsletter.

And yet, relatively few of the TI-99/4A are showing up in the classified ads and in the garage sales. A recent national survey found that the TI-99/4A was owned by more people than any computer except the Commodore. True, many of these owners are only interested in plugging in a module and playing a game. But some have a deeper interest - and even five percent of a million is an awful lot of people!

When I bought my TI, in March of 1982, I searched in vain through the articles and ads of every magazine on the newsstand, for anything relating to my computer. It almost seemed that there was a conspiracy of silence. I had taught myself to program, and written dozens of programs, before I finally made contact with the TI world. I was once a maverick, and I can sympathize with those who are mavericks now.

Is your user group dwindling away, as some of your members move on to bigger but not necessarily better computers, while others become so polarized in their interests that they have little in common with each other? Are your givers tired of giving to your getters, and your doers tired of being used by your users? Do you miss the enthusiasm and excitement of your first meetings, when everyone was learning together? Does your group need a transfusion of fresh blood? The donors are out there and waiting, if you can find them!

Do you want to see new hardware, new software, new publications for your computer? The bigger the market, the more that will be produced to be marketed. And the market is there - it just doesn't know that it's there!

The user groups are the only ones who can round up the mavericks. You can do it by publicizing your meetings, by letting the TI owners in your community know what you can do for them. You can get newspaper publicity and television publicity. Some of you are already offering classes in programming or in computer use to the general public, to the schools, to libraries, to senior citizens, to foster children, to the handicapped. These are very fine endeavors in themselves, and they can also bring the publicity which will attract new members. And here and there among those new members will be an ingenious hardware hacker or programming genius who will make our computer better than ever.

PRINTERS #2
by John F. Willforth
(OCT. 1989 WP99er) (ML=MoreLater)

Nearly everything we attempt in life needs some control or supervision. I am expected to do my job at work within the guidelines set up by Data General Corp. and the management down through the ranks. If this were not so, not one customer would be able to rely on our company. We must be consistent. I hope I can be as flexable as needed to accomplish the company's objectives. I sometimes need some direct commands to perform specific jobs, and at other times, the proceedures to perform a task are already in memory. Guess what! Printers are like this.

Most printers on power-up are ready to do mundane printing in Draft Pica mode at 10 characters per inch and with a line spacing of 1/6" and is what you would expect a basic printer to know how to do on it's own. But we will never be happy with that so we ask for ELITE, CONDENSED, ITALIC, ORATOR, NLQ, CONDENSED, DOUBLE WIDTH, SUPERSCRIPT, SUBSCRIPT, BOLD, UNDERLINED, GRAPHICS, PROPORTIONAL, as well all kinds of form handling capabilities both forward and backward spacing of the forms in any imaginable increment.

The printer will need more information to do these things. The information is passed to the printer in the form of CONTROL CODES. These are special and must be sent to the printer but not be printed. Some of them cause the printer to do very strange things (feed paper, over-print, etc.) unless it is warned of the control character coming. The ESCape command is one that all printers recognize as the "command coming next" warning. This is represented by a "27" decimal or a "1B" in HEX. Every character that goes to the main logic board in the printer is examined first to see if it is an "ESC" character. If it is not then the printer will attempt to print it. If an "ESC" is recognized then the printer will be set to accept Control Codes. You can send several Control Codes to a printer in succession if they are legal for your printer. For example, on my Epson compatible, I can send a "27,120,49" to put it into Near Letter Quality mode. This is done by either a program or a direct keyboard command. Let's look at ways to do it.

I chose "NLQ" mode because it required three (more than two) elements to be sent to the printer. The ESCape (ASCII "27") an ASCII "120" and an ASCII "49". These can be sent using a TI BASIC/XBASIC function called "CHR$" or by sending the character representations of these ASCII values. The ESCape must be sent as a Character String (CHR$) "CHR$(27)" in either case. Below are several ways to do the same job, all can be within a program (statements) or as you type it in (commands).

```
100 OPEN #1:"PIO"                                  ( Opens the printer )
110 PRINT #1:CHR$(27);CHR$(120);CHR$(49)  ( Sends "ESC.x.1" to the printer in a
110 PRINT #1:CHR$(27)CHR$(120)CHR$(49)    variety of ways.  The  ":"  appends
110 PRINT #1:CHR$(27);"x";"1"               the succeding characters to the ESC
110 PRINT #1:CHR$(27)"x""1"               character,  as does the  ""  which
110 PRINT #1:CHR$(27);"x""1"               says, "ESC" and "x" and "1". As you
110 PRINT #1:CHR$(27);"x1"                  can see,  if you directly  send the
110 PRINT #1:CHR$(27)"x1"                  character  "x"  it takes less space
                                            than to have the computer translate
Results in printer going into NLQ mode.     a CHR$(120) to a lower case "x".)
```

Controlling the printer is quite different in TI-WRITER. We can't get into it here but it should suffice to say that it is all explained in the manual.

I've just covered the NLQ mode, but you can take this form and use it to do a RESET on your printer without having to shut it off (to clear any previous mode selected). On the EPSON compatibles, this can usually be done as indicated:

```
100 OPEN #1:"PIO"  ( Opens the printer)   110 PRINT #1:CHR$(27)""    ( Init.)
```

Condensed mode is on most printers and one of the few that doesn't require an ESC to be sent first. Send the CHR$(15) by itself. Hey! What can I say?

```
100 OPEN #1:"PIO"  ( Opens the Printer)   110 PRINT #1:CHR$(15)  ( Condensed )
```

If your printer supports ELITE (12 characters per inch) then ESC,"M" is it.

```
110 PRINT #1:CHR$(27)"M"   ( Sets up printer for ELITE ). ( EPSON compatible)
```

There are many others that you may want to use, but they must be referenced in the manual that came with your printer. I'd recommend that you look at that manual before next month after reading this article and experiment. It would be a good idea to write a little program like the one below and "RUN" it, "BREAK" it and change line 120 to test the CONTROL CODES you insert. You may want to do a list of the program also each time so that it isn't lost.

```
100 OPEN #1:"PIO"                          120 PRINT #1:CHR$(27)"_""_""_"
110 PRINT #1:CHR$(27"_" (Resets printer)   130 PRINT #1:"ABCDEFGHIJKLMNOPQR"
```

I have written my own printer set-up program to run before I load TI-WRITER so that if I don't have the time to set the article up for the FORMATTER, it is at least set up for ITALICS, NLQ, and perhaps ELITE modes. Yes you can send the CONTROL CODES for each of these to the printer in succession, and it will do all three functions. Also to keep the size of the lines shorter, VARIABLES can be given the Control Code values. ESCape "CHR$(27)" could be E$. See both examples:

```
100 OPEN #1:"PIO"                          120 PRINT #1:E$"4"E$"x1"E$"M"
110 E$=CHR$(27)                            130 PRINT #1:"This prints in Near
                                               Letter Quality, Italics, Elite"
```

Try these out and look at your manual and I feel that you will be amazed at what you can do with the ESCape command can do for you.

There are some CONTROL CODES that will affect only the line that's printing under it's command. The printer will drop the command on the next line. DOUBLE-WIDTH is one of the commands that has both a "Valid until terminated" mode and a "Valid for only the present line" mode. Useful both ways, you must be careful to use the appropriate one for your needs.

If you printer manual does not indicate the symbols to be sent to the printer you can take the ASCII values in the printer manual and cross reference them to the characters using the USER'S REFERENCE GUIDE pages III-1, III-2. This is one of the two manuals that came with your TI Computer. The "120" will correspond to a lowercase "x", and the "49" will translate to a "1". The "27" must be entered either as a CHR$(27) or as a Variable as described earlier.

If you are doing a lot of printing with TI-WRITER, it would be advantageous for you to learn to use the Transliterate Commands to control your printer, so you can exercise exact control over your printer.

If you are writing programs, then this article may be of assistance. I think most would like to make the new high tech. printers do things that you couldn't do with your old typewriter. It is a great satisfaction to ELONGATE the header, to DOUBLE-STRIKE the key words. To UNDERLINE certain words, to PROPORTION the text, to CONDENSE the print to 132 columns, to ITALICIZE a word, and NLQ dresses up a letter. You can learn to do this, so why not try? If you have any ideas or some neat printer programs, I'd like to see them.

By the way, most printer manuals are written for the IBM PC. It will take a little work to weed it out, but maybe this article will simplify that. M.L.

TI-BASE Quick Reference Chart

[C] must be used in COMMAND file
[P] must have program disk in drive
[D] unless specified, uses default DATDISK to find file
[S] operates on current slot only
[n.S] unless specified, operates on current slot
[2] This feature is new in Vn. 2.
[*] <SPACE> bar to pause . . . (required entry)
<S> to re-start . . . . . (optional entry)
<Fctn-9> to escape

GLOSSARY

APPEND [S]: appends new record to end of Database
APPEND BLANK [S]: appends blank record at EOF
BOTTOM [S]: goes to last record in Database
BREAK [C]: terminates processing following CASE that is TRUE, until ENDCASE.
CASE <Exp.> [C]: if expression is TRUE, following statements are executed until BREAK
CATALOG DSK(n)[P]:catalogs disk(n)
CHANGE <address><value> [P]
: patch hex address with hex value
CLEAR: clears the screen
CLEAR LOCAL: clears all LOCAL variables
CLOSE <ALL> [S]: updates and closes database(s).
COLOR <foreground><background> [P]: changes colors...

transparent	light-green	dark-yellow	magenta
black	medium-green	light-red	cyan
light-blue	dark-green	medium-red	grey
dark-blue	light-yellow	dark-red	white

CONVERT <input file><output file> (GO) [P] [2]
: allows conversion or expansion of existing database files. "GO" by-passes prompts.
COPY <from: file><to: file> (GO) [P] [D]
: copies files. "GO" by-passes prompts.
CREATE <filename> [D] [S]
: opens and creates a database named <filename>. Database will contain fields of optional types:

Types: C =character, X=hex, N=numeric, D=date, DEC=number of decimal places.

DELETE DATABASE [P] [S]: deletes Database in the current slot.
DELETE RECORD <n> [P] [S]: marks current (or <n>) record for deletion making it unavailable for normal processing. Also see RECALL, PACK, and SORT

```
DELETE FILE <filename> [P] [D]: deletes the specified file.
DISPLAY STRUCTURE [S]:          displays structure of the Database.
DISPLAY STRUCTURE LOCAL [2]:  displays structure of LOCALs in use.
DISPLAY STATUS:   displays current system status.  Use SET to change.
DISPLAY [*] [S]:  displays all fields in the current slot.
DISPLAY ALL {{n.} A,C,...} [*] [n,S]
                  displays all (or (a,b, etc)) fields of Database.
                  {n} defines a different slot.
DISPLAY {{n.}a,b,...} ;FOR <Exp.> [*] [n.S] [2]
                : searches entire Database for <Exp.> and displays
                  specified fields for each record where <Exp.> is true.
DISPLAY {n.} [*] [S]: display all fields in the next (n.) records.
DO <filename> {LIST} [*] [D]
                : executes (or LISTs to screen) command file <filename>.
                  Can be nested 5 deep.  TALK must be on to LIST.
DOCASE [C]:       initiates CASE processing.  Followed by:
                        CASE, BREAK, and ENDCASE.
EDIT {n.} [S]:    edits current ( or {n.}) record in Database.
EJECT:            sends "Top Of Form" code to printer.
ELSE [C]:         follows IF command, statements are executed
                  if  IF  is FALSE.
ENDCASE [C]:      terminates DOCASE processing
ENDIF [C]:        terminates  IF processing.
ENDWHILE [c]:     terminates WHILE processing.
FIND <Exp.> [n.S]: finds <expression>in the sort field after SORTing.
                   <Expression> may be any literal or fieldname.
FORMAT [P]:       initializes diskette, using prompts.
IF <Exp> [C]:     statements following are executed if TRUE.  Must be
                  followed by ENDIF.  Also see:  ELSE.
LIST <filename> [D] [2]: will LIST <filename> including extension to
                  printer or device specified by PRINTER keyword.
LOCAL <fieldname><type><width><dec> [C]
                : defines a local variable (up to a maximun of 17).
                  Type: C=character, X=hex, N=numeric, D=date,
                        DEC=number of decimal places.
MEMORY [2]:       displays data on available memory.
MODIFY STRUCTURE: Allows changes to current Database structure and
                  fieldnames.  DO NOT CHANGE RECORD SIZE or existing
                  data will be destroyed.  See:  CONVERT.
MODIFY COMMAND <filename> [D]:
                : allows creation and editing of command files.
MOVE {+/-n} [S]:  moves the Database one (or {n.}0 record(s).
PACK [P] [S]:     permanently removes DELETEd records from Database.
PRINT {n.S]:      Data will bee sent to device specified by SET PRINTER
                  keyword.  Will not print status or structure.  Also
                  see:  DISPLAY.
PRINTER {printername} [P] [2]
                : will activate printer control codes for {printername}.
QUIT:             closes all Databases and exits TI-BASE.
```

READ <l> <c> <variable> [C]
: positions cursor at line (l), column (c) and waits for input, which is assigned to variable, which may be LOCAL or fieldname. All numeric variables need space for sign. Enclose all character strings in quotes or use **READSTRING** instead.

READSRING <l> <c> <variable> (C] [2]
: reads in character strings without need for quotes. See: READ

RECALL (n) [S]: un-deletes current (or (n)) record previously DELETEd.

RECOVER [P]: rebuilds contaminated index; unless data is corrupted.

REPLACE <(n.)fieldname) WITH <expression> (;FOR <expression#2>) [2]
: similar to LET in Basic. <Expression> may use any literal ("character string" with optional TRIM),field-name, LOCAL, or math. Use ((n)a) if variable is in a different Database slot. Optional (;FOR <expression#2> will replace only if <expression#2> is TRUE.

RETURN [C]: returns from a command file.

SCROLL (n1) (n2): moves line n1-n2 up one line, or down if n1>n2.

SELECT (n): changes active Database slot to (n).

SET <keyword> (=) <value>:
: modifies status table entries: Use DISPLAY STATUS to check.

SNAP [2]: dumps current screen display to printer or device specified by PRINTER keyword.

SORT ON <fieldname> [S]
: sorts Database on field <fieldname> in ascending order. UNDELETES records deleted since last PACK.

SORT ON <fieldname list> [S] [2]
: sorts Database on fieldnames in listed order, up to eight (8) levels.

SORT OFF [S]: Used to retrieve Database in order of entry. Also good for APPENDing records to a large Database.

SUM <fieldname> (;FOR <expression>) [S] [2]
: adds up numeric <fieldname> in all records, and displays result on the next screen line. If the (;FOR ,expression>) is used, only those records where <expression> is TRUE will be SUMmed.

TOP [S]: positions Database to the first logical record.

TRACE (ON/OFF) [2]: when ON, each executable COMMAND FILE line will be PRINTed to the printer or device specified by the PRINTER keyword.

USE <filename> [D] [S]: activates Database <filename> in the current slot which must be empty.

WAIT (n) [*] [C]: suspends processing (n) seconds. Fctn-9 will skip remaining WAIT time.

WHILE <Exp.> [C]: if <expression> is TRUE, statements that follow will be executed. Must be followed by ENDWHILE.

WRITE (l), (c) <expression>:
: writes <expression> at line (l), column (c). If <expression> is character string, enclose in quotes.

MATH FUNCTIONS, ETC

ARITHMETIC

+	plus
-	minus
*	multiply
/	divide
**	exponent
SQR	square root
LOG	logarithm
ALOG	anti-log
SIN	sine
COS	cosine
TAN	tangent
ATAN	arc-tangent
(-N)	UNARY OR NEG.

Enclosed operators in parentheses when using WORD functions.

BOOLEAN

<	less than
>	greater than
<>	not equal
=	equal
~	arithmetic

LOGICAL

.NOT. <expression>
.AND.
.OR.
#

DATE

.DATE.
MONTH
DAY
YEAR

STATUS keywords:

DATDISK
PRGDISK
PRINTER
PAGE
HEADING
TALK
SPACES
RECNUM
LSPACE
DATE
CURSOR (0<= n =>99)
LINE (not Vn> 2)

COMMAND LANGUAGE

* comment line
; allows continuation on the next line.

(during execution:
press [SPACE] to pause...
" [S] to resume...
" Ctrl-9 to abort.

CHARACTER

!	concantenation
TRIM	removes trailing blanks.

PRINTER Ctrl. Codes

FF	Form Feed
LF	Line Feed
CR	Carriage Return
DS	Double Strike
UL	UnderLine
EX	EXpanded
CM	CoMpressed
IT	ITalics
B	Bold
SPS	SuPerScript
SBS	SuBScript
HT	Horizontal Tab
ST	Set Tab
NM	NorMal
8	8 lpi
6	6 lpi
NLQ	Near Ltr Quality
DR	DRaft
RS	ReSet
ECS	ESCape

Thanx - Dallas TI HComputer Group
(Dec. 1988 newsletter)

PROGRAMMING 4-DIMENSIONAL GRAPHICS

by Jim Peterson

Those of you who remember your first lesson in geometry are aware that a straight line has only one dimension, that of length. Ignoring the necessary breadth of one pixel, this can be programmed on the TI by CALL HCHAR(12,1,95,32).

Now, if you fix that one-dimensional line at one end and rotate the other, you will describe a circle, which is of course a two-dimensional figure having length and breadth. This too is easily programmed on the TI using its built-in SGN function.

Proceeding in logical sequence, if you fix that two-dimensional circle at two points and rotate it, you will describe a three-dimensional globe having length, width and breadth. The programming of this will require a slightly more complex algorithm and the radius should be limited to 14 units, since the TI-99/4A screen has only 29 planes.

Proceeding further in logical sequence, if you fix this 3-dimensional globe at three points and rotate it, you will obviously describe a four-dimensional figure. The algorithm required here is somewhat beyond the limits of my high-school gerometry, so I will leave it to some other programmer. The first one to publish this routine will have performed a valuable service to the TI community.

The more observant among you will have detected an apparent fallacy in my line of reasoning. It is impossible, you say, to fix an object at three points and still be able to rotate it. That is a valid argument, and it is perhaps theoretically impossible to describe a 4-dimensional object having perfect symmetry in all four dimensions.

However, it is not necessary to fix one point of a line in order to rotate the other. You may vary the point of fixing during rotation, alternately fix one point and then the other, move both points simultaneously, etc., and thereby create an infinite variety of two-dimensional objects. You might even rotate both points in a third plane, in either the same or opposite directions, and thereby convert a single-dimensional line into a three dimensional cylinder or opposing cones.

Similarly, it is not necessary to maintain the two points on a circle in a fixed position while rotating it. Note that it is not even necessary that the points be opposite, nor that they be moved only in a two-dimensional plane. It is only necessary that they maintain their relative distance from each other.

Therefore, the same obviously holds true for the rotation of an object having three dimensions.

I am sure that some young genius will soon take advantage of this technique to create some truly mind boggling graphics on our TI screen.

DECEMBER 12, 1989 MERRY CHRISTMAS !!!

MUNCH OFFICERS AND NUMBERS (all in 508 area unless noted)

President	W.C. Wyman		839-4134
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Tape Librarian	Walter Nowak	413	436/7675
++++++++	Jack Sughrue		476/7630

NOVEMBER MEETING. President Corson Wyman called the meeting to order at 7:00 P.M., there were 14 memberss present. Corsson reported on the Chicago and Milwaukee fairs. He reported that both fairs were smaller than previous years, this seems to be the trend at fairs this year. Lou Holmes demoed the Disk of the Month. Brian O'Brien reported on a call to Computer Shopper, more below.

DECEMBER MEETING. I hope we will see Jack at this month's meeting, he was recovering from more surgery last month. I am sure we will have an interesting and "Merry" meeting.

BOYCOTT COMPUTER SHOPPER. I call on everyone in the TI community to boycott the Computer Shopper. Brian O'Brien talked to the new editor in New York and he reports that this man said that there will no longer be a TI Column in his maagazine. This editor didn't seem to mind that his magazine will lose subscriptions. If you want to look up something in the magazine go to the library and read it for free.

RAFFLE. Every month we have a raffle to help defer the cost of the monthly hall rental. The number of prizes awarded depends on thee number of tickets sold. This month we have a number of Norton Software games and utilities for prizes.

MONTHLY SALES. At each meeting you have the opportunity to buy and/or sell new or used hardware, software, books and original programs. Please have prices marked on any items you have to sell.

LIBRARY NOTICE. Please return any items borrowed from our library. If you can not come to a meeting or give these items to someone who will be at the meting, please mail any library items to the group address which is listed on the cover of this newsletter. There are no late fees, we don't care how long they have been out, please return these items.

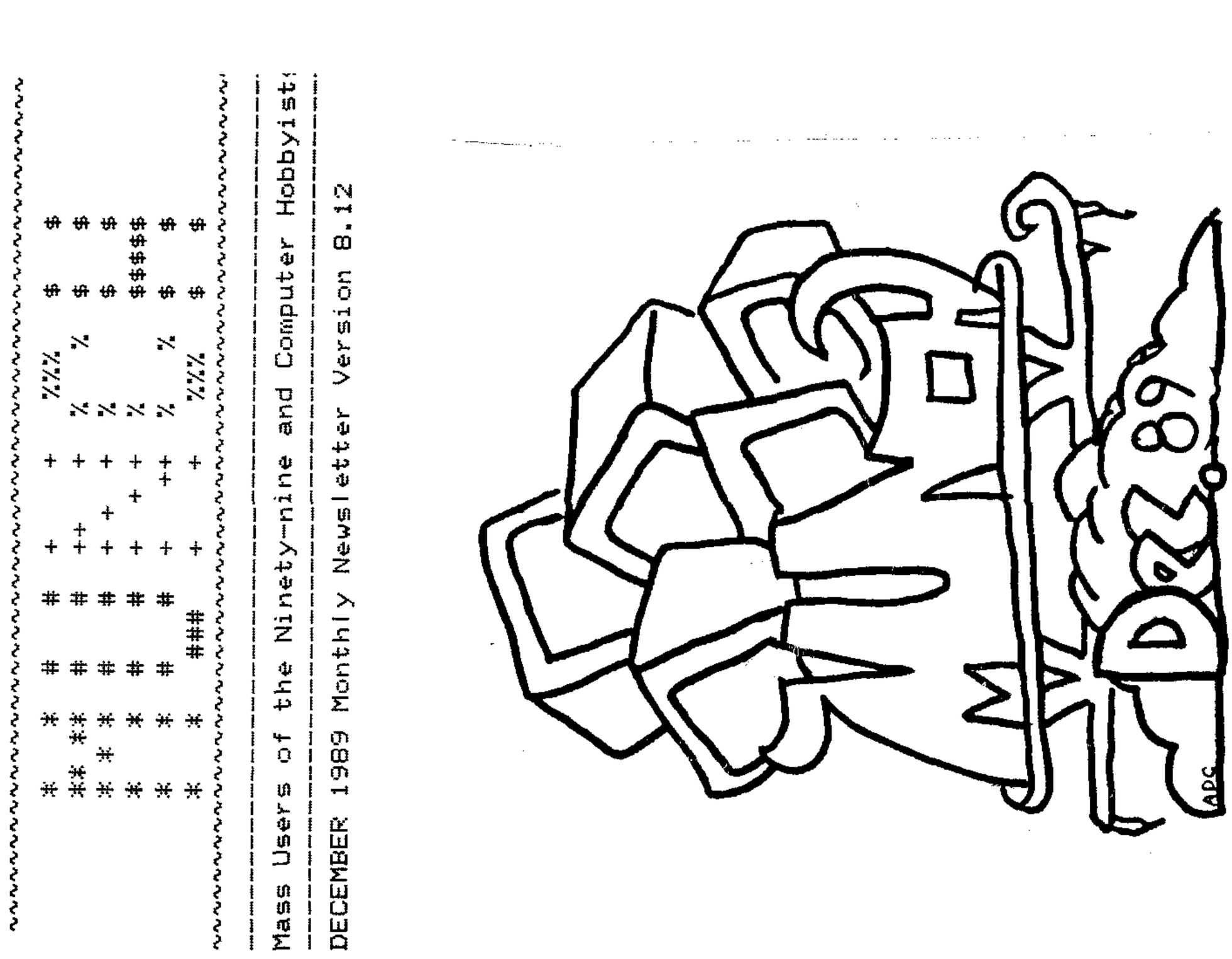
REPRINTS. Reprints of any items in this newsletter is permitted as long as credit is given to M.U.N.C.H.

ARTICLES. I am always looking for articles for this newsletter, anything which interests you will probably interest other members of the TI community, so please share your ideas and opinions with all of us.

NEWSLETTER EXCHANGE EDITORS. Please note our corrected address on the front cove of this issue.

FOR SALE. The group has a complete T.I. Count General Ledger System for sale, the asking price is $100. For more info write to the club address or call 508/869-2704.

WELCOME NEW MEMBERS. Frank Reheuser of Shrewsbury and Ralph Jones of Morro Bay, California.



JOIN THE CROWD AT OUR DECEMBER 12 MEETING

Mass Users of the Ninety-nine and Computer Hobbyist
DECEMBER 1989 Monthly Newsletter Version 8.12

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Next Meeting DECEMBER 12th.

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