

042
8906



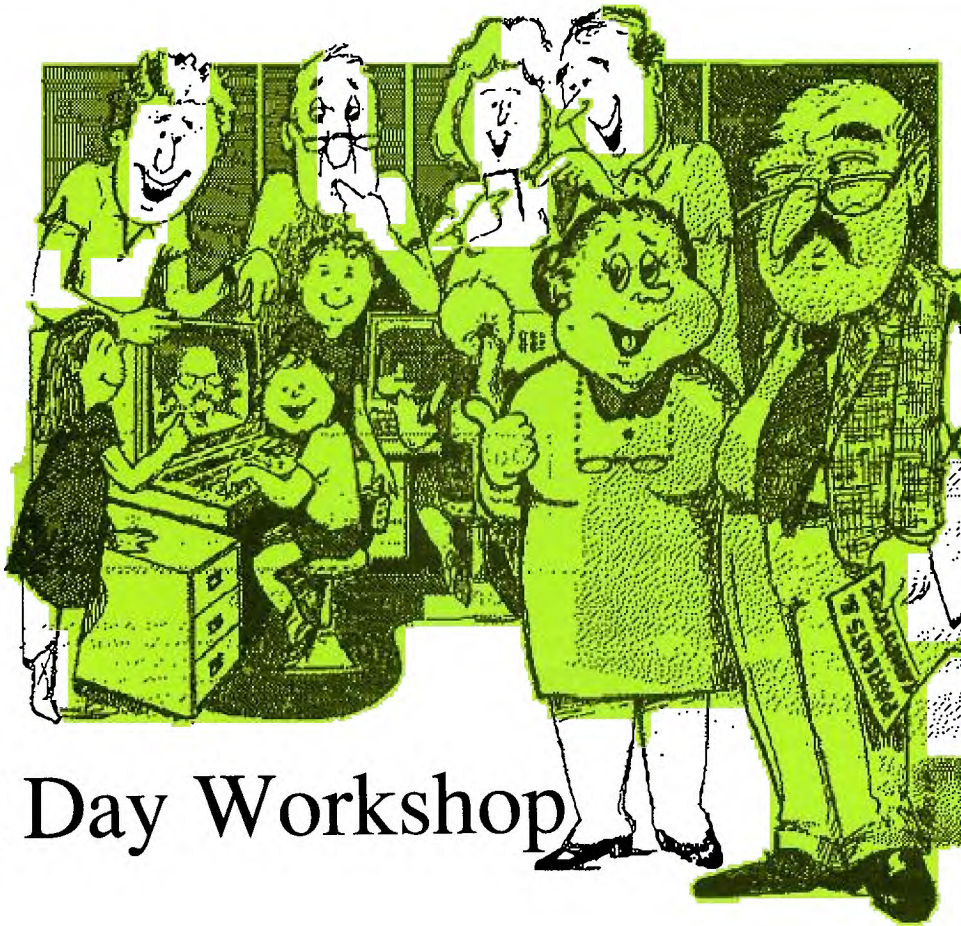
NEWS DIGEST

Focusing on the TI99/4A Home Computer

Volume 8, Number 6

June, 1989

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Full Day Workshop

All welcome! Come, learn and enjoy

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

\$ 2

TiSHUG (Australia) Ltd.

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TiSHUG News Digest

June 1989

All correspondence to:

P.O. Box 214
Redfern, NSW 2016
Australia

The Board

Co-ordinator
Dick Warburton (02) 918 8132
Secretary
Terry Phillips (02) 797 6313
Treasurer
Rolf Schreiber (042) 84 2980
Directors
Robert Peverill (02) 602 4168
Russell Welham (043) 92 4000

Sub-committees

News Digest Editor
Geoff Trott (042) 29 6629
BBS Sysop
Ross Mudie (02) 456 2122
Merchandising
Steven Carr (02) 608 3564
Publications Library
Warren Welham (043) 92 4000
Software library
Terry Phillips (02) 797 6313
Technical co-ordinator
Lou Amadio (042) 28 4906

Regional Group Contacts

Carlingford
Chris Buttner (02) 871 7753
Central Coast
Russell Welham (043) 92 4000
Coffs Harbour
Kevin Cox (066) 53 2649
Glebe
Mike Slattery (02) 692 0559
Illawarra
Geoff Trott (042) 29 6629
Liverpool
Larry Saunders (02) 644 7377
Northern Suburbs
Dennis Norman (02) 452 3920
Sutherland
Peter Young (02) 528 8775

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Annual Family Dues \$25.00
Overseas Airmail Dues AUS\$50.00

TiSHUG Sydney Meeting

The next meeting will be a full day workshop starting at 9.30 am on 3rd of June at the Woodstock Community Centre, Church Street, Burwood.

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They're off

by Geoff Trott

I took all the club's equipment on loan to the Editor to the last meeting in Sydney for all to see how it works and how it helps me to do my job better for you all. Of course I am still indebted to John Vandermeij for the loan of his Hard Disk controller and his hard disk, to Ben Takach for the loan of a Mechatronics 80 column card, to John Paine for the loan of a slim line double sided double density drive and to the University of Wollongong for the loan of a monitor. Those who saw it were impressed by the colour and quality of the pictures that you can display with the 80 column card. The monitor is only just adequate for 80 column text and that seems to be the hardest area for the club to provide a suitable device for a reasonable outlay. The Hard Disk controller card has been ordered, a hard disk is quite easy to pick up as is a floppy drive and I believe that Ben may have been paid for the 80 column card. Soon all will belong to the club and if it then works as well as it currently does then the Editor will be well set up.

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Co-ordinator's Report

by Dick Warburton

What an interesting group of people we TI99/4A users are. We come from many walks of life, Academic, Technical, Service, Retired, Professional, and ages range from young adolescence to the more mature years. However, almost all our active members are male. Why? Why is it that while many of the people who use computers at work are women, very few join user groups like ours. We could almost double our membership if the representation of the sexes became more even. Would you like to see more women interested in the TI99/4A. If so, how can we attract them? What can we offer? There are thousands of TI99/4As out there in NSW, being used spasmodically or not at all. Many were bought by women for family use when the price dropped, primarily, I suspect for children's games. I think that most TI99/4A owners have little or no idea of what a TI99/4A can really do, particularly with updated software, and when expanded, and how relatively inexpensive a TI99/4A is in comparison with other popular home computers, particularly when it comes to fixing them through the club. I wonder if we can attract some of these mothers, and perhaps their family members, with courses tailored to introduce them to the range of activities possible on the TI99/4A, and the games available on disk. I am certain that there are many women (and men) at home who would really like to get to know how to use a home computer, but they are restricted by home responsibilities and lack of access to suitable training. I am sure that many of those TI99/4As put away in cupboards would get much more use if home users knew how to use TI-Writer and a simple data base program, and were expanded to take advantage of disk based games and software. I would like to suggest that we as a club should make a conscious effort to encourage more women to become interested in the TI99/4A, both by publicity to this end and by providing training for any new members who want their basic knowledge expanded. Perhaps we could become the first user group in Australia to publicly offer membership and support to women.

Interest groups have now been established. The Publicity and New Members group meets the second Thursday of each month after the main meeting at Slattery's Coffee Shop in St John's Rd., Glebe, and has already come up with some terrific ideas for recruiting new members. We now need some helpers to get the job done. We need people to make phone calls, distribute posters, write articles, write letters etc. Will you help? If you want a continuing strong club then give us a hand. Ring Les Andrews on 3192572 and offer to help in any way you can.

The Console Repair group had its first meeting at Cyril Bohlsen's place in Northmead, and at least 25 members turned up. It was a busy night. John Paine resurrected at least 4 dead consoles, and Ben Takach brought along his super duper solder sucker. Power supplies were fixed and I managed to remove the main CPU chip on the motherboard without damaging it. If I can do that, imagine what you can do with a little help and guidance if you come. However the purpose of this group is to help the members to learn how to do their own work, and not simply to get others to fix their consoles. If you want to learn how to become more self reliant and to develop some technical skills then come to Cyril's place on the Friday night before the main meeting (and bring \$1 to offset the cost of tea, coffee and biscuits, ED).

Our Word processing group starts in May at Percy Harrison's home in Ryde on the Second Monday evening after the monthly meeting. If you are interested then give Percy a ring on 8083181.

The TI Artist group continues to meet at Woodstock monthly.

I have no doubt that other interest groups will develop this year, and if you want to get one started, see me about it. Perhaps another interest group will develop out of the use of the hard disk. It certainly seems like the next real expansion for our machine.

Talking about expansion, let me ask, "where do we go from here?". We now have a TI99/4A which can use multiple RAMdisks of up to 1 Meg capacity, together with multiple double sided double density disk drives, with even 80 track quad density with a Myarc card, an 80 column card which increases screen resolution on the appropriate colour monitor, a P-GRAM card which allows us some extra memory and storage of modules on disk, SuperCart expansion, up to date software like TI-Base and Press (at reasonable cost), and of course now, hard disk capability. Our little orphan has grown up and is getting stronger all the time. It has certainly come a long way in a short time. What else would you like to see developed now?

It was recently suggested to me that as the mother boards are getting older that they may begin to break down more often. It would be really great if we could redesign the mother board and put it in the PE Box. We could keep the keyboard or learn to adapt standard keyboards for our use. We would then also get rid of that heavy connecting cable. Other suggestions that I have heard have included:

Designing and building our own GRAM card.

Developing a hardware link so that we could take advantage of cheaper IBM style hard-disk controllers. At his stage Myarc cards are expensive and servicing is difficult.

Writing software to take advantage of the flexibility and power of the RAMdisk.

What would you like to see developed? I have no doubt that with the talent available in this club, we can continue to develop the TI99/4A, much to the surprise and perhaps envy of other popular home computer users.

To keep the TI99/4A going, we need modern software which utilises the more recent developments. Obviously, programmers need incentives to produce professional quality work. When the matter of payment for fairware was raised at the monthly meeting, support was overwhelming. However it is clear that it is uneconomical for individual users to contribute one by one to overseas programmers. The bank draft cost alone, adds significantly to the total cost. As well, individual contributions may attract little response from the authors. It was suggested that we should support one particular programmer of note each month. Your donations will be collected each meeting and forwarded on to the author with a letter expressing our thanks, and our continuing interest in their work. Obviously, contributions are voluntary, but the directors feel that a small part of the cost of floppy disks sold, should be set aside to send to top programmers together with our donations. If you cannot get to a meeting then you can post your cheque to the Secretary, Terry Phillips, (payable to TISHUG), and it will be passed on. We intend to send our first collection to the McGovern's for Funnelweb. It is used world wide and we certainly have a lot to thank them for.

The main meetings continue to increase in numbers, and if they get much bigger we may have to relocate our venue. We only have a continuous booking for the main room, however we will deal with that when we come to it. Shop revenue has increased from sales to club members, and hopefully we will soon have more items which will meet your needs. If you want to sell some of your hardware, sell it through the shop and help the club get a small commission. See Cyril Bohlsen at the meeting. Commission is only 5%. Following the interest expressed in a printer ribbon re-inking machine, the directors are seeking more information with a view to getting one if it meets our needs. The tutorial day planned for June looks terrific. Do not miss it. It looks like a great day. Well done Craig. Well done to all those members who are joining in so enthusiastically, and working so hard to make 1989 our best year yet. I could name so many of our members who give so much of their time, talent, who make their homes available or simply help other members. We gain so much for ourselves by helping each other. The more we help, the stronger we grow. It is a great club to belong to. As I said earlier. What an interesting group of people.

TI\$HUG Software

Column by Terry Phillips

Here is a rundown on new disks added to the library over the past few weeks:

DISK A330 - FORTI Music System, 720 sectors and requires FORTI music card, Editor Assembler module and 32K expansion.

DISK A331 - HOLLYWOOD HIJINX, is an Infocom adventure. 552 sectors and requires Extended BASIC with 32K expansion.

DISK A332 - MOONMIST, another Infocom adventure. 552 sectors and requires double sided or double density disk drive together with a super module.

DISK A333 - STATIONFALL, another Infocom adventure, the sequel to PLANETFALL. 626 sectors and requires a double sided or double density drive.

DISK A334 - INFOCOM SOLUTIONS, text files with solutions to LURKING HORROR, LEATHER GODDESSES OF PHOBOS and MOONMIST. 294 sectors.

DISK A335 - INFOCOM SOLUTIONS, more text files with the solutions to SPELLBREAKER and SORCERER. 216 sectors.

DISK A336 - INFOCOM SOLUTIONS, text files with solutions to CUTTHROATS, HOLLYWOOD HIJINX and STATIONFALL. 273 sectors.

DISK A337 - MANCALA, an interesting strategy game which can be played by 2 persons or one player against the computer. Very difficult to beat on higher levels. The disk also contains a space shooting game called KLUUTO EMPIRE. 86 sectors and requires Extended BASIC and 32K.

DISK A338 - RAY KAZMER'S 1989 VALENTINE CARD, this is a revamped issue of the GROG MAZE game which was around a few years ago. Some of the graphics have been changed and we now have Woodstock attempting to negotiate the maze to save Penelope. It is very well done and an interesting game to play. 250 sectors and requires Extended BASIC and 32K.

DISK A339 - PICASSO FONTS, 4 new fonts for Picasso plus 2 picture files that when put together give a border around a sheet of paper. 190 sectors and you will need Picasso.

DISK A340 - UTILITIES, Letlink and Squeezer. The former allows chaining of Extended BASIC programs and resets characters to standard, while the latter allows loading of TI-Artist pictures for what purpose I have not yet figured out. 46 sectors and requires Extended BASIC and 32K.

DISK A341 - STEPHEN SHAW REPORTS, news from the UK TI99/4A scene. Text files of 180 sectors.

DISK A342 - BILL LONGMUIR PROGRAMS, 3 educational programs in Extended BASIC. MORSE CODE, SIGNALLING PENNANTS and SIGNALLING FLAGS. Bill calls this his Communications Package. 151 sectors.

Note: DISKS A337 and A338 were available at the May meeting.

A new bunch of disks has just arrived from Jim Peterson, and at the present time I am un-archiving them for placement in the library. The one I mentioned last month with the rotating planet display is among them and it looks great on the screen.

The June meeting is a full day workshop and the entire disk library will be there for you to pick from. It should be noted that copyright material can not be copied for distribution. We will also cater for

cassette based users on this day, so if you fit into this category, bring along your own cassette recorder and some blank tapes to enable copying. As usual, if you have a need for a specific program in the library, or would like a disk or hard copy of the library contents, drop me a line.

Secretary's Notebook

by Terry Phillips

The May meeting turned out to be one of the best I have attended with plenty of discussion and display to interest everyone. Renewals rolled in and all looks good for a great year ahead. I am looking forward to the June meeting which promises to be a great day. We have the whole of Woodstock to spread out in so there will be plenty of room for tutorials, demonstrations and software copying.

Here is a big welcome to new members who have recently joined us:

Oswaldo Alfaro - Balgownie
David Higgins - Helensburgh
Phil Wood - Hammondville
Vannesa Hujber - Cambridge Park

Both David and Phil were at the May meeting and joined on the day. Hope you both had a good introduction to TI\$HUG.

It has been a fairly quiet period over the past few weeks with little in the mail of general interest. Everyone must be happy as there have been no enquiries for help and assistance. So in that vein this is a very brief report. Hopefully there will be more news around to pass onto you next time.

Letter to the Editor

Dear Terry,

I just received the March TI\$HUG News Digest (which is, by far, the best TI99/4A newsletter in the world), and I noticed the program listing for MAGIC SQUARES). Just thought I would let you know that I hope no one keys that puzzle in and tries to solve it, because the author took it for granted that any scrambled setup would be solvable and therefore set it up in lines 660 to 670 by randomizing. I have seen other versions of this "Fifteen Puzzle" which have the same flaw.

The truth is that many combinations have no possible solution. This puzzle was originally introduced many years ago in the USA by an enterprising con man who sold many thousands of these pocket puzzles by offering a large prize to anyone who solved it; and his version was impossible to solve!

The only way to program this game, as Texas Instruments did back in the early days, is to set up the array in the proper sequence and then to randomly move pieces by legitimate moves until it is scrambled. That is what I did with my "Four by Four Puzzle" version, which is the only one I know of that permits two people to take turns playing their own identical puzzle and allows sliding of two blocks at once. It has sold seven copies in six years!

Best wishes, Jim Peterson.

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LWPI >83E0 :
RT
END

And that is it. Can you guess what this assembly routine does? Yes! It prints the word "START" from row 1, column 1 to column 5. You could substitute START with your own name if you wished to, however I suggest that you wait until I show you how to do that using a loop. (Next article, much less code).

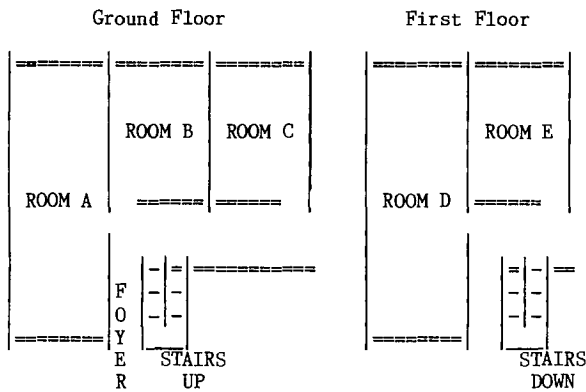
June Full Day Workshop

Craig Sheehan, meeting coordinator

TIshUG's first full day workshop for 1989 will be held at the Woodstock Community Centre, Church street, Burwood on Saturday, June 3. Whether you are a hardware buff, a programmer or a program user, there is sure to be plenty to keep you occupied.

The doors will open at 9:30am and formal activities begin at 10am. Between 1pm and 2pm, there will be a lunch consisting of a buffet of cold meats and salad. The afternoon activities will then continue until 5pm. To cover the cost of hiring the venue and the lunch, there will be an entry fee of \$4.00. To plan your day, simply decide which activities you wish to attend, and look at the floor plan below so that you know where to find them.

Floor plan of Woodstock for Full day Workshop.



1. Hands on Beginners Extended Basic:

Presented by Ross Mudie. Room D, 10am to 1pm.

This hands on tutorial will teach programming in Extended BASIC with no assumed knowledge. In order to gain maximum benefit from this class, it is hands-on, so bring your console, monitor, a table, power board and extension leads as well as an Extended BASIC module and manual. An expansion system is not required, and for power reasons, will not be allowed.

2. Hands on Intermediate Extended BASIC:

Presented by Wade Bowmer. Room D, 2pm to 5pm.

For those who have progressed through the initial stages of learning to program, Wade will present a class aimed at a slightly higher level. Assumed knowledge will be the ability to write short programs about ten statements long. Like Ross' class, this will be hands on, see above for the requirements.

3. Hardware advice/Console repairs:

Lou Amadio and Geoff Trott. Room B, all day.

Any questions concerning hardware or hardware projects will be answered here. Console repairs (subject to available parts and time) will be carried out. In addition to this, a limited number of 32K matchbox expansion kits will also be available. Contact Lou beforehand on (042)28 4906 to avoid disappointment.

4. Beginners 'c99':

Presented by Craig Sheehan. Room E, 2pm to 5pm.

If you want to write programs with the speed of assembly, but want to use a much simpler language, then 'c99' is for you. No knowledge of 'c99' will be assumed, though you will be required to have some knowledge of programming general (eg what $x=x+1$ means).

5. Using the TIshUG AT clock:

Presented by Craig Sheehan, Room E, 10am to 11am.

Some users have either built or bought a clock either as a kit or as part of the AT system's RAMdisk, but do not know how to use it within their own programs.

This introductory lecture will teach you how to read and set the clock and present some possible applications. No assumed knowledge.

6. Program clinic - TI-Base:

With Shane Ferrett. Room A, 10am to 1pm.

This will not be a tutorial, but rather an informal question and answer session. If you have been having any programs in setting up TI-Base or creating command files, ask Shane, who will help you on an individual basis.

7. Program clinic - Word processors :

With Larry Saunders. Room A, 10am to 1pm

Need any help in using TI-Writer, Funlwriter, PR-Editor or just about any other word processing package? If so, Larry will help you on an individual basis.

8. Program clinic - TI-Artist:

With Les Andrews. Room A, 2pm to 5pm.

For those who are having difficulty in using TI-Artist, Les will help members solve their problems on a one-to-one level in a similar manner to the other program clinics.

9. Program clinic - Multiplan:

With Dick Warburton. Room A, 2pm to 5pm.

Dick will aid all those you need assistance in setting up spread sheets and generally taking advantage of Multiplan's many features. Again, he will assist individual members.

10. Copython of software library.

Terry Phillips. Room C, all day.

Take advantage of this opportunity to access the clubs extensive software library. The only limitations will be a maximum of six disks at a time and software available though the club shop on the day will not be available for copying here. Since there will be number of systems on with to carry out the copying of software, cassette users will be able take advantage of the copython: just bring your own cassette recorder and leads. In either case, bring your own blank cassettes or disks.

11. Club shop and Publications library:

Steven Carr and Warren Welham. Room C, all day.

If you want to purchase any items from the club shop or borrow any publications from the library, these services will be open all day.

That just about covers what will be on. Remember to bring your \$4.00 entry fee, a note pad and pen, any other items needed for the activities you wish to attend and, simply enjoy yourself.

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```

/*case 'S' : putfmt("\033k\200"); break; */
/*case 'T' : putfmt("\033R\200"); break; */
case 'U' : putfmt("\033R\003"); break;
case 'V' : putfmt("\017"); /* break;
case 'W' : putfmt("\022"); */
}
}
while(sel!='X'); /* exit on 'X' */
putchar('\f'); /* form feed character */
fclose(pr); /* close printer */
} /* end of main program */
/* procedure to output a string preceded by 6 spaces
and followed by a new line character */
putml(s) char *s;
{ puts(" ");
puts(s);
putchar('\n');
}
/* procedure to write a string to the file opened to be
file unit pr. calls the procedure
fputs(s,fp) output the string to unit fp - in CFIO
*/
putfmt(s) char *s;
{ fputs(s,pr);
}

```

Letters to the Editor

I refer to the article by D.N. Harris, entitled Modems on pages 33 and 35 of the May 1989 TND. I feel that some statements in the article require clarification as follows:

1. Paragraph 5, reference to BA=9600.

If both computers are co-sited and directly interconnected via a suitable RS232 cable then BA=9600 may be used for intercomputer transfers. When using a modem via telephone lines a suitable 9600 baud modem is required if a true 9600 baud transfer is to occur. Some smart (Baud Rate Conversion) modems allow communication with the computer at 9600 baud and then convert to another (typically lower) baud rate for the transmission over the telephone line.

2. Paragraph 6, reference to tone frequencies and reliability of 1200/75 baud relative to 300 baud .

The transmitted tone frequencies are as follows:

	Space	Mark
300 baud CCITT V21 Originate	1180Hz	980Hz
Answer	1850Hz	1650Hz
1200 baud CCITT V23	2100Hz	1300Hz
75 baud CCITT V23	450Hz	390Hz

Mr Harris' article implies that the frequencies used have direct correlation to the baud rate, but, as can be seen from the above table of frequencies, this is not the case.

The reception of 1200 baud is more susceptible to corruption from telephone network borne interference due to the simple fact that the modem must make a decision based on fewer cycles of the received signal.

As a comparison of technologies which use multiple transmission speeds, I draw attention to the methods used by group 3 facsimile machines. Fax machines carry out all protocol exchanges at 300 baud V21, using 1650Hz and 1850Hz. The facsimile image data is transmitted at any one of 9600, 7200, 4800 or 2400 baud. The speed of transmission is selected by a process called "training" which starts at the maximum speed and works down until error free reception is achieved. The lower the bit rate, the simpler the data format and the better the performance against interference, at the penalty of increased transmission time. Under very difficult conditions only the 300 baud protocol signals will get through.

Under normal conditions the telephone network will convey the 1200 baud computer modem signal with the same accuracy as 300 baud since the effect of sporadic interference such as clicks or crossed lines will seriously corrupt either baud rate. The only argument for increased reliability at 1200 baud, in my opinion, is that the decreased period of time on line for the same received information will decrease the window period in which corruption due to sporadic interference sources could occur.

I do however agree with Mr Harris's sentiments of exploring and using technology to advance one's knowledge and efficiency.

Ross Mudie.

Electronic Bible

Both the Old and New Testaments of the King James version of the Bible are now available on disk in TI99/4A format, either SSSD, DSSD or DSDD. Cost will be based on cost of media + \$1.00 copying fee per disk.

Phone (042)84 2980 evenings to 10.00pm for more details.

From the Bulletin Board

MAIL TO : ALL
MAIL FROM : SHOP

In regards to a new BBS which is run by the Wireless Institute of Australia Federal Office, I have received a letter with all the relevant information which will help you. The following is Copyright 1989 WIA (NSW) and contributors. Copy permitted if source acknowledged. Dated 23/04/89.

FEDERAL EXECUTIVE BULLETIN BOARD

The Federal Executive of the WIA runs a telephone Bulletin Board, available to all interested parties. This service, runs under the Keylink system, and replaces the earlier experimental service.

It provides various information of interest to radio amateurs such as a stolen equipment register, beacon lists and WIA news. Messages may be left for the WIA Federal Executive. To access this system, a modem and a terminal (or suitable computer program) is all that is required. Depending on the speed capabilities of your modem, dial one of the following numbers:-

300 Baud ->01921: 1200 Baud ->01922:
1200/75 Baud ->01923: 2400 Baud ->01924

At the "AUSTPAC" prompt, type ?.Text (you can use upper or lower case). After "User Name?", type: Radio.News. Then after "Password?", type: W.I.A.

(Note the full stops!) Do not forget to use a carriage return after each of the prompts. Just follow the instructions displayed, and note that although the bulletin board is located in Melbourne, only a local call fee is charged for each access, and no STD prefix is necessary.

There you go, now you have all the information required. Hope to see you all at the next meeting, until then,

Steven L Carr, (WIA L20464), TISHUG Shop

MAIL TO : ALL
MAIL FROM : DOBELL

A meeting was held on Thursday evening to find ways to bring in new members, and to gain publicity for the club. The meeting place chosen was Slattery's cafe in Glebe. Mike is a long time member of TISHUG and is now the owner of a very nice coffee house. It is amazing how a cup of coffee and congenial company can produce so many good ideas. These of course will be passed on to the directors who I hope will find them constructive and for those interested, Mike's cafe may just replace Alice's restaurant in fame as a great place to sit down and enjoy a cup. A great place to meet informally over a cup of coffee and talk computers.

Cheers, Les

Assembler Tutorial Weekend

by Ross Mudie

The proposed beginners' Assembler Tutorial weekend is to be held on the Queen's Birthday weekend of 10th and 11th June 1989. The enrolled attendance at 8/5/89 is 11 people, 5 from the metropolitan area and 6 from outside the metropolitan area. There are another 4 positions available in the class. The idea of the class is to start at the very beginning of assembler on the TI99/4A and to learn use of the editor, the language structure and simple programming. Each participant in the class will be working with a computer making a very practical learning experience. Some members have expressed that they thought that the course would be too advanced, but the whole idea of the course is to overcome the problem that many people experience in gaining the initial concepts of assembler. The details of the class are to be found on page 7 of the May 1989 TND. Anyone wishing to join the course should contact Ross Mudie or Dick Warburton without delay as the numbers in the class are limited to ensure adequate personal attention.

TI-Writer and Funnelweb Tutorial

by Tor Hansen and Dwayne Verthey, OH, USA
retyped by John Ryan

Actually, when I review the material that Tor and I have covered over the past two years, it appears that we have touched base in just about all of the features of TI-Writer at one time or another. Some of our writing may very well have been slightly incoherent from time to time and I will not try to claim that it all fell into a logical sequence of instructions, but I think that every feature was mentioned at one time or another. The reason that I do not sound as sure as perhaps I should is because this program is loaded with features!

There has been some talk as of late about an upcoming word processor release, to be called "Press", by the Author of the well known terminal program "Telco". It is being touted as a vast improvement over TI-Writer and its clones. Well I for one will believe it when I see it (which I have not I might add). If it is anything like "Telco", I do not think I will find much use for it, since all those fancy pull down menus only serve to slow down "Telco" and while it looks good the program has too many unacceptable bugs.

On the other end of the scale are some so called "word processors" that do not require the same amount of hardware that TI-Writer does. I have played with a few of those and my advice is to forget about them other than as a lesson in programming. Most of them make the best of limited equipment, but one cannot fashion a Taj Mahal from one small lump of white marble. Enough said.

The one other tried and true word processor for the expanded TI99/4A that I have experience with is "Companion". It has pretty much of a "what you see is what you get" kind of approach. While this does make it simpler to use, it lacks the power and flexibility of TI-Writer.

By now you probably have the idea that I am pretty much of a diehard fan of TI-Writer and to a degree, I suppose that is true. There are some flaws with the program and I kind of hope that I am wrong about "Press", but for now I feel that it is the best that we have got and here comes a list of the features that it sports to prove my point.

Text Recovery: Two methods, the "Oops!" key, that, if pressed immediately after a goof will undo damage of an erroneous key press and "Recover Edit", which can restore a purged file in the event that you quit before you save.

Text Formatting: One may type away merrily, allowing the creative juices to flow without worrying about the final appearance and then when you are done, a few judiciously placed Formatter commands, such as Fill, Justify Right Margin, Begin Page, Footers and Headers, Page Length, Margin, Indent (or Outdent) settings, Line spacing, Centering, Overstriking, Underscoring and so on, allows the computer to take care of the tedious part of the job (a task that is ideally suited to the computer's abilities). Or, if one prefers, one may use the tab and indent settings to use a "what you see is what you get" kind of approach.

Text Re-arrangement: With the "Move" command, one can easily change the organization of one's text without a lot of tedious retyping.

Cursor Control: Depending on how far and how fast one wishes to cruise through a document, one may scroll line by line, paragraph by paragraph or page by page. Left and right movement may be character by character, word by word, screen by screen, or by tabs.

Editing: A whole armory of commands lay at one's text. "Duplicate line", "Insert Character", "Insert line", "Delete Character", "Delete line", "New

Paragraph", Loading parts of files and merging files, "Copy lines" (to copy blocks of text from one area to another and again save tedious re-typing), "Delete lines" (to delete blocks of lines from your text).

String Functions: Specific strings may be located or replaced with another string one by one or throughout the entire text automatically.

Printer Commands: May be embedded individually in the text or strung together using the "Transliterate" function.

Mailing List: The options here took two articles to cover but basically one may generate personalized form letters one by one, from a list specified in the document or from a list specified at the time of printing.

This is the only program that I know of that has been used on a regular basis for the professional production of text to be published. TI themselves used to use TI-Writer to produce their own manuals, the old "99er Home Computer Magazine" used to send their text straight from TI-Writer to their computerized typesetting machines and of course this magazine has long been using TI-Writer or a clone to facilitate its production .

Flaws? Oh yes, you may be sure that this program has its flaws. The sheer magnitude of options is overwhelming and takes a while to learn. A "Help" command should have been included in the original program, both in the Editor and in the Formatter, similar to the one available in "Multiplan". The windowing effect is a real pain although it can be by passed and text movement and copying would be much friendlier if it was handled by marking things with the cursor instead of playing with line numbers or at the very least, if one could scroll the screen while entering the line numbers. Most of the other problems have been fixed in the Funnelweb version of the program but if you are a quick typist the occasional key press still gets missed during the word wrapping process at the end of the line.

Some of you out there may have read the above list of features and have no idea how to access them. Or some of you may have found that Tor and I glossed over a feature that you would like to use. Give me a call (628-6050) or better yet send me a letter (1117 4th Concession Rd. W., RR#2 Waterdown, LOR 2H0.) and we will try to help you out.

From the Editor of TND: The funnelweb version of TI-Writer is used to produce the TND. If you want to ask any questions about the use of TI-Writer do not hesitate to contact me. I support the views of the authors.

continued from page 32

There are an awful lot of things to consider when buying any computer product, and the overwhelming reason I do not buy a Geneve is sheer cost!!! There are reasons for and against, but if you should be looking for a more powerful computer, the Geneve is at least worth some consideration!

Son of LOGO the Turtle; Son of FLOPPY the Diskus; Son of COBOL the incomprehensible; Son of NUMERIC the Constant.

Of such are schools radio broadcasts made. Can you think of any more for this high technology genealogy? The names should sound classical, and the descriptions be apt and should it be possible maybe even humorous?! Send your ideas in to me and I will list all the good ones I get in future issues!

Techo Time

with Lou Amadio

The May meeting at the Burwood Community Hall turned out to be very busy, at least it was for me. I certainly had very little time to talk to some of the people that I intended to see. As it turned out, I spent a very interesting afternoon finding out the sort of hardware items that members are interested in.

Most of the questions centered around the two "suped-up" consoles with built in 16 bit 32K memory expansion, internal Extended BASIC with load and reset switches. The next most popular items were the various multi and super modules (with battery backed RAM), joystick interfaces, RGB interfaces and the resistor to cool the console power supply. A stand alone plug in disk drive complete with power supply and disk controller was also shown.

Other items on display included a stand alone RS232, single PEB card to console I/O connector and a plug in device used to diagnose problems in faulty consoles.

A number of users were interested in installing modules inside the console by stacking GROM chips in the GROM 0, 1 or 2 sockets provided on the motherboard.

Ross Mudie displayed a fully socketed pre-production version of his Wire Accessory Interface board as well as a prototype board complete with output controllers. Ross's son Peter, demonstrated a very imaginative device in the form of a Lego Robot controlled by hardware and software created by father and son.

Ross also brought along a serial to parallel conversion for his very interesting Joy Talk printer interface. This piece of hardware, together with software written by Ross, can be used as an economical printer interface (requires Extended BASIC and 32K).

Derek Wilkinson of the Sutherland regional group has devised a way of interfacing an IBM style keyboard to a TI99/4A. Derek decoded the keyboard matrix and then rewired the entire keyboard to emulate the TI99/4A unit. If you think that this might be an easy task, remember that all of the FCTN keys need a dual contact switch to operate satisfactorily. Derek got around this by dismantling all of the appropriate switches to convert them to dual function. The alpha lock had to be especially made to allow "lock down" action. The new keyboard was connected via a 25 pin "D" connector located on the left side of the console near the front. Quite a feat, and well worth seeing if Derek can be persuaded to demonstrate it at one of the meetings. On the same console Derek had fitted another 25 pin "D" connector wired to the joystick interface. The middle 7 pins were removed and the remaining 18 pins were wired as two sets of 9 pins to accept Atari type joysticks. A very neat solution.

Two complete hard disk systems were also demonstrated at the same meeting. One by Ben Takach and the other by Geoff Trott. Ben had a highly customised system whereby he had mounted a mother board, hard disk, Mechatronics 80 column card and power supply in a box about the size of an IBM PC. To this was connected a composite video monitor and a TI PEB, with all of the usual cards, but including a Myarc HFDC and a Gramulator. On the subject of GROM emulators, Larry Saunders showed me his P-Gram card. I was very impressed with the quality of the workmanship of this device (manufactured by the makers of the Horizon RAMdisk).

Geoff Trott showed members the system that he uses to edit the newsletter. The acquisition of an 80 column interface and hard disk system has greatly improved

productivity and Geoff is now wondering how he ever got on without it. Of course the 80 column Funnelweb version of TI-Writer from Tony McGovern has made it all worth while. Those who saw Geoff's system would have noticed that he had his PEB on its side. The reason for this is that hard disks are much happier working in a horizontal position. All that is required now to complete the Editor's system is an RGB monitor.

NOTICE

Next month (June) there will be a full day workshop with various activities organised. I will be there with a multimeter, soldering iron, etc. If any members wish to build a 32K memory expansion for their console they will be able to do so under supervision. I will be able to supply all of the parts (including GROM connector and PCB) except the four 8Kbyte static RAM chips. These are currently available from the club shop for \$5.50 which is less than the current wholesale price. Other potential hardware projects for the workshop meeting include Atari type joystick connectors (male and female 9 pin "D" connectors required), GROM stacking in the console and multimodules. I am prepared to help with any of the above projects (or others as required) if users are prepared to bring along the necessary parts.

Other simple projects, for those interested, include installing a resistor (18 ohms, 10 watt) to cool the console power supply and a console reset switch. I should be able to supply a small number of soldering irons and solder. Members should refer to the articles in the TND for those projects that they wish to build and ensure that they purchase the required parts.

Geoff Trott hopes to be able to bring along a console tester, an oscilloscope and desoldering iron for those who would like to tackle console problems.

Console Reset Switch

See Figure 1 on page 8

The two hardware construction items this month are very useful yet simple to build. The first is a console reset switch. Why do you need a reset switch if all you have to do is press FCTN[=] to quit? Well, you probably have realised by now that the above does not always work, so the only alternative is to switch the console off. A reset switch will allow a much more elegant solution to the problem and is more convenient than switching the power off. I used a miniature momentary action push button switch, which can be purchased from Dick Smith or Tandy, and fitted it to the rib at the far right hand side of the console (towards the front). Resetting then is simply a matter of reaching over and lightly touching the switch.

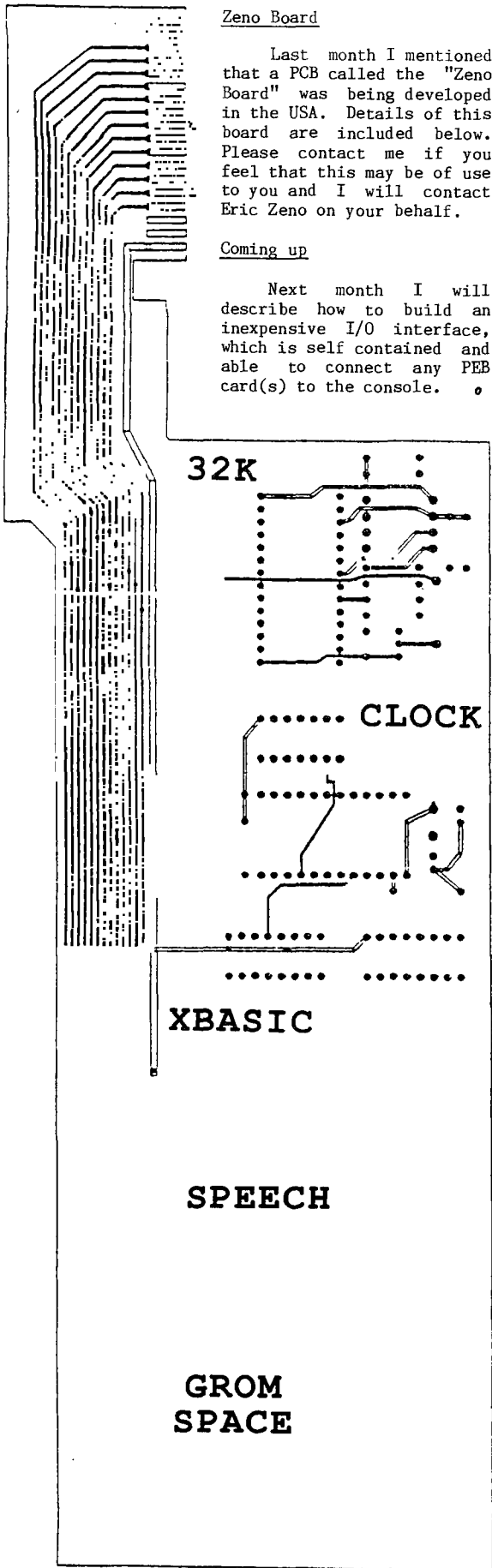
I have borrowed a diagram from the Hunter Valley 99ers to illustrate how simple this (and the following) project is to implement. The modification consists of cutting track 1 on the back of the cartridge (GROM) connector and wiring the switch across it. You need to dismantle your console both to gain access to the GROM connector and to drill the hole for the switch.

Having completed the modification, you will find that when you insert a module all you have to do is to hit the reset button and up comes the TI99/4A title screen.

Joystick Alpha Lock Release

See Figure 2 on page 8

That brings me to the second modification. While you have your computer apart, why not modify the keyboard so that you no longer have to release the alpha lock key to use the joysticks. all you need is a diode (any silicon diode). Cut the track indicated (the 6th from the right looking at the back of the keyboard) and solder the diode across the break. Although the diagram shows the diode between the keyboard PCB and the cable plug, you can insert it at any convenient point between pin 6 and the alpha lock key. Note the polarity of the diode. Keyboard operation is not affected and the joysticks will now operate in all modes.



Zeno Board

Last month I mentioned that a PCB called the "Zeno Board" was being developed in the USA. Details of this board are included below. Please contact me if you feel that this may be of use to you and I will contact Eric Zeno on your behalf.

Coming up

Next month I will describe how to build an inexpensive I/O interface, which is self contained and able to connect any PEB card(s) to the console.

Figure 3. Zeno Board

Figure 1. Console Reset Switch

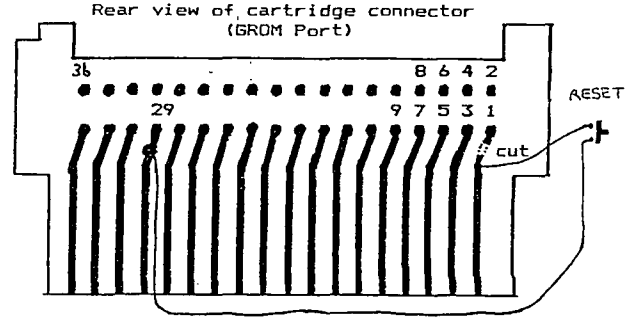
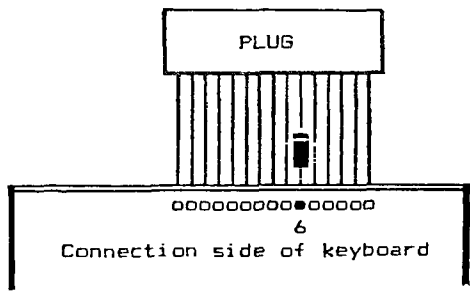


Figure 2. Joystick Alpha Lock Release



Review of Cassette Finder Program
by Steve Rivett

I uploaded the CASSETTE*FINDER program placed on the BBS by SARA. This is a review of my experience using this program.

It does not work on any pre-recorded tapes! What it does is divide a blank tape into 10 sections. These 10 sections can then be recorded on to enable fast finder to locate these positions using fast forward. Using a recorder with a 60 minute tape I obtained these results.

- Starting count 84 for number 1
- Starting count 120 for number 2
- Starting count 164 for number 3
- Starting count 210 for number 4
- Starting count 263 for number 5
- Starting count 330 for number 6
- Starting count 390 for number 7
- Starting count 470 for number 8
- Starting count 565 for number 9
- Out of tape for number 10

That is right. Program number 1 does not start at the beginning of the tape. I assume this is to allow the CASSETTE*FINDER program to be loaded at the start of the tape followed by the catalog generated by this program.

After fast forwarding the tape to each of the 10 starting positions, the tape is then removed and put aside. The program to be recorded at this starting position (number 1 to 10), is then loaded into memory from tape. The program in memory is then saved to the tape set up with the pre-fixed position (number 1 to 10). Do this ten times and you have a tape full. As you can see a lot of work is required to convert tapes over to CASSETTE*FINDER.

It would be suited for tapes issued by the club for those with cassette systems only. To set up tape for recording, place a REM at the start of line 1770

Sector Sharing

by Mark Shafer, KY, USA

They say necessity is the mother of invention. And in this case, I am the father. I think I have discovered something you will find intriguing. Take a look at the following disk catalogue:

```
DSK1 - DISKNAME= FNWEB/4*1
AVAILABLE=117 USED= 241
FILENAME SIZE TYPE P
-----
AS      33 PROGRAM
AT      22 PROGRAM
CF      31 PROGRAM
CG      25 PROGRAM
DI      33 PROGRAM
D2      33 PROGRAM
D3      29 PROGRAM
DU      33 PROGRAM
DV      33 PROGRAM
DW      29 PROGRAM
LOAD    31 PROGRAM
```

If you do not notice anything strange, add up the sizes of the files and compare that to the number of sectors used. How did I do that? Why did I do that? That is what I am here to tell you.

What I have done is to make it so that some files take up the same space as other files, which is the concept I call sector-sharing.

First, let us get into why I did it. I have Disk Utilities by John Birdwell. One of its features is the ability to change the default system setup. The trouble is, sometimes I want the defaults to be one way and sometimes I want them another. Now, I could change the setup in the program when I need to, but this is some trouble. The ideal solution would be to have two (or more) copies of the program on the disk, and boot the one with the defaults I want at the time. But I only have one SSSD disk drive, so I clearly do not have the room to do this if I want to add to the above disk the Funnelweb files CHARAL, EA, ED, EE, QD, SL, SYSCON and UL! Just like limited memory can lead to tight coding, limited disk space can lead to creative disk utilisation.

All I wanted to do was to change the first sector. So I got the idea to create a file that would have a different first sector, but share the rest of the sectors with the original file!

The steps to do this, I believe, can be done in any order. Basically it goes like this: creating the new header sectors; creating the modified sector; updating the disk catalog; marking the used sectors; and renaming the new files. The beauty is that Disk Utilities itself can handle all of the above in one session, but I suppose any sector editor and disk manager will do.

So let us create the new header sectors first. Each file on a disk has to have a sector that identifies the type of file it is and where it is on the disk. The first step here is to find out what sectors are free. One way to do this is to look at sector 0 starting at byte >38, look for non-Fs, and figure out what sectors correspond to the blank bits. Or you could use Disk Utilities to print the disk report and figure out what sectors are not used by any file. In my case, sectors >13 to >16 were available. You could put them anywhere, but the normal thing is to put header sectors in the >02 to >21 range.

Next I need to know where on the disk the files I am going to "copy" are, as well as where their header sectors are. The disk report has this information. So now you edit the header sector of these files. So to the first one first. You need to change two things on it. Change the name to something that would fall at the end of the disk catalog. This way we do not have to

insert when we change sector >1. I called my new files ZX, ZY, and ZZ.

For the file that has the modified sector, you need to change the segments starting at byte >1C. Insert three bytes at this point. This may be a little more difficult with some sector editors. Put in the following three bytes at >1C: yz 0x 00 where xyz is the sector we are going to create in step 2. In my case it was >16 so I inserted 16 00 00. Then add one to the next byte, so if it is >57, make it >58.

This process makes it so this file is in the same place as the original file except its first sector is different. If you are changing a sector in the middle, this is a bit more difficult. When you save it back, put it at the first available sector you found. For the remaining header sectors, I just simply changed their names and saved them to the next available sectors since they are to share exactly the same sectors.

Once you have got that done, the rest of it is a cinch. To create the modified sector, simply edit the sector you wish to change, make the appropriate changes, and save it to the free sector you indicated at step one (eg >16 in my case). Normally the sectors contained in a file are higher than >21 but I did not have any free in that area.

Next it is time to change the disk catalog at sector 1. Simply put the header sectors you created at step one at the first available 0000 in sector one. I appended 0013 0014 0015 to add my three new files.

The next step is to tell the disk what sectors we have used. With Disk Utilities, you just use the Mark Sector feature. With others, you may have to figure out what bits they correspond to in sector 0 and make the changes yourself.

The last step is to rename the new files what you really want to call them. I called mine D1, D2, and D3. The last bytes have to be consecutive so that they load as one continuous program. After this, I had to configure Funnelweb to be able to load my new program. So now, when I run Disk Utilities, I have the choice of the options in DU or the options in D1. They both load just fine.

But there are some consequences.

There is the problem of copying. If you try to copy a sector sharing disk by file, the duplicate will unshare them! Also, you may get an out of space error. So to copy such a disk you should use a sector (or track sjs) copier. Then there is the problem of what happens if you want to copy the sector sharing files but not the whole disk. If you cannot do a direct copy sector x to sector x, I would recommend that you find a way to sector copy the whole disk, and delete the files you did not want. Or you could copy only one of them and start the operation over again on the new disk.

So to make a copy of this 95 sector program, it took only four additional sectors! Three for each new header sector, and one for the modified sector. Shorter files would need even fewer additional sectors. I could go on and make another version of this program, but I think I am happy with just two. I wonder if I have any other files I can do this to?

For Sale

PIO printer cable (works with all printers)	\$18.00
Navarone Widget, as new	\$42.00
Multiplan module plus system disk	\$30.00
Adventure module plus 12 games on disk or cass.	\$30.00
TI-Writer module plus system disk	\$16.00
Disk Manager II module	\$10.00
Extended BASIC module and manual	\$50.00
Personal Record Keeping module and manual	\$12.00
Editor Assembler manual (original TI)	\$28.00
Disk boxes, clear plastic, hold 15 disks each	\$2.00
Phone (042)84 2980 evenings to 10.00pm	

TI Bits Numbers 8 and 12

By Jim Swedlow, (Edited by S Shaw)

Fairware Review: Disk Utilities, by John Birdwell

You may have a favorite disk editor, one that you know and love (?), one that meets your needs. Mine has been Miller Graphics' Advanced Diagnostics. At least until now. John Birdwell's Disk Utilities has jumped to the top of my list. It is easily the best sector editor I have used.

It is what a sector editor should be. You can dump a file to your printer in hexadecimal and ASCII. Disk Utilities will follow the file on the disk even if it is fractured. The file dump is like Disk+Aid with hexadecimal on the left and ASCII on the right. The print out can be in condensed print. You can also print a sector or a group of sectors.

You can compare two files or disks. Any sectors that do not match will be dumped to your printer. It can also give you a detailed file report.

Disk Utilities supports a string search. You can search a disk, any part of the disk or within a file. The string can be in hexadecimal or ASCII.

The sector editor gives you a full screen editor. The various controls are easy to remember. Pressing CTRL[H] and CTRL[A], for example, switches the screen display between hexadecimal and ASCII. CTRL[W] will write the sector back to disk. Unlike Advanced Diagnostics, Disk Utilities keeps track of the current sector for writing sectors. You can, however, write to any sector on any disk.

Another nice feature is the Disk Report. This prints a disk catalog with two new features. First, the catalog includes each file's sector numbers. Invaluable if have it before you blow a disk directory. Also, Disk Utilities hides a short file description in the file header and prints it out as part of the catalog.

This program is a sector editor only. It does not have the ability to look into your TI99/4A's memory that Disk+Aid has, nor the extensive documentation and diagnostic features of Advanced Diagnostics. But it does have all the features one needs in a disk editor.

There is more, but this should give you an idea of what Disk Utilities can do. Without doubt, it warrants your serious consideration. Disk Utilities is in our library. If you like it, send John the \$10 he asks for. It is well worth the price.

John's address is:
John Birdwell
7052 Springhill Circle
Eden Prairie, MN 55344
=====

Extended BASIC Programming Tip

I was working on a program and I ran into something interesting.

I had a variable (A) that could only be either 9 or 7. I needed to separate the beginning of a string. If A was 9, I needed the first 5 characters in the string, otherwise I needed the first 4 characters.

My first approach was:

```
IF A=9 THEN N$=SEG$(A$,1,5)
ELSE N$=SEG$(A$,1,4)
That seemed bulky so I tried this:
N$=SEG$(A$,1,5+(A=7))
```

This works because if A is 7, the expression (A=7) returns -1. Otherwise it returns 0. If this is not clear, try this loop:

```
FOR A=6 TO 8 ::
PRINT A;A=7;5+(A=7) ::
NEXT A
```

Note that the parenthesis are only needed for 5+(A=7). Without them, your TI99/4A would compare 5+A to 7.

Back to my tip. That was better, but I did a bit of fiddling and realized that 0.6 times 9 is 5.4 and 0.6 times 7 is 4.2. I tried this:

```
N$=SEG$(A$,1,INT(A*.6))
```

Then I wondered if the INT was needed. It turns out that SEG\$ (like many TI99/4A functions) automatically rounds off.

How can you tell if a function rounds? Try using it in a loop:

```
FOR I=1 TO 2 STEP .1
PRINT I;SEG$("ABC",1,I)
NEXT I
```

My final expressions was:

```
N$=SEG$(A$,1,A*.6)
```

RAMdisks, Another Point of View

by Rolf Schreiber

This user note is prompted by a review I read recently in another Australian TI99/4A newsletter concerning a first time user of a Horizon RAMdisk. There were some obvious misconceptions in that article which I would like to clear up.

Firstly, the only essentials in using a RAMdisk with a TI99/4A are the console and RAMdisk themselves, and a means of interfacing the RAMdisk to the computer. A 32K memory expansion, however, is essential for all RAMdisk operations, other than loading and saving BASIC programs.

The usual way to use a RAMdisk is in a PE box, or the RAMdisk could be of the stand alone variety (mini PE box, as produced by Peter Schubert). Contrary to popular belief, a disk controller card and a disk drive are not necessary in order to operate a RAMdisk. Disk drives are certainly very useful for loading up the RAMdisk with files, but are not essential.

A RAMdisk could be loaded with files or programs from cassette, or with files generated from the console itself (either entered from the keyboard, or generated by a running program). The simplest way to load from cassette involves loading the program into memory then saving out to RAMdisk. I devised a means of transferring large programs (also works with all types of files) to a RAMdisk by first archiving them on disk (converts them into DIS/FIX 128 format which can be handled by the cassette routines), transferring this to cassette as a file using a simple convert routine, then back out to RAMdisk. The final step was to unpack to their original form on the RAMdisk. It was a tedious process, but it did allow the transfer of, say, a 100 sector DIS/VAR 80 text file or a 24K Extended BASIC program to RAMdisk from cassette!

It is also possible to interface a RAMdisk directly to the computer with a home made interface. In fact Geoff Trott designed a working prototype about 3 years ago and Lou Amadio built about 3 of them, one of them for me. I was using it to interface a TI controller card to a console with a 32K memory expansion built into the console and I ran a disk drive with this setup without any problems. The same setup could perfectly well be used to connect up a RAMcard instead.

Expanding XBs Powers

Writing Assembly Routines, part 2 by David Caron, USA

In my last article, I described Extended BASIC's four assembly subroutines. In this article, I will show you how to actually write an assembly routine designed to be run from Extended BASIC.

When Extended BASIC executes something like:

```
CALL LINK("START")
```

It will look up the name in the DEF table at the top of low memory, find out where the assembly routine starts in low memory and execute it. (This much has already been explained in my last article.) When an assembly program is executed in Extended BASIC, the workspace registers will be the GPL Workspace Registers. These registers are used by the GPL interpreter program. That means that any program written in GPL (Graphics Programming Language) will be using these registers. Examples of GPL programs are TI BASIC, Extended BASIC and most of the programs in Command Modules. (That is why the BASIC Language on the TI99/4A is so slow. Your BASIC program gets interpreted by TI BASIC or Extended BASIC which gets interpreted by GPL; take a look at page 406 in the Editor Assembler manual.) Anyway, the point I am trying to make is that you might find it convenient to define your own workspace since the instant you run any assembly utilities the contents of these registers will be changed. More on this later. For now, I will talk about the assembly utilities that are built into Extended BASIC.

For now I will only mention the four most important utilities, which are:

VSBW (VDP Single Byte Write, starting address: >2024)
VMBW (VDP Multiple Byte Write, starting address: >2024)
VSBR (VDP Single Byte Read, starting address: >2028)
VMBR (VDP Multiple Byte Read, starting address: >202C)

As you may have guessed, these utilities refer to accessing the VDP memory. If you intend to make any worth while program you will find yourself using these routines quite a bit. These routines, along with others I have not yet mentioned, get loaded from the Extended BASIC Module into low memory when a CALL INIT is executed. CALL LOAD("filename") will place assembly routines directly after the assembly utilities in low memory.

VSBW. To use this routine you must first indicate where in VDP memory you wish to write to. Register zero must contain this value. For instance, if you wanted to write something in the screen at position (1,1), register zero would be loaded with the value zero (0), since screen position (1,1) happens to be VDP address >0000. Then you must let VSBW know what ASCII code you wish to write to location >0000. The most significant byte of register 1 must contain the ASCII code.

(By the way, Extended BASIC has a funny way of displaying its characters. When you see a blank character on the screen, you probably think that it is the ASCII code 32 but in reality it is the ASCII code 32+96 = 128. This is actually EXTENDED BASIC's fault, not the TI99/4A's and there is a perfectly logical explanation for this. It is slightly complex though, so I will explain this sometime in the future. For now, take it for granted that when you are dealing with ASCII codes, add 96 when sending them to the screen and subtract 96 when receiving them from the VDP screen.)

Now that you have indicated the address and the data, the VSBW routine can be executed with BLWP @VSBW. (I will explain this assembly instruction later for those of you who are unfamiliar with this.)

VSBR: This utility is identical to VSBW except that it peeks from the VDP memory location defined in register zero and writes the data into the most

significant byte of register one. If these happens to be an ASCII code which was peeked from the VDP screen, you must subtract 96 from it to make any sense out of it. This routine is executed with BLWP @VSBW.

VMBW: This nice utility lets you poke more than one byte into VDP memory at once. Once again you place the VDP address into register zero. However a CPU memory address must be placed in register 1. When VMBW is executed the data in the CPU address indicated by register 1 is transferred to the VDP memory address indicated by register zero. The number of bytes you want transferred is placed in register 2.

VMBR: This utility is exactly the same as VMBW except that the data is now transferred from VDP memory to CPU memory.

And here it is! What you have all been waiting for: an example which will hopefully make some sense of what I have said.

```
DEF START *This places to word "START" in
           the DEF table along with its
           start address.
VSBW EQU >2020 *The Extended BASIC
VMBW EQU >2024 assembly environment
VSBR EQU >2028 has no REF table so
VMBR EQU >2030 the assembler directive EQU
           (equate) must be used to define
           the constants VSBW, VMBW, VSBR,
           VSBW. Refer to Editor Assembler
           manual pages 415 to 416.
NEWREG BSS 32 *This is where our workspace will
              be. 32 bytes are reserved since
              16 registers by 2 = 32.
START LWPI NEWREG *This instructs the computer to
                use the memory locations
                indicated by NEWREG as workspace
                registers.
LI RO,>0000 *Loads register zero with the
            16-bit data 0
LI R1,83+96 *Loads register 1 with the 16 bit
            data 179
SWPB R1 *Swaps the least significant and
        most significant byte of
        register 1.
BLWP @VSBW *Causes the computer to branch to
            the data at the address
            indicated, then return to your
            program.
INC RO *Increments the data in RO by 1.
LI R1,84+96 *Loads register 1 with data 180
SWPB R1 *Swaps the bytes in R1
BLWP @VSBW *Executes the VSBW utility
INC RO *We know what this does, now
        register 0 = 2.
LI R1,>A100 *Loads register 1 with the
            indicated hexadecimal value in
            decimal which is 161=65+96. Now
            we do not have to do a swap
            command.
BLWP @VSBW *Sends the ASCII code in R1 out
            to the screen
INC RO
LI R1,>B200 *Loads R1 with 82+96
BLWP @VSBW
INC RO
LI R1,>B400 *loads R1 with 84+96
BLWP @VSBW *These next instructions let you
            return to Extended BASIC See
            page 441 of Editor Assembler
            manual
CLR RO *Same as loading RO with the data
        >0000.
MOVW RO,@>837C *The most significant byte of RO
               is copied to the byte located at
               >837C, so you end up simply
               clearing the byte at address
               >837C. This byte is the GPL
               status byte and must be cleared
               before returning to Extended
               BASIC.
```

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Book Reviews

from Stephen Shaw, England

DYNAMIC GAMES FOR YOUR TI99/4A by Scott Vincent.

I have already reviewed this a while back, but did not then know that it was still available so a brief mention is appropriate. I used one of the programs in this book to demonstrate Turbo Pasc 99 a few issues back. 159 pages, 30 programs, all in TI BASIC. Each program has brief comments. The programs are fairly simple but well done for all that, and the book provides a good source of ready to key in TI BASIC programs, which can if required be decorated with fancier graphics or extra bits and pieces, or even used as inspiration when trying out a new language such as Turbo Pasc 99.

MAKING THE MOST OF YOUR TI99/4A. By Scott Vincent. June 1984. 256 pages

An addition to the TI BASIC manual, with lots more examples, this book commences, neatly, with two longish programs to key in! There are numerous programs, and quite a fair bit of interesting text, and it must rank as one of the better books on TI BASIC. The comment that User Groups might purchase your programs (coupled with a lack of contact addresses!) is odd, but is just about all I can take issue with.

PROGRAM DESIGN: THE ART OF STRUCTURED PROGRAMMING by Peter Juliff. May 1984. 247pages. Peter Juliff is/was the Head of the Department of Computing at Victoria College, Australia.

Do not let the title put you off. This book is readable and relevant! It is worth the price for the cartoons. You can probably guess the illustration for file processing, but can you guess how to illustrate stacks? I have spent many happy hours debugging and rewriting programs written by other people, and also have long programs of my own which have been subject to continuous development, so by a process of need, I have become rather fond of the style of programming this book proposes.

Not perhaps a book for the raw beginner, nevertheless, it is probably better read before you develop any odd programming practices, but never too late if you have! Some of the concepts are by their nature quite heavy, but the author manages to make it all so readable. If you do not get it all in one go, just go back and start again. If you are interested in programming (especially commercially) do read this book. There are appendices covering BASIC and Pascal too.

THE BIG FAT BOOK OF COMPUTER GAMES. Tim Hartnell. 389 pages. 34 programs. November 1984.

Written in "standard BASIC" you will not find exceptionally good graphics in this book! You will find a mention of the TI99/4A though, and you will find reasonable and playable games, just waiting for you to add all those nice things that our computer is capable of, like sounds and graphics. I have previously reviewed a book by the same author, with a very similar title, but published by Fontana. The two books have totally different programs.

Once again, this is a great book for learning to key programs in, to get lots of programs cheaply, and to learn, by improving them, how to program. Some conversions are required but these are not difficult and I would be happy to help anyone who got stuck. Good range of programs.

CREATING POLITICAL AND MILITARY SIMULATION GAMES ON YOUR MICRO by Mike Rose. August 1985. 187 pages. Ten programs.

The first sixty odd pages deal with the basics on how to program, and can be applied to almost any form of computer game. I would have appreciated an essay on

"playability", but not to worry. As with the previous book, the listings are in a "standard BASIC" which is just crying out for decoration with graphics and sound, and will provide many hours of programming enjoyment. The simulation programs include Corridors of Power, Laserfight in the OK Space Zone, Nuclear Crisis, The Road to Valhalla, and the Siege of Doune Castle (no Trojan Rabbits though!). A good mix for everyone here, and you will probably pick up a few ideas and tricks.

THE 3D ANIMATED APPLE by Phil Cohen. May 1984. 198 pages.

Another Australian author I think. Sorry about the title, but the Apple BASIC used is very close to TI Extended BASIC, and this book forms a good introduction to high resolution graphics, suitable for use with the several different ways we have of using high resolution graphics in the various BASICs we have.

Ignore the first 54 pages, and start on page 55, which deals with the Apple command H PLOT, which either plots a point, or draws a line between two points. There is a lot of text to read which will help you to follow the BASIC listings, and make the necessary translations. The odd POKE bits are of no importance and you can follow what they do in the text and do the same thing more easily with BASIC (well, in Myarc BASIC anyway, other utilities may differ!). Any variable ending with % is an integer variable and can be defined as such in Myarc Extended BASIC otherwise ignore the %! The Apple numbers its screen points from the top left (0,0) with a screen definition of 280 x 160, you can easily scale this to our own 256 x 192! The book includes programs for both 2d and 3d graphics, including 2d and 3d transformation programs, but omits coverage of "hidden lines" (eg its all wire-frame models). A good introduction to high resolution graphics, read carefully, and very inexpensive. •

Beyond Video Chess

a review by Larry Saunders

What is Beyond Video Chess?

Beyond Video Chess is a companion program for the popular Video Chess module (or disk version if you have a P-Gram card or SuperCart), for the TI99/4A computer. The Beyond Video Chess program provides significant enhancements for users of Video Chess cartridge or disk version. Beyond Video Chess enables you to save and load chess games to and from a RAMdisk or diskette, print the game screen on a Epson compatible printer, list the moves you have made in the game to a printer, or use one or more joysticks to move pieces on the game board. In short, Beyond Video Chess is for the serious Video Chess user and those that would like to be.

Equipment Required

TI99/4A console, 32K Memory expansion, Disk or RAMdisk, Video Chess module, (disk version with P-Gram card can be used), Extended BASIC or Mini Memory or Editor Assembler.

Joysticks and an Epson compatible printer (graphics printer) are recommended.

Loading Beyond Video Chess

There are many ways to load Beyond Video Chess. All of them require a specific combination of hardware and/or software. If you are a more experienced user, a simple explanation of what Beyond Video Chess is may tell you what you need to know.

Beyond Video Chess is an interrupt driven assembly language program. It is loaded into 32K memory expansion via one of many ways, and runs concurrently with other applications, specifically the Video Chess module or disk version. Once loaded, it waits for a key press (or a joystick button to be pushed) and then performs the requested action. Load this program, in other words, as you would load any interrupt driven program.

Important: turn off all RAMdisk menus.

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Tiger does not Sleep Tonight Staying up Nights for Graphics

by Paul E Scheidemantle, OH, USA
retyped by Stephen Shaw, England

Outside of programming I find graphics the most fun. Please forgive me if I do not mention your favorite program here as unfortunately space is limited as well as the fact that I cannot afford to own all of them! I would like to cover the interfacing of different graphics programs (see also article by sjs in an earlier TI*MES), but first a little bit of reminiscing.

Look at what we have gone through. The first graphics program that I can remember for the TI99/4A is of course Video Graphs (a module, available on disk from the Group library, sjs), and how much fun it was to play with, but alas you were really limited to very simple graphics and it only saved to cassette, as well as the fact that you could not print it out. Fun but not enough.

Then "Draw-a-bit" came along. Here we could finally do truly beautiful drawings with the built-in bit-map mode of the computer, and save our picture to disk. But not print to the printer yet. Along came "Print-a-bit" to companion this program. Both of these programs were fantastic at the time, but were not overly friendly, as I remember something like 150 different key strokes to get the program to do things you wanted to do (a bit too much to remember, but still a boon for our computer).

Next GRAPHX came along and wow, here was a truly friendly program that you could use to draw, save, and print out. Easy to use menus and instructions for its use. Still one of my favourites because of its ability to give you a grey and white background to work with, for setting up fonts or other graphics where you need to keep track of the height and width and its ability (newer version) to rotate items on the screen which to my knowledge at this time no other program will do. (Members note: the club library can supply an Extended BASIC loading version of GRAPHX which loads in just 24 seconds! To obtain a copy send your commercially purchased master disk and return postage!]

About the same time TI Artist came along. A truly landmark program for TI99/4A graphics! A standard today which many programs use for interfacing of graphics. With its selection screen making it easy to use and of course its ability to save and use instances (a bit of cut and paste) as well as fonts (fantastic in itself), this program has helped to set many standards for both ease of use and what is needed in a graphics program. (TI Artist is US\$20 plus postage and package from Textaments sjs.) But like many people (wanting everything) it did not quite do everything I wanted it to do, like printing single size graphics anywhere on the page that I wanted it to, as well as giving me the ability to print fliers in single size graphics. But darn, it was the best and there is always nothing like looking a gift horse in the mouth <grin>. Guaranteed I would not be without it in my graphics library! Especially for those fonts and its ability to transfer GRAPHX and other formats in and out of its own format!

Then Joy Paint comes in to try and fill the gap with a bigger screen (Stephen here, no not a 48" TV screen, but a larger picture with only part of it displayed on the TV at any one time- OK?!), and the ability to enlarge and reduce segments of your picture (results rarely acceptable to me! sjs). These functions were again a leap for TI99/4A graphics. Though the screen (=picture! sjs) width was wider it did not quite handle the 8 inch width of the (80 column) paper. An interesting program (with) its ability to interface with GRAPHX and TI Artist pictures (allowing you to use the vast library already available for these two programs!).

Now Picasso is on the block (Tenex have a sole selling right on this one, manufactured by Asgard)! And what a fantastic program it is. Allowing you to print graphics anywhere you would like them on the page with a 60 x 42 graphic characters per screen (it requires 2 screens per full page). Here again it has the ability to load and use TI Artist pictures (as well as save in the Artist format)! Also with little preparation TI-Writer files can be loaded and used with it. It has its own font sets which can be edited on the spot with a touch of a key (which can then be saved if you wish), as well as all the other normal functions that you would expect of an excellent graphics program. Such as: draw, lines, circles, fill, move, invert, mirror, use textures, different brush strokes, and a zoom mode that encompasses the entire screen. But when you come right down to it, it is the ability to print single size graphics anywhere on the page that really makes this program a star! (An earlier version is public domain and is available from your Group disk library sjs.)

A few utility programs that enhance the use of these programs are the public domain MAX/RLE, another significant break through for our community! Allowing you to view, print or convert pictures from other computers as well as our own! Two other utility programs that are a fantastic help are Graphics Expander and Artist Enlarger (pardon my disagreement here sjs). Both programs allow you to enlarge or reduce TI Artist Instances and Fonts. While Graphics Expander is completely written in assembly and is super fast (also allowing you to see what you are working on, on the screen), it has its drawback in that the size of the picture is limited to what is displayable on the screen. It also allows conversions to and from CSGD fonts and small graphics. Artist Enlarger on the other hand handles any size instance but is written in Extended Basic and thus slower (very slow) but when considering the time required to do any of these functions it is comparably faster than we are! And generally I am a lazy person and would much prefer to let the computer do the work!

Another source of pictures came about with MacFlix, a new program that allows you to view, print and save portions of Mac Paint pictures (correction by Stephen, for PRINT please read that as print a whole picture too!). Opening a new source of graphics for us.

The Tiger (a MacPaint picture) was converted for use here by saving portions of the screen to TI Artist format (using MacFlix sjs) and then loading and matching them up in Picasso. This way I could select what portion of the picture that I wished to use and where on the page it would be printed. One of the biggest things here is not to be afraid to experiment! You can have a lot of fun making fliers and other things like greetings cards if you only give it a try!

The Tiger picture that I wished to use was in the MacPaint format, and I wanted to use it in the Picasso format. It should be noted here that when experimenting like this, always use a backup disk! So the first thing to do was bring it up on the screen with MacFlix. To save an Artist format which is compatible with Picasso was my initial goal. The first thing needed after loading the picture was to set the save name (in this case TIGER1_P) and then go to the picture and select what portion would be saved with that name. I always start in the upper left of a drawing, as it usually makes it easier to remember my starting point. After determining my starting location and that I can only take totally for my use with Picasso a 60 character width, versus a 72 character width of the MacPaint picture, I then save it to disk by pressing ENTER.

Of course at this time I get an Artist screen which is 32 characters wide and 24 characters high. So it will require four Artist pictures saved to make up my Picasso picture, see screen map:

After the save has been completed, return to the main screen and change the save name to TIGER2_P and return again to the picture. Now press "4" on your

console so that when you press the arrow keys the picture moves in increments of 2 characters at a time. As I returned to the same point as I left, I now press the right arrow key 14 times, thus moving the screen 28 characters to the right (be sure and wait for the BEEP between moves, so that you know that the move has been completed before pressing the key again). Here we moved 28 characters over because when we load it into Picasso it will have a 4 character overlap (and done correctly it will not require any picture manipulation). Now press ENTER and save your second picture. To return to your starting point press the left arrow key 14 times again and you should be back where you started.

Now at this time we should have two screens saved to disk (representing the top half of our picture). Again return to the main screen and change the save name to TIGER3_P for the next segment. After returning to the Tiger picture at your starting point, we want to move down 18 characters (as you can see in the chart there is a 6 character overlap). Do this by pressing the down arrow 9 times. Save your screen and return to make your final save name TIGER4_P. Here when you return to the picture, press the right arrow key 14 times and you should have your last section of picture that you need. Save it and leave the MacFlix program and load Picasso.

Once in Picasso, clear the screen with the FCTN[4] key. Now press FCTN[=], which will bring you to a menu. On the menu you can use items 2 or 3 (Load a Graphic, or Overlay a Graphic). After making your selection type the disk drive and file name, such as DSK2.TIGER1_P and press ENTER. This will load your first screen. Move to the far right and return to the menu and load picture two. Now move back to the bottom left corner and return to the menu to load the third picture, and finally to the far right bottom to load your last and fourth screen. If everything has gone to plan you should now have transferred the picture you want to Picasso.

It would be a good idea at this time to save your picture! Now of course you can manipulate the picture any way that you please! Note: if the picture that you want is longer than the 42 character screen height, then you will have to use an additional Picasso screen and of course move down on the MacPaint picture to save additional screens.

Now something that a lot of people may be concerned about, and that is transferring a picture from one format to another. Usually there are two ways to accomplish this. One would be to load the GRAPHX or Artist picture into MAX/RLE and then press the S key to save it. Here, after you press the S, it is necessary to press the space bar to select the correct format and then type in the disk number and file name such as DSK1.FILENAME, if you are saving to ARTIST format, it is not necessary to include the _P.

The other method for doing this is to use the Enhancement selection of TI Artist. Here at the menu select 4. Conversions. You will get a short menu showing S)ave, L)oad, and V)iew. Say we have an Artist picture that we wish to convert to a GRAPHX picture. First press L to load. You will then have to select TI Artist from a selection list and then type in the name of the file and the drive number (the _P is not used). After loading the picture you may view it first to be sure it is the one that you want. Press the space bar to return to the menu after viewing. Now select the S function and select GRAPHX and enter the disk number and file name you wish to save to.

If you would like to reduce or enlarge it you could use Joy Paint. To transfer into Joy Paint use the Joy Pal disk and the LOAD ANY from the menu. Be sure to enter the _P here! After making your change, save it again with SAVE ANY (which brings you back to the Artist format).

Using these functions to allow you free access to (and from) different graphic programs can be a lot of fun! If you wanted to rotate an Artist picture convert it to GRAPHX and then back when it is done.

In many cases one program does something a little better than the other! If you do not like one thing, why not use both, or all! Like I said it can be fun and with a little practice you may not be perfect but you can have the best of all worlds. Just give it a try. As you can see, the Tiger does not sleep!!

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At any time while you are playing a game, you can save it to disk. Just press FCTN[X] to save. Beyond Video Chess precludes saving and loading from cassette.

Using Joysticks

With Beyond Video Chess you no longer have to use the cumbersome algebraic notation Video Chess expects for entering moves. With one or more joysticks plugged in, and the ALPHA LOCK key up, press the fire button on the joystick you wish to use. Once done, a cursor will appear on the upper left corner of the game board. Use the joystick to move the cursor over the piece you want to move, and press the fire button again. Then move the cursor to where you want the piece to be placed, and press the fire button a third time.

Screen Dump

Beyond Video Chess includes a screen dump utility that can be used at any time while using the Video Chess module or disk, except when the computer is thinking during its move. Press P for "picture" or "print Screen" (with printer on) and the screen will quickly be printed on the page. This screen dump uses shades of gray to represent colours, and hence little detail is lost.

Press L to list game to printer and the Video Chess will go into "Replay" mode (where it re-displays all moves to that point). However, while Video Chess only displays the moves made, Beyond Video Chess will also list them to your printer. It is also possible to include screen dumps on particular interesting moves while listing them. To do this press FCTN[8] to pause the replay at the desired move, and then press P to get a screen dump of it. When the screen dump is complete press FCTN[8] and the replay will continue, and the listing will resume printing. Both the list of moves and the screen dump is placed at the left hand side of your paper.

Note! To use Beyond Video Chess with the Video Chess module you have to cut the reset transistor wire on the left side of the Video Chess module board (it will run OK without the Beyond Video Chess program, but the title screen will be changed).

Performance.....A+
Ease of use.....A+
Documentation.....A
Value.....A+
Final grade.....A+

Cost US\$9.95 plus postage and handling
Manufacturer: Asgard Software
PO Box 10306
Rockville, MD
USA, 20850
Phone 0011-1-703-255-3085

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TI99/4A Console complete, as new	\$100.00
TI RS232 Card with manual	\$160.00
TI Disk Controller Card with manual	\$75.00
TI 32K memory expansion card	\$50.00
Speech Synthesizer, as new	\$80.00

Phone (042)84 2980 evenings to 10.00pm

Games Information

by Robert Brown and Stephen Judd

Welcome to yet another GAMES INFO. This article has been written in the Easter Holidays and therefore there is no mail bag section, due to the fact that this article is ahead of time. Owing to school, Stephen and Robert are unable to write articles while school is on, so we write as many as possible in the holidays.

In this our 10th article, we will continue from where we left off last time. Zork. Here is Zork II.

You start where ZORK I left off. Another 400 point and ten more treasures will test your imagination and logical abilities to the limit. You will encounter a dragon, a unicorn, a Princess, a baby sea monster, a huge dog and a powerful demon. On top of this, the wizard of Frobozz almost endlessly torments you. You may contend with lots of objects, a riddle and a hot air balloon from which you may even catch a glimpse of the white house where all this started.

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

<u>OBJECT</u>	<u>LOCATION</u>
pearl necklace	pearl room
gold key	on the unicorn
statue	in a chest
red sphere	in a dingy room
violin	in the iron box
portrait	in the bank
Moby Ruby	lava room
Zorkmid Bills	in the bank
blue sphere	dreary room
Candy	the pool
black sphere	you create it
gaudy crown	in a box
clear sphere	the aquarium
Flathead stamp	in a book
gold coin	on a ledge

<u>OBJECT</u>	<u>USE</u>
lamp	light - finding hidden door
sword	teasing dragon, breaking aquarium
blue sphere	making black sphere
red sphere	making black sphere
clear sphere	making black sphere
black sphere	summoning demon
teapot	carry water for well
red rose	nice, but nothing
placemat	sliding under dreary room door
letter opener	pushing out key
key	opening dreary room door
matches	lighting paper and string
newspaper	making hot air for balloon
string	fuse for explosive brick
brick	explosive for box
green cake	shrinks you when eaten
blue cake	restores normal growth
red cake	absorbs water
orange cake	explodes if eaten
flask	not useful
candy	feed to lizard

robot	pushing buttons and lifting
collar	tames dog
bat	home plate, breaking aquarium
books (4)	rare stamp in purple book
grue repellent	good for a few moves

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 Cannot catch a unicorn?
ONLY THOSE OF ROYAL BLOOD CAN DO THAT.
- 4 Still cannot catch it?
SAVE THE PRINCESS FROM THE DRAGON.
- 5 Cannot 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 cannot 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 Cannot 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 cannot 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 Cannot 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.

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Tigercub Software Catalog #2

by Jim Peterson, Tigercub Software, USA

TC-51. SNERK. A 2 player version of Hurtle on a 20x20 grid with 5 hidden snerks; computer gives compass directions from last shot to nearest snerk, which helps your opponent more than it does you! A great game of strategy, can also be played solitaire.

TC-52. NEON SIGN. Will display two messages of up to 10 lines of 26 characters, flashing alternately, while coloured lights run around the border. Put your name on a marquee, starring in your favorite show. A good demonstration program.

TC-53. DRY GULCH. Marshall Wyatt Urp and Mild Bill Hiccup are shooting it out in Dry Gulch, where the bullets bounce off the rocks so that they may shoot themselves in the back! A fun game for 2 players. TCX-1053 in Extended BASIC.

TC-54. PLAIN OF JEWELS. A space ship lands on an alien planet, on a barren plain strewn with gold nuggets and sparkling jewels of all colours, but pitted with deep holes and infested with deadly monsters which slowly converge on the ship. Two prospectors collect treasures while avoiding dangers but may fight and take each other's loot, also must get back to the ship before it takes off. A 2-player game of strategy with plenty of graphics, colour and sound. TCX-1054 in Extended BASIC (requires Memory Expansion).

TC-55 GOLDEN SQUARES. A 2-player game of strategy in which you must plan your moves to land on the most of the golden squares.

TC-56. NAME THAT TUNE. Try to identify one of 80 (!) randomly selected old melodies by hearing 3, then 4, 5, 6 and 7 notes. For one to many players. TCX-1056 in Extended BASIC.

TC-57. BUNNY AND BEAGLE. Help the beagle to sniff out the trail of the rabbit before it reaches the safety of the hedge. A fun graphics game with 3 levels of difficulty.

TC-58. SCRUM. A fast moving puzzle game in which you try to change the colour of the squares in a 3x3 grid, but the adjacent squares also change! This is actually 511 puzzles in one. The first few are challenging, then it gets really hard! This is a great one! TCX-1058 in Extended BASIC.

TC-59. MIDNIGHT TRAIL. Race another player, trying to find your way along a wilderness trail in the dark of the moon. Level 1 lets you see the trail before sundown, and Level 2 will light your way with a few flashes of summer lightning, but Level 3 is pitch dark all the way. TCX-1059 in Extended BASIC.

TC-60. NIMBO. This is not the old Nim game, it is Fibonacci Nim, a simple little mathematical puzzle that will drive you batty! Also includes the secret for winning, but you have to decode it. TCX-1060 in Extended BASIC.

TC-61. AMERICA THE BEAUTIFUL. Music with words to all the verses for a sing along, and ending with an American flag displayed.

TC-62. KINDERTIMES. Practice the multiplication tables of any range of numbers desired; for each correct answer the screen changes to one of 26,000 different pattern and colour combinations, vivid and beautiful. TCX-1062 in Extended BASIC.

TC-63. KINDERDIVVY. Similar to the last but with an especially beautiful changing pattern for each correct division answer. TCX-1063 in Extended BASIC.

TC-65. MICE IN A MAZE. Place your bet and let your mouse find its way through the complex colourful maze, but if the other mouse finishes first, you lose \$10 for each extra step to the finish! A different maze each time, realistic mice, lots of fun.

TC-67. MILLION MIRAGES. Innumerable vividly colourful symmetrical kaleidoscopic patterns continually change in colour and design. Over a hundred different options, millions of possible images!

TC-68. OPTICAL ILLUSION. The old "stack of blocks" illusion made even more baffling in a computerized version with endless changing colour combinations and spaced-out sound effects. TCX-1068 in Extended BASIC.

TC-69. BAZOO. A word game in which you guess 5 letters at a time. Has a vocabulary of 660 words. For one to several players. Great for improving your spelling. TCX-1069 in Extended BASIC.

TC-72. MUSICAL SCALES. An excellent educational program which displays a piano keyboard, explains and demonstrates frequency, octaves, intervals, steps and half-steps, sharps and flats, major and minor scales. TCX-1072 in Extended BASIC.

TC-73. SYNONYMY. An entertaining educational program, prints a word from a vocabulary of 500 and a list of words from which a synonym is to be chosen; one more note is added to the tune "Dixie" for each correct answer. TCX-1073 in Extended BASIC.

TC-74. SPEEDER READER. Randomly composes a grammatical but usually nonsensical question, flashes it briefly on the screen, then asks a question about it. Select your own time delay for speed reading practice. Educational, and much fun! TCX-1074 in Extended BASIC.

TC-75. ELECTION. Can you make the elephants and donkeys change places in 8 moves? Based on a coin-switching puzzle, fairly easy but fun and with colourful graphics.

TC-76. CHANGEROO. Change one word into another by changing one letter at a time, making a new word each time. Your choice of 2 to 9 changes. Has a vocabulary of 200 words. TCX-1076 in Extended BASIC.

TC-77. COLUMBUS PINBALL. Slow but realistic pinball action, extremely realistic sound effects. You get a free game for a high score, but it doesn't help to tilt the computer!

TC-78. HOME ELECTRICITY MONITOR. Gives the cost per hour and estimated cost per year to operate any of 40 home appliances, based on actual wattage of appliance and actual KWH costs or on average wattages and costs taken from official publications.

TC-79. CAN OF WORMS. You and the computer take turns picking up worms, to see who will get the last one. The computer lets you make up all the rules, but can you beat it?

TC-81. GLUNK. You and the computer take turns picking up invisible glunks and dropping them into invisible waste baskets, to see who will end up with an even number. With 2 levels of play. Very challenging! TCX-1081 in Extended BASIC.

TC-82. FRACTION MATH. Adds, subtracts, multiplies and divides fractions, whole numbers and combinations thereof, and reduces the result to the lowest common denominator. TCX-1082 in Extended BASIC.

TC-83. HANDY DANDIES #1. A collection of 27 DEFs, GOSUBs, routines, tips and tricks that the good programmers know but which the beginners will not find in the book. Available on disk only, requires Extended BASIC and Memory Expansion.

TC-84. CHARACTER GENERATOR. A utility program to randomly generate 7 styles of complex symmetrical redefined characters, display them singly and in strips and full screen, change foreground and background colours, print out the hex code, enlarge in 3 sizes.

TC-85. KOJO NO TSUKI. An old Japanese melody with a full screen graphics display and some musical effects that you did not know were possible on the TI99/4A computer. Public domain.

TC-86. VEGA. A very different type of Simon game for one to several players, with many options. You are stranded on the planet Vega and must learn to understand the tone and colour language of the strange inhabitants so that they can help to repair your wrecked space ship. A good one - try it! TCX-1086 in Extended BASIC (requires Memory Expansion).

TC-88. THREE BUCKETS PUZZLE. Another of those old brain-teasers in a computerized version. Divide up the milk by pouring it from bucket to bucket. Not too easy. TCX-1088 in Extended BASIC.

TC-89. FOUR BY FOUR PUZZLE. A computerized version of that little pocket puzzle in which the scrambled letters A through O are to be pushed into sequence. Has options for 1 or 2 players. This version moves an entire row at a time.

TC-90. DAS DEUTSCHEN BIERGARTEN BAND. This German beer garden band plays a medley of old German songs while drinking too much beer and finally becomes very confused.

TC-91. SLINKY. Guide Slinky, the Snake of Many Colours, as he slithers around the screen gobbling up the eggs. Joystick optional. The little kids love this one.

TC-92. KALEIDOVISION. A very beautiful hexagonal kaleidoscopic pattern with options of design and shifting speed, millions of possible ever changing combinations.

TC-93. GLEEP SHOOT. A simple but fast action game in which you must scoot along the bottom of the screen, shooting at the Gleeps which dodge around at the top. With 9 skill levels. Now includes bonus games ZOOK SHOOT, QUICK DRAW and ROOKIE OUTFIELDER. TCX-1093 in Extended BASIC.

TC-94. FIREFLIES. Try to catch the blinking fireflies when they are blue but not when they turn red, and do not step on them when they are blinked out. For 1 or 2 players, 3 levels.

TC-97. TOWERS OF HANOI. Try to solve this legendary puzzle with your choice of 4, 5, 6 or 7 rings, or let the computer show you how.

TC-98. ROMAN NUMBERS. On a granite tablet between Roman pillars, the computer will show you the conversion from a Roman number to a decimal number, or vice versa. TCX-1098 in Extended BASIC.

TC-102. MATCH A PATCH. A computerized version of the Concentration card game; play alone or compete with another in turning over matching pairs of vividly patterned cards, different for every game. 5 skill levels. TCX-1102 in Extended BASIC.

TC-103. SIXBONES. An educational game in which two players take turns adding up dice combinations to erase their numbers from the board.

TC-104. GETAWAY. A very entertaining and colourful solitaire game of strategy, trying to reach the goal while avoiding the relentless pursuers. Addictive! TCX-1104 in Extended BASIC, runs faster.

TC-105. SHEEP DOG. Guide the sheep dog to drive the sheep into the pen. A good solitaire game of strategy. TCX-1105 in Extended BASIC runs faster.

TC-106. MONGOLIAN TYPEWRITER. Not really Mongolian! This program is for the pre-school tots who love to peck at the keys and find the odd looking characters, while the computer makes strange sounds.

TC-107. HA. DANDIES #2. A collection of 24

programming routines which can be listed and read, and which will demonstrate themselves; cursor control with keyboard or joystick or both, use either joystick, stop at borders or wrap around, build card deck and shuffle, long shell sort and bubble sort, flash print, music routines, etc., etc. Available on disk only, requires Extended BASIC and Memory Expansion.

TC-108. RANCH WAR. A very simple little 2 player game which demands instant decision, quick planning and careful strategy for skillful play. Try to claim the most land without blocking yourself. Joysticks optional. TCX-1108 in Extended BASIC.

TC-109. TIGERCUB KEYBOARD ORGAN. Turns the TI99/4A into a 2-octave keyboard colourfully displayed on the screen, with your choice of melody notes, bass notes, chords, tremolo, vibrato, harpsichord, mandolin, bells, piano, Hawaiian guitar, bagpipes and you name it! Key response is a bit slow but better than any similar program I have seen and with many more voices. TCX-1109 in Extended BASIC, key response is faster.

TC-110. KINDERMINUS. For children's subtraction practice in any desired range of numbers. Problem is displayed in center of a colourful design which changes in pattern and colour if answer is correct, turns black if it is wrong. TCX-1110 in Extended BASIC.

TC-111. WORD SEARCH. A computerized version of the popular puzzle book game in which words are hidden within a block of random letters. Has 15 categories of 20 words each, randomly hidden, and options of working from list of words or from category only. Now also includes WORDSEARCH MAKER with which you can make your own wordsearch puzzles.

TC-112. BINGLE. This is Bingo with letters instead of numbers, for 2 to 4 players and each player gets two cards.

TC-113. HANDY DANDIES #3. Demonstrates and lists 15 screen wipes, 4 random character generators, price printer, columnizer, equalizer/columnizer, short joystick routine, keyboard cursor control, keyboard on screen, random do not repeat, highest/lowest numbers, perpetual calendar. Available on disk only, requires Extended BASIC and Memory Expansion.

TC-114. KIDDY COUNTER. Teaches pre-school tots to count, optionally from 1 to 9, while they have fun with plenty of graphics, colour and sound. TCS-5114 with speech (requires Terminal Emulator II and Speech Synthesizer). TCX-1114 in Extended BASIC with optional speech..

TCX-1115. COLOUR PROGRAMMING TUTOR. All I could pack into one program on the basics and some of the tricks of using the full colour capabilities of the TI99/4A. Disk only, requires Memory Expansion.

TC-116. I&E SPELLING. Teaches spelling of those confusing words containing IE or EI combinations. With complete spelling rules and 13 lessons of 10 words each, options of Study and Spell, Scroll and Spell, Flash and Spell, or Fill the Blanks. TCX-1116 in Extended BASIC.

TC-117. CAROM. Shoot a billiard ball into one of the six pockets. Options of 1 to 5 caroms or "pool shark" option.

TC-118. 4x4 BIT GRAPHICS UTILITY. Enables the user to quickly and easily design detailed pictures and designs in "TRS80" style graphics, then list them or print them as strings and incorporate them into programs. TCX-1118 in Extended BASIC (disk only) will convert the strings into program statements and save them to disk in MERGE format, ready to load and run as a program or to merge into your program.

TC-119. CASTING OUT NINES. Teaches the method of checking the answers to multiplication of large numbers, and long division, by "casting out nines". A step by step tutorial. TCX-1119 in Extended BASIC. •

Adventure

by Larry Saunders

Ever have one of those days when "anything" and "everything" just seemed to get the best of you and you just needed to escape and get away from it all. Well, the next time you start to feel this way, go ahead and do just that. Escape into the world of an adventure game on your TI99/4A computer. I guarantee that once you get involved in one of these games the rest of the world and all of its problems will cease to exist. As a matter-of-fact, once you get involved in one of these games you may find it quite a difficult challenge to pull yourself away from your computer consider yourself warned!

With your TI99/4A computer and one of the many adventure games that are available, you will be able to enter worlds that you used to only dream about. Now you will experience everything first hand, as you become the main character in these new worlds. You may wish to enter a medieval world, filled with dragons, castles and dungeons or you may wish to visit a fantasy world and explore enchanted forests, climb a beanstalk, visit the emerald city in the land of OZ or even become Spider-Man or Cinderella.

Perhaps you would prefer to use your deductive reasoning and become a super sleuth and help solve some of the mysteries that have baffled the keenest of minds for centuries. But do not forget, there are quite a few new crimes that need to be solved as well!

Still looking for something that peaks your interest? Well, keep reading. There is something to interest everyone. Anything and everything await, once you enter into the world of adventure games on your computer. Perhaps you are one of those people who are into the science fiction scenarios. In that case, you might prefer to hitch hike across the realms of the universe to far away distant galaxies or perhaps you might just like the challenge of repairing your space ship with the help of one of your computer robots so that you can make the voyage back to your home planet. Sounds too complicated for you? Well, perhaps you might be interested in playing an adventure game that is a little more on the lighter side. How about visiting an amusement park, a ghost town, a fun house, or a water park?

Still looking for something that peaks your interests. Then perhaps you are one of those individuals who prefers to play the dungeons and dragons role playing type games where you are in control of a party of characters, each having different character attributes. If this is the case, you still will not be disappointed in the adventure world that is available to you on your TI99/4A computer as the TI99/4A are among the best dungeons and dragons role playing type games around, complete with graphics! As you can see the world of adventure games for the TI99/4A computer is quite extensive and a world worth investigating!

A Nostalgic Look at the History of Adventure Games

Tracing the history of the adventure game has proven to be a challenge that I had not quite anticipated. In researching this topic, I found many areas and facts to be vague and even some to be conflicting. Although I have tried my best to be as accurate as possible I am sure that some of you will disagree with some of the information contained here. I can accept that.

Any discussion on the history of adventure games must first include mention and deep appreciation to those individuals who did a great deal of research back in the 1960s and 1970s in the area of artificial intelligence. To the best of my knowledge the first adventure game created to run on a computer was written in 1975 by Will Crowther. It was written in the language known as FORTRAN and was created on a digital

equipment corporation PDP-10 mainframe computer. Once the game was made available nationally through ARPAnet, the first nationwide computer network, (in USA), the popularity of this adventure game became overwhelming. However, the game could only be made available to those universities and research facilities that had access to mainframe computers. Don Woods of Stanford University was one such individual who was able to get in on the ground floor of Will Crowther's program and is credited with making major enhancements to Will Crowther's adventure game.

The second milestone in the creation of adventure games came with the creation of ZORK, a new adventure game created in 1977 by Dave Lebling, Marc Blanc, Tim Anderson, and Bruce Daniels. A new dimension in adventure games and artificial intelligence emerged. The biggest break through in the history of adventure games came in 1979 when Scott Adams successfully created an adventure game that would run on a 16 bit microcomputer. At long last, the world of adventure games could be made available to those who had just a basic home computer system!

Soon afterward in 1980, the first adventure written by Will Crowther and Don Woods entered the home computer market. Then in 1981, the original ZORK adventure game was released by Infocom, as the first adventure series for the home computer market. Needless to say, the Zork series became a great success! Ironically, just as adventure games seemed to be reaching newer and greater frontiers Texas Instruments decided to pull the TI99/4A computer from the market. There we were, abandoned in 1983 with just twelve Scott Adams adventure games, twelve Infocom adventure games and a small handful of very primitive adventures.

Our world was becoming extinct, even faster than it was created! This indeed was the end of most adventure games for the TI99/4A computer until 1985 when Tex-Comp released the Adventure Editor and Asgard Software released the Tunnels of Doom Editor. Once again, our prayers were answered as new adventure games for the TI99 computer started to appear on the market and we were blessed with a new generation of adventure programmers!

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- * - CANNOT FIND THE CATALYST?
YOU HAVE ALREADY FOUND IT
- * - More help for above problem.
THIS CATALYST EMITS LIGHT.
- * - Solution to above problem.
ITS THE JAR OF GLOWING FLUID.

- * - CANNOT FIND THE SAFE?
ITS INSIDE THE YOYODYNE OFFICE.
- * - More help for above problem.
EXAMINE THE TABLE
- * - Solution to above problem.
MOVE THE TABLE.

- * - FLASHLIGHT RUNS OUT?
BATTERIES ONLY LAST SO LONG.
- * - More help for above problem.
THESE ARE NOT NICADS.
- * - Solution to above problem.
ONLY USE THE FLASHLIGHT WHEN ABSOLUTELY NECESSARY

- * - ALWAYS GET KILLED ON THE FREEWAY?
YOUR MISSION TAKES PLACE INSIDE THIS TOWN
- * - More help for above problem.
THERE IS NO REASON TO LEAVE TOWN.
- * - Solution to above problem.
STAY OFF THE FREEWAY.

- * - DON'T UNDERSTAND WHY I'M HERE?
TO PREVENT A DISASTER.
- * - More help for above problem.
TO DISARM A BOMB.
- * - Solution to above problem.
SLEEP.

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- 25 Cannot get back to the circular room?
THE REVERSE OF GOING UP. HOWEVER THE WATER
EVAPORATES IN ONE HUNDRED MOVES LEAVING YOU STRANDED.
- 26 Cannot 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 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, FLUORESCENCE, FREE, FROBIZZ, FROBNOID, FROBOZZLE.
- 45 Cannot 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 Cannot get past the Ice Room?
GET THE DRAGON IN THERE.
- 49 When does the sword glow?
WHEN YOU ARE ONE ROOM AWAY FROM SOMETHING.

Well that is about it for this month, but remember if you need any help with a game, adventure or anything on those lines, please feel free to contact us. Please also suggest other reviews, hints etc we should do.

In coming issues we have Enchanter, Spell Breaker, Star Cross and Witness. But in our next issue is ZORK III; the final episode.

Stay tuned for more, including maps of your favourite adventures, eg Zork I, II, III, Witness, Adventure Land etc.

Do not forget our address.

Robert Brown
C/- GAMES INFORMATION
141 Beecroft Road,
Beecroft, NSW 2119.

or leave mail for us on the BBS, under username GAMES. •

Programming Hint: not BASIC

by Stephen Shaw, England

This note is appropriate to any language other than Basic and is prompted by a member having problems with the command language of TI-Base.

His code was along the lines of:

```
WHILE RESPONSE="Y"  
  INPUT PROCESS  
  WRITE X,Y "ANOTHER?"  
  READSTRING RESPONSE  
  IF RESPONSE="N"  
    CLOSE DATA  
    RETURN  
  . ENDIF  
ENDWHILE
```

Repeated processing of this type of code was resulting in an error message 'too many if while or case levels'.

How can there be too many levels? Only one surely? One WHILE/ENDWHILE and one IF/ENDIF. No? NO! Actually too many WHILEs under certain circumstances!

BASIC is unique in computer languages in that it allows you to get away with code like this:

```
100 FOR T=1 TO 1000  
110 CALL KEY(1,A,B)  
120 IF B=1 THEN 140  
130 NEXT T  
140 PRINT "DONE";T
```

In any other language, including the TI-Base command language, this would spell disaster. The general rule of programming is that you do not jump out of a conditional loop until the condition is met. GOSUB can provide us with a BASIC example:

```
100 GOSUB 1000  
110 END  
1000 FOR T=1 TO 1000  
1010 CALL KEY(1,A,B)  
1020 IF B=0 THEN 100  
1030 NEXT T 1040 RETURN
```

If you run this, you will after a little while of not pressing any keys, receive the BASIC equivalent message to the one you are getting with TI-Base. Each GOSUB is remembering where you jumped from, and unless you exit with a RETURN, you just keep remembering more and more return addresses until...

(I really have seen quite a lot of programs coded like that last bit of code!) The BASIC program, in a format other languages can use, is:

continued on page 26

Legends, part 2

typed by Larry Saunders

AN OVERVIEW OF CHARACTERS AND PARTIES

All parties in Legends are composed of four characters. Each of which represents a specific class or profession. Your adventuring party is made up of a Fighter, Ranger, Wizard and a Cleric. Each of these characters classes represented has specific skills and abilities which, used properly, will prove important in completing your quest. While those familiar with adventure games in general will recognize the differences between these professions, and overview is provided below.

CHARACTER CLASSES:

Fighter: The Fighter is a someone whose profession depends on his or her strength cunning, skill with weapons, and detailed knowledge of monsters and opponents. The fighter makes up for an inability to cast spells with an uncanny ability to evaluate his or her foes, and brute strength and power. The fighter is essential in any quest to protect the weaker characters with more specialized skills.

Ranger: The ranger is one with nature. Like the fighter, he or she is skilled in the arts of combat, and like a cleric he or she is capable of casting spells. Ranger has a complete knowledge of the environment, and is much like the famed woodsmen of ancient lore. A ranger is useful in a quest as an aid to both the fighter and the cleric.

Wizard: The wizard is an adept of the arts of magic. Magic is his or her ally and foe. The wizard studies magic and is familiar with all its forms, and in its use. While in the beginning a wizard is quite weak, more experienced wizards can cast spells powerful enough to strike down the strongest opponents in a single blow, and shake the very earth. As part of a team, the wizard can make the difference between death and success.

Cleric: The cleric is a person with most profound religious beliefs. Through studying his or her god, he or her becomes familiar with the arts of healing, and of those of combat. The cleric gains this knowledge through an intimate association with the rites and ceremonies of his or her religion. The cleric's fighting and healing abilities are essential to the success of any venture.

AN OVERVIEW OF CHARACTERS AND PARTIES

Character Attributes:

Although you cannot alter the basic composition of your party (one of each class) you can create the individual members that make up the party. The skill and care which you employ when creating characters has a major effect on your success. The following is a list of the attributes which apply to the characters you create.

STR (strength): Refers to physical strength, important in combat. Fighters need great strength to wield more powerful weapons.

DEX (dexterity): Refers to agility. This is important to all classes as it effects such things as skill with weapons, disarming traps, and casting spells. In combat, dexterity is a major factor in how well you are able to parry against the attacks of monsters.

INT (intelligence): This is important primarily for spell-casting. It effects the maximum amount of magic points (see below) that a character can acquire. It also important for disarming traps.

CON (constitution): This attribute refers to how much a character is able to stand the rigors of travel and combat. The greater the constitution, the more hit points a character has (see below).

CHA (charisma): A character charisma refers more to personal magnetism than how the character looks. A charming person may have more charisma than someone who could win a beauty contest. Characters with low charisma will pay a lot more for training and the total charisma of the party is considered when you are buying potions.

HIT (hit points): This number represents the maximum amount of damage that a character can receive before being killed. When a monster attacks a character, the damage sustained is reflected in this number decreasing. The number of hit points can be restore to its original level after resting at an Inn or through potions. This base amount of hit points can be increased through training. CDN represents the current amount you have and HIT represents the maximum you can have at one time.

MAG (magic points): This is the maximum amount of magical power a character has at his or her disposal. Every time a spell is cast, this number decreases, but can be restored to its original level by resting at an Inn or through potions.

Character Bonuses due to Professional Class: characters of one profession naturally have an advantage over other characters and opponents in their profession's specialty. For example, a fighter would be expected to fight better than other characters in combat because he or she has more training in that specialty. These bonuses are detailed below:

Fighter: Have a +3 chance on attacks and +2 in defending against attacks from monsters.

Ranger: Have an automatic +1 on attacks, +2 on defense, and +12 to successfully disarm traps.

Wizards: A +5 on casting spells successfully and a +5 on resisting magic attacks.

Clerics: Has a +4 in defending against monster attacks.

These bonuses can be increased if the character has a very high number for his or her "prime requisite", or primary skill of his or her profession (strength for fighters, etc.). Very strong fighters gain a bonus in their attacks and in defense, while highly intelligent wizards cast spells better than wizards of average intelligence, and so on.

ADDITIONAL SKILLS:

In addition to the skills mentioned above, there are other skills which are necessary for day to day survival and are affected directly by the basic attributes. These are such things as the Attack, Protect, Cast Spell, Resist Magical Attack, and Disarm Traps skills. Characters progress in these skills solely through additional training. The skills learned are added to the bonuses a character may already have by virtue of class or high attribute scores in some areas.

THE ISLAND AND THE DUNGEONS

After leaving Wizards Rock and the Adventurer's Guild, your most immediate destination is the Island of Legends. Because of Ashtar Creel, conditions are not all that healthy for adventurers right now. Quite a few wandering monsters have been seen wandering about, and some of them are quite bloodthirsty. Rumor has it that the portal entrance to the monsters' home is in the south, and hence the closer you get to the entrance the nastier and more deadly the beasties encountered. The worst are the Dark Knights found everywhere.

Fortunately, Dark Knights, for all their fighting ability, are pretty lousy at hiding their presence. In other words you can see them coming a mile away. An astute party will avoid them at all costs at least until its characters are to a level where they can handle these metal behemoths better.

As your explorations of the island continue, you will come across teleporters and entrances to the dungeons. Most teleporters, if you know the codes, will take you to Wizards Rock (though it is not certain where they will go, unfortunately). The dungeons are portals to the world beneath where greater challenges and treasures beacon.

Finally, no matter where your party is, it is recommended that you keep your party ready for combat at all times. After a battle make sure your characters are healed and their magic points restored if necessary. This can be done by staying at one of the Inns scattered about, or by using potions purchased ahead of time. This takes us to the next section, Combat.

COMBAT

As your party travels and explores there is one sure guarantee, you will fight many battles. Virtually any type of monster can cause difficulty for a beginning party and many are capable of defeating even a powerful party if you are not careful.

When you encounter a monster in Legends you automatically shift into combat. The number and type of monsters you are facing is shown on the upper right side of the screen. Immediately above is a small window which shows your current location, either on the island or in the dungeons. You may be surprised, and if so the monsters attack first, otherwise your party has the option. Other relevant information is also displayed and described below.

When you first enter mode your party is presented a number of options:

1)FIGHT 2)GREET 3)RUN 4)THREATEN 5)SURRENDER 6)ATT FORM

FIGHT: Switches Legends into individual combat mode.

GREET: This is essentially saying "hello" to the monsters. The monsters may want to avoid a confrontation and greet you and leave, or attack you despite your attempt to be friendly.

RUN: Select this if you want to attempt to flee from combat. (Version 1.1: The party can now try to run before engaging monsters in combat. Early version can not.)

THREATEN: Sometimes, If you intimidate the monsters enough, they will give you gold to leave them alone.

SURRENDER: If you have enough gold, you can bribe the monsters into letting you pass.

ATT FROM: If you want to change the order in which your characters fight, you can use this option, ATTack FROM to do so.

When you enter individual combat mode, more options are available to the user:

1)HIT 2)LUNGE 3)PARRY 4)CAST

HIT: This means taking a normal swing at your opponent.

LUNGE: This is less controlled, wilder attack. While the amount of damage that can be inflicted is higher, your characters chance to hit is less.

PARRY: If you want a character (particularly one that is hurt badly), to assume a defensive stance during the monsters turn to attack, this option should be selected.

CAST: Refer to the manual on Magic Spells for more information on the type of spells that can be cast by the individual characters.

Legends will constantly display the results of your attacks on monsters and the monsters attacks on your party as the battle progresses. (Version 1.1 Multiple Attacks: Each character now has 2 attacks per combat round (each character can hit twice each turn). The number of "attacks" increase with the level of experience. Monsters also have multiple attacks based on their difficulty level.)

A FEW THOUGHTS ON MONSTERS

The only good monster is a dead one? Maybe. However, in all seriousness, it is important for your party's survival that you know as much about monsters as possible.

There are approximately 45 species of monsters who are known to inhabit the island of Legends. All of them dislike adventurers, except when roasted over a low flame. Monsters have varied skills. Some are only so-so at attacking and defending skills, while others have great skills in these areas, and lots of hits points to boot.

Some monsters can cast spells of various kinds. Certain high level monsters can even cast devastating Firestorm spell as effectively as any wizard. A seemingly weak monster can destroy an entire party if given time to cast its spells. Finally, remember that it is often better to use words before resorting to combat. Also, some will give you quite a bit of gold if you let them get on with terrorizing peasants and such.

Version 1.1 TERRAIN TYPES:

Unlike the previous versions of Legends, different terrain types are safer than others to travel in. The four basic areas that can be passed through are Grasslands, Forests, Swamps and Dark Swamps.

1. GRASSLANDS are the safest areas to travel over. Low level parties should stick to these particularly.

2. FOREST are potentially dangerous to travel in.

3. SWAMPS are very nasty.

4. DARK SWAMPS can be extremely dangerous and should be avoided whenever possible. Note that Dark Swamps look similar to regular swamps; it pays to observe very closely.

(Version 1.1 The Island graphics have been enhanced.)

MAGIC

Rangers, Wizards and Clerics can cast spells in Legends. While the description of exactly what they can cast is given over the Magic Spells manual, it is worth mentioning some things here first.

Rangers generally are the weakest magic users. There spells are usually defensive in nature. On the other end of the spectrum, Wizards have the most powerful spells. However, this is not to say that each class does not have advantages in spell casting. Ranger spells often need less magic points to be cast, and often provide much needed backup to the Clerics essential array of spells. Clerics have very powerful spells in the form of Turn Undead and Weakness, in addition to their collection of protection and healing spells. Wizards, finally have very powerful spells like Rot Armor, Firestorm3 and Strength. Furthermore, Wizards get the important Dispel Magic much earlier than do Clerics. Wizards need their spells more because they have little talent for combat and do the least damage when they hit anyway.

Finally, it is important to note that spells are absolutely essential to your success or failure. Ashtar

Creel created all this havoc with magic, and the only way it can be cleared up is with more magic. Let us just hope your characters have enough.

Events, Objects and Other Things of Interest

Scattered around the island and the dungeons are numerous things of interest. In the following description the notations "I" and "D" indicate whether something is located on the island or in the dungeons.

Inns (I): Inns are found throughout the island from the coasts to the mountains. The cost to stay at an Inn is 250 gold pieces; 10 to the innkeeper and the rest to the Dark Knights for property taxes.

Icons (I,D): These can be found both on the island and in the dungeon ruins. Some can provide clues, while others provide more information about the area you are exploring.

Teleporters (I): You will find teleporters scattered over the island. A code number is required to activate them, but unfortunately we forgot the numbers, sorry. All teleporters will transport the party from where they are to Wizards Rock, maybe. The teleporters, for some odd reason, will disappear after five attempts to guess the right code. They will reappear if they see you leave and you come back later.

Items (D): These can be weapons, armor or shields. The power of an item is rated by Damage Value or Protection Value. Taking an item requires that the character drop the weapon, armor or shield he or she is currently carrying. Depending on characters class or strength, you may or may not be able to use an item. If the item is a weapon of some type and the character is not qualified to use it, Legends will check all characters present and if no one is qualified to use it, it will respond: "NONE OF YOU CAN USE THIS". Otherwise, you can try to have another party member take it. You may wish to note that items not taken by the party are lost irretrievably (they usually leave in a huff, you know how touchy they can be). Wizards are also restricted in what they can use.

Traps (D): Some dungeons have been protected with traps of various types. You can avoid a trap by choosing not to disarm it. But traps sometimes will block your path, or are guarding a valuable item or chest, and hence must be disarmed. Assuming that you wish to disarm the trap, Legends will display the Disarm Traps screen, and ask you who will disarm a trap. Any number of things could occur: the trap may be designed to injure only one character or the whole party; weak characters could die. Intelligence and Dexterity are major factors in trap disarming ability. Rangers automatically have an advantage because of their special skills, but could actually be worse at this than other party members if he or she is particularly clumsy or stupid. No experience is gained in disarming traps.

Treasures (D): these are located in chests scattered throughout the dungeons. Contents include gold, potions, items, or the occasional deadly trap.

Coffins (D): Coffins and crypts are also found in some dungeons. They contain gold or potions, and sometimes something that will slither out.

Secret Passages (D): Passages are located in almost all dungeons. Traps or monsters could be lurking in them just waiting to explode or stomp your party into oblivion.

Secret Doors (D): Doors are located in most dungeons which connect one part of the dungeon to another. Most dungeons have several parts which must be explored to solve your quest (we never said this was going to be easy!). If you choose to go through a secret door, you will be asked if you want to "SAVE THIS SCREEN? Y OR N". If you type "Y" the section of the dungeon you are leaving will be saved exactly as you left it, meaning the traps you have disarmed will stay

disarmed, dead monsters stay dead, etc. Funny things these magic doors.

Events (D): In Legends there are quite a few non-combat encounters with the local denizens of the dungeons. These can involve either your party and a person or an object of some type.

Quest Objects (D): These ultimate reasons for your quest are located in the dungeons. Two are needed to cast the spell which will close off the monster's portal to this land. These objects might require the name of a certain spell to be effective. Another quest object may assist in some other fashion. Unfortunately no one we have talked to seems to know the details about it.

Heal-O-Matic (D): These vending machines have been installed in some areas. An enterprising gnome noticed the large numbers of traps in some areas were killing off inhabitants left and right. So, he opened up a franchise in which a miniature cleric would sit in a vending machine. When you drop in 300 gold pieces the cleric wakes up and will heal a party member. A really neat concept.

Wizards' Rock Temple (I): This temple was locked up years ago by the Dark Knights. It was formerly a place of great power and the High Clerics in it were renowned for their goodness and decency (no wonder the temple was closed).

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Adventures of Buckaroo Banzai

part 2, typed by Larry Saunders

- * - CANNOT GO DOWN THE STAIRS?
MINED VEINS GET AROUND IN THE DARK REQUIRES A LIGHT SOURCE.
 - * - More help for the above problem.
A FLASHLIGHT IS A TOOL.
 - * - Solution to the above problem.
THE FLASHLIGHT IS INSIDE THE TOOLBOX IN THE HOUSE ON HICKORY.

 - * - CANNOT GET GAS AT THE STATION?
THERE IS NO POWER FOR THE GASOLINE PUMPS.
 - * - More help for the above problem.
THE GAS WILL HAVE TO BE REMOVED FROM THE UNDERGROUND TANKS.
 - * - Solution to the above problem.
YOU WILL HAVE TO USE THE HAND PUMP TO PUMP THE GASOLINE.

 - * - THE HOSE FROM THE HAND PUMP WILL NOT REACH THE GASOLINE?
CONSIDER EXTENDING THE PUMP HOSE BY ATTACHING ANOTHER HOSE.
 - * - More help for the above problem.
EXAMINE THE JET CAR.
 - * - Solution to the above problem.
TAPE THE FUEL HOSE FROM THE CAR TO HAND PUMP.

 - * - CANNOT MAKE THE CAR GO?
LOOK AT THE DASHBOARD.
 - * - More help for the above problem.
WHAT DOES THE FUEL GAUGE SAY.
 - * - Solution to the above problem.
OPEN THE GLOVE COMPARTMENT AND READ WHAT YOU FIND.

 - * - CANNOT GET THE RADIO TO WORK?
TRY EXAMINING IT.
 - * - More help for the above problem.
THE RADIO NEEDS A BATTERY AND AN ANTENNA LOOK.
 - * - Solution to the above problem.
TAKE RADIO TO SHED AND CONNECT IT TO ANTENNA.

 - * - CANNOT FIND A BATTERY?
A SERVICE STATION IS A PLACE TO FIND CAR BATTERIES.
 - * - More help for the above problem.
GO INSIDE THE CASHIERS BOOTH.
 - * - Solution to above problem.
EXAMINE THE TRASHPILE INSIDE THE CASHIERS BOOTH AND GET BATTERY.

 - * - CANNOT GET RADIO TO WORK EVEN WITH THE BATTERY?
LOOK AT THE BATTERY.
 - * - More help for above problem.
ALL CAR BATTERIES HAVE LIQUID INSIDE.
 - * - Solution to above problem.
FILL THE BATTERY IN THE LAKE.

 - * - STILL HAVING PROBLEMS WITH THE BATTERY?
USE THE HYDROMETER.
 - * - More help for above problem.
THE BATTERY MUST BE CHARGED BEFORE IT CAN POWER THE RADIO.
 - * - Solution to above problem.
USE THE JUMPER CABLES TO CONNECT THE BATTERY TO THE POWER TERMINALS OF THE JETCAR SO YOU CAN RECHARGE IT.

 - * - CANNOT FIND A CONTAINER FOR THE GASOLINE?
EXAMINE THE BASEMENT LABORATORY
 - * - More help for above problem.
THERE ARE TWO ITEMS IN THE LAB A MIXING VAT AND A STAIRCASE.
 - * - Solution to above problem.
EXAMINE THE STAIRCASE FROM THE LAB.

 - * - CANNOT FIND THE BAUXITE?
BAUXITE IS FOUND IN VEINS USUALLY MINED IN MOUNTAINS.
 - * - More help for above problem.
EXAMINE THE MOUNTAIN.
- * - Solution to above problem.
SEE WHAT IS ABOVE THE LEDGE.

 - * - CANNOT GET ABOVE THE LEDGE?
FIND A ROPE.
 - * - More help for above problem.
IF ROPE IS NOT AVAILABLE USE SOMETHING SIMILAR.
 - * - Solution to above problem.
DIG IN THE FIELD GET THE UNDERGROUND PHONE LINE AND USE IT AS ROPE.

 - * - CANNOT GET THE PHONE LINE?
TO GET A SECTION OF THE LINE REQUIRED CUT IN TWO PLACES.
 - * - More help for above problem.
DIG MORE THAN ONE HOLE.
 - * - Solution to above problem.
DIG TWO SEPARATE HOLES IN THE FIELD THEN CUT THE CABLE IN BOTH HOLES AND PULL THE CABLE OUT.

 - * - FOUND THE BAUXITE, BUT CANNOT GET IT?
A CLIMBERS PICK CAN BE USED TO TAKE MINERAL SAMPLES.
 - * - More help for above problem.
FIGURE OUT A WAY TO GET THE PICK UP ON THE LEDGE.
 - * - Solution to above problem.
TIE THE LINE TO THE PICK THE EXTENDING CLIMBING THE LINE THEN PULL THE PICK UP BEHIND.

 - * - CAR EXPLODES WHEN YOU PRESS THE STARTER?
THE CAR RUNS ON JET FUEL NOT GASOLINE.
 - * - More help for above problem.
DID YOU REPLACE THE FUEL HOSE AFTER USING IT TO PUMP THE GASOLINE
 - * - Solution to above problem.
THE GASOLINE MUST BE FROM THE FUEL HOSE IN THE LAKE.

 - * - THE CAR JUST IDLES WHEN I START IT?
A CAR DESIGNED TO GO 700 MPH WOULD BE DANGEROUS WHEN THE COCKPIT IS OPEN
 - * - More help for above problem.
CLOSE THE COCKPIT
 - * - Solution to above problem.
THE COCKPIT MUST BE CLOSED THEN THE STARTER PRESSED IF YOU WANT THE THE CAR TO MOVE

 - * - CANNOT SEEM TO GET THE BATTERY CHARGED?
BATTERIES CHARGE FASTER IF THE CAR THEY ARE ATTACHED TO IS RUNNING
 - * - More help for above problem.
GET THE JET CAR RUNNING.
 - * - Solution to above problem.
THE JET CAR WILL IDLE SO YOU CAN CHARGE THE BATTERY

 - * - CANNOT SEEM TO MAKE THE RADIO DO ANYTHING EXCEPT COUNTDOWN?
TO DISARM THE BOMB REQUIRES TRANSMITTING A CODE THROUGH THE RADIO
 - * - More help for above problem.
THE BOMB IS GENERATING A RADIO INTERFERENCE THAT IS BLOCKING YOUR RADIO SIGNALS FROM REACHING IT
 - * - Solution to above problem.
USE THE JET CAR TO GO INSIDE THE MOUNTAIN SO YOU CAN DISARM THE INTERFERENCE SO THE BOMB WILL RECEIVE YOUR COMMANDS.

 - * - AFTER DRIVING INTO THE MOUNTAIN EVERYTHING GOES DARK?
SOUNDS TO ME LIKE THE SAME PROBLEM AS THE LABORATORY.
 - * - More help for above problem.
YOU NEED A LIGHT SOURCE.
 - * - Solution to above problem.
BRING THE FLASHLIGHT

 - * - CANNOT FIGURE OUT HOW TO TURN OFF THE RFI SHIELD?
EXAMINE THE BOMB.
 - * - More help for above problem.
WHAT DO THE LIGHTS INDICATE.
 - * - Solution to above problem.
FLIP THE SWITCH ON THE BOMB AND SEE WHAT HAPPENS TO THE LIGHTS.

continued on page 19

Tips from the Tigercub #31

by Jim Peterson, Tigercub Software, USA

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BRAIN BUSTERS!	BRAIN TEASERS
MANEUVERING GAMES	ACTION GAMES
REFLEX AND CONCENTRATION	TWO-PLAYER GAMES
KID'S GAMES	MORE GAMES
MIDDLE/HIGH SCHOOL MATH	WORD GAMES
MUSICAL EDUCATION	ELEMENTARY MATH
KALEIDOSCOPIES AND DISPLAYS	VOCABULARY AND READING

For descriptions of these send a dollar for my catalog!

A few people have asked for a program that they could use to encode personal messages on a BBS. Considering the current legal threats to BBSs, I doubt that a Sysop will allow coded messages, but here is a coder/decoder to create code that should be quite difficult to crack. First we need another of those programs that write a program.

```
100 !CODEPRINT by Jim Peterson - creates a random code
in a MERGE format program CODESTRING to be MERGED
into CODEMAKER
110 FOR J=1 TO 254 :: N$=N$&CHR$(J):: NEXT J
120 FOR J=1 TO 254 :: RANDOMIZE ::
X=INT(RND*LEN(N$)+1):: C$=C$&SEG$(N$,X,1)::
N$=SEG$(N$,1,X-1)&SEG$(N$,X+1,LEN(N$)):: NEXT J
130 OPEN #1:"DSK1.CODESTRING",VARIABLE 163,OUTPUT ::
PRINT #1:CHR$(0)&CHR$(1)&"C$"&CHR$(190)&CHR$(199)&
CHR$(127)&SEG$(C$,1,127)&CHR$(0)
140 PRINT #1:CHR$(0)&CHR$(2)&"C2$"&CHR$(190)&
CHR$(199)&CHR$(127)&SEG$(C$,128,127)&CHR$(0)
150 PRINT #1:CHR$(0)&CHR$(3)&"C3$"&CHR$(190)&"C$"&
CHR$(184)&"C2$"&CHR$(0):: PRINT
#1:CHR$(255)&CHR$(255):: CLOSE #1 :: END
```

And now the coder/decoder.

```
100 !TIGERCUB CODEMAKER written by Jim Peterson
```

```
110 !The MERGE format program CODESTRING created by the
program CODEPRINT must be MERGED into lines 1-3 of
this program
120 DIM A$(254):: DISPLAY AT(3,6)ERASE ALL:"TIGERCUB
CODEMAKER" :: DISPLAY AT(12,1):"Do you want to":
:"(1)Encode":"(2)Decode"
130 CALL KEY(0,K,ST):: IF K=49 THEN 140 ELSE IF K=50
THEN 290 ELSE 130
140 OPEN #1:"DSK1.CODE",VARIABLE 254,OUTPUT
150 DISPLAY AT(5,6)ERASE ALL:"Type message in segments
of":"not more than 254 characters":"and Enter. When
done, type"
160 DISPLAY AT(9,1):"END and Enter. Type slowly":"to
avoid skipped characters.":"Backspace with FCTN[S]
to":"correct.":"Press any key"
170 CALL KEY(0,K,ST):: IF ST=0 THEN 170
180 CALL CLEAR :: CALL LONGACCEPT(0,M$):: IF M$="END"
THEN 280
190 DISPLAY AT(20,1):"WAIT, PLEASE - ENCODING"
200 FOR J=1 TO LEN(M$)
210 A$(ASC(SEG$(C$,J,1)))=SEG$(M$,J,1)
220 NEXT J
230 FOR J=1 TO 254 :: RANDOMIZE
240 IF A$(J)=" " THEN A$(J)=CHR$(INT(26*RND+65))
250 CODE$=CODE$&A$(J)
260 NEXT J :: PRINT CODE$
270 PRINT #1:CODE$ :: CODE$="" :: FOR J=1 TO 254 ::
A$(J)=" " :: NEXT J :: GOTO 180
280 CLOSE #1 :: END
290 OPEN #1:"DSK1.CODE",VARIABLE 254,INPUT :: CALL CLEAR
:: DISPLAY AT(12,10):"DECODING"
300 LINPUT #1:CODE$ :: FOR J=1 TO 254 ::
M$=M$&SEG$(CODE$,ASC(SEG$(C$,J,1)),1):: NEXT J ::
PRINT M$:: M$=""
310 IF EOF(1)<>1 THEN 300 :: CLOSE #1 :: END
320 SUB LONGACCEPT(L,M$):: X=0 :: IF L<>0 THEN R=L ELSE
R=R+1
330 M$="" :: C=3 :: CH=140 :: CALL
CHAR(140,RPT$("O",14)&"FF")
340 CALL HCHAR(R,C,CH):: CH=CH+5+25*(CH=160) :: CALL
KEY(0,K,ST):: IF ST<1 THEN 340
350 IF K<>8 THEN 370 :: X=X-1 :: C=C-1 :: IF C=2 THEN
C=30 :: R=R-1
360 M$=SEG$(M$,1,LEN(M$)-1):: GOTO 340
370 IF K=13 THEN 410
380 X=X+1 :: M$=M$&CHR$(K):: CALL HCHAR(R,C,K):: IF
X=254 THEN 410
390 C=C+1 :: IF C=31 THEN C=3 :: R=R+1 :: IF R=25 THEN
CALL CLEAR :: R=1
400 GOTO 340
410 R=0 :: SUBEND
```

Here is a simple little game I call Cover-up. Use the #1 joystick, try to cover the white square with the black square. Press the fire button to speed up, release it to slow down.

```
100 CALL CLEAR :: CALL CHAR(96,RPT$("F",64)):: CALL
SPRITE(#1,96,5,92,124):: CALL MAGNIFY(4):: CALL
SPRITE(#2,96,16,100,100)
110 X=INT(20*RND)-INT(20*RND)::
Y=INT(20*RND)-INT(20*RND):: CALL MOTION(#2,X,Y)::
T=T+1 :: IF T=250 THEN 300
120 CALL JOYSPEED(1,1):: CALL COINC(#1,#2,8,A):: IF A=-1
THEN 130 ELSE 110
130 Z=Z+1 :: DISPLAY AT(1,1):Z :: CALL
SOUND(-50,500,5):: GOTO 120
300 CALL DELSPRITE(ALL):: DISPLAY AT(12,5):"YOUR SCORE
IS "&STR$(Z):: DISPLAY AT(20,1):"PRESS ENTER TO PLAY
AGAIN"
310 CALL KEY(0,K,S):: IF S=0 OR K<>13 THEN 310 :: T,Z=0
:: GOTO 100
21110 SUB JOYSPEED(N,A):: CALL JOYST(N,X,Y):: CALL
KEY(N,K,ST):: S=S+K/9-1 :: S=S*ABS(S>0):: IF S>30
THEN S=30 21111 CALL MOTION(#A,-(Y*S),X*S):: SUBEND
```

For a one handed BREAK, if you cannot reach FCTN and 4, try FCTN with J and the space bar together.

If you like to call BBSs, try the TIPPS Spirit of 99 BBS in Columbus, Ohio on (614)451-0880 and leave me a "hello!"

Probably useless information: holding down FCTN and CTRL together and typing 1, 2, 3 and 5 will give ASCII

codes 145, 151, 133 and 148, which are the codes obtained from CTRL Q, W, E and T, the keys diagonally below the 1, 2, 3 and 5.

Occasionally someone sends me a program they have keyed in from my newsletter, and asks why it will not run, so I wrote this routine to help find the errors. It is also useful to check whether two copies of a program are identical, but only if they have not been resequenced.

```
100 !CHECKER by Jim Peterson - to compare two programs
    and list all differing lines to the printer
110 DISPLAY AT(12,1)ERASE ALL:"1st program
    DSK/filename?": "DSK" :: ACCEPT AT(13,4):F1$
120 DISPLAY AT(12,1)ERASE ALL:"2nd program
    DSK/filename?": "DSK" :: ACCEPT AT(13,4):F2$
130 OPEN #1:"DSK"&F1$,INPUT :: DIM M$(500),CH(500)::
    OPEN #2:"PIO",VARIABLE 255 :: PRINT #2:CHR$(15)
140 X=X+1 :: LINPUT #1:M$(X) :: M$(X)=M$(X)&" " :: IF
    EOF(1)<>1 THEN 140 :: CLOSE #1 :: OPEN
    #1:"DSK"&F2$,INPUT
150 IF EOF(1)=1 THEN 230 :: LINPUT #1:X$ :: X$=X$&" "
160 FOR Y=1 TO X
170 IF X$=M$(Y)THEN CH(Y)=1 :: GOTO 150
180 NEXT Y
190 P2=POS(X$, " ",1):: P2$=SEG$(X$,1,P2-1)
200 FOR Y=2 TO X :: P1=POS(M$(Y), " ",1)::
    P1$=SEG$(M$(Y),1,P1-1)
210 IF P2$=P1$ THEN PRINT #2:"1st program = ";M$(Y):"2nd
    program = ";X$ :: CH(Y)=1 :: GOTO 150
220 NEXT Y :: PRINT #2:"2nd program = ";X$ :: GOTO 150
230 FOR J=1 TO X :: IF CH(J)=0 THEN PRINT #2:"1st
    program = ";M$(J)
240 NEXT J
250 CLOSE #1 :: CLOSE #2
```

Here is a great idea that was printed and reprinted in several newsletters. At the beginning of a program that will run only in BASIC, add the lines:

```
1 IF PI=0 then (first line of program)
2 PRINT "YOU ARE IN EXTENDED BASIC":"THIS PROGRAM
    RUNS ONLY IN BASIC"
3 STOP
```

The idea is that PI is a function in Extended BASIC with the value of pi, but is just a variable name in BASIC with an undefined value of 0.

The trouble is, it does not work! If PI is keyed in from BASIC and saved, it is saved in token format as a variable name, and when loaded back into Extended BASIC is still just a variable name. And if PI is saved from Extended BASIC, it is tokenized as a function, loads back into BASIC as an unrecognized function and crashes! Can anyone come up with a way around that? The above is the answer to the Challenge in Tips #30. Lines 100 and 110 were keyed in and saved from BASIC, and loaded back into Extended BASIC, then lines 120 and 130 were keyed in.

Here is a handy PEEK that has not been published as widely as most of them:

```
100 CALL INIT
110 CALL PEEK(8192,X)!Thanks to Dale Loftis in the
    Orange County UG newsletter!
120 PRINT X !If X=32 you are in Extended BASIC; if
    X=165 you are in BASIC with the Editor
    Assembler or MiniMemory module inserted.
```

And another 3-D sprite demonstration, just to make all the Apple polishers jealous. See if you can figure out how it works.

```
100 CALL CLEAR :: CALL SCREEN(5):: CALL
    CHAR(100,RPT$("F",64)):: CALL MAGNIFY(4):: FOR S=5
    TO 9 :: CALL COLOR(S,16,1):: NEXT S
110 DISPLAY AT(3,3):"TIGERCUB SPRITE SHUFFLE" !by Jim
    Peterson
120 DATA 70,116,2,75,121,7,69,124,11,78,115,16
130 FOR J=5 TO 8 :: READ P(J,1),P(J,2),L(J):: CALL
    SPRITE(#J,100,L(J),P(J,1),P(J,2)) :: NEXT J :: W=45
```

```
140 DATA 5,6,7,8,8,5,6,7,7,8,5,6,6,7,8,5
150 RESTORE 140 :: FOR Y=5 TO 8 :: READ A,B,C,D
160 FOR J=1 TO W :: CALL LOCATE(#A,P(A,1)-J,P(A,2),#B,
    P(B,1),P(B,2)-J,#C,P(C,1)+J,P(C,2),#D,P(D,1),
    P(D,2)+J):: W=90 :: NEXT J :: GOSUB 180
170 NEXT Y :: GOTO 150
180 FOR J=5 TO 7 :: CALL
    POSITION(#J,P(J+1,1),P(J+1,2)):: NEXT J :: CALL
    POSITION(#8,P(5,1),P(5,2))
190 T=L(8):: L(8)=L(7):: L(7)=L(6):: L(6)=L(5):: L(5)=T
200 FOR J=5 TO 8 :: CALL
    SPRITE(#J-4,100,L(J),P(J,1),P(J,2)):: NEXT J
210 FOR J=5 TO 8 :: CALL
    SPRITE(#J,100,L(J),P(J,1),P(J,2)):: NEXT J :: CALL
    DELSPRITE(#1,#2,#3,#4):: RETURN
```

Do you need some really REAL BIG letters on the screen? Just type your letter at the beep.

```
100 DIM X$(96):: CALL CLEAR :: FOR CH=33 TO 89 STEP 8 ::
    FOR A=0 TO 7 !REAL BIG LETTERS by Jim Peterson
110 CALL CHARPAT(CH+A,X$(CH+A-32)):: CALL CHAR(CH+A,"O")
    :: L$=L$&RPT$(CHR$(CH+A),3):: NEXT A
120 FOR T=1 TO 3 :: R=R+1 :: DISPLAY AT(R,4):L$ :: NEXT
    T :: L$="" :: NEXT CH
130 CH$(1)=RPT$("O",16):: CH$(2)=RPT$("F",16)
140 CALL SOUND(100,500,0)
150 CALL KEY(O,CH,S):: IF S=0 OR CH>96 THEN 150
160 CALL HEX BIN(X$(CH-32),B$):: FOR J=9 TO 64 :: CALL
    CHAR(J+32,CH$(VAL(SEG$(B$,J,1))+1))
170 NEXT J :: GOTO 140
180 SUB HEX_BIN(H$,B$):: HX$="0123456789ABCDEF" ::
    BN$="000X0001X0010X0011X0100X010
    1X0110X0111X1000X1001X1010X1011X1100X1101X1110X1111"
190 FOR J=LEN(H$)TO 1 STEP -1 :: X$=SEG$(H$,J,1)
200 X=POS(HX$,X$,1)-1 :: T$=SEG$(BN$,5*X+1,4)&T$ :: NEXT
    J :: B$=T$ :: T$="" :: SUBEND
```

Thought for the day. The excuses for piracy are exactly the same as the excuses for shoplifting, but you probably will not have to tell them to the judge; in this world, at least.

And that is almost memory full, Jim Peterson

continued from page 20

```
100 FOR T=1 TO 600
110 CALL KEY(1,A,B)
120 IF B=1 THEN T=600
130 NEXT T
140 PRINT "DONE";T
```

BASIC actually clears the T flag when you jump out. Other languages will not. They will keep waiting for the condition to be met and if the code is processed frequently, memory will quickly go!

That BASIC allows the first form, and teaches a method inapplicable to any other form of programming, has resulted in BASIC receiving a lot of criticism from professional programmers. TI went a long way to meeting criticisms, by offering in Extended BASIC sub-programs with local variables, long before Acorn thought of it!

The first bit of code should be configured as below. We do not jump out of the conditional WHILE loop until the condition is met.

```
WHILE RESP="Y"
    INPUT PROCESS
    WRITE X,Y "ANOTHER?"
    READSTRING RESP
ENDWHILE
CLOSE DATA
RETURN
```

If you compare this to the first form, you will see it does the same thing, but actually uses the test in the WHILE. And as we only leave the WHILE loop when the condition is met, you do not eat up memory by nesting WHILE loops when you do not need to! (The code is also shorter).

continued on page 35

Tips from the Tigercub #56

by Jim Peterson, Tigercub Software, USA

Tigercub Software
156 Collingwood Ave.
Columbus OH 43213

I am still offering over 120 original and unique entertainment, educational and utility programs at just \$1 each, or on collection disks at \$5 per disk.

The contents of the first 52 issues of this newsletter are available as ready to run programs on 5 Tips Disks at \$10 each.

And my three Nuts & Bolts Disk, \$15 each, each contain over 100 subprograms for you to merge into your own programs to do all kinds of wonderful things.

My catalog is available for \$1, deductible from your first order (specify TIGERCUB catalog).

TI-PD LIBRARY

I have selected public domain programs, by category, to fill over 200 disks, as full as possible if I had enough programs of the category, with all the BASIC only programs converted to Extended BASIC, with an Editor Assembler loader provided for assembly programs if possible, instructions added and any obvious bugs corrected, and with an autoloader by full program name on each disk. These are available as a copying service for just \$1.50 postpaid in US and Canada. No fairware will be offered without the author's permission. Send self addressed stamped envelope for list or \$1, refundable, for 9 page catalog listing all titles and authors. Be sure to specify TI-PD catalog.

In Tips #55, I showed you some quick and easy ways to create new character sets. Since folks nowadays do not like to key in long programs, let us continue with "tinygram" programming, and at the same time show you how to manipulate strings, and teach you the value of using MERGE format.

First, let us make a screen to display our new characters. Some of them will have to be double spaced horizontally or vertically, so:

```
100 CALL CLEAR :: X=1 :: FOR CH=48 TO 159 :: PRINT
CHR$(CH)&" " :: X=X+2 :: IF X<29 THEN 110 ELSE PRINT
"":: X=1
110 NEXT CH
```

Save it: SAVE DSK1.100,MERGE

Now, you might like to move the common punctuation marks into the same character sets as the characters, so that you will not have to reidentify so many sets, also so you can colour them easier.

```
120 DATA 32,33,34,44,46
130 FOR J=1 TO 5 :: READ CH :: CALL CHARPAT(CH,CH$)::
CALL CHAR(J+90,CH$):: CALL CHAR(J+122,CH$)
140 NEXT J :: CALL CHARPAT(63,CH$):: CALL CHAR(64,CH$)::
:: CALL CHAR(96,CH$)
```

If you want to program in BASIC, or use BXB with characters all the way up to ASCII 159, add CALL CHAR(J+154,CH\$) to the end of line 130 and CALL CHAR(128,CH\$) to the end of line 140.

Save by SAVE DSK1.120,MERGE

If you are using that transliteration, you must remember that with upper case characters the ? is @, space is [, ! is \, " is], comma is , period is . With the lower case they are FCTN keys C, F, A, G, W and V and for the 3rd set (ASCII 129 to 154) they are CTRL comma, period, ;, =, * and (.

You can transfer upper case to lower by:

CALL CHARPAT(CH,CH\$) and then CALL CHAR(CH+32,CH\$) or the opposite by CH-32 and if you have BXB merged in you can create a 3rd set by CH+64.

The following are all incompatible with each other, so give them all line number 150 and save them in merge format as 150A, 150B, etc.

The numerals and the upper case letters all have the topmost pixel row blank to provide spacing between lines of text. We can make taller letters by deleting the top row and doubling the 7th row:

```
150 FOR CH=48 TO 126 :: CALL CHARPAT(CH,CH$):: CALL
CHAR(CH,SEG$(CH$,3,12)&SEG$(CH$,13,4)):: NEXT CH
151 REM
```

Or, you can double the 3rd row:

```
150 FOR CH=48 TO 95 :: CALL CHARPAT(CH,CH$):: CALL
CHAR(CH,SEG$(CH$,3,4)&SEG$(CH$,5,12)):: NEXT CH
151 REM
```

The lower case letters are really small upper case with the upper 3 rows blank. All their vertical bars are in the 4th, 6th and 8th rows, so let us drop the first 3 rows and quadruple the 7th.

```
150 FOR CH=97 TO 127 :: CALL CHARPAT(CH,CH$):: CALL
CHAR(CH,SEG$(CH$,7,6)&RPT$(SEG$(CH$,13,2),4)&
SEG$(CH$,15,2)) :: NEXT CH
151 REM
```

Or, for top heavy letters, quadruple the 5th row:

```
150 FOR CH=97 TO 127 :: CALL CHARPAT(CH,CH$):: CALL
CHAR(CH,SEG$(CH$,7,2)&RPT$(SEG$(CH$,9,2),4)&
SEG$(CH$,11,6)):: NEXT CH
151 REM
```

Or, if you want line spacing:

```
150 FOR CH=97 TO 122 :: CALL CHARPAT(CH,CH$)::
CH$=SEG$(CH$,5,8)&RPT$(SEG$(CH$,13,2),3)&
SEG$(CH$,15,2):: CALL CHAR(CH,CH$):: NEXT CH
151 REM
```

Or, for something silly:

```
150 FOR CH=48 TO 90 :: CALL CHARPAT(CH,CH$):: CALL
CHAR(CH,SEG$(CH$,3,2)&RPT$(SEG$(CH$,5,2),4)&
SEG$(CH$,9,4)&SEG$(CH$,15,2)):: NEXT CH
151 REM
```

For some good blocky characters:

```
150 FOR CH=48 TO 90 :: CALL CHARPAT(CH,CH$):: CALL
CHAR(CH,RPT$(SEG$(CH$,3,2),2)&SEG$(CH$,5,8)&
RPT$(SEG$(CH$,15,2),2)):: NEXT CH
151 REM
```

Or, if you would prefer them shorter for single-line spacing:

```
150 FOR CH=48 TO 90 :: CALL CHARPAT(CH,CH$):: CALL
CHAR(CH,"OO"&RPT$(SEG$(CH$,3,2),2)&SEG$(CH$,7,6)&
RPT$(SEG$(CH$,15,2),2)):: NEXT CH
151 REM
```

If you would like numerals the same size as lower case:

```
150 FOR CH=48 TO 57 :: CALL CHARPAT(CH,CH$):: CALL
CHAR(CH,"OOO"&SEG$(CH$,1,6)&SEG$(CH$,9,4)&
SEG$(CH$,15,2)):: NEXT CH
151 REM
```

You can even shrink the lower case to only 4 rows high, although some letters are not very legible:

```
150 FOR CH=97 TO 122 :: CALL CHARPAT(CH,CH$):: CALL
CHAR(CH,SEG$(CH$,1,6)&SEG$(CH$,5,4)&SEG$(CH$,11,6))
:: NEXT CH
151 REM
```


Something modernistic:

```
150 A$="OO" :: FOR CH=48 TO 90 :: CALL CHARPAT(CH,CH$)::  
CALL CHAR(CH,SEG$(CH$,1,4)&A$&SEG$(CH$,7,6)&A$&  
SEG$(CH$,15,2)):: NEXT CH  
151 REM
```

Or perhaps even better:

```
150 A$="OO" :: FOR CH=48 TO 90 :: CALL CHARPAT(CH,CH$)::  
CH$=SEG$(CH$,3,10)&RPRT$(SEG$(CH$,13,2),2)&  
SEG$(CH$,15,2)  
151 CALL CHAR(CH,SEG$(CH$,1,4)&A$&SEG$(CH$,7,2)&A$&  
SEG$(CH$,11,2)&A$&SEG$(CH$,15,2)) :: NEXT CH
```

I call this one "Spooky".

```
150 FOR CH=48 TO 122 :: CALL CHARPAT(CH,CH$)::  
CH$=SEG$(CH$,3,14)&SEG$(CH$,1,2)::  
X$=SEG$(CH$,1,1)&"O"  
151 FOR J=3 TO 15 STEP 2 ::  
X$=X$&SEG$(CH$,J,1)&SEG$(CH$,J-1,1):: NEXT J :: CALL  
CHAR(CH,X$):: X$="" :: NEXT CH
```

And "Spooky" backward:

```
150 FOR CH=48 TO 122 :: CALL CHARPAT(CH,CH$):: FOR J=1  
TO 15 STEP 2 ::  
CH2$=CH2$&SEG$(CH$,J,1)&SEG$(CH$,J+3,1):: NEXT J ::  
CALL CHAR(CH,CH2$):: CH2$="" :: NEXT CH  
151 REM
```

Now, clear the memory with NEW, then:

```
MERGE DSK1.100  
MERGE DSK1.120  
Add a line 500 GOTO 500
```

And start MERGEing in your series of "150" routines and running them to see what you have created.

Then, save these next routines in MERGE format as 160A, 160B, etc.

All normal characters have the leftmost column of pixels and the two rightmost columns blank, for spacing between letters. We can widen the character into the left column:

```
160 FOR CH=48 TO 122 :: CALL CHARPAT(CH,CH$):: FOR J=1  
TO 15 STEP 2  
161 CH2$=CH2$&  
SEG$(CH$,1,14)&SEG$(CH$,1,2)&  
SEG$(CH$,1,1)&"O"  
SEG$(CH$,1,1)&SEG$(CH$,J,1)&SEG$(CH$,J-1,1):: NEXT J :: CALL  
CHAR(CH,CH2$):: CH2$="" :: NEXT CH  
162 REM  
163 REM
```

Or widen it both left and right:

```
160 FOR CH=48 TO 122 :: CALL CHARPAT(CH,CH$):: FOR J=1  
TO 15 STEP 2  
161 CH2$=CH2$&  
SEG$(CH$,1,14)&SEG$(CH$,1,2)&  
SEG$(CH$,1,1)&SEG$(CH$,J,1)&SEG$(CH$,J-1,1)&  
SEG$(CH$,J+1,1):: NEXT J :: CALL CHAR(CH,CH2$)::  
CH2$="" :: NEXT CH  
162 NEXT J :: CALL CHAR(CH,CH2$):: CH2$="" :: NEXT CH  
163 REM
```

Or even a full 8 columns wide by just changing the "O28A" in line 161 to "O129"

For darker characters, we can shade them into the 7th column:

```
160 FOR CH=48 TO 122 :: CALL CHARPAT(CH,CH$):: FOR J=2  
TO 16 STEP 2 :: IF SEG$(CH$,J-1,1)="1" THEN  
CH2$=CH2$&"18" :: GOTO 163  
161 IF CH=67 OR CH=71 OR CH=99 OR CH=103 THEN 162 :: IF  
SEG$(CH$,J-1,1)="4" AND SEG$(CH$,J,1)="O" THEN  
CH2$=CH2$&"60" :: GOTO 163  
162 CH2$=CH2$&SEG$(CH$,J-1,1)&SEG$(CH$,J,1)&  
SEG$(CH$,J+1,1)&SEG$(CH$,J,1)&SEG$(CH$,J-1,1)  
163 NEXT J :: CALL CHAR(CH,CH2$):: CH2$="" :: NEXT CH
```

Or shade them both left and right:

```
160 FOR CH=48 TO 122 :: CALL CHARPAT(CH,CH$):: FOR J=1  
TO 15 STEP 2 :: A$=SEG$(CH$,J,1)::  
P=POS("O123456789ABCDEF",A$,1)  
161 A$=SEG$(CH$,P,1)&SEG$(CH$,J+1,1)  
:: P=POS("O2468ACE",B$,1)::  
B$=SEG$(CH$,P,1)&SEG$(CH$,J+1,1)  
162 NEXT J :: CALL CHAR(CH,CH2$):: CH2$="" :: NEXT CH  
163 CALL CHAR(74,"O00COCOCOCOC4C38"):: CALL  
CHAR(106,"O00000COCOC4C38")
```

Or shaded into both of the rightmost columns:

```
160 FOR CH=48 TO 122 :: CALL CHARPAT(CH,CH$):: FOR J=2  
TO 16 STEP 2 :: CH2$=CH2$&SEG$(CH$,J-1,1)&  
SEG$(CH$,J,1)&SEG$(CH$,J+1,1)  
:: NEXT J :: CALL CHAR(CH,CH2$):: CH2$="" :: NEXT CH  
161 REM  
162 REM  
163 REM
```

Or into all 8 columns:

```
160 FOR CH=48 TO 122 :: CALL CHARPAT(CH,CH$):: FOR J=1  
TO 15 STEP 2 ::  
P=POS("O123456789ABCDEF",SEG$(CH$,J,1),1)  
161 A$=SEG$(CH$,P,1)&SEG$(CH$,J+1,1)  
:: P=POS("O2468ACE",SEG$(CH$,J+1,1),1)::  
B$=SEG$(CH$,P,1)&SEG$(CH$,J+1,1)  
162 NEXT J :: CALL CHAR(CH,CH2$):: CH2$="" :: NEXT CH  
163 REM
```

More neatly, shaded inward at right:

```
160 FOR CH=48 TO 122 :: CALL CHARPAT(CH,CH$)  
161 FOR J=1 TO 15 STEP 2 :: CH2$=CH2$&SEG$(CH$,J,1)&  
SEG$(CH$,J+1,1)  
162 CALL CHAR(CH,CH2$):: CH2$="" :: NEXT CH  
163 REM
```

Or inward at right, outward at left:

```
160 FOR CH=48 TO 122 :: CALL CHARPAT(CH,CH$):: FOR J=1  
TO 15 STEP 2  
161 CH2$=CH2$&SEG$(CH$,J,1)&SEG$(CH$,J+1,1)  
162 CALL CHAR(CH,CH2$):: CH2$="" :: NEXT CH  
163 REM
```

Here is a weirdo:

```
160 FOR CH=48 TO 122 :: CALL CHARPAT(CH,CH$):: FOR J=9  
TO 15 STEP 2  
161 CH2$=CH2$&SEG$(CH$,J,1)&SEG$(CH$,J+1,1)  
162 NEXT J :: CALL CHAR(CH,SEG$(CH$,1,8)&CH2$):: CH2$=""  
163 REM
```

Try changing that to FOR J=1 TO 7 and CALL CHAR(CH,CH2\$&SEG\$(CH\$,9,8)) And one more:

```
160 FOR CH=48 TO 122 :: CALL CHARPAT(CH,CH$):: FOR J=1  
TO 7 STEP 2  
161 A$=SEG$(CH$,J,1)&SEG$(CH$,J+1,1)  
162 CALL CHAR(CH,CH2$&SEG$(CH$,9,8)):: CH2$="" :: NEXT  
CH  
163 REM
```

Now, clear the memory, MERGE in 100 and 120, put in a holding line 500 GOTO 500 and start MERGEing in all of the different combinations of the 150 and 160 lines and see how many different character sets you can make!

Memory full, Jim Peterson

Fast Terminal Program

by Paul Charlton, VA, USA

Program can be purchased by sending \$15 check or money order to address above. Persons wanting source code must have at least 720 sectors per disk (tell me what format) or send an extra disk to me.

Charges: \$15.00 for program.

\$ 5.00 for me to provide disk and mailer

\$ 5.00 for updates within 1 month of original purchase of program from me (just send me a letter saying that you want update). After 1 month, please remit \$10 as payment.

Instructions for use:

- 1) You must have: Editor Assembler, Mini Memory, TI-Writer, or Extended BASIC.
- 2) You must have a Disk-Controller card.
- 3) You must have 32K of expansion memory.
- 4) To use the printer spooler feature you currently must have a PTO interface manufactured by TI, Axiom (Parallax), CorComp, or Myarc. The spooler has been tested with these devices and might not work with others.

To load from Extended BASIC.

- 1) Turn computer off.
- 2) Place Extended BASIC cartridge into the cartridge slot.
- 3) Turn computer on and go to Extended BASIC.
- 4) Type: CALL INIT, then press <ENTER>.
- 5) Type: CALL LOAD("DSK1,FAST-LOAD")
- 6) Then: CALL LINK("TERM"). You may even do this from a program you have written (Phone dialer, etc.).

To load with Editor Assembler or TI-Writer menu.

- 1) Turn computer off.
- 2) Place Editor Assembler or TI-Writer cartridge in the cartridge slot.
- 3) Turn computer on and go to the cartridge main menu.
- 4) Select "RUN PROGRAM FILE" (5) from Editor Assembler or "UTILITY" (3) from TI-Writer.
- 5) Press <ENTER> (no further typing is necessary).

To load from Mini Memory.

- 1) Turn computer off.
- 2) Place Mini Memory cartridge into cartridge slot.
- 3) Turn computer on and go to Mini Memory menu.
- 4) Press 3, re-initialize.
- 5) Press FCTN[6], proceed.
- 6) Press 1, "LOAD AND RUN".
- 7) Type: DSK1.FAST-LOAD, then press <ENTER>.

Fast-Term now attempts to find the file DSK1.CHARA1, the TI-Writer replacement character set.

You are now in the program. The program has auto-repeat on all keys. Enter the name of a parameter file you have created with the program DEFAULT or hit <ENTER> to choose the following defaults:

1200 =baud rate for the modem.
EVEN =parity for the modem.
PIO/1 =printer spooler (PIO/1 on TI RS232 card, not CorComp).
RS232/1 =serial port to be used by modem.
FULL =duplex (auto-echo of keys you type is off).
OFF =log file is not on when you enter Fast-Term.
OFF =printer spooler is off when you enter Fast-Term.

OFF =there is no linefeed sent after an <ENTER> in file send.
WHITE =text color.
DK. BLUE =screen color.
40 =screen width.
DSK1.SESSIO =file to log to.

Communications

There are several parameters that need to be configured to work with the system you are calling: baud rate, parity, and duplex.

The baud rate must be set to be the same as that which the other system expects, it must also be set to a rate which your modem can handle. The default baud rate is 1200. This is not compatible with a large number of modems. You must set your baud rate by pressing CTRL[1]. You will go through a series of baud rates that Fast-Term handles:

1200-> 2400-> 4800-> 9600-> 19200-> 110-> 300-> 600-> 1200

The baud rates faster than 1200 baud are not yet useful in tele-communications, they are most useful to someone who wishes to use the TI99/4A as a hard-wired terminal for another computer. (There are some CP/M cards for the TI99/4A that connect to the TI99/4A through the serial port, Fast-Term is very useful for those.)

The parity must be set also. Consult the service you will be using to determine what parity they expect. The service will also have a suggested number of data bits to use. In Fast-Term, data with even or odd parity is automatically seven bits; data with none for parity is automatically eight bits. Use CTRL[3] to change the parity. Here is the sequence:

Even-> Odd-> None-> Even

There is also duplex. This controls how characters you type will appear on your screen. Full duplex means that any character you type must be sent back to you by the other system before you actually see it. Half duplex means that the other system expects the terminal you are using (TI99/4A, with Fast-Term) to automatically display the characters as you type them. There are very, very few systems around which expect you to use HALF duplex. Fast-Term's default is full duplex. You may change the duplex by pressing FCTN[SHIFT[D]], all at the same time.

Hardcopy

Spooler: Fast-Term provides a printer spooler feature. This means that if you have a printer you may instruct Fast-Term to send everything you will see on your screen to the printer as it is displayed on your screen. The spooler allows data to be displayed on your screen faster than the printer can print it, the printer is allowed to be as much as four thousand characters behind what you see on your screen. If the printer does manage to get four thousand behind, the incoming data will no longer be sent to the printer and Fast-Term will give you a warning message and a bell to tell you that the printer is very far behind. The spooler enables you to have a complete print out of your whole session with the other system. Spooler is enabled by pressing CTRL[2]. You may disable the spooler by pressing CTRL[2] again. When you disable the spooler, no more incoming data will be sent to the printer; data that the printer had gotten behind on will still continue to print.

Screen Dump: Fast-Term also provides a screen-dump feature. If you have a printer you may print a copy of the data which is on the screen. Press FCTN[0] to freeze the screen (explained later) then press FCTN[SHIFT[P]], all at the same time. All of the characters on the screen will be placed into the spooler, to be printed when the printer catches up. You must leave this freeze mode before you will see the rest of what the other system was sending you. (press FCTN[0] again)

You must tell Fast-Term how you have your hardware attached.

Modem: Tell Fast-Term which serial port your modem is attached to by pressing CTRL[4]. Pressing this key takes you through a list of ports available for the modem. Stop when you get to the port to which your modem is attached.

Printer: Tell Fast-Term which port your printer is attached to by pressing CTRL[6]. This takes you through a list of ports available for your printer. Stop when you get to the right one. The default is the PIO port on the TI RS232 interface. If you have a CorComp serial interface and you have a printer for which you send data to PIO, you must select CorComp PIO from the list, not PIO! If you have an Axiom Parallax interface, you must choose AXIOM PIO for the printer to work. People with serial interfaces built by yet another manufacturer should try all of the available choices to find one which works.

It is possible that your interface is not compatible with Fast-Term. For such people, I suggest that you log to your printer (logging is explained later). Set your printer baud rate (serial printers only) by pressing CTRL[7]. This works in the same way as setting the modem baud rate.

Sending and Receiving Files

Receiving ASCII files (text that you can read). You can receive an ASCII file by logging to a file. Press FCTN[B]. This closes any previous file you were logging to and asks you for a new filename to log to. To log data you must give a filename. Then, at the point at which you want data to start going into the file, you must press FCTN[.] (period). All data will now go into the log file. Press FCTN[.] again when you get to the end of the data you want to save. All of the data is now in memory, to write it to disk you must press FCTN[B] again. This writes the file to disk, closes it, then asks you for a new filename, enter a blank line if you do not want another log. If at some point in the transfer the memory gets full Fast-Term will empty the buffer to disk then continue where it left off, still logging to the file. With a proper setup, through the DEFAULT program written in TI BASIC, no data will be lost as Fast-Term writes the log to the file.

For people whose serial interfaces do not allow them to use a printer with Fast-Term, you should log to "PIO" to get a hardcopy of your session. The log file is in a DISPLAY, VARIABLE 80 format. You may clear the logs memory buffer at any time by pressing FCTN[Y]

Sending ASCII files. To send an ASCII file you must first press FCTN[N] and give the name of the file which you wish to send. Press FCTN[,] (comma) to start sending the file. You will be asked if you want to send the file line by line. If you decide to send the file line by line, you must press the space bar everytime you want to send another line from the file. Press FCTN[4] to stop sending from the file. If you choose not to send the file line by line the file will be sent as quickly as the other system can handle it. The other system may send Fast-Term a CTRL[S] when Fast-Term gets ahead of what the other system can handle, and send a CTRL[Q] to Fast-Term when it has caught up. (XOFF/XON handshaking) When you have sent enough of the file you may hit FCTN[4] to stop. Files you send may be in either DISPLAY, FIXED 80 or DISPLAY, VARIABLE 80 format on your disk.

Another option you may use when sending the file is to add a line feed after every carriage return you send to the other system. This is useful when you sending a file to someone else's terminal for them to read. This feature is enabled by pressing FCTN[J]. It is disabled by pressing FCTN[J] again.

Sending files using the TE2 protocol. Press FCTN[SHIFT[T]], all at the same time. This enables transmission of files with the TE2 protocol. Pressing those keys again enables ASCII send. Press FCTN[N] and give the name of the file which you wish to send. Press FCTN[,] (comma) to send the file. You will be kept informed of the progress of the file transfer by an on screen report of current block number, record number, and number of retries. A bell will ring when the transfer is complete. You may abort the transfer at any time by pressing FCTN[4].

Receiving files using the TE2 protocol. First press FCTN[N] and give the name of the file which you want data to go into. Then tell the other system to start sending you the file. You are given a report of the transfer's progress. Press FCTN[4] at any time to abort the transfer.

XMODEM protocol

Sending files using the XMODEM protocol. Press FCTN[N] and give the name of the file you wish to send. Tell the other system to prepare to receive a file. Once the other system is ready, press FCTN[SHIFT[X]], all at the same time. Press <S> or <ENTER> to <S>end file. The rest of the transfer is automatic. The transfer will be aborted if at any time the number of retries for one record exceeds ten. You may abort the transfer at any time by pressing FCTN[4], note that the other system will become confused by your abort, and will take about 90 seconds or so to give you a prompt back (most other systems).

Receiving files using the XMODEM protocol. First press FCTN[N] and give the name of the file you want data to go into. Then tell the other system to start sending you the file. Now press FCTN[SHIFT[X]], all at the same time. Press <R> for <R>eceive. You now need to choose which type of error checking you wish to use, CRC or Checksum. CRC is more accurate than Checksum, but not all systems support it (ask the sysop of that system about availability of CRC error checking). Note that if you choose CRC and the other system does not support it that you will be delayed for about 60 seconds. This is the time it takes XMODEM to automatically switch to Checksum mode. Press FCTN[4] to abort. Note that the other systems aborts immediately as well. XMODEM sends TI99/4A disk directory information along with the file. It expects to see this information on any file it receives so that it may place the data into a file easily usable on the TI99/4A. Reception of a file which does not include directory information results in data being placed into a DIS/FIX 128 file format. Also, any file with the characteristics of DIS/FIX 128 is sent without the directory information. This results in all round compatibility with files from other systems.

Other Features

Screen Control: you may set the width of the screen to either 40 or 80 characters. Press CTRL[0] to toggle between 40 and 80 columns. Note that this operation does not clear the screen like other terminal programs.

If you choose 80 column mode you will have to window from side to side to see all of the screen. Pressing FCTN[5] jumps you to the right, FCTN[L] jumps you to the left. You can set how far you jump by using the DEFAULT program which is written in TI BASIC.

Colours: You may change the screen colour by pressing FCTN[8], you may change the text colour by pressing FCTN[7].

Screen Freeze: you may pause display of incoming data by pressing FCTN[0]. This allows you to read what is on the screen without worrying about it scrolling off the top before you can read it. You unpauses by pressing FCTN[0] again. All of the data that came in while you were paused is now printed on the screen.

Window Back: this feature allows you to look at data which has already scrolled off of your screen. First enter freeze mode by pressing FCTN[0]. Press the space bar to quickly scan through the data, press <S> to go slowly through the data. You will see a solid bar on the screen when you have caught up to where you were when you began. During window back print spooling and logging are suspended. You may re-enable them during window back mode in order to save "lost" data, data which had already scrolled off the screen. You may also change things like screen width and colour while you are in window back mode. When you leave window back mode by pressing FCTN[0], everything that you did like change screen parameters and logging is returned to the state it was in when you entered window back mode.

Timer: *Fast-Term* has a timer you can use to display your connect time. It is constantly display in the upper left corner of the screen when you enable it by pressing FCTN[K]. You may turn the timer off by pressing FCTN[K] again. Enabling the timer always resets it to zero. The timer is disabled if you have *Fast-Term* running at greater than 1200 baud. Note that this is not a time of day clock, it is only an elapsed time counter.

Disk Directory: the directory of a floppy disk drive may be shown by pressing FCTN[9], only the names of the files are shown.

Fast-Term knows all of the ADM3A control codes and escape sequences.

ADM3A: control code	function
>07	bell
>08	backspace (non-destructive)
>0A	linefeed
>0B	move up one line
>0C	move forward one space
>0D	carriage return
>1A	clear screen
>1E	home cursor
>1B '=' R C	moves cursor to row (R-32) and column (C-32)

Special: (not ADM3A, <i>Fast-Term</i> only)	
>0E	turns off reverse video
>0F	turns on reverse video

To set up a parameter file for use with *Fast-Term*, go to BASIC and run the program DEFAULT. The program is self explanatory and menu driven. Use it to set up everything that you can set up with function keys within *Fast-Term*, as well as some features that can only be changed by the parameter file.

Have fun!

Notes:

```
***** Control Keys for Terminal Program *****
FCTN[1] Transmits >7F (DELETE)
FCTN[2] Transmits >14 (CTRL[T])
FCTN[3] Transmits >0E (CTRL[N])
FCTN[4] Transmits break tone
      -> also "break" hung-up I/O functions
FCTN[5] Window right (like Editor and TI-Writer)
*
FCTN[J] Toggle transmission of linefeed after "cr" in
      ASCII file send mode
FCTN[K] Set the timer to zero
FCTN[L] Window left (like window right but other
      direction)
*
FCTN[6] Transmits >05 (CTRL[E])
FCTN[7] Change foreground text colour
FCTN[8] Change background text colour
FCTN[9] Disk directory
FCTN[0] Toggle window back mode (on/off)
      -> SPACE bar for fast display, "S" for slow
      display
*
CTRL[0] Toggle screen width between 80 and 40
      characters. Does not clear screen!
```

```
CTRL[1] Change communication speed (baud rate)
CTRL[2] Toggle print spooler on/off
CTRL[3] Change parity (modem)
CTRL[4] Change modem port
CTRL[5] Change printer parity {only useful for serial
      printer}
CTRL[6] Change printer port
CTRL[7] Change printer baud rate {only useful for
      serial printer}
FCTN[.] Toggle log on/off
FCTN[N] Name the disk file to use for file send and TE2
      transfers
FCTN[Y] Clear the log
FCTN[B] Writes log to disk, gets name for new log
FCTN[,] Send disk file to other system
*
FCTN[SHIFT[D]] Toggle duplex between full and half
FCTN[SHIFT[P]] Print screen in freeze or window back
      mode
FCTN[SHIFT[T]] Enables transmission of file by TE2
      protocol
FCTN[SHIFT[X]] Enters XMODEM file transfer mode
*
Cursor control; use arrow keys or CTRL[K,S,I,J]
*
Not documented control keys are same as TI99/4A in
      Pascal scan mode
*
FCTN[=] Quit, leave program
CTRL[=] Quit, leave program
*
```

Program knows all standard ADM-3A control codes and escape sequences. Printer buffer turns off and rings the bell when it get full. Log automatically writes to disk when it gets full. •

Lego, not Logo Turtle

by Ross Mudie

At the meeting on 6/5/89 my younger son, Peter, showed a motorised "turtle" which he constructed from technical Lego blocks and Lego motors. The turtle contained 2 motors, each driving separate wheels on each side of the device. The motors can be controlled in the same or opposite directions which allows the turtle to move in a forward direction or to turn left or right. There is a multi-cored cable from a relay interface board to the turtle and the relay board is driven from the cassette motor ports of a 32K console. (The extra components to use the CS2 motor control were installed in the console to permit control of the turtle.) Joystick 1 is used to control an assembly program which is implanted in an extended BASIC program (to allow convenient loading from cassette tape). The front bumper bar of the turtle is spring loaded and behind it there is a microswitch, which connects back to the computer via the Joystick 2 port. If the turtle bumps into a stationary object then the program ceases forward motion but it will allow the operator to turn either way.

Why am I writing this description of this project?

I guess there is a fair amount of proud Dad involved; to give other younger set members (and even the oldies) ideas of what can be done using a simple 32K console as well as issuing this challenge. If a 12 year old can master assembly at this sort of level (the program is not complex in structure) then why cannot the oldies?

Peter put in a lot of persistence and perspiration to get this project going with not a lot of help from Dad. Mastering both Lego and assembly is just like almost anything else in this world; to quote a prominent politician, "Life is not meant to be easy", but I make the point that it is certainly not impossible. •

Rambles

by Stephen Shaw, England

When the first UK based TI99/4A user group was formed the subscription was 9.50 per year, and that was several years ago, and prices have I think doubled since then; apart from computers which now sell for a fraction of their 1981 prices! A paperback book published in 1982 for 85p is published in 1988 for 1.99 and our sub is mainly for publication! Also, as our numbers inevitably decline, unfortunately the cost per copy of the magazine goes up; printing costs per unit really fall as volume rises! So please try to be understanding when you see the group raise its subscriptions. We have no unspoken for reserves, and would like to continue to serve TI99/4A users for a little longer...!!!

In the last issue I asked that if anyone wanted anything, or wishes to dispose of anything, please contact me. One wish received. One sale offered, but as noone had advised me that they wanted a PEB with disk controller and drives and 32K RAM (offered at 150) that one went by the way (do not ask now, it has gone, probably for a great deal more and probably out of the country). If you want to obtain or sell anything, contact me. The group does not carry stock but we can possibly put you in touch with someone who can help you, and perhaps a little faster than having to put an advertisement in the next magazine (which can be up to four months away!!!).

Polishing a Black Box or
Lessons in TI99/4A BASIC

In the last issue, I submitted a very old TI99/4A BASIC program I wrote back in 1982, and which had not been polished since. My wrists having been roundly slapped for inefficient programming, let us see how we can improve that coding! Get out your copy of issue 23 and turn to page 16.

340. CALL KEY... by using key unit 5, it does not matter whether the alpha lock is up or down, so we can improve the friendliness of the program by changing this line to CALL KEY(5,A,VR). Once the key unit has been set to 5, we do not need to use it again, as each following use of 0 merely repeats the use of unit 5. If we needed to input lower case then we would need to use Key Unit 3.

2190. By reversing the logic we can do away with the time consuming ELSE and write this line as:
2190 IF B(J,I)=1 THEN 2220

I have been challenged to suggest a use of the ELSE statement which is actually required. Generally speaking, leaping around from one part of a program to another is not merely frowned on, but actually quite difficult in any language but BASIC. The only jumps generally allowed being either downwards or to a subprogram or function which returns. Any good reasons for using ELSE? Drop me a line and I will see if I can always think of a better (more elegant!) way of doing it!

Further examples of misuse of ELSE in the last issue can be found on page 25, where line 990: IF CDE=HOLE THEN 1000 ELSE 1050

is better entered as: 990 IF CDE<>HOLE THEN 1050

Similar amendments to the listing on page 25:
1050 IF CDE<>REP THEN 1040

1070 IF (RR<>11)*(RR<>12) THEN 1040
1070 IF (RR<11)+(RR<12) THEN 1040

The use of ELSE in Extended BASIC is a little different, as it is used effectively to join lines together. For instance, the listing on page 29 is equivalent to a TI99/4A BASIC code:

```
180 IF EOF(1) THEN 220
181 LINPUT #1:A$
```

The ELSE has merely been used to join this line 180 to this line 181, not to create an excessive program leap!

Those of you who have dealt with PARCO in the past may wish to purchase any modules you may want (and cannot obtain from the Group!) from the Parrish family without too much delay. For necessary reasons the name is now DATABASE but the telephone number remains 0404 44425 (Devon) and Access card still accepted. A telephone order to check stock is recommended, and a credit card order is dispatched promptly if the goods are in stock.

There remain a number of worthwhile modules available, and I can recommend the following, prices quoted from a price list received in February and subject to confirmation when you order!

Logo 2, 40.00. This requires 32K RAM, but is happy to operate from tape. Logo is a good language to learn to get used to procedures and recursion. The list processing is pretty complex, not just turtles!

Personal Record Keeping, 9.00. A slightly limited fixed format but fairly easy to use database module.

Statistics, 10.00. This is one module you will not get on disk (if you do I want a copy!) and does all the statistical work you could ask. Good manual but some idea of what statistics are is a great help!

Starter Pack 1,2, GAME WRITER PACK 1,2, 2.50 each. Each is a book and a cassette, and between them they will teach you lots of good things about programming in TI99/4A BASIC. Some good programs too.

DATABASE has a number of educational modules from 3 to 7.50.

Games modules are from 5 to 9, with a limited stock at time of writing of Micro Pinball at 28.00

Some of my favorite games are Hustle 7.50, with three types of "snake" game; Othello, 7.50, which plays a mean game, fortunately several levels of difficulty; Jawbreaker 2, 7.50, some similarity to Pac Man, but I just like having my teeth scrubbed after I have eaten the sweets; MunchMobile, 9.00, a scrolling driving program I have difficulty getting to screen 2 on, but one I find quite delightful; Defender, 5.00, is very similar to the original arcade game. Speaking of which TI Invaders, 7.50, is a remarkable adaption of the original arcade version (the best I have seen on computer), can you remember how slow that first screen started out (and how fast it finished!).

I have received letters relating to the Geneve, the new TI99/4A compatible computer, which requires the TI99/4A PEB, and also a letter from a member detailing problems obtaining support for Myarc products.

In a past issue I did ask members with Myarc products to contact our member Richard Sierakowski and that advice was not heeded by our member in trouble, so it is repeated now! And as Richard has a Geneve, and has had one longer than anyone else in the UK (as far as we both know) I asked him to write a little article for your edification, and it is sent in with this valuable text.

If we are lucky, Richard may be at the Annual Meeting with his Geneve to show you, and if we are very lucky may also have some of the latest US software for both the Geneve and the TI99/4A available on disk. You will have to come along to find out!

continued on page 6

Printer Setup Program in c99

by Geoff Trott

With the c99 package from Clint Pulley comes several sample programs, one of which is a program to set up a printer. A few months ago Lou Amadio published an Extended BASIC version of such a program, but as I do not usually have my Extended BASIC cartridge active it seemed to me a good alternative to that program. I changed the program to suit my printer's needs and found one problem which I fixed for my printer. The program listing is presented below and it is relatively self explanatory so I will comment on some of the statements and on the procedure to produce the memory image program. I am using Funnelweb so I will explain from that point of view.

The construction of the menu is easy to see with some items commented out with `/*.....*/` pairs. You can change these to suit. For each menu item, a code or series of codes are sent out to the printer. If the code is a non printing code (like `<esc>`), then the actual code is written down as an octal number following a back slash `"\"`. Octal numbers are numbers to the base 8 and there are 3 binary digits in each octal digit. Octal is used because it is easy to convert to binary but only uses numerical characters (0 to 7). Thus the code for `<esc>` is `\033` which has the value of 27 decimal ($3 \times 8 + 3 = 27$). Some of the codes which must be sent include the NULL code (value of 0). This causes a problem as the NULL character is the character used by the C language to indicate the end of a string. This means that it will not send it out to the printer as part of the string of characters. I overcame this for my serial printer by putting the character `\200` in the string (128 decimal = `>80`) realising that the addition of parity would ensure that a NULL was sent (the most significant bit is the parity bit). This may not work with a parallel printer, particularly if it is set up to receive 8 bits. There is another way to send a NULL character and that is to send character 10 (`\012`) as this is the End Of Line character and `fputs` then outputs a null. This would cause a `<crlf>` to also be output (unless the printer was opened with `.CR`) which may cause a problem if the NULL was to be followed by other characters.

Enough of the problems, try a few things and see how you go. The steps needed to run the program using Funnelweb are as follows. First compile the source (`DSK1.PRSET;C` say). Load the c99 compiler and press `<ENTER>` for the first two prompts. Then type in `DSK1.PRSET;C` for the input file name and `DSK1.PRSET;S` for the output file name. When the compiler has finished, press `N` to exit. Then use the `AID` key (`FCTN[7]`) to look at the files on `DSK1`. Mark the file `PRSET;S` and press `<ENTER>`. Load the assembler from the menu and the files will all be set up for you with `PRSET;O` as the object file. Just press `<ENTER>` 4 times and then `PROC'D (FCTN[6])` to run the assembler. When it has finished press `<ENTER>` to return to the menu and press 3 to select Loaders menu. Select Load and Run (4 on the menu) and the object file name will be displayed as the first file. Press `<ENTER>` and then follow this with `DSKn.CSUP`, `DSKn.CFIO` and just `<ENTER>` to finish the load. This loads the object file of the main program, the c99 support routines and the c99 file I/O routines as `DF80` files into memory. Then type in `START` and the program will start running.

If you wish to create a single memory image file then the procedure is a little more complicated. Select the Load and Run option from the Loaders menu as before but this time the first file loaded must be `C99PFI;O` (`C99PFI` if not using Funnelweb) followed by the main program `PRSET;O`, `CSUP`, `CFIO`, `C99PFF` and `FWSAVE` (or `SAVE`). The entry point is now `SAVE` and you will be asked where to save the file. I used the filename `PRSET;M`. The program can now be loaded as a program file needing Editor Assembler utility routines in low memory.

When you have finished running the program in Load and Run mode, pressing `BACK (FCTN[9])` twice will take you back to the Funnelweb menu. The exit from the Program version is to the title screen.

```
/* PRSET - program to set print modes for
**      Epson compatible printers
** Load with CFIO
*/
#include "DSK.H.STDIO"
/* declaration of two global variables, both integers.
   pr is the unit number of the printer and sel is the
   character code of the key pressed. */
int pr,sel;
/* the main program. calls procedures:
   tscrn(f,b) changes the screen colours, foreground and
   background - in CSUP
   locate(row,col) place cursor at row and column -
   in CSUP
   putchar(c) outputs one character - in CSUP
   puts(string) outputs a string - in CSUP
   fopen(name,mode) opens the named file in the
   specified mode - in CFIO
   fclose(unit) close unit - in CFIO
   putml(string) outputs a string, see later
   putfmt(string) outputs a string to the file, see
   later
*/
main()
{ tscrn(2,4); /* colour to black on light green */
  putml("Set Printer Modes :");
  putchar('\n'); /* new line character */
  putml("A Reset Printer");
  /*putml("B Pica (10 char/inch)"); */
  putml("C Elite (12 char/inch)");
  putml("D Italic");
  /*putml("E Non-italic"); */
  /*putml("F Cut sheet feeder"); */
  putml("G Select bin 1");
  putml("H Select bin 2");
  putml("I Sheet feeder off");
  putml("J Eject one page");
  putml("K Draft mode");
  /*putml("L NLQ mode"); */
  /*putml("M 6 lines/inch"); */
  putml("N 8 lines/inch");
  putml("O Unidirectional print");
  putml("P Bidirectional print");
  putml("Q Set left margin to 8");
  putml("R SanSerif font");
  /*putml("S Roman font"); */
  /*putml("T USA characters"); */
  putml("U UK characters");
  putml("V Condensed print on");
  /*putml("W Condensed print off"); */
  putml("X Exit program");
  locate(24,2); /* go to row 24 column 2 */
  puts("Selection? ");
  pr=fopen("RS232.BA=9600.LF","w"); /* open printer */
  /* do .. while loop with exit at the bottom */
  do
  {
    switch( sel=getchar()&95 ) /* make upper case */
    { /* \ooo is the ASCII code in octal. 033 is
       escape character. 200 for null or 0 */
      case 'A' : putfmt("\033@"); break;
      /*case 'B' : putfmt("\033P"); break; */
      case 'C' : putfmt("\033M"); break;
      case 'D' : putfmt("\033A"); break;
      /*case 'E' : putfmt("\0335"); break; */
      /*case 'F' : putfmt("\033\0314"); break; */
      case 'G' : putfmt("\033\0311"); break;
      case 'H' : putfmt("\033\0312"); break;
      case 'I' : putfmt("\033\0310"); break;
      case 'J' : putfmt("\033\031R"); break;
      case 'K' : putfmt("\033x\200"); break;
      /*case 'L' : putfmt("\033x\001"); break; */
      /*case 'M' : putfmt("\0332"); break; */
      case 'N' : putfmt("\0330"); break;
      case 'O' : putfmt("\033U\001"); break;
      case 'P' : putfmt("\033U\200"); break;
      case 'Q' : putfmt("\033I\010"); break;
      case 'R' : putfmt("\033k\001"); break;
    }
  }
}
```

continued on page 4

continued from page 1

Speaking of the Sydney meetings, hands up all those who are enjoying them this year. One hundred percent of those here with me raised their hands and I hope that everyone attending this year has raised their hand. Dick and Craig are to be congratulated for putting on such a good show for us all. I would also like to thank all the members who are volunteering for all the activities put forward by Dick as there is nothing so dispiriting to all that enthusiasm as no response at all. Keep up all the good work, write some of it down and I will ensure that it receives publicity in our excellent publication.

I received two letters this month which I would like to share with you. The first was from John Ryan in Coffs Harbour as a follow up to the disks he sent me. He has started what he calls the Boomerang disks or La Rondo. This is supposed to work like a chain letter with each recipient adding a program or other file to the disks and passing them on. John is off for a trip to USA during which he is calling in on a lot of TI99/4A users groups. He is going with a few disks of articles from TND which he is going to trade for other articles. Watch this space! The other letter was from Tony McGovern. He has some interesting things to say about disk managers and controllers. He has found that the CorComp controller has used some memory locations in the system RAM space (>8300 to >83FF) outside that region set aside by TI for device DSR routines to use (>834A to >836D, GPLWS RO to R10 and >83DA to >83DF for non interrupt access). This means that some programs which also use these memory locations have their data destroyed by the disk controllers. This occurs with DM1000 when copying several files, particularly to RAMdisk, and when using the SD command in Funnelweb Editor the space character gets corrupted when accessing high CRU address RAMdisks. Tony may come to the Workshop day this month which would be good. He now has a Mechatronic 80 column card courtesy of a USA user who also had a Dijit card and was so pleased with Tony's 80 column editor that he sent him his now spare Mechatronic card! Tony has been working on a vastly expanded QD/SD type of program for 80 column operation. This is a disk manager program, which would be great if it is anything like the SD function in the 80 column editor. Tony wonders why the software for the Geneve is in such a poor state. Perhaps someone should send him a Geneve to play with and he might be able to get it working up to its potential! He claims there is a flaw in the source code of DM1000 version 3.5 which may or may not cause problems. The Funnelweb version has no known bugs except for a problem if you enter a disk name longer than 10 characters and then try to delete a character. As Tony notes, disk managers are programs which cannot afford to be unreliable.

Newsletter Roundup

by Lou Amadio

Local Newsletters

HV99ers February 89 - Offer from Al Lawrence to collect and send monthly software donation to fairware authors for all user groups, new PRBase V2.1 has standard TI disk header for copying data disks plus some useful tips, patch for Funnelweb version of DM1000 to bypass DSK1 for HRD, report on Quest RD200, QED 32K module with Funnelweb, how to clean module contacts, Jack Sughrue on the importance of sticking together, BASIC number rounding, Forth toolbox, hints on adventuring (Infidel and Hitch Hikers Guide) and sector sharing to save disk file space. March 89 - File management area on disks, Print Wizzard for creating greeting cards, banners etc, PReditor used with Supercart, review of Triad (disk manager + Terminal Emulator + Editor + Editor Assembler option 5 Loader), Assembly Squeezing and DSR links by Tony McGovern, JB's Disk Utilities reviewed, using MiniMemory to write to VDP Registers and elementary Forth by Joe Wright.

TIUP March 89 - BASIC tutorial, Editor Assembler disk error codes explained, handy illustration of console I/O interface for hardware hackers, problems with modems and CorComp RS232 cards, "outdenting" with TI-Writer. Also released in March is a Best of Tit Bits with a wealth of information from past issues.

TIBUG March 89 - Review of the TI99/4A which was first published in Electronics Australia in December 82, Formatter "line feed" fix, how to use CTRL[U] in TI-Writer. April 89 - '.AD' will not work with CTRL[U], notes on versions of Archiver, MDOS V1.14, Myword V1.22, GPL V1.04, MDM5 V1.29, MDM3 V2.20 and first release of Myarc Advanced BASIC, converting numbers to numerals, Multiplan tutorial and a BASIC calendar program.

ATICC April 89 - Cheap monitors no longer available, RGB monitor interface now approximately \$92, further problems with supply of Myarc products, hidden meaning of the CTRL key combinations, various articles from past issues of Compute! and delay in producing the KALEIDAWRITER.

Overseas Newsletters

CIM 99 from Montreal written, as usual, in French.

Tacoma Informer April 89 - Cassette Streamer Tape program review (allows program to be found on a tape) called CSI*FINDEX plus miscellaneous information by Bill Gaskill including using menus with TI-Base.

TI-SIG Newsletter March 89 - Dijit, who produce the AVPC 80 column card, are about to release a video interface card which will allow video editing using a TI99/4A and two VCRs, report on TI Fest West, hardware fix for printer interface problems plus JJs menu on a disk.

ROM March 89 - Forth #41 by Earl Raguse, using DATA statements in BASIC plus miscellaneous club information.

Northern NJ 99ers April 89 - How to convert ASCII to DB 1 files, review of SPAD XIII Mark 2 flight simulator, modems and telecommunications, organizing hard disks, Telco and ANSI graphics protocol and an enhanced Z80 card for the TI99/4A.

TI Focus April 89 - Update on "Savage Benchmark", a Extended BASIC disk labeler, review of Extended BASIC *Tools utility programs, Multiplan Cash Book by Peter Gleed and Geneve autoexec and menu files.

Ottawa TI 99ers April 89 - Assembly language switches, teaching PRBase part 1 and Fast Extended BASIC by L. Dorais plus miscellaneous club information.

Spirit Of 99 April 89 - TI-Base and geneology, TI-Base tutorial and tips, continuation of M. Schmitt's cassette files and a menu selection of print type styles.

LA 99ers March 89 - Application of TI-Base, MICROdex library files for TI-Base, Forth graphics, assembly plus Extended BASIC sharing high memory, more Multiplan by Peter Gleed, notes on TI-Writer with CTRL[U] and other reminders and The Printers Apprentice tutorial.

Rocky Mountains 99ers March 89 - Article on little used BASIC commands (POS) and various tips when programming in BASIC or playing GROM based games. April 89 - Bug fix for DM1000 versions greater than V3.5, tips from the Tigercub, article explaining what is on disk sector 000, miscellaneous tips on hardware and software including a BASIC program to check monitor distortion. •

Programs from the TI*MES Library

by Stephen Shaw, England

>GAMES OF WIT SERIES: three disks contain five Extended BASIC games, three formerly published at \$17 each. Game of Wit is a scrabble type game for 1-4. In Nit Wit two players compete to make words as quickly as possible with identical letters. Wit or Witout is for 2 to 6 players making words by adding or taking away letters, Wittle Tags is for 2 to 6 players trying to form the shortest possible word, and Wits End is an advanced Game of Wit. A colour TV is essential for this package. Two disks contain the documentation; 52 pages! continued on page 35

Regional Group Reports

Meeting summary.

Banana Coast	11/06/89	Sawtell
Carlingford	21/06/89	Carlingford
Central Coast	10/06/89	Toukley
Glebe	8/06/89	Glebe
Illawarra	19/06/89	Keiraville
Liverpool	9/06/89	Northmead
Northern Suburbs	22/06/89	Davidson
Sutherland	16/06/89	Jannali

BANANA COAST Regional Group (Coffs Harbour area)

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

CARLINGFORD Regional Group.

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

CENTRAL COAST Regional Group.

Regular meetings are normally held on the second Saturday of each month, 6.30pm at the Toukley Tennis Club hall, Header St, Toukley. Contact Russell Welham (043)92 4000

GLEBE Regional Group.

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

ILLAWARRA Regional Group.

Regular meetings are normally on the third Monday of each month, except January, at 7.30pm, Keiraville Public School, Gipps Rd, Keiraville, opposite the Keiraville shopping centre. Contact Lou Amadio on (042)28 4906 for more information.

NORTHERN SUBURBS Regional Group.

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

June meeting, 22nd June. Demonstrations of Funnelweb Configure and loaders. At Craig Sheehan's house, 21 Suzanne Road, Mona Vale, phone 997 1293.

Come and join in our fun. Dick Warburton.

SUTHERLAND Regional Group.

Regular meetings are held on the third Friday of each month at the home of Peter Young at Jannali at 7.30pm. Group co-ordinator is Peter Young, (02) 528 8775. BBS Contact is Gary Wilson, user name VK2YGW on this BBS.

Several members of the Sutherland Group made the long trek to the home of Cyril Bohlsen at Northmead, to attend the April meeting of the Liverpool Regional Group. Thanks Cyril for the hospitality.

Larry Saunders was able to repay the compliment by making a return visit to Sutherland, 1 week later. There seems to be no end to the number of goodies Larry has on hand, such as the P-GRAM card and virtually every piece of good software ever written for the TI99/4A. Needless to say, the major part of our meeting was devoted to looking at Larry's demonstrations.

The balance of the time was taken up in trying to resurrect my two RAMdisks which had proven difficult to initialize due to a corrupt version of Johnson's loader Version 7.1.

Peter Young

LIVERPOOL Regional Group

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

All demonstration programs are subject to Air Mail from USA. Some are still on the way

*** ALL WELCOME ***

June Meeting, 9th June, Stephen Carr's home, 146 South Liverpool Road, Busby. Demonstrations of complete TI-Artist collection of Fonts, Instances, Borders, Enlarger and perhaps Press.

July Meeting, 7th July, Larry Saunder's home, 34 Colechin Street, Yagoona West, (02)644 7377. Demonstrations of Font Writer II, Old Dark Caves, Oliver's Twist, Grand RAM card and Press in 80 columns.

August Meeting, 11th August. Demonstration of Press.

TIshUG in Sydney

Monthly meetings start promptly at 2pm (except for full day tutorials) on the first Saturday of the month that is not part of a long weekend. They are held at the Woodstock Community Centre, Church street, Burwood. Regular items include news from the directors, the publications library, the shop, and demonstrations of monthly software. Meetings for the next couple of months are:

June 3 - Full day workshop: TIshUG's first workshop for 1989 will start at 10am at Woodstock Community, Burwood. See article for full details of this meeting.

July 1 - Rolf Schreiber will demonstrate his Geneve computer. Well worth seeing if you intend to expand in this direction. In order to capitalise on the information learnt at the full day workshop, the first of a series of mini-lectures will be presented.

Future meetings are on August 5 and September 2.

Craig Sheehan (Meeting co-ordinator).

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>HORIZON RAM DISK MANUAL. Although this is (c) I cannot see how it can harm anyone, you still need the circuit board and parts! To be safe, the final chapters of the manual are omitted! But there are 328 sectors of text here for you to read if you need more information on the Horizon RAM Disk before you buy it.

>JBM103. A bitmap graphics utility for Extended BASIC. Allows you to draw bit map pictures in Extended BASIC using easy CALL LINK commands. Set single pixels, draw lines and circles. Screen dump to Epson printer via PIO. Switch between 32 column mode and bit-map mode. Pictures can be saved to disk and reloaded. Compatible with TI Artist (and hence also MAX/RLE and Graphx when their pictures are saved as TI Artist format!).

>JEUX 1. 12 games: Airport Controller, Alien Destroyer, Awari (random seed start), Billard (eg not-quite Billiards!), Bulldozer (Attaque sur la ville), Camelot, Carcasses (Sam Moore modification), Checkers II, Envahiss, Fernando Bricolo (superb!!!), Galaxie, and a tidied-up Going Home written in Hong Kong!

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This is one case where early experience with TI Logo would have helped, as that would rapidly have taught the perils of iteration (that is the technical name for going around in circles!). TI Logo actually counts the "level"s as you go down.