

Happy 99 from T.I. User Group U.K.

TI * MIES

ISSUE 63

Happy New
Year

99

WINTER 98/99

Richard
Tyrone

YA

TIUG
AGM '99
10/4/99

Committee Members

Position	Name	Address	Telephone
Chairman and Sysop of group BBS	Trevor Stevens	249 Southwell Road East. Rainworth. Notts. NG21 0BN	☎01623 406133 FAX:01623 406134 BBS☎01623 406135
Vice Chairman	Mark Wills	41 Broxtons wood, Westbury . Near Shrewsbury. Shropshire. SY5 9QR	☎01743 885049
General Secretary & TI*MES Editor	Richard Twynning	24 Peel Road. Mansfield, Notts. NG19 6HB	☎/☎FAX 01623 453934 ☎Mobile: 0467 445658 ☎FAX:0467 449009
Interim Newsletter production, web page design, disk library custodian.	Richard Speed	213 Comptons Lane. Horsham, West Sussex. RH13 6BZ	☎01403 242853
Also web Page De- sign	Ian Pare	10 Sotheby Avenue, Sutton-In-Ashfield, Notts. NG17 5JX	☎01623 552549 ☎FAX: 01623 452729
Treasurer and group membership	Alan Rutherford	13 The Circuit, Wilmslow. Cheshire. SK9 6DA	☎01625 524642
Module and Cas- sette Librarian	Francesco L. Lama	14 Granville Court, Cheney Lane. Ox- ford OX3 0HE	☎01865 721 582
Hardware and TI*MES publica- tion	Ross & Christine Bennett	20 Oak Avenue, Romiley. Stockport.	☎0161 4307298

CONTENTS



- 2 Committee Members
- 4 Trevor Stevens writes
- 7 Stephen Shaw writes
- 9 About CECURE by Tim Tesch
- 10 Richard Twyning writes
- 14 Some TREFF photographs
- 18 Invitation to the AGM 1999
- 20 Notes on the first UK Treff
- 21 V9938 Graphics Modes by Alan Bray
- 32 Advance notice of meeting in Ohio
- 34 emails from Stephen Shaw
- 35 Real Powers in c99 by Francesco Lama

DISCLAIMER

The views expressed in this magazine are those of the individual authors, and not necessarily those of the editor or the group.

Members on the Internet

Alan Bray	alan@	o.uk
Francesco L. Lama	musta:	k
Ian Pare	ian@ii	.uk
Alan Rutherford	abr@r	.co.uk
Gary Smith	gary.s'	uk
Mark Wills	markv	e.com
Richard Speed	richar	
Stephen Shaw	stephe	st.com
Trevor Stevens	steven	com
Richard Twyning	007@	co.uk



2023 scanning note: This issue had many really poor quality photographs scattered about, some with no explanation. Inclusion of them all here would have resulted in a VERY large PDF file and added little.

The best images have been enhanced as far as possible and placed together on one or two pages.

For the rest you will see white holes in the text not all of which are rectangular.

Colour photographs did not photocopy well unless properly "screened" to dots.

FROM THE CHAIRMAN'S ~~CHAIR~~ CHURN!

Christmas 98

Sorry gang about not writing to you all for the last few issues but life for me has been in the fast lane. Apart from work I had many other projects on to many to mention including the TREF at Nottingham.

Things at the Nottingham TREF went like clock work with many people around the world coming and going over the weekend. To say the TREF was a success was an understatement. Christine Bennett bless her socks was a real brick, and without her help we would have been a bit stretched. She helped with the taking of the door fees, and arranging the meals which was all top notch food. However the service sometimes was a bit slow from the hotel staff, but all in all we chosen a fairly good venue. Christine also did all the

accounting for the day and if you look in the mag you will see what went in and what went out. However in short we had 39 fee paying visitors. With all the extras and sales the group took in £317.00 However there were some out goings, such as the purchase of three RGB Monitors (Now for sale), and the venue fee, but all in all we have drawn evens. We even had some new members join at the show.

I had my system up and running and did some demos of Sound FX , V9T9, Gif Mania and loads of other stuff including transfer of files from TI to PC and back. I also obtained a very neat program call PC transfer which is written in TI Basic which allows you to control the TI from a PC via a null modem cable. However this version uses the TI controller and is not limited to the MYARC or CORCOMP controller as I believe the first one was. I also sold a CD which contains a lot of TI Stuff including all my disk collection in PC99 Format. (Available from me at £14.00 plus £1.00 p&p)

While talking about PC99 I bought the latest copy of the program (V.5.0 980601) which was demonstrated at the show. The demo was brilliant and showed what PC99 really could do. I think it is better than V9T9 as it emulates everything except speech without fault. In the latest version you get a AMS card, a Myarc 512K card, PC 99 card, Data-Bio-tics bank switching, Myarc EXB, P code card not to mention a load of other goodies.

So I thought it would be really worth the money, as I love playing with the TI.

There was also a talk about the SCSI card and its numerous updates and board revisions that have taken place. Michael Becker who has done a lot of the hard work did the talk and explained that the card is now fully working in all it forms, however further work is still required on certain aspects of the use of the card. I know the card works as I saw it taking data off ZIP drives at really fast speeds for the TI.

Richard Speed has now compiled our WEB site so we will be on the NET very shortly. This will be tied into all the other TI web sites of user groups. Details of this will be coming out in Richard Speeds Newsletter shortly with all the Net links. For those with TI machines it is possible to get on the net with a TI so we are making the web site mainly text as the American ones do.

Read in about this in an article to be printed soon about getting onto the net with your trusty TI!!!!

Richard Speed also now has the Group Disk Library ^{so that all those rare and} delicate programs can all be saved onto a CDROM for the group to have access to without the data being at risk. Details of the CD to follow in the New year as it progresses.

2023 note: Stephen Shaw did not resign as disk librarian nor was he removed from position at an AGM. He simply had the disks taken. Within a month they had been placed on a hard disk causing damage to the data and the perfect TI disks were destroyed. No CD Rom was seen for 20 years and then it had damaged disk images.

The TREF ended on the Sunday with a smaller bash on the keys until about 2pm. A meeting was then held and the next TREF was set for STUTGARTT in Germany. As of this time no date or venue has been sorted but the time area will be around September 1999.

So to sum up everyone appeared to enjoy them selves and felt that it was the best TI event we had, had for a very long time. So all those that missed it, you really did miss something!!!!

I would as Chairman like to say thank you to all that came to the TREF (Which means Meeting), and another thank you for all those that put so much into the show by bringing there kit from far and wide. I found it most enjoyable meeting friends from the TI community, though some express their views and some take offense, in general we are a very happy crowd.

I am this time also in the process of sorting out the AGM for 1999. This will be held in our normal venue at DERBY which of course is the St. Johns Ambulance Center, Trinity Road, Derby. The date for the event will a little earlier than last year. I will be looking at April 10th 1999 which is a Saturday. However this is still to be confirmed with the people at the center. I will if possible do a stop press if the date is fully confirmed. If the date is full it will have to be Saturday May 8th 1999 but I favor as do others the April date.

I would like some more feed back for our annual workshop. Do you have a place that we could come to which is near to you? I ask this as all the meetings are centralized however the workshop could be anywhere in the UK. So send me a note, or EMAIL me on stevenstrevor@hotmail.com

I will be continuing with my E/A programming next quarter if things work out,

so in the mean time I hope you all have a very nice Christmas and a Happy New Year. While off for the holiday give the BBS, on 01623-40-1111 a ring and

WARNING!
Please note that all of Trevor's
numbers are about to change!
Phone: 01623 40-1111
FAX: 01623 40-1111
THE NEW BBS NUMBER WILL BE 01623 40-1111

RAMBLES By Stephen Shaw

Sorry the text is both short and late - my father just died and you know how it is.... hope to be more with it by September, and -provided we get FULL details of how to get to the Nottingham hotel by public transport. I hope to make the TREF for one day.

One item of note this time round - how long since I did a book review?

THE GREAT LOGO ADVENTURE by Jim Muller, published by DOONE PUBLICATIONS America, 1997 ISBN 0-9651934-6-2. Paperback. 348 pages plus CD Rom. US\$24.95
(I bought my copy via the Internet from amazon.com)
Books with CD roms are subject to VAT in the UK.

Quote from Page V:

Jim Muller began working with Logo in 1979 while public relations manager for Texas Instruments Incorporated. After introducing TI Logo, the first commercial Logo package, in April of 1981, Muller went on to organise the first Logo users group. What started as eight junior high students exploring TI Logo around a ping pong table in the Muller garage grew into the Young Peoples' Logo Association Inc.

[The Group disk library has several Logo disks for the TI from the YLPA].

And Jim is STILL with Logo!

The CD Rom with the book is for the PC and Mac, and includes several versions of Logo- UCB Logo for the Mac; for DOS; for Dos with extended memory; and for W95 or NT. MSW Logo for the PC with Windows: For W95 or NT; for W3 plus W32s; for W3; For W95 in 16 bit mode(!); For W3 on an XT
All free. And all the procedures in the book and lots lots more.

What is UCB Logo- by Brian Harvey- only one Turtle, no music or multimedia.
What is MSW Logo- the above plus work by George Mills, with music and multimedia and multiple turtles. Supports Windows MCI calls- yes you can write a Logo procedure to play your audio CD!

This is FREEware, not shareware! Start from wherever you are in Logo- from the earliest procedures possible if need be. And then move on to wherever you want to go!

Windows programming made easy. Ernestine the turtle will automatically run a procedure or set of instructions placed in the STARTUP variable. Each part of MSWLogo is in its own window. To minimize the window with the input box, the procedure is easy: ICON "COMMANDER and the opposite, when you want to input again is UNICON "COMMANDER. And within your Logo procedure you can use any TTF font on your system using the SETTEXTFONT command. And Logo makes it easy to print at any angle!

Move quickly from programming the TI to programming for Windows!

The W32S version of MSWLogo seems to want some version of W32S that I dont have- or at least something extra, as it really doesnt work on my PC.

The CD has document files in PDF format- that is, Acrobat format, and to read them the CD also has the FREE Acrobat Reader program, both "installed" (on the CD) and installable if you want it on your hard drive. Note that CaDD sell the TI module manuals in PDF format!

This book is fairly introductory, ideal for any Logo beginner - or anyone wanting to move from TI Logo to MSW Logo! The MCI access for example has only a brief passing mention! The extra files on the CD then take you off into the wild blue yonder...

There is a brief corrigenda on the authors web site for the first edition of this book.

I have not yet tried the W95 version on a W98 PC just yet but I doubt if there is going to be much problem- check the web site for an update.

Enjoy.

stephen
shaw

A Warning about CECURE by Tim Tesch

Date: 23/10/1998 1:19:16 am
From: ttesch@juno.com (Tim Tesch)
To: ti99@TheRiver.com;
Subject: TI99: CECURE. TI Repair Work. & Myarc Upgrades

A number of weeks ago I asked people to contact me if there was anything outstanding that I owed them, be it software or hardware. Please, contact me ASAP, if you have not done so already, so I can plan accordingly. I would like to do some more programming but want to be certain all possible obligations have been met.

Secondly, it has come to my attention through a number of people that CECURE ELECTRONICS continues to accept money while not providing merchandise. I cannot verify these statements, but only look at the proof sent to me. Based upon CECURE'S past track record, it is very likely this is an ongoing problem.

With this in mind, I must warn you that sending MONEY (credit card, money order, check) to Cecure Electronics PRIOR to receiving your goods is probably a BAD IDEA.

I am NOT employed by Cecure Electronics. Many moons ago I did work for Cecure, but no longer. The Myarc work I am completing is being done to help Don but even more to help all of you. How long will I continue? That remains to be seen. My parts-reserves are so-so, and I can do most upgrades. PFM chips are hard to get ahold of, as are things like Geneve/HFDC PALS. If I can fix or upgrade it, I will. If not, you'll get it back unless you donate it for parts.

Myarc work, as I've said in the past and will say again, should be sent directly to my home address. I have been known to fix the occasional RAMdisk, but those are best left to Bud Mills. TI cards - sorry, beyond buffer chips and regulators, there's not much I can or will do.

Continue to contact me via Email (ttesch@juno.com) or Snail Mail:
1856 Dixie Road
Port Washington, WI 53074
USA

Tim

- * Tim Tesch, S&T Software
- * ttesch@juno.com
- * DISCONTINUE--> ttesch_myarc@juno.com <-- DISCONTINUE

Richard Twyning writes...

Dear Tl'er,

Well, great thanks go to the few UK members that put in an appearance at the Tref. We did gain two new members at the Tref, but the majority of our 50 something members remained absent from the event. David Caine and Alan Rutherford both gave apologies for their absence, but I was disappointed at the absence of Mark Wills, who at the time of writing this (17th October 1998 - 21:51) I have still not heard from. How's it going Mark?

I had looked forward to getting the whole gang back together and talking about old times and new times, and drinking the night away on Saturday night after the dinner, but not everybody stayed over on Saturday night.

On the Friday night

. Berry Harmsen, Gerhard Eichberger, Mike Wright, Ross & Christine, and possibly a couple of other people were already there. Berry Harmsen recognized me straight away and waved through the window at us.

Ross & Christine had already opened the room and moved all their equipment in. I didn't move my stuff in until I had help from Oliver Arnold when he arrived and asked if there was a spare box he could use. Trevor arrived quite late, and I think by that time John Murphy and his wife had arrived.

Ian arrived with Kirsty Brogden's equipment and after getting that into the room we spent most of the rest of the evening in the bar. We did have a dinner on Friday night, and I briefly got my suit on, but changed again because it was just too hot in the hotel. I saw Francesco and his fiancée and Michael

Becker turn up. and they went out for food after checking in.

We had the right idea on Saturday morning and got down for breakfast very early. I was the first one in the restaurant! I had a message from Richard Speed when I went past reception saying that he was lost. I tried calling him back on his mobile, but got his answering service. He made it to the hotel OK though, because I saw him walk by the restaurant window when I was waiting for my breakfast to turn up.

Ian turned up to the hotel quite early and helped me set things up, after regaining the use of our table which had been commandeered, which stressed me a little bit!

We didn't follow the agenda that I'd done 100%, but we did manage to fit most things in, in a similar order. Trevor did his BBS demo and Oliver Arnold did a demo of multi-disk-commander, which is a disk manager that will work even if you have a floppy only system, but the way it's written means it will work without a problem with the SCSI card.

The highlight of Saturday was Mike Wright's PC99 demo

I was very impressed that most people made a good effort to dress for dinner. Richard Speed was excused because he only wears a suit when meeting clients, and we weren't clients!! I just hope we get a similar chance to make a special occasion of the dinner at Tref '99 in Stuttgart.

After dinner and before desert Trevor gave a speech to thank everyone for turning up to the Tref.

Well, I didn't have much of a good start on Sunday because of getting up late. The dining room was in absolute chaos!

The day did improve as it went on, but the turnout wasn't as good as the Saturday. It was a very poor show from UK members really, and I don't think we had any new visitors at all on Sunday, just the people who had stayed overnight in Nottingham.

Michael Becker's demo was very good, and I did make some notes at the time, but I can't make much sense of a lot of them now! I should have taken my microcassette recorder that I use to do the minutes of the AGM!

Here's some highlights of what he was saying...

The reason he started producing a SCSI card was because the German users had ordered a lot of cards from America, but they never appeared, so he felt (quite rightly) that he should go ahead and make some himself without being obliged to pay any royalties to America.

Eventually to allow him to make more boards Michael ended up having to pay a lot of royalty fees, but he also helped out with correcting a lot of the problems that are present on the American cards. He made a list of instructions so that cards could be modified in America, but they completely misinterpreted the instructions, and I think that this

2023

Large blank spaces like this mark the removal of rather poor reproductions of photographs, mostly very dark and lacking detail- the only shade of gray reproduced was black. A selection of TREF photographs has been enhanced as much as possible and appears on a special page elsewhere in this issue. To have included all the dark grainy images would have resulted in a PDF file ten times larger....

was the revision F board. After the Americans misinterpreted their instructions, they were left with 100 boards that didn't work at all. My board is a revision E board, and there is also a revision G board, and Michael has had the job of modifying all three boards to have the same capabilities, and also the capabilities of his own design of card.

Michael's card is by far the best design, because instead of using an EPROM for the DSR, he uses a FLASH ROM, which is an electrically erasable ROM. The extra circuits and software are in place to allow this chip to be programmed directly from the TI whilst it is in the box. A new DSR can be downloaded once it is available and instantly uploaded into the card via special software.

When modifying and correcting the cards, Michael has designed a small daughterboard that fits into the SCSI card by plugging into a couple of chip sockets. The difficulty is that when the Americans produced their new boards, they have slightly moved the positions of these chip sockets, which means that Michael's board won't fit on all the cards, so he's had to design a different daughterboard for each revision of card! He's well on the way to having the problem sorted out now though.

I must thank Christine Bennett for sorting out the food on Sunday lunchtime. The Chicken Tikka Massala etc. that the hotel provided as a buffet was excellent. and I think it only cost us about £6 a head.

I remember in the afternoon we spent some time looking at a couple of dmeo's on Trevor's PC and I went through a few Sound FX and GIF Mania demo's.

Ian's wife was unwell on the Sunday, so Ian couldn't make it, but he phoned me to send his apologies. We had more or less just sat down in the bar to hold the discussion to officially close the Tref.

The discussion was good, and we were praised for our choice of hotel for the event, and I must say that I am pleased with the way the Tref turned out.

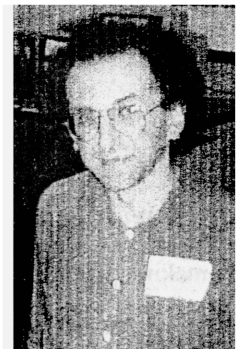
PHOTOGRAPHS FROM THE TREF :



Stephen Shaw and Mike Wright



Michael Becker



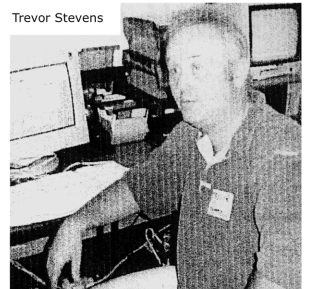
Francesco L Lama



Stephen Shaw ??? Mike Wright



Richard Speed,
Stephen Shaw,
Mike Wright



Trevor Stevens

MORE PHOTOGRAPHS FROM THE TREF



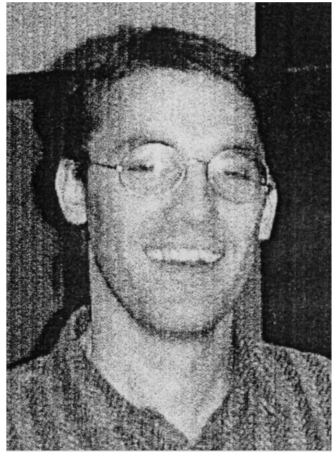
John Murphy



Ross Bennett



Christine Bennett



Oliver Arnold



Richard Speed

Richard Twynning

Trevor Stevens

Yep! You guessed it! Next year's Tref will be held in Stuttgart!

STUTTGART

It's Wolfgang Bertsch who I think is going to be responsible for organizing it. Hopefully it will be held at a hotel again.

For the 12th Tref, held in Utrecht in October 1997, the only reason it was held in an hotel was because their regular venue was unavailable, but we continued the new trend by organizing ours at the Beeches!

I think there are already a lot of us that are planning to attend, and I think Gary Smith is also interested in going over there. I think we can say that the TI-99/4A has finally come of age, and next year is a good year to celebrate it. Tref '99!!!

I've looked up Stuttgart on the internet, and if there's room, I'll include some information.

Well, I'm not going to write too much more, as I do have quite a lot of other stuff to include in the mag, but there are some things I've got to announce.

Francesco Lama made a very good offer to hire a van and go out of his way to fetch some monitors for use during the Tref. He was reimbursed by the group for all of his costs, and the price of the monitors, but he is now left to store the monitors, and they are taking up space at his place.

They are for sale, and the money for them will return to the group. If you are interested, please contact Francesco. His details are included in the Committee Members section of the mag, on the inside of the front cover.

The monitors are...

A Commodore 1084S for £90

And, an original Phillips CM8833 for £100.

Both monitors are colour and can be used with any 80-column card. They are also of course suitable for Amiga's, Playstations etc. and even as a monitor for a video recorder (effectively to have a very good picture out of your video). All the info about connectors and pin-outs is available.

As I said, please contact Francesco.

Also, here is a request from Ashley Tilling...

WANTED

Richard,

*A re-kindling of an interest in using my TI, fuelled by a thorough look through Francesco's module library at the TREF, has been brought about by wanting to build up a collection of modules for my six-year old son to use. To further this, I wonder if you could include the following note in TI*MES:*

WANTED - So that I can pass on the joys of using a well-constructed, well-designed home computer to the next generation (my six-year old son), I wonder if anyone would consider parting with the following educational modules (terms to be discussed) which are no longer available in the module library:

Addition and Subtraction 2

Alien Addition

Alligator Mix

Early Learning Fun

Integers

Number Magic

Numeration 2

Please contact me on e-mail: ashles@clara.net

telephone 01780 752320 or write to me at 19 Priory Gardens, Stamford, Lincs. PE9 2EG

Thanks,

Ashley Tilling

Well, there's not much more I want to say. I'll be immediately making a start on my Spring Article.

There's not much chance of a rest though!

Add the following date to your diary...

T.I. User Group U.K. Annual General Meeting.

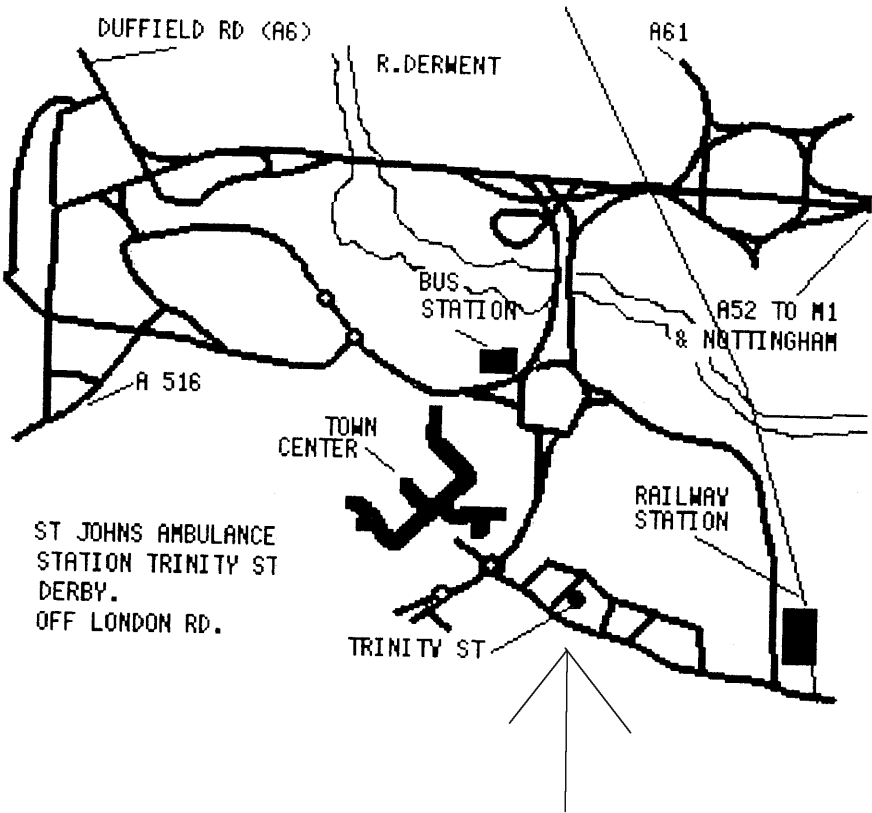
Saturday the 10th of April 1999.

The AGM will take place at the usual venue.

The St. John's Ambulance Hall, Trinity Street, Derby.

Be there, or be SQUARE!!!!

The standard map to the AGM.



From: Richard Twynning <007@r-twynning.demon.co.uk>
To: "TI List Server" <ti99@TheRiver.com>;
Subject: TI99: The 13th International TI-Tref

Dear All,

I think this will be the first post-Tref e-mail on the subject. I was going to write it last night, but I got home and had finished unpacking the car at 6:35pm, just in time for Star Trek Voyager. I don't remember much about Voyager, so was probably drifting in and out of consciousness throughout the program! I was exhausted!

It really was an amazing Tref and our user group managed to easily cover the cost of the conference room. We had dinner on both Friday and Saturday night, and our foreign visitors were rather amused when I went to get ready for dinner and came down in my black suit and bow tie!

I really enjoyed the atmosphere and there were some excellent demos, the highlights being from Mike Wright on Saturday, and Michael Becker on Sunday.

I spent most of the day on Saturday talking with members, including Gary Smith who I had not seen in two years.

I was pleased on Saturday morning when Richard Speed would have completely ignored me if I'd not said hello. I'm a changed person thanks to my diet and lost two stones this year.

Everyone seemed to enjoy the show and we had thanks for organizing the meeting and our choice of hotel at the post Tref meeting which began at around 3:15pm Sunday afternoon.

It was a relief that it all went smoothly, and at the meeting it was announced that next year the meeting will be in Stuttgart, Germany. Several of us are already making plans to go to the event and I'm already saving up for it!!!

All for now from
Richard Twynning

The Graphics Modes of the V9938

by
Alan Bray

When I first got my 80 column card, all I had with it were a few demos that that really didn't do very much, apart from look pretty. There were (and are) some very good things like FWEB and 80 col Multiplan but very little to show off what the chip was capable of. I tried XHI , a very good program, but, being BASIC was very slow. So I decided to learn to use Assembler and hopefully use the chip at full speed.

These tutorials are aimed at the beginner programmer who has at least some assembler knowledge. (If you read Trevors' assembly articles in Ti*mes, then these will be easy).

To set up the various modes there are four 'mode' registers:-

R0 | 0 | DG | IE2 | IE1 | M5 | M4 | M3 | 0 |

R1 | 0 | BL | IE0 | M1 | M2 | 0 | SI | MAG |

- R8 | MS | LP | TP | CB | VR | 0 | SPD | BW |
- R9 | LN | 0 | S1 | S0 | IL | E0 | NT | DC |
- R0 DG - Set colour bus to input and input data to VRAM
 IE2 - Enable interrupt from lightpen (Interrupt Enable 2)
 IE1 - Enable interrupt from horizontal scanning line
 M5 - Display mode bit
 M4 - Display mode bit
 M3 - Display mode bit
- R1 BL - 1=screen enable. 0=screen disabled
 IE0 - Enable interrupt from horizontal scanning line by IE0
 M1 - Display mode bit
 M2 - Display mode bit
 SI - 1=16x16 Sprites. 0=8x8 Sprites
 MAG - 1= magnified Sprites. 0=unmagnified Sprites
- R8 MS - 1=set colour bus to input,enable mouse. 0=set colour bus to output, disable mouse
 LP - 1=enable light pen. 0=disable light pen
 TP - set colour of code 0 to the colour of the palette
 CB - 1=set colour bus to input. 0=set colour bus to output
 VR - 1=64k VRAM. 0=16k VRAM
 SPD - 1=disable Sprites. 0= enable Sprites
 BW - 1-set black and white in 32 tones
- R9 LN - 1=212 lines (dots) . 0=192 lines (dots)
 S1 - Set simultaneous mode (not sure on this but think it is external video)
 S0 - Set simultaneous mode
 IL - 1= set interlace
 E0 - 1=Display two graphic screens by even/odd fields.
 0=Display same screen by even/odd fields
 NT - 1=Set PAL mode. 0=Set NTSC mode
 DC - (in the manual this says:- 1=set DLCLK to input :
 0=set DLCLK to output. Some of the pages in my manual are missing, so I cant find out what DLCLK means).
 These are the registers you will use to change the graphics modes, enable screen, sprites, PAL, interlace e.t.c. Here are the mode bits needed to be

set for graphics 4 - 7 :-

G4 R0 xxxx011x binary
G5 R0 xxxx100x

G6 R0 xxxx101x

G7 R0 .xxxx111x

It will also be useful to have a list of all the control registers, and what they do, before getting into the programming:-

- R0 - MODE REG. #0
- R1 - MODE REG. #1
- R2 - PATTERN NAME TABLE
- R3 - COLOUR TABLE (LOW)
- R4 - PATTERN GENERATOR TABLE
- R5 - SPRITE ATTRIBUTE TABLE (LOW)
- R6 - SPRITE PATTERN GENERATOR TABLE
- R7 - BORDER COLOUR (AND CHAR COLOURS IN TEXT MODE)
- R8 - MODE REG. #2
- R9 - MODE REG. #3
- R10 - COLOUR TABLE (HIGH)
- R11 - SPRITE ATTRIBUTE TABLE (HIGH)
- R12 - TEXT CHAR BLINK TABLE
- R13 - BLINKING PERIOD
- R14 - VRAM ACCESS ADDRESS (HIGH)
- R15 - STATUS REGISTER POINTER (INDIRECT) These are *real fun!*
- R16 - PALETTE REGISTER POINTER (INDIRECT)
- R17 - REGISTER POINTER (INDIRECT). You can fill a whole list of consecutive registers here.
- R18 - DISPLAY ADJUST REGISTER. Set position of display on the screen.
- R19 - SCANNING LINE INTERRUPT. You can specify interrupts at the start of any line
- R20 - COLOUR BURST SIGNAL 1
- R21 - COLOUR BURST SIGNAL 2
- R22 - COLOUR BURST SIGNAL 3
- R23 - SCROLL SCREEN. Sets the location of the line to begin display.
- THERE ARE NO REGISTERS 24 - 31
- R32 - SX : X-CO-ORD TO TRANSFER (LOW)

- R33 - SX : X-CO-ORD TO TRANSFER (HIGH)
- R34 - SY : Y-CO-ORD TO TRANSFER (LOW)
- R35 - SY : Y-CO-ORD TO TRANSFER (HIGH)
- R36 - DX : X-CO-ORD TO TRANSFER TO (LOW)
- R37 - DX : X-CO-ORD TO TRANSFER TO (HIGH)
- R38 - DY : Y-CO-ORD TO TRANSFER TO (LOW)
- R39 - DY : Y-CO-ORD TO TRANSFER TO (HIGH)
- R40 - NX : NUMBER OF DOTS TO TRANSFER X-DIR (LOW)
- R41 - NX : NUMBER OF DOTS TO TRANSFER X-DIR (HIGH)
- R42 - NY : NUMBER OF DOTS TO TRANSFER Y-DIR (LOW)
- R43 - NY : NUMBER OF DOTS TO TRANSFER Y-DIR (HIGH)
- R44 - CLR : TRANSFER DATA (COLOUR) TO THE CPU
- R45 - ARG : ARGUMENT REGISTER AND BANK SWITCHING
- R46 - CMR : COMMAND REGISTER - EXECUTE VDP COMMAND

So now, armed with this information, lets set up graphics mode G4 .

REF KSCAN
DEF START

*

PORT0 EQU >8C00 read and write to/from VRAM

PORT1 EQU >8C02 read status/write to control register

PORT2 EQU >8C04 write to palette register

PORT3 EQU >8C06 write indirectly to register

WS BSS >20 our workspace

VDPSTA EQU >8802

VDPRD EQU >8800

STATUS EQU >837C

VIDWS BSS >20

ANYKEY BYTE 32

BSS 6

BANKAD BYTE 0

* we'll add to these as we go along.

***** *

START LWPI WS point to our workspace

LI R2,G4 get the G4 register set


```

MOV B @G4R1+1. @>83D4 store copy of R1 at >83D4
LP1 MOV *R2+.R0 put the address of g4 into R0 and increment
R2
JLT LP2 if less than (>ffff or -1) then jump out of
loop
BLWP @VWTR if we are still in the loop then vwtr
JMP LP1 if we haven't reached >ffff then get next
value
LP2 BL @CLEAR we have all the values so go to the clear
screen routine

```


```

CLEAR LI R0,>0E00 reg.14 (vram access), is auto-incremented,
so we need to reset it when we
*

```

access the screen.

```

BLWP @VWTR
LI R0,>0004
MOV B R0,@PORT1
SWPB R0
MOV B R0,@PORT1
LI R2,212*128 number of lines + bytes per line : there
are two dots per byte in G4
CLR R0

```

```

CLEAR1 MOV B R0,@PORT0 write '0' to vram
DEC R2 r2 has the number of dots per screen
JNE CLEAR1 not filled screen? Then stay in loop
RT screen filled with '0' so return to call-
ing routine

```


```

G4 DATA >0006 set >6 (g4) in reg 0
G4R1 DATA >0160 reg 1. Enable screen=64 + enable interrupts=32. (
64+32=96 =>60 )
DATA >021F reg 2 pattern name table base address (page 0)
DATA >0711 reg 7 black background
DATA >0808 reg 8 enable sprites (we will be using them later,
or disable with >0A)
DATA >05D7 reg 5 sprite attribute base address ( the value in
this reg. is times (*) >2)
DATA >0B03 sprite attribut table (high)

```

DATA >060E sprite generator table
 DATA >0982 set 212 lines and set the PAL bit
 DATA >FFFF flag to signal end of loop (>FFFF= -1 so JLT
 jumps at end of loop because -1 is less than 0)

- * Notice that you can see the screen actually clear. I've left it like this so that you will know that it worked.
- * You would not normally want this effect, so, look at register 1. The 'BL' bit controls the on/off state of the screen. Its now up to you!
- * You are also going to need a new set of video routines (VSBW, VMBR, e.t.c.), as the old ones wont be able to access the larger vram of the v9938. These were the ones written by Alexander Hulpke and are used in his program 'XHI'.

* Video Routines for v9938

VSBW DATA VIDWS,VSBW1
 VMBW DATA VIDWS,VMBW1
 VSBR DATA VIDWS,VSBR1
 VMBR DATA VIDWS,VMBR1
 VWTR DATA VIDWS,VWTR1

*

VSBW1 BL @VIDW
 MOVB R1,@PORT0 write the byte
 RTWP

*

VMBW1 BL @VIDW
 VMWL MOVB *R1+,@PORT0 write the bytes
 DEC R2 this is where the number of bytes
 are in a vmbw
 JNE VMWL not got all the bytes? Then stay in
 loop
 RTWP

*

VSBR1 BL @VIDR

MOV B @VDP RD,@2(R13) if you need help with
 this type of instruction, let me know and
 * I'll add explanations in
 a later article.

RTWP

*

VMBR1 BL @VIDR
 VMRL MOV B @VDP RD,*R1+ put the bytes at the ad-
 dress just read in r1 and increment

DEC R2
 JNE VMRL
 RTWP

*

VIDW LI R2,>4000 specify vdp-write
 JMP VID

VIDR CLR R2
 VID MOV *R13,R0
 MOV R0,R1
 ANDI R1,>3FFF mask the unwanted bits

SRL R0,6
 ANDI R0,>0300
 AB @BANKAD,R0
 MOV B R0,@PORT1
 LI R0,>8E00
 MOV B R0,@PORT1
 SOC R2,R1
 MOV B @VIDWS+3,@PORT1 write the vdp address
 MOV B R1,@PORT1
 MOV @2(R13),R1
 MOV @4(R13),R2 to r1 and r2
 RT

*

VWTRI MOV *R13,R0
 MOV B @1(R13),@PORT1
 ORI R0,>8000
 MOV B R0,@PORT1
 RTWP

* end of video routines

* Now, of course, you've cleared the screen but have no way of getting out of the program, so here is a bit more so that you don't have to turn your computer on and off every time. Just add a BL @KEY to the end of the above routines.

*

```
KEY    BLWP @KSCAN
        LIM1 2
        LIM1 0
        CB   @ANYKEY,@STATUS
        JNE  KEY
        LWPI >83E0                gpl workspace
        B    @>6A
```

You will now have a messed-up screen as we are still in G4 mode, so in a later article I will have to show you how to set up G1 mode as a return.

And, just for practice, here is how to set up G6:-

```
G6 DATA >000A
G6R1 DATA >0160
      DATA >021F
      DATA >03E0
      DATA >0711
      DATA >0808
      DATA >05F4
      DATA >0B01
      DATA >061E
      DATA >0A07
      DATA >0982
      DATA >FFFF
```

*

You will also have to change a line in the CLEAR routine : LI R2,212*256 :

As it seems rather pointless to just be able to clear the screen, we'll get ourselves a high-speed command to draw a line. Remember that the G4 screen is 256 dots wide and the G6 screen is 512 dots wide, so load your registers accordingly. I found this routine somewhere on the internet, but could not find the author.

Set up registers as follows then call the LINE command.

R0= start dot column

R1= start dot row

R2= end dot column

R3= end dot row

R4= colour of the line

*

LINE DATA LINEWS,LINE1

LINEWS BSS >20

LINE1 MOV R13,R9 get old workspace pointer from R13

MOV *R9+,R1 get start x

MOV *R9+,R2 get start y

MOV *R9+,R3 get end x

MOV *R9+,R4 get end y

MOV *R9+,R5 get colour

*

LI R8,>2D00 get argument register

SWPB R1

LI R0,>0024 reg. 36

MOVB R1,R0 get start x low

SWPB R0 now R0 contains >24xx

BLWP @VWTR write it

SWPB R1

LI R0,>0025 reg. 37

MOVB R1,R0

SWPB R0 get start x high

BLWP @VWTR write it

SWPB R2

LI R0,>0026 reg. 38

MOVB R2,R0 get y low

SWPB R0

BLWP @VWTR write it

SWPB R2

```

LI      R0,>0027  reg. 39
MOVB   R2,R0
SWPB   R0
BLWP   @VWTR
MOV    R3,R6
MOV    R4,R7
S      R1,R6    get horizontal distance
ABS    R6      make it a positive number
JGT    DIXRT
ORI    R8,>0004  dix=1 left
DIXRT  S      R2,R7  get vertical distance
      ABS    R7      make it positive
      JGT    DIYDN
DIYDN  C      R8,>0008  diy =1 up
      C      R6,R7  compare to find the longest distance
      JGT    LSHORZ
      ORI    R8,>0001  maj dir = y axis
      MOV    R6,R9  exchange registers
      MOV    R7,R6  y is the major distance
      MOV    R9,R7  x is the minor distance
LSHORZ SWPB   R6
      LI    R0,>0028  reg. 40 major distance low
      MOVB  R6,R0
      SWPB  R0
      BLWP  @VWTR
      SWPB  R6
      LI    R0,>0029  reg. 41 major distance high
      MOVB  R6,R0
      SWPB  R0
      BLWP  @VWTR
      SWPB  R7
      LI    R0,>002A  reg. 42 minor distance low
      MOVB  R7,R0
      SWPB  R0
      BLWP  @VWTR
      SWPB  R7
      LI    R0,>002B  reg. 43 minor distance high
      MOVB  R7,R0
      SWPB  R0
      BLWP  @VWTR

```

```

        SWPB    R5
        LI     R0,>002C    reg. 44 colour register
        MOVB   R5,R0
        SWPB   R0
        BLWP   @VWTR
        MOV    R8,R0      put argument reg. in R0
        BLWP   @VWTR
        LI     R0,>2E70    load reg. 46 with the line command
        BLWP   @VWTR
        LI     R0,>0F02    read status reg. #2
        BLWP   @VWTR
        CLR    R0
LINEST  MOVB   @VDPSTA,R0
        ANDI   R0,>0100    check the CE bit of s#2
        JNE    LINEST     if not zero then command not fin-
ished
        LI     R0,>0F00    get the TI status reg.
        BLWP   @VWTR
        RTWP

```

*

So, with this command, we can start to put graphics on the screen. To draw a border around the screen in G4 mode, we could write :-

```

LI R0,>0002 start column
LI R1,>0002 start row
LI R2,>00FF drawto column
LI R3,>0002 drawto row
LI R4,>0009 colour of the line
BLWP @LINE draw it

```

This draws the first part of the line. To draw the other three sides load the same registers as follows :-

```

>0002,>0003,>0002,>00D2,>0009,BLWP @LINE
>0002,>00D2,>00FF,>00D2,>0009,BLWP @LINE
>00FF,>0002,>00FF,>00D2,>0009,BLWP @VWTR

```

If you want to try this in G6 you will have to change some values.

Next time, we'll look at some more registers and set up the PSET and

AN IMPORTANT ANNOUNCEMENT

ATTENTION *** ALL *** TI-99/4A AND GENEVE 9640 USER
GROUPS, PROGRAMMERS, HARDWARE DEVELOPERS, USERS
AND VENDORS!

THE TI-CHIPS IS PLEASED TO ANNOUNCE THAT WE WILL BE
HOSTING NEXT YEAR'S TI-99/4A AND GENEVE 9640 M.U.G.
CONFERENCE (DUBBED TIMUG99). TIMUG'99

WILL BE HELD ON SATURDAY, MAY 15 AT THE SPANG MAN-
SION ON KOLTHOFF ROAD IN BROOK PARK, OHIO (A SOUTH-
WEST SUBURB OF CLEVELAND). (KOLTHOFF ROAD IS

3/4 MILE SOUTH OF CLEVELAND HOPKINS INTERNATIONAL
AIRPORT, OFF OF STATE ROUTE 237, AND DIRECTLY SOUTH
OF THE I-X CENTER.)

THE INTERIM CONFERENCE SCHEDULE FOR TIMUG99 IS AS FOLLOWS:

WHAT: TI-99/4A AND GENEVE 9640 M.U.G. CONFERENCE (TIMUG99)

WHEN: SATURDAY - MAY 15, 1999

WHERE: SPANG MANSION - BROOK PARK, OHIO

TIME	EVENT
7:00 AM - 9:00 AM	SET-UP TABLES AND DISPLAYS
9:00 AM - 5:00 PM	SEMINARS AND CONFERENCES
5:00 PM - 6:00 PM	CLEAN UP
6:00 PM - 7:00 PM	PIZZA PARTY

(A DELICIOUS AND EXCELLENT ON SITE FOOD SERVICE WILL BE AVAILABLE DURING THE CONFERENCE.)

(A MAY 14, FRIDAY EVENING, PRE-CONFERENCE SITE HAS NOT BEEN DETERMINED.

THEREFORE A TIers GET-TOGETHER HAS NOT BEEN SCHEDULED AT THIS TIME.)

(ANY CHANGES IN CONFERENCE DATE, SITE AND/OR SCHEDULE WILL BE ANNOUNCED WELL IN ADVANCE OF THE CONFERENCE TO ENABLE OUR GUESTS TO MAKE SUITABLE ARRANGEMENTS.)

TIMUG99 WILL BE SET UP MUCH LIKE THE SUCCESSFUL LIMA USER GROUP M.U.G. CONFERENCES.

From: Shaw Family <shaw [REDACTED] [REDACTED] [REDACTED]@bt.com>
To: Richard Twynning <007 [REDACTED] [REDACTED] [REDACTED]@mon.co.uk>;
Subject: The Tref

Quick note of thanks for today. the tref was an absolute delight.

It was good to meet Mike Wright and I now have PC99 to install and configure. (and a real kick to autograph my book to him!)

And to finally meet Malcolm Adams for the first time in 15 years...

Thanks.

Stephen

Date: 10/11/1998 9:23:11 pm
From: shaw [REDACTED] [REDACTED] [REDACTED]@bt.com (Shaw Family)
To: 007@r-tw[REDACTED] [REDACTED] [REDACTED]@mon.co.uk;
Subject: S Shaw TI web page amended

Hello.

This is just to advise you that my website
(<http://www.btinternet.com/~shawweb/stephen>)
has been cleaned up, enlarged, and new for the
TI world is a review
of PC99 level 5 and a disk of programs to download for it!

I'm not going to send out hundreds of unsolicited e mails, but thought you might be interested to take a look this time, for the new material!

thanks

Stephen Shaw

web archive have a copy of the old btinternet web page at:
<http://web.archive.org/web/2006/http://www.btinternet.com/~shawweb/stephen/TI.htm>

March 2023 version is at:
<http://shawweb.myzen.co.uk/stephen/TI.htm>
which has also been archived at:
web.archive.org/web/2023/http://shawweb.myzen.co.uk/stephen/TI.htm

REAL POWERS IN C99

(by Francesco Lama)

Here I am back again to present yet another mathematical function from the collection I have been compiling for the C99functions library.

So far we have introduced integer powers of real numbers by means of the function `pow(base,m,rs)`, which appeared as part of the Natural Logarithm article in issue 61 of TI*MES. This routine is very fast, and I recommend you still use it when the powers you wish to calculate are integers (i.e. whole numbers, not decimal numbers e.g. 1.3425^3 , -5.67^2 , or 112.54^{-32}). However, when the powers are also real (decimal) numbers, as in the case of $23.657^{1.765}$ or $34.653^{-21.654}$, a different method must be used.

We must first of all clarify that, in mathematics, real powers can only be taken of positive real numbers. Non-integer powers of negative real numbers have no meaning in the realm of real numbers. In issue 61 I presented a program which enables one to compute the Natural Logarithm, $\ln(x,l)$, of a real positive number. In issue 62 (the latest one at this stage) I gave a routine to calculate the Exponential Function, $\exp(x,ex)$, and showed an example of how the above two functions can be used in combination in order to calculate a real power of a real number (it is near the beginning of the article). I will repeat the same details here. Let Y be a real number and X a real power, then the following relationships hold for the natural logarithm of Y^X :

$$\ln(Y^X) = X * \ln(Y) \quad \text{and} \quad Y^X = \exp(\ln(Y^X)).$$

Therefore it follows that in order to calculate Y^X it is enough to calculate $\exp(X * \ln(Y))$. This is the very principle we follow in the routine `power(y,x,pw)` given below.

```

/* INSTRUCTIONS */
/* This routine calculates the fp power  $y^x$ , where both y and x are fp. */
/* The result is returned in the fp variable pw. In order to use it one */
/* must ensure that y is positive (if using integer powers use pow()) and */
/* that ln(), exp(), and pow() are also included in the program (use */
/* INSERT command in the editor). If power(a.b.c) is invoked, a must be the */
/* fp base, b the fp exponent, and c the fp variable returning the result */

```

```

power(y,x,pw)
float y[8].x[8].pw[8];

{
char *c;

ln(y,pw);
c=fexp(x,"",pw,y);
exp(y,pw);

return pw;
}

```

As you can see the program is very short. This is because all it does is define the three floating point variables y,x, and pw, and the character pointer c. It then invokes ln(y,pw) to calculate the natural logarithm of y and store it in pw. The next line uses the fp library function fexp() to multiply x by pw and put the result in y. The exponential function exp(y,pw) is then called, and the final result placed in pw and returned to the calling program by the return statement. That is all.

Clearly, besides placing all the usual include statements at the beginning of your main(), and loading all the standard modules(mentioned in connection with the previous programs) when running from Editor Assembler Option 3, this routine will only work if ln(x.1), exp(x.ex), and pow(base.m.res) also form part of the program. They can simply be inserted using the INSERT function of the program editor.