

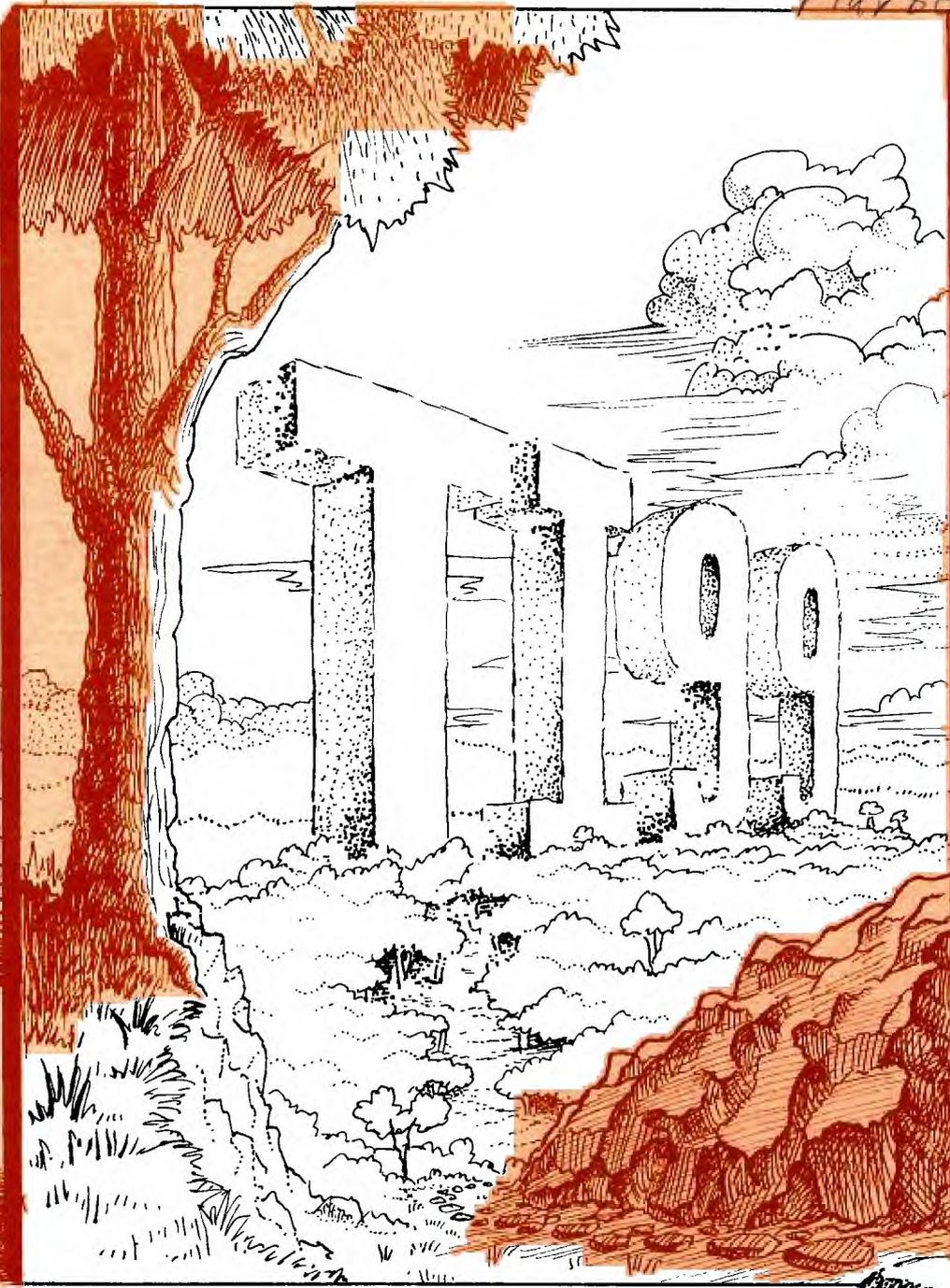
Mar 86

THE SIXTH AUSTRALIAN
PERSONAL
COMPUTER
SHOW



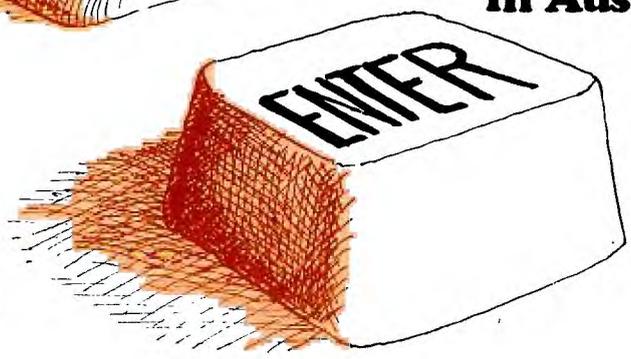
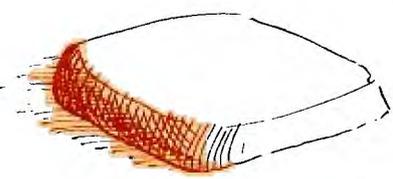
SYDNEY 12-15 MARCH 1986

SYDNEY NEWS DIGEST



Autumn

in Australia [MARCH '86]



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FEINO '86



Sydney News Digest



SECRETARY'S NOTES with J.L.R.

Hi! A special welcome to all the new committee members who were elected at the 4th Annual General Meeting. The following nominations were received:

SYDNEY CO-ORDINATOR.....Fred Morris
 SECRETARY.....John Robinson
 TREASURER.....Mel Copeland
 BULLETIN BOARD SYSOP.....Shane Andersen
 MUSIC CO-ORDINATOR.....Russ Welham
 LIBRARIAN.....Terry Phillips
 ASSISTANT LIBRARIAN.....Revell Oatway
 EDITOR.....Shane Andersen
 PUBLIC RELATIONS OFFICER...Chris Buttner
 PROGRAM ADVISER.....Graeme Hollis
 TECHNICAL ADVISER.....Robert Peverill
 COMMITTEE MEMBER.....Graeme Appleby

A number of other nominations were received but were withdrawn. It was good to see this level of interest in the club.

The result of the Ballot covering the four options detailed in last month's SND was as follows:

OPTION #1.....6
 OPTION #2.....8
 OPTION #3.....3
 OPTION #4.....60
 Informal.....2

OPTION 4 states: THAT THE CONSTITUTION OF THE CLUB BE AMENDED IN ORDER TO GIVE MAXIMUM PROTECTION TO MEMBERS AGAINST ANY DAMAGES AWARDED AGAINST THE CLUB IN ANY LEGAL ACTION AND THAT THE CLUB BE INCORPORATED AS A COMPANY LIMITED BY GUARANTEE UNDER THE COMPANIES CODE.

The new committee has therefore been given the mandate to implement OPTION 4. The next committee meeting to be held on February 25th. at Woodstock will discuss this matter in detail and all members are invited to attend.

The function of the Users Groups is becoming more important as time goes by as there will be shortly no more retail outlets supporting our orphan. Computerwave is the last outlet and this company has already phased out hardware and software will follow very soon. IMAGIC has completed its commitment to support us for two years. 60,000 modules have recently been returned to the USA. IMAGIC will only stock the top selling modules. The only decent software coming on the market is disk based. In view of this situation it is important for those TI 99/4A owners that we survive and it is expected that the implementation of OPTION 4 will help us to survive for several more years.

A special thanks to Brian Graham for all his work done to bring the ballot at the AGM to a successful conclusion.

PC86 will be held during March. Look at the floor plan, so you know where you can find us. Is your name on the Roster? Check the Roster printed with this article. You will see we still require help at certain times. Please let me know if you can help as soon as possible. Those members attending the AGM were able to pick up free \$5 tickets to the show. For those members still wanting tickets send me a stamped addressed envelope anytime before the show starts. We will have a connection to the club's Bulletin Board, VIATEL, and MINERVA. Visitors will also see a sample of Peter Schubert's modified console which has 32K expansion and speech synthesiser built-in. Also on the stand will be the latest in modem technology, and stand alone peripherals for those with cassette systems. Software for transferring TI-WRITER files to a database using the TELL will be demonstrated courtesy of Bernie Elsner from Perth.

I recently invested in the purchase of all the back issues of MICROpendium. I can highly recommend this publication to you. See Terry Phillips if you are interested.

Here's a tip, which could save you hundreds of dollars. Most of you will be aware of the high incidence of lightening along the coast of Australia particularly during the summer months. It is important that you do not operate your computer system during any electrical storm. Also disconnect your computer and peripherals, including telephone/modem combination from the wall sockets whenever these items are not being used. A storm can develop while you are away from home and the electrical surges which are prevalent during a storm can cause serious damage to your electrical system. In extreme cases overhead wiring can catch fire and burn your house down. Two houses in Westleigh where I live have caught fire because of this problem. Chris Buttner lost all his cards in a recent storm and it is going to cost him \$650.00 to fix them.

Last year I lost one of my phones and burnt out a transformer on my fridge during a severe electrical storm. My insurance paid for a new transformer but not the phone repairs. So be warned!

Running out of memory.....

Happy computing the TI way,

John L. Robinson
Hon. Secretary.

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PROGRAM LIFT-OUT COLLECTION

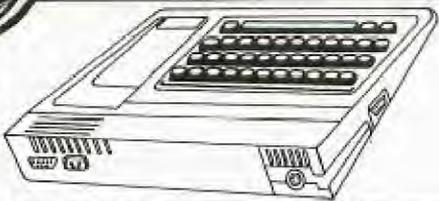
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THE SIXTH AUSTRALIAN
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CENTREPOINT SYDNEY 12-15 MARCH 1986



PROGRAM HINTS
by Ross Mudie of T G.
* Responses to TISHUG members' questions.

*** ASSEMBLY PROGRAM FLOW**

The following will seem to be a restatement of the obvious to any who have formally learnt an assembly programming language, but is prepared to assist others who are struggling to master assembly on their TI99/4A.

In preparation of your assembly program it is very important to ensure that the program flow does not pass through any DATA, BYTE or TEXT directives. This type of information should be placed totally clear of the program flow else the information will be treated as program instructions giving unpredictable results. This is entirely different to assignment of values to variables or the treatment of DATA in basic or extended basic.

My preference is to place BYTE, DATA and TEXT above the program entry point in assembly thus making it more difficult to have unwanted program flow through this information.

*** KEEPING TRACK OF FREE MEMORY SPACE**
whilst an extended basic program is running.

(Adapted from TIUP [Perth] TITBITS Vol 1 No 4, Nov 82).

```
1000 SUB TESTSIZE
1010 C=256
1020 CALL PEEK(-31974,H,L):: F=H*C+L :: S=F-2455 ::
PRINT "STACK SPACE FREE ";S
1030 CALL PEEK(-31866,H,L):: F=H*C+L-41023 :: PRINT
"PROGRAM SPACE FREE";F :: U=65511-H*C-L :: PRINT
"PROGRAM SIZE ";U
1040 SUBEND
```

- Application notes:
- (a) Omit line 1030 if memory expansion is not connected or string size only is required.
 - (b) The constant 2455 may need to vary a little under different program conditions, compare your results with SIZE in command mode after running your program. The constant value in the original article for the memory expansion case was 2437.
 - (c) Inaccuracies may occur in the values obtained for STACK SPACE due to "uncollected garbage", (no longer used strings), experiment with a simple program which redefines a string then reads string size.
 - (d) Include CALL TESTSIZE in the extended basic program wherever a dynamic size is required and renumber SUB TESTSIZE to suit your own requirements.

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Face to Face



CO-ORDINATOR'S REPORT
MARCH 1986

So be it! When I foreshadowed a difficult yet challenging year ahead for the committee (refer PUBLIB report Jan/Feb SND) little did I know that I would be in the firing line! I feel quite humbled by having been offered the position as the Co-Ordinator of the group for 1986. I will attempt to undertake the inherent responsibilities of the position to the best of my ability. Thank you Peter Varga - past Co-Ordinator - for your contribution to the group.

Thanks go also to the other members of the committee for agreeing to undertake the responsibilities offered by the membership as a whole. I view the next year as probably the most crucial year of our existence thus, your total involvement and dedication is absolutely necessary if we are to see it to the end. I look forward to the challenge!

Now that the group has formally directed us to incorporate as a Company Limited by Guarantee, we must realise that the Company Code does force upon us certain changes to our present administrative controls and financial reporting. Mel Copeland has joined the committee to undertake the responsibility of setting up the system designed to satisfy these requirements. As we progress in this area you will kept fully informed. John Robinson does not escape the effect of us having to conform to the Company Code - so, John the role of Secretary takes on a new meaning. Thank you Brian Graham for undertaking some of the legal work necessary to see us through this period

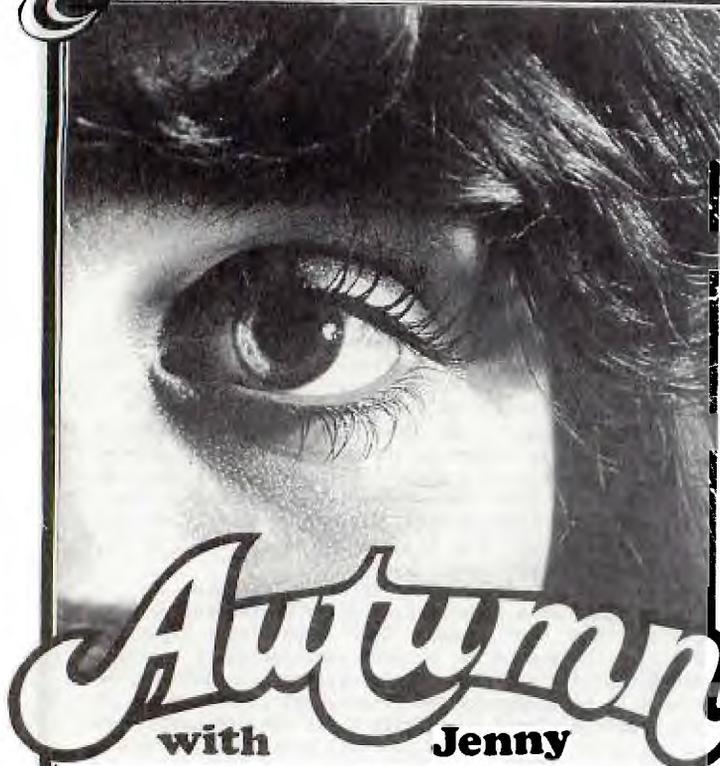
For us to be a positive force in the User Group business it is necessary to establish some goals. Without prior discussion with the committee, I am certain that they will not disagree, I view the following to be worthwhile objectives for the group in '86:

1. We should aggressively seek to establish closer links with the other Australian TI. User Groups whilst strengthening our International reputation. In order to do so we should seek to develop a pacesetter philosophy which can only come about with total membership involvement.
2. In respect of the membership generally, we should encourage and develop the formation of Regional Home Groups. These groups are vital to the ongoing process of communication within the group both upward and laterally between members.
3. Seek to establish and develop Special Interest Groups - To do so will result in a much stronger and computer literate membership. For us to succeed here the involvement of the Group's most computer proficient members is absolutely vital. The membership want it so please help us to educate!
4. Develop a project mindedness for the purpose of total group benefit or undertake special projects designed to assist individual members in their needs.
5. Enhance the overall effectiveness of the group's services. We aim to do a better job of the Shop, Software library, Publications library, BBS and Magazine. Our opportunity here is to do a better job at a lower cost.

There you have it! Say it all quickly it does not sound very difficult - and it won't be if we, the committee, have the total support members displayed when electing us to lead the group. Consider, you have delegated us to do a job for you but did you know that, managerially speaking, delegation without accepting the responsibility for such delegation is in fact ABDICATION?

I look forward to 1986 do you?

Fred Morris



with Jenny

The UNDER 18's own page.

Hi gang, so...you are now back to school! I bet you are really enjoying it..(hum!). Welcome to another UNDER 18's section entitled Younger Set. I have had a poor response from all of you this month. I thought that we had a very talented group of Younger Set members, but perhaps I am wrong. I should take this opportunity to say a special hello to Steven Judd, pictured below, who I believe is a bit of a rat-bag in a fun way. Aged at about 12 years old, he has chatted to me on a number of occasions on the modem, when I have been visiting Shane. If you have a modem connected to your computer, you can send me mail or, when ever I am over at Shane's you might like to chat to me.



I have received a letter from VINCENT MAKER of 29 Palmeston Avenue, Winston Hills, 2153 NSW. He writes as follow...

Dear Jenny,
The tape enclosed with this letter is my contribution to your magazine. On the green side of this cassette, you'll find an educational program about "Doctor Who and the Wind in the Willows". This program is suited for preschool right through to year 3 students. I hope that you find this program satisfactory for the magazine.
Yours Sincerely,
VINCENT MAKER

P.S. It is in Extended Basic.

THANK YOU VINCENT, KEEP THEM COMING. I HAVE GIVEN THE PROGRAM TO SHANE TO PRINT IN THE CENTRE-FOLD PROGRAM LIFT-OUT...SO THAT OTHERS CAN TYPE IT IN.

BY THE WAY, I RECEIVED A SECOND LETTER FROM VINCENT AS FOLLOWS...

Dear Jenny,

I am having a lot of trouble with Adventure #12 "GOLDEN VOYAGE" and #7 "MYSTERY FUN HOUSE". In "Golden Voyage"...how do you find the globe? and in "Mystery Fun House"...How do you get past the Fortune telling machine?.
Yours in Computing the TI WAY.
VINCENT.

Well, Vincent, If I told you how to complete these two adventures, then you will have spent your money for nothing. The idea of adventures, is to make you use your brain and THINK of EVERY POSSIBLE MOVE. Although, I have noticed that Shane has included a special 3 page section on Adventure Hints in this issue as well as the December issue of SND. Perhaps one of our Younger Set members would like to write and give you the clues or answers you seek. Good luck and have fun adventuring.

Here is a letter from from HEIBO OBERMAIER of Berridale N.S.W who writes...

Dear Jenny,

A few months ago, I wrote to you about my high score on Parsec. The letter was obviously lost in the mail. Anyway, my score was 5,161,700.

Yours Faithfully,
Heibo.

Hi there Heibo. Yes, I think your letter was lost, probably in the Christmas postal rush and backlog. I will probably get it in a few months time, knowing Australia Post. You have been placed in the YOUNGER SET HALL OF FAME as the highest score raiser for Parsec, congratulations. Keep those letters coming.

If you have a high score, and want to send it to me for re-printing in my column, please ensure that a parent also signs to confirm your score.

HEY MUM! HEY DAD! COME HERE QUICK! CHECK THIS OUT! I THINK I HAVE A HALL OF FAME SCORE WITH THIS GAME I'M PLAYING WITH. OH WOW! LOOK AT IT, THIS HAS GOTTA GO TO JENNY. WILL YOU SIGN HERE, AND I'LL GET THIS LETTER OFF TO HER RIGHT AWAY.

Speaking of high scores, did you go and see D.A.R.Y.L. the movie? What a great movie...I highly recommend it for pure fun, as he puts POLE POSITION through its paces. I is a bright young 9 year old boy who is very special, but I had better not tell you any more other than to say that I loved it.

Oh! Yes! remember last month, I showed a fantastic drawing done with graphx of cupid? Well, I am still waiting to hear from the author. I know it is a Younger Set member, and I have a special prize to give him or her. If you are reading this, please contact me at JENNY'S YOUNGER SET, P.O.BOX 595, MARRICKVILLE, NSW. 2204.

Bye for now,
Yours in computing the TI WAY,

JENNY. 

TECHOtime



The following was submitted by Reg Boyle.
 I have never really been keen having the VHF/UHF modulator dangling between the computer and the T.V.
 To overcome this, I have installed the modulator (minus the plastic case) in the computer at the bottom of the console. The modulator input cable is soldered (minus the plug) to the pins of the socket on the inside of the console. The output wiring is soldered to a RCA connector (female), fitted to the rear of the console.

Another feature I have installed is a monitor output. The output signal is a 1V P-P composite video signal into 75 ohms. The output is available at the same time as the normal VHF/UHF signal.

The video output will also work well with a black and white Y.V.

The circuit is shown below and has also been fitted into modulators metal box. The output is then wired to a panel mount BNC socket also fitted the rear of the console.

Note there will be a follow-on to this article in next months magazine.

To Warren Christie, thank you for your letter (which was printed in last months magazine) I am sure that many people will be interested in trying your suggestion. Now to the other clever people out there, lets hear from you!

A point of interest and possibly safety is that the 1.25 AMP fuse supplied with the expansion is meant for use with 110 VOLTS not 240 VOLTS in fact it should be approx 700 mA SLOW BLOW.

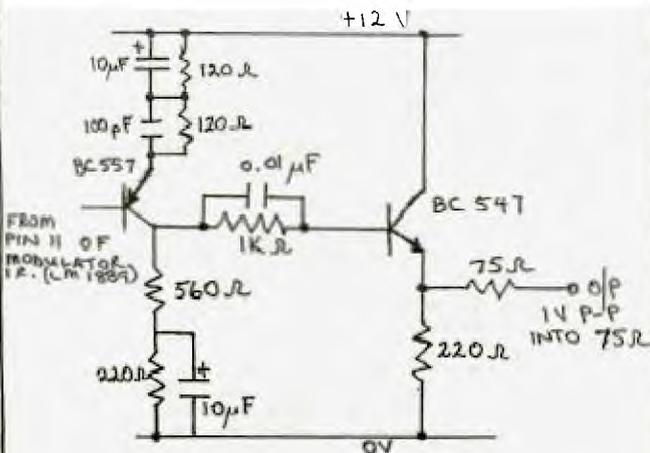
Technical manuals (which include circuits of the computer and expansion system) are available for \$15 at club meetings or from the club Librarian (please add \$3.50 postage & handling).

If anyone has a technical problem or wishes to contribute technical articles then contact me (ROBERT) on -

602-4168 between 5.00-8.30 PM
 (PLEASE STICK TO THESE TIMES)
 or send a letter to

TECHO TIME
 P.O. BOX 595
 MARRACKVILLE 2204

ANYONE WISHING TO OBTAIN INFORMATION, PLEASE SEND A SELF-ADDRESSED ENVELOPE (WITH SUFFICIENT POSTAGE STAMPS) TO THE ABOVE ADDRESS.



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ADVENTURES GALORE



In the Christmas issue of the SND, we provided you with clues to HITCH HIKERS GUIDE TO THE GALAXY, MYSTERY FUN HOUSE and ZORK I...plus an article on how to MAP your Adventures. We continue this special ADVENTURES GALORE SEGMENT with clues to 3 more INFOCOM ADVENTURES available for the TI-99/4(A) entitled... PLANETFALL, STARCROSS, and ZORK II in the hope that they will make your task a little easier.

We wish to thank AUGABBS for the following...

Planetfall

Planetfall is yet another superb game by Infocom, the producers of Zork. In this game you start out life as a lowly Ensign 7th class aboard the Stellar Patrol Starship Feinstein. If you survive the destruction of the Feinstein you arrive on a planet from which the people seem to have vanished. You must survive a planet wide plague, fix numerous pieces of essential equipment plus find food and shelter. This you will have to achieve without human help, in fact the only help you will find is a robot named Floyd. Without wishing to denigrate Floyd, for he is essential to your survival, he has the maturity and intellect of a 5 year old. However, while he may not do what you want, he is loyal and while he has a very short attention span, he will risk his neck, if it is necessary.

If a piece of equipment appears to be malfunctioning but does not have an obvious fault, it may require a little time to operate as it will not have been used for some time. The puzzles are logical, there are no mazes but there are several places which are deadly. The end is extremely exciting, if you make any false moves in a 12 move sequence, you die horribly.

As with all adventure games make good maps and remember that the opposite direction to getting to a place, may not get you back as corridors can have twists and turns. Use the save game facility (up to 8 on an 3.3 initialised disk) as the game is complex and rather long.

Clues

Are people on the ship annoying you ?
IGNORE THEM
Ensign Blather a real pest ?
YOU CAN'T KILL HIM. REVENGE IS SWEET
Can't open the pod door ?
IT IS AUTOMATED
Can't get to the pod in time ?
STAY CLOSE TO IT
Getting killed during landing ?
GET IN THE WEBBING
Lost at sea ?
WHEN YOU LAND, GET UP. GET ALL. OPEN DOOR. UP
Drowning in the sea ?
GO UP
Dying of hunger or thirst ?
OPEN THE SURVIVAL KIT FROM THE POD AND EAT
Can't use the access cards ?
SLIDE THEM THROUGH THE SLOT
Access cards not working ?
DON'T PUT THE MAGNET NEAR THEM
Need a safe place to sleep ?

TRY ANY OF THE DORMITORIES
Can't get into the kitchen ?
YOU NEED A KITCHEN ACCESS CARD
Can't open the padlock ?
YOU NEED A KEY
Need food and drink ?
TAKE THE CANTEEN TO THE KITCHEN. OPEN IT. PUT IT UNDER THE SPOUT. PUSH THE BUTTON
Robot not working ?
OPEN IT UP, REMOVE THE CARD. CLOSE IT AND SWITCH ON
Floyd being a pest ?
YOU NEED HIM LATER ON
Can't cross the rift ?
USE THE EXTENSION LADDER AT FULL EXTENSION
Can't use the helicopter ?
THAT RUST-BUCKET, ARE YOU SUICIDAL?
What has happened here ?
LOOK IN SYSTEM MONITORS, THE LIBRARY LOBBY AND THE LIBRARY
A malfunction in the Communications Room ?
OBSERVE THE MALFUNCTION LIGHT. GO TO THE MECHANICAL SHOP AND FILL THE FLASK WITH SOMETHING. PUSH THE SAME COLOURED BUTTON. IT WILL TAKE TWO TRIPS
A malfunction in the Course Control ?
OPEN THE LID. REMOVE THE FUSED BEDISTOR WITH THE PLIERS AND REPLACE WITH A GOOD ONE
Feeling sick ?
THE MEDICINE IS IN THE INFIRMARY
The laser won't work ?
GET A NEW BATTERY
Planetary Defense malfunctioning ?
EXAMINE IT. OPEN THE PANEL. REPLACE THE BROKEN BOARD WITH THE SHINY ONE FROM THE SMALL STORAGE AREA. TRY TO REMOVE EACH BOARD, IF IT ISN'T LIVE THEN THAT'S THE ONE. GET THE SECOND BOARD
Getting killed in the Biology lab ?
FLOYD WILL GO, IF YOU READ THE COMPUTER OUTPUT IN HIS PRESENCE. FLOYD WILL NOT BE ABLE TO ASSIST YOU AFTERWARDS.
Getting killed in the Radiation lab ?
NOT EVEN FLOYD IS SILLY ENOUGH TO GO IN THERE
Computer malfunctioning ?
READ THE COMPUTER OUTPUT. MAKE SURE ALL OTHER SYSTEMS ARE FUNCTIONING FIRST. THERE IS A SPECK OF DUST IN THE RELAY. YOU WILL NEED TO MINIATURIZE YOURSELF, GO THERE AND SHOOT IT WITH THE LASER. USE SETTING ONE AND KEEP TRYING
Microbe a menace ?
SET THE LASER TO FIVE, SHOOT AT THE MICROBE EIGHT TIMES THEN GIVE IT THE RED HOT LASER
Trouble with shuttle alfie ?
PUSH AND PULL THE LEVER. OBEY ALL SPEED LIMITS
You have to go through the bio-lab ?
READ THE NOTE ON THE DESK. GET AND WEAR THE GAS MASK FROM THE DRAWER. PUSH THE RED BUTTON. DON'T WASTE TIME

The mutants killing you ?
 GO STRAIGHT TO THE PROJCON OFFICE THEN
 SOUTH AND PUSH THE BUTTON
 Missing a battery
 LOOK IN LAB STORAGE
 Missing a bedistor ?
 TRY STORAGE EAST
 Missing an extension ladder ?
 IN THE ROOM NORTH OF THE MESS CORRIDOR
 Missing a flask ?
 LOOK IN THE TOOL ROOM
 Missing Floyd ?
 LOOK IN THE ROBOT SHOP
 Missing a Fromitz board
 IN THE SMALL STORAGE AREA. FLOYD WILL
 GET IT
 Missing a gas mask ?
 OPEN THE DESK IN THE LAB OFFICE
 Missing a helicopter access card ?
 YOU DON'T NEED IT
 Missing a key ?
 IN THE CREVICE IN THE FLOOR OF ADMIN.
 CORRIDOR SOUTH. USE A MAGNET
 Missing a kitchen access card
 IN THE DESK DRAWER IN THE SMALL OFFICE
 Missing a library spool ?
 LOOK IN THE LIBRARY LOBBY
 Missing a lower elevator access card ?
 LOOK INSIDE FLOYD
 Missing a magnet ?
 THE CURVED BAR IN THE TOOL ROOM
 Missing some medicine ?
 IN THE BOTTLE IN THE INFIRMARY
 Missing a miniaturization access card ?
 IT IS IN THE BIOLOGY LAB
 Missing an orange key ?
 YOU DON'T NEED IT
 Missing a shuttle access card ?
 IN THE DESK DRAWER IN THE LARGE OFFICE
 Missing a teleport access card ?
 LOOK IN THE LAB UNIFORM POCKET
 Missing a torch ?
 THERE IS ONE IN THE RADIATION LAB BUT
 YOU DON'T NEED IT
 Missing an upper elevator access card ?
 IN THE DESK DRAWER IN THE SMALL OFFICE

Starcross

Starcross is by Infocom (who also produced the Zork series) and is set in space. The object is to find an alien spaceship and pilot it to earth. However this is not an easy game and should only be attempted by experienced adventurers. For that reason only the philosophy of the game will be given rather than specific clues. The game also requires a High-School knowledge of physics astronomy and chemistry. Remember that the alien spaceship was designed to be used by different aliens so symbols are used and the atmosphere must be capable of being changed.

Your own ship, the Starcross, is computer controlled, even to piloting which requires only the R (range) and angles theta and phi to be set before proceeding automatically to that place. While the controls are few, it is up to you to learn how to operate them virtually without the assistance of the on ship computer, which was not programmed for user-friendliness.

Having arrived at the artifact (alien spaceship), inspect it before you attempt docking. All symbols, pictures, etc. should be drawn as described to see if they correspond to anything in the physical world (eg. solar systems, nuclear configurations

or parts of the ship). The ship's controls require 12 rods of various colours, you will need to collect them all. Also the alien computer is malfunctioning due to a missing card which you will need to find and replace, but not while the power is on. Other panels give indications of the state of the spaceship, look for colour coding. Some of the alien machines are hard to fathom as they do not even look like machines, the red and blue disks and the silvery globe are difficult to fathom but are essential to the game. All of the machines have a purpose, when you find what they do, you should know how to use them, however some are malfunctioning check to see if anything is jammed inside them. Use other senses as well, such as smell (hint glass cleaners contain ammonia and coal mines have methane). Something flashing is designed to attract attention and is normally used to denote danger or error.

You will also meet various aliens, some of whom are intelligent while others are not. Swapping of gifts is a well established custom, as is ancestor worship, however if you go around killing those you meet, then they will try to kill you. If a species is not intelligent then it can only concentrate on one job at a time. Mechanical creatures will normally have one specific task and will not be intelligent.

Try to identify what the various controls do when you use them, they are designed to be easily understood by various aliens so some universally characteristic symbol will be used. Use the raygun sparingly as you will need all the shots at one time, watch for the recoil. One last hint, from Yorkshire "whar thars muck thars brass".



Zork II

Zork II is also called the Wizard of Frobozz and is more challenging than Zork I. It may have been written by terrorists as the adventurer needs to know how to use explosives, open locked doors without a key, rob banks and use poisons. As normal there are many puzzles, including a riddle to solve, an unmappable maze and magic to learn. Many of the inhabitants and objects are deadly and the Wizard will make things difficult for you.

Keep good maps but remember that the direction back may not be the exact opposite of that which lead to the room. If you have a problem, see if it is in the following list, but remember that not all problems are listed and even those which are listed may only contain a clue rather than being solved in full. Good luck and good adventuring!

Treasures and Useful Objects

- (1) A pearl necklace
IN THE PEARL ROOM
- (2) A gold key
ON THE UNICORN
- (3) A statue
IN A CHEST
- (4) A red sphere
IN A DINGY ROOM
- (5) A violin
IN THE IRON BOX
- (6) A portrait
IN THE BANK
- (7) Moby Ruby
IN THE LAVA ROOM
- (8) Zorkmid Bills
IN THE BANK
- (9) A blue sphere
IN THE DREARY ROOM
- (10) Candy
IN THE POOL
- (11) A black sphere
YOU CREATE IT
- (12) A gaudy crown
IN A BOX
- (13) A clear sphere
IN THE AQUARIUM
- (14) Flathead stamp
IN A BOOK
- (15) A gold coin
ON A LEDGE

Clues

- (1) Locked doors a problem?
IF THE KEY IS IN THE LOCK USE THE
PLACEMAT TO CATCH IT WHEN YOU PUSH IT
OUT WITH A LETTER-OPENER.
- (2) Is the dragon a problem?
ATTACK IT THEN RUN TO THE ICE
ROOM.
- (3) Can't catch a unicorn?
ONLY THOSE OF ROYAL BLOOD CAN DO
THAT.
- (4) Still can't catch it?
SAVE THE PRINCESS FROM THE DRAGON.
- (5) Can't get past the Guarded Room?
GIVE THE LIZARD GUARD THE CANDY
AND USE THE GOLD KEY.
- (6) Cerberus killing you?
PUT THE DOG COLLAR ON HIM
- (7) Where is it?
BEHIND THE MENHIR.
- (8) Still can't find it?
GET THE WIZARD'S WAND AND FLOAT
THE MENHIR OR GET THE DEMON TO MOVE IT.
- (9) What is the clay brick?
IT IS PLASTIC EXPLOSIVE.
- (10) Can't solve the riddle?
ANSWER "A WELL".
- (11) What is the black string?
IT IS A FUSE TO USE WITH PLASTIC
EXPLOSIVE.
- (12) Trouble with the Carousel?
THE BUTTONS IN THE MACHINE ROOM
CONTROL IT.
- (13) What do the spheres do?
LOOKING IN TO THEM ONE VIEWS
THROUGH THE BLUE ONE AND SO ON.
- (14) What is Grue Repellent?
READ THE LABEL.
- (15) You can't wake the princess?
KISS HER.
- (16) What is the Odd Angled Room?
IT IS A BASEBALL DIAMOND. WALK
SOUTH-EAST, NORTH-EAST, NORTH-WEST AND
SOUTH-WEST.
- (17) Trouble robbing a bank?
THAT IS PERFECTLY UNDERSTANDABLE.
- (18) What does the curtain of light do?
IT LEADS TO FOUR PLANES.
- (19) How do I get into the vault?
WALK SOUTH FROM THE SMALL ROOM.



- (20) How do I get out of the vault?
NORTH.
- (21) What is the basket and canvas?
A LOW HOT-AIR BALLOON.
- (22) Can't read some books?
THAT IS UNDERSTANDABLE.
- (23) Trouble with a rusty box?
PUT EXPLOSIVE IN THE OBLONG HOLE
AND USE A FUSE.
- (24) Trouble with a circular room?
IT IS A WELL. GET IN TO THE
BUCKET AND POUR WATER IN TO IT.
- (25) Can't get back to the circular
room?
THE REVERSE OF GOING UP. HOWEVER
THE WATER EVAPORATES IN ONE HUNDRED
MOVES LEAVING YOU STRANDED.
- (26) Can't read the writing on the
cakes?
READ THEM THROUGH THE FLASK FROM
THE POOL ROOM.
- (27) Trouble with the pool?
THROW THE RED CAKE TO EVAPORATE
THE WATER.
- (28) Trapped in a cage?
TELL THE ROBOT TO LIFT IT.
- (29) Are buttons killing you?
GET THE ROBOT TO DO IT.
- (30) What do the buttons do?
CONTROL THE CAROUSEL.
- (31) The square button?
SETS HIGH SPEED ON THE CAROUSEL.
- (32) The round button?
SETS LOW SPEED ON THE CAROUSEL.
- (33) The triangular button?
STOPS THE CAROUSEL AND RELEASES AN
IRON BOX IN THE LOW ROOM, CAUTION, DO
THAT AT LOW SPEED.
- (34) How do I get the treasures in the
Wizard's trophy case?
GET HIS WAND AND USE A FILCH
SPELL.
- (35) How do I use the red sphere?
PUT IT IN THE RUBY STAND.
- (36) The blue sphere?
PUT IT IN THE SAPPHIRE STAND.
- (37) The clear sphere?
PUT IT IN THE DIAMOND STAND.
- (38) The black sphere?
PUT IT IN THE PENTACLE.
- (39) Trouble in the aquarium?
STAND BACK AND THROW SOMETHING
HEAVY.
- (40) What do I do with all the
treasures?
GIVE THEM TO THE DEMON.
- (41) Problems with the Wizard?
ASK THE DEMON TO TAKE HIS WAND.
- (42) How do I cast spells?
READ THE WHITE BOOK. POINT THE
WAND AND INCANT THE SPELL.
- (43) Some of the descriptions are
nonsense.
IT HAS A FANTASIZE SPELL ON IT.
- (44) What spells are used?
FALL, FLOAT, FREEZE, FENCE,
FIERCE, FERMENT, FEAR, FEEBLE, FUMBLE,
FILCH, FANTASIZE, FIREPROOF, FRY,
FUDGE, FLOURESCENCE, FREE, FROBIZZ,
FROBNOID, FROBOZZLE.
- (45) Can't get past the landing?
YOU MUST POUR THE WIZARD'S WAND.
- (46) I have all the points but have not
finished the game.
WHEN THE CRYPT IS DARK THE DOOR IS
VISIBLE.
- (47) Troubles with the grue?
USE GRUE REPELLANT.
- (48) Can't get past the IceRoom?
GET THE DRAGON IN THERE.
- (49) When does the sword glow?
WHEN YOU ARE ONE ROOM AWAY FROM
SOMETHING.

Many thanks to the Zork User's
group for their information on Zork II.



TISHUG SHOP COLUMN - By Terry Phillips

This month there will be another fine selection of programs released on tape and disk. This tape will be numbered 1986/3.

Two disks courtesy of Ross Mudie will also be released. These disks MUDIE_86/1 and MUDIE_86/2 contain source files, tutorial type notes, a talking match game, 40 column routines and demonstrations. The programs and utilities are intended to give the user a helping hand to get going with assembly and linking to assembly from extended basic. These are great value and are highly recommended.

All other disk software as outlined in the last issue of SND is also still available. Tapes 1986/1 and 1986/2 will also be on sale at the March meeting.

December 1985 and January 1986 issues of MICROpendium are also still available at a cost of \$2 each. 10 additional sets of complete back issues, February 1984 to November 1985 are on order and should arrive with the February 1986 issue. 4 sets have already been reserved so if you want a set get in early.

Other items currently in stock include Navarone Data Base Managers (\$90), Navarone Paint 'N Print with extended graphics (\$90), Console Writers (\$45), Cartridge Expanders (\$55), Diskettes (\$28) and numerous copies of Home Computer Magazine at \$8 each. I would welcome ideas on how we may go about reducing our stock of these magazines.

Well that's about all for this month. Sorry for such a short column but there has not been much news around over the past 6 weeks or so. Maybe next month there will be more to report.

Terry

The Communicator

TEXPAC BBS SPECIAL INTEREST GROUP OF TI.S.H.U.G.

Systems Operator: Shane Andersen

Its getting closer to that special time when you will be able to run our BBS at 1200/75 baud, infact, by the time this issue of the SND reaches you, we may already be up and running. Please ensure that you come on-line and watch out for the special announcement of that, within TEXPAC. Also, the clock-card should hopefully be installed and running at the same time, thanks to the efforts of Shane Ferret. You will know when thats connected, as the system will sound a warning tone 5 minutes before it cuts you off.

When did you last come on-line to the most informative medium of TI.S.H.U.G (apart from the SND that is!)?

Come on, give it a try! You will discover an entire world of new and sometimes unusual happenings for you to read and discover on the TEXPAC BBS.

For those who don't as yet own a modem, take the opportunity to find out what its like. You will find out just what you have been missing out on. Loads of FREE PROGRAMS to down-load over the phone, program tutorials latest up to the minute News on whats happening with your TI, heaps of humour with our Jokes section, adventure stories, electronic shopping, electronic mail, plus more. . . which is constantly updated and changed each and every month. . . and thats just on our system. There are many other BBS's throughout Sydney and Australia, plus link up via satellite to the world and have just about all your questions answered! Modems are ideal for everyone who owns a computer... The Student, the Business person, the house wife, Doctors, Lawyers, Ministers, the lonely, the aged, infact... everyone.

Communications is a vital part of our human structure, along with TV, RADIO, 2 WAY RADIO, SOCIAL CLUBS, infact anywhere where 2 or more people get together, that need is being fulfilled, and the modem is yet another avenue in which we can communicate with others.

If you would like more information about how you can connect your computer to the phone-lines and join in the fun of Modem Communication, why not drop me a line to TEXPAC BBS, P.O.Box 595, Marrickville, NSW 2204.



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if you can
get on that is!



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REVIEW with KEIR WELLS



As this is the first of my columns for 1986 I thought that it might well be an opportune time to forgo the usual Software Review and instead, discuss the amount of software that is now available for our computer.

Whilst the majority of TI software originates from the United States, software availability within Australia is becoming gradually easier. It would seem that especially over the last two years the worldwide TI community is drawing closer together. By now everyone should be aware of the magazine MICROPENDIUM which from a modest beginning of 24 pages has grown to more than double its size over its two years to more than double its size to 56 pages. To many, I'm sure that talking of a magazine in a Review Column isn't really sticking to the subject. Not so! MICROPENDIUM has within its pages a wealth of subroutines and programmes for the avid user. Advertising is also extensive and this above all is important to all computer users. MICROPENDIUM has also included a Freeware section which includes an incredible variety of Software.

For those who are Adventurers then be well assured that there is a plentiful supply of programmes that will keep your mind baffled and your wits at end. The well known Scott Adams series of Adventures continues to grow with additions such as HULK, CLAYMORGUE CASTLE, BUCKAROO BANZAI and SPIDER-MAN. The Adventure modules that are needed to run these programmes are still available in apparently plentiful supply. Adventure support is also forthcoming from INFOCOM the producers of Interactive Adventures. The INFOCOM Adventure library for the TI lists as follows: ZORK I, II & III, HITCHHIKER'S GUIDE TO THE GALAXY, INFIDEL, WITNESS, DEADLINE, ENCHANTER, SORCERER, STARCROSS, SUSPENDED, CUTTHROATS and PLANETFALL. There are of course many Adventures written in BASIC and Extended BASIC which are readily available from many sources, including our own club shop.

One of the most exciting aspect of computing with a TI is the abundant supply of different programming languages that have come to the fore. Including BASIC and Extended BASIC we have a range of languages that would keep the most dedicated of programmers busy for many years to come. As well as PASCAL, ASSEMBLY, FORTH,

LOGO and now including C. The majority of these Languages are available as Freeware or at least for a minimal cost. Tutorials for these Languages are also well represented with articles in magazines, manuals and books. Admittadly, some of these might be a little difficult to locate but be well assured they are available.

Computer Aided Design has long held a fascination with many computer users and once again TIER's would have great difficulty deciding on a particular programme to suit their needs. It all seems to have started with Australian written, GRAPHX. The list has continued to grow to include such titles as TI-ARTIST, DRAW-A-BIT, 2D-Graphics, PAINT 'N' PRINT and MAXIPRINT. There are also complimenting items available for some of these programmes such as different font styles and clip-board drawings.

Word Processors are an almost essential to any computer enthusiast. Whether a budding novelist, typing letters or a myriad of other applications Word Processing is an integral part of computing. Once again the TI99 lacks for nothing. TI-WRITER, CONSOLE WRITER and QS-WRITER head the list which amazingly continues to grow. There are Word Processors for almost any type of configured system. Once again it's up to the user to decide which package suits his or her own particular system.

As I have mentioned in previous articles there are few people, I am sure can resist a really fast moving and exciting game on the computer. With the types of games that have been, and still are, written for the TI there is little need for envy in regard to the other computers on the market. Ranging from PARSEC, BUCKROGERS and MOON PATROL to other titles such as Q*BERT, POLE POSITION, POPEYE and BIGFOOT there is obviously a plentiful supply of games readily available.

I've mentioned here only a few of the programmes that can be obtained for our computer and didn't even mention Utility programmes, Terminal Emulator programmes and Business associated programmes. Be assured though that these categories have not been forgotten by programmers for the Texas Instruments 99/4A.

The majority of software for the TI is available through the computer mailing houses in the United States such as TENEX and TEXCOMP. These companies advertise regularly and comprehensively in the already mentioned magazine MICROPENDIUM.

For a computer that so many mock, the TI seems to have retained its more than fair share of programming support.



TRACE Subroutine

with MIKE SLATTERY

Ever dreamed of being able to send the output from the TRACE command to your printer instead of having it on the screen. Dream no more for salvation is at hand. The following program will take the TRACE line numbers off the screen and dump them to your printer. To get the program to work type it in at the end of your program and insert a gosub to the line number. Make sure your program reaches the gosub otherwise it will not work. Here is the program.

```
100 OPEN #1:"PTO"
110 PR$=""
120 FOR R=1 TO 24 :: FOR C=3 TO 28 :: CALL GCHAR(R.C.X)
:: IF C=3 AND X<>60 THEN 150 :: CALL HCHAR(R.C.32) ::
IF X=60 THEN 140 :: IF X=31 OR X=32 THEN 150 :: IF X=62
THEN X=32
```

```
130 PR$=PR$&CHR$(X) :: CT=CT+1 :: IF CT>75 AND (X=32
OR X=31) THEN PRINT #1:PR$ :: PR$="" :: CT=0
140 NEXT C
150 NEXT R
160 PRINT #1:PR$ :: PR$="" :: CT=0
170 CLOSE #1 :: CALL CLEAR
180 RETURN
```

I am sure this program will save those sweating over a baulky program a lot of trouble. Good luck.

```

100 REM *****
    * DOCTOR WHO *
    * BY *
110 REM * *
120 REM * * VINCENT * *
130 REM * * MAKER * *
140 REM *of YoungerSet*
150 REM * TI.S.H.U.G *
160 REM *****
170 CALL VCHAR(1,1,32,900)
180 DISPLAY AT(5,7):"*****
*****"
190 DISPLAY AT(4,5):"D*O*C*T
O*R W*H*O"
200 DISPLAY AT(5,5):" BY VI
NCENT MAKER"
210 FOR Y=0 TO 8
220 NEXT Y
230 DISPLAY AT(9,5):"-WIND I
N THE WILLOWS-"
240 FOR T=0 TO 500 :: NEXT T
250 CALL CLEAR
260 DISPLAY AT(5,7):" -WIN
D IN THE WILLOWS- (WHEN
YOU HEAR THE BEEP
PRESS ENTER)"
270 FOR T=0 TO 800 :: NEXT T
280 CALL CLEAR
290 DISPLAY AT(5,7):"NOW LET
'S BEGIN . . . WTN
D IN THE WILLOWS"
300 FOR T=0 TO 800 :: NEXT T
310 CALL CLEAR :: FOR T=0 TO
8 :: CALL COLOR(T,2,8):: NE
XT T
320 DISPLAY : "DOCTOR WHO WAS
A HAPPY MAN. BESSIE, HIS CAR
,WHO HE HAD JUST FIXED WAS
WORKING FINE, JO GRANT NEXT
TO HIM WAS SINGING A HAPP
Y TUNE"
330 DISPLAY BEEP :: INPUT "P
ress <ENTER>":KLS$
340 DISPLAY : "HE WAS THINKIN
G ABOUT GIVING THE TARDIS IN
THE CORNER A FRESH COAT OF
PAINT. JO, IN THE MEANTIME H
AD STOPPED SINGING AND AS
KED "
350 DISPLAY BEEP :: INPUT "E
NTER":LKL$
360 DISPLAY : "THE DOCTOR A Q
UESTION, ""DOCTOR ARE Y
OU COMING WITH ME TO WALK BY
THE RIVER?"" ""OK JO""
370 DISPLAY BEEP :: INPUT "E
NTER":JKL$
380 DISPLAY : "IN A SHORT WHI
LE THEY WERE WALKING BY THE
RIVER. THEY SAW A RUSTLING
IN A HOLE OVER THE OTHER
SIDE OF THE RIVER..."
390 DISPLAY BEEP: "YOU HAVE C
OME TO THE END OF CHAPTER ON
E, PRESS ENTER FOR CHAPTER TW
O" :: INPUT "" :DFR$
400 CALL CLEAR
410 DISPLAY AT(5,7):"DOCTOR
WHO-WIND IN THE WILLOWS
- CHAPTER TWO"
420 FOR T=0 TO 200 :: NEXT T
430 DISPLAY : "SOON A SHORT F
ACE APPEARED, IT WAS A WATER
RAT! THEN... ANOTHER FACE A
PPEARED..." :: DISPLAY BEEP
:: INPUT "ENTER":HJK$
440 DISPLAY : "GREEN AND A HE
AD BIGGER THAN IT'S BODY, IT W
AS A TOAD. HE SAID, ""HELLO Y
OU FELLOWS!"" JO AND THE DOCTO
R LAUGHED UNTIL"
450 DISPLAY BEEP :: INPUT "E
NTER":WE$

```

```

460 DISPLAY : "TEARS CAME FRO
M THEIR EYES. TOAD JOINED TH
EM BY SAILING ACROSS ON A PI
ECE OF WOOD."
470 DISPLAY BEEP :: INPUT "E
NTER":LKK$
480 DISPLAY : "BUT THEN THE D
OCTOR SAID, ""BETTER GET T
HE PICNIC GEARSET UP"" ""WHA
T'S IN THE BASKET"" ""JO AS
KED. THE DOCTOR REPLIED BRIEFL
Y "
490 DISPLAY BEEP :: INPUT "E
NTER":IOP$
500 DISPLAY : """"THERES COLD
CHICKEN INSIDE IT, COLD TOUNGEC
OLDHAMCOLD BEEFPICKLEDGHERKIN
GINFERBEERLEMONADESODAWATER"
""
510 DISPLAY BEEP :: INPUT "E
NTER":GHJ$
520 DISPLAY : """"STOP, STOP""S
AID JO, ""YOU'VE GIVEN
ME A HEAD-ACHE"" ""DREAD
FULLY SORRY JO"" ""HE SAID"
530 DISPLAY BEEP :: INPUT "E
NTER":JKL$
540 DISPLAY : """"BUT I'VE MAD
E A SONG UP ABOUT TODAY, ""
"
550 DISPLAY BEEP :: INPUT "E
NTER":TYU$
560 DISPLAY : "TODAY by Dr Wh
o. PICNIC TIME FOR YOU AND ME
EVEN MORE AND MORE YOU AND I
ARE EATING LOVING IT MORE
AND MORE"
570 DISPLAY : "HE SANG THIS Q
UITE LOUDLY AND ENJOYED IT
"
580 DISPLAY : "YOU HAVE REACH
ED THE END PRESS ENTER" :
: INPUT HJK$
590 CALL CLEAR
600 DISPLAY AT(8,7):"THANK-Y
OU FOR READING 'DR WHO-WIND
IN THE WILLOWS"
610 DISPLAY : "THIS STORY TIE
S IN CHARACTERS FRO
M KENNETH GRAHAMME'S WIN
D IN THE WILLOWS AND BB
C'S 'DR WHO'"
620 FOR T=0 TO 500
630 NEXT T
640 CALL CLEAR
650 WRONG=0 :: RIGHT=0
660 DISPLAY AT(5,7):"5 QUEST
IONS ON THIS STORY"
670 INPUT "PRESS <ENTER> WHE
N READY":ASD$
680 CALL CLEAR
690 DISPLAY AT(2,5):"QUESTIO
N#1...WHAT WAS THE DOCTOR DO
ING BEFORE JO ASKED HIM TO W
ALK BY THE RIVER?"
700 DISPLAY AT(6,5):"A)JUST
FIXED HIS CAR B)WHIST
LING A HAPPY TUNE C)PAINT
ING THE TARDIS BLUE D)NOTHI
NG"
710 INPUT "PICK THE RIGHT LE
TTER-":A$
720 IF A$<>"A" THEN WRONG=WR
ONG+1 ELSE RIGHT=RIGHT+1
730 IF A$="A" THEN DISPLAY A
T(5,7)ERASE ALL:"RIGHT YOU A
RE!" ELSE DISPLAY AT(5,7)ERA
SE ALL:"SORRY, WRONG!"
740 FOR T=0 TO 500
750 NEXT T
760 CALL CLEAR
770 DISPLAY AT(2,7):"QUESTIO
N#2...WHAT DID THE DOCTOR SE
E COMING OUT OF THE HOLE?"

```

```

780 DISPLAY AT(6,7):"A)TOAD
B)JO
C)THE W
D)NOTHI
ATER RAT
790 INPUT "PICK THE RIGHT LE
TTER?":B$
800 IF B$="C" THEN RIGHT=RIG
HT+1 ELSE WRONG=WRONG+1
810 IF B$="C" THEN DISPLAY A
T(5,7)ERASE ALL:"WELL DONE, Y
OU'RE RIGHT" ELSE DISPLAY AT
(5,7)ERASE ALL:"SORRY, YOU'RE
WRONG"
820 FOR T=0 TO 300
830 NEXT T
840 CALL CLEAR
850 DISPLAY AT(2,7):"QUESTIO
N#3...WHAT DID THE DOCTOR AN
D JO DO WHEN TOAD SAID""HELL
O YOU FELLOWS""?"
860 DISPLAY AT(8,7):"A)CRY
B)LAUGH
C)SAY H
D)NOTHI
ELLO BACK
NG"
870 INPUT "PICK THE RIGHT LE
TTER":C$
880 IF C$<>"B" THEN WRONG=WR
ONG+1 ELSE RIGHT=RIGHT+1
890 IF C$="B" THEN DISPLAY A
T(5,7)ERASE ALL:"RIGHT, WELL
DONE!" ELSE DISPLAY AT(5,7)E
RASE ALL:"SORRY, WRONG"
900 FOR T=0 TO 500 :: NEXT T
910 CALL CLEAR
920 DISPLAY AT(2,7):"QUESTIO
N#4...WHO SAID THEY HAD A HE
ADACHE?"
930 DISPLAY AT(5,7):"A)DOCTO
R
B)TOAD
C)THE W
D)JO"
ATER RAT
940 INPUT "PICK THE RIGHT LE
TTER-":E$
950 IF E$="D" THEN RIGHT=RIG
HT+1 ELSE WRONG=WRONG+1
960 IF E$="D" THEN DISPLAY A
T(5,7)ERASE ALL:"RIGHT YOU A
RE" ELSE DISPLAY AT(5,7)ERAS
E ALL:"SORRY, WRONG!"
970 FOR T=0 TO 500 :: NEXT T
980 CALL CLEAR
990 CALL CLEAR
1000 DISPLAY AT(2,7):"QUESTI
ON#5...WHO SAILED ACROSS THE
RIVER TO PICNIC WITH THE DO
CTOR"
1010 DISPLAY AT(6,7):"A)JO
B)TOAD
C)THE
D)NO-O
NE"
WATER RAT
1020 INPUT "PICK THE RIGHT L
ETTER-":D$
1030 IF D$="B" THEN RIGHT=RI
GHT+1 ELSE WRONG=WRONG+1
1040 IF D$="B" THEN DISPLAY
AT(5,7)ERASE ALL:"WELL DONE.
RIGHT!" ELSE DISPLAY AT(5,7)
ERASE ALL:"SORRY, WRONG"
1050 FOR T=0 TO 500
1060 NEXT T
1070 CALL CLEAR
1080 IF RIGHT=0 THEN A$="NOW
THAT IS BAD! NONE OUT OF 5"
1090 IF RIGHT=1 THEN A$="NOW
THAT'S NOT VERY GOOD! 1 OUT
OF 5"
1100 IF RIGHT=2 THEN A$="THA
T'S NOT TOO BAD. 2 OUT OF 5"
1110 IF RIGHT=3 THEN A$="THA
T'S GOOD! 3 OUT OF 5"
1120 IF RIGHT=4 THEN A$="THA
T'S VERY GOOD 4 OUT OF 5"

```

```

1130 IF RIGHT=5 THEN A$="THA
T'S TOPS,5 OUT OF 5!!!"
1140 CALL CLEAR
1150 DISPLAY AT(5,7):A$
1160 DISPLAY AT(7,5):"YOU GO
T ";WRONG;"WRONG AND ";RIGHT
;" RIGHT!"
1170 FOR Y=0 TO 500
1180 NEXT Y
1190 IF RIGHT<5 THEN INPUT "
DO YOU WANT ANOTHER GO?":D$
1200 IF D$="Y" THEN 100
1210 IF D$="YES" THEN 100
1220 CALL CLEAR
1230 DISPLAY AT(5,7)ERASE AL
L:"THANK YOU FOR READING DR
WHO-WIND IN THE WILLOWS"
1240 END

```

```

10 REM REVISED BY TOM NELSON
N ST. PAUL MN. 55117
20 REM in TI Basic
30 REM 'GOLD MINOR'
40 RANDOMIZE
50 DIM C(15,27)
60 GOSUB 1740
70 Y=5
80 X=20
90 CALL KEY(1,I,ST)
100 IF ST=0 THEN 90
110 IF I=1 THEN 2640
120 IF (I+1=1)+(I=2)+(I=3)+(
I=5)THEN 130 ELSE 90
130 IF (X>30)*(I=3)THEN 90
140 IF (Y=5)*(I=5)THEN 90
150 IF Y>5 THEN 400
160 REM ABOVE GROUND
170 IF X<13 THEN 300
180 REM NOT IN BANK
190 IF (X=31)*(I+1=1)THEN 44
0
200 Z=32-70*(X=31)
210 CALL HCHAR(5,X,Z)
220 X=X+(I=2)-(I=3)
230 IF X=31 THEN 270
240 IF X<13 THEN 300
250 CALL HCHAR(5,X,101)
260 GOTO 280
270 CALL HCHAR(5,31,103)
280 GOTO 90
290 REM BANK
300 X=12
310 IF GC=0 THEN 350
320 M=M+GC*GP
330 GC=0
340 GOSUB 1590
350 IF I<>3 THEN 90
360 X=13
370 CALL HCHAR(5,13,101)
380 GOTO 90
390 REM UNDERGROUND
400 ON I+1 GOTO 420,420,650,
750,890,890
410 REM DOWN ARROW
420 IF X<31 THEN 570
430 REM IN ELEVATOR
440 Z=32-112*(Y>5)
450 CALL HCHAR(Y,X,Z)
460 Y=Y+1
470 IF Y<20 THEN 490
480 Y=20
490 CALL HCHAR(Y,31,146)
500 IF Y=5 THEN 540
510 CALL VCHAR(5,31,105)
520 IF Y<7 THEN 540
530 CALL VCHAR(6,31,148,Y-6)
540 EP=Y
550 GOTO 90
560 REM IN MINE
570 IF Y=20 THEN 90
580 CALL HCHAR(Y,X,144)
590 Y=Y+1
600 ON C(Y-6,X-4)+1 GOTO 106
0,1120,1080,610
610 Y=Y-1

```

```

620 CALL HCHAR(Y,X,147)
630 GOTO 90
640 REM MOVE LEFT
650 IF X<4 THEN 90
660 Z=144-(X=31)
670 CALL HCHAR(Y,X,Z)
680 X=X-1
690 IF X=3 THEN 710
700 ON C(Y-6,X-4)+1 GOTO 106
0,1120,1080,710
710 X=X+1
720 CALL HCHAR(Y,X,147)
730 GOTO 90
740 REM MOVE RIGHT
750 IF X=30 THEN 830
760 CALL HCHAR(Y,X,144)
770 X=X+1
780 ON C(Y-6,X-4)+1 GOTO 106
0,1120,1080,790
790 X=X-1
800 CALL HCHAR(Y,X,147)
810 GOTO 90
820 REM MOVE INTO ELEVATOR
830 IF Y<>EP THEN 90
840 CALL HCHAR(Y,X,144)
850 CALL HCHAR(Y,31,146)
860 X=31
870 GOTO 90
880 REM UP ARROW
890 IF X=31 THEN 990
900 REM IN MINE
910 IF Y=6 THEN 90
920 CALL HCHAR(Y,X,144)
930 Y=Y-1
940 ON C(Y-6,X-4)+1 GOTO 106
0,1120,1080,950
950 Y=Y+1
960 CALL HCHAR(Y,X,147)
970 GOTO 90
980 REM IN ELEVATOR
990 CALL HCHAR(Y,X,144)
1000 Y=Y-1
1010 Z=103-43*(Y<5)
1020 CALL HCHAR(Y,X,Z)
1030 EP=Y
1040 GOTO 90
1050 REM DIG
1060 M=M-5
1070 GOSUB 1610
1080 CALL HCHAR(Y,X,147)
1090 C(Y-6,X-4)=2
1100 GOTO 90
1110 REM PROSPECT
1120 Z=INT(RND*5)+1
1130 ON Z GOTO 1140,1210,124
0,1280,1390
1140 A$="EASY DIGGING"
1150 M=M+4
1160 GOSUB 2450
1170 GOSUB 1590
1180 A$=" "
1190 GOSUB 2450
1200 GOTO 1550
1210 A$="SOLID ROCK"
1220 M=M-25
1230 GOTO 1160
1240 I=INT(RND*3)+1
1250 A$=STR$(I)&" OZ. NUGGET
"
1260 GC=GC+I
1270 GOTO 1160
1280 A$="UNDERGROUND SPRING"
1290 GOSUB 2450
1300 FOR H=0 TO 27
1310 FOR V=Y-5 TO 15
1320 IF C(V,H)<>2 THEN 1350
1330 CALL HCHAR(V+6,H+4,136)
1340 C(V,H)=3
1350 NEXT V
1360 NEXT H
1370 GOTO 1180
1380 REM
1390 A$="CAVE IN"
1400 IF INT(RND*5)<>1 THEN 1
430

```

```

1410 A$=A$&" , LOST ALL YOUR
GOLD"
1420 GC=0
1430 GOSUB 2450
1440 FOR V=Y-8 TO Y-4
1450 IF (V<0)+(V>15)THEN 152
0
1460 FOR H=X-6 TO X-2
1470 IF (H>27)+(H<0)THEN 152
0
1480 IF C(V,H)<>2 THEN 1510
1490 C(V,H)=0
1500 CALL HCHAR(V+6,H+4,96)
1510 NEXT H
1520 NEXT V
1530 GOTO 1170
1540 REM DUG OUT PROSPECT
1550 CALL HCHAR(Y,X,147)
1560 C(Y-6,X-4)=2
1570 GOTO 90
1580 REM DISPLAY $ ROUTINE
1590 GP=INT(RND*600)+300
1600 IF GP<501 THEN 1590
1610 A$=STR$(GP)
1620 B$=STR$(GC)&" "
1630 C$=STR$(M)&" "
1640 FOR I=1 TO 3
1650 CALL HCHAR(22,15+I,ASC(
SEG$(A$,I,1)))
1660 CALL HCHAR(23,15+I,ASC(
SEG$(B$,I,1)))
1670 CALL HCHAR(23,24+I,ASC(
SEG$(C$,I,1)))
1680 NEXT I
1690 CALL HCHAR(23,28,ASC(SE
G$(C$,4,1)))
1700 IF M>7000 THEN 2510
1710 IF M<=0 THEN 2680
1720 RETURN
1730 REM START UP
1740 CALL CLEAR
1750 CALL CHAR(152,"3C7EFFFF
FFFF7E3C")
1760 CALL COLOR(16,11,1)
1770 PRINT TAB(12);"MINER"::
:::::
1780 PRINT " I 99/4 TRAN
SLATION BY": " SAM P
INCUS"
1790 FOR I=1 TO 1000
1800 NEXT I
1810 CALL CLEAR
1820 PRINT "A MINER HAS INHI
RITED A MINEWITH 30 POSSIBLE
VEINS OF ORE (";CHR$(152)
;"). IF HE CAN PROVE THE"
1830 PRINT "MINE IS WORTHWHI
LE, HE CAN SELL IT TO A BIG
MINING CO. HE CAN ONLY GET
UNDERGROUND"
1840 PRINT "VIA ELEVATOR. HE
CANNOT DIG WHEN HE IS ABOVE
GROUND."
1850 PRINT "USE THE 4 ARROW
KEYS TO MOVETHE MINER. USE T
HE UP AND DOWN ARROWS TO C
ONTROL THE"
1860 PRINT "ELEVATOR (AT THE
RIGHT OF THE SCREEN). BEW
ARE: HE CAN BE TRAPPED. IF Y
OU GIVE UP, HIT 'AID'."
1870 PRINT "IT COSTS $5 EVER
Y TIME HE DIGS. IF HE FIND
S ANY GOLD, BRING IT TO THE
BANK."
1880 FOR I=1 TO 3300
1890 NEXT I
1900 PRINT " GOOD LUCK"
1910 CALL CHAR(96,"FFFFFFFF
FFFFFFFF")
1920 CALL CHAR(100,"01010101
01010101")
1930 CALL COLOR(9,2,1)
1940 CALL CHAR(97,"80808080
80808080")

```

```

1950 CALL CHAR(98,"00000000
00000FF")
1960 CALL CHAR(99,"010101010
1010101")
1970 CALL CHAR(144,"0")
1980 CALL COLOR(15,2,16)
1990 A$="FF010101010101FF"
2000 CALL CHAR(102,A$)
2010 CALL CHAR(145,A$)
2020 A$="FF011171111131FF"
2030 CALL CHAR(103,A$)
2040 CALL CHAR(146,A$)
2050 A$="0000107010101030"
2060 CALL CHAR(101,A$)
2070 CALL CHAR(147,A$)
2080 A$="1010101010101010"
2090 CALL CHAR(105,A$)
2100 CALL CHAR(148,A$)
2110 EP=0
2120 M=500
2130 CALL COLOR(14,5,5)
2140 FOR I=1 TO 1300
2150 NEXT I
2160 CALL CLEAR
2170 CALL COLOR(16,11,2)
2180 PRINT " BANK"::::::::::
::::::::::"$ /OZ OF GOLD="
2190 PRINT " GOLD OUNCES=";T
AB(18);"CASH="
2200 CALL HCHAR(6,1,96,480)
2210 CALL VCHAR(6,32,144,15)
2220 CALL VCHAR(6,31,144,15)
2230 CALL HCHAR(1,3,98,10)
2240 CALL VCHAR(2,3,97,4)
2250 CALL VCHAR(2,12,99,4)
2260 CALL HCHAR(3,12,100)
2270 CALL VCHAR(4,11,99,2)
2280 CALL HCHAR(5,20,101)
2290 CALL HCHAR(5,31,102)
2300 CALL HCHAR(4,31,98)
2310 CALL HCHAR(5,32,97)
2320 FOR I=1 TO 30
2330 H=INT(RND*15)
2340 V=INT(RND*26)
2350 CALL SOUND(-200,330+20*
I,INT(H/5))
2360 IF C(H,V)THEN 2330
2370 C(H,V)=1
2380 CALL HCHAR(H+6,V+4,152)
2390 NEXT I
2400 CALL SOUND(800,262,1,52
4,0,796,1)
2410 CALL SOUND(900,262,0,79
6,1,349,0)
2420 GOSUB 1590
2430 REM PRINT A LINE
2440 RETURN
2450 CALL HCHAR(24,3,32,29)
2460 FOR I=1 TO LEN(A$)
2470 CALL HCHAR(24,4+I,ASC(S
EG$(A$,I,1)))
2480 NEXT I
2490 RETURN
2500 REM WON
2510 CALL CLEAR
2520 FOR I=1 TO 20
2530 CALL SCREEN(INT(RND*15)
+1)
2540 PRINT TAB(I);"CASH $"
2550 CALL SOUND(80,330+20*I,
0)
2560 NEXT I
2570 CALL CLEAR
2580 PRINT "!!! Y I P P E
E !!!"
2590 CALL SOUND(700,262,1,52
4,0,796,1)
2600 CALL SOUND(800,262,0,79
6,1,349,0)
2610 PRINT "HE CAN NOW SELL
HIS CLAIM FOR LOTS OF MONE
Y TO A BIG MINING CO. AND R
ETIRE ON THEROYALTIES!"::::
2620 STOP
2630 REM QUIT

```

```

2640 CALL CLEAR
2650 PRINT "TOO BAD, THE OLD
MINE JUST DIDN'T PAN OUT."
:::::
2660 STOP
2670 REM BANKRUPT
2680 CALL CLEAR
2690 PRINT "HE WENT BANKRUPT
, IF YOU WANT TO TRY AGAI
N,": "TYPE IN ";CHR$(34);"RUN
";CHR$(34)
2700 STOP

```

```

1 REM GENE HITZ WAUWATOSA WI
. 53213
2 REM MATHAID-X
5 CALL CLEAR
7 RANDOMIZE
10 PRINT TAB(12);"HELLO !": "
I AM YOUR FRIENDLY COMPUTER,
HERE TO HELP YOU WITH YOUR
MATH": : : : :
11 FOR X=1 TO 500
12 NEXT X
15 INPUT "WHAT IS YOUR NAME
? ":N$
20 PRINT : : : : : "WHA
T SHALL WE WORK ON NOW": : :
" 1. PYTHAGOREAN THEOREM": "
(SQUARES & SQUARE ROOTS)"
: :
25 PRINT " 2. FUNCTION EVALU
ATION": " 3. QUADRATIC EQUA
TIONS": " (FACTORING METHO
D)": " 4. QUADRATIC FORMULA
"
30 INPUT B
32 CALL CLEAR
35 ON B GOTO 100,200,1027,14
00
100 CALL CHAR(96,"0101010101
010101")
103 CALL CHAR(97,"FF")
106 CALL CHAR(98,"8040201008
040201")
107 T=0
108 CC=0
109 PRINT TAB(10);"A C":
: : : :TAB(15);"B": : :
112 CALL VCHAR(14,13,96,6)
115 CALL HCHAR(20,14,97,6)
118 FOR X=14 TO 19
121 CALL HCHAR(X,X,98)
124 NEXT X
125 T=T+1
127 A=INT(15*RND+1)
130 D=INT(5*RND+1)
133 B=A+D
136 E=INT(2*RND+1)
139 ON E GOTO 142,157
142 PRINT "SIDE 'A' = ";A
145 PRINT "SIDE 'B' = ";B
148 INPUT "GIVE SIDE 'C' ":C
151 C=INT(100*SQR(A^2+B^2))/
100
154 GOTO 169
157 PRINT "SIDE 'A' = ";A
160 PRINT "SIDE 'C' = ";B
163 INPUT "GIVE SIDE 'B' ":C
166 C=INT(100*SQR(B^2-A^2))/
100
169 IF ABS(Q-C)<=.01 THEN 17
8
172 PRINT "WRONG ! ";N$
174 PRINT "THE ANSWER IS ";C
175 GOTO 181
178 PRINT "CORRECT ! ";N$
179 CC=CC+1
181 INPUT "TRY AGAIN ? ":A$
182 IF SEG$(A$,1,1)="N" THEN
185
183 CALL CLEAR
184 GOTO 109

```

```

185 PRINT "YOU GOT ";CC;" CO
RRECT, OUT OF ";T;" TRIES, "
;N$
186 R=CC/T
187 IF R<.9 THEN 190
188 PRINT "VERY GOOD, ";N$
189 GOTO 20
190 IF R<.8 THEN 193
191 PRINT "THAT'S PRETTY GOO
D, ";N$
192 GOTO 20
193 IF R<.7 THEN 196
194 PRINT "ABOUT AVERAGE, ";
N$;" , KEEP WORKING AT IT."
195 GOTO 20
196 PRINT "POOR, POOR, POOR,
";N$;" , YOU NEED HELP."
197 GOTO 20
198 CALL CLEAR
199 GOTO 109
200 PRINT " FUNCTION EVALU
ATION": : : : :
205 FOR X=1 TO 500
210 NEXT X
215 PRINT "LET'S START WITH"
: :
220 C=0
225 T=0
230 GOTO 310
235 A=INT(15*RND+2)
240 T=T+1
245 F=4*A^2+3*A-10
250 PRINT : "WHAT IS F(";A;
") = "
255 INPUT G
260 IF F=G THEN 285
265 PRINT "NO ! ";N$;" , F("
;A;) = ";F
270 PRINT : "REMEMBER, 'X'
IS A VARIABLE, AND WE REPLAC
E IT WITH ";A
275 INPUT "TRY ANOTHER ? ":A
$
276 CALL CLEAR
277 GOTO 310
285 PRINT "CORRECT ! ";N$
290 C=C+1
295 INPUT "TRY ANOTHER ":A$
302 CALL CLEAR
305 PRINT "O.K. LET'S TRY "
306 GOTO 390
310 PRINT " 2": " F(
X) = 4X + 3X - 10"
315 GOTO 235
340 A=INT(15*RND+2)
345 T=T+1
350 F=-2*A^3+10*A^2-1
355 PRINT : "WHAT IS F(";A;
") = "
360 INPUT G
362 PRINT : :
365 IF F=G THEN 380
370 PRINT "NO ! ";N$;" , F("
;A;) = ";F
375 PRINT : "REMEMBER, 'X'
IS A VARIABLE THAT WE REPLA
CE WITH ";A
376 INPUT "TRY AGAIN !":A$
377 CALL CLEAR
378 GOTO 390
380 PRINT "CORRECT, ";N$
382 C=C+1
385 INPUT "TRY ANOTHER ":A$
387 CALL CLEAR
388 GOTO 475
390 PRINT " 3
2": " F(X) = -2X + 10X -1"
395 GOTO 340
410 A=INT(15*RND+2)
415 T=T+1
420 F=A-1
425 PRINT : "WHAT IS F(";A;
") = "
430 INPUT G

```

```

435 IF F=G THEN 460
440 PRINT : "NO ! ";N$; , F
(" ;A;") = ";F
445 PRINT : "REMEMBER, ";N$
; , 'X' IS A VARIABLE THAT W
E REPLACE WITH ";A
450 GOTO 470
460 PRINT "CORRECT, ";N$; :
465 C=C+1
470 INPUT "TRY AGAIN ? ";A$
472 IF SEG$(A$,1,1)<>"Y" THE
N 500
473 GOTO 310
475 PRINT : " 2";
" 2X - X - 1"; F(X
) =
2X + 1"; :
480 GOTO 410
500 PRINT "YOU GOT ";C;" OUT
OF ";T;" CORRECT THIS SESSI
ON"; :
505 P=C/T
510 IF P<.9 THEN 525
515 PRINT "VERY GOOD ! ";N$
520 GOTO 20
525 IF P<.8 THEN 540
530 PRINT "PRETTY GOOD, KEEP
AT IT, ";N$
535 GOTO 20
540 IF P<.7 THEN 555
545 PRINT "NOT BAD, ABOUT AV
ERAGE, ";N$
550 GOTO 20
555 IF P<.6 THEN 570
560 PRINT "PRETTY POOR, YOU
NEED LOTS OF PRACTICE, ";N$
565 GOTO 20
570 PRINT "SORRY, ";N$; , YO
U BETTER NOTIFY YOUR TEACHER
THAT YOU DO NOT UNDERSTAND
FUNCTION EVALUATION."
575 GOTO 20
1027 CALL CLEAR
1040 PRINT "SOLVING QUADRATI
C EQUATIONS USING THE FACTO
RING METHOD": : : :
1045 FOR X=1 TO 500
1050 NEXT X
1060 C=0
1065 T=0
1070 G=INT(4*RND+1)
1075 T=T+1
1080 A=INT(15*RND+2)
1085 B=INT(15*RND+2)
1100 CALL CLEAR
1105 ON G GOTO 1115,1175,121
5,1350
1115 PRINT "IF": " 2";"
X + ";A+B;"X + ";A*B;" = 0
": :
1120 INPUT "GIVE THE TWO VAL
UES OF 'X' ? " :AA,BB
1125 IF (AA=-A)+(BB=-B)=-2 T
HEN 1155
1130 IF (AA=-B)+(BB=-A)=-2 T
HEN 1155
1135 PRINT : "NO ! ";N$; ,
X = ";-A;" AND ";-B": :
1140 INPUT "DO YOU WISH TO T
RY AGAIN ? ";A$
1145 IF SEG$(A$,1,1)="Y" THE
N 1070
1150 GOTO 1265
1155 PRINT : "THAT IS CORRE
CT, ";N$
1160 C=C+1
1165 GOTO 1140
1175 PRINT "IF": " 2";" X
- ";A+B;"X + ";A*B;" = 0"
1180 PRINT : "GIVE THE TWO
VALUES OF 'X' "
1185 INPUT AA,BB
1190 IF (AA=A)+(BB=B)=-2 THE
N 1155

```

```

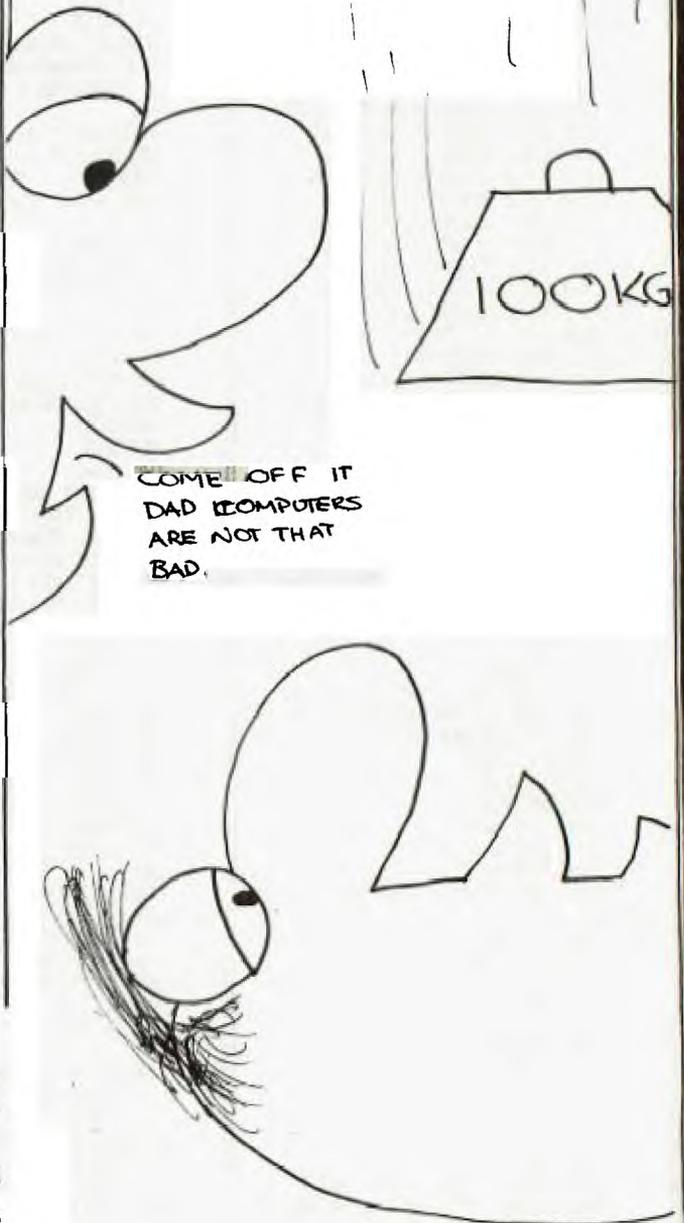
1195 IF (AA=B)+(BB=A)=-2 THE
N 1155
1200 PRINT : "NO ! ";N$; ,
X = ";A;" AND ";B
1205 GOTO 1140
1215 IF A>=B THEN 1235
1220 S=A
1225 A=E
1230 B=S
1235 PRINT "IF": " 2";" X
- ";A-B;"X - ";A*B;" = 0": :
1240 INPUT "GIVE THE TWO VAL
UES OF 'X' " :AA,BB
1245 IF (AA=A)+(BB=-B)=-2 TH
EN 1155
1250 IF (AA=-B)+(BB=A)=-2 TH
EN 1155
1255 PRINT : "NO ! ";N$; ,
X = ";A;" AND ";-B
1260 GOTO 1140
1265 PRINT : : "WELL, ";N$;
, YOU GOT ";C;" OUT OF ";T;
" CORRECT THIS SESSION. " : :
1270 P=C/T
1275 IF P<.9 THEN 1290
1280 PRINT "VERY GOOD !! "
1285 GOTO 20
1290 IF P<.8 THEN 1305
1295 PRINT "NOT TOO BAD, KEE
P AT IT."
1300 GOTO 20
1305 IF P<.7 THEN 1320
1310 PRINT "ABOUT AVERAGE."
1315 GOTO 20
1320 IF P<.6 THEN 1335
1325 PRINT "PRETTY POOR !! "
1330 GOTO 20
1335 PRINT "PLEASE NOTIFY YO
UR TEACHER THAT YOU DON'T U
NDERSTAND FACTORING AT ALL
!"
1340 GOTO 20
1350 IF A<=B THEN 1370
1355 S=A
1360 A=E
1365 B=S
1370 PRINT "IF": " 2";" X
+ ";B-A;"X - ";A*B;" = 0": :
1375 INPUT "GIVE THE TWO VAL
UES OF 'X' " :AA,BB
1380 IF (AA=A)+(BB=-B)=-2 TH
EN 1155
1385 IF (AA=-B)+(BB=A)=-2 TH
EN 1155
1390 PRINT : "NO ! ";N$; ,
X = ";A;" AND ";-B
1395 GOTO 1140
1400 CALL CLEAR
1405 PRINT "SOLVING QUADRATI
C EQUATIONS USING THE QUADR
ATIC FORMULA": : : :
1410 FOR X=1 TO 500
1415 NEXT X
1425 CC=0
1430 T=0
1435 A=INT(15*RND+2)
1440 B=(-1)*INT(20*RND+2)
1445 C=INT(10*RND+2)
1465 D=B^2-4*A*C
1470 IF D<0 THEN 1435
1475 T=T+1
1480 G=(-B+SQR(D))/(2*A)
1485 H=(-B-SQR(D))/(2*A)
1490 CALL CLEAR
1495 PRINT "IF": " 2";"
";A;"X - ";ABS(B);"X + ";
C;" = 0"
1500 PRINT : :
1505 INPUT "GIVE THE TWO VAL
UES OF 'X' " :AA,BB
1510 IF ((ABS(AA-G)<.01)+(AB
S(BB-H)<.01)=-2)+((ABS(AA-H)
<.01)+(ABS(BB-G)<.01)=-2)<0
THEN 1535

```

```

1515 PRINT : "NO ! ";N$; ,
X = "INT(G*100+.5)/100;" AN
D "INT(H*100+.5)/100
1517 PRINT : :
1520 INPUT "WOULD YOU LIKE T
O TRY AGAIN ? ";A$
1525 IF SEG$(A$,1,1)="Y" THE
N 1435
1530 GOTO 1550
1535 PRINT : "CORRECT, ";N$
1540 CC=CC+1
1545 GOTO 1520
1550 PRINT : "YOU GOT ";CC;
" OUT OF ";T;" CORRECT THIS
SESSION."
1555 P=CC/T
1560 GOTO 1275

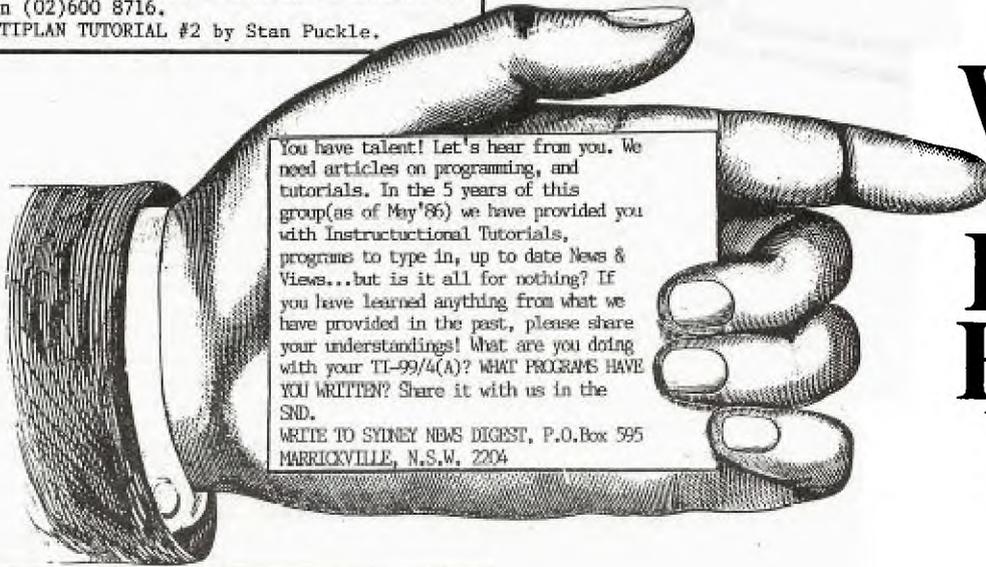
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JUSTIN CHAMBERS

LIVERPOOL REGIONAL GROUP REPORT.

DATE: Friday 7th March '86
 PLACE: At the home of Richard Stanford, 28 Arndell St,
 Camden (02)600 8716.
 SUBJECT: MULTIPLAN TUTORIAL #2 by Stan Puckle.



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.
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PROGRAMMING FOR THE BEGINNERS

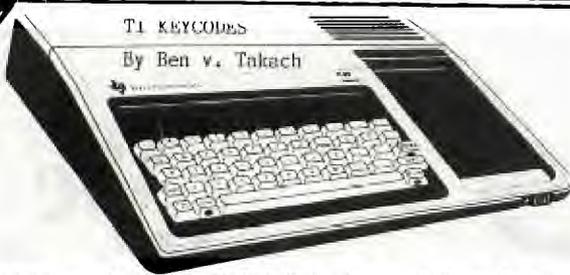
with Shane Andersen

When I first created Australias' TI User Groups, I had started to learn how to program. However, because of the work-load over the past 5 years of T.I.S.H.U.G's operation, Most of my programming skills have gone by the board. Text-only type programs have been my limit, and so I can identify with those of you who are beginners, but who want to learn. It is with this in mind, that I have created the following utility which will enhance and TEXT-STYLE program, by changing the boring type style to a smart COMPUTER-TEXT face. Firstly, If you have the disk system, type in the following, then change line 220 to read RUN"DSK1. and the filename of the program to have its text converted" and save as LOAD. When you access extended basic, your stem will automatically run the LOAD utility then auto load the next program of your choosing.

For CASSETTE owners, leave line 220 as it is and save it prior to the program on cassette, you wish the text to be changed. I hope that you enjoy it.

```

100 CALL CLEAR
110 CALL CHAR(65,"3844447CC2C2C2007B88484FCC2C27C007C828280C0C27C00FC828282C2C2FC
00")
120 CALL CHAR(69,"7E8080F8C0C07E007E8080F8C0C0C0007C828280CEC27C00828282FEC2C2C2
00")
130 CALL CHAR(73,"10101010181818000404040406867E00848484FCC2C2C20080808080C0C0FC
00")
140 CALL CHAR(77,"7C929292D2D2D200FC828282C2C2C2007C86868682827C00FC8282FCC0C0C0
00")
150 CALL CHAR(81,"7C828282829E7C00F88484FCC2C2C2007C82807C06867C007E101010181818
00")
160 CALL CHAR(85,"82828282C2C27C00C2C2C2C24444380092929292D2D27C0044444438C2C2C2
00")
170 CALL CHAR(89,"8282827C181818007C828E3C70C2827C")
180 CALL CHAR(48,"7C82828286867C0008080808181818007C82027CC0C07E007884841C06867C
00")
190 CALL CHAR(52,"78848484847E0C007E80807C06867C007C8280FC86867C00FE020202060606
00")
200 CALL CHAR(56,"3844447C86867C007C82827E06867C00")
210 PRINT "A B C D E F G H I J K L M N": "O P Q R S T U V W X Y Z": ":1 2 3 4 5
6 7 8 9 0"
220 RUN "CS1"
    
```



We have reviewed the ASCII Code in a previous issue (see Dec 85 issue of SND). The key-codes returned by the CALL KEY subprogram are somewhat related to the ASCII code. Specifically, certain KEY Units of the CALL KEY subprogram will return the appropriate ASCII Code of the printable characters. However we have many more non printable key sequences such as the CTRL and FCTN sequences in conjunction with the 42 keys of the keyboard. All of these will return a key-code by one of the five KEY UNIT mode. Of course some of the printable characters are obtained by the help of the FCTN key, these naturally will return the assigned ASCII code.

Comparable functions are used by other Basic versions used by the various computer brands. The popular TRS80 level 1 and 2 and its DSE equivalents along with several other makes use the Inkey\$ statement. It will detect the key press following this statement and the character will be placed in the program designated string-variable (e.g. A\$=INKEY\$ will result in A\$="the key pressed").

Apple II and PET uses the GET statement, which also works somewhat like the TI's CALL KEY, albeit it is not nearly as versatile as the CALL KEY subprogram. GET can be a trap sometimes because in other Basic versions it will do something quite different. For instance GET will load a file or a program from disc in HP-Basic (Hewlett Packard).

KEY\$ is yet another comparable Basic statement used by some dialects. APPLE II's PDL function is also similar, however this is more comparable to the TI's CALL JOYSTICK subprogram. It will return a key-code from the joystick (e.g. PDL=Paddle).

One can see that this option is more or less a standard feature of Basic, although nearly every version of the language uses a different syntax and also a different logic.

The Basic resp. Extended Basic manuals supplied by Texas with the hardware do not list all the available key codes, and the listing is not very clear. The paragraph dealing with the KEY subprogram is vague, the information is incomplete and both volumes give some incorrect information. In short, the presentation does not make it easy to fully appreciate the finer details of this very useful programing feature. No doubt the TI Call Key routine is by far the most versatile and most flexible of them all. Perhaps this is the reason why Texas Instruments were reluctant to reveal all of its features even to its users. For these reasons we will have a close look of the CALL KEY subprogram.

It is no point to reiterate the way the Call Key subprogram works, nor to repeat the details given in the manuals on the status variable or the use of the return variable. This is adequately covered in the respective manuals. I suggest you refresh your memory at this point and read the relevant paragraphs in your manuals before continuing.

Some remarks to supplement the information in the manuals

** The key unit may be defined as a numeric variable. The program line >10 CALL KEY(A,B,C) is a valid statement in TI-BASIC or XBASIC, provided A is an integer and A>=0 and A<=5. This may be very useful in a program where numerous CALL KEY routines are needed in different key units. A universal subroutine would handle all the Calls, where the desired key unit is assigned to the variable prior to the GOSUB statement.

** The definition of key unit 0 is not strictly correct in the manuals. A more precise definition will explain it clearly:

> Key unit 0 will default to key unit 5 unless the preceeding call key program line mapped the keyboard in key unit 3 or 4. In this case the keyboard will remain in the preceeding key unit mode. NOTE: If the preceeding Call Key was in key unit 1 or 2 then a following Call Key(O,B,C) routine will default to key unit 5. In other words key unit 1 or 2 will not influence key unit 0.

** The SHIFT or ALPHA LOCK keys will have no effect on the key code of any key sequence involving the CTRL or FCTN keys (CAP.FCTN A = sm.casae FCTN a = CAP.CTRL A = sm.case CTRL a).

** SPACE and ENTER keys return the same code with or without the CTRL resp. FCTN key (SPACE=CTRL+SPACE=FCTN+ SPACE = 32).

** Key units 1 and 2 will return the same key code irrespective of the ALPHA LOCK, SHIFT, CTRL or FCTN keys (key-unit=2: Y=y=FCTN Y=CTRL Y= 18). This is a useful feature if a YES/NO answer (Y/N) is expected. A key unit 2 call will accept the answer even if the alpha lock key has been released to operate the joystick (both, y & n are active in the key unit 2 mode).

** ASCII codes 30 and 31 have been allocated to the cursor resp. the edge character. ASCII code 127 is the delete or rub out character, which is a blank. The first and second of these however can not be called by the call key routine. The cursor may be displayed anywhere on the screen by a single DISPLAY or PRINT CHR\$(30). PRINT CHR\$(31) will also be executed, but it will not be visible on the screen. The Rub-out code is returned by the key strokes FCTN V in K.U. 0,4,5 .This code should not be confused with the DEL.CHAR. (FCTN 1) option or the SPACE (ASCII code 32), although all of these will produce a blank space. Delete or Rub-out is used in communication protocols (see the previously published tutorial on the ASCII code).

** The SHIFT, ALPHA LOCK, CTRL and FCTN keys by themselves have no key codes.

** The key code of the ENTER key is 13 in key units 0, 3, 4 and 5. The key sequences of CTRL or FCTN + ENTER will also return code 13 in these key units. It is notable that CTRL M in key unit 4 mode will also return key code 13. In other words CTRL M in K.U. 4 mode will have the same effect on the prompt "press ENTER to continue" as the ENTER key.

The key codes or the ASCII codes returned in the return variable may be ascertained quickly by a very simple 5 line program.

```
1 REM CALL-KEY
10 INPUT "KEY UNIT ? ":A
20 CALL KEY(A,B,C)
30 IF C<>1 THEN 20
40 PRINT B
50 GOTO 20
```

Even the key code of FCTN 4 can be tested. Type in CON then press ENTER after the BREAK IN LINE ... is printed, and the next line will display the key code of FCTN 4. These few program lines may be expanded by the purists to print out the ASCII characters alongside the ASCII code for the printable characters, and to print the key codes of the others.

```
1 REM CALL\KEY
10 INPUT "ENTER KEY UNIT (A)":A
20 CALL CLEAR
30 N=0
40 PRINT "KEY UNIT =" ;A
50 CALL KEY(A,K,ST)
60 IF ST<>1 THEN 50
70 IF (K<33)+(K>126)THEN 100
80 PRINT " ";CHR$(K);"=" ;K
90 GOTO 110
100 PRINT "CODE=" ;K
110 N=N+1
120 IF N=23 THEN 30
130 GOTO 50
```



Finally the program below will test the effect of a previously specified key unit on key unit 0. Naturally all three programs will run in Basic as well as in Extended Basic.

```

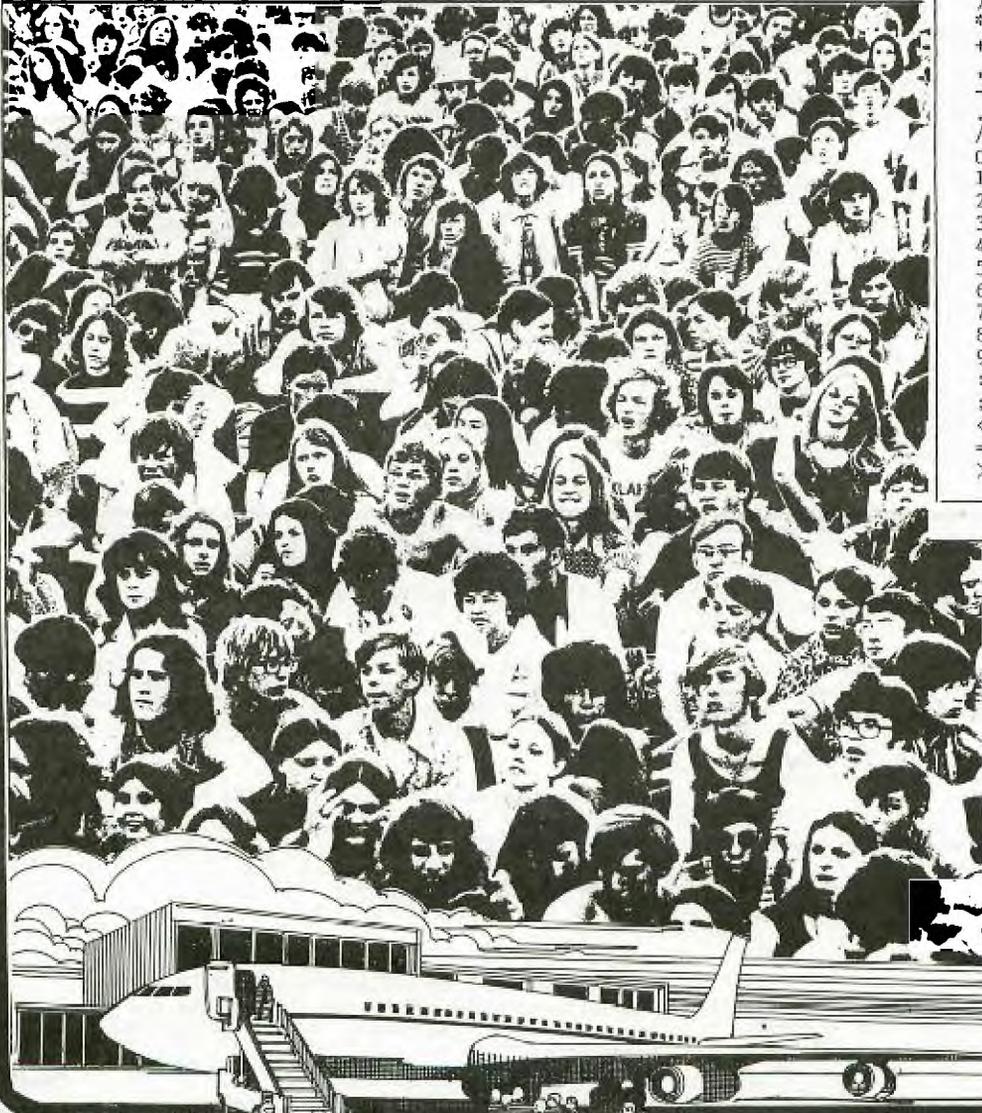
1 REM CALL/KEY
10 B=0
20 INPUT "ENTER KEY UNIT (A) ":A
30 CALL CLEAR
40 N=0
50 PRINT "FIRST K.U.=";A;"SECOND K.U.=";B
60 CALL KEY(A,K,ST)
70 IF ST<>1 THEN 60
80 IF (K<33)+(K>126)THEN 110
90 PRINT " ";CHR$(K);"=";K,
100 GOTO 130
110 PRINT "CODE=";K,
120 GOTO 130
130 CALL KEY(B,K,ST)
140 IF ST<>1 THEN 130
150 IF (K<33)+(K>126)THEN 180
160 PRINT " ";CHR$(K);"=";K,
170 GOTO 190
180 PRINT "CODE=";K,
190 N=N+1
200 IF N=23 THEN 40
210 GOTO 60
    
```

The complete key code tables will supplement the information given in the manuals, and at the same time will correct all the incorrect codes published.

NOTE:

>>> Any reprint of this tutorial shall give credit to the source and 2 complimentary copies of the publication shall be forwarded to the author c/- TISHUG. <<

MODEL: TI-99/4A		TABLE 1.				
KEY SEQUENCE	KEY UNITS TI BASIC & TI EXTENDED BASIC					
	0	1	2	3	4	5
FCTN 7	1	-	7	1	129	1
FCTN 4	2	9	-	2	130	2
FCTN 1	3	19	-	3	131	3
FCTN 2	4	7	-	4	132	4
FCTN -	5	-	-	5	133	5
FCTN 8	6	-	8	6	134	6
FCTN 3	7	8	-	7	135	7
L.ARROW	8	2	-	8	136	8
R.ARROW	9	3	-	9	137	9
D.ARROW	10	0	-	10	138	10
U.ARROW	11	5	-	11	139	11
FCTN 6	12	-	19	12	140	12
ENTER	13	-	-	13	13	13
FCTN 5	14	10	-	14	142	14
FCTN9	15	-	9	15	143	15
Cursor	30	ASCII codes 30 & 31				
Edge Ch	31	are active in all K.U.modes.No returns from the keyboard.				
Space	32	-	-	32	32	32
!	33	19	-	33	33	33
"	34	-	11	34	34	34
#	35	8	-	35	35	35
\$	36	9	-	36	36	36
%	37	10	-	37	37	37
&	38	-	7	38	38	38
'	39	-	6	39	39	39
(	40	-	9	40	40	40
)	41	-	10	41	41	41
*	42	-	8	42	42	42
+	43	-	-	43	43	43
,	44	-	14	44	44	44
-	45	-	16	45	45	45
.	46	-	13	46	46	46
/	47	-	16	47	47	47
0	48	-	10	48	48	48
1	49	19	-	49	49	49
2	50	7	-	50	50	50
3	51	8	-	51	51	51
4	52	9	-	52	52	52
5	53	10	-	53	53	53
6	54	-	19	54	54	54
7	55	-	7	55	55	55
8	56	-	8	56	56	56
9	57	-	9	57	57	57
:	58	-	17	58	58	58
;	59	-	17	59	59	59
<	60	-	14	60	60	60
=	61	-	-	61	61	61
>	62	-	13	62	62	62



**C.U. there
at the
TI FAIR
Melbourne**

14th JUNE '86



MODEL: TI-99/4A		TABLE 2.				
KEY SEQUENCE	KEY UNITS TI BASIC & TI EXTENDED BASIC					
	0	1	2	3	4	5
?	63	-	5	63	63	63
@	64	7	-	64	64	64
A	65	1	-	65	65	65
B	66	16	-	66	66	66
C	67	14	-	67	67	67
D	68	3	-	68	68	68
E	69	5	-	69	69	69
F	70	12	-	70	70	70
G	71	17	-	71	71	71
H	72	-	1	72	72	72
I	73	-	5	73	73	73
J	74	-	2	74	74	74
K	75	-	3	75	75	75
L	76	-	12	76	76	76
M	77	-	0	77	77	77
N	78	-	15	78	78	78
O	79	-	6	79	79	79
P	80	-	11	80	80	80
Q	81	18	-	81	81	81
R	82	6	-	82	82	82
S	83	2	-	83	83	83
T	84	11	-	84	84	84
U	85	-	4	85	85	85
V	86	13	-	86	86	86
W	87	4	-	87	87	87
X	88	0	-	88	88	88
Y	89	-	18	89	89	89
Z	90	15	-	90	90	90
[	91	6	-	91	91	91
\	92	15	-	92	92	92
]	93	11	-	93	93	93
.	94	-	19	94	94	94
,	95	-	4	95	95	95
'	96	14	-	96	96	96
~	97	1	-	97	97	97
a	98	16	-	98	98	98
b	99	14	-	99	99	99
c	100	3	-	100	100	100
d	101	5	-	101	101	101
e	102	12	-	102	102	102
f	103	17	-	103	103	103
g	104	-	1	104	104	104
h	105	-	5	105	105	105
i	106	-	2	106	106	106
j	107	-	3	107	107	107
k	108	-	12	108	108	108
l	109	-	0	109	109	109
m	110	-	15	110	110	110
n	111	-	6	111	111	111
o						

MODEL: TI-99/4A		TABLE 3.					
KEY SEQUENCE		KEY UNITS TI BASIC & TI EXTENDED BASIC					
		0	1	2	3	4	5
p		112	1	11	80	112	112
q		113	18	-	81	113	113
r		114	6	-	82	114	114
s		115	2	-	83	115	115
t		116	11	-	84	116	116
u		117	-	4	85	117	117
v		118	13	-	86	118	118
w		119	4	-	87	119	119
x		120	0	-	88	120	120
y		121	-	18	89	121	121
z		122	15	-	90	122	122
{		123	12	-	91	123	123
|		124	1	-	92	124	124
}		125	17	-	93	125	125
~		126	4	-	94	126	126
FCFN V		127	13	-	127	127	127
(DELETE)	This is a communication key. Not FCFN1 of XBASIC						
CTRL ,		128	-	14	-	0	128
CTRL A		129	1	-	-	1	129
CTRL B		130	16	-	-	2	130
CTRL C		131	14	-	-	3	131
CTRL D		132	3	-	-	4	132
CTRL E		133	5	-	-	5	133
CTRL F		134	12	-	-	6	134
CTRL G		135	17	-	-	7	135
CTRL H		136	-	1	-	8	136
CTRL I		137	-	5	-	9	137
CTRL J		138	-	2	-	10	138
CTRL K		139	-	3	-	11	139
CTRL L		140	-	12	-	12	140
CTRL M		141	-	0	-	13	141
CTRL N		142	-	15	-	14	142
CTRL O		143	-	6	-	15	143
CTRL P		144	-	11	-	16	144
CTRL Q		145	18	-	-	17	145
CTRL R		146	6	-	-	18	146
CTRL S		147	2	-	-	19	147
CTRL T		148	11	-	-	20	148
CTRL U		149	-	4	-	21	149
CTRL V		150	13	-	-	22	150
CTRL W		151	4	-	-	23	151
CTRL X		152	0	-	-	24	152
CTRL Y		153	-	18	-	25	153
CTRL Z		154	15	-	-	26	154
CTRL .		155	-	13	-	27	155
CTRL ;		156	-	17	-	28	156
CTRL =		157	-	-	-	29	157
CTRL 8		158	-	8	-	30	158
CTRL 9		159	-	9	-	31	159

MODEL: TI-99/4A		TABLE 4.					
KEY SEQUENCE		KEY UNITS TI BASIC & TI EXTENDED BASIC					
		0	1	2	3	4	5
CTRL 1		177	19	-	-	177	177
CTRL 2		178	7	-	-	178	178
CTRL 3		179	8	-	-	179	179
CTRL 4		180	9	-	-	180	180
CTRL 5		181	10	-	-	181	181
CTRL 6		182	-	19	-	182	182
CTRL 7		183	-	7	-	183	183
FCFN ,		184	-	14	-	184	184
FCFN .		185	-	13	-	185	185
FCFN /		186	-	16	-	186	186
CTRL /		187	-	16	-	187	187
FCFN 0		188	-	10	-	188	188
FCFN ;		189	-	17	-	189	189
FCFN B		190	16	-	-	190	190
FCFN H		191	-	1	-	191	191
FCFN J		192	-	2	-	192	192
FCFN K		193	-	3	-	193	193
FCFN L		194	-	12	-	194	194
FCFN M		195	-	0	-	195	195
FCFN N		196	-	15	-	196	196
FCFN Q		197	18	-	-	197	197
FCFN Y		198	-	18	-	198	198



GLEBE REGIONAL REPORT.

The February meeting of the GLEBE Regional Group was held on Tuesday 4 th. As usual an enthusiastic group was in attendance.

Mike Slattery showed off a couple of programs he has written. One was a very useful utility to dump the output from the TRACE command onto a printer. (This can be found elsewhere in this issue.)

He also showed off a simulation of the kids toy where squares are moved one at a time to solve the puzzle

Peter Schubert brought along a new book he bought at DYMCKS called

REGIONAL

COMPUTE'S BEGINNERS GUIDE TO ASSEMBLY LANGUAGE ON THE TI-99/4A

As a complete beginner in assembler I had a look at this book. It is remarkably clear and well explained. It is intended primarily for those who have a MINIMEM but even if you don't it would be well worth it to see if you can get a copy.

The next meeting will be held on MARCH 4 at 8 PM. The address is 43 BOYCE ST. GLEBE. All welcome.

CENTRAL COAST REGIONAL GROUP

The members of TISHUG on the Coast meet for the first time this year on the 8/2/86. All attending the meeting agreed to the change of time for the holding of the meetings to come. Therefore the meetings will now be held on the second Saturday of the month starting at

6-30PM. and finishing about 9-30PM. At this month's meeting I demonstrated the PAINT 'N PRINT Module by Navarone. They were impressed by the printout done on the Epson printer. Also some new games were shown. Russell Welham



MAKING LIGHT OF ASSEMBLY PROGRAMMING
by Fred Morris - TI.SHUG.

No doubt you have all seen a statement similar to the introduction of this article? Somehow, on each occasion I have seen "something" about Assembly programming the author/s have suggested that it is easy!

Clearly, it is easy if you have sat down, shut out the world and tackled the business of writing your first Assembly language program - or should I say that it BECOMES easier? Many hours later, frustrated and on the verge of total derangement, you may see the statement at the end of assembled source code which says "ERRORS 0000" - plus, the program ACTUALLY DOES do what you intended it to do! If ever you reach this situation then I believe that you're on the way - to what you may well ask? Firstly some well meaning advice.....

DANGER! DANGER! DANGER!

To the uninitiated, getting into Assembly could lead to several "life style" disasters (some of you may be aware that the medical fraternity has allocated points to various lifetime events in order to determine a person's stress factor). To name but a few of these - BROKEN MARRIAGES because communication between partners deteriorate quite dramatically. MENTAL and PHYSICAL DISORDERS which may find that you break out in something that has even the family doctor reaching for his text books. ANTI-SOCIAL BEHAVIOUR resulting in often violent confrontations with authority or, even trying the "FLIGHT OF ICARUS" from a 10 storey building!

Now, none of these described events will necessarily occur. It's all in the mind. If you start at the beginning - YOU CAN'T GO WRONG!

For me, the beginning was a desire to find a way to speed up some of the Extended Basic programs that I had acquired. Some very good programs could become really great if only the author had looked to LINKing the Extended Basic and Assembly. Essentially I am fairly competent in BASIC so as a learning exercise the challenge was to rewrite some of the graphic screen drawing sub-programs in Assembly. You will have noticed that it is often the slow drawing of a screen that detracts from the animation of say, an entertainment type program?

To my way of thinking you can't simply LEARN Assembly without writing it! The process of learning comes about if a need exists to use the language. Just listen to people around you! Notice that each has a somewhat different use of the same English language - yet we still seem to communicate. So, too in programming - with practice, you will improve your proficiency in the use of the Assembly language.

To make the transition to Assembly consider that when programming in BASIC the machine does WHAT you tell it to do because it has already been taught to respond to several commands and that to program in Assembly you need to first teach the machine HOW to do what you tell it to do. A little too simplistic? Maybe, but this is how I started.

CALL CLEAR a BASIC command. It clears the screen of any characters currently being displayed. But what does it do? Does it take the characters OFF the screen or does it ADD to the screen by over writing each screen location with a blank character? Actually it does the latter. Running in BASIC the TI.99/4A knows

how to rewrite the screen and thus it responds to your command. In Assembly you need to explain how the TI.99/4A should do the job - then it will do so when told. Thus, you are able to proceed to tackle EACH of the various tasks required. This then is the beginning

.....
Thus, to sum up know what you want to do, find out how to do it (it is this part that takes you through the manual, through the various publications on the subject and to the various special interest groups) - then DO IT!

IT REALLY IS VERY EASY - ask any Assembly programmer! So, what about it chaps? Help us to make the transition to Assembly - Let's see those articles, programs and hints!

Now to demonstrate I have included the source code for a program to change the character set of the TI.99/4A. Also, the program has been converted to run in Extended Basic. The principle being shown here is ofcourse the ability to redefine a series of characters - be they for this type of program or any other graphic work. Why don't you, once you have typed in the program and saved it, and redo it using the character definition provided in the TI.WRITER program published in the Jan/Feb issue of the SND?

NOTES:

1. Save the source code as CHAR1/S and the resulting object code as CHAR1/O.
2. To use the resulting object code you may call it from disk into a running program by using CALL LOAD("DSKL.CHAR1/O") and when you wish to actually carry out the redefinition of the character set then use CALL LINK("CHARDF").
3. To use the Extended Basic program you may consider saving it as filename LOAD so that at the time you switch on the computer it will automatically carry out the redefinition.
4. Another thought for the Extended Basic version is that you save it in MERGE format. This will make it a little easier for you to incorporate it in any program you are doing.
5. The source code is written for the Extended Basic/Assembly environment and will not run without some adaptation for E/A only environment.
6. After RUNNING the X/B program you will notice that even after you invoke the NEW command you will still be able to perform a CALL LINK("CHARDF") either in command mode or within another program and it will still work! - Good eh?

```

=====
* CHARCTER DEFINITION *
* SOURCE CODE *
* from Fred Morris *
* for Extended basic loader *
=====

```

```

*
* DEF CHARDF
* VMBW EQU >2024
*
* NEWDEF DATA >7C7C,>6C6C,>6C6C,>7C7C * CURS 30
* DATA >0000,>0000,>0000,>0000 * BORD 31
* DATA >0000,>0000,>0000,>0000 * " " 32
* DATA >3030,>3030,>3000,>3000 * "!" 33
* DATA >6C6C,>246C,>0000,>0000 * "" 34
* DATA >48FC,>FC48,>FCFC,>4800 * " " 35
* DATA >30FC,>COFC,>OCFC,>3000 * "5" 36
* DATA >E6AC,>F83E,>6ACE,>0000 * "% " 37
* DATA >70D8,>D870,>CCCC,>7A00 * "2" 38
* DATA >1818,>0818,>0000,>0000 * " " 39
* DATA >1830,>6060,>6030,>1800 * "(" 40
* DATA >180C,>0606,>060C,>1800 * ")" 41
* DATA >1054,>387C,>3854,>1000 * "*" 42
* DATA >3030,>FCFC,>3030,>0000 * "+" 43
* DATA >0000,>0000,>0038,>1830 * ", " 44
* DATA >0000,>007C,>7C00,>0000 * "-" 45
* DATA >0000,>0000,>0070,>7000 * "." 46
* DATA >060C,>1830,>60C0,>0000 * "/" 47
* DATA >78CC,>CCCC,>CCCC,>7800 * "0" 48
* DATA >3070,>3030,>3030,>FC00 * "1" 49
* DATA >78CC,>0C18,>3060,>FC00 * "2" 50
* DATA >78CC,>0C18,>0CCC,>7800 * "3" 51
* DATA >CCCC,>CCCC,>FC0C,>0C00 * "4" 52
* DATA >F8C0,>C078,>0CCC,>7800 * "5" 53
* DATA >38CC,>COF8,>CCCC,>7800 * "6" 54

```



Sydney News Digest

```

DATA >FCCC,>OC18,>1830,>3000
DATA >78CC,>CC78,>C0CC,>7800
DATA >78CC,>CC7C,>OCCC,>7800
DATA >0038,>3800,>3838,>0000
DATA >0000,>3838,>0038,>1830
DATA >0C18,>3060,>3018,>0C00
DATA >007E,>7E00,>7E7E,>0000
DATA >3018,>0C06,>0C18,>3000
DATA >78CC,>CC18,>3000,>3000
DATA >7CC6,>CECE,>C6C0,>7C00
DATA >387C,>C6C6,>FEC6,>C600
DATA >FCC6,>C6FC,>C6C6,>FC00
DATA >7CC6,>C6C0,>C6C6,>7C00
DATA >FCC6,>C6C6,>C6C6,>FC00
DATA >FEC6,>C0F8,>C0C6,>FEC0
DATA >FEC6,>C0F8,>C0C0,>C000
DATA >7CC6,>C0CE,>C6C6,>7C00
DATA >C6C6,>C6FE,>C6C6,>C600
DATA >3C18,>1818,>1818,>3C00
DATA >0606,>0606,>06C6,>7C00
DATA >C6CC,>D8F0,>D8CC,>C600
DATA >C0C0,>C0C0,>C0C6,>FEC0
DATA >C6EE,>FED6,>C6C6,>C600
DATA >C6E6,>F6DE,>CEC6,>C600
DATA >7CC6,>C6C6,>C6C6,>7C00
DATA >FCC6,>C6FC,>C0C0,>C000
DATA >7CC6,>C6C6,>CECC,>7A00
DATA >FCC6,>C6FC,>D8CC,>C600
DATA >7CC6,>C07C,>06C6,>7C00
DATA >7E18,>1818,>1818,>1800
DATA >C6C6,>C6C6,>C6C6,>7C00
DATA >C6C6,>C6C6,>C6C6,>3800
DATA >C6C6,>C6D6,>FEE6,>C600
DATA >C6C6,>6C38,>6CC6,>C600
DATA >6666,>243C,>1818,>1800
DATA >FEC6,>OC18,>3066,>FEC0
DATA >7C60,>0606,>0606,>7C00
DATA >C060,>3018,>0C06,>0000
DATA >3E06,>0606,>0606,>3E00
DATA >387C,>EEC6,>0000,>0000
DATA >0000,>0000,>0000,>FFFF
DATA >6030,>1800,>0000,>0000
DATA >0000,>3C66,>6666,>3A00
DATA >6060,>607C,>6666,>7C00
DATA >0000,>3C66,>6066,>3C00
DATA >0606,>063E,>6666,>3E00
DATA >0000,>3C66,>7C60,>3C00
DATA >OC18,>3038,>3030,>3000
DATA >0000,>3C66,>663E,>067C
DATA >6060,>607C,>6666,>6600
DATA >0018,>0018,>1818,>1800
DATA >0000,>0606,>0606,>663C
DATA >6066,>6C70,>C6C6,>6600
DATA >1818,>1818,>1818,>1800
DATA >0000,>EED6,>D6D6,>D600
DATA >0000,>5C7E,>6666,>6600
DATA >0000,>3C66,>6666,>3C00
DATA >0000,>7C66,>667C,>6060
DATA >0000,>3E66,>663E,>0606
DATA >0000,>5C66,>6060,>6000
DATA >0000,>3E60,>7E06,>7C00
DATA >0018,>3C18,>1818,>1800
DATA >0000,>6666,>667E,>3A00
DATA >0000,>6666,>243C,>1800
DATA >0000,>C6D6,>D6D6,>7C00
DATA >0000,>6666,>1866,>6600
DATA >0000,>6666,>663E,>067C
DATA >0000,>7E46,>1862,>7E00
DATA >1C30,>3060,>3030,>1C00
DATA >3030,>3000,>3030,>3000
DATA >380C,>0C06,>0C0C,>3800
DATA >366C,>0000,>0000,>0000

```

```

100 !*****
110 !* CHARACTER SET *
120 !* FOR THE TI.99/4A *
130 !*/B VERSION REQUIRES*
140 !* 32K CARD *
150 !* FROM FRED MORRIS *
160 !* TI.SHUG - MAR'86 *
170 !*****
180 CALL INIT :: CALL CLEAR
190 CALL LOAD(16376,67,72,65
,82,68,70,39,252)
200 CALL LOAD(8194,40,14,63,
248)
210 CALL LOAD(9460,124,124,1
08,108,108,108,124,124,0,0,0
,0,0,0,0,0,0,0,0,0,0)
220 CALL LOAD(9482,0,0,48,48
,48,48,48,0,48,0,108,108,36,
108,0,0,0,72,252,252,72)
230 CALL LOAD(9504,252,252,7
2,0,48,252,192,252,12,252,48
,0,230,172,248,62,106,206,0,
0,112,216)
240 CALL LOAD(9526,216,112,2
04,204,122,0,24,24,8,24,0,0,
0,0,24,48,96,96,96,48,24,0)
250 CALL LOAD(9548,24,12,6,6
,6,12,24,0,16,84,56,124,56,8
4,16,0,48,48,252,252,48,48)
260 CALL LOAD(9570,0,0,0,0,0
,0,0,56,24,48,0,0,0,124,124,
0,0,0,0,0,0,0)
270 CALL LOAD(9592,0,112,112
,0,6,12,24,48,96,192,0,0,120
,204,204,204,204,120,0,4
8,112)
280 CALL LOAD(9614,48,48,48,
48,252,0,120,204,12,24,48,96
,252,0,120,204,12,24,12,204,
120,0)
290 CALL LOAD(9636,204,204,2
04,204,252,12,12,0,248,192,1
92,120,12,204,120,0,56,204,1
92,248,204,204)
300 CALL LOAD(9658,120,0,252
,204,12,24,24,48,48,0,120,20
4,204,120,204,204,120,0,120,
204,204,124)
310 CALL LOAD(9680,12,204,12
0,0,0,56,56,0,56,56,0,0,0,0,
56,56,0,56,24,48,12,24)
320 CALL LOAD(9702,48,96,48,
24,12,0,0,126,126,0,126,126,
0,0,48,24,12,6,12,24,48,0)
330 CALL LOAD(9724,120,204,2
04,24,48,0,48,0,124,198,206,
206,198,192,124,0,56,124,198
,198,254,198)
340 CALL LOAD(9746,198,0,252
,198,198,252,198,198,252,0,
24,198,198,192,198,198,124,0
,252,198,198,198)
350 CALL LOAD(9768,198,198,2
52,0,254,198,192,248,192,198
,254,0,254,198,192,248,192,1
92,192,0,124,198)
360 CALL LOAD(9790,192,206,
98,198,124,0,198,198,198,254
,198,198,198,0,60,24,24,24,2
4,24,60,0)
370 CALL LOAD(9812,6,6,6,6,6
,198,124,0,198,204,216,240,2
16,204,198,0,192,192,192,192
,192,198)
380 CALL LOAD(9834,254,0,198
,238,254,214,198,198,198,0,1
98,230,246,222,206,198,198,0
,124,198,198,198)
390 CALL LOAD(9856,198,198,1
24,0,252,198,198,252,192,192
,192,0,124,198,198,198,206,2
04,122,0,252,198)
400 CALL LOAD(9878,198,252,2
16,204,198,0,124,198,192,124
,6,198,124,0,126,24,24,24,24
,24,24,0)
410 CALL LOAD(9900,198,198,1
98,198,198,198,124,0,198,198
,198,108,108,108,56,0,198,19
8,198,214,254,238)
420 CALL LOAD(9922,198,0,198
,198,108,56,108,198,198,0,10
2,102,36,60,24,24,24,0,254,1
98,12,24)
430 CALL LOAD(9944,48,102,25
4,0,124,96,96,96,96,124,0,
,192,96,48,24,12,6,0,0,62,6)
440 CALL LOAD(9966,6,6,6,6,6
2,0,56,124,238,198,0,0,0,0,0
,0,0,0,0,0,255,255)
450 CALL LOAD(9988,96,48,24,
0,0,0,0,0,0,0,60,102,102,102
,58,0,96,96,96,124,102,102)
460 CALL LOAD(10010,124,0,0,
0,60,102,96,102,60,0,6,6,6,6
2,102,102,62,0,0,60,102)
470 CALL LOAD(10032,124,96,6
0,0,12,24,48,56,48,48,48,0,0
,0,60,102,102,62,6,124,96,96
)
480 CALL LOAD(10054,96,124,1
02,102,102,0,0,24,0,24,24,24
,24,0,0,0,6,6,6,102,60)
490 CALL LOAD(10076,96,102,1
08,112,108,102,102,0,24,24,2
4,24,24,24,24,0,0,0,238,214,
214,214)
500 CALL LOAD(10098,214,0,0,
0,92,126,102,102,102,0,0,0,6
0,102,102,102,60,0,0,0,124,1
02)
510 CALL LOAD(10120,102,124,
96,96,0,0,62,102,102,62,6,6,
0,0,92,102,96,96,96,0,0,0)
520 CALL LOAD(10142,62,96,12
6,6,124,0,0,24,60,24,24,24,2
4,0,0,0,102,102,102,126,58,0
)
530 CALL LOAD(10164,0,0,102,
102,36,60,24,0,0,0,198,214,2
14,214,124,0,0,0,102,102,24,
102)
540 CALL LOAD(10186,102,0,0,
0,102,102,102,62,6,124,0,0,1
26,70,24,98,126,0,28,48,48,9
6)
550 CALL LOAD(10208,48,48,28
,0,48,48,48,0,48,48,48,0,56,
12,12,6,12,12,56,0,54,108)
560 CALL LOAD(10230,0,0,0,0,
0,0,2,0,3,240,2,1,36,244,2,2
,3,8,4,32,32,36)
570 CALL LOAD(10252,4,91,124
,124)
580 DISPLAY AT(1,10):"TI.SHU
G": :TAB(5);"New Character s
et": :TAB(5);"for the TI.99
/4A"
590 FOR I=65 TO 90 :: DISPLA
Y AT(9,1+I-64);CHR$(I):: NEX
T I
600 FOR I=97 TO 122 :: DISPLA
Y AT(11,1+I-96);CHR$(I):: N
EXT I
610 FOR I=48 TO 57 :: DISPLA
Y AT(13,9+I-47);CHR$(I):: NE
XT I
620 DISPLAY AT(15,1):"*****$%
&'()*+,-./:;<=>?@[ \ ] ^ _ `
"
630 DISPLAY AT(24,7):"Press
any key"
640 CALL KEY(0,K,S):: IF S=0
THEN 640 ELSE CALL LINK("CH
ARDF")
650 DISPLAY AT(24,1):"Quick
Eh? ...Any key to end"
660 CALL KEY(0,K,S):: IF S=0
THEN 660 ELSE CALL CLEAR ::
END

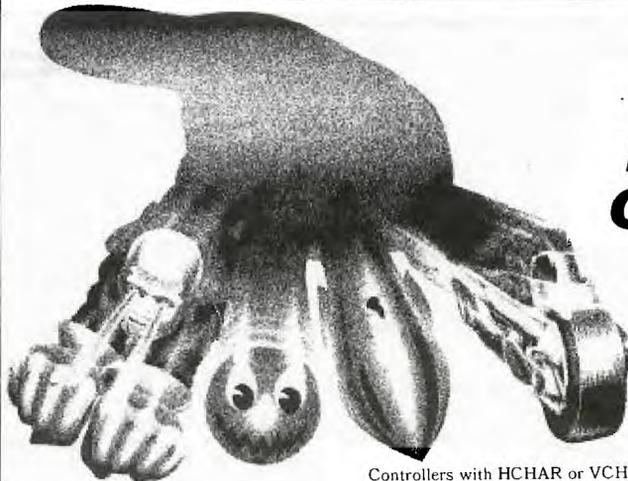
```

```

*-----*
* EXECUTE THE RE-DEFINITION OF THE CHARACTERS. *
* RO=START POS CHAR 30 & R1=DEFCHARS & R2=NO.BYTES *
*-----*
CHARDF LI RO,1008
      LI R1,NEWDEF
      LI R2,776
      RLWP @VMBW
      RT
      ENL

```

Wired Remote Controllers



```

100 !*****
110 !* CHARACTER SET *
120 !* FOR THE TI.99/4A *
130 !*X/B VERSION REQUIRES*
140 !*32K CARD AND 1 DRIVE*
150 !* FROM FRED MORRIS *
160 !* TI.SHUG - MAR'86 *
170 !*****
180 CALL INIT :: CALL CLEAR
:: CALL LOAD("DSK1.CHAR1/0")
190 DISPLAY AT(1,10):"TI.SHU
G": :TAB(5);"New Character s
et": :TAB(5);"for the TI.99
/4A"
200 FOR I=65 TO 90 :: DISPLA
Y AT(9,1+I-64):CHR$(I):: NEX
T I
210 FOR I=97 TO 122 :: DISPL
AY AT(11,1+I-96):CHR$(I):: N
EXT I
220 FOR I=48 TO 57 :: DISPLA
Y AT(13,9+I-47):CHR$(I):: NE
XT I
230 DISPLAY AT(15,1):"!""#$$
&'()*+,-./:;<=>?@[ \ ] ^ _ `{|}~"
240 DISPLAY AT(24,7):"Press
any key"
250 CALL KEY(0,K,S):: IF S=0
THEN 250 ELSE CALL LINK("CH
ARDF")
260 DISPLAY AT(24,1):"Quick
Eh? ....Any key to end"
270 CALL KEY(0,K,S):: IF S=0
THEN 270 ELSE CALL CLEAR ::
END
    
```

Controllers with HCHAR or VCHAR (see line 270 of Color Designs).

- When you are using the Wired Remote Controllers with the 24 x 32 "grid" for graphics designs, the row numbers begin with 1 at the top and increase to 24 at the bottom. Since the Remote Controllers are designed for values to increase as the lever is moved up, the sign of the Y-variable must be reversed when defining a row position for graphics programs (see line 240 of Color Designs).

Sample Programs

Color Designs:

This program draws a line of blocks on the screen as you move the Wired Remote Controller lever. You can change the color of the block from blue to red and back again by pressing the FIRE button. A single handheld unit is needed.

First, turn on the computer and select TI BASIC on the master selection list. Then enter the following program.

```

>NEW
>100 SWITCH=1
>110 X=15
>120 Y=13
>130 CALL CLEAR
>140 CALL COLOR(1,11,11)
>150 CALL COLOR(2,5,5)
>160 CALL JOYST(1,DX,DY)
>170 CALL KEY(1,KEY,STATUS)
>180 IF KEY<>18 THEN 230
>190 SWITCH=SWITCH*-1
>200 CALL COLOR(2,9,9)
>210 IF SWITCH=-1 THEN 230
>220 CALL COLOR(2,5,5)
>230 X=X+DX/4
>240 Y=Y-DY/4
>250 X=INT(32*((X-1)/32-INT((X-1)/32)))+1
>260 Y=INT(24*((Y-1)/24-INT((Y-1)/24)))+1
>270 CALL HCHAR(Y,X,42)
>280 GOTO 160
    
```

Now enter the RUN command to begin your drawing. Move the lever in any direction to draw blocks. Press the FIRE button to change its color.

Program Explanation: Line 140 specifies a yellow screen color. The color block is defined as blue in line 150 (foreground and background colors the same).

The CALL JOYST statement (line 160) inputs values based on the position of the lever. These values are used to compute a screen position for the display character (lines 230-260). The calculations in lines 250 and 260 ensure that the screen position for the block will not exceed the screen boundary. This wrap-around feature keeps the program from ending in an error. The block is placed on the screen by the CALL HCHAR statement (line 270).

Lines 170 and 180 determine if the FIRE button has been pressed. If so, the program uses the variable SWITCH to determine which color to use for the block. If SWITCH equals +1, a blue block is displayed (line 200); if it equals -1, a red block appears (line 220).

Line 280 creates a loop so that you can continue to draw blocks and change colors as long as you want. Remember to press CLEAR on the console to stop the program.

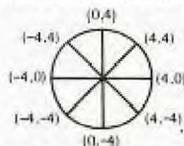
CALL JOYST

The lever on the Remote Controller unit returns information to your program via the CALL JOYST subprogram. The format for CALL JOYST is:

CALL JOYST (unit-number, x-variable, y-variable)

The unit number specifies which handheld unit you are using and must be 1, 2, or a numeric variable or expression that evaluates to a 1 or 2.

Each position of the lever has an X value and a Y value assigned to it as shown here. The center position is (0,0).



When the CALL JOYST statement is performed, integer values of -4, +4, or 0 are automatically assigned to the X- and Y-variables, based on the position of the lever.

CALL KEY

The FIRE button on the Remote Controller unit returns information to your program via the CALL KEY subprogram. To use CALL KEY, the following format is required:

CALL KEY (unit-number, key-variable, status-variable)

The unit-number specifies which handheld unit you are using and must be 1, 2, or a numeric variable or expression that evaluates to 1 or 2.

When the CALL KEY subprogram is performed, the center assigns the value 18 to the key-variable if the button is pressed and the value 0 if it is not pressed.

The computer assigns a value to the status-variable to indicate what has happened in the program since the last CALL KEY statement was performed. The value is:

- +1 if the FIRE button was not pressed during the last performance of CALL KEY, but is now pressed.
- 1 if the FIRE button was pressed during the last performance of CALL KEY and is still pressed.
- 0 if the FIRE button is not pressed at the time the CALL KEY statement is performed.

The following programs show how to use the Wired Remote Controllers with the CALL JOYST and CALL KEY subprograms. Please note these important points:

- The values returned in X-variable and Y-variable should be used in additional calculations if you want to place characters anywhere on the screen (see lines 230-260 of the Color Designs program) or generate tones (see lines 250-280 of the Music Player program).

- For graphics design, use the Y-variable to calculate a row position on the screen and the X-variable to calculate a column position when using the Remote

LINKING TO ASSEMBLY FROM EXTENDED BASIC.
 by Ross Mudie, TISHUG, Sydney, Australia.
 1st March 1986 AUTUMN ISSUE of SND.

I am preparing a series of disks to help cover, what appears to me, to be a poorly documented area of the TI99/4A computer, namely the use of assembly language programming with extended basic. The Editor/Assembler manual covers use of assembly with Basic, much of which requires the E/A module to be inserted in the GROM port of the computer, but this does not permit the niceties of extended basic to be used. I have found much of the reference to extended basic linking difficult to follow in the E/A manual and I reason that others are probably having similar problems.

I will be making these disks available to the TI99/4A users' community via TISHUG, TI Sydney Home Users Group. I hope that a Special Interest Group can be set up on the subject of LINKING to ASSEMBLY from EXTENDED BASIC.

The disks are set up to auto load from extended basic into a MENU program. The HELP or INFORMATION type files are set up in 40 column width so that they can be read on a 40 column screen. This allows convenience of reading for those who do not have a printer. The MENU program will access a utility which displays these files on the 40 column screen. Unfortunately it is difficult to contain heavily documented assembly source files within the 40 column width so these will be in the normal 80 column width and must be accessed via E/A, BEAXS or TI Writer etc. I am hopeful that others may follow this format and example and contribute to expand a pool of well documented program examples to the benefit of all users.

The programs and utilities included on these disks are intended to give the user a helping hand to get going with assembly and linking to assembly from extended basic. You may with experience find much better ways of doing the same tasks.

At present two disks have been prepared, titled MUDIE_86/1 and MUDIE_86/2.

Disk MUDIE_86/1 includes the source and object files for the KEY utility (32 column mode), as well as source and object files for a program to quickly convert the date output of a Tripletch clock to English date format and the time from 24 to 12 hour format and print the result on the screen. TI's unlimited text to 'English' speech utilities are used in an interactive talking extended basic game along with tutorial articles.

Disk MUDIE_86/2 contains more tutorial information in addition to source and object files for a group of 40 column utilities which may be used with your own extended basic programs. The menu program allows an interactive demonstration of the capabilities of the extremely versatile "Accept" utility which is easily programmed to act like CALL KEY with cursor or ACCEPT AT.

Both of these disks will be available from the TISHUG shop at the usual media fee. Some files from these disks may be printed in the SND as space permits, however the contents of these two disks could fill one issue of the SND. (Both disks have 358 sectors used each).

USING 40 COLUMN MODE FROM E'XTD BASIC
 Disk name=MUDIE_86/2 file FORTYINTRO 2nd January 1986.

The 40 column screen (TEXT) mode can be utilised from extended basic by loading suitable utilities into the memory expansion unit. When using this mode the 24 row by 40 column screen occupies 960 bytes of VDP RAM instead of the 768 bytes used for the 24 row by 32 column GRAPHICS mode. Extended basic in the graphics mode uses VDP RAM locations 768 to 895 for the sprite table and 896 to 957 for scratch pad etc. Sprites can

not be used in TEXT mode which is also capable of only one foreground/background colour combination for all characters.

One of the hazards of using text mode from extended basic is the effect on the video characters displayed if the BREAK (<FCTN> 4) key is used or an error is detected in the extended basic program whilst the 40 column screen is in use. The effect is that the screen becomes a mass of multicoloured garbage, however all is not lost. From an error you can try typing BREAK, a readable screen may reappear after a few seconds but the error messages will probably give erroneous line numbers. If you don't try BREAK, you may be able to save the extended basic program to disk, providing you don't mind not seeing what you have typed to achieve the save. Use a different file name, just in case, before turning the console off to start again.

An effective method of preventing the screen from going crazy on a BREAK is:

- (a) SAVE the contents of VDP RAM 896 to 958 BEFORE using the TEXT mode, in a 62 byte memory block. If sprites are in use in the graphics mode then save the contents of VDP RAM 768 to 959 inclusive in a 192 byte block.
 The module SW40, (described later), will perform this function.
- (b) PREVENT use of the BREAK key in extended basic whilst in TEXT mode with the statement ON BREAK NEXT.
- (c) RESTORE the contents of VDP RAM 896 to 958 from the 62 byte block (or 768 to 959 from the 192 byte block if sprites are involved) when finished with TEXT mode.
 The module SW32, (described later), will perform this function.
- (d) RE-ENABLE the BREAK key with the statement ON BREAK STOP.

The use of some extended basic statements and sub programs are known to cause graffiti in row 23 of the 40 column screen. CALL SOUND will place characters in row 23 columns 10 to 14 whilst INPUT, LINPUT and ACCEPT produce graffiti in row 23 column 5, CALL KEY also gives rubbish in row 23. In these cases new routines will be required to perform similar functions but operating wholly in the expansion RAM. CHR\$ interferes at row 23, column 8.

The following extended basic statements are unsuitable for use with the 40 column screen because they were written for the 32 column screen and as a result can not access the bottom of the 40 column screen and end up all over the screen:

ACCEPT, ACCEPT AT, DISPLAY, DISPLAY AT, INPUT (from keyboard), LINPUT (from keyboard) and PRINT (screen).

Assembly routines have been written to provide reasonable utility emulation of these statements via the CALL LINK sub program. The source file and explanation of the syntax of each utility is on disk MUDIE_86/2. The utility SOUNDS, which may be used in lieu of CALL SOUND, is on disk MUDIE_86/3.

These utilities on disk MUDIE_86/2 are:

- * Source file .FORTYSTART
 - SW40 Switches to 40 column mode & clears screen.
 - SW32 Switches to 32 column mode & clears screen.
- * Source file .ACCEPT
 - A40 Accept At and Call Key for 40 column screen use. Row=1 to 24, Column=1 to 40, Size=1 to 99, Key Unit=1 to 5, Beep & exit options, Size can clear window, negative size takes

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default from characters already on the screen in the size window, Character delete & Insert (special cursor), size window erase, left & right cursor control, auto repetition. Returns strings only but can be commanded from x/b program to accept only numeric characters. Parameters once set only need to be respecified if change is required. Out of limit values default to last valid or initial default values.

*** Source file .DISPLAY**

D40 Display At for 40 column screen which can display a string of 1 up to 255 characters in length. Row & Column can be specified R=1 to 24, C=1 to 40 with default if out of range or not specified to that previously used. Initial defaults of R=1 & C=1. C=1. Overflow on bottom right of screen continues from top left.

*** Source file .PAGEPRINT**

PAGE Clears the screen then prints a 22 column column page from a single dimension ext'd basic array.
LLINE Prints a command line up to 40 characters on the last line of a 40 column screen with automatic centering.

*** Source file .BEEP**

BEEP Produces a 150 millisecond BEEP of 1400Hz tone.

*** Source file .PRINT**

P40 Both P40 & PRINT will print extended basic text strings on the 40 column screen with scrolling up from the bottom of the screen. Strings may be up to 255 bytes in length.

*** Source file .CLEARSCN**

CLS40 Clears a specified window in characters displayed on the 40 column screen, or can clear the whole screen.

A forty column screen form has been included in this disk which may be printed out on most printers. This form should assist in laying out 40 column screens for your programs. It is contained in the file SCREENFORM. By using the MENU program option of "PRINT 40 COLUMN SCREEN FORM" the screen form will be printed with less space between the lines giving an improvement in the aspect ratio of the form.

There is advantage to be gained from prevention of unnecessary reloading of assembly utilities every time an extended basic program is run. The file HELPSPEAK on disk MUDIE_86/1 contains a short discussion on this subject. The method discussed is used in the program MENU_86/2 .

I do not recommend that you attempt to use these utilities with your extended basic program unless you are reasonably competent programmer in extended basic. The error messages given by the computer will most times have little meaning, if the screen is readable! The common cause of my own errors with these utilities has been leaving the last bracket off after the closing quote of text or not properly handling the return of a null string from "A40". (ASC does not like a null string!)

The files .FORTYSTART and .DISPLAY will be prepared for the next issue of the SND.

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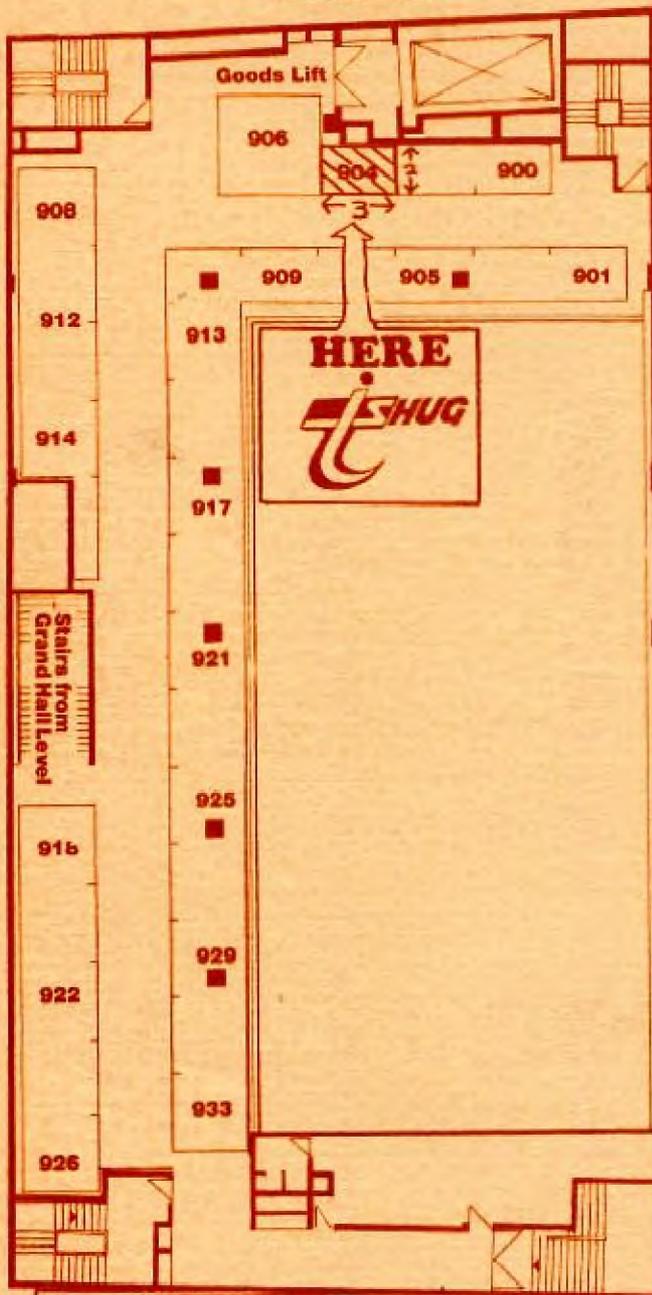
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