

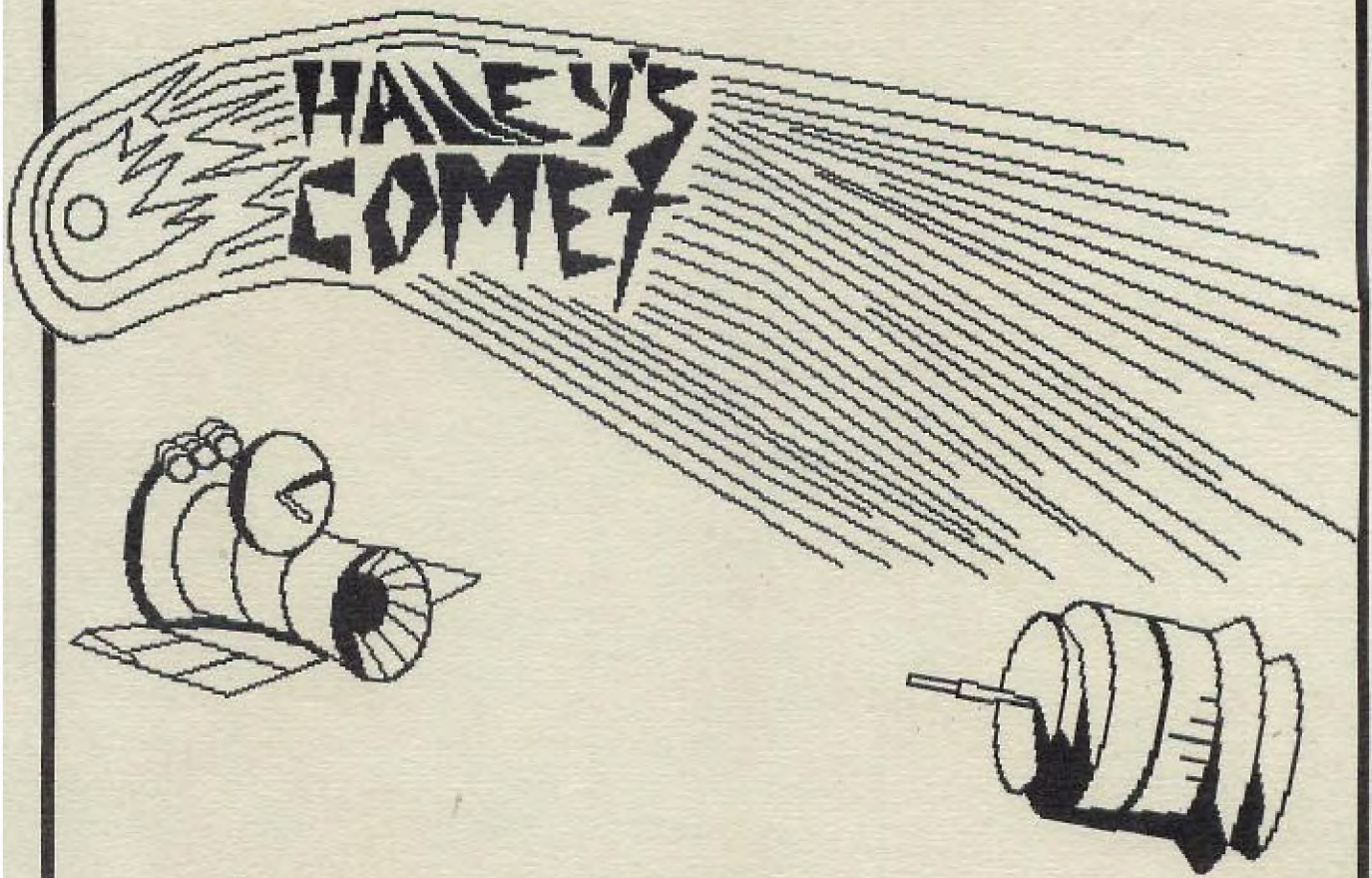
SYDNEY NEWS DICEST

APRIL

PO BOX 149
PENNANT HILLS
N.S.W. 2120

1986

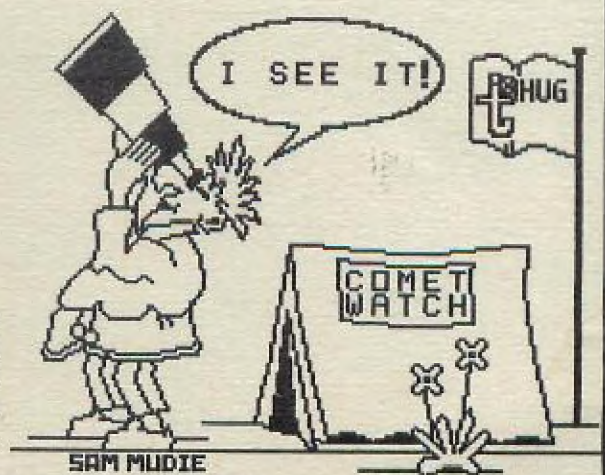
11/2/86



EDMOND HALLEY



Once in a lifetime the earth is paid a passing visit by Halley's Comet. For the 1986 visit 6 unmanned spacecraft will be sent to learn more of this passing phenomenon.



SAM MUDIE

SECRETARY'S NOTES with J.R.

Hi!

First I must correct some goofs... I omitted to include Keir Wells in the list of committee members who were elected at the 4th Annual General Meeting. Keir was elected unopposed as the Advertising Executive. However at the February committee meeting this position was incorporated with the new Merchandise Co-Ordinator position and Keir was appointed Assistant Editor.

It was recommended that with our change to a company the name of the organisation be changed to reflect the National status of our group now that we attract members from all states and territories. The Australian National TI Club has been suggested. We would like some ideas for a new name so you are all invited to send in your ideas or place them on the BBS before the end of April.

The membership fee and subscription rate was also discussed with changes to be announced in next month's edition of the SND. These changes will be made to reflect the increasing costs associated with the production of the SND and the cost of providing an improved service to members. All subscriptions will in future be renewed on the same date Namely May 1st.

In the Techotime column I had passed the name Reg Boyle on to Robert. Reg was credited with the VHF/UHF modulator modification. The credit should have gone to John Dartnell as mentioned in my November column.

As I write this I have just received a call from the Editor telling me he is holding the printing up one week so I can report on the PC86 and he can get rid of his bout of influenza.

MEMBERS WRITE:

S.J.Nichols, District Soil Conservationist with The Soil Conservation Service of the NSW Government at Narrandera writes to tell us that he is compiling a listing of Educational Computer Programmes with an "Environmental" theme. If any members are aware of some suitable programs please let me know how much you want to sell them to the SCS.

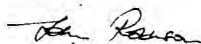
Barrie Stevenson would like to see more detail of club software, being offered each month. He says there has only been the sketchiest listing of their contents and in some cases no information at all. Brian your letter will be discussed at the next Committee meeting. The main reason I publish this letter is it demonstrates grass roots feedback to the Committee and makes us aware of the needs of the membership.

Eric Whelan has some bouquets: Congratulations on the statements and Balance Sheet, obviously the club has been well managed. Congratulations also to everyone who helps to produce SND. It is excellent.

Dennis Norman is one of our members who was able to find five new members during the membership drive we had last October. He writes "that all these new members are working with home-made expansion systems. This includes building an interface cable and expansion box to take the expansion boards and modifying some cheap Panasonic JB-3000 series disk drives to run the system. John Dartnell will write up about this work in more detail." Dennis I hope you will provide the information promised soon so that those members yearning for a PE box will be able to solve their problems.

I had intended to discuss the features of OTC'S Electronic mail/Telex system in this issue but will leave this to next month after I have completed my training session.

Happy Computing the TI way,



John L. Robinson. - Secretary.

STOP PRESS.....STOP PRESS

PC86 COMPUTER SHOW REPORT

First our special thanks to the following club members who manned the stand:

Dennis Norman	- Shane Andersen
Terry Phillips	- Ross Mudie
Graeme Hollis	- Graeme Dunlop
Lou Newhouse	- Peter King
Peter Schubert	- M.J. Mable
Ray Brown	- Ben Von Takach
Daniel Harris	- Ross Cox
Maurice Stewartson	- Antony Beuermann
Gerry Lee	- Peter Watts
Brian Grinter	- Alex Exton
Shannon Nash	- Alex McMillan
Fred Morris	- Stephen Carr.



The stand was well attended throughout the show and many of our country members came to see us. They saw demonstrated some of the latest software loaded from disk and tape. A lot of interest was shown by members with only the basic console, who saw how easy it was to add the 32K expansion memory and be able to run machine coded programs from a cassette recorder. Previous members who had placed their machine in a closet for months have decided to get it out and add the extra memory.

We received many inquiries from non TI owners for Peter Schubert's Thunderer modem which was on special at \$185. This modem exceeds Telecom's design specifications and with all the noise around the phone lines in a busy exhibition environment they never once dropped a character, unlike my Dick Smith modem. These stand alone modems can access 1200/75 baud Viatel type systems as well as the conventional 300 baud systems.

I was particularly impressed with Robert Crago's black and white Viatel software used with Minimemory and a tape system. I was however disappointed with the diskbased colour Viatel software, which runs very slowly and does not take advantage of the 1200 baud speed. I won't buy this software until it is improved. I would want a much faster speed to match Telecom's ICL PC terminal. Also the ability to dump to a printer in graphics mode, and be compatible with other 1200/75 and 1200/1200 systems. Our thanks to Telecom for giving us a free account to demonstrate Viatel during the show.

We also demonstrated a diskbased Editor Assembler and the Hunter Valley's User Group's FUNLWRITER program Version 3.0.

Sales of Micropendium were brisk but unfortunately we were unable to take delivery of the February issue in time for the show. Sales of the back issues of the Home Computer magazine were slow so we decided to sell some of them to the ATARI, COMMODORE and APPLE User's, who were in attendance at the show.

We also demonstrated alternative terminal programs to the TE2 namely 4A-TALK and PTERM. I will be reviewing the PTERM program after I have had a chance to put it through its paces. My initial reaction is that it needs some improvements. Bernie Elsner's special program to convert DIS/VAR 80 files to be compatible with the TE2 LOGON file format was also demonstrated. With this conversion it is possible to send a TI-WRITER file to a database or Electronic mail system very efficiently and therefore minimise your access time. Now that OTC is increasing the hourly rate for Minerva to \$25/hour from \$15/hour this becomes a very important issue. It also means that those of you using the MESSAGE system on our own BBS will be able to send fully edited messages very quickly.

Another system demonstrated was OTC's Electronic Mail system called MINERVA. Our overseas readers may be more familiar with the DIALCOM system (United Kingdom, USA, Hong Kong, Korea, Puerto Rico) or INFOTEX (Canada) TELEBOX (West Germany, Singapore), GOLDNET (Israel) or DPT DATABOKS (Denmark). All these networks are accessible through Minerva.

by JOHN ROBINSON.



TI-99/4A Home Computer. The System. The Software. **WHAT NOW?**

YOU HAVEN'T BEEN ABANDONED

by Steven Shraibman.

SHOPPING WITH STEVE .. TI BLUES

Feeling a lack of fulfillment and pleasure from my trusty 4A I decided it was time to get something new and exciting for my computer to bring me out of the doldrums.

Quickly springing into action, I grabbed my Tennex Express and Tex-Comp catalogues. Wading through the flashy game ads and superfluous programs that do nothing in sixteen colours with twenty four sprites I finally came to a decision. I would order Super Sketch for the grand sum of US\$49.95 from Tennex Express. For those of you unfamiliar with this product it is a graphics tablet, or in English a big board which reproduces your drawings (or attempted drawings) on the computer using a Graphx-like program.

American Express card in hand and hip pocket nerve twitching I filled in the order form with meticulous care. Once done, I filled in any remaining space with the words "air mail" so as not to cause any doubts at the other end. I stamped the envelope and put it in the hands of Australia Post.

Having had previous experience with mail order catalogues I put all my hopes of receiving my Super Sketch in a matter of weeks aside and forgot the whole thing.

Some five weeks later, on a Friday afternoon, I noticed a large white envelope sticking out of my letter box. By some strange phenomenon I happened to recall that my previous Tennex Express catalogue came in a similar envelope. Then a logical thought struck me: How are they going to stick a Super Sketch in a large envelope?

Within seconds I was sitting on the lounge and examining the contents of the envelope. The first thing I pulled out was a new catalogue which, at that moment, did not terribly excite me.

The other thing I found in the envelope was a form letter. To put it briefly, the letter said that "Item discontinued by manufacturer".

At about this point I got very disheartened. Being an optimistic kind of a guy I decided that some good would come out of this episode. And so I decided to write this article.

By now you are probably saying to yourselves, "What is this article meant to say?" Maybe this is because I've taken along time to say nothing. Well, in fact, this article is supposed to take you on a guided tour of the new Tennex catalogue. So here goes:

We begin on the cover. This has a large computer-drawn TI 99/4A beige model (not done on the TI by the way) with the title: TI-99/4A: THE EVERYTHING BOOK For The Texas Instruments 99/4A Home Computer, a nice hi-tech background and assorted information. The inside front cover has the usual cheery message by Roger B. Dooley, president of Tennex.

(During the course of this article I will go into some of the new soft/hardware for the TI that some people would not have heard of. Prices are in US\$.)

The first page has an ad by Cor Comp Inc. for their Peripheral Diagnostics Module which runs test on stand alone and card RS232s, 32Ks and disk controllers and drives (\$25.95).

I must mention that someone has gone through this catalogue with a pen crossing out numerous products such as mini-memory and the Parker Brothers Games (Frogger, Q*Bert and Popeye).

On the next page we have assorted TI, Milton Bradley and Imagic games going for \$5, \$6 and \$8. On the next page we have TI Writer AND Multiplan both for \$69.95, Speech Synthesizers for \$79.95, TELI for \$19.95 and TI Logo II for \$29.95.

The next two pages are devoted to third party games (down from 7 in the previous catalogue) most of which are over two years old. Gone is Atarisoft, Miner 2049er, Espial and Norton are "closing out".

Of the new games there is TI-RUNNER, as in Load Runner for the Apple (\$22.95) and Night Mission by Milton Bradley. This is a multi screen helicopter game written in XB (\$17.95).

One bold title that caught my eye was "PINBALL CONSTRUCTION". A friend of mine has the Apple and that program is pretty good, however, the article went on to talk about Gravity Master (\$15.95). This is a Donkey Kong type game where you can build your own screens and games. It is not half as good as Pinball Construction.

Next is two pages of Adventure/Fantasy games. One page of Infocom, half a page of new games for the Adventure Cartridge (still available for \$7.95) and a bit for the rest.

Next is a page of all other type games (strategy, board etc.) with one new title and several old ones gone.

Then comes four pages of education programs and a page of special interest programs, mainly unchanged from the previous catalogue.

So far we have covered about one third of the magazine. The next two thirds have improved. These are the utilities and hardware section.

The Home/Business Management section has several new applications.

Typewriter is an XB word processor (no need for 32K) for \$27.95 cas. or \$29.95 disk.

A new utility by Dragon Slayer (producers of Auto Spell-Check for TI Writer, \$34.95) allows you to confidentially padlock TI Write files (\$24.95).

Mini Writer III is a fully featured word processor cartridge needing only the bare console. It includes its own parallel output port for a printer (\$79.95 + \$19.95 for parallel cable). Mini Writer two is identical but excludes the parallel port (\$39.95).

A page of programming languages includes 9900 Basic which allows you to write assembly language programs using similar commands and syntaxes to XB (\$42.95).

Here we come to the utilities. These include 5 graphics design programs (\$15 to \$70), three screen dump program (\$10.95 to \$25.95) and three disk fixers (\$24.95 to \$33.95).

An interesting program is Expanded Graphics Basic which is an assembly language utility that adds 40 new hi-res graphics commands to XB. These included lines, circles, boxes, colours and screen dumps (\$44.95).

For modem users there's 4/A Talk for \$19.95 and for IBM users an IBM program to connect a PC to any other computer (\$59.95 + \$24.95 for TI-IBM cable, or make your own). Advanced Diagnostics is and extremely powerful utility by Miller's Graphics that goes beyond the scope of your average disk fixer. For \$17.95 its well worth the money for all you hackers.

Quality 99 Software has a two page spread with tonnes of new stuff. An Assembler for TI Writer (\$9.95), XB-FORTH to load forth in XB (\$9.95), QS-XREF to cross reference variable names in XB (\$19.95) (a similar program is available on freeware), QS-Converter to convert DIS/VAR 80 program listings to merge format (\$34.95) (this one is available public domain), a banner maker (\$17.95), DISK MANAGER IV, a resident disk manager (\$34.95) and SDUMP II, a fast resident screen dump (\$25.95).

However the best release from Quality 99 Software in my opinion is Softkeys (\$25.95). This program, when booted, lets you assign often used commands to control-number keys. Each can represent up to 140 characters. Commands like 'RUN "DSK1.LOAD"', 'LIST "PIO"' or 'CALL CLEAR'.

The next page is devoted to MicroPal Extended Basic. For \$69.95 you get TI's Extended Basic and manual, Typewriter word processor and Name-it data base.

Now we come to hardware. From Cor Comp Inc. we have the Micro expansion system for \$329.00, the stand alone 32K for \$119.95 and the stand alone clock/calender card for \$79.95. For the PEB we have the Triple Tech card for \$129.00, RS232 for \$89.95, 32K for \$109.95 and disk controller for \$159.95. Also we have a module adapter for the 1983 keyboards to let them run third party cartridges for \$27.95 and a Load Interrupt Switch to screen dump cartridges and perform other interesting applications for \$11.95.

Myarc has its own disk controller that includes both Disk Manager II and a disk based disk manager for \$169.95 and an RS232 card for \$89.95

However, their best peripheral is probably the 128K card. This card gives you your 32K meory expansion plus 96K to split between a printer buffer and a ram disk for \$199.00. For \$17.95 a power pack can be added so as to not erase the cards memory when the PEB is turned off. For an unmentioned price your 128K card can be upgraded to 512K and for \$69.95 you may purchase XB Level IV. This is TI's XB but only much faster and including 40 new graphics commands (plot, circle, fill etc.). This cartridge requires the 128K card. For \$249.00 you may buy both the 128K card and XB Level IV.

The following thirteen page are mainly concerned with hardware that can be used on other computers beside the TI.

These include: Double sided, double density, slimline drives for \$119.95, disks for \$0.79 each, printers from \$149.00, monitors from \$89.00, modems from \$69.95, joysticks from \$7.95 and assorted cables, cleaning products and adaptors.

Next follow some fifty books starting at \$3.25. Most are about the TI and all are relevant to computing. Two interesting ones in particular are the "Understanding..." series by TI and the "ComputerFacts" by Sams. The Understanding... series by TI is a set of ten books each at \$13.95 covering electronics and its applications. Titles include "Understanding Microprocessors", "Understanding Computer Science" and "Understanding Telephone Communications". The Sams books cover the internal workings of different computers and peripherals. These include the TI 99/4A, Epson and Gemini printers, Atari computers and Commodore computers, printers and monitors.

Coming to the final pages we have a very practical computer application; Home Control. The X-10 POWERHOUSE system is a very interesting way of controlling your home via computer through existing electrical wiring. As I understand, using the software you set up the main POWER HOUSE interface with all the switches (lights and power points) you are going to use with information about when to switch on, off or dim/brighten during each day. You then turn your computer off and the interface maintains the whole setup. Heres the catch... every switch you want to control must have a special X-10 interface. These come in three forms. Power point switches plug into the power point and the appliance plugs into it. A signal is then sent through the house's wiring to turn that switch on, off or to dim or brighten it. The second type of switch replaces standard wall switches such as lights and the third are thermostats. All together 256 switches may be controlled.

So how much does it cost? Well, you are looking at \$109.95 for the interface, \$49.95 for the software and cables from the computer, \$16.95 each for switches and \$49.95 for each thermostat. Also complication arise as to wether this will work with 240V.

The last page has a 64K printer buffer for \$99.95 and an add for Cannon photocopiers.

And so our tour ends. I hope I have not bored you and that you have found something of interest in this article.

Write to Tennex Computer Express. P.O. Box 6578, South Bend, IN. 46660, U.S.A. or phone 1-219-259-7051 for their catalogue and don't forget to mention you heard about them from TISHUG.

If you have any further questions just contact me via the editor, Shane Anderson...or on the TEXPAC BBS Username:SUS

TI FAIR Melbourne 14th JUNE '86



The first TI User Group's TI FAIR will be held in Melbourne, and the Melbourne TI User Group wishes to invite you to attend.

TI.S.H.U.G will have its own stand at the TI FAIR and we hope that as many members of this group can attend this very unique activity.

TI Melbourne User Group can accomodate our members who wish to come down and stay over the Friday/Saturday evenings.

If you are planning to attend, please write to us at TI FAIR, C/- P.O.Box 595, Marrickville, NSW 2204 Australia The fair will be officially opened by a well known Media personality and will be getting media coverage in Melbourne. This is one activity you won't want to miss.



PROTECTING YOUR COMPUTER AGAINST LIGHTNING SURGES. by Ross Mudie of TISHUG.

As a follow on to the item in John Robinson's Secretarial notes in the March 1986 SND, regarding lightning surge damage to computer equipment, I have found a Power Line Filter which is designed to protect against Lightning Surges on power mains under AUSTRALIAN conditions.

The filter which is manufactured by Component Resources Pty Ltd of Hobart, Tasmania, is specifically intended for protection against moderate lightning surges on the 240 volt mains. The company manufactures a range of protection devices; the filter suitable for small computers, such as the TI99/4A, is the PLF3/1 which is rated at a maximum load of 3 amperes.

The PLF3/1 is mounted in a rectangular plastic block approximately 120mm by 75mm by 60mm. It is fitted with a short mains cord and 3 pin plug. There is a 3 ampere fuse fitted in the unit (intended for protection against sustained overload rather than surges), a switch, neon power indicator and a normal 3 pin outlet socket. It is capable of 800 joules of energy diversion and has an 8000 ampere surge rating, making it suitable for most residential areas. For hilltop locations which have a high incidence of lightning activity (and usually long power mains), a filter of greater energy diversion capability may be required.

According to the manufacturer the PLF3/1 is widely used by Telecom Australia to protect the 240 volt mains powered Commander telephone equipment in high lightning risk areas.

The price of the PLF3/1 is \$134.64 including sales tax for one off quantities.

If your computer has a modem connected, the telephone line is another path for nasty surges to enter your modem and computer, regardless of aerial or underground line construction. A "level 3" protection device for telephone lines, type LSSGK, is available which includes gas arrestor, clamp tranzorb, series impedance and filtering. The LSSGK Telephone Line Protection unit has Telecom approval and the one off price is \$124.64 including sales tax.

The New South Wales distributor for the PLF3/1 Power Line Filter and the LSSGK Telephone Line Filter is the TRANZORB DIVISION of Flexible Automation Pty Ltd, 12 Cowper St, Granville N.S.W., phone 02 637 7155.

Regardless of the fact that I have a power line filter in the power connection to my own computer, I still UNPLUG the computer from both the power and telephone sockets if a severe storm is nearby.



HELP!

SITUATIONS VACANT or HELP WANTED

We are looking for members willing to assist the committee in the running of our User Group. The only qualification necessary is a capacity to undertake the assigned tasks and to see them to the end. A sense of humour plus a belief that your efforts are appreciated will enable the appointees to get by - what is more you may even enjoy the experience! Vacancies exist for the following:

A PUBLICATIONS LIBRARIAN

Reports to the Educational Co-Ordinator. Main responsibility is to maintain the library and action member library borrowing and/or returns plus suggest titles for purchase by the group. The side benefit is that you will get to read ALL overseas magazines before others. Phone Fred Morris - (02)871-3873.

4 SPECIAL INTEREST GROUP LEADERS

Report to the Educational Co-Ordinator. Main responsibility is to develop and present tutorials for members attending the monthly meetings. The subjects are your responsibility - you have a free hand. Major computing areas needing to be taught are X/B, E/A, FORTH and APPLICATIONS ie. Multiplan, Graphx, TI-Writer and Data Base. No real benefits other than the satisfaction of having helped another to learn and develop. Phone Fred Morris - (02)871-3873.

REGIONAL GROUP CO-ORDINATORS

Report to the Group Co-Ordinator. Main responsibility is to foster the club spirit in a specific locality. Maintain communication with members not able to attend the monthly meeting plus new member recruitment and renewals. A key role if we are to retain interest in our computer. Localities not well serviced include the North Shore, Hurstville/Cronulla/Miranda, Campbelltown and Blacktown. Phone Fred Morris - (02)871-3873.

DON'T DELAY - APPLY NOW!
oooooooooooooooooooo

FOR SALE <=====> FOR SALE

- TI Disk Controller Card \$95.00.
- Tunnels of Doom \$15.00.
- 99er Magazine Nov 82/83 \$ 5.00ea.
- Home Computer Magazines \$ 5.00ea.
- various other modules \$ P.O.A.

Phone Fred Morris - (02)871-3873

Face to Face



Group Co-Ordinator's report - April 1986.

Well, it seems that time really flies! The AGM over and now to tackle the issues at hand. Of the issues that need to be addressed, and urgently too, the following are to my mind the most important:

- 1.1 Falling membership
- 1.2 Lack of dealer support
- 1.3 The member need for more technical information.
- 1.4 and, the apparent lack of software support for our 99/4A.

Granted our computer has not been marketed for some 2.5 years now and obviously the dealer support has dwindled to the point that we now do not have any support at all. It is in this area of our activities that we will be directing a greater degree of energy. I'll explain a little later.

In order to tackle these issues I believed that we should, from a committee point of view, form up into teams with singular objectives and covering only one aspect of the groups activities. This is what we decided:

- 2.1 The committee shall comprise an executive of 8 elected members.
- 2.2 Assisting these executive members shall be groups of sub-committees - employed, so to speak, by the the Principal Committee member to tackle specific tasks.

To do this has the effect of placing responsibility directly in the hands of the elected committee member for him and HIS team to produce the necessary. Thus, the Executive committee now comprises the following positions:

- 3.1 Group Co-Ordinator - Responsible for meeting membership needs at all levels, development and support of the Regional Groups, relations with other Australian groups and International groups and other Public Relations. That's me!
- 3.2 Software Co-Ordinator - Responsible for encouraging the writing of locally produced software plus the distribution of the same, development of an effective software exchange program and development of special project software required by our members to meet a specific need. This is Terry Phillips.
- 3.3 Technical Co-Ordinator - Responsible for the development of an effective hardware support program which covers research and development of peripherals, maintenance, advice plus the development of special projects designed to meet specific member needs. This is Robert Peverill.
- 3.4 Merchandise Co-Ordinator - A new post responsible for the group's commercial activities. Sourcing and obtaining software, peripherals, general computing supplies as required by the members. Also responsible to generate advertising support for any such products. This is Chris Buttner.
- 3.5 Communications Co-Ordinator - Responsible for the production of the club newsletter, development of the BBS and production of other media used by the club. The task here is to improve the quality and effectiveness of the club communication whilst ensuring that the costs are minimised. This is Shane Andersen.
- 3.6 Education Co-Ordinator - Responsible to develop and co-ordinate the activities of Special Interest Groups, maintenance of the Publications library and the "Crisis Line". POSITION VACANT! URGENTLY REQUIRED - A PERSON WILLING TO ASSIST MEMBERS IN THEIR NEED FOR INFORMATION AND PERSONAL DEVELOPMENT. Contact me anytime!
- 3.7 The Treasurer - Responsible to develop the financial system and controls necessary to ensure our compliance with the provisions of the Company Code. This is Mel Copeland.
- 3.8 The Secretary - Responsible to ensure that the General Operations side of our activities is effectively administered plus other duties also associated with the Company Code. This is John Robinson.

3.9 All other elected members will be offered responsibilities associated with each of the above positions - on a sub-committee basis. In respect of each Co-Ordinator's function a POSITIONS VACANT advertisement will be placed in the SND - so PLEASE apply! You know why? Well, what we will be doing is asking for HELP!!!!

ISSUE 1. FALLING MEMBERSHIP.

In this respect the REGIONAL GROUPS can and must function to not only satisfy the social/communications aspect of belonging to the group but also generate local interest for non-members for the purpose of winning them over! A Regional Group leader therefore also has a responsibility for membership. Currently the following Regional Groups are active:

- BANKSTOWN - Phone David Mayo(02)708-4293
- CARLINGFORD - Phone Chris Buttner ... (02)871-7753
- CENTRAL COAST - Phone Russell Welham .(043) 92-4000
- GLEBE - Phone Mike Slattery ... (02)692-0559
- ILLAWARRA - Phone Geoff Trott(042) 29-6629
- LIVERPOOL - Phone Vincent Cerreto..(02)670-5304
- NORTH SHORE - Phone Keith de Haan ... (02)451-3032
- PENRITH - Phone Mel Copeland ... (047) 35-1340

If your area is not catered for then how about it? It seems that we are under represented in the Hurstville, Blacktown, Campbelltown, Parramatta and Strathfield areas - so vacancies exist here - Please contact me if you would like to start a group in your area.

ISSUE 2. DEALER SUPPORT.

In order to overcome the difficulty of not having any form of local dealer support we have created the Committee position of Merchandise Co-Ordinator. We will embark on a self help program. Chris will institute an import program covering all overseas purchases. I see him importing member requirements using the purchasing power of the club. So, if you are patient you will still be able to have what you want. Even now, as evident in the overseas journal, product support for the 99/4A is still strong. Chris will advise on the format he intends to follow. Incidentally, the facility we are setting up here is also available to non-members and members of the HUNTER VALLEY, MELBOURNE, PERTH, BRISBANE, ILLAWARRA, CANBERRA, TASMANIA and ADELAIDE USER GROUPS. Will the Co-Ordinators of these groups please contact me for details.

ISSUE 3. TECHNICAL INFORMATION.

This aspect of the group activity is somewhat more difficult to address. However, I see that we will be able to make advances through the more active participation of the Technical Co-Ordinator's group. More details will be forthcoming. As a first step we have designated the September meeting as a FULL DAY WORKSHOP/TUTORIAL for the members looking for TECHNICAL INFORMATION and SUPPORT. This will be a day of both theory and PRACTICAL INVOLVEMENT. So, watch out for more details. HELP will be needed here - volunteers please!

To sum up, I believe that we have already addressed some of the more urgent issues and as time goes by we will become more proficient in the handling of the problems and opportunities that come our way. I am still committed to the development of the SPECIAL INTEREST GROUPS for I believe that we will be able to cover more effectively the developmental needs of individual members.

Lastly, WELCOME to the following NEW MEMBERS - we trust that you will enjoy your association with us and even introduce your friends. Please don't hesitate to contact any one of the Committee Members should you require assistance.

NEW MEMBERS

- PAUL BASSET - SPRINGWOOD
- L. CAMBOURNE - GUILDFORD
- TIMOTHY CLIFTON - LINDFIELD
- MICHAEL HADLEY - BARDON QLD
- JOHN HAGART - GORDONVALE QLD
- EVAN HAIR - ENGADINE
- KARI LESKINEN - RIVERSTONE
- VINCENT MAKER - WINSTON HILLS
- NEIL MULLER - LAVINGTON
- FRANK MUNDAY - COFFS HARBOUR
- MICHAEL O'NEILL - SYDNEY
- DAVID PERKOVIC - MARIAN S.A.
- MIROSLAW SAKOWICZ - SUMMER HILL

R P SELLARO - GYMEA
 ANTHONY SHAW - NORTH RYDE
 ROBERT SUMMERS - CHESTER HILL.
 WILLIAM WALKER - TAREE
 H.I. YOUNG - PADDINGTON QLD

That's enough of my rambling - Make sure you get to see the COMET it will be your first and last opportunity! Regards, Fred Morris.

PUBLIB REPORT

This has definitely got to be MY last report because the position of Publications Librarian is vacant (see POSITIONS VACANT AD elsewhere) and I am optimistic that we will be swamped by applicants willing to look after this very important function. - Go on, have a go!

Now that we have had the library up and running for some 6 months now, it has become clear that the Library Policy needs amendment - it seems that the \$20 deposit requirement is a barrier needing to be overcome. At the time of formulating the policy we believed that to ask for a deposit would ensure the RETURN of any publication borrowed by a member - what has happened is that members haven't borrowed at all! So, back to the drawing board.

At the last committee meeting - why weren't you there? - I put forward a proposal to the effect that members be given an option to JOIN the library, as you would the BBS. This proposal was accepted as part of an overall review of all membership and subscription fees, which will be announced next SND. So, stay tuned!

Now to business. We have received a mail order catalogue detailing, amongst other computing supplies, a range of publications available for the 99/4A. I have passed this catalogue onto Chris Buttner - our new "SHOPKEEPER" to see if he can arrange a better deal for us. Maybe, the library will make some purchases and thus, you save - if you USE the LIBRARY!

A THOUGHT: Have you ever analysed the SND with the view to discovering just how much of the content is TISHUG written and produced? It is very little - believe me! The new policy will make the library available to more members. As this is the case we will not need to re-produce articles found in the Overseas newsletters as often as we do. So, just as our Government needs to look at the Balance of Trade figures - we too, will need to become EXPORT orientated! Otherwise, all we are doing is reinforcing a "slack - lay back" approach to life. Let's move ahead of the rest and export our know how! More articles PLEASE!!!

Threat or promise, either way the SND must reflect TISHUG and the 99/4A - over to you - the club would benefit if we could actually encourage Overseas Users to WANT to subscribe. I would like to have a library setup that reflects a "NULLI SECUNDUS" approach to computing in general.

Regards - Fred Morris.

***** TI-99/4A MONA LISA *****



A. HEIMO



who ya gonna call....

THE PROGRAMMER'S CRISIS LINE

Any Monday to Wednesday
 10am-4pm and any other days
 10am-9pm. (02)99-2229.

ONE LINERS

by Dennis Hodgson
 Penrith Regional Group.

Like the majority (?) of TISHUG members - as identified in the survey last year, I have had my 99/4A for a couple of years and have tinkered with programming with varying success. I, like most, have only the basic computer and cassette recorder (plus Extended Basic - a necessity!). I have spent a good deal of time concentrating on writing ONE LINERS because I became horrified with the slow cassette loading speed, yet could not justify a disk system.

ONE LINERS load in less than 10 secs! - a poor man's disk drive if you like. I found that I could achieve quite powerful programs in one line. Also, I really had to learn precisely how every programming command/statement operated. It is a great challenge to write ONE LINERS and perhaps the best way to learn our Extended Basic language.

There is NO perfect program - thus, programs can ALWAYS be improved. Perhaps that is why we don't get around to submitting our efforts. Let's get off our tails and make some program submissions - be they good or bad in case they help someone else! Or, even give someone an idea - everyone benefits!!!

Here is a ONE LINER for starters. See if you can work out how it functions. It will give the day of the week for any day, month, year since 1905. At the prompt enter eg. 25,12,1947. Answer = "Thursday".

Thanks to Alan Swales for the excellent info in the Sept '85 issue of the SND regarding the Georgian calendar.

Programming hint:

Using Extended Basic you are able to enter a line that exceeds 5 lines - this is how:

Type in the line to the point, in the case of this program, PRINT SEG (the end of the line) press ENTER. Now type 100 (the line number) then press FCTN X for the EDIT mode. The line will reappear - now move the cursor to the end of the line and continue with the rest of the entry. Press enter when done. If you LIST the program you will find a line longer than that normally accepted by the computer. Now try it!

ONE LINER - PROGRAM

```
100 A=1 :: INPUT D,M,Y :: FC
R T=A TO M-A :: H=H+29+VAL(S
EG$("20212122121",T,A)):: NE
XT T :: J=H+(Y/4<>INT(Y/4)AN
D M>2)+INT((Y-A)*365.25)+D :
: PRINT SEG$("SASUMOTUWETHFR
", (J-INT(J/7)*7)*2+A, 2):: RU
N
```

Great stuff - Dennis thanks for your contribution! Now, Dennis has challenged you all to come up with these ONE LINERS - So, do as he suggests, get off your tails and submit more of these. Possibly we could even have a regular feature devoted to just ONE LINE PROGRAMS. -ED.

The article in last month's SND, (March 1986, page 18), contained minor errors which I only discovered after obtaining the loan of some publications from Fred Morris. The errors relate to the area of VDP RAM space occupied by the 28 sprites under extended basic and the adjoining space used by the extended basic interpreter. The sprite attribute table occupies VDP RAM 768 to 879, (not 895). The x/b interpreter space which is over-written by the 40 column screen is VDP RAM 880 to 956, which is an 80 byte block, (not 62).

An additional source of interference to row 23 of the 40 column screen has been found to come from using user written extended basic subprograms.

Preparation of disk 3 in the series on on linking to assembly from extended basic is progressing steadily. The program for SOUND which does not interfere with the 40 column screen, is complete. This can also be used in the 32 column mode as it provides the ability to turn sounds on then continue in the program and turn the sound off later in the program flow. A program to change the character and screen colour in 40 column mode is also working well.

The INIT program in extended basic does not provide utilities for GPLLNK, DSRLNK, PEEKV, POKEV, or POKER. (POKER pokes values into VDP registers). I have found programs to provide these facilities and after adding remarks to help others to understand the programs they will be included in disk 3 & in the SND in due time. An interesting use of GPLLNK is the ability to load or reload any of the 3 standard character sets from the GROM using the following three program names:

CALL LINK("BIGCHR") loads the title screen characters in place of uppercase.
CALL LINK("UPPCHR") reloads the normal size upper case without restoring the standard colours as CALL CHARSE does.
CALL LINK("LOWCHR") reloads the lower case (small capitals) from GROM. This routine is much faster than saving the lower case characters into an array before characters are redefined for other purposes, then restoring when the normal lower case is required again.

Here is the start of the 40 column utilities for this month. Save the files under separate disk file names then use the COPY file named SOURCE to assemble only the required modules.

```

*
IDT 'A40mudie' Ross Mudie, 13th January 1986
DEF SW40,SW32 Source FORTYSTART object A40
NUMASC EQU >2008
NUMREF EQU >200C
STRASC EQU >2010
STRREF EQU >2014
KSCAN EQU >201C
VSBW EQU >2024
VMBW EQU >2024
VSBF EQU >2028
VMBF EQU >202C
VWTF EQU >2030
ARGLL EQU >8300 ARGument IDentifier
*
* 0=Numeric expression 1=String exp
* 2=Numeric variable 3=String variable
* 4=Numeric array 5=String array
* There is one ID byte per argument
* First argument ID is at >8300,
* sixteenth is at >830F.
* REF pages 278-280 & 418 of editor
* assembler manual.
*
FAC EQU >834A
KEYBD EQU >8374
KEYVAL EQU >837F
STATUS EQU >837C
GPLWS EQU >8380
SOUNDB EQU >8400
MYWS BSS 32
BUFFER BSS 40

```

```

TOPSCN BSS 194
LINE BSS 256
TONE DATA >A005 1400Hz for beep
T2ON BYTE >B1 Tone 2 on
T2OFF BYTE >BF Tone 2 off
SPACE BYTE 32 Used in invalid char print filter
B40 BYTE 40
TOOHI BYTE 143 Used in invalid char print filter
BH40 BYTE >40 Exponent value for a number in
* range +1 to +99.9
BF BYTE >BF Exponent value for a negative
* number in range -1 to -99.9
FF BYTE >FF
EVEN

```

* Assembly subroutine for other modules, clears all or part of a screen. Prerequisite for SUBCLR: Finish value in R10 Prerequisite for SUBCLL: Finish value in R10, *Start value in R0

```

SUBCLR LI R0,0 Clear text screen to location in R10
SUBCLL LI R1,>8000 Use SUBCLL as second entry
* point starting from R0 val

```

```

(CLRSCN BLWP @VSBW
INC RC
C R0,R10
JLE CLRSCN
RT

```

* Assembly subroutine for other modules, Gets a string *from extended basic. Prerequisite for SUBSTR: LINK *variable element number in R0, eg simple variable R0=0; *for array R0=array element, see e/a manual page 284 *para 17.2.1 A byte to indicate maximum length of string *must be placed in first byte of buffer LINE before *accessing this subroutine. Use entry point SUBST and *vary value in R1 for other than argument 1 in LINK

```

SUBSTR LJ R1,1 Parameter number
SUBST LJ R2,LINE Pointer to buffer
BLWP @STRREF
R1

```

* Assembly subroutine for other modules, Prints a *string on the screen includin adding the >60 x/b *offset. Prerequisite to SUBPT: Place start location on *screen in Register 0; Text to be in buffer LINE with *first byte describing the length of the string.

```

SUBPT CLR R3 Prints chars from buffer LINE
* adding >60 for x/b
MOVW @LINE,R3 put length byte in R3
SWPB R3
CLR R2 R2 is index register for line buffer
INC R2 To start at the first byte of
* the text string

```

```

NEXTCH MOVW @LINE(R2),R1
CB R1,@TOOHI Invalid character filter
JL PT2
MOVW @SPACE,R1
JMP PT3

```

```

PT2 CB R1,@SPACE
JH PT3
MOVW @SPACE,R1
PT3 AI R1,>6000 x/b offset, byte size >60
BLWP @VSBW
INC RC
CI R0,960
Next character position
Compare R0 for end of screen
and if more then clear R0

```

```

* JLT WRAP To start up at the top left of
* the screen
CLR R0 For row 1 column 1
WRAP INC R2
C R2,R3 End of text string yet?
JLE NEXTCH
RT

```

* Assembly subroutine for other modules, gets the *values in a numeric list of arguments in a CALL LINK *from extended basic. The subroutine automatically *increments the argument pointer in R1, checks R3 to see *if more arguments are available, gets the value from *extended basic, checks it against lower and upper *limits of 1 and the value in R9 & sets an out of limits *flag if required in R10. An in limits value is returned *as a word in R4.


```

SUBFAC CLR R10      R10 is out of limits
*                (default) flag
                CLR R7
                INC R1      Pointer to argument number in
*                link list
                C R1,R3     R3 contains # of available
*                arguments
                JGT WHOOPS  If run out of arguments set
*                default flag
                BLWP @NUMREF Get numeric argument value
*                from x/b & place in FAC
                MOV @FAC,R4  Move argument value from FAC
*                to register 4
                CB R4,@BF    Negative number upto -100
                JNE ABS     negative number flag
                LI R7,>0100  Absolute value of everything.
ABS             R4 R4       Compare exp value with hex 40
                CB R4,@BH40  (all values exp=40 in
*                this program) & set default
                JNE WHOOPS  flag if not
*                ANDI R4,>00FF Wipe off exponent
*                leaving first byte of x/b argument
                CI R4,1     Minimum value for any argument is 1
                JLT WHOOPS  If less than 1 set default flag
                C R4,R9     Top limit in R9
                JGT WHOOPS  Test if greater than top value
                JMP ENDSUB  To avoid setting default flag
WHOOPS LI R10,1       If 1 in R10, out of limits
ENDSUB RT

```

* Extended Basic Format: CALL LINK("SW40") has no arguments. This module saves the extended basic sprite and scratch pad in a 192 byte block TOPSCN. It then clears the 40 column, 960 character screen and switches to the 40 column mode, sets white characters on light blue background and returns to extended basic. ON BREAK *NEXT should be invoked in extended basic until CALL *LINK("SW32") is executed.

```

SW40 LWPI MYWS
LI R0,768      Start saving x/b from 768
LI R1,TOPSCN  Save in TOPSCN
LI R2,192     Number of bytes to save
BLWP @VMBR
LI R10,960    Size of screen to clear
BL @SUBCLR    Clear screen
LI R0,>FO01   VDP R1 40 COLUMN TEXT MODE
*                (reversed)
                MOV B @>83D4
                SWPB R0
                BLWP @VWTR      TEXT MODE (not reversed)
                LI R0,>07F5     White chars on blue in text mode
                BLWP @VWTR
                B @END

```

* Extended Basic Format: CALL LINK("SW32") has no arguments. This module restores the extended basic sprite and scratch pad from a 192 byte block TOPSCN. It then clears the 32 column, 768 character screen and switches to the 32 column mode, sets white characters on light blue background and returns to extended basic. ON BREAK STOP may be invoked after CALL LINK("SW32")

```

SW32 LWPI MYWS
LI R0,>0755    Foreground & background the same
BLWP @VWTR
LI R10,768    Clear x/b screen area
BL @SUBCLR
LI R0,768    Restore scratch pad
LI R1,TOPSCN
LI R2,192
BLWP @VMBW
LI R0,>E001    Restore 32 col mode
MOV B @>83D4
SWPB R0
BLWP @VWTR
B @END

```

* END returns to the statement following the sub program LINK call in the extended basic program.

```

END LWPI GPLWS
CLR R0
MOV B @STATUS
RT

```

```

* Ross Mudie, 1st January 1986
DEF D40 Source DISPLAY
* Extended basic format: CALL LINK("D40"[,Row][,Column]
* ,STRING$ or "direct string")
* This module is intended to display a string starting at
* the specified row and column. The string may be up to
* 255 bytes in length. If a string being displayed goes
* off the bottom of a screen then the remainder will be
* displayed at the top of the screen. The row is any
* value 1 to 24 and the column is any value 1 to 40. If
* the row and column values are omitted, or out of the
* valid range, then the previously used row and column
* value will be used. If it is the first use of the
* utility and the row and column values are not specified
* or out of range then the default starting values of
* Row=1 and Column=1 will be used.

```

```

ROW DATA 1
COLUMN DATA 1
START DATA 0
D40 LWPI MYWS
CLR R8      R8 points to which argument
*           we are accessing
                CLR R3
                MOV B @>8312,R3  Number of arguments in LINK
                SWPB R3
                CI R3,3         Test for too many arguments
                JLE GETROW     Default for MAXIMUM number of
*           arguments
                GETROW CLR R5
                MOV B @ARGID(R8),R5  First ARGID
                SWPB R5
                ANDI R5,>0001      If string, last bit will be 1,
*           ANDI compares to zero
                JNE GETTXT
                INC R8            for index to next argument
                CLR R0           GET Row
                CLR R1
                LI R9,24        Top Limit value for Row Start
                BL @SUBFAC
                CI R10,1
                JNE ROWOK
                MOV @ROW,R4     Default for Row
*           Row in R4, save for possible
                ROWOK MOV R4,@ROW  next use default
                GETCOL CLR R5
                MOV B @ARGID(R8),R5  Second ARGID
                SWPB R5
                ANDI R5,>0001      If string, last bit will be 1,
*           ANDI compares to zero
                JNE GETTXT
                INC R8            R8 indexes next argument
                LI R9,40        Top limit value for Column
                BL @SUBFAC
                CI R10,1
                JNE COLOK
                MOV @COLUMN,R4   Default for Column
                COLOR MOV R4,@COLUMN  Column in R4, save for
*           possible next use default
                GETTXT CLR R5
                MOV B @ARGID(R8),R5
                SWPB R5
                ANDI R5,>0001      If string, last bit will be 1,
*           ANDI compares to zero
                JNE TEXT
                B @END           In case no string argument
                TEXT CLR R0      Element 0
                MOV B @FF,@LINE  Maximum size of string
                INC R8           To describe the arg number with
*           base 1 in lieu of base 0
                MOV R8,R1       To transfer argument number to
*           the SUBroutine STRing
                BL @SUBST
                CALCST MOV @ROW,R4  CALCULATE START point on
*           screen
                DEC R4           Start row in R4
                LI R2,40
                MPY R2,R4        Multiply row by 40 decimal,
*           Start byte for row in R5
                MOV R5,@START    Memory location to store start
*           byte on screen
                MOV @COLUMN,R4
                DEC R4
                A R4,@START      Row and column now stored in

```



```
*
* DISPLY MOV @START,RO
* BL @SUBPT
* B @END
*
```

```
* Ross Mudie 13th January 1986 File name SOURCE
```

```
* This file when used as the SOURCE file in an
*assembly process allows the modules included to be
*assembled into one OBJECT file. To include a file
*there should be no asterisk in the first character
*position of the line, conversely to exclude any module
*place an asterisk in the first character position of
*the unwanted line. The file "FORTYSTART" should be
*included every time, and the other files included as
*required.
```

```
COPY "DSK1.FORTYSTART"
COPY "DSK1.ACCEPT"
COPY "DSK1.BEEP"
COPY "DSK1.CLEARSCN"
COPY "DSK1.DISPLAY"
COPY "DSK1.PAGEPRINT"
COPY "DSK1.PRINT"
* COPY "DSK2.SOUNDS" On disk MUDIE_86/3
END
```

```
* Next month (publication space permitting), CLEARSCN,
* PAGEPRINT & PRINT. ■
```



copy then this is for you. Even if you have got TI Writer then this makes an excellent back-up to that system. Although there is some documentation on the disk it would be helpful to have a friend with TI Writer so you can skim through his manual to learn the basic editing keystrokes. Apart from that for Funnelweb Writer you will need Extended Basic, a Disk Drive and 32K Expansion Memory. A printer is naturally needed if you want hard copies of your documents. Credit given where credit is due. The Hunter Valley 99'ers have done an excellent job on this one.

This is my last Shop column. Elsewhere in this issue details of Shop operations are given by Fred Morris. In future this column will be written by Chris Buttner.

In the Software News column I have given details of new Public Domain and Freeware offerings for April. As usual a selection of previously issued software on disk and tape will also be available at that meeting.

February MICROpendium has arrived and will be available at the usual cost of \$2. Back issue sets February 1984 to November 1985 (22 issues) have also arrived and are available for collection by those members who reserved them - price is \$44 for the complete set. It may be difficult in future to get complete back issue sets as I understand that the very first issue is currently in short supply.

No thoughts as yet on how we can get rid of the vast number of HCM's on hand - over 100 copies. Has anyone got any contacts with a Newsagent who might take them of our hands for a negotiated price.

Currently there are no Cartridge Expanders on hand. As this still remains a very popular item an order will be placed for some more. Watch this column for availability and price. Plenty of Console Writers and Paint 'N Print are available at \$45 and \$90 each, while only 1 DBM System is available at \$90. If the demand exists more of these will also be imported.

Well that's it for the Shop Column. The Software Column follows.

SOFTWARE NEWS - with Terry Phillips

A new heading for a new column. Re-arrangement of duties of committee members sees me freed from Shop work to concentrate solely on developing our software library. My brief is basically simple. Search the world for quality software, be it Freeware or Public Domain and distribute it to members, and, equally as important, encourage members to write quality programs for the enjoyment of other TI users.

Freeware to be released through the club shop in April will include :

Funnelweb Writer - a very well done word processing package similar to the now hard to get TI Writer. Unlike a lot of TI Writer clones this one allows you to catalog a disk plus a host of other features. If you haven't got TI Writer and have despaired of finding a

Fast Term - a disk based Terminal Emulator. Full documentation is included on the disk. The version being distributed has been set-up to access our very own Bulletin Board.

Cassette users have not been overlooked. This month courtesy of Mike Slattery comes a word processing package just for you. Full documentation will be included on the tape along with two versions of the program - the first a 16K version and the second an expanded version for those with 32K expansion.

As usual, also to be released in April will be a tape, 1986/4 and a disk with the same programs. Members at the March meeting will recollect I forgot to bring Tape 1986/3 on disk. It will be available at the April meeting.

I have received advice from Jake Kennedy, Editor, Computer Fun and Games, PO Box 227 Waterloo 2017, that this new publication is looking for programs to publish. He is dangling a carrot of \$25 for those published. If you think you've got anything good enough it wouldn't hurt to send a couple of listings (done on a printer). It goes without saying of course that the work must be original.

Over the past 18 months or so there must have been 50 plus copies of TI-FORTH sold through the club shop. To date nought (0) of those purchasers have submitted a program written in this language. The only programs I have seen written in Forth, apart from the demo disk on sale at the shop, are a mailing list and a game where you have to defend an oasis with your tanks. Both of these are commercial productions as far as I am aware. Righto! All you Forth programmers here is the first challenge from this column. Write a program, be it an application, utility, game or whatever and submit it to me. You have until the end of June. On that date entries will close and judging will take place. A suitable prize or prizes will be awarded to those adjudged the best.

Next month I will detail more suggested themes for you all to program around. Entries will generally close 2 months after the topic is suggested - more time will be allowed for complex subjects.

I received an advance copy of the February issue of Micropendium just prior to the March meeting. Unfortunately the bulk order did not arrive in time to go on sale at that meeting. Here a some snippets of software news from that issue.


```

1 CALL CLEAR
2 PI=4*ATN(1)
10 PRINT "*****"
***** MATH FUNCTION P
LOTTER ** author unknown
**
20 PRINT "Education Softw
are *****"
*****"
30 PRINT
40 PRINT
50 GOSUB 1300
60 INPUT " EDIT LINES 100, 1
10, & 120 TO DEFINE FUNCTIO
N OF X, XMAX, & XMIN
E=EDIT, R=RUN:":R$
70 IF R$<>"E" THEN 100
80 BREAK
90 REM *****

100 DEF FUNCTION=-X^2*SIN(X*
3)
110 XMAX=2*PI
120 XMIN=.2*XMAX
130 REM *****

140 CALL CLEAR
150 OPTION BASE 1
160 DIM POINT(20,8)
170 DIM DOT(8,22)
180 DIM R(8)
190 CALL COLOR(1,2,2)
200 FOR I=3 TO 16
210 CALL COLOR(I,16,2)
220 NEXT I
230 CALL COLOR(2,9,2)
240 V$="7F0303031F030303"
250 VS$="7F00000000000000"
260 H$="FFFF111101010000"
270 S$="0123456789ABCDEF"
280 CALL CHAR(40,V$)
290 CALL VCHAR(3,3,40,20)
300 CALL CHAR(42,VS$)
310 CALL CHAR(41,H$)
320 ASCII=48
330 XDIF=XMAX-XMIN
340 YMAX=0
350 YMIN=0
360 REM AUTOMATIC SCALING**

370 X=XMIN
380 YZ=FUNCTION
381 IF YZ>0 THEN 385
382 YMIN=YZ
383 GOTO 390
385 YMAX=YZ
390 X=0
400 K=1
410 XDIFF=XDIF/160
420 FOR COL=1 TO 20
430 FOR C=1 TO 8
440 X=XMIN+K*XDIFF
450 K=K+1
460 Y=FUNCTION
470 POINT(COL,C)=Y
480 IF Y<YMAX THEN 500
490 YMAX=Y
500 IF Y>YMIN THEN 520
510 YMIN=Y
520 NEXT C
530 CALL HCHAR(13,COL+3,41)
540 CALL SOUND(200,220+COL*2
0,2)
550 NEXT COL
560 YSCALE=20/(YMAX-YMIN)
570 GOSUB 1300
580 PRINT "XMIN =";XMIN:"XM
AX =";XMAX:"YZERO =";YZ:"YM
IN =";YMIN:"YMAX =";YMAX:"
YSCALE=";YSCALE
590 FOR I=1 TO 100
600 CALL SOUND(-1000,110+I,2
)
610 CALL KEY{0,Q,ST}

```

```

620 IF Q=81 THEN 660
630 IF ST<>0 THEN 590
640 ST=0
650 NEXT I
660 YMAX=YMAX*YSCALE+1.E-11
670 YOFF=2-(YMAX-INT(YMAX))
680 REM DRAW AXES*****

690 CALL CLEAR
700 CALL VCHAR(3,3,40,20)
710 CALL VCHAR(23,3,42)
720 CALL HCHAR(INT(YMAX)+3,4
,41,20)
730 REM PLOT THE CURVE*****

740 FOR COL=1 TO 20
750 FOR C=1 TO 8
760 P=YOFF+YMAX-POINT(COL,C)
*YSCALE
770 R(C)=INT(P)
780 DOT=INT(1.5+(P-R(C))*8)
790 IF DOT<9 THEN 820
800 DOT=1
810 R(C)=R(C)+1
820 DOT(C,R(C))=DOT
830 NEXT C
840 REM ELIMINATE REPEATED
ROW IN A COLUMN*****

850 FOR C=1 TO 7
860 IF R(C)=0 THEN 910
870 FOR D=C+1 TO 8
880 IF R(C)<>R(D) THEN 900
890 R(D)=0
900 NEXT D
910 NEXT C
920 REM PLOT A ROW*****

930 FOR C=1 TO 8
940 ROW=R(C)
950 IF ROW=0 THEN 1190
960 REM CREATE CHARACTER
PATTERN*****

970 HEX$=""
980 FOR DOTROW=1 TO 8
990 S=1
1000 F=4
1010 BYTE=0
1020 ADD=8
1030 FOR BIT=S TO F
1040 IF DOT(BIT,ROW)<>DOTROW
THEN 1060
1050 BYTE=BYTE+ADD
1060 ADD=ADD/2
1070 NEXT BIT
1080 HEX$=HEX$&SEG$(S$,BYTE+
1,1)
1090 IF S=5 THEN 1130
1100 S=5
1110 F=8
1120 GOTO 1010
1130 NEXT DOTROW
1140 ASCII=ASCII+1
1150 CALL CHAR(ASCII,HEX$)
1160 CALL VCHAR(ROW+1,COL+3,
ASCII)
1170 CALL SOUND(-200,440-ROW
*10,2)
1180 IF ASCII>158 THEN 1260
1190 NEXT C
1200 FOR I=1 TO 8
1210 FOR J=1 TO 22
1220 DOT(I,J)=0
1230 NEXT J
1240 NEXT I
1250 NEXT COL
1260 GOSUB 1300
1270 GOTO 1280
1280 GOTO 1270
1290 END
1300 CALL SOUND(200,262,6)
1310 CALL SOUND(200,330,6)
1320 CALL SOUND(600,392,6,52
4,6,330,2)
1330 RETURN

```

```

100 REM MRS TREVILLIONS GAME
OF SCIENCE
110 RIGHT=0
120 ON WARNING NEXT
130 ON BREAK NEXT
140 RANDOMIZE
150 CALL CLEAR
160 INPUT "YOUR NAME,PLEASE?"
":A$
170 CALL CLEAR
180 DISPLAY AT(5,7):" ***
***** **PH
YIC PROBLEMS* ***
*****"
190 W=INT(RND*20)
200 DISPLAY AT(9,5):"VINCENT
T.J. MAKER" :; FOR Z=0 TO 5
00 :; NEXT Z :; CALL CLEAR
210 G=9.8
220 M=INT(20*RND)
230 V=INT(RND*20)
240 S=INT(20*RND)
250 T=INT(RND*10)
260 PRINT "HI,I'M MRS.G.TREV
ILLION AND I WILL HELP YOU W
ITH YOUR PHYSICS."
270 PRINT "CAN YOU WORK THIS
OUT?"
280 PRINT "THE WEIGHT OF A P
ERSON WHO IS";M;"KG AND THE
GRAVITY IS";G;"?"
290 INPUT A
300 IF A<>M*G THEN WRONG=WRO
NG=WRONG+1 :; IF A<>M*G THEN
330
310 PRINT "WELL DONE,";A$;"!
" :; INPUT "PRESS ENTER TO C
ONTINUE":Z$
320 RIGHT=1
330 PRINT "-----"
340 PRINT "CAN YOU WORK OUT
THE VELOCITY OF AN OBJECT
WHICH IS TRAVELLING AT THE
MAGNITUDE OF";S;"AND TOOK T
HE TIME OF";T;"?"
350 INPUT B
360 IF B<>S/T THEN WRONG=WRO
NG+1 :; IF B<>S/T THEN 390
370 RIGHT=RIGHT+1
380 PRINT "WELL DONE!";A$ :;
: PRINT "-----"
390 PRINT "WHAT'S THE ACCELE
RATION OF AN OBJECT WITH ";
V;"VELOCITY AND ";T;"TIME?"
400 INPUT C
410 IF C<>V/T THEN WRONG=WRO
NG+1 :; IF C<>V/T THEN 430
420 PRINT "+1 TO YOU,";A$ :;
RIGHT=RIGHT+1
430 PRINT "-----"
440 PRINT "CAN YOU FIND THE
DENSITY OF AN OBJECT WITH";M
;"KG AND";V;"VOLUME?"
450 INPUT D
460 IF D<>M/V THEN WRONG=WRO
NG+1 :; IF D<>M/V THEN 480
470 PRINT "WELL DONE!!!,RIGH
T!";A$ :; RIGHT=RIGHT+1 :; IF
OR T=0 TO 200 :; NEXT T
480 IF RIGHT=0 THEN D$="THAT
S V. POOR,BETTER IMPROVE.(O
RIGHT)"
490 IF RIGHT=1 THEN D$=" YOU
BETTER DO BETTER THAN THAT.
(1 RIGHT)"

```





```

500 IF RIGHT=2 THEN D$="THAT
S FAIR,50/50.(2 RIGHT)"
510 IF RIGHT=3 THEN D$="V. G
OOD!!.(3 RIGHT)"
520 IF RIGHT=0 THEN PERCENT=
0
530 IF RIGHT=1 THEN PERCENT=
25
540 IF RIGHT=2 THEN PERCENT=
50
550 IF RIGHT=3 THEN PERCENT=
75
560 IF RIGHT=4 THEN D$="WHAT
CAN I SAY!!! THATS EXCELLEN
T 100/100.(ALL RIGHT!)"
570 IF RIGHT=4 THEN PERCENT=
100
580 CALL CLEAR
590 PRINT D$
600 PRINT "-----"
610 DISPLAY AT(5,1):"YOUR PE
RCENTAGES ARE... LET ME
THINK AMOMENT,PLEASE"
620 FOR R=0 TO 500 :: NEXT R
630 DISPLAY AT(6,1):"HERE TH
EY ARE...";PERCENT,"% PRESS
ANY KEY TO END OR ENTER TO
HAVE ANOTHER GO...."
640 CALL KEY(0,HJ,KL):: IF K
L=0 THEN 640
650 IF HJ=13 THEN 670
660 IF HJ<>13 THEN 690
670 DISPLAY : "I KNEW YOU WOU
LD!!" :: FOR T=0 TO 200 :: N
EXT T ::
680 GOTO 110
690 DISPLAY : "BYE!"
700 END

```

```

10 REM *****
20 REM *
30 REM * SPEED READING *
40 REM *
50 REM * in Ex-Basic *
60 REM * Author unknown. *
70 REM *
80 REM *****
90 CALL CLEAR
100 CALL COLOR(0,16,1)
110 DIM M$(50),WW$(50)
120 RANDOMIZE :: CALL SOUND(
4000,110,30)
130 CALL CHARPAT(72,AN$):: C
ALL CHAR(104,AN$):: CALL CHA
RPAT(70,AN$):: CALL CHAR(105
,AN$):: CALL CHARPAT(77,AN$)
:: CALL CHAR(106,AN$)
140 CALL CHARPAT(83,AN$):: C
ALL CHAR(107,AN$):: CALL CHA
RPAT(86,AN$):: CALL CHAR(108
,AN$):: CALL COLOR(10,16,1)
150 CALL CHARPAT(89,AN$):: C
ALL CHAR(109,AN$):: CALL CHA
RPAT(78,AN$):: CALL CHAR(110
,AN$)
160 CALL CLEAR :: CALL SOUND
(1,110,30):: CALL CHAR(95,"F
F"):: CALL CHAR(45,"00000000
FF"):: CALL CHAR(62,"00C0300
CFF0C30C0")
170 CALL SCREEN(3):: CALL RE
CT(6,8,17,5,42):: DISPLAY AT
(24,1):"PRESS ANY KEY TO BEG
IN."
180 DISPLAY AT(8,8)SIZE(13):
"SPEED READING" :: CALL KEY(
0,K,S):: IF S<>0 THEN 220
190 CALL HCHAR(8,10,32,13)
200 FOR I=1 TO 10 :: CALL KE
Y(0,K,S):: IF S<>0 THEN 220
210 NEXT I :: GOTO 180

```

```

220 DISPLAY AT(8,1)ERASE ALL
:"DO YOU NEED INSTRUCTIONS?"
: : "TYPE "&CHR$(109)&" OR "&
CHR$(110)&". " :: CALL KEY1(I
,"NY")
230 IF I=1 THEN 280
240 DISPLAY AT(2,5)ERASE ALL
:"EACH PROBLEM WILL" : "CONS
IST OF A GROUP OF WORDS" : "
FLASHED ON THE SCREEN." : "B
EFORE YOU START, YOU CAN"
250 DISPLAY AT(10,1):"TELL T
HE COMPUTER HOW FAST" : "YOU
WANT TO HAVE THE WORDS" : "
FLASHED. TYPE EACH GROUP."
:: GOSUB 640
260 DISPLAY AT(2,5)ERASE ALL
:"AT THE BOTTOM OF THE" : "P
ROBLEM SCREEN YOU AND YOUR" :
:"TI COMPUTER WILL HAVE A" :
:"STEAM ENGINE RACE."
270 DISPLAY AT(10,1):"TYPING
YOUR WORD GROUPS" : "CORREC
TLY WILL HELP YOU WIN." :: G
OSUB 620
280 DISPLAY AT(5,1)ERASE ALL
:"AT WHAT SPEED DO YOU WANT"
: : "YOUR WORDS FLASHED?" : :
:"TYPE "&CHR$(104)&" FOR HIG
H SPEED" : "TYPE "&CHR$(105)
&" FOR FAST"
290 DISPLAY AT(14,1):"TYPE "
&CHR$(106)&" FOR MEDIUM" : "
TYPE "&CHR$(107)&" FOR SLOW"
: : "TYPE "&CHR$(108)&" FOR V
ERY SLOW" :: CALL KEY1(I,"HF
MSV")
300 ON I GOTO 310,320,330,34
0,350
310 SR$="HIGH SPEED" :: R=1
:: GOTO 360
320 SR$="FAST" :: R=300 :: G
OTO 360
330 SR$="MEDIUM" :: R=600 ::
GOTO 360
340 SR$="SLOW" :: R=900 :: G
OTO 360
350 SR$="VERY SLOW" :: R=120
0
360 CALL CLEAR :: CALL TRAIN
RACE(0,0)
370 N=INT(RND*43)+1 :: IF M$(
N)="X" THEN 370 ELSE M$(N)=
"X" :: RESTORE 500
380 FOR Z=1 TO N :: READ AN$
:: NEXT Z
390 DISPLAY AT(1,1)BEEP:"WAT
CH FOR THE WORDS" : "TO APPE
AR!" : "---->" : : : : :
: : : :
400 CALL SOUND(3000,110,30):
: CALL SOUND(R,110,30):: DIS
PLAY AT(5,6):AN$ :: CALL SOU
ND(10,110,30):: CALL HCHAR(5
,8,32,22)
410 DISPLAY AT(7,1):"WHAT AR
E THE WORDS?" : "IF YOU WANT
THEM TO FLASH" : "AGAIN, TY
PE "&CHR$(105)&". " :: ACCEPT
AT(13,1):R$
420 IF R$="F" THEN CALL HCHA
R(13,3,32,28):: F=F+1 :: GOT
O 390
430 IF R$<>AN$ THEN 460
440 CALL HCHAR(15,3,42,28)::
FOR I=30 TO 19 STEP -1 :: C
ALL HCHAR(15,I,32):: NEXT I
:: DISPLAY AT(15,10):"RIGHT!
!"
450 FOR I=11 TO 3 STEP -1 ::
CALL HCHAR(15,I,32):: NEXT
I :: GOTO 480
460 CALL HCHAR(15,3,42,28)::

```

```

FOR I=30 TO 19 STEP -1 :: C
ALL HCHAR(15,I,32):: NEXT I
:: DISPLAY AT(15,10):"WRONG!
!"
470 FOR I=11 TO 3 STEP -1 ::
CALL HCHAR(15,I,32):: NEXT
I :: GOTO 490
480 CALL TRAINRACE(2,WIN)::
IF WIN<>0 THEN 560 ELSE 370
490 WW=WW+1 :: WW$(WW)=AN$ :
: CALL TRAINRACE(1,WIN):: IF
WIN<>0 THEN 560 ELSE 370
500 DATA ALL THE TIME,AT THE
BRIDGE,THROUGH THE DOOR,IN
THE HOUSE,ON THE TABLE,WHILE
YOU WAIT,IF HE CAN,ON THE S
TREET,BY THE STATION
510 DATA WHEN SHE SANG,COUNT
YOUR MONEY,HATCH THE EGGS,D
URING THE STORM,WHILE IT RAI
NED,THEN IT HAPPENED,IT WAS
TRUE,IN HER MIND
520 DATA PAID THE GROCER,LOC
KED HIM UP,IN THE MORNING,FI
ND THE SLIPPER,PASS THE TOAS
T,WENT TO SEE HIM,FOUND THE
MONEY,STRUCK THE BARN
530 DATA HEARD THE NOISE,PAI
D THE RENT,CHASED THE CAT,BO
UGHT THE DRESS,PAINTED THE H
OUSE,RAISED THE RENT,WATCHED
THE STORM
540 DATA CUT THE GRASS,MOWED
THE LAWN,BURNED THE WOOD,TO
OK A VACATION,BOUGHT A TICKE
T,SOLD THE TICKET,WENT TO SL
EEP,LIKED THE STORY
550 DATA ADMIRE HER HAT,CAR
RIED THE BAG,CUT THE PIE
560 CALL DELSPRITE(ALL):: CA
LL CLEAR :: IF WIN=1 THEN DI
SPLAY AT(1,1):"TI COMPUTER W
INS!" ELSE DISPLAY AT(1,1):"
YOU WIN!"
570 DISPLAY AT(3,1):"FLASH T
IME: ";SR$:"COMPUTER REPEATE
D FLASH:";F
580 IF WW=0 THEN DISPLAY AT(
7,1):"YOU IDENTIFIED ALL WOR
D" : "GROUPS CORRECTLY!" ELS
E 600
590 DISPLAY AT(24,1):"PRESS
ANY KEY TO EXIT." :: GOSUB 6
30 :: CALL UNLOAD
600 DISPLAY AT(6,1):"WORD GR
OUPS NOT IDENTIFIED CORRECT
LY. ___":RPT$(" ",28):: CAL
L P(SR$,9) : FOR I=1 TO WW :
: CALL P(STR$(I)&)"&WW$(I),
0)
610 NEXT I :: GOTO 590
620 PRINT "PRESS ANY KEY TO
BEGIN.";
630 CALL KEY(0,KK,SS):: IF S
S=0 THEN 630 ELSE CALL SOUND
(20,999,0):: RETURN
640 PRINT "PRESS ANY KEY TO
CONTINUE.":: GOTO 630
650 SUB KEY1(K,K$)
660 CALL KEY(0,K,S):: IF S=0
THEN 660 ELSE K=POS(K$,CHR$(
K),1):: IF K=0 THEN CALL SO
UND(150,110,1):: GOTO 660
670 CALL SOUND(20,999,1):: S
UBEND
680 SUB RECT(A,B,C,D,E)
690 CALL HCHAR(A,B,E,C):: CA
LL VCHAR(A,B+C-1,E,D):: CALL
HCHAR(A+D-1,B,E,C):: CALL V
CHAR(A,B,E,D):: SUBEND
700 SUB TRAINRACE(H,W)
710 IF M>0 THEN 770
720 CALL CHAR(35,"1122FF8811
FF4488"):: CALL HCHAR(20,1,3
5,32):: CALL HCHAR(24,1,35,3
2):: CALL MAGNIFY(3)

```



```

640 FOR I=97 TO 112 :: READ
A$ :: CALL CHAR(I,A$):: NEXT
I :: RETURN
650 C$(1)=SEG$(A$,1,28):: C$(
2)=SEG$(A$,29,28):: C$(3)=S
EG$(A$,57,28):: C$(4)=SEG$(A
$,85,28):: C$(5)=SEG$(A$,113
,28):: C$(6)=SEG$(A$,141,28)
660 C$(7)=SEG$(A$,169,28)::
C$(8)=SEG$(A$,197,28):: C$(9
)=SEG$(A$,225,28):: RETURN
670 DISPLAY AT(1,1)ERASE ALL
:"THIS PORTIN OF THE PROGRAM
:"ALLOWS FOR THE PROCESSING
:"OF A NEW DISK FOR INPUT B
Y": "THIS PROGRAM."
680 DISPLAY AT(5,1): "ALL PRE
VIOUSLY ENTERED DATA, " : "DATA
CREATED BY THIS PROGRAM"
690 DISPLAY AT(7,1): "ON THE
DISK IS LOST...": "SO PLEASE!
!! THINK CAREFULLY": "BEFORE
USING THIS OPTION!!!": "(DISK
S BEING USED FOR THE"
700 DISPLAY AT(11,1): "FIRST
TIME SHOULD BE PUT": "THROUGH
THIS OPTION.)"
710 DISPLAY AT(15,1): "DO YOU
WISH TO PROCESS": "THIS DISK
? (Y/N)Y" :: ACCEPT AT(16,17
)VALIDATE("YN")SIZE(-2):PR$
720 IF PR$="Y" THEN 730 ELSE
RETURN
730 DISPLAY AT(15,1)ERASE AL
L: "ARE YOU SURE?": " " :: ACCE
PT AT(15,15)VALIDATE("YN"):S
U$ :: IF SU$="Y" THEN 740 EL
SE RETURN
740 DISPLAY AT(15,1): "DISK B
EING PROCESSED" :: FOR N=1 T
O 300 :: PRINT #1,REC N: "NO
DATA PRESENT" :: NEXT N :: R
ETURN

```

```

100 REM *****
110 REM *FOREST-FIRE*
120 REM *****
130 REM IN TI BASIC
140 REM AUTHOR UNKNOWN
150 REM CHEMICALS TAKE ABOU
T
160 REM THREE TURNS AWAY FR
OM
170 REM THE LIFE OF A FIRE

180 REM AND ANY ADJACENT
190 REM FIRES.
200 REM FIRES CANNOT SPREAD

210 REM PAST A BURNT OUT
220 REM BACK-FIRE.
230 REM A FIRE HAS A 9 TURN

240 REM LIFE W/OUT CHEM.

250 REM * GOOD LUCK !!!
260 CALL CLEAR
270 M$="PRESS-FOR"
280 Y=10
290 X=18
300 GOSUB 2000
310 M$="B-BACKFIRE"
320 Y=12
330 GOSUB 2000
340 M$="C-CHEMICALS"
350 Y=13
360 GOSUB 2000
370 M$="Q-QUIT"
380 Y=14
390 GOSUB 2000
400 CALL CHAR(104,"226BFFFFFF
E7E7C38")
410 CALL CHAR(112,"1038387C7
CFEFL0")

```

```

420 CALL COLOR(10,9,16)
430 CALL COLOR(11,13,16)
440 CALL COLOR(12,7,16)
450 CALL CHAR(120,"00101C729
0101010")
460 CALL COLOR(9,7,7)
470 CALL CHAR(100,"FFFFFFF
FFFFFFF")
480 CALL SCREEN(7)
490 FOR Y=1 TO 8
500 CALL COLOR(Y,2,11)
510 NEXT Y
520 CALL VCHAR(1,1,100,48)
530 CALL VCHAR(1,31,100,48)
540 FOR T=1 TO 9
550 CALL HCHAR(8+T,8,ASC(STR
$(T)))
560 NEXT T
570 DEF RN(M)=INT(M*RND)+1
580 RANDOMIZE
590 M$=CHR$(112)&" FOREST FI
RE "&CHR$(104)
600 Y=5
610 X=6
620 DIM L(9,9)
630 GOSUB 2000
640 FOR R=1 TO 9
650 FOR C=1 TO 9
660 L(R,C)=10
670 NEXT C
680 NEXT R
690 FOR I=1 TO 3
700 R=RN(9)
710 C=RN(9)
720 L(R,C)=9
730 NEXT I
740 M$="123456789"
750 Y=8
760 X=8
770 GOSUB 2000
780 M$="STARTING"
790 Y=19
800 X=8
810 GOSUB 2000
820 FOR R=1 TO 9
830 FOR C=1 TO 9
840 IF L(R,C)<>10 THEN 870
850 CALL HCHAR(R+8,C+8,112)
860 GOTO 910
870 IF (L(R,C)>0)+(L(R,C)<10
)<>-2 THEN 900
880 CALL HCHAR(R+8,C+8,104)
890 GOTO 910
900 CALL HCHAR(R+8,C+8,120)
910 NEXT C
920 NEXT R
930 M$="WAITING "
940 Y=19
950 X=8
960 GOSUB 2000
970 CALL KEY(0,K,S)
980 IF S=0 THEN 970
990 IF K=66 THEN 1310
1000 IF K=81 THEN 2040
1010 IF K<>67 THEN 970
1020 CALL HCHAR(18,5,32,15)
1030 X=5
1040 Y=21
1050 M$=CHR$(100)&"TYPE ROW"
1060 CALL HCHAR(21,4,32,26)
1070 CALL HCHAR(19,5,32,15)
1080 GOSUB 2000
1090 CALL KEY(0,K,S)
1100 IF S=0 THEN 1090
1110 IF (K<49)+(K>57)<0 THEN
1090
1120 R=VAL(CHR$(K))
1130 CALL HCHAR(21,4,32,26)
1140 M$=CHR$(100)&"TYPE COLU
MN"
1150 GOSUB 2000
1160 CALL KEY(0,K,S)
1170 IF S=0 THEN 1160
1180 IF (K<49)+(K>57)<0 THEN
1160

```

```

1190 C=VAL(CHR$(K))
1200 CALL HCHAR(21,4,32,26)
1210 FOR I=-1 TO 1
1220 FOR J=-1 TO 1
1230 A=R+I
1240 B=C+J
1250 IF (A<1)+(A>9)+(B<1)+(B
>9)<0 THEN 1280
1260 IF (L(A,B)<1)+(L(A,B)=1
0)<0 THEN 1280
1270 L(A,B)=L(A,B)-3
1280 NEXT J
1290 NEXT I
1300 GOTO 1510
1310 CALL HCHAR(21,4,32,26)
1320 CALL HCHAR(19,5,32,15)
1330 Y=21
1340 X=5
1350 M$=CHR$(100)&"TYPE BACK
FIRE ROW"
1360 GOSUB 2000
1370 CALL KEY(0,K,S)
1380 IF S=0 THEN 1370
1390 IF (K<49)+(K>57)<0 THEN
1370
1400 R=VAL(CHR$(K))
1410 CALL HCHAR(21,4,32,26)
1420 M$=CHR$(100)&"TYPE BACK
FIRE COLLIM"
1430 GOSUB 2000
1440 CALL KEY(0,K,S)
1450 IF S=0 THEN 1440
1460 IF (K<49)+(K>57)<0 THEN
1440
1470 C=VAL(CHR$(K))
1480 CALL HCHAR(21,4,32,26)
1490 IF L(R,C)<>10 THEN 1510
1500 L(R,C)=2
1510 FOR R=1 TO 9
1520 FOR C=1 TO 9
1530 IF (L(R,C)<1)+(L(R,C)>9
)<0 THEN 1630
1540 IF L(R,C)<3 THEN 1630
1550 I=INT(3*RND)-1
1560 J=INT(3*RND)-1
1570 A=R+I
1580 B=C+J
1590 IF (A<1)+(A>9)+(B<1)+(B
>9)<0 THEN 1630
1600 IF L(A,B)<>10 THEN 1630
1610 IF RND<.2 THEN 1630
1620 L(A,B)=11
1630 NEXT C
1640 NEXT R
1650 F=0
1660 FOR R=1 TO 9
1670 FOR C=1 TO 9
1680 T=L(R,C)
1690 IF T<>11 THEN 1710
1700 T=9
1710 IF (T>0)+(T<10)<>-2 THE
N 1740
1720 T=T-1
1730 F=F+1
1740 L(R,C)=T
1750 NEXT C
1760 NEXT R
1770 IF F<1 THEN 1790
1780 GOTO 740
1790 C=0
1800 FOR R=1 TO 9
1810 FOR C=1 TO 9
1820 IF L(R,C)<>10 THEN 1840
1830 W=W+1
1840 NEXT C
1850 NEXT R
1860 R=W+30
1870 IF R=100 THEN 1890
1880 R=100
1890 M$="YOUR RATING IS "&ST
R$(R)&". "
1900 GOSUB 2000
1910 M$="PLAY AGAIN?(Y OR N)
"
1920 Y=22

```



First an answer to several queries. MBX modules Space Bandit, Sewermania, Bigfoot, Meteor Belt and Super Fly will work without the MBX Expansion Unit. The rest as detailed in the review in the Jan/Feb issue of the SND require the MBX Unit to operate. While on this topic, Tex Comp's advertisement in February's Micropendium shows that the price of an MBX Unit has risen to \$64.95 (US).

. A freeware Proofreader is published for you to type in. It won't be much good to you until magazines publish TI listings with a checksum number.

. A great Assembly sound tutorial with accompanying source code.

. A program that is supposed to convert Basic programs to Extended Basic. I typed it in but got error messages. I will continue with my efforts to debug.

. A disk sweeper that operates in Basic.

. A few other assorted listings and the usual reviews.

Well that's it for this month. Next month more news on the software scene.

LATE NEWS : Just prior to going to press I have received a copy of the CONVERTOR program which will enable memory image Editor Assembler programs to be saved to and loaded back from cassette. Some good public domain and Freeware offerings are available to be issued to members and this will help those without disk drives to have some better quality programs. You will still need the 32K memory expansion to be able to load and run. Watch this column for further details.

YOUR COMMITTEE:

GROUP CO-ORDINATOR.....Fred Morris (02)8713873
 SECRETARY.....John Robinson (02)8480956
 TREASURER.....Mel Copeland (047)351340
 COMMUNICATIONS CO-ORD..Shane Andersen(02)5690949
 SOFTWARE CO-ORDINATOR..Terry Philips (02)7976313
 MUSIC CO-ORDINATOR....Russel Welham (043)924000
 MERCHANDISE CO-ORD.....Chris Buttner (02)8717753
 TECHNICAL CO-ORDINATOR.Robert Peverill(02)6024168
 EDUCATIONAL CO-ORD.....POSITION VACANT
 ASSISTANT EDITOR.....Keir Wells (02)8163113
 PROGRAMMERS CRISIS LINE Graeme Hollis(02)992229
 ASSISTANT LIBRARIAN....Revell Oataway(02)8681281
 COMMITTEE MEMBER.....Graeme Appleby(02)6289490

COURTESY TO YOUR FELLOW TISHUGERS...

When you strike a programing problem, require information, or just want to chat (modem or otherwise) please look at the clock before you pick up the phone! And always ask if it is a convenient time to call.

DISCLAIMER

The Sydney News Digest(SND) is the official Newsletter of TI.S.H.U.G, and whilst every effort is made to ensure accuracy of information contained therein, be it of a general,technical, programming nature, no responsibility can be accepted by TI.S.H.U.G as a result of the applying of such information. The views expressed in this publication are not necessarily those of this group.

MONTHLY MEETING

1st Saturday of each month (unless it falls on a public holiday then the following Saturday) starting at 2pm through to 4pm at St.John's Church Hall, Victoria St, Darlinghurst Near St.Vincent's Hospital.

ADMINISTRATIVE ADDRESS...P.O.Box 149, Pennant Hills,NSW Sydney, Australia. 2120
 COMMUNICATIONS ADDRESS...SND & TEXPAC BBS:P.O.Box 595, Marrickville, Sydney, N.S.W. Australia 2205



with Shane Andersen
 (TEXPAC BBS SYS-OP)

I have just recently sent a letter to the editor of MICROpendium magazine asking all of their readers who are Systems Operators of TI BBS's to get in touch with me, with the view to exchange of News Items on their systems with ours. It is hoped that I will be able to have an on-going exchange of SS/SD disks with them so that all registered users of the TEXPAC BBS will (1)Be able to read all the very latest developments from the States, without me having to go broke by phoning their stems. (2)Hopefully enable you to leave messages on our system which can be placed on their BBS's overseas in an effort to bring each of us just that little closer as fellow TI users.

You may have noticed some new changes to our system now that our CLOCK CARD is up and running, with the introduction both DATE & TIME is automatically placed on all Electronic Mail sent and currant time plus log-off time is now displayed on each menu.

Terry has informed me that FAST-TERM disk based Terminal Emulator is fast becoming one of the most popular programs available at the club Shop. It sells for only \$5 + postage & packing and is equal in many ways to the 4A-TALK software. It is FREWARE, which means that if you like using it, then send the author a donation...this also keeps the authors enthusiastic to write more good stuff, which in turn keeps our computer alive and well. Its been reported to me that

Greg(Username:GOWFAR)has been buisy up-loading some really great software for those with either 4ATALK or FAST-TERM to down-load to your own computer using the X-MODEM PROTOCOL. We have just recievd some new BBS software from the States with XMODE features, and we'll be taking a good close look at it, with the idea of putting it to use on our system.

This club purchased software some time ago for our BBS...It was simply called TIBBS(tm) by Ralph Fowler in the U.S.A. But we couldn't get it to run, so we sent it back to him, along with the back-up copy we had done...and asked for a refund which he later refused to give us with the excuse that we had probably pirated copies of it. Yes! we could have done that with the software, but we didn't...however, we couldn't copy the hardware which came with the disk. So, its a case of buyer beware of RALPH FOWLER. It wasn't worth the effort in taking legal action against him. It cost us a great deal of money by the time we received it through customs etc, only to find it wasn't compatable then to have to pay to send it back. I suppos that there has always got to be one bad apple in bunch to spoil things.

If we do get it up and running,with this other new software we'll probably be putting it to use during week-days and evenings for tose of you with disk systems, and using our standard one on week-ends for those with the unexpanded cassette based systems. The reason being, that the unexpanded versions of the TI are unable to run XMODEM software.

Cheers for now,
 See you on TEXPAC BBS where we're first with all the good news.

Regards
 SHANE



YOUNGER Set with Jenny

The 18's own page.

Hello gang! I have received some more letters which I will now share with you... You may well remember that we have been looking for the artist who created the fantastic CUPID picture with Graphx, well, we did receive this letter...

Dear Madam, (it's me) Thank you for your interest in my Graphx display of Cupid. I am sorry and very disappointed to read that our graphx picture did not enter the competition. My name is DEBBIE LETTE and I am 18 years old although at that time I was 17 years old. Mark Lette who is my 8 year old brother would like to let you know that he was very excited to see that you used his graphx drawing of the farmer in the November issue on page 4 and hoped that next time you use someones drawing, you could print their name somewhere in the magazine as he had a hard time trying to convince his friends at school that it was his effort in the Sydney News Digest. Thank you for your segment in the S.N.D as we all enjoy reading it.

Yours in T.I.
Debbie Lette.

Thank you for your letter Debbie, and also a very special HELLO to Mark. As we explained in previous issues of the S.N.D, we have been trying to locate you because the disk which Shane had received, was faulty and was unable to be read by the disk drive on some pictures. It wasn't until after the competition that one of our other members put that disk through a special DISK FIXING process to patch and show what was on that disk. I will be sending you a special something in the mail (which you may have received by the time this issue is sent to members). You have a lot of talent, and it would be great to receive more from you for this magazine.

Love
Jenny.

And here's a letter from HEIKO Obermaier:

Dear Jenny, I noticed that you had got my letter that I sent to you a month ago. I also noticed that my score on Parsec has been put onto the HALL OF FAME. Since my name is on there I would like to tell you that you spelt my first name wrong. It is HEIKO not Heibo.

Yours Faithfully,
Heiko Obermaier.

Sorry about the typing error Heiko, your request has been noted, and it's nice to hear from you again.

And a letter from Vincent Maker...

DEAR JENNY,

I HAVE ANOTHER PROGRAM TO CONTRIBUTE TO YOUR MAGAZINE. IT'S A SCIENCE PROGRAM WHICH DEALS WITH PHYSICS, DENSITY, ACCELERATION AND WILL GIVE A SCORE AND RESULT OF YOUR TEST. I HAVE ALSO A QUESTION... HOW DO YOU GO ABOUT GETTING THE ADVENTURE "PLANET FALL"? I WILL LEAVE YOU ON THAT.
YOURS FAITHFULLY,
VINCENT MAKER.

Hi once again. Your program has once again been placed in the Centre Lift-out section for other to type in... and I look forward to getting more from you. You might like to add some graphics to your program. I love the name of it... "MRS TREVILLIONS GAME OF SCIENCE". Who is she, your school teacher?

One of our Young members has produced a set of cassette programs which he is selling for around \$25 each. This might sound like a lot of money to pay for Extended Basic written software cassettes... but each program tape is made up of 4 to 6 LARGE inter-connecting programs of Titles\Music\Story ETC.

I hope to have a review of his programs in the May (Birthday issue) of the Sydney News Digest. A few of the titles include ...

MIAMI VICE PART#1 and A VIEW TO A KILL.

GHOST BUSTERS and DIG DUG.

For more details.. you can contact ANTHONY SHAW (02)888-5937 between 4 pm & 6 pm week nights or on weekends.

KNOWING HOW MUCH SOME MEMBERS LOVE TO PIRATE AND SHARE SOFTWARE...I should take this opportunity to ask you NOT to do it. Especially with programs written locally. Lets support our young program writers and BUY THEIR SOFTWARE to encourage them to write more...or the Pirates in this club will KILL OFF any future desire to support this great computer of ours.

In the Club Shop column by Terry, he has mentioned a new cassette loading program that enables you to load and run some of the worlds finest Arcade programs with your Extended Basic, as long as you have at least got 32k put into your console. Worth thinking about! At the September meeting You'll have the opportunity to learn how to solder, and put your own 32K kit card into your own consol (with supervision and assistance). More news about that day later.

I personally would be very interested in hearing from all our Younger Set members who only have the bare consol and who are interested in (1)getting it expanded to 32k memory inside your console (2)Stand-a-lone Disk Controller with 32k to plug onto your console (3)Stand-a-lone Modem with RS232 interface for printer. Or, any other combination you can think of. Drop me a line right away, so I can pass that information onto our Technical Guys and see what develops. Plus: In that letter, let me know if you are interested in attending a Technical Day to learn about the technical side of your computer and if you want to have the expansion memory put into your console on that day. COME ON...GET THAT PAPER & PEN OUT, GO AND GET A STAMP & ENVELOPE and write to me now (before you forget).
Bye 4 now.

JENNY

JENNY'S YOUNGER SET
P.O.Box 595, Marrickville,
New South Wales, 2204 Aust.

**WE HAVE TWO EARS
AND ONE MOUTH
SO THAT
WE CAN LISTEN
TWICE AS MUCH
AS WE SPEAK.**

REVIEW with KEIR WELLS



NUTS AND BOLTS#1

I am sure that by now most TI 99/4A users have heard of Jim Petersen and his company - Tigercub Software. Jim has been producing commercial quality BASIC software for several years and has once again utilized the powers of the TI to bring out a disk based package of extremely useful programming subroutines - Nuts and Bolts No. 2.

This package contains 108 utility programmes which are saved in MERGE format enabling them to be incorporated into your own programmes by typing MERGE DSK1.programme.

The disk also contains a catalogue programme (CAT) which gives the user a quick reference to the disks programmes.

The programmes have line numbers running from 20710 to 21700 so that they will not overprint any of the lines that are entered in your own programme or any of the lines that are used on Nuts and Bolts No.1.

The disk contains fifteen (15) different categories of programmes:

- * Character Sets
- * Displays
- * Joysticks
- * Maths
- * Graphs
- * Self-Changers
- * Speech
- * Sound effects
- * Word Processing
- * Utilities
- * Graphics
- * Miscellaneous
- * Programmer Utilities
- * File Handling
- * Sorts and Shuffles

I will obviously not be able to list all 108 programmes in this article so a few picked at random will have to suffice.

Character set - BIGLETTER.

BIGLETTER will display a string of up to 13 enlarged characters of any character below ASCII 92. This is definitely one programme that could be used to great effect in programmes of your own design.

Character set - GREEK.

As the name implies, GREEK redefines ASCII character to the letters of the Greek Alphabet. What use this might have I am not quite sure but there could well be a budding programmer somewhere struggling to redefine characters into their Greek equivalent.

Displays - FLIPFLOP

FLIPFLOP is one of my personal favourites which I have already incorporated into two of my own programmes. This programme will display a one line string in upper case letters at the top of the screen and then flipflop it down the screen alternately upside down and right side up.

Displays - BACKGROUND

This programme fills the screen with a randomly patterned and coloured background, changes the upper case letters to white on the background colour, reads up to 10 DATA strings, each up to 28 characters long, from the main programme and display them, properly centered on alternate lines against the background. It then displays a flashing PRESS ANY KEY at the bottom and wipes the screen with the pattern when any key is pressed.

Maths - DEC_HEX, DEC_BIN, HEX_BIN, HEX_DEC, BIN_HEX and BIN_DEC.

These six programmes are among the most useful that I found contained on the package. They perform the mathematical operations necessary in changing Binary to Decimal, Hexadecimal to Binary and so on. For all those who are working with Machine Code and can't afford a Scientific calculator, then these are definitely for you.

Sound Effects - EFFECT

Either just for fun or for utilising in your own programmes, EFFECT enables you to call from any of six sound effects:

1. pow-pow
2. tremolo
3. poing-a-poing
4. sonar
5. sirens, and
6. groan.

File Handling - READFILE

READFILE will input any listable file from disk and list it to the screen, pausing on any keypress and continuing on any keypress. The listing can also be output to a printer. Having used this programme myself I have found it to be an immense time saver when wishing to check up on the contents of files and not being prepared to load the different programmes that would normally be required to read them.

As can be seen, these are but a few of the programmes that are available with this disk. Used by themselves or incorporated into a larger programme I feel sure that the saving in time easily outweighs the initial cost.

The documentation that comes along with Nuts and Bolts No. 2 is simple and foolproof. The ten pages discuss every one of the 108 programmes and in most cases include a small listing to enable the user to quickly experiment with.

Generally, I found Nuts and Bolts No. 2 to be as every bit as good and Nuts and Bolts No. 1 and I am convinced that there would be very few programmers that would likewise fail to be impressed.

** NUTS AND BOLTS NO. 2 is available from:

TIGERCUB SOFTWARE
156 Collingwood Ave
Columbus, OH 43213
United States of America.



REGIONAL



GLEBE REGIONAL GROUP

The March meeting of the Glebe regional group was a very busy meeting with lots happening. A number of programs were displayed. One was the MINIWRITER word processor for an unexpanded system using the Minimemory. Another was a program to show where to find Halley's comet (using graphical displays) and a third was an English strategy program.

Several members wanted to know how to run the 99database program and this was demonstrated. Mike Slattery then started his Assembly Language For Beginners lecture ably assisted by Shane Ferrett. This proved to be most interesting with many questions and discussions arising. The next lecture will be given at the April meeting.

Next there was a demonstration of a new commercially available Modem. It has more features than a new car not the least of which is the ability to operate at 2400 baud. A variety of phone number options such as redial; automatic dialling and sequential dialling are also available. Finally Peter Schubert showed off a Load Interrupt switch which he had built. This is an excellent aid to debugging your assembly language programs especially if lockup occurs. The switch is built into the speech synthesiser box and details are to be provided shortly.

The April meeting will be held on Tuesday 8 th. at 8 PM. The address is 43 BOYCE ST. GLEBE. Hope to see you there.



CARLINGFORD USERS GROUP

The February meeting of the group was held at Chris Buttner's home. Members were able to preview the MYARC Double Density Disk controller card. This stimulated some members to consider the relative costs of extra disk memory i.e. a double sided drive or a double density card.

Some members took the opportunity to expand their software library.

The March meeting is to be held at the home of Claud Fra in Best Street, Seven Hills on Wednesday 20 March with the April meeting being held again at Chris Buttner's home 79 Jenkins Road Carlingford. All welcome - Phone 871-7753 for more details.



"THE PERFECT COMPUTER is the one which will do everything YOU want it to do!" Mine does everything I want! That makes my TI-99/4(A) my perfect computer.

BANKSTOWN REGIONAL REPORT...

The year has started off very well with continued support from our regular members including Shane Ferret whose contributions make the meetings a success. We have two promising young programmers who I'm sure will be submitting some very entertaining programs in the club competitions in the near future.

The evenings activities include dismantling a console and cleaning the contacts to overcome that frustrating problem of LOCKUP. ..demonstrations of new programs being written by members and some new programs from overseas as well as a question and answer session.

We always run out of time as the evening just seem to fly with not enough time to complete the ritual swapping of software.

Meetings are held on the 3rd Sunday of each month starting at 7pm at

Unit #15/479 Chapel Road
BANKSTOWN NSW 2200
Phone (02)7084293

Regards
David Mayo



LIVERPOOL REGIONAL REPORT

This meeting was held at Richard Stanfords March 7 the host provided a tutorial on printer commands and controls and demonstrated his latest program/ a program similar to banner writer. Last month the report did not thank Richard or Stan Puckle of their respective presentations/being DISKCAT an assembly language disk cataloger which is A BEAUTY written by Richard Stan presented part II of his Multiplan tutorial/ Thanks to both men for their efforts.

FORTH COMING MEETINGS.

APRIL 11TH CYRIL BOHLSSEN 6395867

4 MADELINE AVE NORTHMEAD

TOPIC lite nite of games

MAY 16TH STAN PUCKLE 046 256157

RICHMOND ST CAMPBELLTOWN

TOPIC adventure nite into the galaxy.

JUNE 13TH MARCEL ZAIA 631 1534

35 FEARN ST. TOONGABBIE

TOPIC Ti-writer.

JULY 12TH ROSS HARDY 637 6772



CENTRAL COAST REGIONAL GROUP REPORT

A TUTORIAL ... Introducing LINKING ASSEMBLY FROM EXTENDED BASIC to be presented by Ross Mudie of TISHUG.

VENUE: 48 Manoa Rd, Budgewoi

DATE : Saturday 12th April '86 at 5:30pm.

SUBJECT: This very special TUTORIAL day will be of approximately 4 hours in duration and will be an ideal way to get started into the interesting area of writing your own assembly language sub programs for your extended basic programs.

DIRECTIONS

For those members coming from Sydney proceed along the Highway past Wyong to the Doyalson Traffic Lights turn right to Budgewoi at the Lights travel past the Power Station on the left. When you arrive at the 60K zone turn 1st left into Walu Ave. 2nd right into Lukela Ave. 6th right into Manoa Ave. The house is the 5th on your right. PLEASE LET US KNOW IF YOU ARE COMING IF POSSIBLE. SO WE CAN HAVE A BOOK FOR YOU

Ross MUDIE 02 4562122

Russell WELHAM 043 924000

Ebel CUMMINS 043 909648

TUTORIAL FEE.

\$2-00 per Family



PHEONIX OR PIGEON?

by Steven Shraibman

I suppose you have all heard some stories concerning a new TI 99/4A compatible somewhere. Well, rumours and rumblings have been going on for nearly two years since TI withdraw from the home computer market. In fact someone even had the gall to name the computer the Pheonix even though not even a prototype existed and no company even acknowledge developing a compatible. Our hopes were raised greatly when Tex Comp announced its "compatible" about half a year ago. This turned out to be an exact TI 99/4A inside and IBM casing.

But don't be put off. A new compatible is just around the corner. The company producing it is Myarc Inc. which I'm sure you've all heard about due to their cards for the PEB.

The computer was demonstrated (or nearly so) at the Chicago TI User's Faire held last October. The president, Lou Phillips displayed to a packed auditorium the computer's mother board and the IBM type casing (seperately). The computer was not properly demsotrated since Mr. Phillips FORGOT to bring a disk of the disk-based operating system! (It appears Mr. Phillips has never heard of couriers).

Cosmetically, the new computer looks very much like and IBM. Besides the standard TI keys the keyboard has ten function keys above the number keys and sixteen other keys to the right of the keyboard. These include full cursor control. The keys are in two colours: white and beige and the console is somewhere between the two.

Here's a basic rundown of its credentials:

1. TMS 9995 central processor chip (4A uses TMS 9900)
2. 256K of main memory (4A has none built in).
3. 64K VDP (4A has 16K).
4. 64K ROM (4A has 8K).
5. Parallel port (4A has none built in).
6. Serial port (4A has none built in).
7. 2 internal expansion slots (4A has none built in).
8. Cartridge port on top of keyboard (4A has it on the side).
9. Mouse support (4A has none).
10. 30Mhz clock (4A?).
11. GPL interpreter in ROM (4A has it in GROM).
12. Event driven keys.
13. Will use 16K RAM at power up leaving 240K. 14. Physical memory map; due to the mapper able to support 2 MEGABYTES of main memory. (256 on board plus 3 outboard expansion banks on 512K card now being developed with jumpers on card). This means that the new computer can adress 2Mb at the same time unlike the 4A's 48K or 0.048Mb.

The TSM 9995 is an updated version of the TSM 9900 and therefore will be approxiamtely 95% compatible. The big drop is no speech access. It had 254 bytes internal RAM, load vector and timer and will run approximately at twice the speed of the 9900 because it implements an on board 16 bit parallel memory. While

running BASIC the interpreter will occupy three 8K segments for program page, string space and symbol space one each.

The video display processor chip is the 9938 made by Yamaha in Japan. It supports 2 text modes and 8 graphics modes, 512 colours and RGB or composite monitors. TEXT mode will have 80 x 24 lines or 80 x 26 lines. GRAPHICS 1 is like the 4A's with four sprites a line. GRAPHICS 2 allows ten sprites a line. GRAPHICS 2 and 3 have 8 x 8 dots per character for a totle of 768 possible patterns, 16 colours of 512 per screen. GRAPHICS 4 will be 512 x 212 pixels per screen but with interlacing can be doubled to 512 x 424. GRAPHICS 6 will have sixteen colours per screen but every pixel individually adressable. In the other graphics mode you will be able to adress two screens simulataneously enabling some very interesting animation by going from one to the other and back. The 9938 has 32 control registers as compared with the 9918's 5 or 6.

At the moment little is known about compatibility with existing TI hardware but it is known that the computer will run Myarc's own memory card using the TI PEB as a card cage. However it has been said that the computer is being built so as it only uses Myarc and TI cards noticebale leaving out Cor Comp. Sound stupid? Lou Phillips said that his company is committed to the computer and hopes for a first quater 1986 launch at the Januay CES. And good news. Unlike TI, Myarc WILL publish a technical manual. So what is it called? Lou Phillips is fielding suggestions. He thought a play on the company's name, which stands for Microcomputer Architects. "Noah" has been suggested (as in arc).

Being an objective type of a guy I thought I'd copy out a letter printed in the January MICROpendium from Fred DuVall of Arkansas, USA:

Lou Phillips, president of Myarc, says he is looking for a name for his NEW computer and wants something that is a play on the firms name. The firms name is Microcomputer Arcitects so may I suggest that he use the two first lettes and call it "MA"; this could either stand for Much Arrogance or represent the cry by a child for help.

A review of the firm's recent customer relations would reflect the following: 1) TI hardware manufacturers, software producers and computer users seem to be pulling closer together while Myarc products seem to be increasingly incompatible with all three; 2) his much touted Extended BASIC update upgrade has missed more shipping dates than an IBM product, and Myarc is not Big Blue, plus at the Chicago Faire he "forgot" a diskette to demonstrate this item (one has to wonder if he has never heard of door to door for \$10 Purolator Courier or didn't he think the Faire attendees were worth \$10?); 3) did you look at the NEW computer's motherboard at Chicago? -one has to wonder what many of the unconnected chips were doing and where the memory chips or space for them (perhaps that THING has artificial intelligence); 4) should one mention the fiasco at the June CES where Lou and the NEW computer were supposed to be?; 5) could one mention the fiasco at the the November Chicago Faire where Lou and the NEW computer were supposed to be?

It would seem that the most appropriate name for the NEW computer is TIME since it and the NEW computer's introduction date seem to do nothing but move on.

Thats the end of the letter. Thats all I've got to say. Make your own mind up for yourselves. You must also ask yourselves: Is it worth it to pay US\$500 plus p&h for something that will copy a computer you already have.

TI Technical File "CALL LOADS"
from Joe Presser

THIS FILE WAS DOWNLOADED FROM THE
SOURCE and shown on TEXPAC BBS

CALL LOADS is a regular column in SUBFILE99 featuring various CALL LOADS and CALL PEEKS that can be used on the TI Home Computer. In order to use these LOADS and PEEKS you must have the ED/ASSM\ X-BASIC or MINI-MEMORY Modules and 32K Memory Expansion. If you have CorComp's DSDD Card\ you can use most all of the memory addresses\ but you'll have to change the instruction format to fit CorComp's. Do you have interesting LOADS or PEEKS that you have found? Why not send them in.

GETTING A LINE ON YOUR PROGRAM

CURIOUS GEORGE?

Have you ever wondered how your TI console stores and reads the BASIC program you type in? Well, I have! It all started when I began to have problems with one of my consoles. Every time I EDITed an existing line, other lines got "messed up" or even MOVED to some other part of the program! Eventually, I had to have the console replaced, but it didn't keep me from becoming curious. I was determined to figure out how this could happen. When I finally found the answer, I learned a great deal about how the TI keeps track of the program we type into it. Below is some info that you can use to get "computer"s-eye-view of the program you have typed in.

IT TAKES TWO TO TANGO

Any BASIC operating system has to keep track of every line of code you type in. It not only has to keep track of the program data, but it also has to keep track of the line numbers too! The TI BASIC system uses two different areas for this; 1) the Line Number Table and 2) the Program Area.

All this info is stored in the highest memory available to the console. For TI BASIC that will usually be somewhere around address 14228 and for X-BASIC with MEMORY EXPANSION, somewhere around address -28. This all depends on the number of files open (as in CALL FILES(1)) and whether the disk drives are attached, etc.

PROGRAM FIRST

The actual lines of program code are stored first. Each line of code is stored in a series of bytes. Most all reserved words like PRINT, INPUT, REM, etc., are stored as a single byte value called a TOKEN. For instance, the TOKEN values for the the above three words are 156(>9C), 146(>92) and 154(>9A). TI BASIC also keeps track of variables, constants and jump references in a similar way. Each line is preceded by a length byte and, at the end of each line, the value 0(zero) is placed to indicate the end of the line.

As each line is typed in, the BASIC operating system translates it into these byte values and stores it at the top end of the available memory. When you EDIT a line or INSERT a new line between existing ones, that new line is stored at the "end" of the Program Area, not inserted into the middle. This is important to remember when trying to locate a line of code! Note also that the line numbers (i.e. 100,110,etc.) are NOT stored with the line of code. This allows the TI system to easily RESequence your program, and allows the system to place lines at any available memory location instead of in execution order only. So where are the line numbers? In the Line Number table, of course!



SAM MUDIE

THE LINE NUMBER TABLE

After all the lines of code are stored, the Line Number Table begins. Each line of code has 4 (four) bytes of information in the Line Number Table: two bytes for the line number (>0064=line 1000, and two bytes for the memory address where the line of code is stored (>ffe7=-28). When the BASIC interpreter is running the program it looks at the Line Number Table, gets the line number and the line address, branches to the address, gets the actual program line and THEN performs the line of code. Not so simple, eh?

Since the Line Number Table is stored at the end of all the program lines, each time you add a new program line, the entire table has to be "shifted" downward into lower memory. This is why, especially in a long TI BASIC program, it takes quite a while for the cursor to "come back" after you have EDITED a line. The operating system must code the line, shift all the line numbers and addresses downward and then insert the new line number and address into the table. That would take anybody a little time.

PEEKING AROUND

Let's look in on the operating system as it does all this stuff! Here's what we'll do:

1) Enter X-BASIC (or TI BASIC with ED/A or MINIMEM module) and type:

```
100 PRINT "THIS IS A TEST"
```

2) Find Line Number Table: To find the Line Number Table, PEEK into the CPU RAM PAD at address -31950; get two consecutive bytes; convert these bytes to decimal; subtract 3 bytes (overhead) and, if you are using X-BASIC with MEMORY EXPANSION, subtract 65536; you now know the address where the line table starts:

```
CALL PEEK(-31950,A1,A2)
LT=A1*256+A2-3-65536
```

In X-BASIC, the value should be -47 and in TI BASIC it should be 14273. As each line of code is typed in, the table will move farther down into memory.

3) Get the line and address; Using the start of the Line Number Table, get the first line of code and the address where it is stored. In X-BASIC this is stored in MEMORY EXPANSION so you use the following:

```
CALL PEEK(LT,L1,L2,A1,A2)
LN=L1*256+L2
LA=A1*256+A2-65536
```

```
LT=Line Table Address (-47)
LN=Line Number (100)
LA=Line Address (-42)
```

In TI BASIC, the program is stored in the console itself, therefore you must look into the VDP area with the command PEEKV:

```
CALL PEEKV(LT,L1,L2,A1,A2)
LN=L1*256+L2
LA=A1*256+A2
```

```
LT=Line Table Address (14273)
LN=Line Number (100)
LA=Line Address (14278)
```

4) Get the line length:

Each line of program code is PRECEDED by a line length byte. This tells the system how many bytes to interpret. To find the line length, read the byte PRECEDING the Line Address:

```
X-BASIC: CALL PEEK(LA-1,LL)
```

```
TI-BASIC : CALL PEEKV(LA-1,LL)
```

In both cases, LL=18.

5) Read the Program Line:

Now all we have to do is read in 18 bytes of code starting at the Line Address (LA):

```
X-BASIC:
CALL PEEK(LA,A,B,C,D,E,F,G,H,
I,J,K,L,M,N,O,P,Q,R)
PRINT A;B;C;D;E;F;G;H;I;J;K;
L;M;N;O;P;Q;R
```

```
TI-BASIC:
CALL PEEKV(LA,A,B,C,D,E,F,G,H,
I,J,K,L,M,N,O,P,Q,R)
PRINT A;B;C;D;E;F;G;H;I;J;K;
L;M;N;O;P;Q;R
```

In both cases, the values A-R will equal:
156 199 14 84 72 73 83 32 73 83
32 65 32 84 69 83 84 0

156 - Token value for PRINT
199 - indicates a string value
14 - length of string

The rest of the bytes are ASCII values for the string (84=T, 72=H, 73=I, 83=S, etc.),

POKING AROUND

Now let's see if we can't reverse the process. This time we'll do a few POKES into memory that will make the computer think you typed in a line of code! Here's what we'll do:

1) Clear memory and type CALL INIT.

2) Set up Line Table: The system needs to know where the line table starts, so:

```
CALL LOAD(-31950,A1,A2)
```

```
X-BASIC: A1=255, A2=220
TI BASIC: A1=55, A2=204
```

3) Insert line # and address: Next we need to fill up the line table with line and address data:

```
X-BASIC:
CALL LOAD(-39,0,100,255,222)
TI BASIC:
CALL POKEV(14281,0,100,55,206)
```

4) Insert line length and line code.

Now all we need to do is insert the line data:

X-BASIC:
CALL LOAD(-35,10,156,199,6,
72,69,76,76,79,33,0)

TI BASIC:
CALL PEEKV(14285,10,156,199,6,
72,69,76,76,79,33,0)

5) LIST YOUR PROGRAM!

Because the system has not been properly informed as to where the program ENDS, this is not "RUNable" code. But at least you can see your work!

EXAMPLE PROGRAM

Below is a program that will "read itself". Using the tools we learned above, this routine will read the Line Number Table, and find the Line Address and Line Length. After each line is found, the program waits for you to hit a key before it reads the next line.

NOTE: This program is written for TI BASIC with ED/A or MINIMEM modules. To use it with the X-BASIC and MEMORY EXPANSION you need to make a few changes:

- 1) Line 220 - add -65536 to the end of the line.
- 2) Line 260 - change PEEKV to PEEK.
- 3) Line 290 - add -65536 to the end of the line.
- 4) Line 330 - change PEEKV to PEEK.

ONWARDS!

Armed with this info, you can begin to learn more about how the TI system works and you can use these tools to help read AND write your own programs. A number of programmers place routines like this into their programs as a way of "protecting" valuable code sequences or algorithms from prying eyes. It's usually called "imbedded code." You can also use routines like this to translate a text line into program format once you learn to decode all the token values!

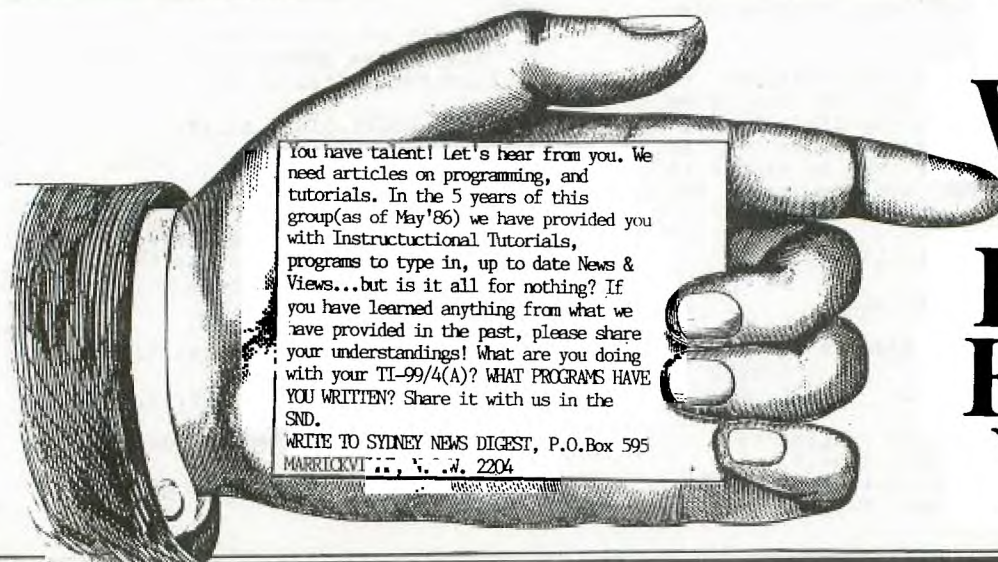
Next time, we'll talk about how to write a routine that writes it's own RUNable program!

NOTE: The following program listing is in 80-column format. if you are using the TE-II module, use CTRL-5 to switch to 80-col mode!

```

100 REM *****
110 REM *
120 REM * PROGRAM PEEKER *
130 REM *
140 REM *****
150 REM
160 REM      11/84
170 REM      SUBFILE99
180 REM
190 CALL INIT
200 CALL CLEAR
210 REM
220 REM *FIND LINE TABLE*
230 REM
240 CALL PEEKV(-31950,A1,A2)
250 LT=A1*256+A2-3
260 REM
270 REM *GET LINE & ADR*
280 REM
290 CALL PEEKV(LT,L1,L1,A1,A2)
300 LN=L1*256+L2
310 IF LN=0 THEN 570
320 LA=A1*256+A2
330 REM
340 REM *GET LINE LENGTH*
350 REM
360 CALL PEEKV(LA-1,LL)
370 REM
380 REM *****
390 REM *PRINT THE DATA*
400 REM *****
410 REM
420 PRINT "LINE";LN
430 PRINT "ADDR";LA
440 PRINT "LEN ";LL
450 PRINT
460 CALL SOUND(150,1400,0)
470 CALL KEY(O,K,S)
480 IF S=0 THEN 470
490 REM
500 REM *UPDATE LT*
510 REM
520 LT=LT-4
530 GOTO 290
540 REM
550 REM *END*
560 REM
570 PRINT "END OF PROGRAM"
580 PRINT
590 END

```



You have talent! Let's hear from you. We need articles on programming, and tutorials. In the 5 years of this group(as of May'86) we have provided you with Instructional Tutorials, programs to type in, up to date News & Views...but is it all for nothing? If you have learned anything from what we have provided in the past, please share your understandings! What are you doing with your TI-99/4(A)? WHAT PROGRAMS HAVE YOU WRITTEN? Share it with us in the SND.
WRITE TO SYDNEY NEWS DIGEST, P.O.Box 595
MARRICKVILLE, N.S.W. 2204

We Want to Hear From You!



Sydney News Digest

EXTENDED BASIC ASSEMBLER
PROGRAMS FROM CASSETTE

by Steven Shraibman. From
TI*MES

With the advent of stand alone and do-it-yourself 32Ks has come the question of whether an assembly language program can be run from XB with a cassette recorder. At first sight this seemed impossible but a half hearted solution has been found by Evert Smies of the Netherlands.

Unfortunately there is still no way to record assembly to cassette. However once a program is saved to disk it can then be transferred to cassette. You'll probably need a friend with disk drives for this.

The method is based on the possibility to use the Merge command in XB to save an XB program as a DIS/VAR 163 file. Each Basic instruction is assigned a "token", the ASCII-value of which is written to the file. Of course it is possible to make one's own file of ASCII-values, which may be merged with another program. This is the method that is used.

You will only need a few tokens for this program. These are: DATA = 147, an unquoted string begins with 200 and the length of the strings gets that corresponding ASCII value, a program line is ended by 0 and a program is ended by 255.

So here's the program. What it does is load the assembly program and then PEEK into the memory and saves that as a DIS/VAR 163 file in DATA statements.

```

100 CALL CLEAR :: PRINT
"FILE NAME OF
ASSEMBLER": "PROGRAM" :: INPUT
A$ :: PRINT "OUTPUT FILE " ::
INPUT 0$
110 OPEN #1:0$,VARIABLE
163,OUTPUT :: CALL INIT ::
CALL LOAD(A$)
120 CALL
PEEK(8194,A,B,C,D) :: LN=90 ::
X$= CHR$(A)& CHR$(B)& CHR$(C)&
CHR$(D) :: GOSUB 200
140 AY=0 :: FOR AD=9460 TO
A*256+B-1 :: GOSUB 180 :: NEXT
AD :: GOSUB 200
160 AY=0 :: FOR AD=C*256+D
TO 16383 :: GOSUB 180 :: NEXT
AD :: GOSUB 200
170 PRINT #1:CHR$(255)&
CHR$(255) :: CLOSE #1 :: STOP
180 CALL PEEK(AD,X) ::
AY=AY+1 :: X$=X$& CHR$(X) ::
IF AY/150 =INT (AY/150) THEN
GOSUB 200
190 RETURN
200 LN=LN+10 :: L1=
INT(LN/256) :: L2= LN-L1*256
:: PRINT #1:CHR$(L1)&
CHR$(L2)& CHR$(147)&
CHR$(200)& CHR$(LEN(X$))& X$&
CHR$(0):: X$="" :: RETURN

```

Address 8194 (>200) contains FSTLOW and LSTLOW, which indicate the length of the assembler program and the DEF table. The assembler program, provided it was relocatable, was loaded from address 9460 (>24F0) through FSTLOW-1. The DEF table runs from LSTLOW through to 16383 (>3FFF). The FSTLOW and LSTLOW are PEEKed first and put into the first DATA line with line number 100. Then the assembler program follows and the file is completed by the DEF table. Assembler program and def table are written in by 150 byte data lines.

If the DIS/VAR 163 file is merged with the following XB program, a new program is created which loads the assembler program from the DATA lines. This new program can then be saved to cassette or disk.

```

1 DIM A(3) :: CALL INIT ::
AD=9460 :: READ X$ :: FOR I=0
TO 3 :: A(I)= ASC
(SEG$(X$,I+1,1)) :: NEXT I ::
EA=A(0)*256+A(1)-1 ::
TA=A(2)*256+A(3)
2 FOR I=1 TO
INT((EA-9460)/150)+1 :: READ
X$ :: FOR J=1 TO LEN(X$) ::
CAL LOAD(AD,ASC
(SEG$(X$,J,1))):: AD=AD+1 ::
NEXT J :: NEXT I
3 AD=TA :: FOR I=1 TO
INT((16383-TA)/150)+1 :: READ
X$ :: FOR J=1 TO LEN(X$) ::
CAL LOAD(AD,ASC
(SEG$(X$,J,1))) :: AD=AD+1 ::
NEXT J :: NEXT I
4 CALL
LOAD(8194,A(0),A(1),A(2),A(3))
:: STOP

```

Loading an assembler program in this way of course takes more time but the advantage is that in some cases a lot of disk space may be saved. In one case 31 sectors became 15.

The same method may of course be applied to TI BASIC with the Editor/Assembler plugged in or with Minimemory. However this is pretty useless since you must have the disk system for Editor/Assembler and Mini Memory has a cassette provision.

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TECHO TIME

USING THE LOAD IN 'T'

By Peter Schubert TISHUG
3 March 1986

In Enthusiast '99, Vol1, #4, Nov.1983, the use and implementation of the load interrupt are discussed. Briefly, it allows recovery from a LOCK-UP during assembly programming with the E/A or Extended Basic. This project presents the hardware and software needed to allow the interrupt to function.

The circuit shown below is one way to implement the hardware. The components shown are not the only ones that can be used and substitutions can be made if the same results are achieved. Connecting the circuit to the computer requires access to the 44 pin I/O Port. I made the connections inside the Speech Synthesizer box and soldering to the speech board.

The following list of parts was used to make the unit:-

- small piece of 0.1 inch veroboard approx. 40mm square
- 1 14pin IC socket
- IC type 4011
- 3 resistors 22K 1/4w
- 2 ceramic caps 0.1 mF 25-50 volt
- some hookup wire
- small piece double-sided tape to mount board.

A copy of the source program is given below, which allows you to transfer control to another previously loaded program such as the debugger, or a screen-dump, etc,etc. There are many possible uses of this device, some of which may be printed in future articles.

```
*****
* LOAD INTERRUPT *
* 4/3/86 C@ *
*****
DEF INTR
GPLWS EQU >83E0
STATUS EQU >837C
*
*****
*
WS BSS 32
AORG >FFFC
DATA WS,>3FO0
AORG >3FO0
INTR CLR RO
MOV B @STATUS
LWPI GPLWS
B @>0070
END
*****
```

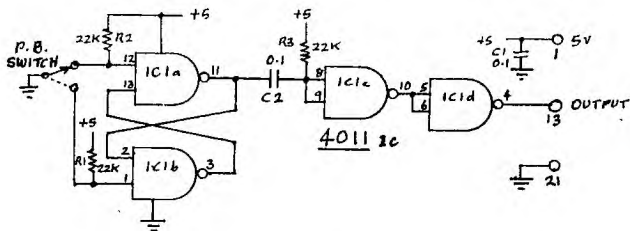
32K MATCHBOX MEMORY REVISED

By Peter Schubert

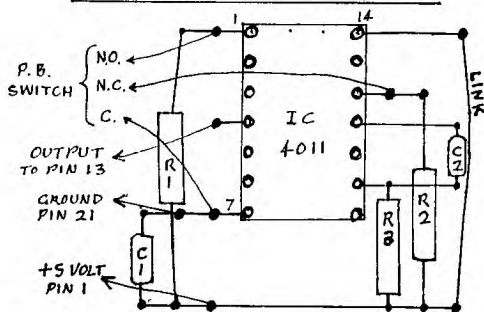
Here is a revised table showing connections to the back of the Grom extender with numbers showing the pin on RAM chip socket it goes to. Attach ribbon cable in the alphabetical order shown to the Grom extender first and then connect the other end to the pin numbers on Ram socket starting at same end of ribbon marked 'A'.

	A	B	C	D	E	G	H	J	L	N	P	R	T	X
	27	23	21	24	2	25	3	4	5	6	7	8	10	14
					F	I	K	M	O	Q	S	U	V	W
					9	28	11	12	13	15	16	17	18	19

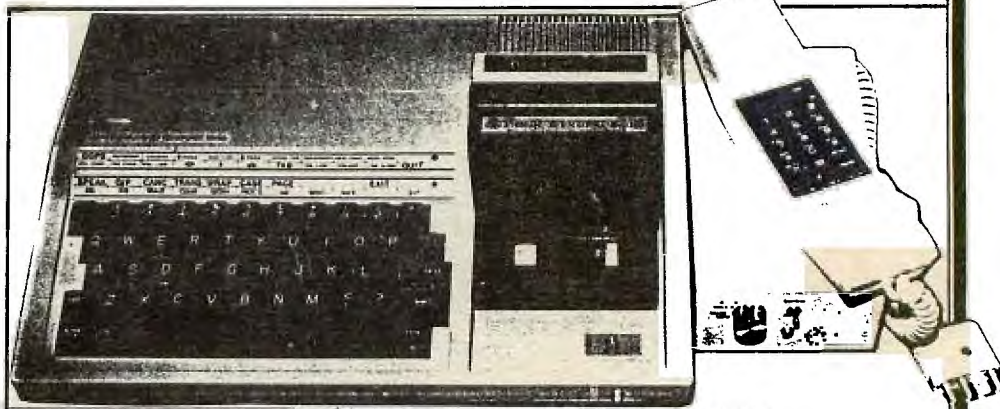
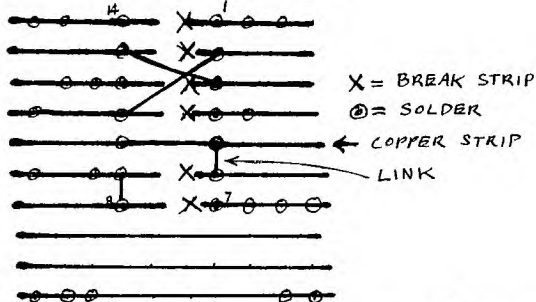
TISHUG LOAD-INTERRUPT



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