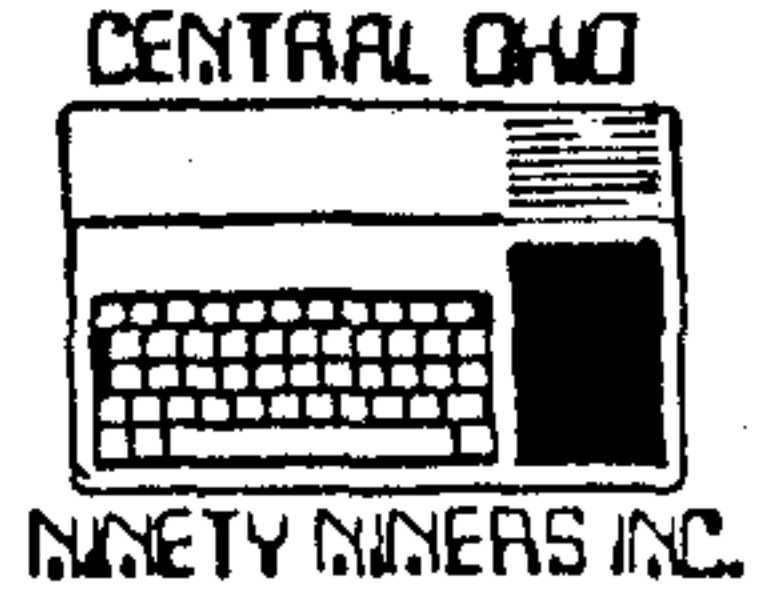


2/16/91

Texas Instrument 99/4A and Myarc 9640 Computers

# Spirit of 99



THE OFFICIAL NEWSLETTER OF THE CENTRAL OHIO NINETY-NINERS INC.

PUBLISHED MONTHLY IN COLUMBUS OHIO



## Valentine's Day

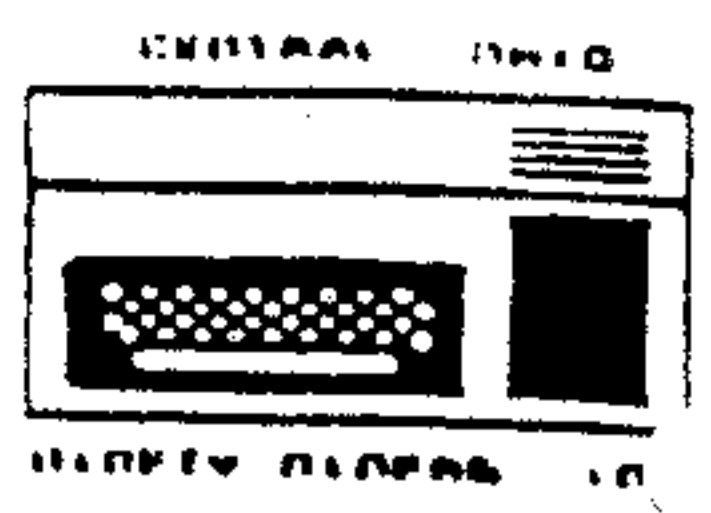
\$1.50

VOL. 9

NO. 2

FEB.

1991



# Spirit of 99

THE OFFICIAL NEWSLETTER OF CENTRAL OHIO NINETY-NINERS

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Central Ohio Ninety-Niners Inc. is a non profit organization comprised of MEMBERS who own or use the TI99/4A computer and it's related products and have paid a yearly membership fee of \$28.00 and whose main objective is the exchange of Educational and Scientific information for the purpose of computer literacy.

C.O.N.N.I. meetings are held the 3rd Saturday of each month at Chemical Abstracts, 2540 Olentangy River Road Columbus, OH. Meeting time is 8:30 AM til 2:30PM. Meetings are open to the public. Membership dues (\$28.00) are payable yearly to C.O.N.N.I. and cover the immediate family of the member. (An application has been placed

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### \*\* OFFICERS \*\*

- PRESIDENT.....Dave Truesdale
- VICE PRES.....Jim Seitz
- SECRETARY.....Charles Osment
- TREASURER.....Everett Wade
- LIBRARIAN.....Chuck Grimes

**CONN I**

**CALENDAR**

**FEB. 1991**

<b>SUN</b>	<b>MON</b>	<b>TUE</b>	<b>WED</b>	<b>THU</b>	<b>FRI</b>	<b>SAT</b>
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

**SATURDAY MEETING -- 16 FEB 1991**  
Chemical Abstracts Building -- Columbus

8:30 AM Setup, coffee and doughnuts	10:30 AM Business meeting including election of CONNI officers
9:00 AM Art SIG	
Disks, Micro- pendium and Disks of the Month on sale	11:00 AM Demos-- Dick Beery: Configuring Funnelweb Dave Truesdale: MBX games
Libraries open	
9:45 AM Word processing class	12:00 PM Informal question and answer session
	12:30 PM Departure

**WEDNESDAY MEETING -- 27 FEB 1991**  
McDonald's -- Cleveland and Main -- Westerville

# 1991 Officers Slate

February's Saturday morning CONNI meeting, scheduled for 9 a.m. Feb. 16, will include the annual election of officers for the Central Ohio Ninety-Niners Inc.

The CONNI Nominating Committee has recommended a slate of candidates for the group's elected offices. Those candidates are listed below. Any member can nominate additional candidates from the floor during the meeting.

**Pres. Chuck Grimes**

**V. Pres. Bill Sheppard**

**Treasurer Everett Wade**

**Secretary:**

**Sat.-Jim Peterson**

**Wed.-Dick Beery**

**Membership Harley Ryan**

**Disk Librarian Chuck Grimes**

by Jim Peterson

The hard part of learning to program is not in learning what the various commands do - it is in learning how to put them together to do what you want them to do!

Key in this little program and run it to see what it does, then read the explanation of how it does it.

In the early days, when computers had tiny memories, much emphasis was placed on efficient programming - the pioneer David Ahl called it "elegant" programming. The old 99'er magazine published some one-liners. My Tips From The Tigercub contained some one-line programs, even some no-line programs that could be keyed in and run in the immediate mode. In order to cram over a hundred subprograms onto a disk, I made great use of compact programming techniques on my Nuts & Bolts disks. Later, Mike Stanfill originated the name "tinygram" for a program that would fit on one screen, and wrote some great ones. Ed Machonis wrote a diskfull of tiny printer utilities.

Richard Mitchell in his Super 99 Monthly once called me the "king of the one liners", but this title rightly belongs to John Martin. The following one-line disk cataloger is an example.

```

1 IF F THEN INPUT #1:A$,A,J, K :: IF J THEN PRINT A$;TAB(
12);J;TAB(18);SEG$(B$,ABS(A*
2)+1,2);K;TAB(27);A<0 :: GOT
0 1 ELSE RUN ELSE B$="AVDFDV
IFIVPG" :: INPUT "DSK":F ::
OPEN #1:"DSK"&STR$(F)&".",IN
TERNAL,RELATIVE,INPUT :: GOT
0 1 !BY JOHN M

```

An undefined numeric variable has a value of 0, which is the value of F when the program is first run. IF F THEN is interpreted as "if F is other than 0" so program execution jumps to the first unpaired else. IF J is paired with ELSE RUN so execution jumps to ELSE B\$; a string is assigned to B\$, the INPUT asks for a disk number, and file #1 is opened, without a filename, as an internal relative file, for input. When it is opened, the first sector of the disk can be read; it contains information regarding the disk and its contents. GOTO 1 goes back to start over. The variable F now has a value other than 0 (from the INPUT disk number) so the values for A\$, A, J and K are read from the disk. On the first pass, these are the disk name, a 0, the number of sectors initialized, the number of sectors available, and a 0. IF J THEN is interpreted as "if J is other than 0" and it is because it contains the number of sectors, so the disk name is printed, followed by the number of initialized sectors at tab 12. Since a 0 was read into A, the ABS(A\*2)+1 is 0 times 2 plus 1, which is 1, so the segment of "AVDFDVIFIVPG" starting with the first character and consisting of two characters (AV) is printed (meaning "available"), followed by the number of available sectors read into K (preceded by a space because it is numeric). Since a 0 was read into A, the statement A<0 (A is less than 0) is false and has a truth value of 0, so a 0 is printed at tab 27. Execution returns to the beginning, and values are read into the variables again. Now, A\$ will be a filename. A will be a number from 1 to 5, indicating the type of file - 1 for display fixed, 2 for display variable, 3 for internal fixed, 4 for internal variable, 5 for a program. If the file is protected, the number will be negative. J will be the number of sectors occupied by the file, and K will be the record length of the file (0 in the case of a program). The filename is printed, and its sector length at tab 12. ABS converts the A from negative to positive, if necessary, and the formula selects the letters DF, DV, IF, IV or PG to print, followed by the record length from K. If the file is protected, A has a negative value and A<0 therefore has a truth value of -1, otherwise a 0, printed at tab 27. Execution goes back to the beginning and this continues until blank records are read. J will then have a value of 0 so execution jumps to ELSE RUN, which re-runs the program, thereby zeroing out the value of F.

John Martin, this is elegant programming to the ultimate!

## WHAT'S HOTT? By Irwin Hott

(Editor's note: Each month, Irwin Hott, co-sysop of the CONNI club bulletin board service, highlights various aspects of the service. You can contact the Spirit of 99 bulletin board by calling (614) 263-3412 24 hours a day. The board operates at 300 or 1200 baud, eight bits, one stop bit and no parity. You can reach Irwin's voice number by calling (614) 263-5319.)

This month we'll take a look at the Clearinghouse, and see what new files are available on the bbs.

I said that we would announce on February 1 whether we had enough money to get the Clearinghouse started. Well, the official announcement will be delayed because our treasurer, Everett Wade, is on vacation until late this month. However, it seems virtually certain that we will reach our goal of \$750 and will be able to start assembling the necessary hardware/software.

At its January 1991 meeting, CONNI voted to contribute \$100 to the Clearinghouse project, and up to another \$100 if needed. As of mid-January that first \$100 brought us to at least \$600, and I know that more contributions have come in since that date. We are hoping to have the Clearinghouse up and running by the Lima conference in May.

I have just written to ESD asking for more information on their new hard/floppy controller. Which controller to use is probably the biggest question mark at this point. I hope to talk to Bud Wright to see if he thinks the ESD controller (if it is available) will work with his software.

We will announce in the March Spirit of 99 Newsletter whether or not we reached our goal for the Clearinghouse, but as I indicated

earlier, it looks virtually certain.

Here is a look at some of the new files on the BBS. These may be found on library 2.

---

NOTUNG/CAT 12 sectors DIS/VAR  
80

From Irwin Hott on 02/06/91  
NOTE FROM IRWIN: GENIE file  
Number: 4189  
Name: NOTUNG.CATALOG#2  
Address: GENIAL.AL  
Date: 910204

This new catalog from Notung Software includes descriptions of four new products! TI CASINO (\$15) by Ken Gilliland includes Blackjack, Draw Poker, Acey Deucey, Keno, Bacarrat, Roulette, a Slot Machine and Craps. STAR TREK: THE NEXT GENERATION 1991 Calendar (\$10) by Ray Kazmer includes characters from the new Star Trek Series and a stand-alone printer which will print any month or the entire calendar. FONTS AND BORDERS 3 (\$8) includes more "Cream of the Crop" Fonts (COOPER BLACK, KOSTER, CONGRESS, and LAFAYETTE) plus new borders. CERTIFICATE 99 COMPANION PLUS (\$7) includes 30 borders, 60 graphics, 11 new readable fonts, and 6 new signatures ranging from Mozart to Paul McCartney. Read this file for more information. 12 sectors.

---

SMASH/ARC 25 sectors INT/FIX  
128

From Irwin Hott on 02/06/91  
NOTE FROM IRWIN: GENIE file  
Number: 4185 Name:  
SMASH\_DOC.ARC

Address: GENIAL.AL Date: 910203  
Here's a handy utility by Bud Wright for printing out large doc files or large assembly source code files. It'll save you lots of paper, since you can put up to 215 lines from a DV80 file onto a

## WHAT'S HOT?

( continued from page 6 )

single sheet. Included in this archive are MERGE files that will fix SMASH and SMASH2 so that they can now print out protected DV80 files (not true of the version Bud released in December 1990). By the way, Bud runs TIABS (614-852-4579), which (according to Irwin Hott and others) is one of the best TI bulletin boards around. (Use 8N1 when logging on.)  
Archived, 25 sectors.

-----  
LIMA0291 96 sectors INT/FIX 128  
From Irwin Hott on 02/06/91  
NOTE FROM IRWIN: GENie file  
Number: 4184  
Name: LIMA\_NEWSLETTER.02/91  
Address: GENIAL.AL Date: 910201  
Here in 80-column format for easy printing is the February 1991 issue of BITS, BYTES & PIXELS, newsletter of the Lima (OH) 99/4A User Group. (See file #4032 for Sept. 1990, #4029 for Oct. 1990, file #4025 for Nov. 1990, #4120 for Dec. 1990, and #4133 for Jan. 1991.) The February issue is a "special ancient history issue," focusing on the 99/4. Included are "The 99/4 Home Computer: Description of an Antique" by Charles Good, "Differences Between the 99/4 and 99/4A" compiled by Mike Wright, and a 1980 FORTUNE piece on "Selling the 99/4 and 99/7." Archived, 96 sectors.

-----  
SPRTMODE2 13 sectors INT/FIX 128

From BILL HUDSON on 02/06/91  
Example of sprite mode 2 in MDOS assembly language - source included 2 files -archived sprites can be 16 colors 8 sprites per line can also be done in advanced basic Call Color (#1,C,C,C,etc.) up to 16.

-----  
TORPEDO 13 sectors PROGRAM

From LARRY FAIRBANKS on

PAGE 7

02/06/91

TORPEDO is a console basic game that I wrote a few years ago, perhaps '84-'85, to demonstrate the ability of console basic. I attempted to get the best action out of this somewhat slow translator language. I used the data that I developed for an article I wrote that basically benchmarked each of the commands. The game uses the Q and Y buttons to fire the torpedoes, or the joystick fire buttons. It is very good for young children who can't get the hang of stick controls. It is much more fun as a two player game. I used a random number generator for the sound when the ship is hit, so it is different every time.

-----  
C.O.N.N.I. Minutes  
Saturday 01/18/91

The meeting was called to order at 10:50. Dick Beery held the raffle. Dave Truesdale gave the Treasurers Report for Everett Wade. Dave mentioned that it would soon be time to renew memberships. New business was discussed starting with Bob DeVilbiss announcing a membership total of 88 with 36 for the Disk of the Month mailout. Seven new memberships were accepted this month. Irwin Hott discussed the Clearinghouse project. A general discussion of the financial needs of the project followed. Dick Beery moved that the club donate \$100 from the general fund. Motion carried. Ken Marshall donated \$30 to the project. The Nominating Committee presented its slate of club officers and additional nominations were sought for the February election.

Respectfully Submitted  
Charles Osment Sec.

You don't HAVE to have it all!

by Jim Peterson

Do the conversations at your user group meeting sound like a coffee break in Silicon Valley? Are you confused by talk of GROMs and GRAMs, puzzled by references to HFDCs, intimidated by discussions of megabytes and frightened by talk of burning EPROMs? Well, join the crowd, buddy - so am I!

There are basically three types of people interested in computers. First, there are those who use a computer to run programs, to accomplish something useful or just to have fun. I believe that those people are still in the great majority, although we don't hear much from them.

Then, there are those who get their kicks out of writing programs, of creating software for others to use. There aren't too many of those left in the TI world.

And finally, there are those who like to tinker with the computer, soup it up, plug in doohinkies and thingamajigs, and talk in that strange language I mentioned above. I don't know how many of those folks there are, but they are certainly the most knowledgeable, active, and interested, and they tend to dominate the conversations and the printed material in the TI world nowadays.

I presume that those fellows also do actually run programs on their souped up systems. And, some of them must be skilled programmers, because many of their hybrid hardware creations would be useless without specialized software.

I'm very glad that those people are around. Once in a while they invent something that I actually find useful, and they are a lifesaver when my equipment breaks down.

But, don't be intimidated by all that high-tech talk, and don't think that the computer world is passing you by. There are so many things to do with a computer that no one could possibly find time to do them all. Do your own thing and don't worry about the rest.

I have operated a TI software company for seven years, and I also spend a lot of time writing programs, using the

computer as a word processor, etc. I probably spend more time on my TI than 90% of the users. So, what does my equipment consist of?

I have a console with the Extended Basic module plugged in, attached to a P-box which contains a TI disk controller, two double-sided drives, the 32k card, RS232 card, and a Horizon Ramdisk. Also plugged into the RS232 card is an old Gemini 10X printer and an Avatex 1200 baud modem.

I also have a Speech Synthesizer, a pair of TI joysticks, a TEII module and an Editor Assembler module, all of which I plug in occasionally when I need them; also, a cassette recorder and cable which hasn't been used in a long time.

I use Triton's Super Extended Basic module because it has some editing features which are useful when programming. It also has some limited plotting capability which I have never used - and have never heard of anyone who has. If you don't program, it would hardly pay to switch from the old TI Extended Basic. I also have the Mecha-tronics module but never got around to trying it.

I had a Gram Kracker but soon sold it and bought a Ramdisk instead. The Gram Kracker has fantastic capabilities if you have the skill and knowledge to take advantage of them, but most users don't seem to have done much beyond personalizing the title screen.

I had a widget, and I guess it is still collecting dust around here some place. It was a nuisance, and since I use XBasic 99% of the time I didn't need it. There are now widgets or "module expanders" that allow you to access more than one module from within a program. That is, if you have the skill to write such a program. I don't know that anyone has released such programs to the public domain, and I can't think of any practical use except to access TEII speech from XBasic - but you can do that with the Text-To-Speech disk.

The ram disk is the one tool that I would not be without. In order to assemble my TI-PD catalog, I screened over 4000 programs, debugged and modified, merged in help files, conversions to XBasic and loaders, and assembled over 400 disks of programs. It took me hundreds of hours of work -



without a ram disk it would have taken thousands of hours and I would not even have attempted it.

The ram disk enables me to switch from one program to another almost instantly, and with John Johnson's Boot program I can just as quickly catalog a disk or view a file. Mine has 256k of memory. I could get one with much more memory but I see no reason to do so; I have every program on it that I am apt to use even once a month, and it is only half full. That leaves plenty of room for temporary storage and downloading.

However, if you only use your computer to play games, do a little word processing and a bit of record keeping, a ram disk would be an expensive convenience rather than a necessity.

Since my ram disk is only half full, I would consider a hard drive to be about as useful as the mammalian appendages on a swine of the masculine persuasion. If I was running a BBS, sure - or if I was doing a lot of work with those memory-gobbling graphics and needed everything quickly accessible.

My old Gemini printer has been a faithful workhorse, although the hood over one sprocket wheel has lost its spring and is being held down by a loop of elastic cord. I will have to give it up soon, because the Gemini printer codes are becoming obsolete and I need to be able to write and test Epson codes. But, I hate to give up these 79-cent typewriter ribbons and start getting ripped off on \$2.50 cartridges! As for a color ribbon, the temperature will have to go way down, down under, before I pay for one of those.

Once in a while, when someone sends me a double-density diskfull of stuff, I wish I had a CorComp disk controller. Otherwise, with diskettes selling for a quarter or less, it wouldn't pay to change.

If I ever get around to subscribing to GENie or Delphi, it will pay me to get a 2400 baud modem.

I can't think of anything else I need, and I don't want what I don't

need. If I really wanted to play joystick games, I would certainly get something better than the TI joystick. And if that MIDI interface cable becomes a reality, I will be sorely tempted.

I can't see any advantage in putting the 32k under the hood, or anyplace other than where it is now. If I used speech a great deal, it would be nice to get rid of the synthesizer - but I know only one user who uses speech that much. I don't need a clock built in because I have a watch on my wrist. If I really did a lot of serious writing, an 80-column card would be wonderful. But then I would have to buy a monitor capable of displaying 80 columns. I certainly don't want to give up color, and high-resolution color monitors cost more. I would still want to use my old monitor for programming, because I like to write programs for folks who have basic equipment. I don't have room on my computer desk for two monitors, so I think I'll pass.

I'm a three-finger typist, so a RAVE keyboard wouldn't speed up my typing very much. If I really wanted an IBM keyboard and 80-column capability, I would throw in a few bucks more and get a Geneve.

So, what about the Geneve? If I had an irresistible urge to run the few great programs that have been written for it, or if I wanted to explore its great programming capabilities, I would get one. But, I like to write programs for other people to use. When so few are interested in programs that I write for a computer that sold in the millions, why would I write programs for a computer purchased by a couple of thousand people?

I am sure that many folks will disagree with what I have written. That's why I wrote it. I hope they will disagree so strongly that they will immediately boot up Funlweb and compose a blistering reply. But don't send it to me - send it to your newsletter editor. The newsletters are badly in need of more articles by more writers!

# Notes on Laser Printing with the TI-994A

*Written and printed by Larry Fairbanks using the Funnelweb Editor and Formatter*

One of the best things about the TI-99 computer is that it is compatible with most commonly used printers, including the revolutionary Laser Printer. Most of these printers use the parallel port that is also used for dot matrix printers, and function in much the same way in text mode, using the same signal for producing a letter "A", that the TI-4A impact or Epson FX use. Graphics will require the use of printer drivers designed for raster graphic. Fortunately, most printing is of text, so taking advantage of the Laser Printer's 300 dot per inch resolution and true letter quality is usually very straight forward. Just plug the parallel printer cable from the RS232 card into the Laser printer before you turn it on, then print to device "PIO.LF". Most Laser printers also have an RS232 port that operates at 9600 baud.

The Laser Printer is also faster and quieter than the dot matrix. The first page comes out in about 30 seconds, and subsequent pages are printed at from four to ten pages per minute, depending on the model. It makes about as much noise as a Xerox, because it is based on a copier engine. Special paper is not required, but there are some limitations on the size and weight, so consult your manual for specifics.

Paper size is limited in one dimension by the width of the fuser drum, which actually puts print to paper. In all but expensive models, it is 8 and 1/2 inches wide. Paper bins are 8 and 1/2 by 11 or 14 inches, but most units also have a manual feed capability for long or odd sized paper and envelopes. Colored or textured paper can also be used for special projects such as announcements or resumes. One can even double print, send the same paper through twice, or print on previously printed paper.

A wide variety of fonts are available on IBM compatible diskettes that can be downloaded into Laser Printers with at least 512K of memory. In addition, all Laser Printers are now sold with a variety of fonts of different character sets, sizes and often type faces built right into the printer. Additional fonts are available on cartridges which do not require downloading.

Some differences are vary apparent. Bold is a different font, rather than a double strike, so it often has thicker letters in addition to being much darker. Compressed print is a different font, as in dot matrix, but since many type sizes are available, CHR\$(15) is not sufficient to make the change. A CHR\$(12), on the other hand, will still give you a form feed.

A large number of escape sequences are available to control font usage, lines per page, underlining, margins, and positioning. They can also control orientation so you can print sideways. The escape sequence gets its name from the escape character, CHR\$(27), with which it starts, and it end with a capital letter.

Many laser printer sequences are long and contain upper and lower case letters, numbers and symbols. Spelling and syntax are critical.

There are two different escape sequence formats for selecting downloaded fonts, the font description sequence, or long form, and the font ID sequence or short form. To use the short form, you must set the ID when downloading.

Escape sequences can be sent to the printer in basically two ways. If you are using the formatter, create a transliteral with a punctuation mark like an = sign which is ASCII 61. After using it, you will wish to reset it since it may be used in the text. Remember, do not use any real characters in your transliteral

definition, just ASCII definition numbers. Even the number 8 for 8 lines per page must be entered as a 55 in the transliteral.

The other way is to imbed the escape sequence in your text. This works for a straight print-out but not with the formatter. On the other hand, the transliteral won't work with a straight print. It is good for small projects that do not require formatter exclusive functions such as fill and adjust. The advantage are that you do not need to look up ASCII numbers and keep going to the formatter to print each test copy. To create the escape character at the start of the sequence, press CTRL+U, FCTN+R, and CTRL+U again to turn the special character mode off. You will see a little lb character, then proceed to type in the rest of the sequence with actual characters, not ASCII numbers.

Using the printer is often much easier than you might think. I dumped the "General Notes" documentation file from my Funnelweb 4.30 diskette to the printer without modification and it could be sent to the printer "as is". It is even easier with software that is designed to support it.

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**MANIPULATING DV/80 FILES, Part 2**  
 By Art Byers

**Creating a data base using TI-WRITER**

Texas Instrument's TI WRITER is an exceptionally powerful software tool. Most of us who use it, hardly ever access more than half of its many features, - nor do we realize how to fully exploit those features we do use.

As one example, we all use the Tab function at one time or another to set up columns. Perhaps we do it to write source code of an assembly program, perhaps to set up columns of figures on a small chart.

One more use for the TAB is to set up fields for a small data base. On this disk is a DV/80 file created on TI WRITER called TRICITIES. It is the roster of the Tricities 99'er club of Kennewick WA.

Five lines of this file are reproduced below to show you how it has been set up by columns, using the TAB function, into the fields of a data base.

DUANE/TRINA	DUSTIN	20 NUCLEAR LANE	RICHLAND	WA 99352
EUGENE J.	WALTER	1958 THAYER	RICHLAND	WA 99352
TERRY	TERRASS	2022 WEISKOFF	RICHLAND	WA 99352
TROY	KLINGELE	808 N SYCAMORE	PASCO	WA 99301
CLINARD V.	HILL	919 S HUNTINGTON PLACE	KENNEWICK	WA 99336

The above fields are, obviously, Firstname, Lastname, Address, City, State, and Zip Code. It is easily possible to manipulate these fields as in any other data base. All we have to know is the starting column of each field and the length of each field (or have our working program calculate the field length).

This article will demonstrate one of the things we most often want to do with a data base, - sorting. On this disk is a program call FIELDSORT. Reboot this disk, holding down BREAK Fctn/4, once it starts to boot. At the prompt, type: RUN "DSK1.FIELDSORT"

The program itself is listed below as part of the article. It is bare bones with few bells and whistles as it is just to illustrate the points above.

You can chose to print the sorted file back to disk as a DV/80 by rewriting line 200 as:  
 OPEN @WP:"DSK1.MYFILE",OUTPUT - but remember to put in a blank disk before the write to disk starts.

The program allows resorting the database by any field. There is nothing amazing about any of it, but you can learn by looking at how the field length is calculated. The tail remarks in the program itself should be enough for you to follow the flow. RUNNING the program will show you how successfully the DV/80 manipulation has been accomplished.

Credit is due to Grillo and Zbyszynski for their tome "Data and File Management for the TI-99/4A". Much of the technique was learned from that book.



## MANIPULATING DV-80 FILES Cont'd...

```

100 ! SAVE DSK1.FIELD SORT
110 ! multikey sort of string data
    saved as structured (by column) DV/80
    file
120 DATA 1,16,29,52,65,68,72
130 ! **
140 DIM S(7),N$(25)! S() is starting
    col.of field, N$() holds list of
    names
150 FOR K=1 TO 7 :: READ S(K):: NEXT
    K ! read structure of fields. 7th is
    start of non existing last field
160 OPEN #6:"DSK1.TRICITIES",INPUT ::
    FOR J=1 TO 25 :: LINPUT #6:N$(J)::
    NEXT J :: CLOSE #6 ! read data off
    dv80 disk file
170 CALL CLEAR :: PRINT "ENTER 0 FOR
    SCREEN PRINT ENTER 1 FOR PRINTER 0"
180 ACCEPT AT(23,21)VALIDATE("01")
    SIZE(-1)BEEP:WP ! WP= Where Print? #0
    automatically goes to screen
190 IF WP=0 THEN 210
200 OPEN #WP:"PID",OUTPUT
210 CALL CLEAR :: PRINT "Select the
    field on which to sort 1-6": ;
220 PRINT "1 = First Name"
230 PRINT "2 = Last Name"
240 PRINT "3 = Address"
250 PRINT "4 = City"
260 PRINT "5 = State"
270 PRINT "6 = Zip Code": ;"What Key?
    2"
280 ACCEPT
    AT(23,12)VALIDATE("123456")SIZE(-1)BEEP:K1
290 PRINT #WP
300 ON K1 GOSUB
    500,510,520,530,540,550 ! print what
    field is the key
310 C=S(K1)!C=Column number of key
    field
320 L=S(K1+1)-S(K1)!L=length of field
330 N=25 :: GOSUB 380 !Send to sort
340 CALL CLEAR :: FOR J=1 TO N ::
    PRINT #WP:N$(J):: IF J/7=INT(J/7)AND
    WP=0 THEN GOSUB 560 ! send to hold
    screen for reading
350 NEXT J :: IF WP=1 THEN CLOSE #WP
360 GOSUB 560 !send to hold screen
    'til press enter
370 GOTO 170 ! start over again
380 ! **Shell-Metzner Sort**
390 M=N
400 M=INT(M/2)
410 IF M=0 THEN RETURN
420 K=N-M :: J=1
430 I=J

```

```

440 P=I+M
450 IF SEG$(N$(I),C,L)<=SEG$(N$(
    P),C,L)THEN 480
460 T$=N$(I):: N$(I)=N$(P):: N$(P)=T$
    :: I=I-M
470 IF I>=1 THEN 440
480 J=J+1
490 IF J<=K THEN 430 ELSE 400
500 PRINT #WP:"BY FIRST NAME": ; ;
    RETURN
510 PRINT #WP:"BY LAST NAME": ; ;
    RETURN
520 PRINT #WP:"BY STREET ADDRESS": ;
    ; RETURN
530 PRINT #WP:"BY CITY": ; ; RETURN
540 PRINT #WP:"BY STATE": ; ; RETURN
550 PRINT #WP:"BY ZIP CODE": ; ;
    RETURN
560 PRINT :: INPUT "PRESS ENTER":A$
    :: PRINT :: RETURN
570 CLOSE #WP
580 END

```

## A HOMEWORK CHALLENGE!



With the example of the above fresh in your minds, let me give you club members some homework to sharpen your programming skills:

(1) Write a program that will read the data base and print out standard 3 1/2 by 15/16" mailing labels. I suggest you set up as a 3 line label with three empty lines between each name set.

(2) Take one field and fill it with varied dollars and cents numbers (ie \$15.50). Next write a program that will locate that field anyway you want - for example: by column or by using PDS to locate the dollar sign - and print out that field 20% higher or lower. In other words, write a program that will manipulate the money field.

(3) Last, write a program that will enable you to make global changes in ANY and all fields -that is, give everyone the same first name - OR find one particular zip code and change all examples of it to 00000.

\*\*\*\*\*EoF\*\*\*\*\*

Tigercub Software  
156 Collingwood Ave.  
Columbus, OH 43213

Dec. 1990

My stock of Tigercub Software catalogs is depleted and it would not pay me to reprint it. Therefore I have released all copyrighted Tigercub programs, except the Nuts & Bolts Disks, for free distribution providing that no price or copying fee is charged. All of my Tigercub programs have been added to my TI-PD library and are cataloged, by category, in TI-PD catalog #4.

My three Nuts & Bolts disks, each containing 100 or more subprograms, have been reduced to \$5.00. I am out of printed documentation so it will be supplied on disk.

My TI-PD library now consists of 452 disks of fairware (by author's permission only) and public domain, all arranged by category and as full as possible, provided with loaders by full program name rather than filename, Basic programs converted to XBasic, etc. The price is just \$1.50 per disk(!), post paid if at least eight are ordered. TI-PD catalog #4 listing all titles and authors, is available for \$1 which is deductible from the first purchase.

According to Charles Good, running a program containing CALL SAY on a beige console without the speech synthesizer attached will cause a lockup.

On a black and silver console, there is no lockup but program execution can be greatly delayed. To avoid that, CALL PEEK(-28672,@) at

the beginning of the program and add IF @=96 before each CALL SAY (remember that, IF causes program execution to skip to next program line if not true!), or IF @(>96 THEN to skip over the CALL SAYs.

In Tips #60 I presented a routine to find the lowest power of 7 which contains six 7s in sequence. My version took 24 minutes to find the answer on my TI-99/4A. Several users tried this on a Geneve. The NUTI News of the Nittany UG, Oct 1990 reports that on a 9640 (MDQS 0.97H) with TI XBasic loaded through GPL (speed 5) it ran in 11 min. 33.86 seconds, and with MYARC Advanced Basic V2.99A loaded through GPL it ran in 4 min. 58.62 seconds!

Now, from the TI\*MES of England, here is a method using a level of math beyond my comprehension that will solve the problem on an ordinary TI in 6 minutes and 17 seconds!

```
100 ! FASTER WAY John Seager
110 CALL CLEAR :: DIM ELEM(26):: ELEM(0)=7 :: POWER,SS=0
:: DISPLAY AT(1,1):"7 TO THE POWER OF"
120 ELM=SS :: SS,CARRY=0 :: POWER=POWER+1
130 DIS$=STR$(ELEM(ELM)):: FOR I=ELM-1 TO 0 STEP -1 :: DIS$=DIS$&RPT$("0",10-LEN(STR$(ELEM(I))))&STR$(ELEM(I)):: NEXT I
140 DISPLAY AT(1,19):STR$(POWER);"=" :: DIS$
150 FOR I=6 TO LEN(DIS$)STEP 6 :: IF SEG$(DIS$,I,1)<>"7" THEN 190
160 FOR J=I-5 TO I :: IF SEG$(DIS$,J,6)<>"777777" THEN 180 ELSE DISPLAY AT(24,1):"ANY KEY TO CONTINUE"
170 CALL KEY(0,K,S):: IF S=0 THEN 170 :: DISPLAY AT(24,1):: J=I
180 NEXT J
190 NEXT I
```

```
200 ELEM(SS)=ELEM(SS)*7+CARRY
Y :: IF ELEM(SS+1)=0 AND ELEM(SS)<1.E+10 THEN 120
210 CARRY=INT(ELEM(SS)/1.E+10):: ELEM(SS)=ELEM(SS)-CARRY*1.E+10
220 SS=SS+1 :: GOTO 200
```

And if you think that is fast, the Autumn '90 edition of TI\*MES contains a Mini-memory program to solve the program in 2 SECONDS! And an assembly version that will search to the 10,000 power and find 52 strings of six 7's in an hour and a half!

Here's a puzzler for you. Can you figure out why that 1000-microsecond CALL SOUND is cut short?

```
100 CALL CLEAR
110 DISPLAY AT(12,1):"Filename? DSK" :: ACCEPT AT(12,14) BEEP:F$
120 ON ERROR 130 :: OPEN #1:"DSK"&F$ :: STOP
130 GOSUB 140 :: RETURN 110
140 CALL SOUND(1000,110,0,-4,0):: DISPLAY AT(24,1):"CANT OPEN FILE" :: RETURN
```

I recently programmed a diskfull of gospel songs, and in each one I used this formula to set up an array containing the frequencies for 3 octaves:

```
DIM N(36) :: F=110 :: FOR J=1 TO 36 :: N(J)=INT(F*1.059463094^(J-1)+.5):: NEXT J
```

At the end of each selection I put CALL INIT :: CALL LOAD(-31961,149) I don't remember where I learned that one, but it clears the screen, sets all colors and characters to default, deletes sprites, and looks for a LOAD program on DSK1.

The LOAD program has a routine to play each song one after another, but one song crashed with a BAD VALUE error even though it had previously been OK. I found that this was the only song that actually

used N(1). The value should have been 110 but it had somehow changed to 24263 which the program line multiplied by 2, therefore out of range.

I found that the routine was correctly giving N(1) a value of 110 the first time but after the CALL LOAD it always had the 24263 value. Substituting other values for 110, I found that any value was being multiplied by 220.5727273, rounded off.

Further experimentation revealed that the problem was being caused by the ^ (exponentiation sign, shift 6 on your keyboard, in case someone prints this through the Formatter!). So I wrote this little routine to experiment with:

```
100 FOR J=1 TO 10 :: PRINT 2^J :: NEXT J :: CALL INIT :: CALL LOAD(-31961,149)
```

I saved that as DSK1.TEST and then wrote another one 100 RUN "DSK1.TEST", saved that as DSK1.LOAD, and then entered RUN "DSK1.TEST".

It printed out the proper values time after time, so I changed the 2^J to read 2^(J-1). The first time around, the first value was 1 as it should be - the computer will consider any number to the power of 0 to have a value of 1. But, the next time around, the first value was F0.57000101!

That was not even a valid numerical representation, so I changed the formula to 2^(J-1)\*2, expecting it to crash. Instead, it gave me a value of 441.140002!

Further experimentation showed that 2^(J-1)+1 gave a value shown as 1<1.570001.

Changing the +1 to +10 gave 1=0.570001 and to +100 gave 2<0.570001!

So, poking a value of 149 into -31961 will cause any number taken to the power of zero to have a value of

220.5727273, which will be represented on screen in some apparently undocumented format - it's not even radix 100. I wonder if the fellows who built this computer could explain that!

ATTENTION all newsletter editors! If you print the above through the Formatter PLEASE transliterate the caret sign!

This one requires the TEII module and the Speech Synthesizer. Want to make the computer so mad it will fuss and fume and cuss and mutter? Run this program and answer the prompt with 1.

```
100 CALL CLEAR
110 OPEN #1:"SPEECH",OUTPUT
120 INPUT X
130 PRINT #1:"//"&STR$(X)&"
&STR$(X*3.17)
140 PRINT #1:"THIS IS THE SECRET METHOD OF MAKING THE COMPUTER SPEAK IN A WHISPER"
150 GOTO 120
```

Want to make it whisper to you? Answer the prompt with 0 or -10.

Why did I get an INPUT ERROR when the strings in this routine got too long?

```
100 CALL CLEAR :: X=1
110 X=X*2 :: A=RPT$("A",X)
: B=RPT$("B",X) :: C=RPT$("C",X) :: D=RPT$("D",X) :: PRINT A$;B$;C$;D$
120 OPEN #1:"DSK1.TEST",VARIABLE 254,OUTPUT :: PRINT #1:A$;B$;C$;D$ :: CLOSE #1
130 OPEN #1:"DSK1.TEST",INPUT :: INPUT #1:A$,B$,C$,D$ :: PRINT A$;B$;C$;D$ :: CLOSE #1 :: GOTO 110
```

Thanks to Irwin Kott for the answer to that one. I don't think it's in the books anywhere, but the TI won't input multiple records in a single INPUT if the total number of bytes is too high - less than 154 for two records to less than 144 for

six records.

I still think computers should be fun, so here is a quickie for the kids, or for the kid in you -

```
100 PRINT TAB(9);"QUICK DRAW
": : : " How good a gunslinger are": "you?": " Can you outdraw": "Deadeye Joe?":
110 PRINT " Match the count down from 1": "to 10.": " Wait for the gun...": " Then hit any key FAST!! - ": " - and HOLD IT DOWN":
120 PRINT " I got down to 20 once - can": "you beat that?": " Press any key to start "
130 CALL KEY(0,K,ST):: IF ST=0 THEN 130
140 CALL CLEAR :: S@=300 :: CALL CHAR(58,"009F91919191919F"):: CALL CHAR(42,"0000FCFE171F0707")
150 CALL KEY(0,K,ST):: IF ST=-1 THEN 150
160 CALL CLEAR :: FOR M=1 TO 10 :: CALL HCHAR(12,16,M+48):: FOR N=1 TO 100
170 NEXT N :: CALL KEY(0,F,X):: IF F=70 THEN 330
180 NEXT M :: CALL CLEAR :: FOR J=1 TO 500
190 NEXT J :: IF F=70 THEN 330
200 CALL KEY(0,K,ST):: IF ST<>0 THEN 330
210 CALL HCHAR(12,16,42):: FOR D=1 TO S@
220 NEXT D :: CALL KEY(0,Z,X):: IF X=0 THEN 240
230 GOTO 270
240 CALL CLEAR :: PRINT :: PRINT "YOU'RE DEAD!"
250 FOR D=1 TO 200
260 NEXT D :: GOTO 160
270 PRINT "OUCH!" :: IF S@<51 THEN 290
280 S@=S@-50 :: GOTO 320
290 IF S@<31 THEN 310
300 S@=S@-5 :: GOTO 320
310 S@=S@-1
320 PRINT S@ :: GOTO 250
330 PRINT "YOU CHEATED!" :: GOTO 150
```

I always wondered about those recipe programs. Does

the cook lug the computer out to the kitchen to read the screen, or use a printer to make a hardcopy of a file that was keyed in from a hardcopy in the first place?

Anyway, some of those programs do convert quantities for different servings, so here is a little program to do that. It provides input and output in fractions instead of decimals, because that is the way recipes are written.

```
100 DISPLAY AT(3,6)ERASE ALL:"RECIPE CONVERTER"
110 DISPLAY AT(6,1):"Enter fractional quantities separated by a space from whole quantities."
120 DISPLAY AT(9,1):"For instance, to enter three and one-half, type 3 1/2"
130 DISPLAY AT(12,1):"Results will be rounded to the nearest 8th."
140 DISPLAY AT(24,7):"press any key" :: DISPLAY AT(24,7):"PRESS ANY KEY" :: CALL KEY(0,K,S):: IF S=0 THEN 140
150 DISPLAY AT(12,1)ERASE ALL:"TURN PRINTER ON!"
160 OPEN #1:"PIO" :: PRINT #1:CHR$(27);"@" :: CALL CLEAR
170 DISPLAY AT(5,1):"Name of recipe?" :: ACCEPT AT(7,1):M$ :: PRINT #1:M$:"":
180 DISPLAY AT(3,1)ERASE ALL:"Recipe is for how many servings?" :: ACCEPT AT(4,11)VALIDATE(DIGIT)BEEP:R
190 DISPLAY AT(6,1):"You want to cook how many servings?" :: ACCEPT AT(7,11)VALIDATE(NUMERIC):S :: X=S/R
200 DISPLAY AT(10,1):"Name of ingredient? (just enter if finished)" :: ACCEPT AT(13,1)BEEP:A$ :: IF A$="" THEN STOP
210 DISPLAY AT(15,1):"Unit of measure?" :: ACCEPT AT(17,1)BEEP:M$
220 ON ERROR 310 :: DISPLAY AT(19,1):"Quantity in recipe?" :: ACCEPT AT(21,1)BEEP:AX$ :: A=VAL(AX$)
230 Q=X*A :: J=INT(Q):: P=Q-
```

```
J :: IF P=0 THEN X$=STR$(J):Y$="" :: GOTO 290
240 IF J=0 AND P<=.0625 THEN X$="" :: Y$="less than 1/16" :: GOTO 290 ELSE IF P<=.0625 THEN X$=STR$(J):: Y$="" :: GOTO 290
250 IF P>.9375 THEN X$=STR$(J+1):: Y$="" :: GOTO 290
260 DATA .8125,7/8,.6875,3/4,.5625,5/8,.4375,1/2,.3125,3/8,.1875,1/4,.0625,1/8
270 RESTORE 260
280 READ M,N$ :: IF P>M THEN Y$=N$ :: X$=STR$(J)ELSE 280
290 IF J<1 THEN X$=""
300 PRINT #1:A$&" "&X$&" "&Y$&" "&M$ :: GOTO 200
310 P=POS(AX$," ",1):: Q=POS(AX$,"/",1):: IF Q=0 THEN 340
320 ON ERROR 340 :: IF P=0 THEN A=0 ELSE A=VAL(SEG$(AX$,1,P-1))
330 B=VAL(SEG$(AX$,P+1,Q-1-P)):: C=VAL(SEG$(AX$,Q+1,255)):: A=A+B/C :: RETURN 230
340 DISPLAY AT(24,1):"OOPS! TRY AGAIN" :: CALL SOUND(1,10,0,-4,0):: RETURN 220
```

And here is an oldie - a utility to get the bugs out of your programs.

```
100 ! MOSQUITO #2 by Jim Peterson from a PEEK by Crag Miller
110 CALL CLEAR :: CALL SPRITE(#1,42,2,100,100)
115 DISPLAY AT(22,1):"Don't let the mosquito get": "out of the TV!": "Press any key - QUICK!"
120 RANDOMIZE :: CALL PEEK(-31808,A,B):: CALL MOTION(#1,A-128,B-128):: CALL KEY(0,K,S):: IF S=0 THEN 120
130 CALL CLEAR :: CALL COLOR(1,2,8):: CALL SCREEN(2):: CALL ALL CHAR(32,"FF888888FF888888"):: GOTO 120
```

Long live the TI-99/4A!

Jim Peterson

The Tigercub

~~~~~  
W-AGE/99 \* NEW-AGE/  
99 \* NEW-AGE/99 \* N  
EW-AGE/99 \* NEW-AGE  
/99 \* NEW-AGE/99 \*  
~~~~~

\* by JACK SUGHRUE, Box 459, East Douglas, MA 01516 \*

#9

### COMPRODINE, Part One

Okay, I've been hearing about JIFFY CARD and ARTIST PRINT SHOP and JIFFY FLYER and GIANT ARTIST POSTERS for some time now, but I just never got around to demoing the materials for NEW-AGE/99 reviews. Not because I'm unfamiliar with the work of COMPRODINE owner Rodger Merritt. On the contrary, I own and use and thoroughly enjoy PICTURE IT and PRINT IT. They are two superb graphics/text packages that most TIers would not want to be without once they got using them regularly (particularly the handy and very professional disk catalog printer program).

Sister Pat Taylor of Dubuque, Iowa, has been the leading fan of COMPRODINE materials in the world the past few years. When I was in for repair last year following an accident, Sr. Pat and her contingent of TIing nuns at the hospital where she lives inundated me with unique and colorful "get well" cards and banners and signs. They also sent me a nice gift of a package of delightful greeting cards for all occasions. Everything was made on the TI with COMPRODINE software.

Now when Sr. Pat finds something useful, user friendly, and fun, it gets used and used and used. Her use of COMPRODINE goodies is the best review there is. But I've been lax in my reviewer duties.

So it was with great pleasure when Rodger Merritt called me from his home in California to see if I'd be interested in demoing some COMPRODINE software at the Boston Fayuh.

"YES! YES! YES!" I screamed before he changed his mind.

I had never met Rodger, so he didn't know what kind of TI maniac he entrusted his masterpieces with. Phil Townsend of the Kawartha group in Canada knew I'd be at the Boston shindig and recommended me. (It's obvious that Phil, a fellow elementary teacher, had never met me, either.) Anyway, Rodger ran up a two-hour phone bill explaining each of the pieces of software.

I could hardly contain myself waiting for the mail the next few days.

Then... THE DAY! When I came home from work, my wife informed me that the package had arrived from COMPRODINE. She did require my attendance at the dinner table under penalties of Doom, Death, and Destruction (though not necessarily in that order). So I complied with She Who Must Be Obeyed and waited impatiently to open the treasures until after cleanup.

I'm not sure my little fifth-graders didn't suffer much the next day because of that Merritt fiend.

I took my package to my Computer Room, opened it, and played with the new toys - er, tools, I mean - until almost 4 AM. As I have to get up at 5 to go to work, I didn't get much of a beauty rest. (I was a real beauty at work next day, I can tell you.), but did not learn a lesson. I was at it again when I got home; once again to the wee hours (this time 2 AM). But what fun!

Fortunately, I already owned PRINT IT and PICTURE IT and all of the Great Lakes Software in the package also distributed by COMPRODINE: JOYPAINT 99, JOYPAINT PAL, CLIP ART, EXTENDED BUSINESS GRAPHS, BANNERS 99, and the superb CERTIFICATE 99 with its companions). Otherwise, I'd

still be at it.

Because I'd like to spend next month's "Part Two" article entirely on the graphics' programs for which COMPRODINE is justifiably famous (ARTIST PRINT SHOP, JIFFY CARD and FLYER [including color versions], FORM SHOP, GIANT ARTIST POSTERS, and all the various companions), I'm going to use the rest of this article to examine a couple of COMPRODINE's other programs: LIVING TOMB and WAR ZONE.

These are games by a decidedly fiendish 14-year-old lad, Quinton Tormanen. Because both have permanent scoring systems built in (which I ♣ ), I'd suggest making backup copies and store the originals. Actually, I'd suggest you do that with all COMPRODINE materials, as they are unprotected.

These fast auto-load assembly games are so good, so professional, that I have a hard time picturing anyone so young devising them.

WAR ZONE (\$10), a futuristic arcade game, is almost as fascinating for the instantaneous status and scoring boxes along the right side of the screen as the game itself. Not quite. But they are well designed and ingenious, if you have time to view them. ("P" gives you pause when you need it.) Mostly, your time will be taken up trying to get your M15 through 6 levels (each a 2500-mile flight over rough terrain - rough, because you are being attacked in 5 different ways by 5 different enemy vehicles) to the enemy bases which must be destroyed. This is no easy task. However, you will be rewarded with an extra craft added to your one-at-a-time fleet for every 1000 miles you survive (2 levels). There are color and attack pattern changes as you move over new terrain. The enemy gets more vicious the better (farther) you get.

Though you have unlimited firepower (including bombs for the land vehicles), your greatest asset is maneuverability. It's one of those frantic type games that raise havoc with your blood pressure.

LIVING TOMBS (\$15), a graphic adventure, is quite different. It's a "Tunnels of Doom" type of game with lots of excellent differences. (If you don't like TOD, just wait a second. LIVING TOMB has some interesting features, including an ability to view all kinds of stats and make all kinds of smart decisions BEFORE you make a fool of yourself by getting killed.) The multi-level tomb you travel through is a series of very complex 3-dimensional mazes. This 3D aspect is neat. Unless you make a map, you will get lost. I even had to drop some items along the way (like Hansel) to make sure I could find my way back to the trap doors to get to different levels. LT is rich with menued features, windows, and treasures, weapons, and monsters galore. You start with nothing but can gather up the right equipment left by previous brave but dead adventurers. And then only if you slay some demonic monsters to get them.

What are you doing in this tomb? Well, an evil Alchemist from days of yore was buried here. It is his tomb. A gem of suspected power was buried here, too. A curse was put upon this land of Ryder, and, though many have tried to enter the tomb and remove the evil gem to stop the curse, all have failed. Your mission, succeed.

The windowing menus, alone, are worth the price of this user-friendly, addictive, satisfying adventure. LIVING TOMBS: an excellent investment in intellectual and visceral fun. I hope Quinton continues to program for the TI.

COMPRODINE (which, by the way, stands for COMputer PROgrammers' DIsktribution NETwork) is at 1949 Evergreen Ave., Fullerton, CA 32635. Ask for a catalog. Shipping and handling is \$1.50 for one item, \$3.00 for two or more.



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STRUCTURE of 74LS'Sn Databases

CREATED 04/02/90 CHANGED 04/03/90  
 FIELD DESCRIPTOR TYPE WIDTH DEC

FIELD	DESCRIPTOR	TYPE	WIDTH	DEC	
1	COPNM	N	005	00	Company Part Number
2	MFGPARTNUM	C	010		Manufacturer Part No.
3	CPRICE	N	006	02	Current Price
4	CRS	N	003	00	Current Stock Quantity
5	MNS	N	003	00	Minimum Stock Reference
6	MXS	N	003	00	Maximum Stock Reference
7	LCTN	C	004		Location Drawer n Bin n
8	LASTSALE	D	008		Last Sale Date
9	LRESTOCK	D	008		Last Restock Date
10	NSN	C	003		Normal Supplier Number
11	DESC	C	040		Description

000 1 74LS'MT 00000/00000

REC	COPNM	MFGPARTNUM	CPRICE	CRS	MNS	MXS	LCTN	LASTSALE	LRESTOCK	NSN	DESC
0000	1000	74LS00	.14	26	10	20	/ /	/ /	/ /	24	
0002	1002	74LS02	.14	10	5	10	/ /	/ /	/ /	24	
0004	1004	74LS04	.14	13	5	10	/ /	/ /	/ /	24	
0005	1005	74LS05	.14	3	5	10	/ /	/ /	/ /	24	
0008	1008	74LS08	.14	2	5	10	/ /	/ /	/ /	24	
0011	1011	74LS11	.14	9	5	10	/ /	/ /	/ /	24	
0014	1014	74LS14	.30	9	5	10	/ /	/ /	/ /	24	
0021	1021	74LS21	.16	8	5	10	/ /	/ /	/ /	24	
0027	1027	74LS27	.20	5	5	10	/ /	/ /	/ /	24	
0030	1030	74LS30	.14	7	5	10	/ /	/ /	/ /	24	
0032	1032	74LS32	.16	27	10	20	/ /	/ /	/ /	24	
0038	1038	74LS38	.24	4	5	10	/ /	/ /	/ /	24	
0042	1042	74LS42	.35	3	3	8	/ /	/ /	/ /	24	
0074	1074	74LS74	.22	28	10	20	/ /	/ /	/ /	24	
REC	COPNM	MFGPARTNUM	CPRICE	CRS	MNS	MXS	LCTN	LASTSALE	LRESTOCK	NSN	DESC
0023	1123	74LS123	.45	7	5	10	/ /	/ /	/ /	24	
0025	1125	74LS125	.30	9	5	10	/ /	/ /	/ /	24	
0038	1138	74LS138	.35	2	2	7	/ /	/ /	/ /	24	
0039	1139	74LS139	.35	3	2	7	/ /	/ /	/ /	24	
0053	1153	74LS153	.35	3	2	7	/ /	/ /	/ /	24	
0057	1157	74LS157	.30	2	2	7	/ /	/ /	/ /	24	
0061	1161	74LS161	.35	3	2	7	/ /	/ /	/ /	24	
REC	COPNM	MFGPARTNUM	CPRICE	CRS	MNS	MXS	LCTN	LASTSALE	LRESTOCK	NSN	DESC
0021	1221	74LS221	.50	4	2	7	/ /	/ /	/ /	24	
0044	1244	74LS244	.55	5	3	8	/ /	/ /	/ /	24	
0045	1245	74LS245	.55	6	3	8	/ /	/ /	/ /	24	
0051	1251	74LS251	.45	3	2	7	/ /	/ /	/ /	24	
0057	1257	74LS257	.35	2	2	7	/ /	/ /	/ /	24	
0059	1259	74LS259	1.00	5	2	5	/ /	/ /	/ /	24	
REC	COPNM	MFGPARTNUM	CPRICE	CRS	MNS	MXS	LCTN	LASTSALE	LRESTOCK	NSN	DESC
0067	1367	74LS367	.35	1	0	1	/ /	/ /	/ /	24	
0073	1373	74LS373	.50	3	5	10	/ /	/ /	/ /	24	
0074	1374	74LS374	.45	7	5	10	/ /	/ /	/ /	24	
REC	COPNM	MFGPARTNUM	CPRICE	CRS	MNS	MXS	LCTN	LASTSALE	LRESTOCK	NSN	DESC
0022	1670	74LS670	1.44	1	0	0	/ /	/ /	/ /	24	

Because of the limitations of our machine, Databases larger than two or three hundred records should be avoided at all cost. For my own use I prefer that a Database be no larger than 125 records. If I think that I will need a greater number than that, I plan on creating a number of Dbs to handle the job with a maximum of 125 to 150 records per Db. I decided to try to demonstrate my ideas by setting up an inventory for my Integrated Circuit stock. I will limit myself to the 74LS series chips. For those of you who know nothing of hardware, these little rascals play a big part in making your TI99/4A compute. The parts we use don't matter, the ideas should apply to a record collection, a coupon inventory or a small business selling baseball cards. If you have no interest in the data handling ideas, then possibly the tips on the new Ver. 3.0 additions will help. I started by observing the problems of this task. It looked as though I would need 5 Dbs to cover the LS series. Each Db would have a maximum of 100 records. 100 records is still efficient for SORTing or FINDing what you want. Because I didn't want to type in a bunch of junk I decided to whip up a CF to fill my Dbs, except for number 5 which I entered by hand. NOTE: The printout you see to the left is the STRUCTURE of my empty Db, with complete field names, and below that, a listing of all 5 Dbs for records with current stock on hand displayed. If you were doing this for a company, you would look over their inventory records, their purchase orders and their sales slips, to determine the basic field make up for the empty Db (74LS'MT). I whipped up

SUBNUM2/C, NUM99/C and NUM100/C to place blank fields in my Dbs. The LS series will use Dbs, 74LS'S1, S2, S3, S4 and S5, with the Company Part Number being placed between 1000 and 2000. This is because the LS series is only part of the total IC (Integrated Circuit) picture. There are 7400s (with no letters), 74S, 74C, 74HC, 74AC, 74F, 74HCT, the 4000 series, etc. We could cover most of these part numbers starting with COPNM 0 and going through 9999, with the LS series at 1000/2000. We can look at one Db at a time (74LS'S1), or as many as five Dbs, (74LS'S1, S2, S3, S4, and S5) at the same time in different slots. I hope to get into some complicated application of this later. For now let's look at SUBNUM2. SUBNUM2 will copy the empty Db (MT) to S1, S2, etc. You must change the destination Db name for each run. You must also change the START and STOP value for each grouping of one hundred. As it is SUBNUM2 will COPY MT to S1, it will APPEND 100 blank records and as it goes it will fill in the COPNM and MFGPARTNUM fields from 0 to 99, or from 74LS00 to 74LS99. It does this by concatenating the constant 74LS and part the number (NUM) being counted at the time. You should take special note of the lines containing SUBSTR(ITEM,n1,n2). ITEM can be any C)haracter type string, n1 is the number of the starting character and n2 is the length of the character string to be extracted. NUM is a N)umeric Local so I REPLACE TEMP WITH NUM right after the APPEND line to allow for the SUBSTR Command. SUBSTR and DO \RES are both Ver. 3.0 Commands. I know that my use of Ver. 3.0 functions will be a hardship on some TI-Base users, but I must unhappily inform you that my tutorials will stop in the not to distant future, and I'd like to cover as much as possible before I quit. Demands on my time, by my job and other commitments are making it very difficult to continue.

Continued Next Page.

```
*      05/14/90      NUM100/C
*
WHILE NUM<STOP
  APPEND BLANK
  REPLACE TEMP WITH NUM
  REPLACE ITEM WITH "74LS" : SUBSTR;
  (TEMP,3,3)
  REPLACE COPNM WITH NUM+SECTION
  REPLACE MFGPARTNUM WITH ITEM
SET TALK OFF
DISPLAY NUM,COPNM,MFGPARTNUM,START,STOP
SET HEADING OFF
  REPLACE NUM WITH NUM+1
ENDWHILE
RETURN Copyright Martin A. Smoley 1990
-----
```

```
*      05/14/90      SUBNUM2/C
*
SET RECNUM OFF
LOCAL SECTION N 5
REPLACE SECTION WITH 1000
*
* SECTION 1000 is the LS series
LOCAL START N 5
REPLACE START WITH 000
*
LOCAL STOP N 5
REPLACE STOP WITH 100
*
LOCAL NUM N 5
REPLACE NUM WITH START
LOCAL ITEM C 7
LOCAL TEMP C 5
* Replace all occurrences of S1 with
* S2, S3, S4 and S5 as needed.
COPY DSK1.74LS'MT/S DSK2.74LS'S1/S GO
COPY DSK1.74LS'MT/D DSK2.74LS'S1/D GO
USE DSK2.74LS'S1
  IF START<100
    DO DSK1.NUM99
  ENDIF
  IF START>99
    DO DSK1.NUM100
  ENDIF
SORT ON COPNM
CLOSE ALL
DO \RES
RETURN Copyright Martin A. Smoley
-----
```

The SUBNUM2 set will probably be of no value to most of you because this situation does not apply or because you have already hand typed all your data into one big Db. However, the idea of multiple Dbs is the way to go and any Db can be broken into several parts using a numeric counter to copy certain portions of one large Db to separate pieces in other small Dbs. The individual small Dbs need not be fully numbered. Items can be added or deleted with ease, provided spaces are left between records for new entries. This is the situation I have created by hand entering the data in SS which I have listed below. I clipped off the NSN and DESCRIPTION fields to save space.

Listing of 74LS'SS Database

REC	COPNM	MFGPARTNUM	CPRICE	CRS	MNS	MXS	LCN	LASTSALE	LRESTOCK
0000	1423	74LS423	.					/ / / /	
0001	1424	74LS424	.					/ / / /	
0002	1490	74LS490	.					/ / / /	
0003	1533	74LS533	.					/ / / /	
0004	1534	74LS534	.					/ / / /	
0005	1540	74LS540	.					/ / / /	
0006	1541	74LS541	.					/ / / /	
0007	1574	74LS574	.					/ / / /	
0008	1590	74LS590	.					/ / / /	
0009	1612	74LS612	.					/ / / /	
0010	1623	74LS623	.					/ / / /	
0011	1624	74LS624	.					/ / / /	
0012	1625	74LS625	.					/ / / /	
0013	1626	74LS626	.					/ / / /	
0014	1627	74LS627	.					/ / / /	
0015	1629	74LS629	.					/ / / /	
0016	1640	74LS640	.					/ / / /	
0017	1641	74LS641	.					/ / / /	
0018	1642	74LS642	.					/ / / /	
0019	1643	74LS643	.					/ / / /	
0020	1645	74LS645	.					/ / / /	
0021	1646	74LS646	.					/ / / /	
0022	1670	74LS670	1.44	1	0	0		/ / / /	
0023	1688	74LS688	.					/ / / /	

```
*      05/14/90      NUM99/C
*
WHILE NUM<STOP
  APPEND BLANK
  REPLACE TEMP WITH NUM
  IF NUM=0
    REPLACE ITEM WITH "74LS" : "00"
  ENDIF
  IF (NUM>0).AND.(NUM<10)
    REPLACE ITEM WITH "74LS0" : SUBSTR;
  (TEMP,5,1)
  ENDIF
  IF (NUM>(START+9)).AND.(NUM<STOP)
    REPLACE ITEM WITH "74LS" : SUBSTR;
  (TEMP,4,2)
  ENDIF
  REPLACE COPNM WITH NUM+SECTION
  REPLACE MFGPARTNUM WITH ITEM
SET TALK OFF
DISPLAY NUM,COPNM,MFGPARTNUM,START,STOP
SET HEADING OFF
  REPLACE NUM WITH NUM+1
ENDWHILE
RETURN Copyright Martin A. Smoley 1990
-----
```

If you spend a little time contemplating SS, you should see that the whole system could be set up in this manner if you desired. As long as you establish the breakoff points from one Db to the next the numbering in an individual Db can wander all over the place. They need not be specifically numbered from 0 to 99 or have any other set patterns.

Continued Next Page.  
 SPIRIT OF 99

**TI-BASE - From INSCEBOT**  
**TUTORIAL 19.1.3 By Martin Smoley**  
 NorthCoast 99'ers - May 19, 1990  
 Copyright 1990 By Martin A. Smoley

I have listed the CF named LSEEDIT3 and its parts for your examination. I used this CF to edit the LS series fields after the Dbs were expanded to their full size. This EDIT CF allowed me to quickly enter the data for CPRICE, CRS, MNS, MXS and MSN for chips I have in stock.

```
*      05/06/90      LSEEDIT3/C
CLOSE ALL
INSTALL ADD DSK1.\ED
LOCAL ITEM N 5
REPLACE ITEM WITH 1999
LOCAL LOOP N 2
REPLACE LOOP WITH 1
  DO DSK1.LSUSE
  DO DSK1.LSSCRN
WHILE LOOP
WHILE ((ITEM<999).OR.(ITEM>1688))
  WRITE 22,3,"Enter ITEM Number = >
  READ 22,24,ITEM
  IF ITEM<0
    CLOSE ALL
    INSTALL REMOVE \ED
    RETURN Copyright Martin A. Smoley 1990
  ENDIF
  REPLACE ITEM WITH ITEM+1000
  WRITE 22,3,"Company Part No. =
  WRITE 22,23,ITEM
  WRITE 21,3," Press FCTN 8 Then FCTN 9
  WRITE 22,3," After Each Record Edit
ENDWHILE
IF ((ITEM>999).AND.(ITEM<1100))
  SELECT 1
  DO \ED
ENDIF
IF ((ITEM>1099).AND.(ITEM<1200))
  SELECT 2
  DO \ED
ENDIF
IF ((ITEM>1199).AND.(ITEM<1300))
  SELECT 3
  DO \ED
ENDIF
IF ((ITEM>1299).AND.(ITEM<1400))
  SELECT 4
  DO \ED
ENDIF
IF ((ITEM>1399).AND.(ITEM<1689))
  SELECT 5
  DO \ED
ENDIF
REPLACE ITEM WITH 1999
DWHILE
RETURN Copyright Martin A. Smoley 1990
```

FIND ITEM The complete CF named \ED is two lines  
 EDIT FIND ITEM and EDIT. No comments or RETURN.

```
*      05/06/90      LSUSE/C
SELECT 1
  USE DSK2.74LS'S1
SELECT 2
  USE DSK2.74LS'S2
SELECT 3
  USE DSK2.74LS'S3
SELECT 4
  USE DSK2.74LS'S4
SELECT 5
  USE DSK2.74LS'S5
RETURN Copyright Martin A. Smoley 1990
```

There's a lot to cover and I'm running out of time. The INSTALL ADD DSK1.\ED is one example of the temporary use of VDP memory for a command you may need many times in a CF. TIB looks for the CF named \ED on drive I and adds its contents to the INSTALL section. DO \ED is the way to execute this command from a CF. The CF named LSSCRN puts up an information screen that asks for your IC number input. INVERSE ON is inverse video. My preset colors are white letters on a dark blue background. INVERSE ON creates an area of the screen with dark blue letters on a white background. With the use of blank spaces you can do some neat stuff with INVERSE ON and OFF. All five Dbs are used at the same time so the FIND is quite fast because you are pointing to a smaller segment of the total series with the IF section, and selecting a slot from there. With the FIND/EDIT in VDP memory you save disk access time. This would be much more noticeable with \RES as used in SUBNUM2. \RES contains 15 lines of code where \ED only has 2. It may help you to reread the MAY issue on the new INSTALL feature. I'll try to rehash this stuff next month and continue the ideas on handling multiple Dbs instead of one large Db. Good luck for now. Marty.

```
*      05/06/90      LSSCRN/C
SET TALK OFF
CLEAR
SET HEADING OFF
SET RECNUM OFF
WRITE 6,8,"Enter the right hand digits"
SET INVERSE ON
WRITE 2,6,"
"
WRITE 3,6," 74LS Series Integrated ";
"Circuits "
WRITE 4,6,"
"
WRITE 8,16,"
"
WRITE 9,16," EXAMPLE "
WRITE 10,16,"
"
SET INVERSE OFF
WRITE 12,6,"Manufacturer You"
WRITE 13,6,"Part Number Enter"
WRITE 15,12,"74LS221 = >221 < ENTER
"
WRITE 17,12,"74LS01 = >01 < -1
"
WRITE 19,34,"TO QUIT"
RETURN Copyright Martin A. Smoley 1990
```

Continued Next Month.

**MEETING DATES  
FOR  
1991 - 92**

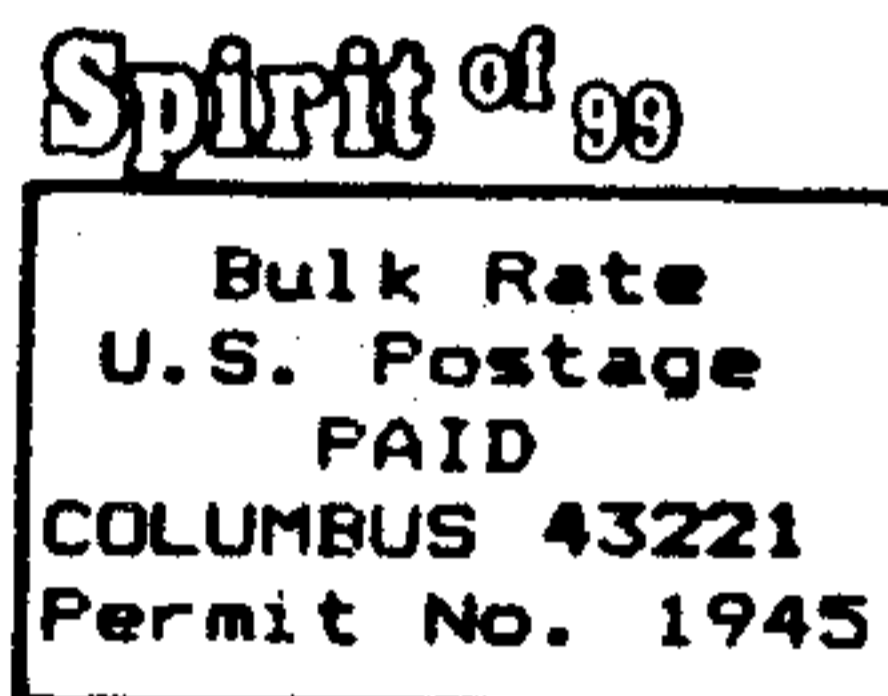
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TIME SENSITIVE MATERIAL  
POSTMASTER - PLEASE DELIVER PROMPTLY

2/16/91

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 WHAT IS YOUR PROFESSION/VOCATION \_\_\_\_\_  
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