H O C U S   A N N O U N C E S N A M E S   O F   S E V E N W I N N E R S   I N   C O N T E S T

The First HOCUS Programming Contest is now history. A total of 15 programs were entered - all of which will be turned over to our library. Judges placed the winners into three overall categories, BASIC for which 3 winners were possible, Extended BASIC for which 2 winners were possible and Assembly language for which 2 winners were also possible.

The BASIC category had three winners possible due to a ruling by the judges.   The judges ruled that because no entries were recieved for the childrens category, the prize for that category would be given to the BASIC program that placed third.

Scoring of programs within each of the categories focused on programming ability, originality, ease of use, use of system capabilities, functionality and engrossment. Each judge scored all 15 programs on an individual basis. All scores were then "normalized" to fall within a scale from 1 to 10 and then averaged to produce the final result.

So finally, here are the winners:

Category	Place	Winners Name
BASIC	First	Jerry Trinkl
	Second	Chris Maag
	Third	George Roemer
X-BASIC	First	Jeff Maag
	Second	Mike Milde
ASSY-LANG	First	Jim Vincent
	Second	John Gyarmati

Prizes for each category will be announced and presented at our coming meeting, Saturday, April 28.

Where's The Periphs?

Interested in information on where to obtain 99/4A peripherals? Well then read on. Recently, the group received a letter from TI listing a number of third party hardware vendors that, in TI's words, are "manufacturers... [who] have represented that their products are compatable with the TI-99/4A." TI, of course, "assumes no responsibility for the quality or compatability of any of these products." What follows is a listing of compatable peripherals.

STAND-ALONE FLOPPY DISK DRIVES
    Percom Data Corp.
    11220 Pagemill Road, Dallas,
    Dallas, TX 214/340-5800

WINCHESTER DISK SYSTEMS
    Myarc Inc.
    P.O. Bos 140
    Basking Ridge, NJ 07920

STAND-ALONE RAM EXPANSION
    Ultracomp Systems
    1001 Ogden Ave #5
    Downers Grove, Il. 60515

    Doryt Systems
    14 Glen St.
    Glen Cove, NY 11542

    Tachyon Systems, 5125 S.
    5125 S. Westwind Way
    Kearns, UT 84118

    Intellitec Computer Systems
    2337 Bonanza Ct.
    Riverton, UT 84065

PEB RAM CARDS
    Intelletec Computer Systems

    Foundation
    74 Claire Way
    Tiburon, CA 94920

MEMBERSHIP INFORMATION

Membership is open to individuals and families who are interested in using and programming the Texas Instruments 99/4A Home Computer. The membership includes access to both this newsletter and to the user group library. Annual dues are: Individual, $8.00; Families, $12.00. To join, see the Treasurer at any of our monthly meetings.

MEETING INFORMATION

The Milwaukee Area 99/4A Users Group meets on the LAST SATURDAY of each month in the lower level of Wauwatosa Savings & Loan at 7500 W. State Street in Wauwatosa. MEETING TIME IS 1:00 TO 4:00 P.M..

SPECIAL NOTE: Due to a scheduling conflict during 1984, the MAY and DECEMBER meetings will be held on the third Saturday of the month. Meeting time for May 1984, will be from 4:30 to 7:00 p.m..

** WANTED ** BUY ** SELL ** TRADE **

* * * * * N O T I C E S * * * * *

NO NEWSLETTER IN MAY!

Due to the lack of time until the next users meeting, we have decided that it is impossible to produce a newsletter for the May meeting. Look for an even better newsletter at our June meeting.

N E W   P O L I C Y   F O R   A R T I C L E   S U B M I S S I O N

We graciously thank all of you who have provided us with articles and we appreciate your continued support of HOCUS. In an effort to expedite the production of our newsletter, we ask that all articles be submitted to the editors during our monthly meetings. Thank you.

STAND-ALONE RS-232 INTERFACE
   Ultracomp Systems

   Intellitec Computer Systems

   Model Masters Inc.
   22411 Mountain Laurel Way
   Diamond Bar, CA 91765

PEB RS-232 CARD
   Information Associates
   P.O. Box 2207
   Acworth, GA 30101

STAND-ALONE PARALLEL INTERFACE
   Intellitec Computer Systems

MONITORS
   Any video display that can
   accept NTSC composite video
   or VHF channel 3 or 4 can be
   used.

PRINTERS
   Any printer which can utilize
   a Centronics parallel or an
   RS-232 Serial interface can
   be used.

JOYSTICKS
   Newport Controls
   Bishop, CA 93514

   Nebulous Enterprises
   P.O. Box 99
   Swartz Creek, MI 48473

   Jackson Design
   12520 Ridgeton Dr.
   Lakeside, CA 92040

   Wico Corp.
   Consumer Div.
   6400 W. Gross Point Rd.
   Niles, Il 60648

   Adaptors are available to
   utilize Atari compatible
   joysticks.

MODEMS
   Anchor Automation
   6913 Valjean Ave.
   Van Nuys, CA 91406

   Any modem that can utilize
   a RS-232 serial or Centronics
   parallel interface may be
   used.

BAR CODE READER
   Databar Corp.
   Eden Prairie, MN 55344

LIGHT GUN
   Not-Polyoptics
   13721 Lynn Street #15
   Woodbrige, VA 22191

KEYPAD
   Computech Distributing
   209 E. Walnut
   Springfield, MO 65805

COOLING FAN
   Reality Software
   4615 Kensington Dr.
   San Diego, CA 92116

CABLES, SUPLIES, AND MISC.
   Vid-Com
   1018 E. Philadelphia St.
   York, PA 17403

   Tex-Comp
   P.O. Box 33084
   Granada Hills, CA 91344

   Danien Enterprises
   P.O. Box 522036
   Miami, FL 33152

   Software Support
   One Edgell Rd.
   Framingham, MA 01701

   99'er-Ware
   P.O. Box 5537
   Eugene, OR 97405

   Towertronics Inc.
   P.O. Box 18870
   Fort Worth, TX 76118

   Denali Data Design
   1413 N. McKinley Ave.
   Oklahoma City, OK 73106

   Compro Systems
   P.O. Box 33173
   Cleveland, OH 44133

   Cintronics
   431 Ohio Pike #206C
   Cincinnati, OH 45230

   International 99/4 Users Gr.
   P.O. Box 67
   Bethany, OK 73008

LOW COST WORD PROCESSOR

by Michael Pitcock

For those of us who have resisted the urge to expand our systems or have found that the finances were a little thin, there is a solution for our word processing needs. The TYPWRITER program by Extended Software Company, which comes on cassette or disk, incorporates the use of the Extended Basic Module, and costs about $32.

A complete review of the program was in the August, 1983 issue of the 99er HOME COMPUTER MAGAZINE on page 22. I have found the TYPWRITER fills most of my needs for the home and various organizational requirements. When used with the Parall Ax TI printer interface, a decent low cost word processing unit is then made available to those who do not have the Expansion System.

This article was written using the TYPWRITER. The TYPWRITER is available through mail-orders or locally at COMPETITION COMPUTERS.

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H O C U S   F O C U S

MILWAUKEE BASED TI-BBS!

Finally, a TI 99/4A based bulletin board is coming to Milwaukee. Tentative plans are for the system to to be up and running on May 10. The board will be provided by Comp 'U' Serv and can be reached by dialing (414) 649-TEAM. More information will be made available at our April 28 users group meeting.

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APRIL MEETING TO FEATURE DEMO OF MILTON BRADLEY MBX EXPANSION SYSTEM AND INFO ON THE LATEST FROM CORCOMP

The long awaited Milton Bradley MBX Expansion System has arrived, and Comp 'U' Serv of Milwaukee will be at the April 28 users group meeting to provide a hands-on demonstration

of the MBX capabilities. With 10 exciting new games featuring voice recognition (an innovation which enables your voice to direct action on the screen) the MBX makes the TI 99/4A the most unique home computer available.

Comp 'U' Serv will also provide to the users group, the latest information about all the products that CORCOMP has for the 99/4A. Don't miss this coming meeting!

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NEW COMPUTER IN THE WORKS??

An unknown company has recently announced the development of a new 9900 based processor. Known as the 99/4f, this machine will offer many new features to assembly language programmers. Here are a few instructions that will be available:

```
ABBA  - Play Swedish Rock
BAD   - Bark At Dog
BAH   - Branch And Hang
BFEB  - Beg For Expansion Box
BPM   - Begin Pirate Mode
BRN   - Burn Up VDP Chip
CLD   - Cool Down VDP Chip
CPM   - Correct Program Manual
CSD   - Create Static Discharge
EIP   - Erase If Pirated
ETOY  - Emulate ZX-81
HCF   - Halt And Catch Fire
HFA   - Hire From Atari
HFC   - Hide From Children
JH    - Jump For The Heck Of It
JOP   - Jump On Programmer
JTZ   - Jump To Zaxxon Program
KAL   - Fly Over Russia
NOPE  - Refuse To Do Anything
PBD   - Perform Break Dance
RBT   - Read and Break Tape
RPM   - Read Pete's Mind (???)
RTR   - Refuse To Run
STI   - Sell TI Stock
WOJ   - Wear Out Joystick
XOP   - Execute Operator
```

In addition to the above new instructions, the 99/4f will also feature 179 easy to remember addressing modes and quadruple interpreted BASIC.

FORTH ARRAYs
by J.W.Vincent

While FORTH opens many new and exciting capabilities for us on the 99/4, many of the "common" features of BASIC have no direct equivalent in FORTH. To further our understanding of FORTH, let's develop some techniques to support one of these useful functions, the subscripted variable.

In BASIC both string and numeric subscripted variables are supported. Since FORTH is also "missing" generalized support for string operations (a possible future topic) we will concentrate on numeric and character arrays.

The simplest of arrays is a one dimensional character array or string.
```
    0 VARIABLE name n-2 ALLOT
        ( reserves 'n' bytes at addr
        'name')
    name k 1 - + C ( fetches byte
        'k' from array 'name')
    name k 1 - + C! ( stores byte
        'k' to array 'name')
```
Similarly a word (16 bit numeric value) list can be handled by:
```
    0 VARIABLE name n-1 2 * ALLOT
        ( reserves n words at addr
        'name')
    name k 1 - 2 * + ( fetches the
        k th word of the array)
    name k 1 - 2 * + ! ( stores the
        k th word of the array)
```
Two dimensional arrays are slightly more complex. Since computer memory is one dimensional (sequencial addressing) in nature, we must simulate the second dimension by multiplying the number of complete rows by the array width and adding it to the column location in the current row. This gives us a one dimensional offset for addressing the appropriate memory location. Thus space for an 11 by 11 word array can be reserved and accessed by:
```
    11 11 0 VARIABLE name * 1 - 2 *
        ALLOT ( reserve space)
```

```
    name x y 1 - 11 * + 1 - 2 *
        ( fetch value)
    name x y 1 - 11 * + 1 - 2 * !
        ( store value)
```
Ugh! That's revolting. Imagine how confusing handling several arrays this way would be. Let's use one of FORTH's more powerful features to both simplify and generalize the creation and use of two dimensional arrays.

If you have done anything with FORTH, you know that defining new words in the language is the primary function in programming. An additional powerful function is the ability to create new defining words. In otherwords, FORTH allows us to create words which control how other words compile and operate. To illustrate, the following word defines how two dimensional character arrays will be created and used.
```
    : C_ARRAY <BUILDS DUP C, *
        ALLOT
    DOES> ROT 1 - OVER C * + + ;
```
Now to create an array of x columns by y rows we simply code:
```
    y x C_ARRAY name
```
To fetch and store a character from some arbitrary row (r) and column (c):
```
    r c name C
    r c name C!
```
Similarly for word length two dimensional arrays the defining word, array definition and store/fetch operations are:
```
    : W_ARRAY <BUILDS DUP , 2 * *
        ALLOT
    DOES> ROT 2 - OVER 2 * * + + ;
    y x W_ARRAY name ( define
        array)
    r c name ( fetch from array
        row column)
    r c name ! ( store to array row
        column)
```
Now you can define many different arrays within a program and reference them easily. Next time we'll diagram the stack operations of these array words and discuss further enhancements to FORTH ARRAYs ... till then Enjoy!

```
100 ! MATH SHARPENER PROGRAM
105 ! CREATED BY P. RADIKE
110 ! IN T.I. EXTENDED BASIC
115 !
120 CALL SCREEN(11):: GOTO 1
65
125 RANDOMIZE
130 S=0
135 CALL CLEAR
140 DISPLAY AT(9,1):"BY THE
WAY....BEFORE WE GET"
145 DISPLAY AT(11,1):"STARTE
D, I NEED TO KNOW YOUR":"":"
NAME"
150 DISPLAY AT(18,1):"PLEASE
 TYPE IN YOUR NAME":"":"BELO
W AND PRESS ENTER KEY"
155 INPUT Z$
160 GOTO 250
165 CALL CLEAR
170 DISPLAY AT(7,8):"MATH SH
ARPENER"
175 CALL SOUND(250,262,5)
180 DISPLAY AT(9,11):"PROGRA
M"
185 DISPLAY AT(15,2):"CREATE
D BY P. RADIKE, 1984"
190 CALL SOUND(100,196,5)
195 CALL SOUND(125,262,5)
200 CALL SOUND(5,262,30)
205 CALL SOUND(125,262,5)
210 CALL SOUND(100,196,5)
215 CALL SOUND(200,262,5)
220 CALL SOUND(100,196,5)
225 CALL SOUND(400,392,5)
230 FOR DELAY=1 TO 500 :: NE
XT DELAY
235 DISPLAY AT(21,4):"CHOOSE
: 1)EASY  2)HARD"
240 DISPLAY AT(23,7):"THEN P
RESS ENTER"
245 INPUT L :: GOTO 125
250 CALL CLEAR
255 DISPLAY AT(9,2):"THE SYM
BOLS TO BE USED ARE:"
260 DISPLAY AT(12,4):"+ ADD
     - SUBTRACT"
265 DISPLAY AT(14,4):"* MULT
IPLY   / DIVIDE"
270 FOR DELAY=1 TO 1000 :: N
EXT DELAY
275 DISPLAY AT(19,8):"FOR EX
AMPLE:"
280 DISPLAY AT(21,7):"2+3=5
   8-4=4"
285 DISPLAY AT(23,7):"2*4=8
   9/3=3"
290 FOR DELAY=1 TO 2000 :: N
EXT DELAY
295 CALL CLEAR
300 DISPLAY AT(6,2):"TYPE AN
D ENTER YOUR CHOICE:"
305 DISPLAY AT(10,2):"1) ADD
"
310 DISPLAY AT(12,2):"2) SUB
TRACT"
315 DISPLAY AT(14,2):"3) MUL
TIPLY"
320 DISPLAY AT(16,2):"4) DIV
IDE"

325 INPUT D
330 FOR Z=110 TO 523 STEP 10
 :: CALL SOUND(1,Z,5):: NEXT
 Z
335 CALL CLEAR
340 DISPLAY AT(10,4):"TYPE T
HE NUMBER OF PROBLEMS"
345 DISPLAY AT(12,4):"YOU WA
NT AND PRESS ENTER..."
350 INPUT Q :: FOR T=1 TO Q
355 DISPLAY AT(8,9)ERASE ALL
:Z$:"-"
360 DISPLAY AT(10,4):"ANSWER
 THE PROBLEM"
365 DISPLAY AT(12,4):"AND TH
EN PRESS ENTER"
370 IF L=1 THEN 375 ELSE 380
375 A=INT(RND*10)+1 :: B=INT
(RND*10)+1 :: GOTO 385
380 A=INT(RND*100)+1 :: B=IN
T(RND*100)+1
385 IF D=2 THEN 390 ELSE 395
390 IF A<B THEN 370
395 IF D<>4 THEN 405
400 IF A<B THEN 370
405 IF D=4 THEN 410 ELSE 415
410 IF A/B<>INT(A/B)THEN 370
415 IF A=B THEN 370
420 IF B=1 THEN 370
425 IF D=1 THEN 430 ELSE 440
430 PRINT A;"+";B;"=";
435 INPUT C
440 IF D=2 THEN 445 ELSE 455
445 PRINT A;"-";B;"=";
450 INPUT C
455 IF D=3 THEN 460 ELSE 490
460 IF L=1 THEN 465 ELSE 475
465 PRINT A;"*";B;"=";
470 INPUT C
475 IF L=2 THEN 480 ELSE 490
480 PRINT A;"*";B;"=";
485 INPUT C
490 IF D=4 THEN 495 ELSE 505
495 PRINT A;"/";B;"=";
500 INPUT C
505 PRINT
510 IF D=1 THEN 515 ELSE 540
515 IF C=A+B THEN 520 ELSE 5
40
520 S=S+1
525 PRINT "ALLRIGHT ";Z$;"!"
530 CALL SOUND(100,494,5)::
CALL SOUND(100,392,5):: CALL
 SOUND(100,523,5)
535 GOTO 730
540 IF D=2 THEN 545 ELSE 570
545 IF C=A-B THEN 550 ELSE 5
70
550 S=S+1
555 PRINT "SUPER JOB ";Z$;"!
!"
560 CALL SOUND(100,494,5)::
CALL SOUND(100,392,5):: CALL
 SOUND(100,523,5)
565 GOTO 730
570 IF D=3 THEN 575 ELSE 635
575 IF L=1 THEN 580 ELSE 605
580 IF C=A*B THEN 585 ELSE 6
35
585 S=S+1

590 PRINT "CORRECT ";Z$;"!!"
595 CALL SOUND(100,494,5)::
CALL SOUND(100,392,5):: CALL
 SOUND(100,523,5)
600 GOTO 730
605 IF L=2 THEN 610 ELSE 635
610 IF C=A*B THEN 615 ELSE 6
35
615 S=S+1
620 PRINT "FANTASTIC ";Z$;"!
!"
625 CALL SOUND(100,494,5)::
CALL SOUND(100,392,5):: CALL
 SOUND(100,523,5)
630 GOTO 730
635 IF D=4 THEN 640 ELSE 665
640 IF C=A/B THEN 645 ELSE 6
65
645 S=S+1
650 PRINT "WAY TO GO ";Z$;"!
!"
655 CALL SOUND(100,494,5)::
CALL SOUND(100,392,5):: CALL
 SOUND(100,523,5)
660 GOTO 730
665 PRINT "YOU GOOFED ";Z$;"
THE CORRECT ANSWER IS ";
670 CALL SOUND(500,-6,0)
675 IF D=1 THEN 680 ELSE 685
680 PRINT A+B :: GOTO 730
685 IF D=2 THEN 690 ELSE 695
690 PRINT A-B :: GOTO 730
695 IF D=3 THEN 700 ELSE 720
700 IF L=1 THEN 705 ELSE 710
705 PRINT A*B :: GOTO 730
710 IF L=2 THEN 715 ELSE 720
715 PRINT A*B :: GOTO 730
720 IF D=4 THEN 725 ELSE 730
725 PRINT A/B
730 FOR W=1 TO 1200
735 NEXT W
740 CALL CLEAR
745 NEXT T
750 DISPLAY AT(10,9):Z$
755 DISPLAY AT(12,6):"YOUR S
CORE IS ";S
760 DISPLAY AT(14,6):"OUT OF
 ";Q;" RIGHT !"
765 CALL SOUND(922,196,6,233
,6,311,0)
770 CALL SOUND(922,392,6,466
,6,622,0)
775 CALL SOUND(461,294,6,466
,6,587,0)
780 CALL SOUND(230,294,6,392
,6,466,0)
785 CALL SOUND(230,294,6,440
,6,523,0)
790 CALL SOUND(461,294,6,466
,6,587,0)
795 CALL SOUND(999,277,6,523
,6,622,0)
800 FOR DELAY=1 TO 1000 :: N
EXT DELAY
805 DISPLAY AT(20,3):"PRESS
ENTER TO CONTINUE"
810 INPUT A$
815 GOTO 100
```

HELPFUL HINTS FROM BIT BRAIN

Are you sick of the old standard black on cyan character definition used in the command mode by the 99/4A? Do your eyes quickly grow tired when entering long programs because of this color combination? Well, if you have Extended Basic, then try this little piece of code on for size:

```
S=2 :: F=15 :: B=2 :: CALL S
CREEN(S):: FOR X=0 TO 12 ::
CALL COLOR(X,F,B):: NEXT X :
: ACCEPT AT(1,1):X$
```

Note the absence of a line number. This multi-command line is intended to be executed in the "command" mode. After keying in the above, press ENTER. When the cursor appears in the upper left corner of your screen, press FCTN CLEAR. The resulting screen and anything else on it should now be in a STATE of white characters on a black background. (Hey Pete, can you name the capital of that state?). Other combinations of colors are possible by changing the values of: S - screen, F - foreground, and B - background.

SPECIAL NOTE: This mode will remain in effect even if you run a program that is in memory. Certain events, however, will cause the display to revert back to the standard mode. A few of the ones we know of are: execution of STOP or END, an error condition, or pressing FCTN CLEAR while the program is running. In the command mode, certain "CALLS" will also cause the display to revert to the standard colors.

WARNING: Take note, however, that in some situations, the above command may become line 0 of a program that you already have in memory. If this happens, you can only delete the line after you have renumbered your program. This problem seems to be associated with very large programs.

SPECIAL TRICK: Place the above command line in your program as a statement located in a place where it will never be executed. This way, you can go thru the following sequence to "redo" a "lost" display with relative ease:

1) Edit the line number you placed the command into
2) Press enter
3) Press FCTN REDO
4) Delete the line number from the statement
5) Press enter

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NEW PRINTER INTERFACE

by Michael Pitcock

There is a new parallel printer interface on the market for the TI-99/4A computer. It is made by AXIOM Corp. in San Fernando, California and the interface is called the Parall Ax TI.

The interface allows those with an unexpanded computer system to use any Centronics compatable printer with just the basic TI 99/4A keyboard unit. The interface plugs into the right side expansion connector. It can be used with the Speech Synthesizer, other "sidecar" modules or the Expansion System. The system comes complete with all necessary cables and features a right angle connector for use with the Expansion System. The Parall Ax TI is self-powered, but it can also be powered from the printer.

The interface is compatable with all software control codes, margin set, line length, line spacing, a built in self-test of the interface and printer, and a comprehensive manual.

The unit is available at COMPETITION COMPUTERS in Milwaukee for $129. Also available is a combination printer and interface featuring the Seikosha printer, which is similar to the Atari or Gorilla Banana printers, for the price of $299.
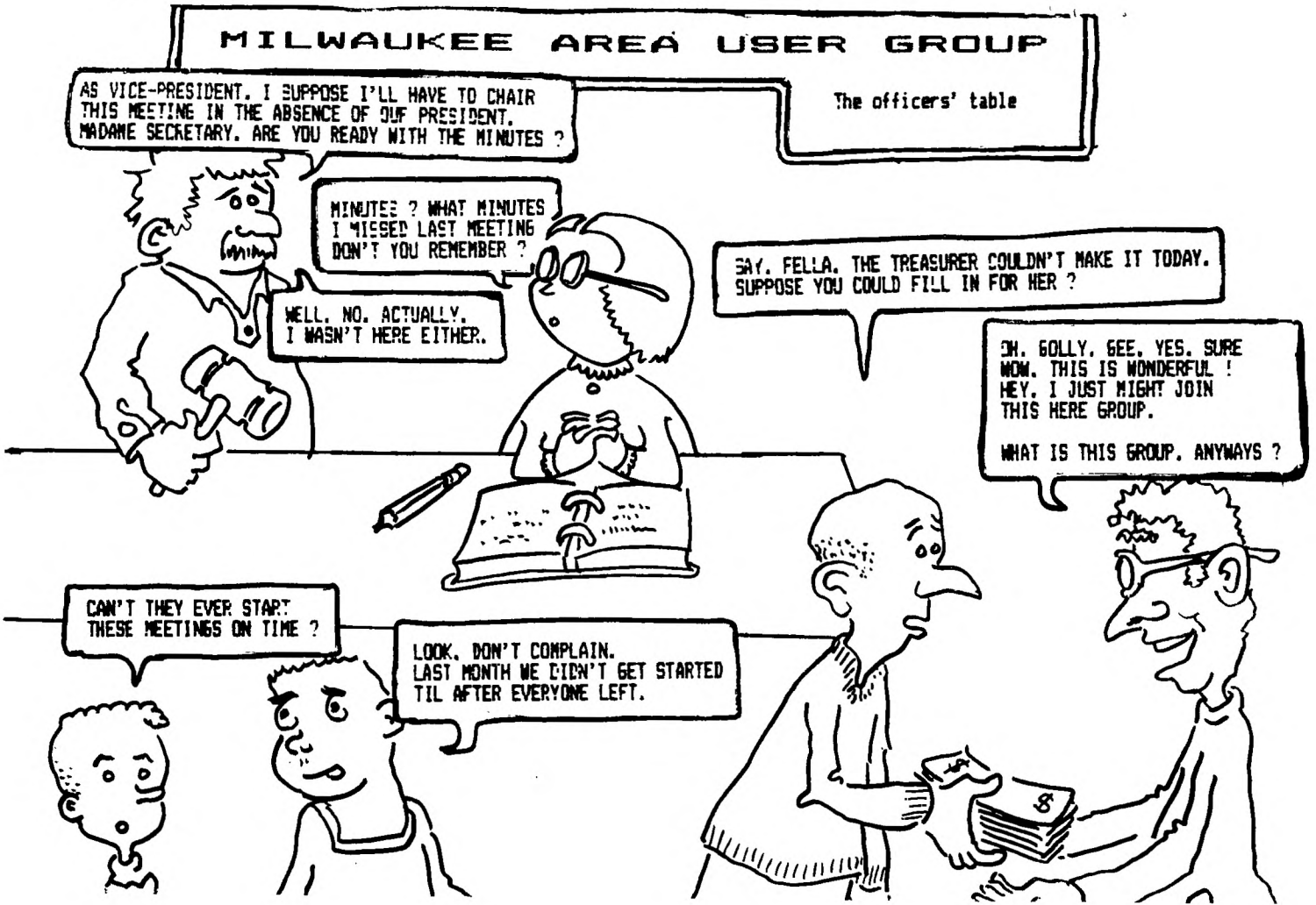
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