HUNTER VALLEY 99'ERS NEWS

TI 99/4A

HOME COMPUTER NEWSLETTER

JULY 1986

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SECRETARYS NOTES

Well the AUSSIE FAIR has come and gone and as reported by groups all around Australia, has reinforced the users faith in a sound product - Yes, the old TI 99/4A. To back this up locally I seem to recall a cheque of some $950 slipping through my fingers recently, and being converted into DS Drives for some of our own faithful followers. We can't all be mad, surely!

Thanks to John Piccinich up Caboolture (QLD) way for the info on a very good supplier.

I have mentioned previously that a little encouragement and joint effort tends to make all sorts of tasks lean towards enjoyable, and judging from incoming mail, phone calls and now personal contact (thru the fair) our group, HV99ERS is becoming a household name in the TI user group comunity and indeed the world. People are seeking our newsletter and membership from the most unexpected places - this is our reward.

To these people our sincere thanks and we would like to here from you in the form of articles for "our" newsletter. It doesn't have to be fancy or technical (look at some of the Walgett gazettes that land more often than not). Just send them in to our Editor and he'll handle the rest. He loves it and in some way we ALL get something out of it.

Anyway, enough of the pressure. A big thankyou goes out to Laura Burns and the staff of MICROpendium for a favourable response to our groups request regarding this excellent magazine. Thanks also to groups throughout the USA., CANADA and the UK. which we exchange with. The content of your newsletters is increasing in value each month. Not to be outdone our neighbour user groups here in Australia also follow this trend as our machine seems to be undergoing a kind of renaissance.

Response to my circular sent out during May '86 has enabled my records with reference to other groups to be upgraded and with this goes thanks to those that have responded. Those that as yet have not, I would appreciate the details as it is nice to know who and what you are talking to in comunications. Also congratulations to the new office bearers over there at TIUP and keep up the good work.

Membership renewals continue to roll in at a steady rate and a welcome aboard to our new members. Special thanks to our groups new 'out of towners' :-

Geoff Gray - Tuncurry, NSW.
Steve Taylor - Kingston, TAS.
Bob Speed - Bulahdehla, NSW.
Peter Robinson - Page, ACT.
Geoff Shipton - Plympton Pk, SA.
Stan Gascoigne - Surrey Hills,VIC
Barry Ridgeway - Beechworth, VIC.

(and anyone else that may join after print date).

You might also be interested to know that the groups Corcomp has undergone a physical workout up there at Ron Kleinschafers opal mine and it was nearly as good as his "roll your own" to all reports. More on this somewhere else this issue.

As well as this, the preloved systems branch is turning over lots of equipment to new owners and from Peter Coxon I have it that this avenue of aquiring gear through local newspaper advertisement is well worth the exersize and some real value purchases have been made through this technique. Peter still has lots of items in stock and the adverts will continue as long as the demand follows suit. Thanks for your skills with this Peter. (I tell ya! he should have been a salesman).

OK, that's about it for now and remember that we don't let Brian have that printer for his own personal enjoyment - we want some work out of him, so get those articles in.

Thanks to all.

Albert Anderson
4a4me

THE MELBOURNE TI-FAIR

"How was the trip to Melbourne Joe?" "GREAT is the only word Mate!" "GREAT!"

"How was the Melbourne T.I. Fair?"
"BETTER Mate!.....BETTER"

Please don't get the impression that I only ever make single word replies to questions. The fact is that I can't think of a more concise way to say everything that the H.V. 99'ers who attended the Fair felt about it.

To Peter Gleed and his band of enthusiastic T.I. Users who had the courage, interest and dedication to make the Festival work, congratulations to you for staging the Fair and thank you for allowing us to participate.

The H.V.99'ers who attended, Albert Anderson, Brian Woods, Al Lawrence, Geoff Shipton and yours truly all agreed that the Fair was a huge success. Especially when the difficult times the T.I. community has, is and will face in the future, are considered. How is success measured? How do you catch the wind?. Why do you like Grieg and not Strauss or Brahms?. The simple fact is that measuring success gets down to your own perceptions of what success is. If you allow your expectations to build without facts to guide you then success can elude you all you life. My personal philosophy on this matter was shaped by a work mate who is now retired. At his retirement dinner he told me that if you can learn one new thing each day then that day has been a success. The H.V.99'ers attended Melbourne with that in mind. We renewed old acquantenances, made new friends and on top of all of that we gained lots of new information... THAT is SUCCESS. THANK YOU MELBOURNE.

Onto the Fair itself, apart the Host Group four other User Groups took part;

Adelaide
Canberra
Hunter Valley
Sydney

Each Group had a stand and took the opportunity to show what they were doing within their Groups with both software and hardware.

The following is a resume of the items which caught my attention at the Fair. Canberra had a console up and running on which the T.I. keyboard had been disabled and a free standing keyboard was connected. The keyboard featured a numeric pad, cursor arrow keys, electronic latching for both CAPS lock and FUNCTION keys, both of which had LED indication on when locked. Also at the Canberra stand was a great dual joystick for the T.I.. The Joystick is solidly constructed, featuring top quality micro switches. It has a single joystick handle and two fire buttons and a small change over switch near the cable entry at the front of the body allowed the selection of either joystick 1 or 2 operation. These are available from Greg Oakes c/o the Canberra Users Group. Don't quote me but I think the price was $40:00 each but that would not include postage.

Sydney had several full systems running. Fred Norris demonstrated his Myarc disc controller and it's many features. They also had a large range of books, magazines and software at the shop which should have kept even the most fastidious of Users occupied for some time.

Adelaide had one system running and software was demonstrated throughout the afternoon.

Melbourne had two stands, one demonstration business applications for the T.I. and the other, alive with Gram Krackers, demonstrated software and that marvelous module - Gram Kracker. The Melbourne 32k inboard expansion card was also available at the Fair. It is slightly larger than the H.V.99'ers card, it has extra tracks on it for the load interrupt debouncing

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circuitry to be fitted. How much is the card? It's somewhere amongst my notes, I can't find it and I am not even going to try for a ball park figure, but it isn't very expensive!

The H.V.99'ers stand ,featured the Klienschafer P.E. Box and the Mulvaney Module expander. Both of which created considerable interest.

The latest version of Funnel Writer from Tony McGovern was released and was keenly sort after. Version 3.1 of D.M. 1ØØØ was also available as was Co-Lister and a disc of H.V.99'ers public domain software.

All back issues of the H.V.99'ers Newsletter, The McGovern EB Tutorials and A Guide to T.I. writer could be purchased. Each person who came to our stand was given a brochure on Newcastle and Lake Macquarie and an invitation to visit us. They were also warned that once getting here they may not want to ever leave again.

COMMERCIAL STANDS.

Each User Group at the Fair was supplied with television receivers for monitors by a local retailer. SENDATA supplied their modems for use at the Fair and T.I. Australia supplied the T.I. 99/4A Consoles.

Universal Office Equipment had the latest range of Brother Printers displayed at their stand. I must say that the print quality produced by Brother printers is quite remarkable.

The full range of T.I.'s "Touch and Tell","Speak and Spell" consumer products were on display. These again are a good indication of just how far T.I. was ahead of the field with this type of technology. These products have been available for quite some time now and it is only in recent months that a competitor has come onto the market. It does seem to be something of a handicap to be so far ahead of the pack that the Consumer cannot make product comparisons mainly through the consumers lack of knowledge of the technology. (Sounds a bit like the 4a story doesn't it?). Also on the T.I. stand was the T.I. Professional which had an absolutely brilliant flight simulator running on it. For further information on this speak to Al Lawrence our resident flight simulator expert who gave it top marks.

A very interesting stand was the PRELOVED EQUIPMENT stand. It was one of those great places you go to and disappear for an hour or so, a bit like a Melbourne version of Pandora's Box. If you wanted something and had the time to look for it, it was there. The second hand keyboards for $35-ØØ caught my eye. So did the one which Bruce Carew bought which almost (accidentally?) found it's way into my case.

TALKING ELECTRONICS demonstrated the latest in speech synthesis. I did not get a good look at this stand mainly because I ran out of time in the end. Too much talking I think.

MYARC. Mr John Keown represented the American Company Myarc. He had with him the NEW 99ØØ family based computer "GENEVE". The C.P.U. is the Texas Instruments TMS 9995 processor. This makes it compatable with the existing T.I.99/4A equipment and software. They do run their little legs off since the 9995 is approximatly three times faster than the 99ØØ. The model demonstrated at the Fair sits in the T.I. P.E. BOX. It could be mistaken for an RS232 card, it is in the familiar case with all the ports protruding from the back. The existing T.I. console is no longer needed and an I.B.M. style keyboard is included in the price. Goodbye to the large inter-connecting ribbon cable.

Features include:-

T.I. 99/4A COMPATIBLE.
IBM FULL KEYBOARD.
SEPARATE FUNCTION KEYS.
EXCELLENT GRAPHICS CAPABILITIES.
(The brochure says "incredible"??)
COMPOSITE VIDEO OUTPUT.
RGB OUTPUT.
4Ø or 8Ø COLUMN DISPLAY
JOYSTICK AND MOUSE PORTS.
COMPATIBLE WITH EXISTING DISC CONTROLLERS , RS232, MYARC EXPANSION CARD.
2 MEGABYTES ADDRESSABLE MEMORY.
HARDWARE UTILITIES, SPRITE, FILLS, LINES, DATA MOVES.
256 BYTES ULTRA HIGH SPEED RAM.
PRE-FETCH AND POST STORE ON INSTRUCTIONS.

SOUND COMPATIBLE AND EXPANDABLE.
SPEECH INCLUDED.

The current price is $US 400.00, the Computer was first shown Publicly in April at the New England 99 Faire which is held at Boston. The April edition of MICROcompedium has a brief review of the prototype show at the Faire.

WHO ELSE WAS THERE?.

Mr. Jack Grant the Co-Ordinator of the Melbourne User Group welcomed the people attending. The Fair was then Officially opened by the Leader of the State opposition in Victoria, Mr. Jeff Kennett.

Those duties out of the way Mr. John Keown of Myarc spoken and pledged the continued support of Myarc to the T.I. community for the foreseeable future. He said that we can look forward to Myarc continuing to develop new peripherals and software for the 9900 family of computer.

Mr.Bob Hamilton, . the Consumer Products Manager from T.I. Sydney, was in attendance at the T.I. Stand. We hope that in the near future he will be able to get to Newcastle and demonstrate the Consumer Product range at one of our Monthly meetings. This will include the T.I. Professional and the SPEAK and SPELL series of products.

GETTING THERE AND BACK.

The process of getting to and from Melbourne was almost as interesting as the Fair itself. A vehicle was hire for 4 days to carry us and all our bits and pieces to and fro. The vehicle was ordered well ahead (14 days) of when it was neeeded from the rental Company who GUARANTEE the vehicle you order. After all the papers were signed and money ready to be handed over it was announced that the vehicle ordered was not available. I cannot reproduce here what Albert and Brian told the people. Another vehicle from another Company was hired and off we went from Tarro at 4:00 am. on Friday 13 th. Lunch at the Albury S,S & A Club at 12:30 pm. Then on to Melbourne at 2:00 pm. We arrived at Bruce Carew's house at approx 7:00 pm after having eaten at "DENNY'S". The hospitality afforded us by Bruce Carew and his family took us quite by surprise . I would like to publicly thank Bruce and his family.

On our return journey we left Melbourne at approx. 9:00 am. A short stop at Glenrowan and again at the Dog on the Tucker Box. Then to Yass for a snack with Charlie Chan who was kind enough to drive out from Canberra to have a talk for an hour. Left Yass at 5:15 pm and arrived in Newcastle at 10:00 pm. feeling well satisfied with the whole weekend, both socially and in relation to the Fair.

NEXT TIME?

That should make Peter Gleed shudder!. Quite seriously though, I do believe that the T.I. User Groups should get together regularly. Not in the form of a Fair but perhaps a Symposium of some kind. The logical location for such a thing is Canberra which is reasonably central to the bulk of the User Groups. Of course Canberra will hear about this idea when they read this article. I also put forward a tentative date of the long weekend in October 1987. I would like to see it this year but that may be to soon. Anyway that is something which we can all think on and I can assure a good size attendance from the H.V.9'ers.

That is about all I have to report!

Joe Wright.

THANKS
MELBOURNE T. I.
USERS GROUP
FOR A GREAT
TI-FAIR

JOE WRIGHT, ALBERT ANDERSON,
AL LAWRENCE, BRIAN WOODS,
GEOFF SHIPTON.

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THE TI-99-8

BY JOHN PHILLIPS

OF THE

NATIONAL NINETY-NINER MAGAZINE

It has been just about two years since TI made the announcement that they were pulling out of the home computer business. All current development projects were stopped. One of these projects was so near to completion that production lines were already established.

This project was the awesome TI-99/8. It was a year ahead of the Apple IIc and two years ahead of the Commodore 128 - the 99/8 was more powerful than either of these machines.

Since I possess one of these fine machines, I can give you a first hand look at the capabilities - and potential. So sit back and enjoy reading about the TI-99/8 (code named "Armidillo").

The 99/8 - dimensions are 15" wide x 13" long x 2" high. It was to be made of the same beige plastic as the late generation /4A's. The keyboard on the /8 was 11" wide and contained 54 keys. The caps lock was not a click down - but an electronic circuit key. It was located in the upper left corner of the keyboard. The FCTN key was moved below the CAPS key and the CTRL key just below that so all special keys were on the left col/row of the keyboard. The SHIFT, ENTER and FCTN keys are all oversized for easy access.

The cartridge slot is located on the right side of the top. In other words, cartridges are pushed into the top - sit facing the ceiling (9Ø degrees different to the 4A).

The back panel from right to left:

1) The CC port for hexbus peripherals.
2) The cassette port - use standard subminiature cables for MIC, EAR and MOTOR.
3) Joystick port same as 4A but the caps lock no longer interferes.
4) Monitor port similar to 4A.
5) TV port designed to be used with a video. You can use any TV game adaptor. TI's RF modulator no longer needed.
6) Channel select for use with TV.
7) Power supply port. /8 uses same power supply as 4A.

On the right side of the console there is a port similar to the expansion port on the 4A. However the /8 is not compatible with the expansion box. This port was designed strictly for the Hexbus interface - a special set of peripherals which ran on 16 bit busses. More on this later.

The inside of the /8 is wonderful. First the /8 contains 28ØK bytes of ROM. In essence it is packed. It contains 16K of VDP RAM and 64K of CPU RAM. (8ØK RAM total). If you need more the /8 can access up to 15 megabytes of RAM. The CPU is the TMS9995. The 9995 is faster and contains a larger instruction set.

Within all that ROM - Extended Basic II as its main language. Compatible with TI Extended Basic but contains a greater number of additional commands to support the new architecture.

It also has built in: the P-code from Pascal or Pilot. In addition, solid state speech is built in.

As a final plus, the /8 has a speed select mode which allowed you to choose which speed level: slow speed or 4A (for games) and /8 speed. You know how the TI-WRITER will drop characters on Word Wrap? Running TI-WRITER on the /8 speed eliminates this problem. When set on /8 things run much more quickly. You should see PARSEC on fast mode!!

The Basic interpreter included in the /8 is an integral part of the system software - intended to be ANSI and TI standard compatible - and provides access to some of the unique features of the /8 hardware - to access color graphics - sound generators contained in the machine. As much of the speed critical code as possible put into high speed ROM to increase the speed of Basic. The ROM code portion of the interpreter is contained in 19 separate assembly routines. The GROM portion of the interpreter is contained in five separate GPL modules. These modules are the I/O routines, and all of the GPL subprograms such as SOUND, COLOR and KEY.

In the 4A mode there are 16 address lines from the 9995 and 24 address lines to physical memory. Because of this, there is a need for intermediary addressing logic. The Address Decoder and the Memory Mapper Chip are the intermediary components for the /8. This scheme is used to differentiate 4A mode from /8 mode.

With the inclusion of Extended Basic II, there were additions to the graphics sub-system. Armidillo Basic has six graphic modes. Four new graphics subprograms have been added: CALL DCOLOR, CALL DRAW and CALL FILL.

The format for selecting the graphics mode (1 to 6) is : CALL GRAPHICS(mode).

1) A 32 column x 24 row grid of pattern position (like 4A)
2) Text - a 4Ø col x 24 row alphanumeric grid.
3) Split screen 1, where the top 1/3 of the screen displays text and the bottom 2/3 displays high resolution graphics.
4) Split screen 2, where the top 2/3 displays HI-RES graphics and the bottom 1/3 displays text.
5) High Resolution color graphics, 256 x 192.
6) Low Res color graphics 64 x 48 blocks.

There are many enhancements to Extended Basic too numerous to mention here. Just take my word for it: Extended Basic II was every bit as good as MS BASIC for the PC!!

The peripherals designed for the /8 are the Hexbus line of peripherals. These included RS232 and wafer tape etc. I have the RS232 connected to my /8 for telecommunications.

It is difficult to describe to you, on paper, just how wonderful the /8 is. TI made a grave mistake in not releasing this machine. As I mentioned before, it was years ahead of its time. I hope my article has shed some light on the mysteries of the /8.

END

THE H. V. 99ERS EXTENDED BASIC GROUP

Over the last few weeks the group has been looking at those little bits of magic called SPRITES. We've found that once started they just keep going, plus numerous other little tricks only a sprite is capable of.

Up to now the group has progressed thru most of the sub-programs associated with sprites.

The following has been set for the group.

WHY NOT TRY IT YOURSELF!

(i) Start the letter "A" at the centre of screen then move it towards the top lefthand corner.

(ii) Start the letter "B" on the top lefthand corner of the screen then move into the centre.

(iii) When "A" has reached dot-row 8Ø change the sprite to "C".

(iv) When "B" has reached dot-column 4Ø change the sprite to "D".

(v) When the coincidence of "C" and "D" (with a tolerance of 5Ø each) is detected, change the direction of the sprites, moving "C" upwards and "D" downward. This is to be high-lighted with sound.

(vi) When "C" reaches dot-row 6Ø, change the colour and reposition the sprite to the middle of the screen.

(vii) When "D" reaches dot-row 11Ø, change the colour and speed of the sprite.

(viii) Delay for 1ØØØ and then start again.

GAZ JONES HV 99'ers

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RON WRITES......

27th June, 1986
R.KLEINSCHAFER.
GRAWIN
VIA WALGETT.
2832.
Phone Ø68 29396Ø

Dear Albert,

Received the old bucket of bolts O.K, Glad to hear the FAIR went well. I wish to thank you for the Discs, I was going to include in this letter a request for them and I am very gratefull, as far as the cost of postage for the units, forget it, it is little compared to the time and effort given by yourself and AL (when I get down and he spends hours sorting out my whims and fancies for software etc.). Besides I am not there to help with the hireing of the hall etc. for meetings, without which the club could not survive.

Thanks for the use of the CC SYSTEM, very adaptive and easy to use, I did have some problems with it for about three days however, a good exersise in fault finding !!, After setting it up it operated without trouble for about 4 hours then the disks went beserk with the drive motors cutting in and out at random, at first I thought it was a bad connection in one of the IDC cables I had made up to fit but after checking these proved O.k, then it decided to behave for the rest of the night. The next day after about 4 hours it started again?? AH AHH power supply problems, perhaps a faulty voltage regulator ??, so off with the cover and check, No the voltages were O.K. then after hooking it back up again it was allright for the rest of the night. But the next night it went beserk after about ten minutes, again with the drives cutting in and out and the Expansion System LEDS flickering from Disk to 32K to RS232 not in any order, WHAT THE HELL ???, Out with meters etc again, this time I started checking the current of the rails, The 5V rail was fluctuating from approx 5ØØ to 8ØØ MA. Further testing of the components on the Power Supply board all showed O.K. Then by sheer luck I noticed a small arc on one end of the BLOODY FUSE HOLDER thats all that the trouble was. So if anyone has any trouble with it dive on that first and check, It is slightly burnt on one of the PCB fuse clips and MIGHT, I repeat MIGHT, start to give trouble again, I didn't have a new fuse clip to fit.

In fact the power supply is the only critisism I have with the whole unit, It is well constructed but the voltage regulator's heat sink I feel could be a little more substancial, with the 5V line drawing some 8ØØ + milliamperes and the 12V rail averaging approx 6Ø MA, the heat sink, with an ambient temperature of 2Ø'C, runs very hot and I would think that at higher ambient temperatures there is the possability of thermal shutdown, perhaps I am wrong but if it was mine I would do some modifications, probably by fitting an extra heatsink with a series pass transistor so that the voltage regulator carries about 6ØØ MA and the transistor handling the rest, I have used this method in all my regulated supplies where the current starts to approach the regulators comfortable limit of 1 amp. (1ØØØ MA), perhaps I am only thinking of the summers we have up here. Just as a passing thought I suspect that the cases where you read in newsletters, magazines etc where fans have been fitted to cool DISC DRIVES (Internal) because of temperature shutdown is no more than the voltage regulators on the power supply causing the problem.

There is no problems running the CC with the two memories in paralell, I thought there might have been a problem somewhere (especially with assembler) with timing but most programs that I used gave no trouble, even reading from and writing to three drives, dumping to memory and writing to the discs at random.

A funny thing happened with the CC, I didn't bother to connect the printer to it but just plugged the

AXIOM in the side and used that BUT, the Axiom has in it's DSR a built in test feature whereby on Power Up if you hold down the space bar it causes the printer to do a self test run, the result being that when the CC start screen first comes up, the old habit of just hitting the space bar to access the Menu screen drops you into the COLOR BAR screen (I don't know why they did it ?), The result being the printer taking off and proudly demonstrating it's ability by printing out all the characters available. I now have reams of paper with the printers capabilities. I suppose to sum up about the CC my own view is that I cannot see any real advantage over the TI system, I dont think that many users would bother with a mixed assortment of DISK DRIVES, I certainly would not throw out a perfectly good TI system to get one but for anyone that needs an expansion system and has the DO-RE-ME by all means go right ahead, it is well constructed and VERY compact.

Enclosed is my renewal form and fee for 86/87. I am still after an RS232 CARD, If PETER can get hold of one I would like to have it, Alternatively maybe you could get BRIAN to whack in the next issue of the newsletter the following.

WANTED.

RS232 CARD, WILL BUY, OR SWAP FOR AXIOM PARALLAX PRINTER INTERFACE.

R.KLEINSCHAFER.
GRAWIN
VIA WALGETT. 2832
PHONE Ø68 29396Ø

As for that Phone No it should have been in operation now, but through delays it looks like it will not be working untill about mid JULY, roll on technology, I guess you now know why I want the RS323 !!.

Thats about all for now and thanks again for the Software, also the T. McG. tutorials.

REGARDS,
RON K.

PS. Just fired up FUNLWRITER V3.3 What can I say?? LIKE WOW, GOOD ON YER MATE !!!!.

8K ED-ASS BACK-UP

BY PETE SMITH

H.V. 99ERS

Some time ago a couple of articles appeared in <u>MICROPENDIUM</u> giving details of the construction of an 8k, battery-backed-up editor assembler

cartridge which would allow the user to store a number of programs **AND** the ed/ass in a cartridge.

This project appealed to me so I wrote to U.S.A. and obtained a brand new E/A kit for $19.95(US) which was to be incorporated in the device.(I certainly didn't want to place my trusty old E/A cart in danger.)

I then procured a <u>TI INVADERS</u> cartridge and proceeded to go to town tearing out the chips.

The original idea was put to paper by John Clulow in the <u>JUNE 1985(p32) MICROPENDIUM</u> .

<u>JULY 1985(p22)</u> saw an article by David R.Romer on actually programming this <u>SUPER CARTridge</u> whilst John Clulow, himself, had an update (please take note of this one as it makes the others make sense) on p45 of the **<u>AUGUST 1985 MICROpendium</u>**.

P12 of the August 1985 **<u>MICROpendium</u>** has two letters making very sensible observations on the device too.(For those of you interested I am awaiting a reply from the States re the stated availability of the E/A chip for $3.6Ø(US) which will certainly make this project more attractive.)

Another article also appeared after these and it gave the following code to allow "DEBUG" to be permanently loaded .

If you have read this far I

suppose you are wondering what the heck this project is all about and why should anyone be interested in attempting it.

The thought of being able to have a cartridge with my own personal programs, or other useful ones which I use regularly, available without having to grab a disk or search through files and wait for loaders etc appealed to me.

Using the programs given it is easy to have your programs come up as part of the menu after the welcome screen appears.

eg.
1.TI BASIC
2.EDITOR ASSEMBLER.
3.NAMES.

There are of course problems and I am having them.Not being much of a whizz at Assembler I am having difficulty making up the stand-alone code necessary in the program since the External References are no longer available to the program residing at the cartridge address.

I have written away to D.R.Romer who does offer a disk of routines which I hope will solve my little probs, but in the meantime I have been able to load a couple of my very simple routines and have them run.

I would highly recommend this project to anyone as it is certainly an interesting,rewarding and exciting(especially when the b.... thing doesn't work and it takes you 1Ø mins to realise that you have the card in backwards) way to become involved with hardware construction and Assembler language manipulation.

Regards Peter.

PS. code as promised...

```
1ØØ CALL INIT
11Ø CALL LOAD(8228,96,Ø)
12Ø CALL LOAD("DSK1.DEBUG")
13Ø CALL LOAD(-4,131,224,112,19Ø)
14Ø CALL LOAD(8228,16Ø,Ø)
15Ø PRINT "PRESS Q THEN <ENTER>"
16Ø CALL LINK("DEBUG")
17Ø END
```

(This program loads **DEBUG** into the cartridge and allows you to run a program and call up **DEBUG** by pressing the load interrupt switch located in the **speech synthesiser(see** club handouts re details)) END

MELBOURNE FAIR. A LOW POINT

As mentioned elsewhere in this issue the TI-99/4A FAIR in Melbourne during June proved to be just what the 4A users doctor ordered; a shot in the arm and a huge morale boost for all.

For the majority at the event the overall opinion seemed to favour a resounding success for all that participated.

The organisers, being the Melbourne group as a whole, done a marvellous job at not only holding the event but getting everyone to it and providing accommodation for those that needed it. From the opening by Jeff Kennett, through the course of the day and into the pack-up stage everything went fine except for a small incident to most, but a major body blow to one individual.

The incident that I refer to here pertains to someone in attendance at the Fair and involves a SENDATA communications modem that has found a home somewhere else than where it should be. Kidnapped perhaps! The owner, one Peter Gleed; yes that's right! -the man who went to a great deal of personal trouble to give "US USERS" the opportunity of being together at the one venue for a joint purpose, would very much like this modem back at its rightful place at the end of his freight-train PE system.

We do not know how the modem came to be parted from its owner - maybe it was inadvertently packed where it should not have been; maybe it was thought to be a "Fair" give-away from the SENDATA people (who we thank immensely for the use of their modems during the modem link-up) or maybe a weak moment of that old 'human nature' prevailed.

However there is one thing that we do know about this incident, and that is, if Peters modem were to

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HOME RECORD KEEPER

BY BRIAN RUTHERFORD

HUNTER VALLEY 99'ers

This program, in Extended Basic, is designed for use with a casette. Instructions for its use will appear in next months magazine.

```
1Ø CALL CLEAR :: CALL CHAR(1
28,"1827728181722781"):: CAL
L SCREEN(13)
2Ø DISPLAY AT(9,6):"Home Rec
ord Keeper" :: DISPLAY AT(1Ø
,15):"by" :: DISPLAY AT(11,7
):"Brian Rutherford"
3Ø DISPLAY AT(12,6):" 9 Bomb
ala street" :: DISPLAY AT(13
,6):"Dudley N.S.W  229Ø"
4Ø CALL COLOR(13,16,14):: FO
R R=7 TO 15 STEP 8 :: CALL H
CHAR(R,6,128,22):: NEXT R ::
 CALL VCHAR(7,6,128,8):: CAL
L VCHAR(7,27,128,8)

1ØØ ! INITILISE ARRAY A$ FOR
 P=1 TO 12 & STORE MONTH IN
A$(Ø,Ø,P)
11Ø ! STOR NO. 1 TO 5 IN A$(
1TO5,Ø,P)& CATEGORY IN A$(Ø,
1TO5,P)
12Ø OPTION BASE Ø :: DIM A$(
5,5,12),T$(12),NT$(12)
13Ø DATA January,February,Ma
rch,April,May,June
14Ø DATA July,August,Septemb
er,October,November,December
15Ø DATA Category,(Item),Use
dValue,Th_Year,(N_Year)
16Ø C=Ø :: FOR P=1 TO 12 ::
R=Ø :: READ M$ :: A$(R,C,P)=
M$ :: FOR R=1 TO 5 :: A$(R,C
,P)=STR$(R):: NEXT R :: NEXT
 P
17Ø R=Ø :: FOR P=1 TO 12 ::
RESTORE 15Ø :: FOR C=1 TO 5
:: READ M$ :: A$(R,C,P)=M$ :
: NEXT C :: CALL COLOR(P,16,
1):: NEXT P

19Ø ! MENUE
2ØØ CALL SCREEN(13):: DISPLA
Y AT(5,7)ERASE ALL BEEP:"1 A
dd data": :"      2 Display
month": :"      3 Change mon
th": :"      4 Save file"
2Ø5 DISPLAY AT(13,7):"5 Load
 file": :"      6 Yearly Tot
als": :"      7 Sorted": :"
     8 Exit"
21Ø CALL CHOICE(8,C):: ON C
GOTO 22Ø,23Ø,24Ø,25Ø,26Ø,27Ø
,28Ø,29Ø
```

land back at its home :-

88 Main St.
Blackburn, VIC
3133.

(in an anonimous package if necessary) or happen to turn up at the next User Group meeting by some means I feel sure that the body blow of the loss of this personal and quite expensive equipment would be reduced to a mere kick between the legs.

Need I say anything else?

Albert Anderson
HV'99

LIBRARIANS REPORT

HI 99'ers,

****Funnel Writer****
********V.3.3********

There was a Typo omission in last months release.It should be noted that there are - 2 Single Sided Disks for $7.ØØ or 1 Double Sided Disk for $5.ØØ Both include P/P Handling costs.

ALL V 3.Ø and up FUNELWRITERS are FAIRWARE and as such only nominal handling costs should be charged when it is being distributed by USER GROUPS and NONE by individuals.For Hunter Valley 99'ers and MOST true user groups this is about $1.ØØ.

********* V 3.3 *********

Is now svailable through the Hunter Valley 99'ers Library for only $5.ØØ on a DS/SD Disk or $7.ØØ on 2 SS/SD inc.P and P anywhere in Australia. Overseas extra for Surface or Airmail as requested.

???????? WHY PAY MORE ???????

Software Library

Any clubs or indivuals interested in obtaining any PUBLIC DOMAIN software in volume disks have 2 choices

(a) Send blank initialised disks to us with return postage or send us disks with programs on it and we will send at our cost an equal number of disks filled with programs requested or volume disks.

(b) We can supply programs,or volume disks on our disks for the cost of disk and PP($4.ØØ)

We are not a SHOP and do not sell for PROFIT, any excess is used to buy more material for club usage. Cassette tapes only to be available at club monthly meetings owing to the problems associated with them. Your library has about 15ØØ programs on 11Ø disks. Cassette are still a Good buy at the HV99'er monthly meet for $ 3.ØØ.

Dont forget to make use of your FREE Library Books and Magazines to read what all the rest of the User Groups are doing and catch up on all the latest software and hardware for your TI.99/4A.

FREE SOFTWARE

At the next Workshop on August 9th. I will have along heaps of the Club Public Domain software for you to download, So dont forget to bring along YOUR own CASSETTE RECORDER. Bring your own Disks and Tapes or buy them from the club.If you have any Programs to EXCHANGE bring them along as well.

Fairware for now,

Happy programing,

Al Lawrence.

```
220 CALL SCREEN(5):: CALL MO
NTH(P):: CALL DISPLAYS(A$(,,
),P):: CALL SHOWM(A$(,,),P,T
$(),NT$()):: CALL INPUTS(A$(
,,),P,T$(),NT$()):: CALL KEY
S
225 GOTO 200
230 CALL SCREEN(6):: CALL MO
NTH(P):: CALL DISPLAYS(A$(,,
),P):: CALL SHOWM(A$(,,),P,T
$(),NT$()):: CALL KEYS :: GO
TO 200
240 CALL SCREEN(7):: CALL MO
NTH(P):: CALL DISPLAYS(A$(,,
),P):: CALL SHOWM(A$(,,),P,T
$(),NT$()):: CALL CHANGE(A$(
,,),P,T$(),NT$()):: GOTO 200
250 CALL SCREEN(14):: CALL S
AVES(A$(,,),T$(),NT$()):: GO
TO 200
260 CALL SCREEN(14):: CALL L
OADS(A$(,,),T$(),NT$()):: GO
TO 200
270 CALL SCREEN(5):: CALL YE
AR(T$(),NT$()):: GOTO 200
280 CALL SCREEN(5):: CALL SO
RT(A$(,,)):: GOTO 200
290 CALL SCREEN(7):: DISPLAY
 AT(12,4)ERASE ALL:"HAVE YOU
 FINISHED Y/N"
300 CALL KEY(3,K,S):: CALL S
OUND(-10,110,5):: IF K=78 TH
EN 200 ELSE IF K<>89 THEN 30
0 ELSE DISPLAY ERASE ALL ::
END

1000 SUB CHOICE(X,K)
1010 DISPLAY AT(21,1):"YOUR
CHOICE" :: CALL KEY(3,K,S)::
 IF S<1 THEN 1010
1020 IF K<49 OR(K>X+48)THEN
DISPLAY AT(23,1)BEEP:"A NUMB
ER BETWEEN 1 AND";X :: GOTO
1010 :: ELSE K=K-48
1030 SUBEND

1500 SUB MONTH(M)
1510 DISPLAY AT(3,8)ERASE AL
L BEEP:"1 January":"       2
 February":"       3 March":
"        4 April":"       5 M
ay":"        6 June"
```

```
1520 DISPLAY AT(9,8):"7 July
":"        8 August":"
9 September":"       10 Octob
er":"        11 November":"
   12 December"
1530 DISPLAY AT(20,1):"Choos
e month":"        & press ente
r" :: ACCEPT AT(21,21)VALIDA
TE(DIGIT):M
1540 IF M<1 OR M>12 THEN DIS
PLAY AT(24,3)BEEP:"BETWEEN 1
 & 12 PLEASE" :: GOTO 1530
1550 SUBEND

1800 SUB KEYS
1810 DISPLAY AT(24,1)BEEP:"P
RESS ANY KEY TO CONTINUE"
1820 CALL KEY(3,K,S):: IF S<
1 THEN 1820
1830 SUBEND

2000 SUB DISPLAYS(A$(,,),M)
2010 DISPLAY AT(1,INT(32-LEN
(A$(0,0,M)))/2)ERASE ALL:A$(
0,0,M):: DISPLAY AT(2,(INT(3
2-LEN(A$(0,0,M)))/2)-1):RPT$
("*",LEN(A$(0,0,M))+2)
2020 C=0 :: S=6 :: FOR R=1 T
O 5 :: DISPLAY AT(R+S,1):A$(
R,C,M):: S=S+2 :: NEXT R
2030 DISPLAY AT(4,5):A$(0,1,
M):: DISPLAY AT(5,5):A$(0,2,
M)
2040 DISPLAY AT(4,14):SEG$(A
$(0,3,M),1,4):: DISPLAY AT(5
,14):SEG$(A$(0,3,M),5,5):: D
ISPLAY AT(4,21):A$(0,4,M)::
DISPLAY AT(5,21):A$(0,5,M)
2050 SUBEND

2200 SUB SHOWM(A$(,,),M,X$()
,Y$())
2210 S=4 :: FOR R=1 TO 5 ::
S=S+2 :: DISPLAY AT(R+S,5):A
$(R,1,M):: DISPLAY AT(R+S+1,
4):"(";A$(R,2,M);")" :: DISP
LAY AT(R+S,14):A$(R,3,M)
2220 DISPLAY AT(R+S,22):A$(R
,4,M):: DISPLAY AT(R+S+1,21)
:"(";A$(R,5,M);")" :: NEXT R
2230 DISPLAY AT(21,1):"Month
 tot th_year ";X$(M):"Month
tot n_year  ";Y$(M):: SUBEND
```

```
2500 SUB INPUTS(A$(,,),M,X$(
),Y$()):: S=6 :: R=1 :: DISP
LAY AT(21,1):"":""
2510 IF A$(R,1,M)<>"" THEN 2
550 :: ACCEPT AT(R+S,5)SIZE(
5):A$(R,1,M):: IF A$(R,1,M)=
"" THEN 2560
2520 DISPLAY AT(R+S+1,4)SIZE
(7):"(      )" :: ACCEPT AT(R
+S+1,5)SIZE(5):A$(R,2,M):: A
CCEPT AT(R+S,14)SIZE(5):A$(R
,3,M)
2530 ACCEPT AT(R+S,22)VALIDA
TE(NUMERIC)SIZE(6):B$ :: IF
B$="" THEN B$="0"
2535 CALL DEC(B$):: A$(R,4,M
)=B$ :: DISPLAY AT(R+S,22):A
$(R,4,M)
2540 CALL INF(B$):: A$(R,5,M
)=B$ :: DISPLAY AT(R+S+1,21)
:"(";A$(R,5,M);")" :: DISPLA
Y AT(22,1):"":""
2550 S=S+2 :: R=R+1 :: IF NO
T R>5 THEN 2510
2560 CALL TOT(A$(,,),M,X$(),
Y$()):: SUBEND

2800 SUB DEC(B$):: X=POS(B$,
".",1):: IF X=0 THEN B$=B$&C
HR$(46)&CHR$(48)&CHR$(48)::
GOTO 2820
2810 IF X>0 AND LEN(SEG$(B$,
X,LEN(B$)-X+1))<>3 THEN B$=B
$&CHR$(48)
2820 SUBEND

3000 SUB INF(B$):: DEF RN(X)
=INT(X*100+.5)/100 :: ON WAR
NING NEXT
3010 DISPLAY AT(22,1):"Expec
ted inflation":"on this item
        percent" :: ACCEPT AT
(23,14)SIZE(4)BEEP VALIDATE(
NUMERIC):X :: GOTO 3020
3015 GOTO 3010
3020 Y=VAL(B$):: Y=Y+(Y*X/10
0):: B$=STR$(RN(Y)):: CALL D
EC(B$):: SUBEND

3300 SUB TOT(A$(,,),M,X$(),Y
$()):: C=4 :: T,NT=0
3310 FOR R=1 TO 5 :: IF A$(R
,C,M)="" THEN 3320 :: T=T+VA
L(A$(R,C,M)):: NT=NT+VAL(A$(
R,C+1,M))
3315 NEXT R
3320 B$=STR$(T):: CALL DEC(B
$):: X$(M)=B$ :: B$=STR$(NT)
:: CALL DEC(B$):: Y$(M)=B$
3330 DISPLAY AT(21,1)BEEP:"M
onth tot th_year ";X$(M):"Mo
nth tot n_year  ";Y$(M):: SU
BEND

3500 SUB CHANGE(A$(,,),M,X$(
),Y$())
3510 DISPLAY AT(22,1)BEEP:"W
hich row" :: DISPLAY AT(23,1
):"" :: CALL CHOICE(5,K):: R
=K
3515 DISPLAY AT(22,1)BEEP:"<
1=Delete 2=Change> a line" :
: CALL CHOICE(2,K):: IF K=1
THEN 3570
3520 ACCEPT AT(R*3+4,5)SIZE(
-5):A$(R,1,M):: ACCEPT AT(R*
3+5,5)SIZE(-5):A$(R,2,M):: A
CCEPT AT(R*3+4,14)SIZE(-5):A
$(R,3,M)
3540 ACCEPT AT(R*3+4,22)VALI
DATE(NUMERIC)SIZE(-6):B$ ::
CALL DEC(B$):: A$(R,4,M)=B$
:: CALL INF(B$)
3550 A$(R,5,M)=B$ :: DISPLAY
 AT(R*3+5,22)SIZE(6):A$(R,5,
M):: CALL TOT(A$(,,),M,X$(),
Y$())
3560 DISPLAY AT(23,1)BEEP:"A
ny more changes Y/N "
3565 CALL KEY(3,K,S):: IF K=
89 THEN 3510 ELSE IF K<>78 T
HEN 3565 ELSE 3590
3570 FOR C=1 TO 5 :: A$(R,C,
M)="" :: NEXT C :: FOR I=R T
O 4 :: FOR C=1 TO 5 :: A$(I,
C,M)=A$(I+1,C,M):: NEXT C ::
 NEXT I
3580 FOR C=1 TO 5 :: A$(5,C,
M)="" :: NEXT C :: CALL SHOW
M(A$(,,),M,X$(),Y$()):: CALL
 TOT(A$(,,),M,X$(),Y$()):: G
OTO 3560
3590 SUBEND
```

```
3800 SUB SAVES(A$(,,),X$(),Y
$()):: DISPLAY AT(9,11)ERASE
 ALL BEEP:"CASSETTE" :: DISP
LAY AT(10,10):"**********" :
: DISPLAY AT(11,7):"PRESS"
3810 DISPLAY AT(13,8):"1 for
 CS1" :: DISPLAY AT(15,8):"2
 for CS2" :: CALL CHOICE(2,K
):: IF K=1 THEN C$="CS1" ELS
E C$="CS2"
3820 CALL CLEAR :: OPEN #1:C
$,SEQUENTIAL,INTERNAL,OUTPUT
,FIXED 192 :: FOR M=1 TO 12
:: DISPLAY AT(12,4)ERASE ALL
:"Saving  ";A$(0,0,M)
3830 FOR R=1 TO 5 :: FOR C=1
 TO 5 :: PRINT #1:A$(R,C,M),
:: NEXT C :: NEXT R :: PRINT
 #1:X$(M),Y$(M):: NEXT M ::
CALL CLEAR :: CLOSE #1 :: SU
BEND

4000 SUB LOADS(A$(,,),X$(),Y
$()):: CALL CLEAR :: OPEN #1
:"CS1",SEQUENTIAL,INTERNAL,I
NPUT ,FIXED 192
4005 FOR M=1 TO 12 :: DISPLA
Y AT(12,4)ERASE ALL:"Reading
  ";A$(0,0,M)
4010 FOR R=1 TO 5 :: FOR C=1
 TO 5 :: INPUT #1:A$(R,C,M),
:: NEXT C :: NEXT R :: INPUT
 #1:X$(M),Y$(M):: NEXT M ::
CALL CLEAR :: CLOSE #1 :: SU
BEND

4500 SUB YEAR(X$(),Y$()):: D
ISPLAY AT(10,8)ERASE ALL:"Ye
arly Totals" :: DISPLAY AT(1
1,7):RPT$("*",15):: X,Y=0
4510 FOR M=1 TO 12 :: IF X$(
M)="" THEN 4520 :: X=X+VAL(X
$(M)):: Y=Y+VAL(Y$(M))
4520 NEXT M :: B$=STR$(X)::
CALL DEC(B$):: DISPLAY AT(13
,1):"This years total is ";B
$
```

```
4530 B$=STR$(Y):: CALL DEC(B
$):: DISPLAY AT(15,1):"Next
years total is ";B$ :: CALL
KEYS :: SUBEND

5000 SUB SORT(A$(,,)):: DISP
LAY AT(10,7)ERASE ALL BEEP:"
1-FOR Category": :"       2-F
OR (Item)" :: CALL CHOICE(2,
K)
5010 IF K=1 THEN B$="Categor
y" ELSE B$="(Item)"
5020 FOR I=20 TO 24 :: CALL
HCHAR(I,1,32,32):: NEXT I ::
 DISPLAY AT(20,1):"Name of "
;B$ :: ACCEPT AT(20,20)SIZE(
5):B$ :: I,X,Y=0
5030 FOR M=1 TO 12 :: S=0 ::
 FOR R=1 TO 5 :: IF A$(R,K,M
)="" THEN 5070 ELSE IF A$(R,
K,M)<>B$ THEN 5060 :: IF S=1
 THEN 5050
5040 PRINT A$(0,0,M):: S=1 :
: I=I+1
5050 PRINT A$(R,1,M);TAB(8);
A$(R,3,M)," ";A$(R,4,M);"(";
A$(R,2,M);")","(";A$(R,5,M);
")" :: I=I+2 :: IF I>20 THEN
 CALL KEYS :: I=0
5055 X=X+VAL(A$(R,4,M)):: Y=
Y+VAL(A$(R,5,M))
5060 NEXT R
5070 NEXT M :: CALL KEYS ::
DISPLAY AT(9,12)ERASE ALL BE
EP:"Totals" :: DISPLAY AT(10
,11):"*******"
5080 DISPLAY AT(12,1):"For "
;B$;" this year": :"For ";B$
;" next year"
5090 B$=STR$(X):: CALL DEC(B
$):: DISPLAY AT(12,21):B$ ::
 B$=STR$(Y):: CALL DEC(B$)::
 DISPLAY AT(14,21):B$
6000 CALL KEYS :: SUBEND
```

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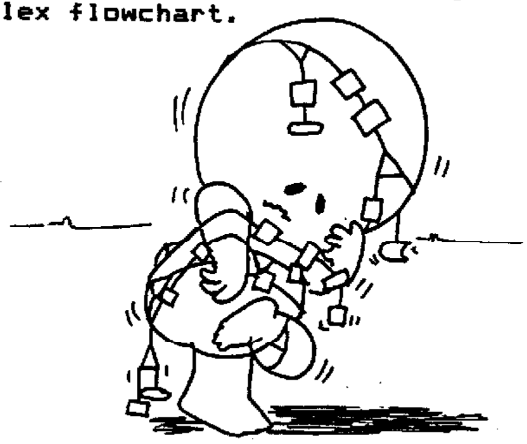
DO T
DO T

PSEUDOCODE.

Pseudocode is an alternative to flowcharts for the development of STRUCTURED PROGRAMS.
Pseudocode is becoming more and more popular with professional programmers because of the problems associated with making changes to a flowchart, esnecially a large or complex flowchart.



In contrast to flowcharts the advantages of pseudocode are:
(a) statements are written in free english text and, although brevity is desirable, they may be as long as is needed to describe the particular operation,
(b) by providing only three structured control concepts of SEQUENCE, REPETITION and SELECTION, the technique is easy to remember, and
(c) many languages, such as Pascal and Basic, exist (and more are certain to follow) which have syntax that is almost identical to pseudocode and hence make the transition from design to coding extremely easy.

The three structured control *constructs of pseudocode are:*
(1) **SEQUENCE.** The sequence structure is simply the idea that imperative program statements are executed in sequence. For instance statements such as INPUT, PRINT, add, subtract, multiply etc are coded in sequence in a program and they are executed one after the other. As a result, a sequence construct can consist of one or many statements and may be combined into one without changing the basic sequential structure.

eg
```
DO Task A
DO Task B
DO Task C
```

(2) **REPITITION.** The repitition or iteration structure provides for doing a function as long as a condition is true. When the condition is no longer true the program continues with the next structure. Repitition structures are often called Repeat Until or Looping constructs. The format for pseudocode is to indent corresponding sections so it is readily seen which section belongs to which. This is especially useful where there are nested loops.

eg.
```
REPEAT
  Statement 1
  Statement 2
    LOOP
      Statement 3
      Statement 4
    END LOOP
  Statement 5
UNTIL (condition)
```

(3) **SELECTION.** The selection structure is a choice between two and only two actions based on a condition. If the condition is true, one function is done; if false, the other is done. Either one of the actions may be null, or not expressly stated; in other words, an action may be specified for only one result of the condition test. Then, when the other result occurs, the program continues by executing the next statement in sequence. This structure is often referred to as the IF-THEN-ELSE structure, and many programming languages have code that closely aproximates it.

eg
```
IF Condition 1 is true
    DO Task A
  Else If Condition 2 is true
     DO Task B
    Else If Condition 3 is true
       DO Task C
END IF
```

To create a proper program, any of the three basic structures can be used in any of the other structures. The result will still be a proper program. This means that structures of great complexity can be created with the assurance that they will only have one entry and one exit and that they will be executed in a controlled manner from start to finish.

SECTOR MYSTERY SOLVED!!

This series of articles will be completely devoted to SECTORS, what they are, what they do, and how to use and manipulate them. I will also attempt to explain, in easy terms, how you can use sector access in programs and utilities.

Thinking back to when I first got my disk drive (Oh, what a wonderful day !) the first thing I wanted to do was USE it. The aspect that frightened me most, though, was this huge, ominous looking metal box that the disk drive sat snuggly in. What does it do, what's in it ?? These were the great questions confronting me, but after reading through the manuals I soon discovered the true purpose of this metal monster. This article will only be dealing with one of the aspects of the P.E box (the most important one !), the DISK CONTROLLER.

The TI Disk Controller is just a card that slides into a slot in the P.E box.(There is also a stand alone controller which plugs into the side of the console, but these are virtually non-existant) The Disk Controller is the magical piece of equipment that controls the actions of the disk drives. (eg) Head control. The Controller performs all the functions, like reading and writing sectors, through a program called the Device Service Routine (DSR) which is contained in a ROM on the disk controller card. This program is made up of several routines which perform different actions on your disk but the one we are interested in is the SECTOR READ/WRITE routine.

When you load programs from basic or extended basic the basic interpreter tells the disk controller what you want do and then hands over control to the DSR program. The DSR then looks at the disk and finds where the program you want is on the disk and then reads all the sectors which have your program on them and write them into memory. This type of access is called file access. We are going a step lower than this to single sector access.

It is important to understand that sectors read from, or written to, a disk using the DSR are all moved to or from VDP memory. In other words, if you read in a sector, what you read in from the disk is stored in VDP memory, and if you write a sector, the information you want to write to the disk must be in VDP. Before you read/write the sector you must specify the address in VDP at which the data for the sectors is to be stored.

The sector read/write subroutine requires you to put some values into specific memory locations before you can access the disk. If you do not give the DSR this information in these addresses then all sorts of funny (and very dangerous) things can happen. (My dad found this when he 'read' his first sector in his directory program. This 'so called' directory program managed to, instead of read, to write onto the sectors of the disk and destroy quite a lot of data.) So, back onto the track, the data that you have to give the DSR includes drive number, read or write operation, start of buffer in VDP and sector number to perform the operation on. You must also set up a PAB (Peripheral Access Block) which tells the disk controller which routine it is to use. (We wish to use the sector read/write routine). This PAB must be in VDP and you have to load a memory location with the VDP address of this PAB. (ie) This PAB may be anywhere in VDP so you must tell the DSR precisely where it is located.

Now, I will give you detailed information on where to put this information.

>834C -- 1 byte value

This byte indicates the disk drive on which you wish to perform the sector operation. This value is between 1 and 3.

>834D -- 1 byte value

This byte indicates if this is going to be a read or write operation. If this value is ZERO, a write operation is performed. Anything NON-ZERO indicated a read operation.

>834E -- 1 word value

This word specifies the start of the buffer in VDP into which the data will read into or written from. This value may be anything between >ØØØØ and >3FØØ but values below >3ØØØ are recommended.

NOTE : ONE SECTOR IS 256 OR >1ØØ BYTES LONG.

>835Ø -- 1 word value

This address contains the number of the sector on which you wish to perform the operation. The limits for this value are these :

```
Single Sided - Ø to 359
           or - >Ø to >167
Double Sided - Ø to 719
           or - >Ø to >2CF
```

>8356 -- 1 word value

This address must contain the address of your PAB in VDP. If you do not load this address then the DSR will not know where your PAB is in VDP and subsequently, which subroutine to execute.

PAB ---- The PAB may be located anywhere in VDP (>ØØØØ to >3FFE), however below >3ØØØ is recommended as the DSR uses VDP above this address.

The PAB

The PAB consists of 2 bytes, a length byte and a subroutine identification byte. The length byte is always >Ø1 as this specifies how many bytes proceed it and for sector read/write there is only ever one.

The second byte is a number between >1Ø and >16 (decimal 16 to 22) inclusive. This byte is the value which specifies the subroutine which the DSR is to execute. The subroutine we want is the sector read/write routine which is >1Ø (decimal 16). Therefore our PAB for reading and writing sectors is always going to be >Ø11Ø.

This PAB must ALWAYS be in VDP. Here is a sample program which will put your PAB into VDP.

```
        REF   VMBW

PABAD   EQU   >1ØØØ      Address of our
                         PAB in VDP.
PAB     DATA  >Ø11Ø     This is our PAB

START   LI    RØ,PABAD  Where we want
                         to put our PAB
                         in VDP.(>1ØØØ)
        LI    R1,PAB     Address of our
                         PAB to be put
                         into VDP.
        LI    R2,2       2 bytes to
                         write into VDP
        BLWP  @VMBW      Write bytes
                         into VDP.
        MOV   RØ,@>8356 Store VDP
                          address of
                          PAB (>1ØØØ)
                          at >8356.
```

The address >835Ø has two purposes. It holds the sector number before you perform the sector operation and the 1 byte error code after the operation. (eg) You load >835Ø with >ØØØ1 as the sector number and after the sector operation the value has changed to >ØØØØ. This means that no error has occurred. If, after any sector operation, the 1 byte value at >835Ø is NON-ZERO then a disk error has occurred. If the value is ZERO then NO error has occurred.

Now we can get down to business and write a program to read a sector. The following program is not visually spectacular but it DOES read a sector (I know because I tried it out before I put it in). The program will read sector zero into VDP and then it will end. Nothing spectacular for our first program, but we will get more complex as the series progresses.

```
        DEF   START
        REF   VMBW,DSRLNK

PABAD   EQU   >F8Ø
VDPAD   EQU   >1ØØØ

PAB     DATA >Ø11Ø
SAVRTN  DATA >ØØØØ

DRV#1   BYTE >Ø1
READ    BYTE >FF
        EVEN

START   MOV   R11,@SAVRTN
        LI    RØ,PABAD
        MOV   RØ,@>8356
        LI    R1,PAB
        LI    R2,2
        BLWP @VMBW
        MOVB @DRV#1,@>834C
        MOVB @READ,@>834D
        LI    RØ,VDPAD
        MOV   RØ,@>834E
        CLR   RØ
        MOV   RØ,@>835Ø
        BLWP @DSRLNK
        DATA >ØØØA
        MOV   @SAVRTN,R11
        B     *R11
        END
```

NOTE : THIS PROGRAM DOES NO ERROR TRAPPING SO IT WILL FINISH PROPERLY EVEN IF AN OBVIOUS DISK ERROR HAS OCCURRED. THIS PROGRAM WILL BE EXPLAINED THOROUGHLY A.JD IMPROVED UPON IN THE NEXT ARTICLE.

Please tell me if this article has aroused interest within the group and if so we may be able to start a special group to work on sector access programs. (eg) Disk sector copiers, sector editors, disk cataloging programs.

Now, back to the homework,

Will McGovern

TESTING THE 32K EXPANSION

There are two procedures for testing the 32K after installing the RAM in the TI console.

The first procedure is the quicker of the two.This is to plug in the TI LOGO or MULTIPLAN module as either of these do there own check on the 32K and if in any way faulty the programme will not continue.

The second procedure is a short listing which can be used to test the 32K.The idea of the test is to place a number in each address ,then read that address and compare the input number to the number read.If there is a difference (meaning an error) the address will be printed on the screen.The test will run FOUR different numbers so as to check all combination of BINARY numbers.

E.G.

TEST NO.	BINARY NUMBER
0	00000000
85	01010101
170	10101010
255	11111111

```
100 CALL CLEAR :: CALL INIT
110 FOR I=1 TO 4 :: READ Z ::
    PRINT "NOW TESTING";Z
120 FOR J=8200 TO 16383 :: CALL
    LOAD(J,Z):: CALL PEEK(J,X):: IF
    X<.Z THEN PRINT "ERROR AT";J
130 NEXT J
140 FOR J=-24576 TO -1 :: CALL
    LOAD(J,Z):: CALL PEEK(J,X):: IF
    X<.Z THEN PRINT "ERROR AT";J
150 NEXT J :: NEXT I :: DISPLAY
    BEEP:"TEST OF 32K COMPLETED"
160 DATA 0,85,170,255
```

WARNING ; —
The programme takes approximately 22 minutes to run thru each number,so an ideal time to do this is during the Sunday night movie.Just set and forget for at least 90 minutes.

Gary Jones

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```
1370 FOR I=1 TO 3
1380 CALL SOUND(200,550,2)
1390 CALL SOUND
1400 NEXT I
1410 CALL HCHAR
1420 CALL HCHAR
1430 GOTO 1870
1440 TOTAL=TOTAl
145
146
147
148Ø CALL SOUND(2ØØ,44Ø,2)
149Ø CALL HCHAR(17,23,51)
15ØØ CALL HCHAR(17,24,48)
151Ø GOTO 187Ø
```

```
189Ø CALL HCHAR(19,22+I,ASC(
SEG$(STR$(TOTAL),I,1)))
 TO LEN(STR$(PLA
HAR(21,22+I,ASC(
AYS),I,1)))
197Ø IF K=78 THEN 112Ø
198Ø IF K<>83 THEN 194Ø
199Ø CALL CLEAR
2ØØØ END
```

EXPLORING BASIC WITH THE H. V. 99ERS BASIC GROUP

This article written as a combined project by the basic group is hopefully to be a regular column in our magazine. We are looking at involveing other members of the club who are unable to attend the meetings but still could do with a bit of assistance from our group. What we propose is to submit a couple of basic problems and our solutions to them, as well as a unsolved problem which we hope will get some response from other members outside the group. The best solution sent will then go into the following magazine as the answer to that problem. So we hope you will take up the challenge and help this project work, and if you live out of town or overseas we would especially like to hear from you as you are not fortunate enough to be able to get the benefit of the meetings. You can send input to this address:

ALAN FRANKS
C/O THE SECRETARY
HV99 USER GROUP
6 ARCOT CLOSE,
TARRO 2322

The following two examples are the type of questions we will be presenting over the next few months.

EXAMPLE 1 :

```
1Ø CALL CLEAR
2Ø INPUT X,Y
3Ø
4Ø
5Ø
6Ø PRINT X,Y
```

Line 2Ø calls for two numeric inputs X and Y , Line 6Ø prints the contents of X and Y to the screen. Supply the three program lines to interchange X and Y before they are printed in line 6Ø.

SOLUTION 1 :

```
1Ø CALL CLEAR
2Ø INPUT X,Y
3Ø LET TEMP=X
4Ø LET X=Y
5Ø LET Y=TEMP
6Ø PRINT X,Y
```

EXAMPLE 2 :

Write a short program to add all the whole numbers between 1 and 1ØØ inclusive and print the sum.

SOLUTION 2 :

```
1Ø CALL CLEAR
2Ø LET A=Ø
3Ø LET A=A+1
4Ø IF A <= 99 THEN 3Ø
5Ø PRINT A
```

Now here is the first problem for you to try.

PROBLEM 1-1 :

Write a program to print the number pattern below useing standard column spaceing.

```
Ø          2
4          6
8              to 5Ø and stop
```

CONT→

Finally we would like anyone who wants to send us a problem to get our teeth into to please feel free to do so. Also anything at all that you think would be of interest to the the Group for the magazine would be greatly appreciated.

Thank you.

A.Franks.

MEMBERS DETAILS

Could members that may have changed address or would like inacuracies in their postal details (name spelt wrong etc.) corrected please contact me during this month as our mailing list details are being refurbished.

As well as this if any member has missed any issues of the newsletter let me know the details , so that I can fix this up for you.

Albert.
****

MISSING PERSONS

Ringwood - NJ., USA.
While I'm on the subject of missing persons could ELLEN KRAMER please write with reference to the letter about the money that you have sent HV99.

~~~~~~~~~~~~~~~~~~

Edwards Hall-NEWCASTLE UNIVERSITY

Could JOHN DIXON of this previous address please contact me with your new address as the newsletters I assume are not getting to you.

Albert Anderson,
Secretary.

CALLING COBAR N.S.W.

A very pleasant lady that we met at the FAIR must have had a good time because after buying a pile of goods from us, she unknowingly went and left it all at the front door.

We all had a great chat to her and enjoyed every minute of it, but do you think between the 4 of us we could get any detail on who she was? No! All we could manage is that we agreed that she was from somewhere near COBAR, NSW. Great! now how do we get this pile of goodies to her? A look on the map shows COBAR nowhere near Newcastle and not exactly on our way home from Melbourne.

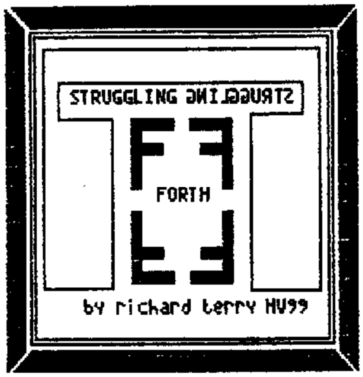
To the rescue comes Robin Bell (Melbourne group) as by some means the lady from COBAR contacted him, he contacted us and now with the help of Australia Post the pleasant lady from COBAR will finally get what she went all the way to Melbourne to get:- TI-99/4A paraphenalia from HV99 and all the other user groups at the Melbourne FAIR.

So hello again to BEV WARREN. Hope to hear from you soon - HV99

WANTED

If you have a copy of Microsoft MULTIPLAN that you no longer use, please ring Alan Franks on (049) 459170, as he is after it.

Ron Kleinschafer is after a RS232 card. Please see his letter "RON WRITES" for details.
~~~~~~~~~~~~~~~~~~



Something quick and simple this month, as to be truthful I havn't done any computing at all since the last article, let alone any Forth. Something to do with the pressures of the end of financial year perhaps.

No-one ever seems to have liked the orginal TI character set. I can remember when I first bought a TI994a and was proudly showing it off to my computing friends they knocked it severely on many counts,all of which they've had to eat their words, except the lousy character set. We've always hankered after something vaguely reminiscent of ordinary writing with decenders or even pseudo descenders. This month I've snaffled the character codes for you to jazz up you programs a little and make them more visually pleasing.

RE-VAMPED CHARACTER SET.

Contrary to what your not thinking, although I'd like you to think I was conscientious enough to spend days sitting down working them out from first principles, I knicked these from another program in a manner I will describe below.

ASCII CODES.

Not to insult your intelligence, but for the uninitiated, all the characters you use or see on the screen have corresponding numbers to enable easy identification and usage. If we all stick to the same codes Eg capital A = ascii 65(hex41) we can all communicate correctly. One does not have to stick religiously to the suggested correlations, in fact it is sometimes useful to switch them round. Certainly when we make up our own new characters we can allocate them to any ascii number providing we keep track of them and don't rub out existing letters etc we still want. Our conversion to fancier looking characters today will only involve codes 33 through to 126 which contains all the common ones you will ever use, all the numbers and large and small letters.

WHERE DO THEY RESIDE?

If my understanding is correct, and this is only a guess, the entire character set is contained permanently in ROM within the console, ie they are instantly available after power up routines are carried out automatically by the computer when you switch it on. If you don't like their format, as we don't today then one can access and change them after power up.

USING THE CHARPAT COMMAND.

Before reading this refer to the Basic Users Reference Guide Appendix III-5 which contains the pattern identifier conversion table. We can use this to re-construct new characters of our choosing.

The CHARPAT command preceded by the ascii coding of the character you choose, leaves on the stack four number groups which correspond to the pattern of this character.It is easier to work in HEX with these:

Eg type HEX 41 CHARPAT then enter.

then type CR . CR . CR . CR .

This is what we obtain:

```
4400
4444
447C
3844
```

This is the character pattern for the letter large A.

BUILDING A PROGRAM FOR ALL CODES.

Before getting down to tintacks here's the task we set ourselves.I

am assuming you have a Forth program which already contains a different format of letters etc you wish to obtain the codes of. If not perusing this program will still be of benefit. Type all the code contained on screens 1Ø,11, 12 13 onto a spare disk. By either switching off the computer or using MON to get back to the title screen boot the disk with the charactêr codes you wish to snaffle. Typing cold alone will not always reset the character set.
Next load screens 1Ø through 13 and ensure your printer is connected.
For those of you without a printer you can still obtain the codes by modifying SCR# 13 to eliminate the SWCH and UNSWCH commands and inserting a CONTINUE(see scr#15) in an appropriate spot to stop it scrolling to quickly off the screen.

Next choose the range of characters you wish to find the codings of. For example for small letters only type:

97 122 SNAFFLE and watch them pour out to the printer/terminal.

To obtain all the displayable characters as I have done type:

33 126 SNAFFLE.

HOW IT WORKS.

Fairly straight forwardly.

First look at scr#13.
SNAFFLE does all the work. It expects a FROM ASCII character code and a TO ASCII character code on the stack.

HEADING :writes up the appropriate headings.

HEX-CODE:puts in the correct spacing to make it readable and then uses the loop index combined with the CHARPAT command to leave the four patterns on the stack.

->PRINTER:re-orders them correctly and pushes them out to the printer (or screen if you desire)

An aside here.For some reason I don't understand the coding for character # 96 or HEX 6Ø comes out incorrectly as:

2Ø1Ø 8ØØØ Ø Ø instead of
2Ø1Ø Ø8ØØ Ø Ø

which worries me a little as it displays alright in the program I nicked it from. Perhaps there is a fundamental misunderstanding in what I am doing here. If so PLEASE let me know!!!.

Once you've got all your desired codes on the stack you've then got to deposit them as screen code. There are two ways to do this, one neuronally intensive the other labour intensive.

Taking the cretin's way out I decided on the labour intensive method. As business was slack that particular afternoon I enticed my secretary into the computer room (with noble intentions only) and gave her the list produced by SNAFFLE and as she read the codes one by one I typed them onto a Forth Screen as listed herein. Saved heaps of time and a sore neck!!!

If you want to be really smart and have the time, you can write a routine which takes the codes off the stack as they are placed there and deposit them into one of the buffer areas and by updating the appropriate flags FLUSH them to disk and then re-edit the code.

USING THESE CODES IN A PROGRAM.

Very quickly there are a couple of ways to do this. As they are only available after booting one could at the start of your program sequentially loal the screens containing the characters you want. This method is slower but will not take up any space in your dictionary. If your program is short enough and you have plenty of dictionary space you could place the lot in a definition. For Example:

: NEWCODES .... ;

where NEWCODES is followed by whichever re-coded characters you choose and the screens to be compiled are linked by the --> word. (ie continue compilation on next screen). This way, when you save your program using BSAVE and reload using BLOAD it will be instantly in your dictionary and including the word NEWCODES on starting your new program will change the character set.

DEMONSTRATION PROGRAM.

To show you that it does work I've written a little demonstration. Type the source code of screens 14 and 15 and FLUSH them to disk. Follow the following sequence:

1.Turn off the machine/or Mon to the title screen.
2.Re-insert a disk you know will not change the standard Ti-character set such as your master disk.
3.Boot the system.
4.Type EMPTY-BUFFERS.
5.Insert the new disk you have saved screens 6 through 15.
6.Type 15 load. This loads the words for the demonstration program.
7.Type GO
8.Sit back and watch the screen carefully. If it doesn' work you've done something wrong, as I've tested it myself.

That's all for this month. As I've so many things on my plate at the moment I may have to go into winter recess, so all you budding Forth writers out there can continue the column.

ADDRESS FOR CORRESPONDENCE:

R.F.TERRY
141 DUDLEY RD
WHITEBRIDGE 229Ø
NSW AUSTRALIA
PHONE:(Ø49) 436861 A/H Ø49) 2245Ø.

```
SCR #6
( HEX CODES - fancy letters 33->58)
HEX     : CH CHAR ;
1010 1010 1000 1000 21 CH ( !)    0    0   30 3000 2E CH ( .)
2828 2800    0    0 22 CH ( ")    4  810 2040    C 2F CH ( /)
2828 7C28 7C28 2800 23 CH ( #) 3844 4444 4444 3800 30 CH ( 0)
3854 5038 1454 3800 24 CH ( $) 1030 1010 1010 3800 31 CH ( 1)
6064  810 204C  C00 25 CH ( %) 3844  408 1020 7C00 32 CH ( 2)
2050 5020 5448 3400 26 CH ( &) 3844  418  444 3800 33 CH ( 3)
 808 1000    0    0 27 CH ( ')  818 2848 7C08  800 34 CH ( 4)
 810 2020 2010  800 28 CH ( () 7C40 7804  444 3800 35 CH ( 5)
2010  808  810 2000 29 CH (  ) 1820 4078 4444 3800 36 CH ( 6)
  28 107C 1028    0 2A CH ( *) 7C04  810 2020 2000 37 CH ( 7)
  10 107C 1010    0 2B CH ( +) 3844 4438 4444 3800 38 CH ( 8)
   0    0 3010 2000 2C CH ( ,) 3844 443C  408 3000 39 CH ( 9)
   0   7C    0    0 2D CH ( -)   30 3000 3030    0 3A CH ( :)
DECIMAL
```

```
SCR #7
  0 ( HEX CODES - fancy letters:59->64,91->96,123->126)
  1 HEX
  2   30 3000 3010 2000 3B CH ( ;)   10 2844    0    0 5E CH ( ^)
  3  810 2040 2010  800 3C CH ( <)    0    0    0 7C00 5F CH ( _)
  4    0 7C00 7C00    0 3D CH ( =) 2010 0800    0    0 60 CH ( `)
  5 2010  804  810 2000 3E CH ( >)
  6 3844  408 1000 1000 3F CH ( ?)
  7 3844 5C54 5C40 3800 40 CH ( @)
  8 1820 2040 2020 1800 7B CH ( {)
  9 1010 1000 1010 1000 7C CH ( |)
 10 3008  804  808 3000 7D CH ( })
 11    0 2054  800    0 7E CH ( ~)
 12 3820 2020 2020 3800 5B CH ( [)
 13   40 2010  804    0 5C CH ( \)
 14 3808  808  808 3800 5D CH ( ])
 15 DECIMAL

SCR #8
  0 ( HEX CODES - fancy letters upper case)
  1 HEX
  2 3844 447C 4444 4400 41 CH ( A) 4464 6454 4C4C 4400 4E CH ( N)
  3 7824 2438 2424 7800 42 CH ( B) 7C44 4444 4444 7C00 4F CH ( O)
  4 3844 4040 4044 3800 43 CH ( C) 7844 4478 4040 4000 50 CH ( P)
  5 7824 2424 2424 7800 44 CH ( D) 3844 4444 5448 3400 51 CH ( Q)
  6 7C40 4078 4040 7C00 45 CH ( E) 7844 4478 5048 4400 52 CH ( R)
  7 7C40 4078 4040 4000 46 CH ( F) 3844 4038  444 3800 53 CH ( S)
  8 3C40 405C 4444 3800 47 CH ( G) 7C10 1010 1010 1000 54 CH ( T)
  9 4444 447C 4444 4400 48 CH ( H) 4444 4444 4444 3800 55 CH ( U)
 10 7C10 1010 1010 3800 49 CH ( I) 4444 4428 2810 1000 56 CH ( V)
 11  404  404  444 3800 4A CH ( J) 4444 4454 5454 2800 57 CH ( W)
 12 4448 5060 5048 4400 4B CH ( K) 4444 2810 2844 4400 58 CH ( X)
 13 4040 4040 4040 7C00 4C CH ( L) 4444 2810 1010 1000 59 CH ( Y)
 14 446C 5454 4444 4400 4D CH ( M) 7C04  810 2040 7C00 5A CH ( Z)
 15 DECIMAL


SCR #9
  0 ( HEX CODES - fancy letters lower case)
  1 HEX
  2    0 3008 3848 7400 61 CH ( a)     0 5824 2424 2400 6E CH ( n)
  3 6020 3824 2424 7800 62 CH ( b)     0 3844 4444 3800 6F CH ( o)
  4    0 3844 4044 3800 63 CH ( c)     0 7824 2438 2020 70 CH ( p)
  5  C08 3848 4848 3C00 64 CH ( d)     0 3048 4838  80C 71 CH ( q)
  6    0 3844 7C40 3800 65 CH ( e)     0 5824 2020 2000 72 CH ( r)
  7 1824 2070 2020 2000 66 CH ( f)     0 3C40 3804 7800 73 CH ( s)
  8    0 3C44 443C  438 67 CH ( g)  2020 7820 2024 1800 74 CH ( t)
  9 6020 2834 2424 2400 68 CH ( h)     0 4848 4848 3400 75 CH ( u)
 10 1000 7010 1010 7C00 69 CH ( i)     0 4444 2828 1000 76 CH ( v)
 11  800 1808  848 4830 6A CH ( j)    0 -2BAC 5454 2800 77 CH ( w)
 12 2020 2428 3028 2400 6B CH ( k)     0 4428 1028 4400 78 CH ( x)
 13 3010 1010 1010 7C00 6C CH ( l)     0 4444 443C  418 79 CH ( y)
 14    0 -57AC 5454 5400 6D CH ( m)    0 7C48 1024 7C00 7A CH ( z)
 15 DECIMAL
```

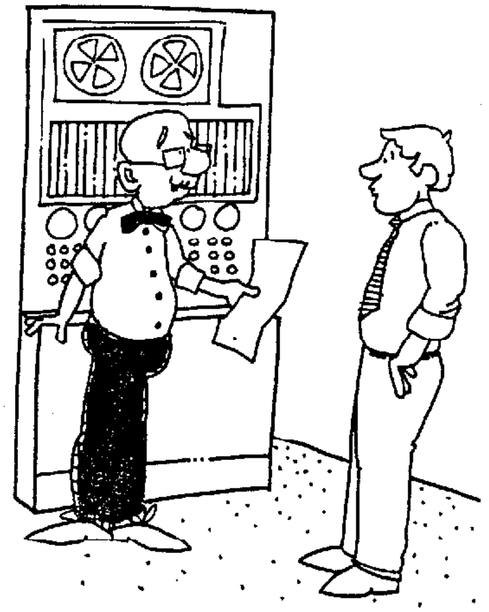
```
SCR #10
  0 ( SNAFFLING ASCII CODES)
  1
  2 HEX 800 CONSTANT PDT
  3
  4 : CHARPAT  8 * PDT + PAD 8 VMBR 8 0
  5            DO    PAD 1 + @ Z
  6            +LOOP
  7            ;
  8
  9 DECIMAL
 10
 11
 12
 13
 14
 15

SCR #11
  0 ( SNAFFLING ASCII CODES )
  1
  2 : HEADING     ." CHAR  DEC HEX  HEXADECIMAL CODING"   CR
  3              ." -----------------------------------" CR ;
  4
  5 : ->PRINTER                      ( expects n1 n2 n3 n4 on stack    )
  6              >R >R >R            ( top three  to return stack      )
  7              . 1 SPACES          ( print first  group              )
  8              R>
  9              . 1 SPACES          ( print second group              )
 10              R>
 11              . 1 SPACES          ( print third  group              )
 12              R>
 13              .                   ( print fourth group              )
 14              CR                  ( push last to paper!!!!          )
 15              ;                   ( leaves nothing on stack         )


SCR #12
  0 : ?HEX-CODE                      ( expects lower,upper number      )
  1               1+ SWAP            ( inc top limit,lower to top      )
  2               DO                 ( start loop                      )
  3                 DECIMAL          ( base to decimal                 )
  4                 1 SPACES         ( 1 space to right                )
  5                 I EMIT           ( print letter first              )
  6                 4 SPACES         ( tab 2 spaces to right           )
  7                 I .              ( print decimal ascii code        )
  8                 1 SPACES         ( tab 3 spaces to right           )
  9                 HEX              ( change base to hexadecimal      )
 10                 I . 2 SPACES     ( print character code in hex     )
 11                 I CHARPAT        ( place pattern code on stack     )
 12                   ->PRINTER      ( output to  printer              )
 13               LOOP               ( end of loop                     )
 14               CR                 ( perform carriage return         )
 15               ;                  ( leaves nothing on stack         )
```

```
SCR #13



 : SNAFFLE                            ( expects to letter from letter)
                SWCH                  ( output to printer             )
                HEADING               ( column headings               )
                @HEX-CODE             ( work out character patterns   )
                UNSWCH                ( turn off output to printer    )
                DECIMAL
                ;                     ( leaves nothing on stack       )
```

```
SCR #14
    DEMONSTRATION SCREEN.
    ---------------------

 Watch carefully because you are about
 to see some changes around here:



 If your ASCII-snaffle was successful
 its magic will now unfold before your
 eyes on this screen, as all your ascii
 codes are pulled up into a more
 visually pleasing form.
```

```
SCR #15
 : LOADCODES   10 6 DO I LOAD LOOP ;
 : CONTINUE    BEGIN ?KEY 32 = UNTIL ;
 : .IT         DO I MESSAGE CR LOOP ;
 : .ASCII      127 33
               DO I EMIT LOOP ;

 : .MESSAGE    CLS 0 0 GOTOXY
               165 160 .IT
               CR CR CR
               .ASCII
               CR CR CR
               176 169 .IT CR CR ;

 : GO          .MESSAGE
               ." Press space bar to start/finish"
               CONTINUE LOADCODES CONTINUE ;
```

THE ORPHAN
LIVES ON



What do you mean my computer is obsolete?
My father and grandfather didn't think so.

THE INFORMATION PAGE

COMING EVENTS

Next Committee meeting: Tuesday, 5th August at 6.45pm
Next General meeting: Tuesday, 12th August at 7.00pm

AGENDA for AUGUST GENERAL MEETING

Customizing options on FUNLWRITER, by Tony McGovern
Monthly disk/tape demonstration

GARY JONES' EXTENDED BASIC GROUP

Sprites

AL WRIGHT'S BASIC GROUP

Loops (Branching, For...Next)

All meetings are held at the Warners Bay High School

Annual subscriptions to the Group cover the period 1st July to 30th June following year.

People interested in joining our Group are asked to contact:

The Secretary,
Hunter Valley 99'ers Users Group,
6 Arcot Close,
TARRO. N.S.W. 2322
AUSTRALIA
phone (049)662602

The annual subscription is as follows:
Residents of Australia...$20
Overseas residents.......$40 (Airmail)
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