



Volume 7 No.5 OFFICIAL NEWSLETTER OF THE LONG ISLAND COMPUTER ASSOCIATION, INC. May 1983
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PRESIDENT'S MESSAGE

Twice during the past few months we have attended indoor computer/electronics shows, and both times came away somewhat disappointed. The reason for our discontent was not that the firms participating were presenting products or services that were uninteresting, but that the physical press of attendees in aisles that were too narrow, and booths that were too small made concentration on any one exhibitor virtually impossible.

On Saturday June 4th LICA is holding its second annual Computer Faire at the Plainview, New York facilities of the Association for the Help of Retarded Children. We will have a traditional outdoor equipment display and swap meet area. However, a large group of commercial exhibitors will be set up indoors. They will NOT be in any single area. Each firm will have its own presentation room, complete with all necessary support facilities to enable our attendees to concentrate as much or as little time with each and any exhibitor as they deem necessary.

We are, each of us, hobbyists. We have joined LICA for different reasons, but in general to gain knowledge to better utilize our computer systems in both our professional and recreational activities. Above all, we have come together voluntarily in a spirit of relaxed inquisitiveness.

As at our monthly General and Special Interest Group meetings, our goal is to disseminate useful information in as relaxed and informal a milieu as we can arrange. Your time with us at the Computer Faire should be just as educational, and if anything even a more pleasant and enjoyable experience. All of us who are connected with the planning and organization of that event pledge that we shall do everything possible to achieve those ends.

HEATH/ZENITH SOFTWARE SALE

One of our members has received, through the Ruth Hadassah organization, an unrestricted donation of more than \$40,000 worth of H/Z-47,89, and 100 proprietary software. The products are CP/M v2.2, BASIC-80, and WORDSTAR. The Hadassah group now offers these products to LICA members and others at their wholesale costs. Half of any proceeds so derived will be retained by the selling organization, the balance will go to the present corporation. Heath/Zenith computer owners should contact Stu Domber (212) 969-3675.

BASIC-80 INITIALIZATION

Microsoft's current level of development of its most famous product is Release 5. For most of the current users, under CP/M, the exact number is 5.21. Unlike earlier versions which responded to a user with an initialization dialog, Release 5 assumes several default conditions:

- a) all memory, up to the start of BIOS will be used by BASIC-80.
- b) the maximum number of files that may be open at any one time is three.
- c) the maximum record size, for use with random files, shall be 128 bytes.

Each of these defaults can be overridden at program load time by the command line extensions: /F:<number of files>, /M:<highest memory location>, and /S:<maximum record size> For example:

```
A>MBASIC TESTPROG/F:6/M:8HA000/S:512
```

will load TESTPROG.BAS from the currently-logged drive, allow up to six files to be open simultaneously, use up to 40K of RAM, and permit random records in any file to be up to 512 bytes long.

Properly written programs, thus loaded with the BASIC-80 interpreter, may be compiled using BASCOM, Release 5.3, and will execute correctly using the appropriate run-time support routines.

SECRETARY'S REPORT ON LICA MEETING OF APRIL 15 1983

Our president, Al Stone, addressed the association through a sound system which provided much improved audibility throughout the room. Thanks to Stan Misel who brought the system in and installed it. Our speakers and audience will appreciate it very much.

The president announced that the updated LICA Constitution and Bylaws had been approved by the Executive Board at their March 26 1983 meeting. A draft will be sent to every paid-up member at least 10 days before the next LICA meeting, at which a vote will be taken on the revised document. Michael Hofer deserves a vote of thanks for having prepared the initial draft of the revisions.

There was a suggestion that the main LICA meeting was getting to be very large and that perhaps it should be split up into several groups meeting simultaneously, such as beginners, advanced, etc. The audience was asked to think about the idea and it will be considered at a future meeting.

Phil Cochems reported on the LICA 2nd Annual Computer Fair. He said that several indoor new equipment vendors have already signed up. At present there are only a few outdoor vendors, but many more are expected during this month. The price for a single outdoor space is \$5.

Volunteers are needed for parking, security, ticket taking, etc. Several people from the audience volunteered for these jobs. Beginning in the middle of May, the AHRC professional publicity agent will publicize the fair through various media. Seminars and non-commercial lectures have been promised by the following:

CD Communications	RS232 Interface
3M	Static Control
Altos	Altos Equipment
Cannon	Computers
Rockwell	Single board computer

In the absence of the scheduled speakers, two LICA members gave extemporaneous talks.

Josh Weinberg spoke about computer literacy. He asked the audience to define the phrase. Is it sufficient to know the jargon and technical language of computers or must one do programming? Some in the audience felt that if a person can use computers and knows what they can do, he can be considered computer literate. The subject provoked a lively discussion. Josh also brought up some items that he felt were missing in computer literature: books at an intermediate technical level and books that discussed general techniques of computer graphics. Does anyone have any suggestions in these categories?

Michael Hofer gave a tutorial talk on generic graphic systems. He described the picture on the screen as an array of pixels (picture elements). For a monochrome display, each pixel is turned on or off by the program. Each point is described by a coordinate pair, (x,y) or (P1,P2). Many computers have facilities for drawing a line between two points. To draw a figure, one stores a list of point coordinate pairs and draws lines between them successively. Michael described two transformations:

Translation -- moving a figure horizontally or vertically or both on the screen. This is accomplished by adding a constant to each point's coordinates.

Scaling -- changing the size of all or part of the figure by a specified amount. This is done by multiplying a point's coordinates by a factor.

There was discussion of a unit square which allows translation and scaling to generate any size square anywhere on the screen. General equations were written to illustrate this procedure and then a sample program was written in Basic to show how it would be implemented in a program. The talk was very informative and Michael volunteered to continue the subject in a brief talk at the next LICA meeting.

The monthly LICA GRAND RAFFLE was won by John D'Amboise who became the proud owner of a pair of special needle-nose pliers. All paid-up members get a free raffle ticket at each LICA meeting. Join and try your luck.

Frank Davidoff, secretary

REPORT FROM S/100 Al Levy

If you check the label on your copy of the STACK, chances are that your name, street address, city etc. are all in upper case. There are of course a few "lucky" people whose labels are in both upper and lower. My options were 1) save the print wheel from using up the upper case characters or 2) lazy typing (why bother to keep shifting the keyboard?) and 3) searching is easier when you know that all of the information is in one style of typing. Having never fully resolved this problem, 10% of the LICA labels have upper and lower case.

Example: Mr.Thomas Smith 100 Broadway Hicksville (as opposed to)
 MR.THOMAS SMITH 100 BROADWAY HICKSVILLE

I realize now that I am not alone. Many typists will make out mailing lists with all caps. It saves time, is easy for searching, and what the heck, its not a literary manuscript.

Apparently some people have realized (after the fact), that it would be nice to have the list typed with upper and lower case but who wants to re-enter data?

At the last S/100 meeting a member asked if anyone knew of a program which will read a mailing list and convert names and addresses from all caps to upper and lower case?"

LICA being what it is, and it's members being what they are, almost nothing can be mentioned without someone taking the floor to respond. In this instance it was Augie Schwab and Dave Minott. Both reminded us of a program they had written some four or five years ago to do exactly what was required. It was then suggested that this program be reprinted in the STACK, so here it is.....

Documentation for UCF.ASC

UCF.ASC (Upper case filter) is a software "filter", which takes as it's input a name and address file (each record having three lines) and writes it back to the disk under the output filename specified with upper and lower case letters where needed.

This program was written using Microsoft Basic Version 5.01, but should run in most Basics with little or no modification.

It is useful if your console does not support lower case, but your listing device does. It is also easier to enter all of your records in upper case from the console, as there is less chance for typographical errors, as well as saving keystrokes.

Obviously, there are certain conditions which are extremely difficult to test for, or aren't really worth the extra code to include. These have been left to the user's discretion to implement.

A particular case in point is the name MacBaren. The tests necessary to account for words as Machine, Mackerel, Macaroon etc. are cumbersome. The program will properly handle MacBaren, or Van Allen, however.

One other advantage of this program is that your output file will generally be smaller than the input file as there are tests to strip all leading and trailing spaces from the input file. Most typists, when in a rush, inadvertently hit the space bar at the end of a line (sometimes even at the start of a line!).

The program handles such special cases as compass directions, i.e., NE NW SE SW and N.E. N.W. S.E. S.W. as well as PO boxes, i.e., PO Box and P.O. Box. It also properly handles cases as A.B.C. or M.D. or A.S.P.C.A. As an extra added feature for the Hams, the call signs are handled correctly, i.e., WA2EXP not Wa2exp!!

If I've overlooked any particular case which might be of interest, please feel free to include it in the program, and pass along the information to the rest of us. Good luck...DAVE MINOTT

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10 'WRITTEN BY D. MINOTT 10/30/79 LATEST MOD 11/17/79
   MODIFIED BY A. SCHWAB 11/20/79 TO TEST FOR Mc AND
20 'THE PURPOSE OF THIS ROUTINE IS TO READ A NAME/ADDRESS
   FILE WRITTEN IN UPPER CASE AND WRITE IT TO A NEW FILE
   AS ALL LOWER CASE EXCEPT WHERE CAPS SHOULD REMAIN.
30 CLEAR 256 'ONLY NEEDED FOR VERSIONS EARLIER THAN 5.01
40 DEFINT A-Z
50 Y=1 'INITIALIZE RECORD LINE COUNTER
60 PRINT CHR$(27);CHR$(28) 'clear screen
70 PRINT TAB(18);"Upper Case To Lower Case File Conversion"
75 PRINT:PRINT:PRINT
80 PRINT:INPUT "Enter Upper Case File Name ";N1$
90 IF N1$="" THEN 80
100 CLOSE:OPEN "I",1,N1$
110 INPUT "Enter Upper/Lower Case File Name ";N2$
120 IF N2$="" THEN 110
130 PRINT:CLOSE 2:OPEN "O",2,N2$
140 INPUT #1,A$
150 A$=" "+A$+" "
155 'tack on temporary leading and trailing space
160 FOR X=1 TO LEN(A$)
170     B$=MID$(A$,X,1)
180     IF B$=" "
        THEN S=X 'SAVE POSITION OF SPACE
190     IF MID$(A$,X,1)="."
        THEN IF MID$(A$,X+2,1)="."
            THEN C$=C$+MID$(A$,X,2):
            X=X+1:GOTO 360 'TEST FOR ANY "CHAR." COMBOS
200     IF MID$(A$,X,5)=" " AND "
        THEN C$=C$+MID$(A$,X,1):
        GOTO 360 'DON'T CAPITALIZE " AND "
210     IF B$=" " THEN
        IF MID$(A$,X+1,1)="N"
        OR MID$(A$,X+1,1)="S"
        THEN IF MID$(A$,X+2,2)="E "
        OR MID$(A$,X+2,2)="W "
        THEN C$=C$+MID$(A$,X,3):
        X=X+2:GOTO 360 'TEST FOR COMPASS POINTS
220     IF Y=1
        THEN IF VAL(B$)<>0 THEN IF ASC(MID$(A$,X-1,1))>64
        THEN C$=LEFT$(C$,S-1)+MID$(A$,S,LEN(A$)):
        GOTO 370
221 'PRESERVE ONLY ALPHANUMERICS (I.E. CALLSIGNS) AS ALL UPPER
230     IF B$=" "
        THEN IF MID$(A$,X+1,2)="MC" OR MID$(A$,X+1,2)="Mc"
        THEN C$=C$+MID$(A$,X,2)+"c"+MID$(A$,X+3,1):
        X=X+3:GOTO 360 'TAKE CARE OF THE IRISH
240     IF B$=" "
        THEN IF MID$(A$,X+1,1)="'"
        THEN IF MID$(A$,X+3,1)="'"
        THEN C$=C$+MID$(A$,X,4):
        X=X+3:GOTO 360 'TEST FOR LETTER BETWEEN QUOTES
250     IF B$="'" THEN IF MID$(A$,X-2,1)=" "
        THEN IF MID$(A$,X-1,1)="O" OR MID$(A$,X-1,1)="L"
        OR MID$(A$,X-1,1)="D"
        THEN C$=C$+MID$(A$,X,2):
        X=X+1:GOTO 360 'MORE IRISH OR FRENCH

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260     IF Y=2 THEN IF B$=" "
        THEN IF MID$(A$,X+1,3)="PO "
        THEN C$=C$+MID$(A$,X,3):
        X=X+2:GOTO 360'TEST FOR PO BOX NOT AT START OF LINE
270     IF Y=2
        THEN IF MID$(A$,X,3)="PO "
        THEN C$=C$+MID$(A$,X,2):
        X=X+1:GOTO 360'TEST FOR PO BOX AT START OF LINE
280     IF B$="-" OR B$="/"
        THEN C$=C$+MID$(A$,X,2):
        X=X+1:GOTO 360'TEST FOR / OR -
290     IF Y=2
        THEN IF MID$(A$,X,2)=" ("
        THEN IF MID$(A$,X+2,2)="PO"
        OR MID$(A$,X+2,2)="P."
        THEN C$=C$+MID$(A$,X,6):
        X=X+5:GOTO 360'TEST FOR SPACE FOLLOWED BY (
300     IF Y=2
        THEN IF MID$(A$,X,3)=" ("
        THEN C$=C$+MID$(A$,X,4):
        X=X+3:GOTO 360'LEAVE CAPITAL AFTER SPACE ( SPACE
310     IF Y=2
        THEN IF MID$(A$,X,2)=" ("
        THEN C$=C$+MID$(A$,X,3):
        X=X+2:GOTO 360'LEAVE CAPITAL AFTER SPACE FOLLOWED BY (
320     IF Y=3 THEN IF X>LEN(A$)-9 THEN 350
        'TEST FOR STATE ABBREV. ON LINE 3
        '(FOLLOWED BY 2 SPACES & ZIP)
330     IF B$=" "
        THEN IF MID$(A$,X+1,1)<>" "
        THEN C$=C$+MID$(A$,X,2):
        X=X+1:GOTO 360
        'FIND START OF NEXT WORD DISREGARDING NUMBER OF
        INTERVENING SPACES
340     IF X<>1 THEN B$=CHR$(ASC(B$)OR 32)'
        --LEAVE 1st LETTER CAP AND CONVERT REST ONLY IF A-Z
350     C$=C$+B$
360     NEXT

370     A$=C$
380     IF LEFT$(A$,1)=" "
        THEN A$=MID$(A$,2,LEN(A$)):GOTO 380'KILL LEADING SPCS
390     IF RIGHT$(A$,1)=" " THEN A$=MID$(A$,1,LEN(A$)-1):GOTO 390
        'KILL TRAILING SPCS400 PRINT A$

410     PRINT #2,A$ 'SAVE TO NEW FILE
420     C$="" 'CLEAR OUT THE STORAGE STRING
430     Y=Y+1 'INCREMENT LINE COUNT
440     S=0 'RESET SPACE COUNTER
450     IF Y>3 THEN Y=1:
        PRINT STRING$(30,"-")
        'LAST LINE OF RECORD PROCESSED -- GET NEXT RECORD

460     IF EOF (1) THEN END
470     GOTO 140

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This month's column deals with Shugart 5" drives. The author, Frank Stearns, was an audio engineer before he turned his talents to computer programming. Although Mr. Stearns makes reference to the PolyMorphic computer throughout his article, he is focusing on Shugart 5" drives. In part 2 of Mr. Stearns' article we will learn to maintain and repair the SA/400s.

A "Cook's Tour" of the Shugart SA-400 Mini-disk Drive - Part 1

Frank Stearns 14305 NE 13th St Vancouver, WA 98664

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Many of us have at least one Shugart SA400 5" SSSD (single sided, single density) disk drive in our Polys. Let's go on a tour of the drive and see what it does and how it works; and at the same time, learn a few simple things that can be done to keep an SA-400 healthy.

THE DISK — That square thing commonly called "a disk" is really not the disk. It is a protective jacket with quilted cleaning and lubricating surfaces bonded to its inside. The round, flexible, oxide-coated inner disk is the actual recording medium, and it revolves inside the stationary square jacket.

We all know better than to touch any of the exposed disk surfaces. As with precision audio recording tape, oxide is damaged by "foreign matter" such as dust and oil from our skin, or from physical nicks or creases. Anyone of these items can cause a "dropout", which is a momentary loss of sufficient oxide coating to accept or playback a signal. (Dropouts can also be caused by momentary losses of head-to-disk contact.) The internal cleaners are meant only for "normal" amounts of dust and cannot contend with oil or excessive dust. And, they can't do a thing about mechanical damage. Handle disks with care!

THE ANALOG SIGNAL — We'll get to how the digital signal finds its way from the system to the disk drive in a moment. But first, the actual signal on disk. To begin with, each byte sent to the drive becomes a string of eight bits. The bits are recorded on the disk using FM (frequency modulation). That's right, just like your FM radio, only things are simple here because instead of the rich complexities of sound, there are only ones and zeros. A zero is represented by the FM "carrier" signal of 62.5 KHz (also called "clock pulses"). When a "one" comes along, the recording frequency jumps to 125 KHz — an extra pulse has been placed between two clock pulses. If another "one" appears immediately, the frequency stays at 125 KHz. Otherwise, it drops back to the 62.5 KHz carrier.

Through careful manipulation on playback, data is "separated" from the carrier and sent out of the drive back into the computer.

"RANDOM ACCESS" — Of course, recording/playback can be stopped or started at will throughout the disk, provided it is done in 256-byte blocks called "sectors".

Thirty-five concentric recording tracks are pie-sliced into 10 sectors each. Any one of these sectors can be randomly accessed. The drive provides quick switching and magnetic markings at the front and end of each sector to make sure reading and writing stop and start at the right instant. In addition, Poly uses the "hard sectoring" format which involves those little holes near the center of the disk. (Carefully rotate the disk from its center with your hand and watch the quarter-inch round cutout near the inside edge of the jacket. Periodically, little holes will appear.) Inside the drive a light shines on the cutout. A photo-diode on the other side picks up the flash when a hole lets the light through. This tells Poly where a sector begins and ends. Poly's disk control system keeps track of these flashes, and uses them to update head position information. More about disk formatting in the CONTROLLER section.

THE HEAD — Your data is stored on the backside of the diskette! That's the surface the head presses against during read/write operations. The head itself is nothing out of the ordinary as magnetic recording heads go, though it does have a couple of interesting features. Unlike an audio recorder, there is no erase piece preceding the read/write head. Old data is erased by the writing action of new data. There are, however, two erase elements that sandwich the read/write element. During recording, these side pieces create protective guard bands that will not allow magnetic "splash" into either neighboring track. This is very important when using media written by one drive and reading it with another. The guard bands allow for minor alignment deviations, as it is easier to read a track slightly off-center if there is no immediately adjacent signal to confuse the issue. If the alignment is far off enough to cause writing or reading directly over an adjacent track, it is time for an alignment.

HEAD LOAD BUTTON -- For you audio buffs, data recording speed varies from roughly 16 IPS (inside track) to 36 IPS (outside track). 16 IPS is slow for 125 KHz. Firm head-to-disk contact is essential. Whenever the drive is accessed for read or write, a pressure pad (referred to by Shugart as the "load head button"), presses against the head from the other side of the disk. This can be a critical part of the system. In fact, a good portion of soft errors result from the head load button being worn or out of position. Depending on the media, button life will be six months to five years. [Author's note: While using 3M media, button life on my system deteriorated to a matter of months. Since switching to the new Verbatim, visible wear has stopped.]

The button is located just opposite the head. If you can gain visual access to the drive while it is operating, you'll notice an arm dropping against the disk when the red drive-activity LED comes on, and retraction of the arm when the LED goes out. At the end of this arm, facing the disk, is a small round item -- the load button. If the button is in good shape, the round area will look like a small bit of white felt. If bad, the felt may be quite dirty or nearly worn away. In this case, it should be replaced immediately. (More in Part 2, next issue.)

THE DRIVE MOTORS: Speed, stepper -- There are two motors on the drive. When switched on by the disk controller, a DC-servo motor with a belt and pulley keeps the disk turning at a constant 300 RPM. "DC-servo" means that as the motor spins, it sends a tachometer signal back to the motor-drive circuitry. The tach signal is monitored. If the speed begins to drift, the drive level sent to the motor is varied in the opposite direction of the drift, correcting the speed. (Speed drifts can be due to uneven media or instabilities within the motor-drive electronics.)

A plus or minus 10% speed window is allowed, though it is best to have drive speed dead center. Your drives have a much better chance of using or providing data from or to other systems if they are "in the middle".

The second motor is a bi-directional stepper. Each time the stepper motor is pulsed, its shaft turns a small, measured distance in the desired direction. The distance "stepped" requires consistent precision through all 360 degrees of rotation (the motor has no stops and will continue stepping in the selected direction). The motor shaft is connected directly to the spiral-grooved head-position cam. Turning of the cam forces a guide pin ("cam follower") attached to the head carriage to move in a groove cut in the cam. In this way, the head is positioned over the desired track.

DISK CONTROLLER -- The drives are very stupid; somebody has to be the boss and signal the motors when to start, when to load heads, which tracks to address, what sectors to read and write, handle data flow, and so on. This is the job of Poly's disk controller, a separate circuit card inside the system but external to the drives. Perhaps the simplest controller task is transferring information between the data bus and the desired drive. The controller's real chore is knowing where the head is. The well-worn mail-system analogy serves well: The sector of data is the mail, the CPU is the main post office, the disk-controller the postman, the SA-400 drive the postman's jeep (or feet!), and the sectors on disk the mail boxes.

You may have noticed that when Poly is first powered on, or whenever the load button is pressed, the drives "take longer" than they do the next time they are accessed. Poly "knows" she has just gotten out of bed and pulses the stepper of any selected drive 35 times in and 35 times back out. In this way, no matter what track the head is at on power-up or load, it is reset to track zero, the origin track. From then on, Poly can determine the number of pulses needed to step to a given track, based on how far it is from the track-zero reference.

DISK FORMATS -- The SA-400, via the controller, allows an OEM such as PolyMorphic numerous ways to define sectors on the disk. The range (per track) is 16 sectors of 128 bytes each, all the way to 1 sector of 2048 bytes. The most dense track formats are 5 sectors of 512 bytes each, and the familiar 10 sectors of 256 bytes each. The 10/256 format has several advantages for the programmer, not the least of which is the fact that 255 decimal equals FF Hex. Assembly language programmers will recognize the significance of that! If you're not a programmer, let's just say that 256/10 is a minor detail that makes the daily life of an Assembler programmer easier. The trade off? Time. The fewer sectors one has to deal with, the less redundant overhead and "housekeeping" there will be for each sector, and data transfer is faster. But considering all aspects, the net speed increase from using larger sectors is marginal. And, to see a substantial speed improvement, 20% of the disk storage capacity would be lost.

Using The LICA Bulletin Board System - Al Levy

At the request of many LICA members, I have written a user's guide to the LICA CBBS(R). All of the messages and prompts from the bulletin board have been downloaded to demonstrate exact screen displays and to save words of explanation. If you have questions, please submit them to me. I may not be clear, and other members may share your confusion. This issue of the STACK contains explanations of the steps printed in the April Issue.

My assumption is that you are a first time user. Since I have had some pretty weird experiences with people, their expectations and modems, I will walk through the procedure one step at a time. NOTHING will be omitted.

1) TERMINAL NEED NULLS ? TYPE "N" WHILE THIS TYPES:

To clarify the above for those not familiar with the terminology: If your computer is receiving incomplete sentences or words, you can instruct the Bulletin Board to "pad each line" by sending blanks after each line. This in effect slows down the transmission and will either separate the words, letters, or lines more clearly. As the user, you should type "N" or "n" while the opening messages appeared.

2) <<<*** TO SKIP WELCOME, HIT CONTROL-C OR C ***>>>

If you hit "c" or "C" as a message appears the Bulletin Board System will skip over the rest of that message and go to the next message. Although there are other methods to skip all of the opening messages, let us say for now that you continue to hit "C" until the you receive the Y/N question.

(Y/N: Is this your first time on the system?)

You will know that bulletins are still being printed by the J-->*** Indicator.

ASCII CHARS	CTL CHARS	
	DELS	Character Delete
C	C	Cancel Output
K	K	Function Abort
N	N	Start Sending 5 Nulls
	R	Retypes Input Line
S	S	Suspend Output
	U	Line Delete

(C or ctrl/c) will stop the CBBS from doing whatever is doing. This will usually take you back to the main menu. In most cases you won't have to use the control key.

(K) If you have selected something from the menu, the K command will pull the plug on that selection and you will return to the main menu.

(CTRL/R) allows you to REENTER a line

(S) temporarily STOPS the CBBS so that you have time to read what is on your screen. Hittings S again re-STARTS the printing.

(CTRL/U) allows you to UNDO or erase an entire line. For example you typed

"Thos is mp first tome on the bellitn" and you have decided to reenter the line.

"Thos is mp first tome on the bellitn"CTRL/U

will leave you with a blank line, and then you can type:

"This is my first time on the bulletin"

"Frills":CTL-W retypes word

CTL-L shows what column you are in.

In command mode, enter the V(Ideo) command. This will allow displays that respond to Control-H to physically backspace over deletions as opposed to: Thos/os/Is

LICA/CBBS supports downloading. Use the 'F' command.

A Spelling Checker Plus By Jack Schachter (516) 421-0705

"The Word Plus" is a spelling checker. It contains a number of word processing utilities which work in a "user friendly" way on ASCII files.

"The Word" is called along with the name of a file to be checked. On the first try you are asked about the nature of your word processor and how you intend to use "The Word." Your responses are stored so the questions never need repeating.

"The Word" then makes an alphabetical list of all the words in your file and checks them against its own 45,000 word dictionary. The words not found in the dictionary are presented one at a time, on the console. The operator may keep the spelling, correct the misspelling, look up the spelling in the dictionary, or look at the word in context.

If the word is correctly spelled but not in the dictionary, you may include it in the main dictionary or in a special dictionary to be used only when required.

The program corrects the text file, marking if desired, any word length changes that affect margins and/or justification. If necessary the file may now be re-formatted. The process takes a only few minutes, even for many pages.

Other useful programs are included. A hyphenating program inserts "soft" or "ghost" hyphens in words. This enable some word processors to break words at the correct boundaries for hyphenation. A word count program reports the number of words in the file. A word frequency program lists all the words in a file and the number of times each is used. A homonym program helps you find errors in their misuse. For puzzle fans, the Find program gives you words that fulfill the requirements of crossword puzzles. The Anagram program supplies all the anagrams for a given set of letters.

For the serious writer, this is the best program since the invention of the word processor. I could no longer do without it. The Word Plus is distributed by Oasis Systems, 2765 Reynard Way, San Diego, CA 92103 and is priced at \$150.

A Review of Three Software Books by Jack Schachter

Actually, this is a review of only two books that I have found useful. I refuse to review the third for reasons that I will make clear presently. All are published by Kern Publications of Duxbury, Mass.

The first "How to Sell Your Micro Software" by B.J. Korites details all of the necessary steps to market programs. Most of the topics discussed are elemental to any business and perhaps a bit naive. However, if you have never been a proprietor you will learn a lot. It is most useful when discussing pricing practices and the bases for agreements with software publishing houses. This information is hard to get without direct experience. It is very useful in planning marketing strategy. Information is provided on various forms of software packaging. If you are starting your own software business, I definitely recommend this book. The price is \$14.95.

"1983 Software Writer's Market" was compiled by Christine Leu. It has a comprehensive listing of all types of software dealers. There are sections on micro manufacturers, software publishers, book publishers, micro service bureaus, periodicals, shows and distributors. Included are the leaders in each field. It is a useful addition to the library of any freelance programmer. The price is \$28.50.

All three books contain a disclaimer which states (in part):

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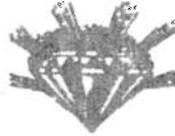
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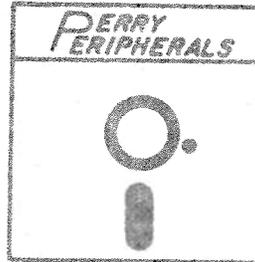


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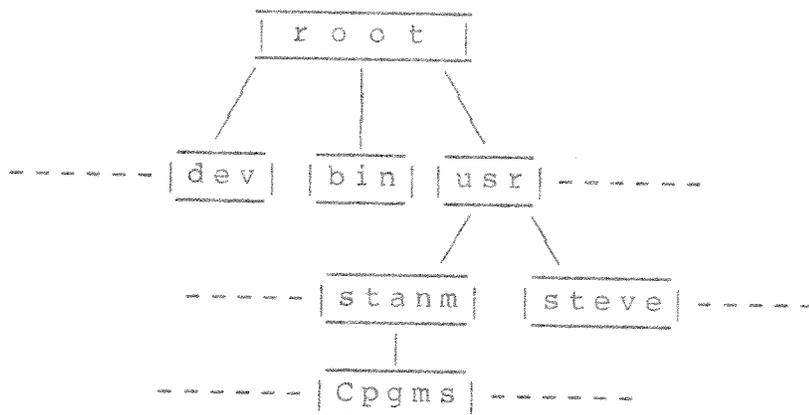
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XENIX Operating System Fundamentals

Part I The File System

Microsoft's XENIX operating system is available for a number of 16 bit microcomputers. It is a supported adaptation of the famous UNIX minicomputer operating system developed by Bell Laboratories. As such, it is a remarkably mature, complete and relatively bug-free software system for the new generation of powerful microprocessor chips. This is the first of a series of articles about this system. I have it running in my office on a 512K MC68000-based TRS-80 Model 16 with hard disk. The hardware supports three users with almost no detectable deterioration of performance compared with single user operation.

This first article of a projected series will discuss the file system of XENIX as perceived by the user. The XENIX directory is hierarchical. At the top of the hierarchy is the directory called 'root'. A simplified sample directory structure could be like this:



Each sub-level of this structure can have additional members as indicated by the dashes. Each name in a box of the diagram is a directory name. If you look at the contents of a directory, you will see that it contains filenames and names of directories directly beneath it in the hierarchy.

Let's assume that we access the computer with a log-in name of stanm. This causes the directory called stanm to be our 'home' or default directory. The other files and directories on the system will be invisible to us unless we specify otherwise. A read of our log-in directory could be as follows:

```

aardvark.bas      gl.cob          xyzyy
bin2ascii.c      receivables      zork
Cpgms             stackstuff
  
```

This particular type of listing is produced by the XENIX command 'lc', which means 'list columns'. Note that the names are given in alphabetical order in columns. All of the directory entries shown are files, except for 'Cpgms'. This is shown on our diagram to be a subdirectory of the stanm directory. On our listing, there is no way to distinguish 'Cpgms' from an ordinary file. For this reason, it's a good idea to use upper-case letters for names of subdirectories. Of course, there are ways of looking at the directory that provide more information than just names. For example, we could type 'll' - short for list? - and see:

```

total 9
-rw-r----- 1 stanm      1003   Jan 24 13:14  aardvark.bas
-rw-r----- 1 stanm       312   Jan 20 10:03  bin2ascii.c
drw-r----- 2 stanm       186   Jan  6 18:57  Cpgms
-rw-r----- 1 stanm       203   Feb 14 20:19  gl.cbl
-rw-r----- 1 stanm        97   Jan 24 14:04  receivables
-rw-r----- 1 stanm       435   Jan 24 15:47  stackstuff
-rw-r----- 1 stanm       503   Mar  6 11:09  xyzyy
-rwxr-x---  1 stanm       124   Jan 24 09:07  zork
  
```

XENIX Operating System Fundamentals

Part I The File System (continued)

Once again, the data are in alphabetical order, but we have quite a bit more information. The first character at the extreme left tells us whether the entry is a plain file or a subdirectory. Note the 'd' for the 'Cpgms' line. The other info, which will be described in a future article, has to do with protection and access, ownership, the number of links (aliases) for a file, size in bytes, last modification date/time and, of course, the name. The 'total' figure on top refers to the number of 512 byte blocks of disk space are occupied by the programs/directories we are looking at. There are many other options available for listing directory data, but we won't dwell on them here.

We referred to the stanm as our default directory. There is a XENIX command that tells us where we are positioned in the heirarchy of directories. If we invoke that command, 'pwd' (print working directory), we would see the response:

```
/usr/stanm
```

This is a complete description of the path to our directory from the top of the structure. Each directory is separated from its parent by a slash. The root directory is represented by the empty string before the leftmost slash. We can refer to any file or directory in the system by referring to its full pathname, starting from root. For example, we can list the contents of our file xyzzy by typing:

```
cat /usr/stanm/xyzzy
```

The system command 'cat' (short for concatenate) is similar to CP/M's PIP where a file or files are transferred to the console device. Naturally, no one wants to have to type in all those characters to access a file, so there are some shortcuts built into XENIX. The first of these permits you to simply specify a file name if that file is in your current working directory.

To perform an operation on a file in the stanm directory, we only have to specify the file name. So to look at file xyzzy, we can type:

```
cat xyzzy
```

This is much easier than typing the full pathname. Next, let's say that we have a file called carribbean.c in our subdirectory, Cpgms. If we want to list it, we can specify the full pathname, /usr/stanm/Cpgms/carribbean.c, or we could use another shortcut called the relative pathname. We can address our file by the name:

```
Cpgms/carribbean.c
```

In this case, the absence of the leading slash tells the system that the search begins at our current position in the hierarchy.

The last shortcut involves the use of a system command that lets us change our working directory. For example, if we wanted to change our default directory to our Cpgms subdirectory, we type:

```
cd /usr/stanm/Cpgms (full pathname) or  
cd Cpgms (relative pathname)
```

The system command 'cd' is short for 'change directory'. Now we can list our file by merely typing:

```
cat carribbean.c
```

We can use 'cd' to navigate almost anywhere in the hierarchy and return to our log-in directory of stanm by typing just:

```
cd
```

Now that we perhaps have some insight into the XENIX/UNIX directory structure, we can explain some other facts about it:

XENIX Operating System Fundamentals

Part I The File System (continued)

XENIX has no built in commands. All of the commands are transient programs that are contained in the directory '/bin'. Whenever a command is received by the system, it first looks in the current directory for an executable file of that name. If not found, it looks in the '/bin' directory. There are more levels of searching, and all these search patterns are easily user changable.

There is only one file system, even though there may be many physical disk drives in the system. Each drive has its own directory structure that must be software-mounted on an empty directory in the principal drive's directory structure. If you remove a disk from a drive, its file system must be dismounted first.

A single file has a theoretical maximum size of about a gigabyte. (1,000,000,000 bytes)

A filename or directory name is restricted to a maximum of 14 characters. The name cannot contain spaces, slashes or certain other characters that are reserved for use by the command interpreter program (called the shell- it's something like a super CP/M OCP). There is no special significance associated with the '.' (period) as there is with CP/M.

A filename must be unique within a directory, but can be used in other directories without causing confusion.

A file may be copied to other directories, or it may be linked to other directories. If copied, the file would actually exist and occupy disk space for each instance of a copy. If linked, however, the file only exists physically in one place, but would be equally accessible from all directories in which it appears. The file may be named differently when linked. The real file is erased when its last link is removed. Links may only be established within a file system contained on the same storage device.

This wraps up our introduction to the UNIX/XENIX file system. I understand that Microsoft is configuring their MSDOS/PCDOS to be similar to XENIX. I invite comparisons from the IBM PC group or any others who are familiar with Microsoft's latest releases.

Stan Misel

```
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Micro Thoughts - Al Levy

I mentioned in the last issue that my kicks come from taking an idea and expanding it to its logical conclusion. A next step in file handling could be a "control file". A control file contains information about a data file. Advantages will be discussed in the next issue. Pictured below is the control file for the LICA mailing list. The field names are still in the first record "header" of the data (Mail List) file.

		LICA Mail List Control File									
Record #1 (ten numbers)	502	428	1	1	10	10	30	30	30	30	30
502=number of entries allowable	14	13	2	1	0						
428=number of records being used whether current or deleted. A deleted record will be used again	3	5	1	103	372	397	354	10	36	2	
1=One record is used for field names.	362	277	379	105	133	13	14	57	390	279	
1=File is indexed by the first field at this time.	17	348	129	307	22	23	257	384	395	342	
The 1st field contains the first ten characters of your last name	427	188	15	39	306	28	29	187	30	151	
10=The number of characters allowed in the 1st field LASTNAME-FIRSTNAME	31	104	18	12	423	24	7	376	120	33	
10=The number of characters allowed in the 2nd field ZIP-LASTNAME	34	35	40	363	37	38	273	331	48	16	
30=The number of characters allowed in the 3rd field SPARE LINE	80	156	146	240	220	266	216	235	294	322	
30=The number of characters allowed in the 4th field NAME as it appears on the label	141	228	46	213	297	285	383	117	428	49	
30=The number of characters allowed in the 5th field ADDRESS as it appears on the label	50	52	51	27	330	43	386	54	138	55	
30=The number of characters allowed in the 6th field CITY STATE AND ZIP	56	89	416	58	262	341	332	59	61	64	
Record #2	412	68	153	70	71	72	305	315	351	414	
14=The number of characters allowed in the 7th field PHONE NUMBER	66	169	308	401	175	65	248	424	203	67	
13=The number of characters allowed in the 8th field EXPIRATION DATE	76	176	278	343	227	109	382	79	349	77	
2=The number of characters allowed in the 9th field SUB GROUP	295	85	112	378	81	258	82	83	136	199	
1=The number of characters allowed in the 10th field Y or N (reclieve Stack)	86	87	88	172	325	371	356	367	90	375	
Record #3-53	53	415	92	170	296	102	142	19	21	211	
The alphabetic order of the entries. The first name entered is now the 3rd in alfa order.	84	93	344	205	327	94	95	329	193	310	
	369	69	335	161	97	293	130	78	243	167	
	99	32	100	184	403	355	275	106	396	400	
	387	107	108	312	145	302	111	96	373	113	
	114	115	160	393	345	381	118	119	404	8	
	20	350	365	394	122	123	124	125	126	47	
	127	128	152	116	131	132	148	134	336	135	
	413	236	357	234	137	74	6	139	418	340	
	246	164	200	143	144	230	98	101	217	166	
	149	150	385	389	392	358	388	91	62	26	
	174	41	417	155	361	157	121	334	163	154	
	159	408	370	44	359	366	63	282	165	328	
	352	222	377	391	171	398	186	226	177	221	
	178	219	324	206	347	180	181	42	269	360	
	185	238	190	264	212	337	191	192	215	158	
	194	140	326	195	402	198	249	380	201	202	
	233	207	253	364	162	208	339	197	45	263	
	214	338	25	218	224	405	368	225	183	4	
	60	9	75	231	209	425	232	426	237	255	
	147	239	241	333	244	245	196	251	252	229	
	250	254	407	374	110	182	259	261	419	265	
	422	286	267	268	270	317	271	272	274	276	
	409	242	281	223	189	283	284	179	210	287	
	288	346	289	291	290	292	256	173	298	299	
	300	411	399	204	303	353	304	410	421	301	
	247	280	309	73	11	420	311	260	313	168	
	314	406	316	318	319	320	321	323	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	5	11	15	26	36	44	55	72	75	87	
	98	99	102	107	108	109	120	127	134	148	
	159	173	176	176	177	179	180	183	183	183	
	194	200	205	216	227	228	246	257	261	270	
	277	277	279	282	284	296	300	302	302	302	
	302	309	326	326	352	362	375	381	383	387	
	387	387	387	393	396	396	409	415	415	415	
	415	415	415	415	418	424	427	428	428	428	

All these zeros indicate that these records have not been used as yet.

These records were deleted. They have been used again, or will be used again if still marked deleted.

428=Last Entered Record

Record #3 will be the first name and address printed in alphabetic order.

PolyMorphic Users Group Secretary's Report

At our third meeting we discussed more of the SYSTEM commands and special characters. The operating system is called "Exec." The following commands work while in Exec.

The **Asterisk** is used much as in CP/M: "DE <3>*.TX" will erase all files with the TX extension. "DE <3>PAYROLL.*" will erase all PAYROLL files. Multiple entries can be made on the command line so long as a space or a comma separates file names. Example: DELETE <?>FILE1 <2>FILE3 <1>FILE5 <5>*.TX etc. When files are deleted Poly reports "<4<FILE.TX deleted"

A **question mark**: sets the wild card. "PRINT <?>STACK" Poly will look on each drive for the appropriate file. If it does not exist the error message "I can't find that file" will appear

DISPLAY: puts on the video screen a message somewhat like this:

```
Top of Ram FFFF
Wild card path 3>MAY>Page1
Last error 0300
```

A **wild card path** is defined by typing a number sign (#) and a pathname: # <5<MAY
Since Poly uses sub-directories and file names can be as long as 41 characters, it would be easier to type: ED <#<Page16 than EDIT <5<L-I-C-A<STACK<1983<JANUARY-ISSUE<Page16
The wildcard can be utilized from programs. The BASIC syntax is FILE:6,OPEN,"<?>FILE",INPUT.

When the system is enabled, (double dollar sign prompt \$\$) CTRL/Z jumps into a software front panel whether in BASIC, the EDITOR, Exec or any other mode. This works like a "real" front panel. Entries are made from the keyboard, not switches.

DUMP: works much like the CP/M transient file. It is resident code. Addresses are given in HEX. The syntax being DUMP 0000 00FF. This displays the addresses and code for those locations. Blocks of trailing zeros are not displayed. Memory may be dumped to an "ASM" type file.

RESET: does a warm boot and heralds the system "Exec 96." This clears the stack when assembly language programs have been manipulating it to death.

Setsys: brings a prompt "which directory?" The response can be any directory or sub-directory. All files within that directory become "system files." They cannot be copied, erased, printed, typed, renamed etc. They are invisible when the system is disabled.

b: Short for "boot" logs some other drive as the System drive. The syntax is "b 3" for drive #3.

GET and START: are used in combination. GET places a machine language program in memory. This makes sense when the utility is buried in some sort of subdirectory such as <5<TRICKS<BIT <4<file. It is much easier to type START <#.

CON: A BASIC can return to Exec. with "BYE" or "EXEC" or Z=CALL(0) from the operator or the program itself. The Exec command "CON" returns to BASIC and the BASIC command "CON" continues the program. This can be controlled from the program, the keyboard or a command file.

REENTER: When the system goes down, Exec should be ENABLED and the word REENTER typed. This will bring back a file that was being edited, a program in the middle of execution etc. It does not always work, but it is a nice feature for those other times. (STATIC memory boards are standard for the Poly.)

SAVE: will save a block of code from memory to a file. The "saver" must know the starting address (HEX) the number of sectors that will be needed (HEX) and the file name.

Keyboard modes are enabled with the commands "fold", "F U L L" and "flip". "fold" converts all letters to upper case. "F U L L" returns you to a normal keyboard. "flip" switches the upper and lower case functions. Only the letters A-Z are affected.

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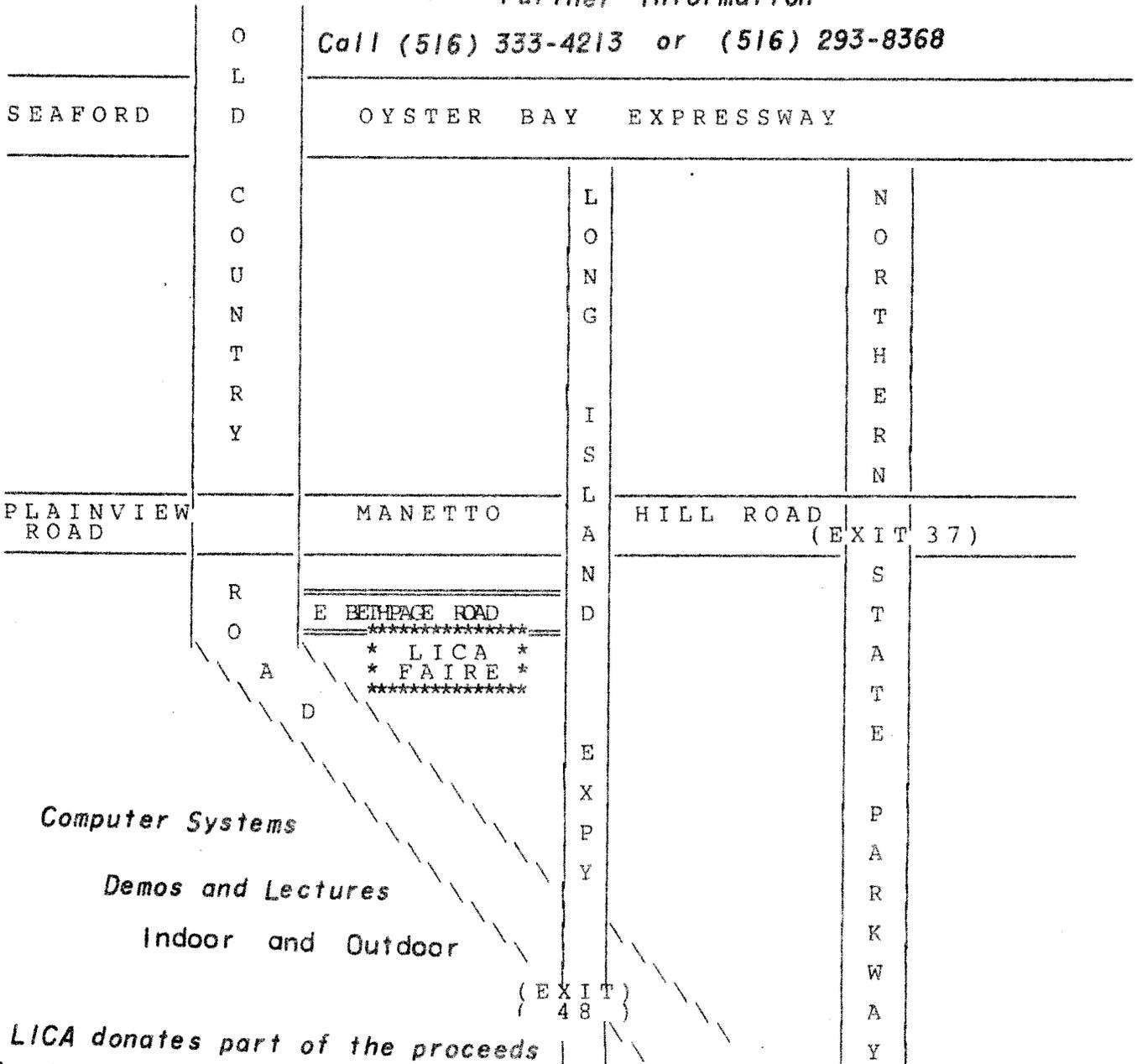
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