

T. I. dings
From NewJUG/North
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NEXT MEETING: NOV. 21th at Dumont H.S.
DEC. MEETING: DEC. 12th

MINUTES October's Meeting:

By Jim Ott

The October meeting came to order at 7:15pm with an attendance of 15 members. Walt began the meeting by discussing a new 'c' language program Frank Lees saw at the Iselin UG meeting. The program is called C-Shell. Walt didn't go into much detail on what the program does, but said that it's something we must see. Walt invited Joe Ross to demo the program for us at the next meeting.

Frank Filice brought in a bare Zeno board. A Zeno board goes into the console and it adds speech, 32K memory, and a clock. Sounds good, but can be tedious to assemble.

Our treasurer reported a balance of \$119.68.

The discussion then led to the club's future. The club members agreed that updates and new software are becoming scarce for the 4A. The latest program of interest is TI-BASE. Perhaps we will have a demo of the program soon. The price of the program is between \$17.95 and \$24.95, depending on vendor.

Before the meeting adjourned, John Bonito mentioned that the Trenton State Computer Faire will be held on April 21-22.

Following the meeting, Bill Staedeli gave a demo on editing in 40 columns in TIW then printing in 80 columns. Unfortunately the demo wasn't too successful because we used a MYARC system. However, the program did work correctly when used with a TI-RS232 card.

Hoping you guys and gals stick together as members of NJUG/N or team up with a regional club from NY or NJ.

Yep, there ARE smaller groups around and VERY active, each with NLS of their own, and one ON DISK format, the latter with occasional fairware programs (archived), notably the Central Westchester UG led by the benevolent sage, Art Byers.

Note: Whatever the club decides, I'd like to be better informed. Calls are too infrequent and letters, too. Strange for people with computers have very little use for one of the best, and EASIEST, word processors around, and still unmastered! It's the information age, and talk and writing is inexpensive. Writing may be a lost art but it CAN be mastered to the degree of being communicative and rewarding. Try it once in a while.

Maybe it's the lack of communication among members which dims my enthusiasm for writing this NL. I think so!

On the limitations of software for the TI, as discussed during the last meeting, I tend to disagree. There is a continual flow of NEW software from many quarters. You discussed two of the most recent programs for the TI which are very sophisticated and worthy of purchasing. That is, if you have a use for them. TI-Base, for example, is the nearest thing for the 99/4A to D-BASE III or later. C-Shell is a sorting utility applied to special files created by databases, that is, from what I read.

For those who are game enthusiasts I regret to be amiss in failing to report them to you. There are even utilities out there enabling you to create your own games, sprites, etc. If you're musically inclined there are many in this area too. No, this machine is NOT dead, and the club members should be more optimistic. I guess it's that some club members are holding back on info, even from me, about what they have and are unwilling to share, as far as news is concerned. MICROFENDIUM lists them, ASGARD JOURNAL lists them, and I've frequently listed sources of software in these columns.

For me, I don't need any new software. So why am I in the club! To serve you with this info! I only hope that there are a few of us that share the same enthusiasm. Meet with each other BETWEEN meetings, get a download from a BBS such as Genie, Delphi, Compuserve, etc., talk about it, write about it!, Spread it around!

RAMblings by Henry

Bill Sponchia's (Ottawa UG) QBASE's should, by now, be circulating among members. I finally got the 'glitch' out of the disk he gave me which prevented it from working. The SORT program does not work independently. It is called up by the main program's menu when you need it. It's a no frills data base and pretty fast for a program written in XB. If you like it, don't forget his due. Some time ago I mentioned a version of TIW from the Ottawa UG. It has been updated to eliminate some of the inconveniences some of us have experienced. For example, on long documents, one can go to the beginning of the document with one keypress. Another, docs having special character commands have left blank spacing at the end of right justified lines. This TIW update has a fix to prevent this. Note some of my NL columns in the past with this 'bug', which showed up when I used italicized words, expanded print, and other commands in formatting. Maybe a nice version to have around. Double spacing after using periods is annoying, though conventional, but not when used after abbreviations. a writer or editor must be conscious of this feature TI imposed on us, though easily remediable by using the caret. It also has a feature which special character commands need not be transliterated. See the July - August NL for more info on getting a copy.

Last month I remarked that using TIW's 40 column editor is the way to go! If you haven't learned it by now you probably never will. It makes things so easy. You can edit it 40, format in 80, even more, for printing! I'm glad that Bill S. was around at the last meeting to demo this. Seeing is believing! But Faith is only a gift and a becomes a blessing if practiced! OFTEN!

Zeno Who?

Frank Filice is the proud owner of the Zeno Board! What does it do? Well, it is a card that puts 32K STATIC RAM, whatever that is, inside the 99/4A console which can be piggy backed with the XB ROM and Speech chips. The board also includes a battery backed clock, 3

additional switched grom sockets, and a grom reset switch. The inventor says it's compatible with ALL software made for TI.

Want to tinker? Rather than take the chance of removing the ROM chips from the XB cartridge you can buy the chips itself from TI's Parts Division and do some soldering BEFORE installing the board with your enhancements into your console. It would make your TI more portable in that you needn't carry the PEB around with you, except for word processing and data management programs that require disk operation. Ask Frank for details. As of this writing Frank hasn't assembled it. He does like to tinker. He put together his Horizon RAMdisk kit himself with his superb soldering skills long ago.

The board is named after its inventor, Eric Zeno (not the 4th century B.C. Greek philosopher). For the board and docs send \$21 to Eric at 414 Highland Road, Pittsburgh, PA 15235. S/H included!

Zeno is a member of the PUG.

From the Dallas TI UG an article by John Guion gives us some insight on the architecture of the TI 99/4A. He gives us some hints on debugging the console. Including same article in this NL!

Bridge Anyone?

Joe Simmons of K-Town reviewed a set of programs including a tutorial on the game of *Bridge*, by John H. Bull (that's no bull!) It teaches how to "count bid points, determine biddable suits, and how to score hands." All hands are visible. The only weakness the reviewer sees "is that the computer does not see the void in the dummy's hand." Otherwise, "you will not find a better \$20 investment." For this fairware pgm write Bull at 409 Blue Valley Lane, Knoxville, TENNESSEE, 37922.

On Printers:

John F. Wilforth, of the PUG is starting a series on printers. Something to treasure in your files. Including his first installment here!

Pittsburgh is a fairly large city and must have a lot of TIers in their UG. For some reason they produce a lot of good writing on the TI which I included in this NL in the past. Hope they continue. Ed!

PRINTERS #1

by John F. Willforth
(SEPT. 1989 PUG) (ML=More Later)

I will not say how far I'll go with this series on printers, only that when NO ONE finds strategically placed ERRORS, I'll assume that either no one cares, or I've lost you all.

I must start out at the beginning. The printer is probably the most common and useful device for a computer. You can do without a disk (you could store all in memory), and you could do without modems (some of you could never imagine how), you can even do without a monitor, I've seen people do it. But to take away the printer would be akin to taking away the brush, paint, and canvas from Picasso. Almost nothing that is input to a computer from keyboard, modem, disk, or even a cassette serves a useful purpose unless a "HARDCOPY" of the redesigned, sorted, aligned, deleted, added to, or otherwise corrupted data is created. Even the act of writing the initial program that does all of the above is made easy by making a listing of that program as it develops (a frequently used aid in debugging). I know that initially, even more than a disk, I desired a PRINTER.

A printer generally is like me. It takes orders, but can only let you know if it is getting behind in it's work, is hungry, or has died (so maybe this is the only way for both of us to be missed. A printer is generally a RO, (Read Only) device. There are those with keyboards, but those are generally used as hardcopy master consoles on commercial computers so that the business will have a paper trail of all actions taken by the system manager and operators on the system. I would have a very hard time identifying system problems, if a CRT Terminal was used as a master console. The printer is generally interfaced to the CPU through either a SERIAL (RS232) or PARALLEL interface and cable. The T.I. 99/4 and /44 using a P.E.B. RS232/PIO card can drive either interface. The old T.I. interface was first the TP (we won't discuss here), and then the dual-RS232 Stand-alone. I know that a limited number of them were produced, and that some companies like CDCOMP, MYARC, BOXCAR, and others produced a variety of cards for this purpose.

The printer receives the data to print if it is READY:

- * ON-LINE and POWERed up.
- * The printer buffer (if it has one) is NOT FULL. The printer will usually print slower than data will be sent. Today's printers generally have 1K, 2K, 4K, 6K, 8K or even larger BUFFERS within themselves to allow data to flow at a faster rate to the printer than it can actually be printed. ML
- * NOT OUT OF PAPER!

The printer can only let the CPU know when it is behind in it's work, or out of paper in a serial printer hooked to the RS232 port, this is accomplished with a HARDWARE BUSY signal from the printer CTS (Clear to Send) pin 5 to RTS (Data Set Ready) pin 20 on the RS232/PIO card. In otherwords when the printer can not accept any more control or data from the CPU logic in the printer changes CTS to NOT CTS, this in turn is INPUT to the RS232/PIO card as NOT OTR, and the flow of data stops until the printer catches up (just by printing one line), having the new paper installed, or the OFF/ON LINE status changed to ON LINE (Ready). These three conditions are NORMAL and occur often even when you don't think about it.

If the printer is PIO (the most common) all of the above conditions apply, but the method is slightly different. When the printer is BUSY it OUTPUTS a signal on pin 11 (BUSY) [High at +5v.] more directly NOT GROUND to the PIO port on the RS232/PIO card pin 10 called HANDSHAKE IN. The flow of data will be stopped.

If you do not have the cable for the SERIAL or PARALLEL (PIO), printer made as it should be to control data flow, you may print a page or two but eventually characters of data or control will be lost.

Since TI didn't like convention, they made TRANSMIT on the SERIAL port. pin 3. RECEIVE must therefore be pin 2. When you hook up RS232 ports on other types of equipment, you usually have to cross pins i.e.: 2 to 3 and 3 to 2 so the mouth of one speaks to the ear of the other and visa versa. Not TI! No! pin 2 goes to pin 2 and pin 3 goes to pin 3. On the PARALLEL port to the RS232/PIO card, they did even more dirt. They chose a 16-pin connector that is so rare that God threw away the pattern. But the signals that do arrive there are acceptable to the PIO convention. The only real problem here is with STROBE (the signal that tells the printer when to look at the eight data lines for a good character), and polarity appears to be the major problem, the problem lying with a few printers, not TI. In case you didn't know it, the PARALLEL (PIO) interface sends to the printer much faster than SERIAL (RS232) because the entire 8-bit byte of data appears at the printer in one time frame, while it is spelled out one bit at a time to the printer.

As you can tell, I'm dealing with the interface cables for your printer this month. If you can't get the printer to run on your TI, then you won't be able to keep up. Below are two cable configurations that should work, and cause the flow of data between your TI and the Printer to be smooth, and complete. (Remember, there are printers that will give you trouble because of "NON-STANDARD", [what-ever that is] protocol, strobe or data polarity, timing, etc.)

The SERIAL (RS232/1) cable:

	TI end	Printer end	
GROUND	7	7	GROUND
REC. DATA	2	2	TRANS. DATA
TRANS. DATA	3	3	REC. DATA
DTR	20	5	CTS

The SERIAL (RS232/2) cable:

	TI end	Printer end	
GROUND	7	7	GROUND
REC. DATA	14	2	TRANS. DATA
TRANS. DATA	16	3	REC. DATA
DTR	19	5	DTR

The PARALLEL (PIO) cable:

	TI end	The Printer end	
STROBE	1	1	STROBE
DATA 0	2	2	DATA 0
DATA 1	3	3	DATA 1
DATA 2	4	4	DATA 2
DATA 3	5	5	DATA 3
DATA 4	6	6	DATA 4
DATA 5	7	7	DATA 5
DATA 6	8	8	DATA 6
DATA 7	9	9	DATA 7
READY	10	11	BUSY
GROUND	16	16	GROUND

(optional) ground 19 thru 30

If you can't get your printer to run with one of the cables indicated above, I can give you some suggestions, but I won't be reprinting these special cables in this series.

In PRINTERS #2 we'll start with the commands that are sent to printers to make them do what they do. This is one of the most interesting things that we'll get into in this series. This therefore will not be a hardware only series. I wanted to get into printers because this is the one peripheral that everyone of you can really make perform, and to do it takes some understanding of hardware, but even more understanding of printer commands.

PS: The Parallel interface on the TI RS232/PIO card is BI-DIRECTIONAL. This is significant for those of you who are looking for a high speed INPUT/OUTPUT port for the TI. You just have to control the reading of this PIO port. Maybe you can find something in the Editor Assembler manual on this. Why not look into it? ML

FYGI: For Your Graphic Information

By Carol Tapia

I. CONVERSIONS

For those of you who wish to convert pictures, graphics, or fonts from one TI art program to another, here is a listing of what conversions are available in both the art programs and art utility programs:

A) ART PROGRAMS

- 1) TI ARTIST--you can convert to and from the following formats:
 - a) TI Artist
 - b) Draw-A-Bit
 - c) Draw N Plot
 - d) Graphx
- 2) PICASSO--
 - a) You can use TI Artist _P files or any 24 sector graphic file.
 - b) You can convert an XB font to a Picasso font
 - c) You can convert a Picasso font to an XB font
- 3) THE PRINTERS APPRENTICE--
 - a) You can convert TI Artist graphics (_P files, instances, and fonts) to TPA format
 - b) You can convert CSGD to TPA format
- 4) CALENDAR MAKER 99--
 - a) You can use Picasso pictures
 - b) You can convert TI Artist instances and small fonts to CM99 format
 - c) You can convert Fontwriter II fonts to CM99 format
- 5) FONTWRITER I--
 - a) You can use TI Artist (DV/80 format such as instances and fonts)
 - b) You can use files converted to TI Artist from Graphx, CSGD, or RLE format
 - c) You can convert files between TI Artist and CGSD formats.
- 6) JIFFY FLYER/JIFFY CARD--
 - a) You can use CSGD/gr and CSGD/fl files (small graphics and fonts)
 - b) You can invent your own borders by changing the hex codes in any line between 76 and 122. Use a program such as the Graphics Designing Package to create your hex codes.
- B) PAINT N' PRINT--You can use Graphx pictures (54 sectors)--they can then be printed in color
- 9) JOY PAINT--converts to and from the following:
 - a) Graphx
 - b) TI Artist
 - c) Draw N' Plot
 - d) Sketchmate (used with Super Sketch)

- 10) GAP (Giant Artist Posters)--uses TI Artist _P format
- 11) PAGE PRO--will convert TI Artist instances and fonts to Page Pro format
- 12) GEOMETER'S APPRENTICE--will use TI Artist _P files
- 13) CERTIFICATE 99--all the graphic files can be modified (borders, graphics, fonts, and even signature files) using either of the following programs:
 - a) TI Artist
 - b) Joy Paint (Using this option you can compress the file and save a lot of disk space.)

B) ART UTILITIES:

- 1) ARTIST ENLARGER--enlarges TI Artist fonts and instances
- 2) ART CONVERT--converts TI Artist instance and small fonts to TI Writer usable format
- 3) ARTIST CONNECTION--(this is on TI Artist Companion disk #21), allows the use of TI Artist instances in Basic or XB programs
- 4) XB TO ARTIST CONVERSIONS--converts XB graphics to TI Artist format
- 5) TASS--converts to and from any of the following formats:
 - a) TI Artist
 - b) RLE
 - c) Graphx
 NOTE: It also reads Draw-A-Bit II and Draw N' Plot formats but doesn't convert them.
- 6) ARTIST EXTRAS--This disk has three conversion programs:
 - a) CSGDFONT--converts CSGD fonts to TI Artist fonts
 - b) CSGDGRAPH--converts CSGD graphics to TI artist instances
 - c) CSGDPICT--converts CSGD pictures to TI Artist instances
- 7) CONVERT254--converts TI Artist to IV254 format (this may work with CSGD, also)
- 8) MAX-RLE--converts to and from the following formats:
 - a) TI Artist
 - b) Graphx
 - c) RLE (DV/80)
 - d) RLE (DV/128)
- 9) FONTCNVT--converts from TI Artist to Picasso and vice versa (8x8 fonts only)
- 10) INSTANCE--prints individual instances in double or quad density
- 11) 80T0128--converts DV/80 to DV/128
- 12) 128T080--converts DV/128 to DV/80

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- 13) INS/TO/XB--converts instances to XB format
- 14) 1000 WORDS--converts TI Artist_P files to DV/80 format to use with text (but does not allow text and graphics on same line)
- 15) GRAPHICS EXPANDER--Converts to and from the following (as well as enlarges, inverts, and rotates):
- a) TI Artist
 - b) CSGD
- 16) GRAPHICS EDITOR--makes 5x5 graphics in the same format as CSGDD
- 17) MACFLIX--reads MAC pictures and can convert them to TI Artist format.

There have probably been more programs and utilities added since I began this list--if you know of any, please let me know.

II. FILE TYPES

The purpose of this column is to help those of you who have alot of mixed art files, sometimes on the same disk, to be able to identify which program they belong to.

- A) TI ARTIST has five different file extensions
- 1) F --this is a font file in DV/80 format
 - 2) S --this is a slide file in DV/80 format
 - 3) I --this is a small graphics file (instance) in DV/80 format
 - 4) P --this is a picture file in program format and is usually 25 sectors
 - 5) C --this is a color file in program format, also 25 sectors.
- B) BIT MAC saves its screens in IF/128 format, usually 33 sectors
- C) GRAPHX has three types of files:
- 1) Clip Art--such as small graphics, borders, and fonts, in program format and usually begin with the letter "C"
 - 2) Screens--these are large pictures in program format, usually 54 sectors (these files usually begin with "S")
 - 3) P TI Artist pictures NOTE: TI Artist P files and Graphx screens can be read by Paint N'Print
- D) CSGD (Versions I, II, III) support four different types of file formats:
- 1) /gr--this is a small graphic picture in IV254 format
 - 2) /ch--this is a font file in IV254 format
 - 3) /dt--this is a large data picture in IV254 format and can only be read by CSGD I
 - 4) /wr--this is a docuprint font file in IV254 and can only be read by CSGD III
- E) PAINT N'PRINT stores pictures in a program format of 57 sectors
- F) DRAW N PLDT saves files in a program format of 25 sectors
- G) CALENDAR MAKER 99 uses three type of files:

- 1) :P--this is a small instance type picture file in IF/105 format
 - 2) :B--this is a border file in IF/10 format
 - 3) :T--this is a font file in IF/9 format
- H) CERTIFICATE99 contains the following types of files:
- 1) cdata--graphic files in program format
 - 2) borders01--graphic border files in program format
 - 3) graphics01--graphic picture files in program format
- I) THE PRINTER'S APPRENTICE has six different file formats:
- 1) SDSH (single strike) fonts are in DV/80 format and usually 36 sectors
 - 2) OUSH (over-under strike) fonts are in DV/80 format and are usually 68 sectors
 - 3) P picture files (TI Artist) in program format, 25 sectors
 - 4) X picture file--an EXTRN file in program format, 25 sectors
 - 5) Text file in DF/80 format
 - 6) scheduler file in DV/80 format
- J) DRAW-A-BIT saves pictures in DF/254 format
- K) PICASSO saves its files in the following formats:
- 1) picture files in DV/80 format
 - 2) font files in DV/80 format
- NOTE: will load P files from TI Artist and other 24 sector picture files
- L) DESKTOP PUBLISHING CARTRIDGE uses the following formats:
- 1) .P--picture files in DF/160 format, usually 11 sectors
 - 2) text files are saved in DV/80 format
- M) GEDMETER'S APPRENTICE uses two types of files:
- 1) O--object files in IF/128 format, usually 5 sectors
 - 2) P--picture files in program format, 25 sectors
- N) JIFFY CARD/ JIFFY FLYER use the following type files:
- 1) /gr--graphic files in IV/254 format (the same as CSGD graphic files)
 - 2) /fl--flyer files in DV/80 format
 - 3) /CD--card files in DV/8D
- O) MACFLIX uses picture files in DF/128 format
- P) Joy Paint saves its screen in program files, usually 25 sectors unless you use Joy Paint Pal's compressed save feature. This feature can sometimes compress a file up to 60%.
- Q) PAGE PRO saves its files in the following formats:
- 1) picture files are saved in IF/13 format
 - 2) font files, both large and small, are saved in program format

I hope this helps you in sorting out your graphic files. If you know of any other graphic formats, please let me know.

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IMPACT/99

by JACK SUGHRUE
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THE SOFTWARE BIGGIES

GENIAL COMPUTERWARE (Box 183, Grafton, MA 01519) is emerging as a TI software developer to challenge long-time leader in this field, ASGARD SOFTWARE (Box 10306, Rockville, MD 20850). Both companies' free catalogs make a 99er's mouth water.

Genial's 15 programs (by authors Peter Hoddie, Paul Charlton, Warren Agee, Mike Dodd, John Johnson, and Wayne Stith) are primarily utility: MACFLIX (\$15) lets you view, print, and save graphics created on the Macintosh; PICTURE TRANSFER (\$30) permits viewing different graphic files, creating slide shows, combining multiple images, and converting among formats (GIF, RLE, MYART, GRAPHX, TI-ARTIST) for the Geneve; TRIAD (\$20) combines the features of a terminal emulator, 40-column text editor, and disk manager in one program; HYPERCOPY (\$20) is called by Genial "the final word in disk copiers" and can copy an SSSD in less than 35 seconds, provide a skewing technique for faster disk reads, format, provide multiple copying facilities, and more; GRAPHICS EXPANDER (\$10) not only converts between TI-ARTIST and CSGD formats but can stretch, shrink, mirror, and rotate graphics all in fast assembly; GRAMPACKER (\$10) customizes GRAM emulating devices in significant and very useful ways; XBASHER (\$10) is faster and better than Jack Sughrue's SMALLIFYING program contained within his PLUS! disk and can compress up to 1/3 of an XB program; XB:BUG (\$15) debugs, modifies, searches, displays as it provides a fine XB tool for the programmer; REMIND ME! (\$15) functions as a fun and fast schedule planner with all kinds of built-ins; BROWSE (\$10) aids in the management of text files by permitting viewing, printing, combining, and browsing; PC TRANSFER (\$25) fast and efficient way of moving data between your TI (and/or Geneve) and an MS-DOS machine make this an extremely valuable tool for those 99ers who work with IBM; GENIAL FONT PACKS (\$10 each) provide a collection of 19 different fonts for use with TI-ARTIST along with some additional graphics programs; and FIRSTBASE (\$49.95) a full-featured database program expected to be the only real competition to the powerful TI-BASE (\$24.95 - Incebot, P.O. Box 291610, Ft. Orange, FL 32829), will have a variety of exceptionally fine database features for the TI or Geneve.

Asgard's catalog of 57 software packages contains a larger variety of materials for the TI/Geneve user: games, graphics, utilities, production tools. In addition to Hoddie, Agee, and Charlton, the author/artists who create Asgard software include Ken Gilliland, Donn Granros, Harry Wilhelm, Tom Wynne, Chris Bobbitt, Ed Johnson, Robert Coffey, Tom Bentley, John Behnke, Jim Reiss, Mickey Schmitt, Paul Scheidemantle, Howard Uman, Tom Wible, Travis Watford, and Charles Earl.

Games: BALLOON WARS (\$4.95) an arcade strategy game with 20 screens of dangerous manned balloon flying; COLUMN ATTACK! (\$9.95) an 11-level fast arcade game - demands perfect laser control to defeat the insane Flugelins; DOOM GAMES I & II (\$7.95 each) include a pile of bizarre epics for the TUNNELS OF DOOM addicts; THE GAME PACK (\$5.95) provides two distinct arcade games on one disk [Haunted Mine II and Missile Wars]; HIGH GRAVITY (\$9.95) is an addictive space simulation game that

must be played to be appreciated [and my personal favorite]; VOLCANO FORTRESS (\$7.95) is a collection of five additional TOD great games; LEGENDS (\$22.95) is considered by MICROpendium, Computer Shopper and many newsletters to be the best graphics adventure game EVER for the TI; LEGENDS II: THE SEQUEL (\$17.95) features so many new, exciting things it is already considered by many to be even better than its predecessor; OLD DARK CAVES: THE LOWER CAVERNS (\$17.95) by the same author not only continues with the extraordinary graphics of the LEGENDS series but contains a 50-level dungeon; OLIVER'S TWIST (\$9.95) will satisfy the cravings of Adventure Module owners with this very unusual adventure.

Graphics programs from Asgard that are \$7.95 each include two sets of ARTIST BORDERS, five of ARTIST FONTS, and nine of ARTIST INSTANCES. The variety of these TI-ARTIST collections is incredible. There is also ARTIST ENLARGER (\$9.95) which can enlarge, squeeze, stretch, or reduce singly or in multiple passes any pictures or fonts; FONTWRITER II (\$22.95) provides a companion/environment for TI-ARTIST that will let you successfully use graphics with any version of TI-WRITER; GRAPHX COMPANION SERIES (\$24.95) contains all four packages of this popular series of hundreds of pictures, clipart, borders, fills, and more; DISK OF DINOSAURS (\$12.95) is a delightful and unique graphic package of dinosaurs and animation; GRAPHX SLIDESHOW (\$9.95) allows viewing of GRAPHX or RLE pix in extraordinary ways; MY-ART COLORING BOOK (\$9.95) for the Geneve is a companion to the MY-ART program.

Although Asgard has always been famous for such productivity tools as RECIPE WRITER (and the ELECTRONIC GOURMET companions), SCHEDULE MANAGER, STAMP MANAGER, and the free-wheeling C-database TOTAL FILER, the company has released a new pile of unique additions. TYPEWRITER (Disk \$19.95, Module \$24.95, Module with built in printer port \$39.95) is just what it says it is - a full-featured electronic typewriter that is incredibly easy to use; CALENDAR MAKER 99 (\$19.95) and CALENDAR MAKER UTILITIES (\$12.95) will satisfy even the most jaded calendar user with user-friendly graphic/text picture-perfect calendars from any month or any year from 1600 to 2400; CASSETTE LABELER (\$9.95) simply and quickly prints detailed cassette box inserts for your computer or audio cassettes; FORM MAKER 99 (\$24.95) not only creates very complicated business forms but almost any kind of ANYTHING that can be designed for home, school, business, PTO, the kids, or anything else; and PRESS (\$59.95) already described at the best word processor for the TI is compared favorably to the massive processors for the IBM and others.

Asgard's Utilities include BATCH-IT! (\$19.95) which permits all kinds of sophisticated programming techniques with a minimal amount of effort; EZ-KEYS PLUS (\$14.95) considered the ultimate XB programmer's environment has just as many uses for non-programmers; BEYOND VIDEO CHESS (\$9.95) lets you - AT LAST! - save and load chess games to disk, print screen or listing of moves, control the pieces with a joystick, use the board for two players, and more; MUSIC SYNTHESIZER (\$9.95) lets a novice create music by dropping the notes onto a screen page; PR-EDITOR (\$19.95), a multi-featured, superb text editor, is a programmer's ultimate tool, no matter what language you write in; RAM*BOOT (\$9.95) automatically boots setups for Myarc's 128 and 512K cards; TOD EDITOR (\$19.95) is the only utility for creating or changing TOD games; QUICK-RUN (\$9.95) may be destined for the most-used XB utility for the TI once people begin to use it as it the fastest way to operate XB programs in existence.

It is well worth every TI owner's time and quarters to send off for these tempting, descriptive catalogs from Asgard and Genial.

(Editors Note Oct/1989)

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CONSOLE DEBUGGING HELP

By John Guion

Dallas TI Home Computer Group

PROBLEM AREAS

- 1) Console will not power up
- 2) Keyboard errors
- 3) Intermittent console lock up
- 4) Module errors
- 5) Joystick port errors
- 6) Video output difficulty
- 7) Sound problems

The TI-99/4A Console and Peripheral Expansion System Technical Data manual available from Texas Instruments' Dealer Parts Department [(806) 741-2265] will serve as an excellent source for schematics and part location guide.

The information contained herein is only intended for use as a reference for possible debugging procedures. It is not intended as a repair guide for the common user with little or no knowledge of digital electronics or the basic structure of the TI-99/4A system. The author assumes no responsibility for damages resulting from improper use of this information.

1) CONSOLE WILL NOT POWER UP

1.1 General information

Failure of the TI-99/4A console to power up and produce the TI title screen is a common problem that is also the hardest to track down and fix since failure of nearly any component in the console or power supply can cause this.

The following are not intended as solutions to the problem, but merely as points to check that may aid in finding the actual problem and fixing it.

Unless a particular part is suspected, replace any socketed chips possible with known working equivalents before desoldering any components. Since the socketed chips are common causes of lock up, eliminating them as possible problems first may save excess soldering on the board. The console will power up if the sound chip is removed entirely, but not if that chip is shorted internally.

A simple TTL logic probe can be used for tracing signals in the circuit. An oscilloscope may also be used and has the advantage of being able to check clock signals for proper frequency. When a signal should exist as an output from a particular device, be sure to check that device's input for proper signals before attempting to replace the component. When checking for locked up signals, try to trace all signals back through the circuit to the point of origin. A set of schematics available from several sources, including TI will help greatly in this part of debugging. Tracing locked signals can determine whether or not the signal is missing due to a faulty component that it must pass through or what power up operation was occurring during lock up.

John Guion is deceased due to tragic auto accident. We regret the loss. Maybe rest in peace!

CONSOLE DEBUGGING HELP (Cont.)

1. Check 4116 RAM pin 14 (DATA OUT) on each chip for signal. Each chip missing signal may be at fault as well as TMS9918A.

J. Check TMS9900 pin 62 (READY) for lock up. If locked up, check TMS9900 pin 6 (I-RESET) for signal. If pin 6 is locked up low, possible TMS9904 failure. If high, possible TMS9900 failure. If TMS9900 pin 6 is not locked up, trace circuit back from pin 62 to find fault.

K. Check all three GROMs (CD2155, CD2156, and CD2157) at pin 10 (I-CS) and pin 15 (I-READY) for signals. If either is missing, remove all three GROMs and test pin 10 again for signal. If the signal at pin 10 does not exist, trace back through circuit to find failure. If signal exists, replace GROMs one at a time until GROM that causes lock up on pin 15 is found.

L. Check all three GROMs for signal on pin 11 (MO/A14) and pin 12 (MI/DB1M). If missing, trace circuit to find break in signal path.

M. Check each GROM for -5V at pin 14, +5V at pin 9, and -.8V to -.6V at pin 16. If missing, check for broken trace. If -.8V/-.6V is missing or at -5V, check diode connected to that line.

N. Remove sound generator. If console powers up, check pin 16 for +5V, pin 4 for clock from TMS9918A, pin 5 (I-WE) for signal, and pin 6 (I-CS) for signal from 74LS138 closest to MCM6810. If these signals exist, possible sound chip failure.

O. Check TMS9918A pin 36 for composite video output. If missing, check TMS9918A crystal and clock circuit and pin 16 (I-INT) for interrupt signal. If signals exist, possible TMS9918A failure.

P. Check GROMs for clock on pin 13. If missing, check clock output on TMS9918A pin 37. If signal on TMS9918A exists, check for break in signal path. If not, check TMS9918A oscillator circuit. If oscillator operates, possible TMS9918A failure.

Q. Check pin 20 (I-CS) of console ROMs for lockup. If locked up, trace circuit back to find fault.

R. Check pins 7 and 9 through 15 of 74LS138 nearest I/O port to determine memory area accessed during lock up. Check pin 4 (I-MEM) for lock up. If no signal can be found on pin 7 or pins 9 through 15, possible 74LS138 failure.

S. Check pin 11 (I-CS) of MCM6810 RAMs for lock up. If locked up, trace circuit back to find fault.

T. Check TMS9901 pin 5 (I-CE) for lock up. If locked up, check 74LS138 nearest I/O port for failure. Check TMS9901 pin 11, 17, and 18 for lock up. If locked up, trace circuit back to find fault.

1.2 Console power up procedure

- A. TMS9900 CPU resets and addresses low ROM locations.
- B. TMS9900 initializes.
- C. TMS9900 sets up workspace registers in MCM6810 RAM.
- D. TMS9900 begins GROM read.
- E. TMS9900 enters delay loop for about 1/4 second.
- F. TMS9919 sound chip is disabled.
- G. TMS9918A VDP chip is initialized.
- H. 4116 VDP RAM is initialized (requires about 1 second).
- I. Title screen is loaded into VDP.
- J. TMS9919 sound chip exits beep.
- K. TMS9900 CPU enters keyboard scan.
- L. System is ready for use.

1.3 Voltage/signal checklist

A. Check power supply for +5V, +12V, and -5V. Lack of -5V often results in a gray flickering screen on power up. Check for +5V on chips throughout board. Check TMS9900 for -5V at pin 1; +5V at pins 2, 33, 59, and 64; and +12V at pin 27. If any voltages are missing, check for shorts on main board. Replace power supply if necessary.

B. Check TMS9900 pins 8, 9, 25, and 28 for clock signal. If not found, check TMS9904 clock generator pins 1, 2, 3, and 4 for clock signal. If not found, check TMS9904 supply voltages +5V at pin 20, +12V at pin 131, crystal, and tank circuit. If no external problem can be found, possible TMS9904 failure.

C. Check TMS9918A pin 39 and pin 40 for the 10.73863 MHz clock. If missing, check crystal and oscillator circuit. Otherwise, check TMS9918A pin 36 and pin 37 for clock outputs. If not found, remove GROMs and sound processor (located next to GROMs) and test again for clock. If missing, possible TMS9918A failure. Reinsert GROMs and sound processor after tests.

D. Check TMS9918A pins 14 (I-CSM) and 15 (I-CSR) for lock up. If locked up, check memory enable from pin 6 of 74LS32 and pin 13 of 74LS138 located next to MCM6810. Trace signal to find possible failure.

E. Check TMS9918A pin 13 (I-MODE) for lock up. If locked up, trace signal back to TMS9900. Also check for other components that may be locking up this line (it is used as A14). If no other fault can be found on that line, possible TMS9918A failure.

F. Check TMS9918A pin 1 (I-RAS), pin 2 (I-CAS), and pin 11 (I-R/W) for lock up. If locked up, possible TMS9918A failure.

G. Check TMS9918A pins 17 through 24 (data lines) for signals. If missing, trace to fault. Possible TMS9918A or TMS9900 failure.

H. Check TMS9918A pins 3 through 10 (RAM address/data lines) for signals. If missing, possible TMS9918A failure.

2) KEYBOARD ERRORS

2.1 General information

After much use, the keyboard will sometimes malfunction and key presses will not appear to have any effect or will only work part of the time (either single keys or groups of keys). Keys may also show multiple entries even though only one key was pressed.

The TI-99/4A's keyboard is set up using an I-Y matrix to allow encoding of output signals from a 74LS156 to drive the interrupt inputs of the TMS9901. This method requires only 11 lines to encode all 48 keys. Keyboard failure is almost always a mechanical problem, but occasionally one of the computer's support components will fail and cause similar problems.

2.2 Possible causes and solutions

A. If only one key works intermittently or not at all, that single keyswitch is probably dirty or damaged. Some keyboards may allow for disassembly and repair while others make single key repair less practical than replacement of the entire unit.

B. If a group of keys has suddenly failed to work properly, it is likely that the switches in the keyboard are good and that some common component has failed. Typically, this is a broken wire or faulty driver chip. Consult a keyboard schematic to determine control lines common to groups of keys. When a common line is found, check continuity from the keyboard to the main board. If continuity exists, check loading resistors on the control lines from the keyboard connector before replacing any chips.

C. If the ALPHA LOCK key fails to operate properly and the console has been modified with the addition of a diode in the ALPHA LOCK circuit, remove the diode and replace with a piece of wire. The diode is added by some users to allow use of joysticks with the ALPHA LOCK depressed, but it sometimes introduces a timing problem and is not reliable.

D. If some keys do not work at all and others result in improper entries, check the keyboard plug connector for proper alignment.

E. If a group of keys with a control line common to the 74LS156 fail to function and continuity exists to the main board, use a logic probe to check for output pulses on pins 7 and 9 through 12 of the 74LS156.

F. If the entire keyboard fails to function and continuity exists to the main board, replace the 74LS156 and test again.

G. If 74LS156 replacement has no effect, replace the TMS9901 and test again.

TO BE CONTINUED NEXT MONTH...

TJ-dings, P.7 Nov.-Dec. '89

CATALABEL REVISITED
CATALABEL REVISITED

By Ed Machonis

The double header in not a mistake nor is the computer/printer suffering a case of hic-cups. There are two villians in this piece. An Editor who is quick on the draw and a programmer who can't learn to let go.

I had no sooner sent off my copy to our editor last month than a second look at the programs indicated what seemed to me a better program structure and a nicer label. A quick call to the editor and new copy in the mail proved of no avail. The newsletter was late (So what else is new?) and waited on no man.

I think the improvement is worth another REVISIT and will give us another opportunity to prove Babbage's Law of Programming Diversity: "There's More Than One Way to Skin a Cat!" (For additional info, see the frontispiece in our Dec 88 issue.)

The previous versions required separate input statements and variables for each of the three programs displayed on a line of the label. Separate print commands were also issued. In the new versions, a loop is used and the variables are place into, and printed from, an array. (This is an improvement?)

The big change is that CATALABEL 2 can now display the record length. As I had stated last month, I was not happy giving up this information (I couldn't distinguish between a letter to Aunt Sophie and a program in Merge format.) and I guess that's what prompted that second look.

In order to list three programs on one line of a mailing label, complete with record lengths, file types are displayed in a different manner. It is the method used in J. Johnson's BOOT program. Capital letters denote FIXed record length and lower case letters

mean VARIABLE length records. "D" = DIS/FIX, "d" = DIS/VAR, "I" = INT/FIX and "i" = INT/VAR.

As we use a wider label with CATALABEL 3, the file type display has not been changed in that program. Once you have typed in CATALABEL 2, only a few changes are required to arrive at CATALABEL 3. Change 59 to 67 in Line 5; change 22 to 34 in Line 6; change the Print Using string in Line 8 (add two number signs and an extra space to the last group); change 24 to 36 in Line 9 and the DATA items in Line 10. Oh yes, change the name in Line 1 and label size in Line 2.

The revised listings are as follows:

```
1 ! *****
  * CATALABEL 2 *
  * By Ed Machonis *
  * QB99ers Bayside NY *
  *****
```

```
2 ! Prints A 3 Column Disk
   Catalog On A 1" x 3-1/2"
   Mailing Label
```

```
3 OPEN #2:"PI0" :: PRINT #2:
  CHR$(15);CHR$(27);"A";CHR$(9
  ):: FOR I=1 TO 5 :: READ T$(
  I):: NEXT I :: CALL CLEAR
```

```
4 INPUT "READY?":X$ :: OPEN
  #1:"DSK1.",INPUT ,RELATIVE,I
  NTERNAL :: INPUT #1:A$,J,J,K
```

```
5 PRINT #2:CHR$(14);CHR$(27)
  ;"6";A$;CHR$(20);CHR$(27);"H
  ";
  AVAIL";K;"! USED"
  ;J-K:RPT$("=",59):: L=6 :: F
  OR l=1 TO 43 :: FOR K=1 TO 3
```

```
6 INPUT #1:B$(K),E(K),S(K),M
  (K):: IF LEN(B$(1))=0 THEN 9
  ELSE L=L+1 :: IF L=22 THEN
  PRINT #2 :: L=1
```

```
7 IF M(K) THEN M$(K)=STR$(M(K
  ))ELSE M$(K)=""
```

```
8 PRINT #2,USING "#####
  ### #### " :B$(K),S(K),T$(AB
```

```
S(E(K)))&M$(K):: NEXT K ::
PRINT #2 :: NEXT I
```

```
9 CLOSE #1 :: FOR I=1 TO 24-
L STEP 3 :: PRINT #2 :: NEXT
I :: CALL CLEAR :: GOTO 4
```

```
10 DATA D,d,J,i,PGM
```

```
1 ! *****
  * CATALABEL 3 *
  * By Ed Machonis *
  * QB99ers Bayside NY *
  *****
```

```
2 ! Prints A 3 Column Disk
   Catalog On A 1-1/2" x 4"
   Mailing Label
```

```
3 OPEN #2:"PI0" :: PRINT #2:
  CHR$(15);CHR$(27);"A";CHR$(9
  ):: FOR I=1 TO 5 :: READ T$(
  I):: NEXT I :: CALL CLEAR
```

```
4 INPUT "READY?":X$ :: OPEN
  #1:"DSK1.",INPUT ,RELATIVE,I
  NTERNAL :: INPUT #1:A$,J,J,K
```

```
5 PRINT #2:CHR$(14);CHR$(27)
  ;"6";A$;CHR$(20);CHR$(27);"H
  ";
  AVAIL";K;"! USED"
  ;J-K:RPT$("=",67):: L=6 :: F
  OR I=1 TO 43 :: FOR K=1 TO 3
```

```
6 INPUT #1:B$(K),E(K),S(K),M
  (K):: IF LEN(B$(1))=0 THEN 9
  ELSE L=L+1 :: IF L=34 THEN
  PRINT #2 :: L=1
```

```
7 IF M(K) THEN M$(K)=STR$(M(K
  ))ELSE M$(K)=""
```

```
8 PRINT #2,USING "#####
  ### #### " :B$(K),S(K),T$(
  (ABS(E(K)))&M$(K):: NEXT K
  :: PRINT #2 :: NEXT I
```

```
9 CLOSE #1 :: FOR I=1 TO 36-
L STEP 3 :: PRINT #2 :: NEXT
I :: CALL CLEAR :: GOTO 4
```

```
10 DATA D/F,D/V,I/F,I/V,PRGM
```

Living P.8
Nov.-Dec. '89

A P-BOX MEMORY MAPPER...by Rickey Morgan of Forest Lane T.I. Users Group

Those of you who have ever looked at the P-BOX buss realize that there are actually nineteen address bits available. This was implemented for a future product which was not officially released; namely the 99/8 which had a built in memory mapper for the 512K of address space. When used with a 99/4 or 99/4A, the address space is only 64K bytes or sixteen bits of address. The remaining three bits are pulled high on the P-BOX interface board.

Any P-Box board that meets Texas Instruments' specifications will use the three address bits labeled AMA, AMB, and AMC in it's address decode. At this point, it becomes obvious that if these bits were mapped to a CRU port, all T.I. boards would be turned off by changing any or all of these bits. This would give eight times the available address space.

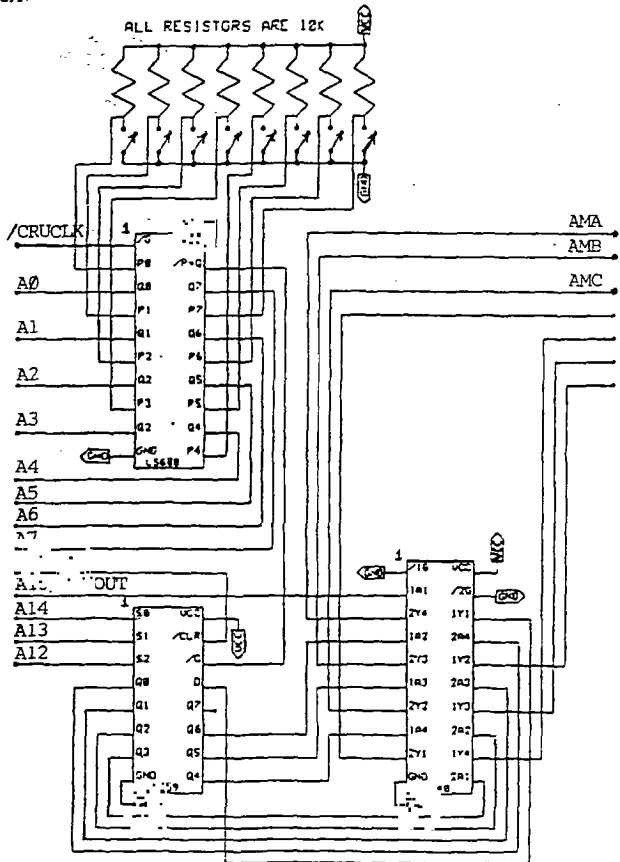
There are some exceptions to this, as the console itself does not use these bits in it's internal decode. Therefore, certain blocks of address space will map into all eight banks of address space.

ADDRESS MAP OF THE 99/4A

- 0000 Internal and maps in all eight spaces.
- 2000
- 4000 Any non-standard boards, such as the Horizon Ramdisk, maps in all eight spaces. Includes the one Meg. Board.
- 6000 Internal and maps in all eight spaces if a module is present that has RAM or ROM in it, not just GROM.
- 8000 Internal and maps in all eight spaces.
- A000
- C000
- E000

This leaves the normal 32K expansion space that can be used by the mapper at all times. This will give 262,144 bytes of memory space available to the programmer with a module or nonstandard board present. However, if neither of these conditions is true, the space increases to 385,024 bytes. This could be built into a special RAM card or into multiple RAM cards.

Initially, I will start with the interface board modification. There are only three integrated circuits necessary to add our three address lines. They are a 74LS688, 74LS259, and a 74LS240. The '688 is an eight bit address comparator which decodes the eight MSBs of the address buss and CRUCLK* to select the CRU address that your mapper will respond to. The '259 is an addressable latch to store one byte of the data from CRU. This will be AMA, AMB, AMC and five spare bits for future use. The '240 is an inverting bus driver to invert the input and outputs of the '259 insuring that on reset the three address lines are set to all ones as required by all T.I. boards in the P-Box.



MORE NEXT MONTH.....

The Dark Side
by Stan Corbin

Recently a preposterous theory about Dark has been espoused. Though the "theorists" claim the speed of Dark is 186,000 miles per second, there is no data to substantiate this claim. In fact according to Ian D. Dark, professor of physics at B. S. college, no method of measuring the speed of Dark has been developed. Professor Dark states, "I have been working in the dark for years and am unable to substantiate the claims of Mr. Earl Raguse in his theory of Dark. In fact, the postulation that Dark is a combination of colors in phase opposition producing dc, is plain hogwash -unless dc means, doesn't compute". The great theoretical physicist Doan U. Bleeveit, in agreeing with professor Dark, pointed out that the cue ball which is white, may sit in the shadow of the black eight ball and still remain white, while both are in the shadow of your fat frame. So much for Mr. Raguses reference to Dark remaining under the car or that your fat frame acts as a shield for Dark. In a bit of sarcastic humor, physicist Doan U. Bleeveit suggested that Mr. Raguse has spent too much time behind the eight ball and so remains in the dark about the proven theory of light.

Mr. Raguses cohort in the "theory of Dark", Mr. Newt Armstrong, has the impertinence to suggest, that the reason the black lettering remains on a printed page when exposed to a "Dark sucker", is that the lettering is held in place by a special glue. This ridiculous suggestion is obviated by their own claim that Dark has a speed of 186,000 miles per second. It is impossible to spread all that glue before Dark would be sucked up, regardless of how good one is at spreading it. Despite the obvious, Mr. Armstrong continues to stick to his glue theory.

Mr. I. C. Clearly, an optical engineer, when asked about the Dark theory, suggested that it would be very difficult for Mr. Raguse or Mr. Armstrong to explain Rainbows. He also raised the question of how they could possibly explain moonlight (moondark?), bearing in mind that the moon has been explored and found not capable of "sucking" Dark. After all, the moon remains a passive body and as the "theorists" have pointed out in their arguments, Dark travels in a straight line. That precludes Dark from being drawn from the Dark hemisphere of the earth when the Sun is extracting Dark from the opposite hemisphere. In other words, with the Sun diametrically

opposite the Dark side of the earth, there is no way for Dark traveling in a straight line, as advocated, to suck Dark from the opposite side of the earth.

Then there is the phenomenon of sight, if Dark is being sucked up then how are we able to see? Dark would be sucked out of our eyes and since the Dark theory doesn't allow for light we would not be able to see. Of course this brings up an interesting subject what is it we see if Dark is sucked out of our eyes. How is it, when we close our eyes and look at the sun, we seem to have Dark sucked out of our eyes despite Mr. Raguses claims that Dark cannot be sucked through solids(our eyelids). To make his theory credible, will require a further epexegesis by Mr. Raguse.

When asked why he chose to publish in the public press (ROM) and not in the prestigious scientific journal Nurture, Mr. Raguse stated, "It was a theory which could not wait the annals of Nurture". It is believed however, that Mr. Raguse was pre-empting some other "scientist" from shedding Dark on light or light on Dark or would that be Dark on Dark".

Mr. Raguse denies the claim, that he is attempting to resurrect the Dark Ages, as totally false and that that claim was instigated by some lightheaded, blackhearted derogator.

Just who is this Earl Raguse? Some claim he is the Prince of Dark, while others say he is Dark Fader, the representative of the Dark Forth. Whoever, or whatever, he has given us some Dark thoughts.

A sobering thought comes to mind, what if Mr. Raguse is correct. Can you imagine all the changes in language and customs that would occur? Can you see yourself, asking for a Millers Dark or Buying a Dark bulb for your lamp? If you lost weight you'd be getting Darker rather than lighter, and what of the Goodyear blimp being referred to as a Darker than air craft. The day Mr. Raguse brought his Dark theory to light, was a very Dark day indeed.

EDITORS COMMENT

I think we have kept you in the DARK long enough. This will, for the present time, conclude our excursion into "scientific" areas besides Computer Science.

71-Singer P. 9 Nov.-Dec. '89

T.I.-dings

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from NewJUG/North

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Your T.I.
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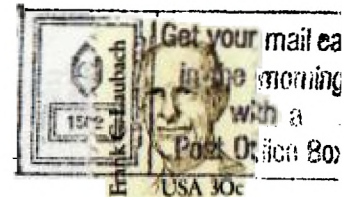
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Next Meetings: November 21st & December 12th at the Dumont H.S.
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"We are family enjoying the unspeakable peace and freedom of being orphans."
(Paraphrase of G.B. Shaw line in *Major Barbara*)

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User Groups: Please Reciprocate!