



NEWS DIGEST

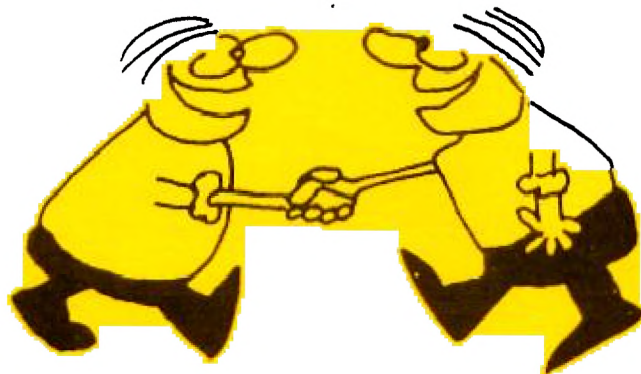
Focusing on the TI99/4A Home Computer

Volume 9, Number 9

October, 1990

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Get acquainted...



at the all day Tutorial

P.O. Box 214, Redfern, New South Wales, Australia, 2016

\$3

October 1990

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Membership and Subscriptions

Annual Family Dues \$30.00
Overseas Airmail Dues A\$60.00
Overseas Surface Mail Dues A\$45.00

TiSHUG Sydney Meeting

The next meeting will start at 10.00 am on 6th of October at Ryde Infant School, Tucker Street, Ryde.

Many thanks to Larry Saunders and John Ryan for their invaluable contribution in re-typing articles for this issue of the TND.

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Wanted

Can anyone tell us the present address of Stuart Olsen, the Author of Mass Transfer terminal emulation program. We have a sum of money col . . . as a Fairware donation to send to : . .

MinMemory batteries now available

Lithium batteries with solder tabs, suitable for MiniMemory and Supercart modules are now available for \$3.50 each from the shop.

Editor's Comment

by Bob Relyea

These 'Buy, Swap and Sell' days are getting so popular that perhaps we could persuade the directors to have three next year? I was happy with the TI Forth gear that I picked up at the right price. Now all I have to do is to find the time to learn it. That might be a bit in the future, though, as I am presently enjoying the Assembly classes that Ross Mudie is offering. Over the past school holiday I typed in a program that I found in a magazine and actually had success in assembling it first go and getting it to run. I might actually learn how to program in Assembly one day!

I am looking forward to the all day tutorial coming up at the October meeting. It should be a good learning experience. I will bring in a system and endeavour to go through some fundamentals of Word Processing with Funnelweb, involving the use of the Editor, Formatter and a printer. So, if you have any questions about Word Processing (not that I have all the answers) bring them along and we will see what we can do. I will make it as simple or as complicated as you like (within my limits, of course). See you there. o

Co-ordinator's Report

by Dick Warburton

Well another Buy Swap and Sell day is over. It seemed busy to me, but I did not have time to count the punters. There were some fantastic bargains for the eager beavers. Rolf could not stand the suspense as the members brought in their goods. We had to stop the Director's meeting so bargain hunters could go roaming. I blinked and the Star Gemini printer was sold for \$120. I turned round and another one went as fast. However I managed to get what I really wanted, a speech synthesiser at a good price. The club actually purchased three systems, one with a PE box, and it will help us to have adequate systems on hand at the meetings. One member has also lent us another expanded system to use at meetings as well. As well as the bargains, Ross Mudie ran a class for assembly fans, which will continue each month. Larry brought his system and software, and it was well received. With adequate machines we will run more activities at future meetings. There will be a games room operating as soon as we can find people to run it. The technical boys were not forgotten as monitors and cards were tested and evaluated.

One of the most noticeable trends this year has been the quite steady growth in the use of the club shop. We are doing our utmost to find the bargains and bring them to you through the shop. Kits for monitor interface cards and multifunction cards are made up and ready to sell. We are buying up hardware if the price is right and selling it through the shop. Do not be surprised in the near future if we are able to announce some really fantastic bargains through the shop, for example, in hard disk drives and other peripherals. Another thirty monitors have been ordered, but if the present trends continue, we will need to get some extra ones. Orders are coming in from around the state for all types of items. Our mail order department is working overtime meeting the demand. Console repairs continue, and the shop is offering an exchange service.

Quite apart from the main meetings, the project group at Ryde School on the Monday night, is steadily growing more successful. Monitors are coming alive, some like Lazarus, thanks to Alf's tender touch with a soldering iron. Others are ready to burst into blazing colour as soon as the boards are complete. Some club members look quite surprised when their monitors or multifunction cards actually come alive. Anyone who feels that they would like some help is welcome to come to this group, but be warned you will be expected to actually do most of the work yourself with some help if you need it.

When I look back, I am quite surprised how far I have come in trying to do things related to the TI99/4A by myself. Most of this has happened since I joined the TISHUG Directors. I suppose I have had to get involved, but it has been quite rewarding for me personally. I must confess that I enjoy the good natured fun which seems to accompany many of the activities. Being involved brings new friends, and new experiences and skills. On the other hand, I am not sure what keen TI99/4A involvement does to one's family life. If you want to double our membership, bring your wife or "friend" along and sign them up. Who knows, but a shared interest in the TI99/4A could put new sparkle into the relationship. It would seem to be a good thing if we were able to cater for our members' families more adequately. Obviously games for the children is one way to go, but we could perhaps run a word processing class for our family members who would like some help. Perhaps we need to organise and run some simpler tutorials for using the TI99/4A more generally. If you have some ideas on this would you let me know. We certainly will have more machines available at meetings soon, and I am sure that we can find the tutors to help members or their families in any way they feel there is a need.

Have you written any programs lately? If you have, how about uploading your effort to the BBS, where we can collect them and put them on disk for publication. Perhaps we could offer a prize for the best program uploaded. I have not discussed this with the directors, but I feel sure that this idea would be a popular one. Be in it! See what you can do, especially since we have these new monitors. Sharpen your programming skills, and share your ideas with others. If sufficient members are interested, a programming group might start. If you cannot program, and you would like to learn Extended BASIC or Assembly let me know.

Well it is time for bed, so I will say "bye for now" and I will see you at the next meeting.

Dick Warburton.

Oasis Pensive Abacutors

The story behind OPA

by Garry Bowser, Canada

My name is Garry Bowser and I have been a TI99/Geneve User for many years, almost from the start of the TI99/4 in the late '70s. Since about 1984 I have been running a company called OPA (Oasis Pensive Abacutors) which specializes in designing and selling new TMS9900/99DD0 based hardware and software for any computer system which uses 9900/9900D CPUs and parts. Most of our projects are not known in the TI99/4A world, but the major ones which we have done are listed below.

A series of software called PHOENIX 2001, designed to be powerful, easy to use and continuously useful past the year 2001. The main three programs on the market are:

TASS 2001: the fastest, and one of the best slide-show type programs.

DISKODEX: the best disk cataloguer program out there; it even reads in the comments from John Birdwell's Disk Utilities.

RECALLIT 2001: a very easy to use, but yet powerful, database program designed mainly for storing names and addresses. (Uses RAMBO, see below.)

That covers our current best-selling software, while a new one in the works is for speech. When it is ready later this year, it will be breaking new ground in speech on the TI, plus it will be opening new areas never touched before on home computers.

Our hardware for the TI99/4A has been slow in coming, with a lot of projects in the prototype stage, but we currently need more backing (money) to advance them to the next stage. In any case, we do have two main projects that have started to sell like hot cakes.

RAMBO: is an upgrade for the famous Horizon RAMdisk, allowing RAMdisk memory to be partitioned between RAMdisk use and CPU (program) memory. This upgrade will allow bigger and better programs to be written for the TI99/4A in the future. RECALLIT 2001, listed above, was the first program written to use the new RAMBO memory system, and a demonstration version of this commercial program is given out with all RAMBO packages sold. There are many other projects on the go from different third-party companies which will utilize the RAMBO memory manager.

GIZMO: while very new on the market, it was designed to expand the module port to 8 slots, in the way that Texas Instruments themselves originally planned to. Using the REVIEW MODULE LIBRARY feature, you can now plug up to 8 modules into your TI99/4A and do things such as use TTEII speech, MiniMemory RAM, and Extended BASIC, all from within the same BASIC program, with no special tricks. This project has been on the drawing board for a long time (over 2 years in fact), but now with the latest VLSI chips we have cut the original TI design containing over 50 TTL chips, down to only FOUR chips!

continued on page 13

Secretary's Notebook

by Terry Phillips

There was an attendance of approximately 60 members and visitors at the big Buy Swap Sell theme day of the September meeting, and at least 2 members came away with bargain priced fully expanded systems - would you believe they sold for under \$200. It was, I suppose, a bit sad to see a couple of long time members selling out, but at least their systems have gone to good homes and will be put to use over the years to come. This is, of course, far better than having them put away in the closet to gather dust.

On the subject of meetings, make sure, if at all possible, that you get along to the October meeting to be held on Saturday, 6 October. This is going to be a big full day event, commencing at 10am. Just look at this for the line up of planned events:

Ross Mudie with Assembly Tutorial, the same Ross Mudie with his TI99/4A controlling a model train set; Vincent Maker with an adventuring class (if you are a frustrated adventurer having difficulties solving these hair tearing out puzzles then get along to this class); Bob Relyea, our illustrious editor, will be giving the low down on word processing; Alf Ruggeri and Larry Saunders will give an in depth demonstration of Page Pro; Russell Welham will demonstrate the Forti Music Card and give hints on general music programming; Geoff Trott will be available to render first aid to sick computers and other bits and pieces and Rolf Schreiber will have the disk library with him to enable members to do some software copying. Wow! That certainly looks like some day. Bring some lunch and stay all day.

Members who subscribed to Asgard News (renamed Reflections) will by now have received all of their paid subscription. A couple of subscribers mentioned to me that they were disappointed with the content of this magazine and did not intend to re-subscribe. If there is enough interest a further subscription could be organised, however at least 10 members would need to subscribe to make it viable. If interested let know as soon as possible. By the way, if you have not seen this magazine, there are some copies held in the shop that are for sale.

We have one new member to welcome this month, and he is Herbert Schade from Oyster Bay. Welcome to TISHUG, Herbert, and I hope you can make it along to some of the meetings. CIM99, a user group in Montreal Canada, have now taken out a paid subscription to our newsdigest. We have been receiving their's for some years now, but not having a great number of French linguists in our group, their newsdigest has been largely unread. We may soon even have a member in France. Pierre Garoche from that country has written enquiring about overseas membership. Our fame is spreading!

That is about all the news I have for this month. See you at the meetings. o

Assembler Tit-Bit

Courtesy Weasel Inc.

O.K. Who has sent information to their TI-PH1240 PIO PORT directly? By that I mean without the aid of a device service routine assembler routine. I see very few hands up! Well, given a disassembly of the cards ROM, the routine can be found. However, it is merged with the RS232/PIO routine. Here for your convenience is the PIO portion from the card setup as a printer driver.

```
*****
* PIO CHAR OUT ROUTINE *
* 11/2/1987 SUBSET TI *
* SPIOOUT *
*****
```

```
-----*
* TO CALL ROUTINE USE *
* LI R6,CHAR *
* BL @PIOOUT *
* -NOTE R6,R11,R12 PRESERVED *
* -AND DURING OUTPUT KEYBOARD *
* SCANNED FOR FCTN-4(break) *
* KEY IF PRESSED EXIT TO *
* POWER-UP ROUTINE *
*-----*
```

```
DEF PIOOUT
PIOCRU BSS 2
PIO11 BSS 2
PIO12 BSS 2
PIOKY3 BYTE 3
PIOKYO BYTE 0
PIOOUT MOV R11,@PIO11 SAVE RETURN ADDRESS
MOV R12,@PIO12 SAVE CALLING CRU BASE
LI R12,>1300 SET TI-1240 BASE CRU
SBO 7 TURN ON CARD LED
SBO 0 TURN CARD DSR
SBO 2 SEND HANDSHAKE HIGH
PILP1 SBZ 1 SET PIO AS OUTPUT
TB 2 WAIT FOR EXT. HANDSHAKE LOW
JNE PILP2 YES! GOTO TXCHAR
BL @PIKYCK NO! CHECK USER
INTERRUPT

JMP PILP1 LOOP
PILP2 MOVB R6,@>5000 PUT CHAR ON PIO PORT
PILP4 SBZ 2 SEND HANDSHAKE LOW
TB 2 WAIT FOR EXT. HANDSHAKE HIGH
JEQ PILP3 YES! CHAR TX COMPLETE
BL @PIKYCK NO! CHECK USER
INTERRUPT

JMP PILP4 LOOP
PILP3 BL @PILPOF CARD SHUTDOWN
MOV @PIO12,R12 RESTORE CALLING CRU
MOV @PIO11,R11 GET RETURN ADDRESS
RT RETURN TO CALLING PROGRAM

*
* USER
INTERRUPT
OF OUTPUT
* FUNCTION-4 (Break-key)
* DIRECT CRU ADDRESSING
PIKYCK MOV R12,@PIOCRU KEEP PIO CRU
LI R12,>0024 GET KEYBOARD CRU
LDCCR @PIOKYO,3 SELECT KEYBOARD LINE 0
TB -11 FCTN KEY ?
JEQ PILP5 NO! GOTO EXIT
LDCCR @PIOKY3,3 SELECT KEYBOARD LINE 3
TB -11 FOUR KEY ?
JNE PILP6 YES! GOTO PWR-UP EXIT
PILP5 MOV @PIOCRU,R12
RT
PILP6 EQU $ PWR-UP EXIT
MOV @PIOCRU,R12 GET ENTRY CRU ADDRESS
BL @PILPOF GOT CARD SHUTOFF
LWPI >83E0
BLWP @0 GOTO POWER UP ROUTINE (CPU 0000)
PILPOF SBO 2 RESET READY LINE
SBZ 1 SET PIO AS INPUT
SBO 7 TURN CARD LED
SBZ 0 TURN OFF DSR
RT
```

Applications for this type of PIO control are of value for speed (please note - code may be shortened to provide a very high transfer rate, especially without handshaking, say as a pulse generator or 8 channel high speed switch). Tracing out a PC board wiring can be tedious. Many thanks to BEN TAKACH for his efforts (APRIL DIGEST), however, the direct scan above will provide a software answer to mapping the key board as the technical manual does provide 9901 pinouts and keyboard socket (j100) wiring information. The rest is up to you and the cpu. o

TISHUG Shop with Percy Harrison

It is indeed pleasing to report that mail orders are on the increase which means that at least some of our country and interstate members are taking advantage of this facility and thus benefitting from their club membership. I try my best to fill orders within two days of receipt with the exception of those orders which include disks which I do not have in the shop library. These orders are held until I receive the disks from Wollongong so as to save on packaging and postage costs to the member. Also to reduce time in filling orders you should send your orders direct to me at the following address and not to the Club's PO Box number:

P E Harrison
TISHUG (Australia) Ltd
3 Storey Street
RYDE NSW 2112

Monitor orders are coming in at a very high rate - as at the end of August I have received orders for 22 units. We are hopeful that Wang will make 30 units available to the club so those members who want one and have not yet placed their order with me should do so without delay together with their money as orders received after the 30 have been reached could miss out. Members who have already ordered monitors but have not yet paid should do so as soon as possible as monitors will be issued only to those who have paid for them in advance. Wang cannot quote a delivery date at this stage but as soon as we are advised we will let you know.

PIO/RS232 and 32K memory expansion kits for the Multifunction Card went on sale at the September meeting. The 32K expansion Kit costs \$26.50, the PIO/RS232 Kit with one RS232 outlet port costs \$42.50 or the combined 32K expansion plus PIO/RS232 Kit costs \$60.00. Members should advise me of their requirements as additional kits will only be stocked against firm orders so as to ensure that we are not left with redundant stock.

We have a small quantity of pre 1989 MICROpendiums which I intend to assemble in half yearly sets and sell for \$5.00 per set. Further details will be released as soon as these sets have been sorted out.

The following items are available in addition to Software Disks and other items listed in previous issues

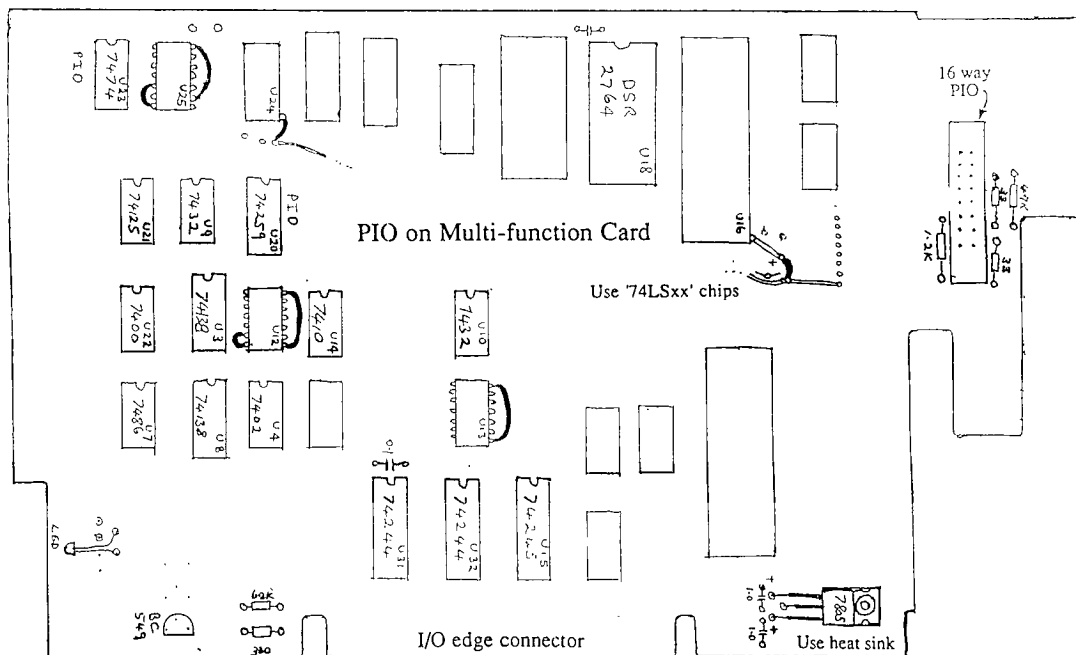
of 1990 TND News:

New release software disks -----	\$2.00
(See "Software Column" for details)	
Asgard News Vol. 1 No.4 -----	\$3.25
Asgard News Vol. 2 No.2 -----	\$3.25
5.25 in. DSDD Disks-Box of 10 -----	\$6.50
5.25 in. HD Disks-Box of 10 -----	\$16.00
3.5 in. DSDD Disks-Box of 10 -----	\$15.00
Horizon Ramdisk EProms -----	\$20.00
Multifunction PC Board -----	\$30.00
Multifunction Dsk Controller Kit ---	\$102.50
PIO/RS232 Kit for MFC -----	\$42.50
32K Kit for MFC -----	\$26.50
Combined PIO/RS232 and 32K Kit -----	\$60.00
Two-way Interface PC Board -----	\$23.00
Monitor Interface Kits (no Jiffy Box) -----	\$21.00
Monitor Interface Jiffy Box (large) ---	\$7.00
Music Kit (including PC Board) -----	\$65.00
Lithium Batteries - 3.6V -----	\$4.00
Mini Speakers - 8 Ohm -----	\$1.50
Power Leads (need std 3 pin plug) ---	\$1.00
Transformers - 60VA -----	\$18.00
Transformers - 13V Arielec -----	\$12.00
Transformers - 12V ac -----	\$3.00
32K Printed Circuit Boards Only -----	\$7.00
Module PC Boards (Single chip vers.) ---	\$9.00
32K Memory Chips -----	\$17.00
7 Way PCB DIL Switch -----	\$0.50
TI Base Upgrade -----	\$15.00
TI Base Vers 3.00 -----	\$25.00
TI Sort -----	\$15.00
TI Artist Plus -----	\$25.00
Display Master -----	\$15.00
Adventure Hints Booklet -----	\$2.00
Pro-Mod Booklet -----	\$1.00
TI Writer for Novices Booklet -----	\$1.00
Extended Business Graphs Booklet -----	\$1.00

Packaging and Postage Charges:

Up to 2 Disks-----	\$1.70
Over 2 up to 5 Disks-----	\$2.20
Over 5 up to 12 Disks-----	\$3.20
3.5 Drives -----	\$10.50
Other items at p/p costs.	

I am very pleased to report that Ron Kemp is now out of hospital and well on the way to a full recovery. He tells me that he hopes to be at the October meeting and is looking forward to meeting up with all of his friends and getting stuck into his TI99/4A again.



TISHUG Software

Column by Rolf Schreiber

Before I mention this month's software releases, I would like to briefly summarize the changes to the latest version of Funnelweb V4.30, over the previous version, V4.21. The details shown below have been taken from personal correspondence between Tony McGovern and Geoff Trott.

Changes to Funnelweb V4.30

- 1) The heavily revised document files .../DR80 and .../DR81 have replaced .../QDAV.
- 2) Funnelweb may now be configured to boot up as either plain FW (original Funnelweb menu), UL (Userlist menu), or directly to DR (Disk Review utility). For the DR path it first looks for DR as in a Horizon CALL list, which is very speedy with the new V8.14 ROS. The C2 character set is built in, but QD (Show Directory) no longer is.
- 3) The Funnelweb Supercart Menu setup, (ie CT8K/O) has been enhanced substantially to match the new FW.
- 4) There are no further attempts to allow for hard disks over V4.21 except the allowable UTIL path name is now 15 characters (up from 9).
- 5) The 80 column Disk Review (files DR80/DR81) and documentation are new.
- 6) There have been minor changes to the 40 column version of Disk Review. Both versions of Disk Review can now handle 80 track drives, and give all sector counts on a sector allocated basis. Both 40 and 80 column versions of the Editor and the Show Directory feature now show the sectors used/available correct for 80 track drives, but still indicate file lengths as if on 40 track disks. (Note: On 80 track disks, all files are an even number of sectors in length, since an AU is now two sectors in size.)
- 7) A bug in FSAVE has been fixed. Previously, if the last file was exactly >1FFA bytes long, it would get a >FFF header instead of >0000. As well there is a new way to load program files without executing them.

Reorganization of the Software Library

In a previous Software Column I mentioned my intention of removing any commercial software from the library, if it is known to be still commercially available. This is to stop people from getting upset or annoyed with either Percy Harrison, or myself, when they are told, sometimes belatedly, that a particular piece of software is not available from the library. If you would like to buy any of this type of software, TISHUG will sell it to you at the commercial rate and arrange to buy an official copy with its documentation from the supplier.

The following disks have been removed from the software library because they are still, to the best of my knowledge, commercial items:

- 181 Dragonslay Spellchecker V 1.1 (Disk 1)
- 182 Dragonslay Spellchecker V 1.1 (Disk 2)
- 199 Explorer - MILLERS GRAPHICS
- 205 MG Games - MILLERS GRAPHICS
- A2 Sorcerer - INFOCOM
- A3 Planetfall - INFOCOM
- A4 Enchanter - INFOCOM
- A5 Hitchhiker's Guide - INFOCOM
- A6 Starcross - INFOCOM
- A7 Suspended - INFOCOM
- A8 Zork I - INFOCOM
- A9 Zork II - INFOCOM
- A10 Zork III - INFOCOM
- A16 Quick Copier - QUALITYSOFT
- A20 GRAPHX (Minimemory Version)
- A27 GRAPHX (Editor/Assembler Version)
- A44 Draw and Plot - QUALITYSOFT
- A48 Cutthroats - INFOCOM
- A51 Disk Surgeon 99
- A70 Wycove Forth V2.0 - WYCOVE SYSTEMS

- A73 Infidel - INFOCOM
- A78 Extended Business Graphs - GREATLAKES SOFTWARE
- A92 Adventure Editor - Weiland
- A98 CSGD I (Disk 1) - David Rose
- A99 CSGD I (Disk 2) - David Rose
- A101 Quality 99 Software - QUALITYSOFT
- A104 SDUMP - QUALITYSOFT
- A114 GRAPHX (Extended BASIC Version)
- A116 Deadline - INFOCOM
- A117 Eyewitness - INFOCOM
- A120 Advanced Diagnostics - MILLERS GRAPHICS
- A132 Explorer - MILLERS GRAPHICS
- A146 4A/TALK
- A149 Picasso Publisher V2.0 - Arto Heino
- A165 Picasso Support Disk I - Arto Heino
- A166 Picasso Support Disk II - Arto Heino
- A183 BEAXS - Paolo Bagnaresi
- A184 BASIC BUILDER V 1.1 - Paolo Bagnaresi
- A185 Geneve Debugger - Paolo Bagnaresi
- A186 BA Writer V 1.5 - Paolo Bagnaresi
- A187 MY-ART - Myarc, Inc.
- A188 REMIND ME! - John Johnson
- A215 JOYPAINT & JOYPAINT PAL - GREATLAKES SOFTWARE
- A216 TURBOPASC 99
- A219 EZ KEYS and PRE-SCAN IT
- A220 WRITER EASE
- A221 Legends I - ASGARD SOFTWARE
- A222 Old Dark Caves 2
- A223 Doom of Mondular
- A229 Adventures - SCOTT ADAMS
- A241 Banner Maker - QUALITYSOFT
- A242 Chart Maker II - QUALITYSOFT
- A263 Leather Goddesses - INFOCOM
- A264 Lurking Horror - INFOCOM
- A265 Spellbreaker - INFOCOM
- A269 Adventures - SCOTT ADAMS
- A272 Genial Traveler V 1.1 - Barry Traver
- A273 Genial Traveler V 1.2 - Barry Traver
- A274 Genial Traveler V 1.3 - Barry Traver
- A275 Genial Traveler V 1.4 - Barry Traver
- A276 Genial Traveler V 1.5 - Barry Traver
- A277 Genial Traveler V 1.6 - Barry Traver
- A331 Hollywood Hi-Jinx - INFOCOM
- A332 Moonmist - INFOCOM
- A333 Stationfall - INFOCOM
- A339 Picasso Support Disk III - Arto Heino
- A335 Typewriter & Beyond Video Chess - ASGARD SOFTWARE
- A356 SPAD XIII - NOT POLYOPTICS

The following disks are all from Jim Peterson's TIGERCUB SOFTWARE, and I am placing them into a separate category, which will be dedicated to TIGERCUB software. They will be renumbered with a 'TC-' prefix:

- A109 Nuts & Bolts I
- A143 Nuts & Bolts II
- A270 Tigercub Tips #46 to #54
- A316 Tigercub Tips #55 to #57

Software Releases for October

DISK A156 is the first in a series of three exchange disks from the Channel 99 User Group of Hamilton, Ontario, in Canada. The disk is DSDD and is packed with 33 programs, including a variety of adventure games, a version of breakthrough, a map building quiz game, versions of euchre and battleships, a typing tutor and various spelling games. There are also some utilities, such as a Dis/Var 80 file reader, a bill-paying calendar, a program columniser, a notebook database, a simple spreadsheet, a currency conversion program and a cheque writer, to name but a few. The disk will also be available on several SSSD disks for those users unable to handle the DSDD format.

DISK A338 is Ray Kazmer's version of the Maze of Grog. The program is very well done, with really great graphics, and should appeal to anyone who considers himself to be a gamerster.

DISK A392 was released last month, but time and space prevented me from describing the contents. This disk is an Indonesian vocabulary program which

should be very useful to anyone studying the Indonesian language at school. The program is menu driven and comes with instructions and on-screen prompts. The disk is in SSSD format and is offered as FAIRWARE.

DISK A393 is the third disk in Don Shorrock's educational series. In common with the previous disk, it is also a foreign language primer, this time Japanese. The disk is menu driven, comes with documentation and should be useful to anyone studying Japanese. The disk is in SSSD format and is offered as FAIRWARE.

DISK A395 contains two utilities from Ron Prewitt. The first utility is called MarginText III and allows you to reformat a Dis/Var 80 text file to any width between 20 and 80 characters. The program includes a documentation file and is easy to use. The second utility, called ColumnText IV, allows you to print a Dis/Var 80 text file in two, three or four columns with right justification. The text file must be formatted to the correct number of columns prior to being processed by the ColumnText utility. The program supports Epson, Star Gemini and Panasonic printers and includes a documentation file. Both these programs are offered as FAIRWARE and come on a SSSD disk.

DISK A396 is Macro Assembler V8.0 from R.A. Green, the same brilliant programmer who gave us the great upgrades to TI Writer and TI Multiplan. There are extensive documentation files on the disk to help you get started. The features of this assembler make it far more powerful than the standard assembler released by Texas Instruments as part of the Editor/Assembler package. The software comes on a DSDD formatted disk, but will be also be available on several SSSD disks.

TigerCub Software Release for October.

Since Jim Peterson has been such a prolific author and programmer in the TI99/4A community for such a long time, I would like to both acknowledge and publicize his contributions by making it a regular feature to release his software under his catalogue numbers.

TC-1122 is a DSDD disk containing 127 screen fonts in archived files. When unpacked, the files occupy 1871 sectors, or slightly more than 5 SSSD disks! The following description is excerpted from a README file on the disk:

"This disk contains assembly object codes for 127 screen character sets. These character sets may be placed on the same disk as your program, loaded into the program by a CALL LOAD, and then accessed instantly by a CALL LINK.

However, it is more practical to imbed them in the program, using Tod Kaplan's fantastic ALSAVE routine, so that they will be loaded much faster together with the program and can then be accessed instantly. As the demo programs will show, from 6 to 12 character sets can be imbedded in one program and instantly switched back and forth.

Of course, these character sets can also be downloaded into a printer, using a program compatible with the particular printer, and they can also be converted into TI-Artist or other graphics program printer fonts, using the appropriate programs.

The 8x8 pixel matrix of the TI screen severely limits creativity in designing characters, but I believe that each font on this disk is unique, although some will appear quite similar. Most of them were created by Xbasic routines to manipulate the hex codes, and then cleaned up by the use of my CHARFIX routine, which is also included on this disk.

Most of the sets contain all of the characters from ASCII 48 to 122 (zero to lower case z) but some have only the upper case, upper case and numbers, or only the lower case. The demo routines will show you their range."

Commercial Software Release for October.

Picasso Publisher will be available at the October meeting as a set of four disks, including three support disks. Alf Ruggeri will be demonstrating the many features of Picasso when he shows us how to design greeting cards, while Larry Saunders will be doing similar things using Page Pro. Picasso was written by Arto Heino (a past member of TISHUG) and proved to be very popular in 1987 when it was the first real desktop publishing program available for the TI99/4A. TISHUG was then selling copies of Picasso under licence for \$20, while the various support disks were sold for about \$5 to \$10 each. Since then, Picasso has been extensively upgraded and is now commercially available in the US. The version that will be available at the next meeting is not the same as the current commercial product, but is the V2.0 of 1987. The complete Picasso Publishing package will cost \$20.00. o

Cutthroats part 2

Copyright 1984 Infocom
This walk through is by Scorpia, Copyright 1984.

Ok, so it is time for the Leviathan. Get up, then go North to the storage locker. Here you will find all the things you bought at Outfitters. Put on your wet suit and flippers. Get the drill and the C battery, open the drill, put the battery inside, and close the drill. Get the remaining items, except the compressor. Fill your tank with the compressor, then go South. Along the way, get the envelope from under the bed.

Stop in the galley to eat and drink, then continue on South to the Captain's Quarters. Show Johnny the envelope. That will take care of Weasel! Now go North and up. Put on your tank and mask. Johnny will tell you about the orange line, but for this dive, it will not be needed.

You are all set, so dive in! Once underwater, turn on your flashlight, because it is going to get dark pretty soon. Oops! A shark just showed up! Good thing you have the repellent. Open the canister, and the shark will take off. Now, just keep going down until you reach the wreck.

You are on the top deck of the Leviathan, with a hole at your feet. Go down through the hole, to the Middle Deck. Here, you can only go up or down, so go down again, to the Below Decks area. From there, go South, to the room with the closed door. You might want to read the sign on the door before you open it.

Once past the door, you are in a mine locker. All the mines are tied down, except for one loose one, floating in front of a hole. Fortunately, you can take care of that problem without difficulty. Touch the magnet to the mine, then turn on the magnet. Drop the magnet (why that does not blow you to bits, I do not know, but that is how it works). Now you can go up through the hole.

You are on the Middle Deck again, although a different part of it. The way South is narrow, so remove your tank, then go due South until you come to the room with the safe. This is the tricky part. Turn on the drill, drill the lock, and then *immediately* turn off the drill again. Otherwise, it will burn out, and you will have a big problem later!

Ok, inside the safe is a glass case containing some valuable stamps. Alas, there is a crack in the case, and water is starting to seep in. However, do not be alarmed; you will have enough time to fix that. Go back North to the room with the hole in it. Put your tank back on. Go through the hole into the mine locker, then North, then up through another hole.

Surprise! This room still has air in it. Good thing, too, because the water level in the case was
continued on page 16

Page Pro Utilities

by Paul E Scheidemantle, USA

Introduction

In a short space of time Page Pro 99 has become one of the most popular graphic programs for the TI/99/4A and Myarc Geneve 9640. This collection of utilities was developed to enhance this already capable program.

Page Pro Utilities features the Page Pro Enlarger (a utility to enlarge, reduce or "ghost" Page Pro pics), Page Pro Flipper (a utility which rotates pics), Page Pro Stripper (a program to remove white areas around pictures), and the Page Pro Line Font Editor (a utility for making your own line fonts). Additionally, a small collection of Page Pro pictures has been provided on the disk for use on Page Pro pages.

Loading Page Pro Utilities

All but one utility in this collection is loadable in TI Extended BASIC (or its equivalents)- the Page Pro Line Font Editor. This utility is an all-assembly program that requires the Editor/Assembler module, or MENU or ROOT loader.

To Load Page Pro Enlarger, Stripper and Flipper:

It has an auto load program. The Page Pro Utilities main menu (described below) will load and run. Press any key to advance beyond the title screen.

To Load Page Pro Line Font Editor

Use any Editor/Assembler Option #5- "Load and Run" loader or MENU, ROOT to load the program. Just type in the following:

DSK1.PPLE

Then press ENTER. The Line Editor will load and run. Press any key to advance beyond the title screen.

The Page Pro Utilities Main Menu

Page Pro Utilities is not one program but a collection of related programs. A menu is provided to simplify the task of using these utilities. When loading Page Pro Utilities through Extended BASIC, as detailed above, this menu program is loaded. Press any key to advance beyond the title screen. On doing so the following options will appear:

1. Enlarger
2. Flip
3. Stripper
4. Line Font Editor
5. Page Pro 99
6. Catalog
7. Exit

I have replaced the above loader on my diskette with the "ROOT" loader, for several reasons.... (1) very easy to use. (2) easy to adjust MENU. (3) will load and run all of the above including the Line Font Editor. (4) has a built in Cataloguer and Display Variable file that will display to the screen or screen and printer. (5) you can also fit on it Disk Utilities, DM 1000, Archiver, and Pix Pro. If the disk is double sided, or double density, or using two drives, or RAM drives.

Listed below is what my menu looks like:

- 1 Show Directory
- 2 Display a File
- 3 Load and Run
- 4 Pix Pro
- 5 Enlarger

- 6 Flip
- 7 Line Font Editor
- 8 Page Pro 99
- 9 Disk Utilities
- C Super Extended BASIC

Hit space BAR and you get:

- 1 DM 1000
- 2 Funnel Web Farm
- 3 Archiver
- 4 Printer Set Up
- 5 EzKeys Plus
- 6 Type Writer 99
- 7 TI Writer 40 col
- 8 TI Writer 80 col
- 9 Formatter V4.4
- C Super Extended BASIC

This type of loader will load and run almost ANY program from any diskdrive, RAMdisk, or Harddrive.

To select one of the utilities, enter the key of the option desired - type "1" and press ENTER to select Page Pro Enlarger, for instance. Options #1-3 load the Page Pro Enlarger, Flipper and Stripper respectively. Option #4 gives quick documentation on loading the Line Font Editor. Select Option #5 and follow the on-screen instructions to load Page Pro 99. Option #6 is used to catalogue a disk (either a floppy, RAM or hard disk), and choose Option "0" to exit to Extended BASIC. You can press Quit (FCTN =), to leave the menu entirely and return to the TI Home Computer screen at any time.

When cataloguing a disk, press any key to stop the list on the screen (and press another one again to continue). The program will make an audible tone when listing is stopped and started again. This option functions the same in all of the utilities below.

Managing disk with Page Pro Utilities

If you have a dual drive system, using Page Pro Utilities is easy - simply place your work disk in drive two and the program disk in drive one, and keep any files on that disk. If you have a single drive system, you may have to do more work to use these utilities.

For the greatest convenience, copy all the files on the disk (with the exception of the picture files listed at the end of this manual) onto a new disk. Place any pictures you wish to process on this disk, and then load Page Pro Utilities as described above. Provided you have enough space on the disk to do what you need to do, you will not have to swap disk at any point.

If you have too many pictures, or they are too large, you will have to swap disks. While the program does not explicitly tell you when to exchange your work disk for the Page Pro Utilities disk, there is a general rule of thumb. You can swap your work disk for the program disk after you have loaded in one of the utilities - and swap them back right before you wish to exit each utility and return to the Page Pro Utilities main menu. None of the Page Pro Utilities need to refer to the program disk while it is running.

Page Pro Enlarger

Often when you use Pro Page you may find yourself wishing a particular picture fit a particular space, you may frequently need to enlarge a small picture, reduce a large picture, or even stretch or squeeze a pic to fit a given area. Page Pro Enlarger does those things, rapidly, and more. The Page Pro Enlarger lets you do these things (in addition to, as the name implies, enlarging them).

After selecting this program from the Page Pro Utilities menu, it will load and the title screen will appear - press any key to advance to the Page Pro Enlarger menu The following menu options will be displayed:

1. Enlarge both directions
 2. side to side
 3. Top to bottom
 4. Reduce both directions
 5. side to side
 6. top to bottom
 7. Ghost heavy
 8. medium
 9. light
- C. Catalogue disk
E. Exit

As with the main menu, press the key representing the option desired. If you select options #1-9, Page Pro Enlarger will ask you to enter in the filename of the picture that you want to perform that action on, and the filename you wish to save the processed picture to. If you enter nothing at either prompt (that is, erasing any default filenames and literally entering nothing), you will be returned to the main menu. All of the Page Pro Utilities function in this manner.

Please note... that Page Pro Enlarger does not modify the original file - so you can still use the original picture later for other purposes. Make sure you have plenty of free room on your disk containing your picture (or the destination disk with a multi-drive system) before selecting any of these options.

Option "C" allows you to catalog a disk, and option "E" returns you to the Page Pro Utilities main menu.

If you pick a filename that is already on the destination disk ALL Page Pro programs will tell you, and ask you for another filename.

A note of explanation of what options #1-9 do exactly is in order:

Option #1 - Enlarges a picture 100% (the results are 4 times the size).

Option #2 - Stretches a picture horizontally - It will be twice as wide and the same height.

Option #3 - Stretches a picture vertically - the picture will be twice the height and the original width.

Option #4 - Reduces a picture 100% - the picture is 1/4 of its original size.

Option #5 - Squeezes a picture horizontally - it will be the original height but half the width.

Option #6 - Squeezes a picture vertically - it will be its original width but half the starting height.

Option #7 - Makes the picture appear slightly "ghost-like" - some pixels will be removed but the basic outline and form of the picture will be clear.

Option #8 - Removes even more pixels than the previous option.

Option #9 - Removes many more pixels - making the picture look faint.

Ghosting is an excellent effect for use in greeting cards or on signs. You can type text on a ghosted picture for an excellent effect. (I recommend Option #7 only for ghosting, I tried Option #8-#9 and was not impressed with them at all. Option #9 could not make out the picture even when I knew what it was.

If you still do not understand exactly what these options do, try processing a picture with one and look at the results (preferably before and after) in Page Pro.

Page Pro Flipper

The Page Pro Flipper is primarily useful if you are making greeting cards or certificates. This utility

permits you to easily rotate or make a mirror image copy of a picture.

After selecting this program from the Page Pro Utilities main menu, it will load and a title screen will appear. Press any key to advance beyond it. The following menu will then appear:

1. Flip both directions
2. side to side
3. top to bottom
4. Catalogue disk
0. Exit

Press "1","2" or "3" to select one of the flipping options. Pressing "4" allows you to catalogue a disk, and "0" returns you to the Page Pro Utilities main menu.

If you select options #1-3, the program will ask you for the filename of the original picture and the filename you wish to save the processed one as. This utility does not modify the original picture - it makes a copy with the desired processing. If you tell the program to save the file as DSK1.NEWFIL and the program finds that file on the disk, it will tell you that that filename is already used and select another to proceed. Most of the new programs coming from the USA have this feature.

Option #1 allows you to flip a picture 180 degrees (make it upside down). Option #2 can be used to mirror a picture (flip it) from left to right. Finally, Option #3 allows to do the same effect from top to bottom. Again, if you are unsure of what these options do, process a picture with one and view it or print it out with Page Pro.

Pro Page Stripper

The Pro Page Stripper is a simple utility that can potentially save you many headaches - it removes white space around a picture. This has three uses: stripped pictures take up less space on a disk, they will load and print faster with Page Pro 99, and a smaller picture is easier to place on a page. This utility can save anywhere from nothing to 20,30 or even 40 sectors or more on your disk - depending on how much empty space there is around a picture. This utility is particularly useful if you have a single drive system.

After you have used the Enlarger on a picture, it usually pays to run the enlarged version through the Stripper to remove the white areas that are unused.

After selecting this program from the Page Pro Utilities main menu, it will load and a title screen will appear. Press any key to advance beyond it. The following menu will then appear:

1. Strip excess blank rows/cols
2. Catalogue disk
3. Exit

Press "1" to remove the white space, "2" to catalog a disk, or "0" to return to the Page Pro Utilities main menu. If selecting option #1, enter the appropriate filenames.

Please note that the longer the stripper takes, the more white space it is removing and the more space will be saved on your disks. Finally, this program is particularly disk intensive (since it has to scan the entire picture looking for empty rows and columns). You can obtain a dramatic speed improvement by using a RAM-disk or a hard-drive to store pictures while being processed.

Page Pro Line Fonts Editor

Page Pro 99 does not include a line font editor, yet the ability to type lines is one of the more powerful functions of the program. Until now, you could not create your own line fonts. This program is a pre-release version (0.1) of a full-fledged font editor to be released as a separate package later.

While all the menus are complete, the only functional options are those related to the Page Pro line fonts. After loading the program, you will be greeted with an explanation of the author reasons for releasing this program early. Press any key to get past this screen.

After going past the title screen, a window will appear listing your options:

```
LOAD FONT
SAVE FONT
EDIT FONT
QUIT PGM
```

The option currently selected will be in inverse type. Use the up and down arrow keys (FCTN-E and FCTN-X) to make your selection and then press ENTER to choose it.

At this point you can do another of things. You can do a number of things. You can select the top option if you wish to load in another line font and modify it (or use it as a base for a new line font). Or, you can go directly into the "Edit Font" option if you want to create a new line font from scratch.

For all options except the QUIT option, selecting it opens a second window underneath it with another set of choices:

```
LINE
SMALL
LARGE
EXIT
```

Again, use the up and down arrow keys and ENTER to select the option desired.

The LINE and EXIT are the only two options on this MENU working up-to-date (editing for text fonts is not functional in this version).

Load/Save

Selecting either of these options (and the "LINE" sub-option), allows you to load or save a font to or from memory. The program will prompt you to enter a filename for the line font you wish to load or save. After entering it (along with the device name, e.g.

"DSK1.FONT LN"), press ENTER. Provided no I/O errors occur, the font will be loaded or saved properly.

Editor

After loading in a font to edit, the screen will clear and a grid will be displayed that is 8x12 for editing line fonts. A cursor will be blinking in the upper left hand corner of the grid and a window will be displayed listing the active editor keys and option list.

To move the cursor, press the following keys:

```
W      E      R
S      *      D
Z      X      C
```

These are the standard TI arrow keys and diagonals. Note that both upper and lower case allow you to move about the grid.

To draw, just hold down the function key (FCTN) and press any of the directional keys.

To erase, just hold down the control key (CTRL) and press any of the directional keys.

SHIFTING A CHARACTER

Press "N" to enter the "nudge" mode. A window will

open telling you to use the arrows to nudge the character in any of 4 directions (you must press FCTN-E, FCTN-S, FCTN-D or FCTN-X for this). After nudging the character, press ENTER to return to normal editing.

This function will be very useful for centering text fonts converted from TI-Artist, but may not be as useful in the line font editor - you can be the judge. Any pixels that are shifted off the grid are lost and can not be recovered by nudging in the other direction.

CUTTING AND PASTING

Press FCTN-4 to cut the current grid character and place it in a temporary holding area. This character will remain in the buffer until you cut a new one.

To paste the contents of the "cut buffer", press FCTN-5. The character in the buffer will instantly replace the current grid character.

NOTE: This buffer is not destroyed when exiting or entering the editor, so it is possible to copy characters between line and small fonts (when text editing is implemented). It will also work with large fonts, but it is not really practical since the character boundaries are different.

GET A CHARACTER FROM MEMORY

FCTN-6 allows you to select an existing character from memory and display it in the editing grid. A window will open displaying the valid characters. Move the cursor on top of the character you want to get and press ENTER. The pattern for that character will now occupy the grid and can be edit. FCTN-9 will abort this option without any change to the grid if you selected it by mistake.

PUT A CHARACTER INTO MEMORY

Once a character has been modified in the grid area, it must be PUT into memory to save it. Press FCTN-7 to do this. You will be presented with the identical window as in the GET mode with the cursor flashing over the last character character that you selected. Move the cursor over the character that you want saved from the grid and press ENTER.

NOTE: Only left and right arrows will move you through the GET and PUT windows (Jim is still working on getting up and down to function properly).

After PUTting a character into memory, you will immediately be switched to the GET mode. This was done to save keystrokes. I think most users will want to grab another character from memory after stashing one away. If this is not the case, just press FCTN-9 to abort.

EXITING THE EDITOR

Just press FCTN-9 when in the normal editing mode to exit the editor. You will be back at the main menu screen and can then save your font, load a new one, or quit.

ANY FONTS THAT WERE EDITED MUST BE SAVED FROM THE MAIN MENU OR THEY WILL BE LOST. REMEMBER TO FIRST PUT YOUR CHARACTER(S) INTO MEMORY AND TO SAVE YOUR WORK BEFORE QUITTING.

Pictures on the Utilities disk

The following pictures are included on the Page Pro Utilities disk:

```
MICHAELANGELO
MONALISA
SCARYCAT
SKELETON
SPIDER
```

continued on page 18

Page Pro 99 - part 3

Copyright Asgard Software

The third way to delete a picture is pressing CTRL U. This operation will delete all pictures on your page and reset the table that keeps track of picture locations. Use caution with operation. Once you confirm your action, all pictures will be erased.

Once you have created a page, you may want to save it for future editing or printing. Page Pro 99 provides 2 ways for you to save your work. Press CTRL F to bring up the file option menu. To save your page along with your picture information, select option 2 - Save Page. This selection will save your page into a 21 sector "memory image" file that contains your text as well as your picture data. Option #4, (Export Text) should be used when you just want to save the text for use in other programs. The picture data will not be saved with this option.

To load a previously saved page, just bring up the file options menu by pressing CTRL F. Select option #1(Load Page) to load a page that was previously saved with with option #2. To load a text file that was saved with option #4 or created using another program (such as TI-Writer), select option #3 - Import Text. This option will read any D/V80 file and load it into Page Pro 99. Note that the limit is 66 lines by 60 columns of text. Any text beyond 60 characters per line or beyond 66 lines will be ignored. Also, remember that when you load a page (option #1) the picture data is also loaded. Pictures should be in the same drives that they were in when the page was saved. See the "TIPS and TRICKS" section for some ideas on handling this.

Page Pro 99 can hold 3 different fonts (some times 4) in memory at the same time - a small text font, a large text font, and a line graphics font. Each of these fonts can be changed by loading in a new font from disk. To load a alternate font, press CTRL A. A sub-menu menu will be displayed offering you a choice of which new font to load. Press "1" to load a new line graphic font, "2" to load a new small text font, or "3" to load a new large text font. Next, you will be asked to enter the path and filename of the new font. The new font will then be loaded and replace the old font in memory. Page Pro 99 can only support one of each of the three different fonts at a time. (Upper case and lower case in text fonts, so it is possible to fit 2 fonts into a large or small font if one of the fonts uses upper case only and is loaded in last). With creative use of the picture capabilities (like used in these pages). It is easy to give the appearance of more fonts on a page. See the "TIPS and TRICKS" section for some ideas.

Printing a page is simple with Page Pro 99. Just press CTRL P and you will be prompted to enter the path and file name of the device you want to send your output to (it is possible to "PRINT" a page to disk, but be warned the resulting file will be very large! A single-density print file on disk will take up around 200 sectors, a double-density about 400 and quad-density about 800.

After entering the device name for your printer, you will be prompted to select density of your printer output. Most of the newer Epson-compatible printers will support all three of the density selection offered (single, double, and quadruple), but many of the older models will only support single and double. Check your printer manual if you are not sure. Press 1, 2, or 3 to select the desired print density. Next, the program will check to see if the picture display mode is turned on. If not, you will be asked if you want to turn the pictures on. Press "Y" to turn pictures on or any other key to leave them off. If you print a page with pictures turned off, the inverse "P"'s you see displayed on the screen will be printed instead of your pictures.

Why would you want to do this? If you want a "ROUGH DRAFT" to check the layout of a page, it is a bit faster to get a print-out with the pictures turned off since they do not have to be read in from disk.

Everything is now set to print. You will be reminded to make sure your printer is turned on and ready to go (paper aligned, etc.). Press enter to start the printing process. The screen will blank while the page is printed. This is a necessary evil and is nothing to be concerned about.

If you need to abort printing for any reason, just press FCTN 4. If you are using Page Pro 99 with print spooler, it may be necessary to turn your printer off to totally stop the printer.

Press CTRL C to change the screen colours of Page Pro 99. There are 12 different colour combinations in all that should cover most preferences for various types of display monitors.

At virtually all prompts when Page Pro 99 is asking for information (filenames, menu selections, etc.), you can cancel the operation by pressing .9. If this is done when entering a filename, the name will be erased and the next time you access that particular mode, you will have to re-enter the filename (the default name is also erased).

Under certain circumstances it is necessary to turn the screen display off briefly (when inserting and deleting lines, saving or loading a page, and during printing). Do not be alarmed by this. It is intentionally done to save you from viewing some "GARBAGE" for a moment while the operation is taking place.

When ever an "I/O error" occurs, the picture display mode is automatically turned off. This is done so that you do not necessarily have to always have your pictures located in the exact same disk drive(s) as when a page was saved. If loading a picture did not cause the error, simply press CTRL O to turn them back on. (any I/O error will cause the cursor to reset to the top left-hand corner of the page.).

Page Pro 99 comes with a collection of utilities designed to expand your page-making capabilities. These utilities allow you to convert over standard artwork into Page Pro's format, as well as manipulate text files for use in Page Pro 99. Future utility packages will enhance the capabilities of the program in remarkable new directions.

All of Page Pro Utilities are available from the MAIN MENU from Extended BASIC. Follow the Extended BASIC procedure as outline in the first part of this Manual. When the program menu appeared, select the Utility desired by pressing the key of its number. When the Utility has finished executing, it will return you to this Main Menu, where you can load and run other utilities or the program itself, or quit.

The Columnizer program is selected by pressing the key of the number to the left of its name on the Main Menu.

Please note before continuing, this utility assumes (a) some experience with TI-Writer, and (b), some experience with the TI-99/4A in general. If you do not have BOTH, you may want to skip this section as it could easily be an exercise in frustration.

This utility is very simple in concept, but can be tricky in execution. In a nutshell: the program takes any TI-Writer text file, converts it into 22 to 29 character columns, and brakes it into files of exactly 1 page each. After it has done this, you load Page Pro 99, and use the Import Tet file to load in each page individually so that you can add titles and pictures. Finally, you print each page and/or save it to disk and move on to the next.

Games for TI99/4A

From Public Domain Catalogue of Jim Peterson, OH USA

- This is collection of Games available for the TI-99/4A as compiled by Jim Peterson.
1300. MATHEMATICAL GAMES (133) 100% (L. Derveeuw); The 37 Game, IQ Math, Tigercub Math Puzzle (J. Peterson); Addition Magician (Juckett/Yorke); Arithmagraphs (M. O'Regan); Math Puzzle (Peterson/Everstine); Braintease; Sphinx (Vanderlinden); Splat! (Yege/Martin)
1301. BRAIN GAMES #1 (344) 15 Puzzle (D. Ulmer); 3D Tic Tac Toe (B. Emmons); Hexpaw (Cameron/Lopez); Queen Board Game (D. Decker); 3D Tic Tac Toe (T. Castle); C99 3D Tic Tac Toe (C. Pulley); 4 Colours (W. Richardson); Abba, Mini-Mancala (Renko/Edwards); Alphabox (P. West); Black Box (Kenton/Hitz); Colour Master (J. Taylor); Colour Squares (J. Peterson)
1302. BRAIN GAMES #2 (345) Black Box (Kenton/Shaw); Explosion (Renko/Edwards); Four in a Row (Software, Netherlands); Game of One or Two (B. Jackson); Giants and Dwarfs (B. Traver); Going Home (H. Tsoi); Indians; Mugwump (Valentini); Knights Knaves Numskulls (McIntire); Knights Tour (C. Garcia); The Last Robot (J. Muller); L-Game (Gardner)
1303. BRAIN GAMES #3 (352) L-Game (R. Mannone); White Holes (S. Pincus); Magic Puzzle (C. Bobbitt); Master Mind #1 (J. Taylor); Master Mind #2; Master Mind #3 (D. Smith); Match-Em (Regena); Matching (K. Ziebert); Mawari (D. Masse); Memory Flash (S. Brammer); Mind Busters (N. Schultz); Nim #1; Nim #2; One Check (Ahl/Sztain); One to Five (Renko/Edwards); Peg Jump (B. Stoffer); Pick up Sticks (B. Torbert)
1304. BRAIN GAMES #4 (352) Flip (W. Richardson); Quintus (S. Pincus); Rainbow Square Dance (Renko/Edwards); Rebound (W. Dollard); Rotate #1 (Gerlach); Rotate #2 (Wayne Page); Shoot the Stars (J. Cooper); Shufflesquares (G. Nielsen); Shuttlesearch (J. Peterson); Sixteen Puzzle (D. White); Solitaire Checkers (R. Mitchell); Solitaire Peg Jump (Regena); Switch-a-Row; Tic Tac Toe #1 (M. Nudal); Tic Tac Toe #2 (Netherlands); Tic Tac Toe #3; Tile Puzzle; Tower of Hanoi (S. Holl); Towers of Siam (H. Payne)
1305. TWO-PLAYER BRAIN GAMES (353) Concentration #1 (C. Cameron), #2 (Wijns), #3 (anonymous); Connect Four (R. Mudie); Four In A Line (S. Johnson); Four In A Row (S. Dhein); Isolation (B. Cromley); Les Passe Temps (R. Buckley); Matchup (T. Nickel); Othello (George/Larrison); Phantom (R. Wynn); Pompeii (S. Shaw); Bomb Scare (G. Hitz)
1306. BRAIN GAMES #5 (345) Logix (R. Renth); 3D Tic Tac Toe (Pelly); Links (C.A. Provance); Concentration (Regena); Puzzle (Jigsaw); Puzzle 15 (C. Bobbitt); Puzzler (P. Parrish); Superjot (K. Romstedt)
1307. MASTER MIND by J-L. Bazanegue (322 sectors). Brain game from France.
1310. MEMORY GAMES (235) Simon Sez (Braun); Copycat (Regena); Echo Chamber; Monster Match; Harried Housewife (Regena); Simon Numbers (B. Kafer); Supermaze (P. Paolo); Memory Maze (Hemic).
1315. SARGON CHESS (155) Sargon (Spracklen/Swiridenko) assembly language. Editor/Assembler module needed
1320. MAZE GAMES #1 (342) Amazing Program (J. Hauser); Bank Robber (Hoyle/Samo); Castle Hallways (P. Crosbie); Castle of Jewels (C. Lee); Cave Maze (J. Todd); Dragon (R. Eastman); 3-D Maze, 3-D Labyrinth; Castle Nova; Deliver the Cake; Making Mazes
1321. MAZE GAMES #2 (346) Escape from Wizard's Keep (J. Kitchens); Get Out (P. Day); In a Maze (G. Anderson); Maze (Schaal/Weaver); Milleros Maze (C. Miller); Maze Race (Regena); Mazeit (R. Yecmans); Mazemaker (H. Ulmer); Mazzo (Constanidis); Memory Maze (J. Kinserlow); Memory Maze #2 (Hemic); Mine Maze (Hemic)
1322. MAZE GAMES #3 (338) Mouse in a Maze (G. Singer); Versailles (J. Isler); Searchmaze (B. Traver); Tunnelvision; Wumpus (G. Yob); Wumpus (M. Martinko); Wumpus II; Palace of Ice; Grumplin's Cave; Hidden Maze; Labyrinth 1; Power-Pac (T. Grays)
1323. 2-PLAYER BRAIN GAMES (335) Concentration #1 (C. Cameron); #2 (Wijns); #3 (anonymous); Connect Four (R. Mudie); Four in a Line (S. Johnson); Four in a Row (S. Dhein); Isolation (B. Cromley); Les Passe Temps (R. Buckley); Matchup (T. Nickel); Othello (George/Larrison); Phantom (R. Wynn); Pompeii (S. Shaw)
1330. HANGMAN GAMES (335) Hangman #1 (J. Taylor); #2 (D. Miller); #3 (D. Sell); #4 (anonymous) w/speech; #5 (K. Weise); #6 (D. Schmitt); #7 (T. Falco); #8 (T. Andrews); Mystery Spelling (D. Hapeman); Natural Elements; Trees of North America
1331. WHEEL OF FORTUNE #1 (249) Wheel of Fortune (Ed McDonald). Super!
1332. WHEEL OF FORTUNE #2 (248) People, Places and Phrases (D. Lawrence); Wheel of Fortune (A. and C. Kimsa); Wheel of the Century (Bob Veiring); Wheel
1333. WORD GAMES (310) Scrambled Eggs; Switch 'n Spell; Word Dice (R. Mudie); Tigercub Wordsearch (J. Peterson); Word Search Game (C. Sternberg); Artists, Writers, Inventors; Birds of the World; Flowers of the World; Lexicality (D. Ulmer); Word Scramble (Orwig/Hodges); World Currencies; World Mythology; Hangman (C. Lee)
1340. GAMES BY ROLAND TRUEMAN (333) Beetle Walk, Billy Ball Plays Catch, Billy Ball To The Rescue, Billy Ball At The Hatchery, Flooraway, Second Floor. These former commercial games are now fairware and are offered by permission.
1350. CARD GAMES #1 (352) Aces and Jokers (B. Caron); Acey Deuce w/Odds (Powers); Acey Deuce (A. Falco); Acey Deuce (McDonald); Casino 99 Blackjack; Blackjack with speech; Blackjack #1 (Manuel C.); #2 (R. Johnson); Chemin de Fer (M. Cowler); Draw Poker (M. Constanidis); Euchre (M. Kroll); Twenty-One (S. McIntire)
1351. CARD GAMES #2 (348) Extended Blackjack; Fivecard (S. McIntire); In Between (T. Reik); Lucky 7 (S. Davis); Pinochle Scorer (R. Addington); Poker w/speech (R. Johnson); Two Hand Euchre (G. Kirsch); Klondike (A. George); Pontoon (D. Trevorow); Solitaire (P. Parrish)
1352. CARD GAMES #3 (110) Poker (Barry Gibbins); Poker Solitaire (Regena); TI-Poker; Baccarat (Byron/Rue)
1356. DICE GAMES (354) Challenge (B. Vang); Farkle (D. Owens); Game of 5000; Indian Dice (TNT Software); Not One (Cleveland) w/speech; Pig; Scoreboard; Xorkle (Beejay); Yahtzee; Numbers Away (N. Tsoi); Sweatcloth (S. Shaw); Kismet
1360. BOARD GAMES (288) Capture; Fox and Geese (B. Leonard); Go (S. Whitehead); Othello #1 (R. Mirus); #2 (J. Cook); #3 (Coole/Minutillo); #4 (Nguyen Long); Score Four (B. Cromley); Scrabble; Gomoku (N. Long)
1361. BINGO (73) Bingo (Burchfield, etc.); Bingo Card Caller (anonymous); Tingo (S. Karasek); Saturday Night Bingo (with speech)
1362. CHECKERS (238) Checkers #1 (Cr. Comp.); Checkers #2 (P. Walling); Checkers #3; Checkers #4 (B. Cromley); Checkers #5 (Ahl/Nichols); Checkers #6 (Swinnen); TI Draughts (A. Heino)

1363. BOARD GAMES #2 (287) Scrabble; Backgammon (Kazmer); Backgammon #2; Monopoly; Monopole.
1367. GAMBLING GAMES (237) Casino Roulette (S. Casteel); Wheel of Fortune (R. Rue); Keno (E. Dohmann); Vegas; Priser's Casino; Weekly Lottery (R. Kellogg); Lotto (Heim/Anderson); Randomized Lottery Numbers (C. Alspaugh); Horse Race (W. Ballschmeiter); A Day At The Races (S. Duffield)
1381. BOWLING (289) (346) 3D-Bowling (T. Flanagan); Bowling (G. Hortness); Bowling (Software Netherlands); Bowling (Yorke); Bowling Champ; Bowls (W. McMath); Bowling (anonymous); Video Bowling (anonymous); Championship 5-Pin Bowling (R. Mulholland)
1382. GOLF GAMES (138) Golf #1 (D. Cleveland); #2 (A. McMath); Golf Handicapping (R. Nelson); Compu-Golf (Rickel/Engels)
1383. BILLIARDS, BOXING, etc (250) Billiards (D. Masse); Boxing (J. Behnke); Darts (M. Kroll); Hustler (R. Binkowski); Tennis (Perlin Paolo); TI Rebound V3.1 (S. Brandon); Alabama-Auburn Football (M. Hartline); Hockey.
1400. ADVENTURE DISK #1 (360) Vampire Castle, School of Death, and House on Misty Hill, by S.W. Lucas.
1401. ADVENTURE DISK #2 (306) Aladdin, Visitor from Space.
1402. ADVENTURE DISK #3 (329) Castle David (anonymous); Berlin Adventure (S. Johnson); Dog Star Adventure (Micklus/Traver)
1403. ADVENTURE DISK #4 (324) Alien Search (Bud Shapiro); Basements Beasties (DaCosta/Traver); Dragon's Lair (P. Olmsted); Devil's Island; Star Wars; Dungeon of Danger; Escape From Mars.
1415. HAMMURABI TEXT GAMES (268) Ahamur (G. Smith); Hammurabi (Cass); King (Storer/McAshan); Sumarian King (C. Bobbitt); Imhotep (S. Pincus); Kingdom.
1416. TEXT GAMES #1 (313) Lost Dutchman's Gold (P. Dusek); Nomad (D. Johnstone); Paranoids Anonymous (G. Gudmundsen); Stoneville Manor (Jensen/ Stadler)
1417. TEXT ADVENTURES (340) Operation Sabotage (B. Chmela); Survival (B. Caron); Dogstar Adventure (Micklus/Traver); Dungeon; Quest.
1425. GRAPHICS/TEXT ADVENTURES #1 (354) Ping-Pong (Danny Goldstein); Opal.
1426. GRAPHICS/TEXT ADVENTURES #2 (322) Cathay (Barry Gibbins); The Dungeon; Dungeons with Dragon (D.S. Johnson); Monster Combat; Treasure Island (G.J. Smith); Tukom's Kingdom (R. Bryer); Camel (Heath/Richardson)
1427. TEXT and GRAPHICS ADVENTURES (325) Adventure in Oz; Civil War; Quest 99/4; Stellar Explorer (D. Farrow); Starship Alpha; Paleolithic Hunter (D. Spinner)
1430. ROAD RACE GAMES (356) Formula One (G. Tas); Grand Prix (J. Smart); Wipe-Out (D. Mennenoh); Car Race (Heeren); Cars Carcasses (S. Moore Jr) Monster Mash (D. Lindley); Road Runner (A. Goodhall); Roader (J. Twiss); Rally Cross (W. McMath); Touring (C. Ehninger); Fouvalant; Go-Kart; Motocross; 3D Road Race.
1431. KEYBOARD MANEUVERING GAMES (349) Galaxy Lander (J. Behnke); Shuttle Rescue (Manuel C.); Traffic Cop; Victorian Sewers (S. Shaw); Defuse; Gunsnote (A. Magee); High Jump (P. Paolo); Invasion (T. Niemietz); Micro Jaws (S. Pincus); Power Wars (Wilson/Young); Railways; San Francisco Tourist (Regena); Raging River (P. Williams)
1432. ROAD CROSSING GAMES (344) Hot Dog on the Freeway (M. Cowler); Home Bound; The Frog (C. Gallant); Frog Man (M. Smetana); Frogger (S. Mynard); Frogger Mark II (H. Lawrence); Frogger #3; Road Toad (D. McKenzie); Chicken (D. German); Chicken Helper (P. Beljaeff); Croaker.
1433. ROAD CROSSING GAMES #2 (175) Freeway; Freeway (C. Lemos); Dutch Road Crossing Game; Street Walker; Miss 'Em (L. Benson); Highway (Renko/Edwards); Motorway (Raets/Beylen); Ribbit (R. Kemmetmueller); Why Did The Chicken Cross The Road (R. Binkowski); Banzai Bunny; Dodge 'Em (Regena)
1434. KEYBOARD GAMES (347) Evel Knievel (T. Coppens); Bonkers (G. Hitz); Bug (J. Behnke); Capture the Intruder (J. Taylor); Imperial Lander; Lunar Lander (B. Kastner); Martian Lander (R. Kemmetmueller); Downhill Racer (G. Singer); Cannonball Run (A. Zagni); Skiing (Kimberlin-Wyer); Tijuana Taxi; Schmoos Too (C. Schram).
1435. KEYBOARD MANEUVERING #2 (354) Cannonballer (W. Page); Chase (T. Anderson); Chopper Attack (T. Coppens); Diver's Gold (P. Bloom); Drill Creek (B. Gibbins); Egg Wars (G. Mineo); Flying Saucer (D. Holmes); Galactic War (S. Frank); Game of Chase; Game of Duck (J. Phillips); Adventure with Dracula (B. O'Brien); Airstrike (T. Coppens); Air Traffic Controller (J. Volk).
1436. SLOT MACHINES (343) Bandit (P. Cass); Joe's Gambling Casino; Las Vegas A Gogo; One Arm Bandit (Rickware); Poker Machine; Sam Slot (Comtek); Slot Machine #1; Slot Machine #2; Slots (B. Steffens); Super Jack (P. Williams)
1437. KEYBOARD GAMES #2 (353) Forest Fire (Behnke/Kazmer); Rear Assault (A. Meiss); Pinball; Paratroop (M. Andre); Parachute (G. Christensen); Clones (J. Lukomski); Escape!; Laser Assault (G. Groszek); Wallbreaker (J. Schevenels); Wagon Wheel (T. Coppens); Zan Quest (J. Manning); Trapshoot (Regena); TI Targets (T. Imbruglia)
1438. KEYBOARD GAMES #3 (343) Antares (R. Hawley); Balloon Voyage (R. Kazmer); Balloons (H. Kroll); Battle Star (W. Balthrop); Beetle (M. Christian); Block Buster (G. Groszek); Blokz (Batz); Car Battle (G. Patterson); Termite (J. Dew); Space Slalom (Delta); Revisited (Regena); New York New York (Renko/Edwards); Nab (D. Decker)
1440. Q*BERT GAMES (288) Cubic; Jumper (D. Krols); Ku-Bert (D. Walker); Moose; Pew-Bert (D. Siddons); Q*Bert (LaFortuna); Qbono (M. Curtis); R'Bert (D.D. Reed); TI-Bert.
1445. KING KONG TYPE GAMES (351) Ghostbusters (A. Peacock); Diamonds of Dom (D. Ritcjie); Konky Kong; Krazy Koala (M. Smetana); Rock Hopper; Skip to the Loot (G. Krawczyk); Snoopy Kong (Tristano); Drunkman (M. Zannini)
1455. ASSEMBLY GAMES (231) Jawbreaker (Dan Drew); Nibbler (G. Giuffrida); TI-Mazogz (A. Waldmann); Tombstone (M. Griffin)
1456. ASSEMBLY GAMES (346) The Hop (C. Eggen); Dragons; Black Hole; Airwolf; Bandit; Cannonball Blitz (J. Lando); Clowns (RAG Software); Cross Fire (J. Graham); Lightspeed (P. Pagel)
1460. CHILDREN'S GAMES (345) Loco-Sprites (B. Traver); Unicorn Chase (S. Chu); Let's Play Trains (B. Knecht); Kids Kars (C. de Marti); Romeo Juliet (F. deMees); Turtle Hop (D. Smith); Peter Cottontail's Egg Hunt (John Taylor); Pin The Tail On The Donkey (M. Fryer); Tic Tac Toe (Alan George); Funny Faces (A. Falco)

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Techo Time

by Lou Amadio

Did anyone notice the date error in the last Techo Time article? Well, I have caught up this month and am writing this for the "October" issue of the TND.

Unfortunately, I missed last month's Buy Swap and Sell meeting. I heard from Rolf and George that there were some good bargains to be had ..., maybe next time.

I will not be attending the October meeting as we will be away on holidays.

Switchable No.1 Drive

About 2 weeks ago, Rolf brought over his PE Box for some minor modifications. He wanted to be able to select one of two dissimilar floppy drives as drive one for autobooting from Extended BASIC. One drive was a 5 1/4 inch and the other was a 3 1/2 inch mini floppy.

Using a double pole double throw switch, I wired the select pins for drive 1 and 2 from each unit in anti phase, and the common side of the select circuitry to the poles of the switch. The net effect was that when the switch was activated, each drive could be toggled between 1 and 2 giving Rolf the flexibility that he wanted.

PIO_PEB_Card

Despite the fact that Geoff has been very busy lately, he did manage to find the time to debug the PIO only version of the Multi Function Card. As it stands, The MFC can be configured as a PIO by adding 15 chips and a voltage regulator. This card will take the place of the TI RS232 card for those wanting to interface to a parallel printer. Geoff has managed to extract the relevant part of the DSR and has programmed a new EPROM for this card.

As noted previously, socket all chip sites to facilitate trouble shooting at a later date if necessary.

Parts List

1 x 2764 PIO DSR EPROM
1 x 74LS74
1 x 74LS259
2 x 74LS32
1 x 74LS125
1 x 74LS10
2 x 74LS138
1 x 74LS00
1 x 74LS02
1 x 74LS86
1 x 74ALS245
2 x 74ALS244
1 x 7805 Regulator
2 x 1 uF TAG
1 x Red LED
1 x BC549
1 x 330 ohm resistor
1 x 6200 ohm resistor
1 x 4700 ohm resistor
1 x 1200 ohm resistor
2 x 33 ohm resistor
1 x heat sink for regulator
1 x 16 pin PCB header
1 x 28 pin socket
3 x 20 pin socket
3 x 16 pin socket
8 x 14 pin socket

continued on page 4

Construction

Building this card is very similar to building the other projects in this series. Take care not to bridge any PCB tracks.

- 1) Clean the I/O contacts of the MFC by scraping back the varnish approximately 2 mm.
- 2) Cut out the front (near LED), back (near regulator) cutouts and top rear (near drive connector) as indicated to allow proper fit in the PEB.
- 3) Solder the seven shorting links as indicated in the overlay diagram:
 - pin 5 to pin 7 of U25
 - pin 9 to pin 14 of U25
 - pin 8 of U24 to PCB track
 - pin 6 to pin 7 of U12
 - pin 8 to pin 14 of U12
 - pin 8 to pin 14 of U13
 - pin 21 of U16 to PCB track
- 4) Mount the 15 IC sockets in place. Ensure proper seating by soldering two corner pins first and checking prior to soldering the remaining pins.
- 5) Mount the LED with the flat facing the I/O connector.
- 6) Solder the 16 pin header for the printer cable plug. Ensure that the slot for the keyway faces the front of the card.
- 7) Solder the BC549 transistor and associated 330 and 6200 ohm resistors.
- 8) Mount the 7805 voltage regulator and associated tantalum capacitors (take care with polarity).
- 9) Fabricate a heat sink from a piece of scrap aluminium. Cut the aluminium 25mm x 70mm. Drill a 3mm hole at a position 30 x 12 (use the PCB as a template) and mount the heatsink in place with a short bolt.
- 10) If possible, test the output of the regulator for +5 volts by injecting about 10 volts into the I/O pin closest to the regulator. (The regulator output is marked with a "+" sign near the lower tantalum capacitor.)
- 11) Plug in all the chips including the DSR. Note that the DSR has pins 1, 27 and 28 connected together. Pins 1 and 27 do not plug into the socket.

Test the card in your PEB (or equivalent) with TI-Writer or from BASIC by writing a short program and entering the command LIST "PIO".

Coming Next

The next logical step is to add the components necessary for a serial port (RS232/1 and RS232/2). This will then make this card truly equivalent to the TI RS232 PEB card. ○

continued from page 2

TIM: is very new, only a week old. It is called TI-IMAGE MAKER and is designed to install inside a TI99/4A console, where the TMS9929A VDP chip is located. It comes on a very small board, only 2.75 inches by 3.75 inches in size, but is the most powerful graphics board designed for the TI99/4A to date. It uses the latest in YAMAHA video technology, the 9958 extended model, which has more features than the "old" 9938 model which is used in the GENEVE and DIJIT AVPC cards. The two best features of this board, besides its smallness and ease of use/installation, are its full 25 pin expansion port (for everything from mouse to Genlock devices) and the cost, which is only half the price of a DIJIT AVPC card!

I think that is enough about my company and its products. If you need more information, write to me at:

Oasis Pensive Abacutors
432 Jarvis St. Suite 502
Toronto, Ontario M4Y-2H3
Canada ○

Assembly Class

by Ross Mudie

The next assembly class will be held at the all day tutorial on 6th October at Ryde Infants School. The Tutorial day will be from 10am to 5pm, the Assembly class will be from 10am to 1pm. The subject source file on the BBS is TS1 and it is repeated below for your convenience.

The Train Set controlled by a TI99/4A will also be at the tutorial day. It will be available from 2pm to 4.30pm.

* Source file=TS1 Object file=TO

```

DEF START
REF VSBW,VMBW,KSCAN

SAVRTN BSS 2          Storage place for return
*                    address, 2 bytes
WS BSS >20           Register work space for
*                    CPU, 32 bytes
BUFFER BSS 256       Buffer space allocation of
*                    256 bytes
ZERO BYTE 0          Assignment of zero at the
*                    label
*                    ZERO, equivalent of ZERO=0
FIVE BYTE 5           Assignment of the value 5 at
*                    the label FIVE
FF BYTE >FF           Assignment of decimal 255 at
*                    the label FF

LENGTH BYTE 10       Length of text string to
*                    follow
NAME TEXT 'ROSS MUDIE' Text string
EVEN
STTEXT TEXT 'Program start, Version TS1'
EVEN
ROW DATA 4           Start row
NOROW DATA 8         Number of rows to print
BLANK DATA >2020
START MOV R11,@SAVRTN Save the return address
LWPI WS               Tell the CPU where the
*                    register Work Space is.
*                    MOV @FIVE,@>8374 Tell the Key SCAN routine
*                    what scan is required

LOOP5A BLWP @KSCAN    Wait for key release
CB @>8375,@FF
JNE LOOP5A

* Read the data (text)

MOV @LENGTH,R3       Get the length byte
SRL R3,8              Make the byte size value
*                    into a word sized value
*                    INC R3 Add 1 to make the number of
*                    bytes include the length
*                    byte

LI R1,LENGTH          Place to start reading from
LI R2,BUFFER          Where to put the bytes read

LOOP1 MOV *R1+,*R2+   Move the length and text a
*                    byte at a time
DEC R3                Finished yet?
JNE LOOP1             No, go and do the next byte

* Start text

LI R0,130             Place on screen to display
LI R3,STTEXT          Location of text to write
LI R2,26              How many bytes to write
LOOP6 MOV *R3+,*R1    Put a byte in register 1
BLWP @VSBW            Write the byte
INC R0                Next screen address
DEC R2                Finished yet?
JNE LOOP6             No, do the next

LI R0,194             Next print spot on the
*                    screen

```

```

LOOP3 BLWP @KSCAN     Scan keyboard
MOV @>8375,R1         Put the result of the Key
*                    SCAN in left byte of R1
BLWP @VSBW            Write the byte on the scree
CB @>8375,@FF         Compare the result of the
*                    Key SCAN against >FF

JEQ LOOP3             If nothing found then loop
*                    to the label LOOP3

* When a key is pressed the program progresses from
* LOOP3 to LOOP3A where it waits for the pressed key to
* be released before continuing further. The pressed
* key will be displayed on the screen.

LOOP3A BLWP @KSCAN    Scan keyboard
CB @>8375,@FF         Compare result of the scan
*                    against >FF
JNE LOOP3A           While any key is pressed
*                    loop back to LOOP3A
* Clear the screen

LI R0,0               Address of start of screen
LI R1,BLANK            Address of text to write
LI R2,2               Number of bytes to write
LOOP2 BLWP @VMBW       Write bytes on screen
INCT R0               Address 2 to address
CI R0,788             Compare the value in
*                    register 0 against 788 which
*                    is just after the screen in
*                    VDP.
JLT LOOP2             If the value in R0 is Less
*                    than 788 Jump to LOOP2

LI R0,260             Address to write on screen
LI R1,BUFFER+1        Address for start of text in
*                    BUFFER
MOV @BUFFER,R2         Put the length byte in
*                    register 2
SRL R2,8              Make it a word
BLWP @VMBW            Write the text from the
*                    BUFFER on the screen

LOOP4 BLWP @KSCAN     Wait for a key press
CB @>8375,@FF
JEQ LOOP4

LOOP4A BLWP @KSCAN    Wait for key release
CB @>8375,@FF
JNE LOOP4A

* END CLR R0           Standard method of returning
MOV R0,@>837C         to the calling program. Clear
LWPI >83E0             register 0 to prevent false
MOV @SAVRTN,R11       indication of errors, Set the
RT                    STATUS byte to zero, reload
*                    the GPL Work Space, reload the
*                    return address into register
*                    11 then branch to the address
*                    in register 11.
*                    END

```

Jenny's Younger Set

Dear Jenny,
This is Crocodile Jones. I have some hints for Adventure #9, "Ghostown"

1. Can you keep the beat at the teepee with the...
2. You might ask the ghost ___ you can get back to town.

Do not miss Crocodile Jones' Adventure Trial at the October meeting.

Crocodile Jones

Dear Jenny,
Here is another program to put in the Younger Set. I hope it provides some enjoyment for readers over the holidays.

Vincent Maker

continued on page 18

Living with Spiders part 3

by Tony McGovern
Courtesy Hunter Valley 99ers

The previous installments have been on "dual-mode" programs which have to run with or without FWB. Now we will look at a few aspects of writing programs to work only with FWB.

The first thing is access to GPL routines. If the FWB E/A utilities are loaded then a normal BLWP call to GPLLNK works as usual. The various XML address possibilities should be respected, particularly the >F0 XML at >8300 which is used by the TI-Writer and Mini-mem modules, or from console GROMs. If the E/A utilities are not loaded a briefer than normal form of GPLLNK may be used. The following routine is used to call the beeps and bloops in DPatch.

* FWB system equates

```
SETGRM EQU >FF28
MODFL EQU >FF5A
```

* GPLLNK BLWP vector

```
GPLLNK DATA GPWS,GPLK
```

```
GPLK EQU $
MOV @MODFL,RO
LI R1,GPLRT
MOV R1,*RO
MOV *R14+,@>83EC
LWPI GPLWS
B @>0060 Go to GPL
```

```
GPLRT LWPI GPWS
MOV @SETGRM,R1
BL *R1
RTWP
```

Here the XML vector has already been determined by the FWB entry code and its target address stored at MODFL (>FF5A). If the E/A GROM is present MODFL will contain the value >2002 for XML >21 as example. The re-entry address is GPLRT is written into the XML address, without bothering to save the existing contents. If you do use >8300 you had better save and restore it though. The GPLLNK data item is written to R6 of the GPL workspace, and then transfer made to GPL. When the linkable GPL routine has finished it returns to GPLRT. SETGRM (>FF28) contains a pointer to a BL routine in FWB which resets all the GPL items. This routine uses only RO. One subtlety is that the GPL stack pointer at >8373 is reset to >80 by the SETGRM routine. The FWB cartridge loader from UL sets it to >7E to help with key-unit problems apparent in some programs. There is no reason why it has to be a BLWP routine and the code could be recast in other forms. FWB contains a similar routine to handle cassette loading, but it is in-line code and not externally accessible.

FWB does however contain an externally accessible DSRLNK with BLWP vector at >FFD4. This routine takes no following data item, and returns with the status <equals> bit set if not found and it is otherwise up to you to dig out any error from the PAB or GPL status byte. This means that it is basically set up for file type access only. As an example here are the load and resave routines from the CF/CG configuration program,

```
FILSVE EQU $
MOVB @SAVEOP,R1
JMP FILOPS
```

```
FILOAD EQU $
MOVB @LOADOP,R1
```

* Load-save routine

```
FILOPS EQU $
LI RO,PAB
BLWP @VSBW
LI RO,PAB+9
MOV RO,@>6356
SB @GPLST,@GPLST
BLWP @DSRLNK
JEQ FAILS
```

```
BLWP @VSBRD
DATA PAB+1
SRL RO,13
JNE FAILS
```

```
MOVB @GPLST,RO
COC @MASK,RO
JEQ FAILS
```

```
INCT R11
FAILS RT
```

```
MASK DATA >2000
LOADOP BYTE 5
SAVEOP BYTE 6
```

Alternate entry points allow for save or load operations. It is assumed that the PAB and VDP buffers are already set up as needed. I am never quite sure if the clearing the GPL status byte is strictly necessary but it cannot hurt. The exit after the DSRLNK call is taken if the DSR is not found. This particular program uses a data VSBR to fetch the PAB error byte into RO from fixed address in VDP. A normal VSBR would allow a more flexible routine. If no error is indicated here after the first 3 bits have been isolated, the GPL status byte is then checked. The failure exit steps over the word following the BL call. Normally this would be a JMP to an error handler.

Suppose your program needs to do a sector access via a DSRLNK. You could of course use the E/A utility routine which takes a following data item. Just to be different we will work through the sector reading routine used in QD. The E/A routine is not available so the FWB DSRLNK has to be modified to suit. This is done by temporarily rewriting an internal item from >8 to >A on entry and restoring it on exit. The routine also illustrates the FWB method of coping with high-CRU Horizon RAMdisks. The problem here is that the sector read/write routine has of necessity the same name >10 in all disk DSRs and if the drive number does not match an error is returned. This means that a normal DSRLNK will not get past the usual disk controller at CRU >1100 (the Myarc RAMdisk at CRU >1000 handles this transparently for normal disk controller accesses). Some programmers solve this problem by using a DSRLNK which starts its CRU search at >1200 which finally loops around to check >1000 and >1100. Atrax Robustus does not care for this method as it puts a permanent slug on normal disk access, and insisted on doing it another way which will become apparent.

In the code to follow, extracted from the QD source, only sector reads are performed and any non-null data byte will do for READ. The style of coding reflects a situation where registers are in short supply and length is critical. The drive number is at DR#, the VDP sector buffer address at PBF, and the sector number in R7. The code uses routines available in QD which in turn were written to match TI-Writer routines used by SD. You could do things differently if you chose. The offset values >56, >5C, and >7A refer to particular address offsets into the FWB DSRLNK routine. These will be maintained at their present values, even though I am continually resisting temptation to shave some bytes out of the DSRLNK.

```
DSRLNK EQU >FFD4
```

```
FAC EQU >834A
SCNAME EQU >8356
```



```

PN      BYTE >02,>01,>10
BOF     BYTE >0F
B1F     BYTE >0F
CTRLC   BYTE >83
        EVEN

SECRD   EQU $
        MOV R11,R10
        MOV @DSRLNK+2,R11
        INCT @>7A(R11)
SECRN   LI R9,PAB
        MOV R9,@SCNAME
        LI R8,PN
        BL @VSTRW
        LI R11,FAC+2
        MOVB @DR#,*R11+
        MOVB @READ,*R11+
        MOV @PBF,*R11+
        MOV R7,*R11
        BLWP @DSRLNK
        JEQ DSERR

        MOVB *R11,R12
        JEQ DSREX

DSERT   MOV @DSRLNK+2,R11
        A @>5C(R11),@>56(R11)
        CB @>56(R11),@B1F
        JL SECRN

DSERR   EQU $
        BL @VSTRU
        DATA ERMMSG
        DATA >2E6
HOLD    BL @KSCAN
        CB R12,@CTRLC
        JEQ HLD10
        CB R12,@BOF
        JNE HOLD

HLD10   LI R10,EXIT
DSREX   MOV @DSRLNK+2,R11
        DECT @>7A(R11)
        MOVB @BOF,2>>56(R11)
        B *R10

```

On entry the return is saved in R10, and R11 used as a working register thereafter. The DSRLNK is then fetched from the BLWP vector and the word offset >7A into the routine is INCTed. This makes it equivalent to a DATA >A call to an E/A DSRLNK. We must then be careful to restore the value at every possible exit from the routine. VSTRW is a BL routine that writes a string with leading length byte from CPU to VDP. While at it we load the PAB pointer at >8356. The next few lines load the FAC area with all the necessary data for a sector read call and leave R11 pointing at >8350 where errors are returned. If the DSRLNK search finally fails, or has found the drive number but cannot read the disk, the JEQ sends it to the exit error routine.

The DSR sector routine error byte is then checked. If this is null the sector read has been successful and a normal exit is taken. If it is not null then the sector routine has been executed but the drive number was not found at that CRU base and the special error handler at DSERT is entered. This resets R11 to the start of the DSRLNK code and adds the normal increment of CRU base search at offset >5C to the start address for the CRU search. The sector read routine is then re-entered and the whole process started again, but this time from the next CRU slot, so that the last error is not repeated. Before this repeat is done the CRU base is checked to see if it has reached the end of the line. If so the normal error exit is taken. The virtue of this method is that is the error path that cops the penalties and not your Myarc RAMdisk at >1000 CRU base. I have also heard that it works better with multiple Horizons with ROM DSRs.

The error exit writes up an error message using an in-line data entry point to the VSTRW routine and then waits for either <Fctn-9> or <Ctrl-C> to be pressed.

The final return address is re-written in R10 as needed. All exits pass through DSREX where the CRU base search start is re-initialized and the DSR type reset for normal file access. In some applications it might be preferable not to reset the CRU starting base immediately but this leads to messier code overall. A good example is right here in in this very disk directory application where the same CRU base could be used until a whole directory worth of file header sectors had been read. In fact this is done in the Editor's SD which uses generally similar code but it really only affects high-CRU Horizons.

Similar problems exist for volume name access to files where DSK. is also a DSR routine name common to all disk type DSRs. As yet the FWB main program code does not contain the special error handling routines as in FWB sector access code as there appears to have been no specific demand for volume-name access to high-CRU Horizon type RAMdisks. Most (the TI-Workshop cartridge is an exception) file-loader DSRLNKs do not support it either. Incidentally you can observe the other type of enhanced DSRLNK in action if you have high-CRU Horizons installed. Watch the lights when DSKU (or TI-Workshop or Ottawa issue DM-1000) is accessing low CRU devices, say a Myarc RAMdisk, or regular disk controller. The high CRU Horizon lights will be flashing, but not with similar access by a FWB system program. In this same vein if you catalog a high-CRU Horizon with QD the regular disk controller light will flash with QD but not with SD after the first sector has been read. ○

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1461. FUN GAMES FOR KIDS (353) Aardvark (P. Pelletier); Captain Crunch and The Munchkins; Challenge of Camelot (G. Garrett); PI-Ring Squad; Crazy Climber (P. Parrish); Trucker's Domain (S. Moore Jr.); Mister Kitty (P. Granese); Webster Dines Out; Mouse Squish (W.M. Johnson); TI Dambusters (B. Boone); Bite the Blackfish (M. Smetana); Charades (S. Davis); Lunar Kangaroo.

1462. EASY GAMES FOR KIDS (346) (Some require joystick). Spider Bop; Devastator; Egg Drop (A. Falco); E.T. (R. Kemmetmueller); Firefighter; Alien (P. Yanov); Another Alien (B. Kafer); Bomber (V. Wim); Boeey's Run (G. Patterson); Bridge on the River Kwai (J. Wynne); Handroidals (G. Hitz); Hidden Shapes (B. Vang); Jumping Jack; Pile Driver (W. Johnson); Salvo Battleship; School Daze; Sheep Dog (S. Bonnett)

1470. GREAT GAMES (342) Alien Destroyer (G. Groszek); The Beetle Walk (R. Trueman); Worms and Spiders (L. Preece); The Juggler (M. Duncan); Bird-Brain; Left/Right (A. Persson); Blimp Rescue (D. Hollis); Spring-Heeled Jack (G. Marshall); Eagle I (O'Berg/Hitch); Engineer; Night Blockade (A. Riego)

1471. ASSORTED GAMES #1 (348) Air Rescue (R. Hawely); Air Traffic Controller (J. Volk); Alien Assault (Peter G); Alpha Blast (P. Parrish); Apollo (T. Niemietz); Anti-Aircraft Gun (M. Mosely); Artillery Battle; Asteroid Rescue; Attacker (Bill Bies); Aussie Fighter (G. Nesbitt); Bee-Line (D. Welcker) ○

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starting to get too high for comfort! Now, turn on the drill, and drill a hole in the case. As the water drains out, the drill dies (lasted just long enough). Now, open the tube of putty, and put the glob of putty on the hole. The putty will seal both the hole and the crack.

And that is just about it for the Leviathan. All you have to do now is go back through the ship, and up to your own boat, where your comrades are waiting. Congratulations! You are now a very rich diver!

Cutthroats is copyrighted 1984 by Infocom Inc.

This walkthru is copyrighted 1984 by Scorpio ○

Assembly Squeezing part 2

by Tony McGovern
Courtesy Hunter Valley 99ers

Let us continue our look at squeezing bytes out of assembly code by looking at moving a block of words of data in CPU RAM. Assume that this block is of known length and is to be copied from one fixed address to another. In other words all of these can be represented by symbols or expressions in your assembly source code. The immediately obvious way to code this is

```
LI RO,BLOK1
LI R1,BLOK2
LI R2,BLEN
LOOP MOV *RO+,*R1+
DECT R2
JGT LOOP
```

Registers 0-2 are loaded with the the relevant values, and then the word shift is counted out. Using JGT rather than JNE is defensive coding in the same spirit as defensive driving. This takes 9 words (18 bytes) and uses 3 registers. Let us try a first little squeeze.

```
LI RO,BLOK1
LI R1,BLOK1
LOOP MOV *RO+,*R1+
CI RO,BLOK1+BLEN
JL LOOP
```

Now it takes one word less and needs only 2 registers. In complex code the register economy can be more important than the 2 bytes saved. Notice that a logical comparison is used since it is addresses that are being compared rather than a count being checked. Let us do better still!

```
LI R1,BLEN
LOOP MOV @BLOK1-2(R1),@BLOK2-2(R1)
DECT R1
JGT LOOP
```

This now takes only 7 words of code and uses only 1 register. Note that R0 cannot be used here. It is different from the previous code segments in that it starts at the highest word and works downward. If the blocks do not overlap it does not matter. If you have been a keen student of the E/A manual you will already have known this form of code from reading p101. If the blocks do overlap then you may be forced to use one form or the other. o

Ontploppler!

Machine code for Extended BASIC plus 32k or E/A plus 32k
by Koen Holtman, Netherlands

While I do not understand Dutch, I really cannot help but be attracted by a short program called ONTPLOPPER. Say it out loud! Not having any idea what it did I keyed it in, then had to find a program that demonstrated what it did! Well, here it is, first in Source Code, and then, for any members who have 32k but no disk drives, it is given in ExBas CALL LOAD format (using the excellent Italian ACE program). For XB+32k use just key in and run the CALL LOAD program, then run the DEMO program but delete the DEMO program CALL INIT and CALL LOAD lines. If you leave CALL INIT in, it will just erase everything you have just CALL LOADED!

* ONTPLOPPER by Koen Holtman 1989
* from TIjdingen No 47, Dec 89
* CALL LINK("PLOP")
* CALL LINK("OUT")
* EX BAS if not compressed or Ed/As
* Auto start only available with EdAs
*

```
DEF PLOP,OUT
PLOP LI RO,P1
STEL MOV RO,@>83CE
WEG RT
```

```
OUT CLR RO
JMP STEL
P1 LI R1,>0100
CB @>83CE,R1
JNE WEG
LI RO,P2
A R1,R1
LAAD MOVB R1,@>83CE
JMP STEL
P2 LI RO,P3
CLR R1
JMP LAAD
P3 LI RO,P1
MOVB @>83CE,R1
JNE STEL
LI R1,>0100
JMP LAAD
* END PLOP for ed/as autostart
END
```

```
1 CALL INIT
2 CALL LOAD(16368,79,85,84,32,32,32,36,254)
3 CALL LOAD(16376,80,76,79,80,32,32,36,244)
4 CALL LOAD(8194,37,48,63,240)
5 CALL LOAD(9460,2,0,37,2,200,0,131,196,4,91,4,192,16,25
1,2,1,1,0,144,96,131,206 )
6 CALL LOAD(9482,22,248,2,0,37,24,160,65,216,1,131,206,1
6,240,2,0,37,32,4,193,16,249)
7 CALL LOAD(9504,2,0,37,2,208,96,131,206,22,231,2,1,1,0,
16,241,62,192)
8 CALL LINK("OUT")
9 CALL LINK("PLOP")
```

=now see what it does=

```
100 CALL INIT ! not if you have used above CALL LOADS!
110 CALL LOAD("DSK1.PLOP/O")!(if not using LOADS)
120 FOR T=1 TO 10
130 CALL SOUND(100,120,10)
140 NEXT T
150 FOR T=1 TO 500 :: NEXT T
160 CALL LINK("PLOP")
170 FLAG=FLAG+1
180 IF FLAG=1 THEN 120
190 FLAG=0
200 CALL LINK("OUT")
210 GOTO 120
```

Treasurer's Report

by Geoff Trott

Before giving the financial report, I would like to mention some news I received recently. I had a phone call from a TI99/4Aer from Melbourne about the possibility of building a hard disk controller card. During the course of the conversation he told me that Peter Gleed died on Sunday 9th September. I was so shocked that I forgot to ask for any more details. I would like to express our condolences to Peter's family and friends on behalf of TisHUG, as he had many contacts in this group. It is not nice to hear of people like Peter, who have given so much to our computer family for so many years, leaving us so unexpectedly. I hope the Melbourne group is able to survive the loss. A few days earlier, I heard from Fred Cugley from Adelaide, that Colin Cartwright had a bit of a turn and has been told by his doctor to take things easy. I wish Colin a speedy recovery on behalf of TisHUG.

I thought I would present the financial report a little differently, to show the profit (or loss) for the month(s) in question.

Income for July	\$1107.70
Payments in July	<u>\$347.34</u>
Excess of income over expenses for July	\$760.36

Income for August	\$1300.52
Payments in August	<u>\$1887.41</u>
Excess of expenses over income for August	\$566.89

USA Awards

An opinion by Bill Gaskill
Courtesy Mid South 99 User Group

In the six years that I have been a TI99er I have come across a lot of reading material, bought a few pieces of hardware and RUN hundreds, if not thousands of programs through the old TMS9900 CPU. In the many TI99/4A books, journals, magazines and newsletters that I have read along the way, I have seen some mundane articles, some really good articles, some great articles and then a few that are of stellar quality. The same can be said of the hardware and software that I own. Of course each of us develops an opinion about these things and what follows are just my opinions.

It seems to me that those folks who take the time to provide the articles and other information for newsletters etc. and who take the time to support the TI99/4A Community with products to make our computers more useful, deserve some recognition. As such I have decided to create a series of AWARDS for those firms, groups and persons who deserve recognition for their efforts. Of course my opinions are just that, opinions, and they only apply to the hardware, information and software that I own or have come into contact with. To the rest of you who write great material for newsletters that I do not receive and to those who have created hardware and/or software products that I have not gotten around to purchasing yet, my hat is off to you and I apologize for not being able to include your material or products in this "editorial". To those whom I have lauded, please bask in the warmth of the praise. You deserve it. To those whom I seem to have criticized, just considered the source and shake it off. What do I know anyway?

ARTICLE OF THE YEAR AWARD (1989) goes to Mike Maksimik of The Chicago TI99/4A Users Group for his TechTalk article in the January 1989 Chicago Times. Mike covers his FDOS software project at the tail end of this article but the first half contains some of the best information captured in one place, anywhere, on the P-BOX cards that were planned and/or prototyped for the TI99/4A but never materialized as products available to users. Fantastic documentation on an important part of TI99/4A history.

BEST ALL-ROUND NEWSLETTER AWARD goes to the Mid-South 99ers. If there were only one newsletter that I could receive, this is the one that I would choose. Pound-for-pound, year after year, since 1982, the Mid-South TIDbits newsletter contains more "quality" information in a consistently and professionally presented format, than any other newsletter I have seen. Gary Cox and the others that contribute to this publication deserve a round of applause and a heartfelt thanks for all that he and they have done. It is the one that I look forward to receiving most each month.

BEST ARTICLE EVER AWARD goes to Anne Dhein for her series of TI-Graphics articles that covered using Transliterations to produce graphics through TI-Writer and with TI-Artist and that also covered the history of TI99/4 and TI99/4A graphic/artist type programs. While these articles appeared in many newsletters via exchange programs, Anne's "Home" Group is the Chicago TI99/4A Users Group. The articles appear in the August-December 1987 issues of The Chicago Times. Thanks Anne!

BEST COMPLETED PROJECT AWARD goes to Nick Iacovelli for making the Hardware Projects Book offered by the Chicago TI99/4A Users Group a reality.

BEST COORDINATED EFFORT AWARD goes to Barry Traver for producing the Genial Traveler Diskazines. They may not be timely but every one is worth the wait.

BEST DOCUMENTATION FOR A PIECE OF SOFTWARE AWARD goes to Chuck Davis, Kay Davis and Pamela Sourbier for the manual sold with ACORN 99.

BEST EDITORIALS AWARD goes to Terrie Masters of the LA 99ers. Though Terrie throws in an occasional barb or two in her monthly columns, she puts a lot of good information out and has been a strong and vocal supporter of the TI99/4A Community from back in the days when Don Vieth was producing the National 99er Newsletter.

BEST EFFORT AWARD in producing a newsletter under adverse circumstances is shared by Joe Nuvolini, Kevin Kapus and Cliff Swank of the Front Range 99ers in Colorado Springs. How they "kept them going" over the last three years was sometimes a wonder, but to their credit, they did it. Never say die is their motto, I guess.

BEST FAIRWARE PRODUCT AWARD is split between Bill Warren for PR-Base and Charles Earl for TELCO. Two truly superior pieces of software that really should have been commercial releases in my opinion.

BEST NEW HARDWARE PRODUCT AWARD goes to Myarc for the Hard and Floppy Disk Controller Card.

BEST ONE-MAN SHOW AWARD goes to Ollie Herbert for all that he has done for the SMAUG 99ers in Alabama.

BEST USER NOTES/TIPS ARTICLES AWARD goes to the Southern California Computer Group for their Hints, Tips and Answers column that appear as a semi-regular feature.

BEST COMMERCIAL SOFTWARE SUCCESS AWARD (for a third-party product) goes to Chris Faherty of Inscobot Inc., for creating TI-Artist. There are probably more copies of that one program in the TI99/4A Community than any other.

BIGGEST DISAPPOINTMENT AWARD goes to the Broderbund Software for their decision not to produce Choplifter and David's Midnight Magic for the TI99/4A

LONGEST RUNNING TUTORIALS AWARD goes to Earl Raguse for his TI Forth articles in the LA Topics. I think there are over 16 of them now and still common. Running a close second is Lutz Winkler for his series in Computer Voice newsletter of the SCSG in San Diego.

LONGEST RUNNING USERS GROUP goes to the TIHUG guys and gals in Houston, who were among the first User Group to form, that are still in existence today. The Chicago TI99/4A Users Group comes in a close second.

MOST CONFUSING ARTICLE AWARD goes to Nick Iacovelli of the Chicago TI99/4A Users Group for almost any article that he wrote. I am sorry Nick. I know that sounds like a shot, but boy did I struggle through your material. You and I do not operate on the same thought plane.

MOST CONFUSING DOCUMENTATION FOR A PIECE OF SOFTWARE AWARD goes to me, for the manual sold with Personal Auditor.

MOST CREATIVE ARTICLE NAMES AWARD goes to Steve Mehr, who belongs to more groups than I have space to list, but writes for the LA Topics newsletter, for his SNOW? BBBBBBBBB! and AAAARRRRHHH!!! titles in past LA group newsletters.

MOST CREATIVE CONTRIBUTOR AWARD to a newsletter goes to Chick De Marti of the LA 99ers. Chick is a long-time supporter of the TI99/4A Community, dating back to the early 80's when he and George Steffen seemed to write half the LA-South Bay 99ers newsletters.

MOST FAITH IN THE TI99 4A COMMUNITY AWARD goes to Laura Burns of MICROpendium for quitting a secure "government" job to publish MICROpendium full time.

MOST FANATICAL TI99/4A TRIVIA BUFF AWARD goes to me for having a one-track mind when it comes to digging up generally useless facts about the TI99/4A and the TI99/4A Community.

MOST GUTS IN A PROGRAM COORDINATOR AWARD goes to Steve Mehr of the IA 99ers for having the courage, loyalty and conviction to bring Craig Miller to a Users Group meeting in IA and to advertise the fact in MICROpendium where Barry Brashear was sure to read it!

MOST GUTS IN A VENDOR AWARD goes to Jerry Price of Tex-Comp for investing a million or more dollars in TI99/4A products after the bail-out by TI.

MOST HUMOUROUS ARTICLE AWARD goes to Gene Bohot for his "Tips to Remember" article in Pomona Valley Computer Group newsletter.

MOST IMPROVED NEWSLETTER AWARD goes to Bob Demeter, editor of the Chicago Times. Bob has done a lot to bring the Chicago Newsletter back on track after some problems realized during a tremendous growth period that the group went through. Thanks Bob!!

MOST INNOVATIVE PRODUCTS AWARD goes to Dave Ross for his Character Sets and Graphics Design series.

MOST NEEDED PRODUCTS AWARD goes to Dennis Faherty of Inscobot Inc. for TI-Base. What more can you say about the premier data management tool in existence in our community? Superb!!!

MOST NEEDED TUTORIAL AWARD goes to Ken Gilliland for his TPA tutorials in the Mar-Apr '89 issues of the IA Topics. The Printers Apprentice is probably a great program, but I never have figured it out.

MOST PRODUCTIVE BOOK AWARD goes to Christopher Flynn for his "Extended BASIC Home Applications" book.

MOST PROFESSIONAL APPEARANCE AWARD in a newsletter goes to BJ Mathis of the SouthWest 99ers. While their newsletter is usually short, about 7-8 pages each month, it is consistently produced like it came from a print shop. It is obvious to me that BJ goes to a lot of effort and she also takes a great deal of pride in the end product that she produces.

MOST PROLIFIC WRITER AWARD goes to Jim Peterson, the TigerCub, for 60 or more Tips From TigerCub articles he has written over the years along with several other articles on Extended BASIC Sub-programming etc. There are several in the runner-up class in this category, namely Dave Wakely of the Chicago TI99/4A Users Group for his many Disassembly and Spad Adventure articles, Gary Cox of the Mid-South 99ers, who has been a contributing member since his early teen years, Chick De Marti and the late George Steffen of the IA 99ers, Martin Smoley of the North Coast 99ers in the Cleveland area and Joe Nuvolini of the Front Range 99ers in Colorado Springs.

MOST USEFUL BOOK AWARD goes to Cheryl Whitelaw for her "Programmer's Reference Guide".

MOST VERBOSE (the Charles Dickens) AWARD goes to Don Jones of the Chicago TI99/4A Users Group. How can he take so many words to convey the thoughts and information that he does, is truly a wonder. Don I honestly hope to meet you in person one day. You are truly an articulate and intelligent individual with a mastery of the English language beyond the norm. Do you get paid by the word?

ONLY FULL-TIME VENDOR AWARD goes to Chris Bobbitt of Asgard Software. How he can make a living only by supporting the TI99/4A Community is a marvel.

POOREST SUPPORT AFTER THE SALE AWARD goes to Myarc for the weeks it takes them to process a repair. Sure glad I bought a backup HFDC, or I would still have no hard disk.

STRONGEST COMMERCIAL SOFTWARE SUPPORT AWARD goes to Craig Miller for his many superior products that he produced in support of this community.

STRONGEST FAIRWARE ADVOCATE AWARD goes to John Taylor who gave us Checkbook and Budget Manager, Alphanum Delight, Spirit Editor and a host of other excellent fairware of **NEWSLETTER AWARD** goes to the Chicago TI99/4A Users Group for the most consistently voluminous newsletter.

Well folks, guess I have done enough damage for one article. Easy on the letter bombs please. My wife works for the Postal Service and I would not want her to get blown up by a letter that was intended for me. See you at Fest-West. I will be wearing a bullet-proof vest.

Expanding your PEB

by Rolf Schreiber

The Peripheral Expansion Box can take another seven cards in addition to the interface card. In the days before RAMdisks, P-GRAM cards, Hard Disk Controller cards and 80 Column cards, very few TI99/4A owners would have had all the eight slots in their PEB full. These days, however, such a situation is easily achievable. A standard PEB setup comprising a 32K memory expansion card, an RS232 card, a floppy disk controller card and the interface card leaves four empty slots. If you were to add a RAMdisk, a TTT (triple tech) card and, say, the p-Code card, you would only have one slot free. Then, if you were really serious about your computing, you might add another RAMdisk (or two), maybe a P-GRAM card, or a GRAM Karte, an 80 column card, a Forti music card, a modem card, a second RS232 card, a HFDC card..., the list seems to go on and on. Needless to say, we have exceeded our quota of seven available slots, and the rest is just wishful thinking, or is it? Would anyone be interested in running fourteen peripheral cards in their system, simultaneously? If so, read on....

I had been thinking about how I could overcome the problem of insufficient slots in my PEB, since my system had long exceeded the limits imposed by TI. The solution was ridiculously simple. All that needs to be done is to connect a second PEB to the computer, using a right-angle connector. This allows fourteen slots, instead of the usual seven, to be available for peripheral cards. As an added bonus, you can run an extra two slimline drives out of the second PEB.

Firstly, a bit of background to my solution. About 2 to 3 years ago, Geoff Trott designed, and built, a right angle (Tee) connector which allowed me to connect the PEB cable facing to the rear, instead of to the side. By using this connector I could also attach a speech synthesizer, or other suitable peripheral, to the console in sidecar fashion. My first intention was to connect a second PEB to this connector, instead of the speech synthesizer. I reasoned that it should be possible to have either one of the two PEBs powered up without the second PEB interfering in any way. This would have enabled me to accommodate all my peripheral cards in two distinct systems, but connected to the one console. I always bounce my ideas off Geoff Trott, Lou Amadio, and/or George Meldrum, to ascertain whether or not they are feasible, or even practical. When I spoke to Geoff Trott about it, he suggested that it should be possible to have both PEBs powered up simultaneously whilst connected to the one console, provided that none of the cards in either PEB used the same CRU address. This meant that I could have up to 14 cards online at the same time without interfering with each other, and thus locking up the computer.

At this stage I have not yet permanently set up such a system, but I have proved to myself that such a configuration is not only feasible and practical, but also cost effective, given that TI99/4A hardware, including surplus PEBs, is now available on the second hand market at very attractive prices. If anyone reading this article is interested in obtaining more details, or one of the right angle connectors, do not hesitate to get in touch by phone or letter. The connectors have gold plated contacts and cost \$A55.00 each, fully assembled.

Real Programming part 2

Author unknown, USA

What kind of programming tools does a real programmer use? In theory, a real programmer could run his programs by keying them into the front panel of the computer. Back in the days when computers had front panels, this was actually done occasionally. Your typical real programmer knew the entire bootstrapping loader by memory in hex, and toggled it in whenever his program destroyed the bootstrap. Back then, memory was memory - it did not go away when the power went off. Today memory either forget things when you do not want it to, or remembers things long after they are best forgotten. Legend has it that Seymour Cray (who invented the Cray-1 supercomputer, and most of Control Data's computers) actually toggled the first operating system for the CDC-7600 in on the front panel from memory when it was first powered on. Seymour, needless to say, is a real programmer.

One of my favourite real programmers was a system programmer at Texas Instruments. One day, he got a long-distance call from a user whose system had crashed in the middle of saving some important work. Jim was able to repair the damage over the telephone, getting the user to toggle in disk I/O instructions at the front panel, repairing system tables in hex, reading register contents back over the telephone. The moral of the story: while a real programmer usually includes a keypunch and lineprinter in his toolkit, he can get along with just a front panel and a telephone in emergencies.

In some companies, text editing no longer consists of ten engineers standing in line to use a 020 keypunch. In fact, the building I work in does not contain a single keypunch. The real programmer in this situation has to work with a "text editor" program. Most systems supply several text editors to select from, and the real programmer must be careful to pick one that reflects his personal style. Many people believe that the best text editors in the world were written at Xerox Palo Alto research center for use on their Alto and Durado computers (3). Unfortunately, no real programmer would use a computer whose operating system is called SMALLTALK, and would certainly never talk to a computer with a mouse. Some of the concepts in the Xerox editors have been incorporated into editors running on more reasonable operating systems - EMACS and VI being the two. The problem with these editors is that real programmers consider "what you see is what you get" as just as bad a concept in text editing as it is in women. No, the real programmer wants a "you asked for it, you got it" text editor - complicated, cryptic, powerful, unforgiving and dangerous. TECO, to be precise. It has been observed that a TECO command sequence more closely resembles transmission-line noise than readable text (4). One of the more entertaining games to play with TECO is to type your name in as a command line and try to guess what it does. Just about any possible typing error while talking with TECO will probably destroy your program, or even worse, introduce subtle and mysterious bugs in a once working subroutine. For this reason, real programmers are reluctant to actually edit a program that is close to working. They find it much easier instead to just patch the binary object code directly, using a wonderful program called Superzap (or its equivalent on non-IBM machines). This works so well that many working programs on IBM systems bear no relation to the original FORTRAN code. In many cases, the original source code is no longer available. When it comes to fix a program like this, no manager would ever think of sending anyone less than a real programmer to do the job - no quiche eating structured programmer would even know where to start. This is called "job security".

Here are some programming tools that real programmers do not use:

* FORTRAN preprocessors like MORTAN and RATFOR. These are cuisinarts of programming - great for making quiche. See the comments above on structured programming.

* Source language debuggers. Real programmers can read core dumps.

* Compilers with array bounds checking. They stifle creativity, destroy most of the interesting use of the equivalence statement, and make it impossible to modify operating systems with negative subscripts. Worst of all, bounds checking is inefficient.

* Source code maintenance systems. A real programmer keeps the code locked up in a card file, because it implies that the owner cannot leave important programs unguarded (5).

THE REAL PROGRAMMERS AT WORK

Where does the typical real programmer work? What kind of programs are worthy of the efforts of so talented an individual? You can be sure that no real programmer would be caught dead writing accounts-receivable programs in COBOL, or sorting mailing lists for people magazine. A real programmer wants tasks of earth shaking importance (literally!).

* Real programmers work for Los Alamos National Laboratory, writing atomic bomb simulations to run on Cray-1 supercomputers.

* Real programmers work for the National Security Agency, decoding Russian transmissions.

* It was largely due to the efforts of thousands of real programmers working for NASA that our boys got to the moon and back before the Russkies.

* Real programmers programmed the computers in the space shuttle.

* Real programmers are at work for Boeing, designing the operating systems for cruise missiles.

Some of the most awesome real programmers of all work at the Jet Propulsion Laboratory in California. Many of them know the entire operating systems of the Pioneer and Voyager spacecraft by heart. With a combination of large ground-based FORTRAN programs and small spacecraft-based assembly language programs, they are able to do incredible feats of navigation and improvisation - hitting ten-kilometer wide windows at Saturn after six years in space, repairing or bypassing damaged sensor platforms, radios and batteries. Allegedly, one real programmer managed to tuck a pattern-matching program into a few hundred bytes of unused memory in a Voyager spacecraft that searched for, located and photographed a new moon of Jupiter.

The current plan for the Galileo spacecraft is to use gravity-assisted trajectory past Mars on the way to Jupiter. This trajectory passes 80 +- 3 kilometers of the surface of Mars. Nobody is going to trust a Pascal program (or a Pascal programmer for that matter) for navigation of such tolerances. As you can tell, many of the real programmers work for the U. S. government - mainly the defense department. This is as it should be. Recently, however, a black cloud has formed on the real programmers' horizon. It seems that some highly placed quiche eaters at the defense department decided that all defence programs should be written in some grand unified language called ADA ((c) DoD). For a while, it seemed that Ada was destined to become a language with structure, a language with data types, strong typing and semicolons. In short, a language designed to cripple the creativity of the typical real programmer.

Fortunately, the language which the DoD adopted has enough interesting features to make it approachable - it is incredibly complex, includes methods for messing with the operating system and rearranging memory, and Edsger Dijkstra does not like it (6). Dijkstra, as I am sure you know, was the author of "the GO TO considered harmful" - a landmark work in programming methodology, applauded by Pascal programmers and quiche eaters alike. Besides, the determined real programmer can write FORTRAN programs in any language. Real programmers might compromise their principles and work on something slightly more trivial than the destruction of life as we

know it, providing there is money enough in it. There are several real programmers writing video games at Atari, for example (but not playing them - a real programmer knows how to beat the machine every time - no challenge in that). Everybody at Lucasfilm is a real programmer (it would be crazy to turn down the money of fifty million Star Trek fans). The proportion of real programmers in computer graphics is somewhat lower than the norm, mainly because nobody has found a use for computer graphics yet. On the other hand, all computer graphics programming is done in FORTRAN, so there are a fair number of people doing graphics on order to avoid having to write COBOL programs.

THE REAL PROGRAMMER AT PLAY

Generally, the real programmer plays the same way as he works - with computers. The real programmer is constantly amazed that his employer actually pays him for what he would be doing for fun anyway (although he is careful not to express this opinion out loud). Occasionally, a real programmer does step out of the office for a breath of fresh air and a beer or two. Some tips on recognizing real programmers away from computer rooms:

- * At a party, the real programmers are the ones in the corner talking operating system security and how to get around it.
- * At a football game, the real programmer is the one comparing the plays against a simulation printed on 11 by 14 fanfold paper.
- * At the beach, the real programmer is the one drawing flowcharts in the sand.
- * At a funeral, the real programmer is the one saying "Poor George. And he almost had the sorting routine working before the coronary".
- * In a grocery store, the real programmer is the one who insists on running the cans past the laser checkout scanner himself, because he never could trust keypunch operators to get it right the first time.

THE REAL PROGRAMMER'S NATURAL HABITAT

What sort of environment does the real programmer function best in? This is an important question for the managers of real programmers. Considering the amount of money it costs to keep real programmers on the staff, it is best to put him or her in an environment where they actually get the work done. The typical real programmer lives in front of a computer terminal. Surrounding this terminal are:

- * Listings of all the programs the real programmer has ever worked on, piled in roughly chronological order on every flat surface in the office.
- * Some half-dozen or so partly filled cups of cold coffee. Occasionally there will be cigarette butts floating in the coffee. In some cases, the cups will contain orange crush.
- * Unless the real programmer is very good, there will be copies of the OS JCL manual and the principles of operation open at some particularly interesting pages.
- * Taped on the wall is a line-printer Snoopy calendar for the year 1969.
- * Strewn about the floor are several wrappers for peanut butter filled cheese bars - of the type that are made pre-stale at the bakery so that they cannot get any worse while waiting in the vending machine.
- * Hiding in the top left-hand drawer of the desk is a stash of double-stuff oreos (I could not work out what this was supposed to be. ED) for special occasions.
- * Underneath the oreos is a flow-charting template, left there by the previous occupant of the office. Real programmers write programs, not documentation - leave that to the maintenance people.

The real programmer is capable of working thirty, forty even fifty hours at a stretch, under intense pressure. In fact, the real programmer prefers it that way. Bad response time does not bother the real programmer - it provides the chance to catch a little sleep between compiles. If there is not enough schedule

pressure on the real programmer, he tends to make things more challenging by working on some small but interesting part of the problem for the first nine weeks, then finishing the rest in the last week, in two or three fifty-hour marathons. This not only impresses the hell out of the real programmers manager, who was despairing of ever getting the project done on time, but also creates a convenient excuse for not doing the documentation. In general:

- * No real programmer works nine to five (unless it is the ones at night).
- * A real programmer might or might not know the name of their spouse. The real programmer does, however, know the entire EBCDIC (or ASCII) code table.
- * Real programmers do not know how to cook. Grocery stores are not open at three o'clock in the morning. Real programmers survive on twinkies and coffee.

THE FUTURE

What of the future? It is a matter of some concern to real programmers that the latest generation of computer programmers are not being brought up with the same outlook on life as their elders. Many of them have never seen a computer with a front panel. Hardly anyone graduating from school these days can do hex arithmetic without a calculator. College graduates these days are soft - protected from realities of programming by source level debuggers, text editors that count parentheses and "user friendly" operating systems. Worst of all, some of these alleged "computer scientists" manage to get degrees without ever learning FORTRAN! Are we destined to become an industry of Unix hackers and Pascal programmers? From my experience, I can only report that the future is bright for real programmers everywhere. Neither OS/370 nor FORTRAN show any signs of dying out, despite all the efforts of Pascal programmers the world over. Even more subtle tricks, like adding structured programming structures to FORTRAN, have failed. Oh sure, some computer vendors have come out with FORTRAN-77 compilers, but every one of them has a way of converting itself back to a FORTRAN-66 compiler at the drop of an option card - to compile DO loops the way God intended. Even Unix might not be as hard on real programmers as it once was. The latest release of Unix has the potential of an operating system worthy of any real programmer - two different and subtly incompatible user interfaces, an arcane and complicated teletype driver and virtual memory. If you ignore the fact that it is structured, even C programming can be appreciated by real programmers. After all, there is no type checking, variable names are seven (ten? eight?) characters long and the added bonus of the pointer data type is thrown in - like having the best parts of FORTRAN and assembly language in one place (not even talking about #define).

No, the future is not all that bad. Why, in the past few years, the popular press has even commented on the bright new crop of computered nerds and hackers ((7) and (8)) leaving places like Stanford and MIT for the real world. From all evidence, the spirits of real programming lives in these young men and women. As long as there are ill-defined goals, bizarre bugs and unrealistic schedules, there will be real programmers willing to jump in and solve the problem, saving the documentation for later. Long live FORTRAN!

REFERENCES TO REAL PROGRAMMING

- (1) FEIRSTEIN, B. REAL MEN DON'T EAT QUICHE, NEW YORK, POCKET BOOKS 1982
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- (3) XEROX PARC EDITORS...
- (4) FINSETH, C. THEORY AND PRACTICE OF TEXT EDITORS - OR - A COOKBOOK FOR AN EMACS, B.X. THESIS, MIT/LCS, TM-165, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, MAY 1980
- (5) WEINBERG, G. THE PSYCHOLOGY OF COMPUTER PROGRAMMING, NEW YORK, VAN NOSTRAND REINHOLD, 1971, PAGE 110

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Regional Group Reports

Meeting Summary For October

Banana Coast	14/10/90	Sawtell
Carlingford	17/10/90	Carlingford
Central Coast	13/10/90	Saratoga
Glebe	12/10/90	Glebe
Illawarra	08/10/90	Keiraville
Liverpool	12/10/90	
Northern Suburbs	25/10/90	
Sutherland	19/10/90	Jannali

BANANA COAST Regional Group (Coffs Harbour area)

Regular meetings are held in the Sawtell Tennis Club on the second Sunday of the month at 2 pm sharp. For information on meetings of the Banana Coast group, contact Kevin Cox at 7 Dewing Close, Bayldon, telephone (066)53 2649, or John Ryan of Mullaway via the BBS, user name SARA, or telephone (066)54 1451.

CARLINGFORD Regional Group

Regular meetings are normally on the third Wednesday of each month at 7.30pm. Contact Chris Buttner, 79 Jenkins Rd, Carlingford, (02)871 7753, for more information.

CENTRAL COAST Regional Group

Regular meetings are now normally held on the second Saturday of each month, 6.30pm at the home of John Goulton, 34 Mimosa Ave., Saratoga, (043)69 3990. Contact Russell Welham (043)92 4000.

GLEBE Regional Group

Regular meetings are normally on the Thursday evening following the first Saturday of the month, at 8pm at 43 Boyce St, Glebe. Contact Mike Slattery, (02)692 0559.

ILLAWARRA Regional Group

Regular meetings are normally on the second Monday of each month, except January, at 7.30pm, Keiraville Public School, Gipps Rd, Keiraville, opposite the Keiraville shopping centre. A variety of activities accompany our meetings. In the August meeting Geoff gave a demonstration of the recent Multiplan update which was appreciated by all.

Contact Lou Amadio on (042)28 4906 for more information.

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*   LIVERPOOL Regional Group   *
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Regular meeting date is the Friday following the TISHUG Sydney meeting at 7.30 pm. Contact Larry Saunders (02)644 7377 (home) or (02)759 8441 (work) for more information.

All Demonstration programs are subject to Air Mail from U.S.A. I am still waiting on some to arrive.

*** All Welcome ***

12th October 1990 - New programs from Asgard Software

The new programs are: The Animator, Page Pro Templates Vol #9, #1A, #1B, #5A, #5B, Spell It!, Page Pro Large Fonts Vol #1, #2, Page Pro Pics Vol #11, #10, #9, Music Pro, Page Pro Fonts Vol #2, #1, Disk of Pyrates (5) Instance and Histories, Instance and Fonts, Animation and Instances, Games Music and Pictures, Mission Destruct!, Karate Challenge, TRIS (new version), Picasso (the newest version from the USA).

NORTHERN SUBURBS Regional Group

Regular meetings are held on the fourth Thursday of the month. If you want any information please ring Dennis Norman on (02)452 3920, or Dick Warburton on (02)918 8132.

Come and join in our fun. Dick Warburton.

SUTHERLAND Regional Group

Both Derek Wilkinson and myself made the trip to Larry Saunder's house to attend the August meeting of the Liverpool Regional Group. Needless to say, Larry had on hand copies of the latest software from the USA to demonstrate to all in attendance. Particular interest has been shown in the programs Animator, Music Processor and the continuing enhancement of Page Pro. This demonstrates the importance of maintaining contact with our overseas users.

In this regard the Sutherland Regional Group has taken out its own subscription to MICROpendium, to ensure we are kept up to date with the latest happenings overseas

The format of each meeting is quite informal, with topics ranging from software reviews to hardware modifications with a fair sprinkling of purely social chatter in between.

BBS Contact is Gary Wilson, user name VK2YCW on this BBS. All meetings are held on the third Friday of each month at 51 Jannali Avenue, 7:30 pm, Jannali unless otherwise advised.

TISHUG in Sydney

Monthly meetings start promptly at 2pm (except for full day tutorials) on the first Saturday of the month that is not part of a long weekend. They are now held at the RYDE INFANTS SCHOOL, Tucker Street (Post Office end), Ryde. Regular items include news from the directors, the publications library, the shop, and demonstrations of monthly software.

October Meeting - 6th October

TISHUG Tutorial Day

The next TISHUG meeting will be a full day tutorial from 10am to 5pm on Saturday 6th October at Ryde Infants School.

Proposed Programme for the day:

- Ross Mudie: Morning - Assembler Class.
- Afternoon - Train Set Demonstration
- Crocodile Jones Adventure Trail: Pirates, Voodoo Castle and Mystery Fun House.
- Bob Relyea: Fun with TI-Writer, or Word Processing with Ease.
- Alf Ruggieri and Larry Saunders: Getting the Best out of Page Pro.
- Russell Welham: Music using the 12 channel Card.
- Geoff Trott: Computer First-Aid.
- Rolf Schreiber: Software Duplication.
- Percy Harrison: Shop.
- Alf: Library.

Also hope to have on hand: Rambo, EPROM Software, afternoon tea.

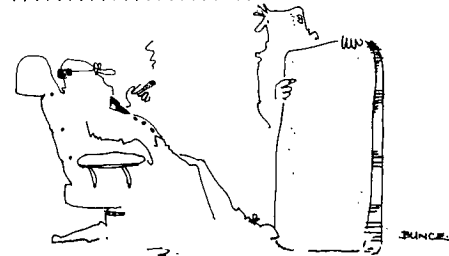
Other meeting dates for this year are:

- November 3
- December 1

The cut-off dates for submitting articles to the Editor for the TND are:

- November 7 October
- December 11 November

Russell Welham (Meeting coordinator).



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- (6) DIJKSTRA, E. ON THE GREEN LANGUAGE SUBMITTED TO THE DoD, SIGPLAN NOTICES, VOLUME 3, NUMBER 10, OCTOBER 1978
- (7) ROSE, FRANK, JOY OF HACKING, SCIENCE 82, VOLUME 3, NUMBER 9, NOVEMBER 1982, PAGES 58-66
- (8) THE HACKER PAPERS, PSYCHOLOGY TODAY, AUGUST 1980