

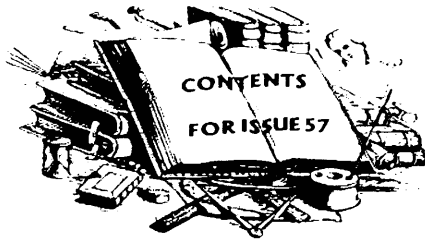
TI*MES

Issue 57 Summer 1997

the magazine of the

Texas Instruments TI-99/4A User Group UK





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Disclaimer

The views expressed in this magazine are those of the individual authors and not necessarily those of the Editor or the Group.

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Editorial



Most of you will probably recognise the cover of this issue of TI*MES as 'Buck Rogers' from Sega. We thought it to be appropriate at this time, due to the fact that we only have 2 more summers left this Millennium.

This will mean that we should all be proud of our-selves. We've helped to keep our dear old TI-99/4A alive in the UK and take it not only into a new Century but a new Millennium. Something Texas Instruments gave up on in the early 80's.

However, over the past years, it has been apparent that the number of members in the group has slowly decreased. I think this is the time for this trend to stop. We need to gear the group in such a way so that we can find and attract new members. With all of the 99/4A's sold in the UK, there has to be more people out there, waiting to be found. I'm certainly a prime example of this, having only found the group in August of 1996. We need to show potential new members that there is added value and benefit in joining the group.

At the AGM this was outlined by the executive as a problem, certain members who attended put forward some good ideas, but we need to make sure these are implemented !

With the 'Retro' scene featuring more frequently in the computing press of today, and people starting to collect these great old machines, we need to be in a position to capitalise on this. It would be nice to see the membership once again growing as we step forward into the 21st Century.

As some of you know, I attended this years AGM at Derby, and it was good to finally meet all of the other people that attended. I had been looking forward to this 99/4A event for months, because it was the first time for over 10 years that I was going to see as much 99/4A equipment and software. I wasn't disappointed, and the memories of the early 99/4A days came flooding back.

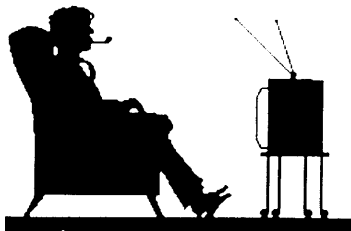
One thing I was disappointed with was the turn out of group members, I certainly thought there would be more people attending. It would be nice to

find out why more people didn't come. Was it because you just didn't want to ? Was it because it was too far to travel ? Or was it down to lack of advance notice ? Let us know !

There are full reports on the AGM in this issue of TI*MES, together with some photographs of the event.

One final item..... We NEED your input to TI*MES !!!! Currently it seems to be the same five or six people contributing to TI*MES each issue, now I'm sure a lot of you out there have something to say, so say it in TI*MES.

Ian Pare



FROM THE CHAIRMAN'S CHAIR

By T.STEVENS

Well the AGM was again a success where we managed to show off various items that people had brought along. Many tips, stories and jokes were swapped and told. The BBS was present and shown off and used by people at the show. The BBS was however not down as the emergency BBS was being run on the family AMIGA via a PC EMULATOR. This however will be useful in case of a failure of the main BBS computer, or when I am updating files or hardware. The attendance was quite high at about 25. In all we had a good day.

Richard TWYNING the Secretary will of course be putting in the minutes to the AGM but in short there are no real changes. However Advertising was discussed. John MURPHY kindly offered to do some ads in various Computer Journals and magazines. So we wait and see. Also that was discussed was the date at which subs should be paid. It was agreed that all members would pay subs on one date which was agreed as being the 1st June of every year so that things do not get confused. Those who have paid dues in the middle of the last year will only pay the difference. So say you paid your dues in say DECEMBER 1996 then you would only pay half the normal fee to bring you into the new date.

At the AGM I had written an open session 640meg CD which now has tons of TI programs on it. This is now on line and you can access this from the BBS. I have now got a lot more GIFS on the BBS some are of the group meetings from the LIMA GROUP and show some faces you only heard of in the magazines. Also there is a naughty area. This however is open to you if you want it. If not you will only be able to list the files. If you want this access leave me SYSOP a message on the BBS. I do intend very shortly to be putting a extra area on the BBS called PC99. This area will have disk images with some TI programs on them which will help you with a PC and PC99 to load some really good stuff. Some queries have been made with PC99 and the file AR which is the ARCHIVER program that is used mostly on the BBS. It has been said the program does not work with PC99. Rubbish!!!!!! It does work. The secret is to have the file on the same disk image as your file you are going to UNARCHIVE. So make a DSK file with AR nside of it. LOAD the EA cartridge in from your set up menu. Boot the PC99 program. Select EA from the master screen. Then load AR by using the following :-

Select OPTION 5

type DSKn.AR (n= drive number)

the program will then load.

Then select the drive that your ARK file is in.

use the on screen menu and extract to the SAME DRIVE. BINGO your file extracted. You can then copy it across to another drive to save it.

You can do this with the FILE MG which is DM1000

as you would on the TL. Next you rename your DISK file to another name so that you can put it away until you next need it. I put an extension on my disk files of .DK so if say it was the TELCO disk image it would be TELCO.DK

I hopefully will have the PC 99 area up and running by next month. So watch this space. While on the subject of the BBS, I will now give you users some tips on how to (M)ark files, and (A)ttach files. These options are very powerful commands in the BBS. The (M)ark command or M for short allows you when in the file area to go down a list of files and (M)ark a file for one of two options. Option 1 to (V)iew that file or (M)ark a file for down loading. This saves you the hapless task of remembering the file names and typing them into a list. We now move onto the (A)ttach command or A for short. This allows you when in the message menu to (A)ttach a file to the message you are going to make to a person in the Private area. You can only use this option in that area. How do we use it? Well the option can be used with ANY file of your choice. It matters not what sort of file it is. So say you want to send your mate the game file PACMAN then you open a message in the private area to him/her. Leave a brief description or note to them so they know what you are on with. Then escape the screen with the ESC command or FCTN BACK and you will see a multi option task menu at the bottom. Now press A for attach a file. You will then be presented with a upload screen. Now upload your file to the BBS with the instructions from the BBS. When the upload is complete the file will be attached to the message you wrote. This option is very good at reducing your phone bill, as you can say write a very large letter, then come on line and attach it to the message file to the person you wanted to get it. Some more tips for you next time.

Programming the next part in or Assembly Programming Tutor.

(part4) no less.....

O.k. ! things seem to be going smoothly with the job so far. I have not had one letter about the article so I presume you all understand what is being said and you can easily understand what is going on.

So here goes. We left off last time with the Format instructions. I hope we all understood what was being discussed. If you can just take a look back at the last issue and refresh your memory.

COMPARING VALUES

If you want to compare values in a register or a number, you will have to use one of these instructions to do it.

CI (Compare immediate) This instruction is a Format VIII immediate instruction, and requires as it's first operand a register, and a numeric expression as its second.

IE 7D00 CI R5,110

This compares the value stored in R5 with 110

To compare the words in two memory locations you would use the C Command. This is a straight compare and would be used like this

C R2,R5

So the Register contents of R2 is compared with R5
It can also be expressed with locations like this,

C @>8370,R2

To compare the value in BYTES you use the CB command, I can't think what CB means can you? (Joke). This compares the LEFT bytes of the words stored in the respective memory locations.

IE CB @>7400, @>7C00



JUMPING ACCORDING TO A RESULT

Next we get to the real stuff of JUMPING. Ok it is not that sort of jumping, but going to another memory location or point in the program which in its basic form is very similar to GOTO in EXBasic. This is done with a set of Jump Instructions, which give much more control over what really goes on. These extra commands allow you to effect things like the IF THEN ELSE of EXB.

First of all there is the simple JEQ (Jump if EQual)

From the Chairmans Chair

This compares say two registers. If they are EQUAL then the Jump is executed in the program., else it is ignored and the program continues as normal. Here is a example of the JEQ:

```
7D00      C R1,R2 (Compares the two Registers)
7D02      JEQ LP  (If the Registers are equal go to address with label
                LP)
```

The next instruction is JGT (jump if Greater Than). If the value of the first operand is greater than the second the Jump will be executed else it will be ignored. Here is a example of JGT:

```
7D00      CI R3,300 (Compares word value in R3 with Dec 300)
7D04      JGT LP   (If value in R3 is greater than Dec 300 then
                transfer to memory location LP)
```

As you can see it is almost the same as above.

JHE (Jump if High or Equal) is next on the list. This Jumps if value of the first operand is greater than that of the second operand or equal to it. If so the jump is executed else it is ignored. This is a example of JHE in action.

```
7D00      C R3,R4 (Compares the value in R3 to value in R4)
7D02      JHE LP  (If word in R3 is greater or equal to the word in
                R4 then transfer (jump) to the location labeled
                LP)
```

The next three Jump commands I will lump together as they follow the same idea. These are

JLE (Jump if Lower or Equal)

JLT (Jump if Less than)

JNE (Jump if not Equal)

All these I think now you have the idea are self explanatory.

The last in the pack is the JMP instruction. This will JuMP to a address

```
IE 7D00   JMP >LP
```

****IMPORTANT**** Regardless of the type of instruction you can not jump to a location more than >100 (256) BYTES away else you will get an error message *R-ERROR* which is a out of range error message. Try this :

```
7D00      JMP >7F00
```

From the Chairmans Chair

As soon as you press ENTER an *R-ERROR* message will appear as the distance from 7D00 is greater than 256 bytes to location 7F00. To get round this you have to structure your program for the if then else type process, then use the next instruction B (Branch) which will allow you to go to ANY location without any problem. Try the above example with the B instead of the JMP.

BRANCHING AFTER COMPARISON

We will now show you how to do the branch after a comparison. As we discussed the problem comes with the 256 jump boundary else we get the error message. So if we say did the following it would be out of range,

```
7D00      CI R2,300
7D04      JLT NG      (Would bring error)
```

So how do we get round it? It is not hard, just invert the problem. Instead of comparing and looking for results less than, compare and look for results greater than. Glance at the following solution :

```
7D00      CI R2,300
7D04      JHE NQ
7D06      B@NG
7D0A NQ
```

Program continues.....

In the first example we told the computer to jump to NG if it was less than 300, which was out of range with the JLT instruction. However on the next example we use the JHE to keep the program flowing as normal but if the value is NOT equal or greater than then BRANCH to the location NG which would be allowed. Easy when you know how !!!!!!!

You are now without realizing it into programming in assembly. We continue now into further realms of programming by looking at:

DELAY LOOPS

In most assembly programs you will find the need for a delay loop. This is because the program in assembly really flies and if say you are putting a graphic on the screen you would not even see it because it was displayed so fast. So to be able to see you put in a Delay Loop which SLOWS down the program. These loops are simi-

lar to the Basic for next loops (For I=1 to 200 :: Next I)

So here is an assembly Delay loop

```
7D00    LI R7,5000
7D04 LP  DEC R7
7D06    CI R7,0
7D0A    JNE LP
```

What this baby does is first of all loads the R7 with the value 5000. Then Decrements (takes away) one from R7 s value, compares immediate the value in R7 with the 0 value. If the 0 is not met then it Jumps if not equal to the Label LP and the process goes round again until the value equal 0 and then continues with the rest of the program. However when you compare the first operand to zero (ONLY) as in the above you do not need to include the comparison. Thus the previous example can be reduced to this:

```
7D00    LI R7,5000
7D04 LP  DEC R7
7D06    JNE LP
```

The JNE instruction automatically compares R7 to zero unless stated otherwise with another value, then you have to drop back to example one. Remember that the maximum value you can load into a Register is 65535 (>FFFF) and a assembly loop with such a value only causes the machine to pause for about a second. (*Faaaaast or what!!!!!!!!!!!!*)

The next program shows you the speed that your computer can run at.

```
7D00    LWPI>7080           Loads memory area for the registers
7D04    LI R9,>FFFF        Load delay value for R9
7D08 LP  DEC R9            decrease value by one
7D0A    JNE LP            If not equal go back to LP
7DOC    LI R0,300         Load 300 in R3 for screen position start
                          when loop finished
7D10    LI R1, TX         Loads Value TX (String in this case in
                          R1)
7D14    LI R2,7           Sets length of text to be printed
7D18    BLWP @>6028       Loads the VMBW routine to display the
                          message
7D1C    B*R11             returns to easy bug
7D1E TX TEXT ·TI USER·   Text
```

From the Chairmans Chair

7D26 END

To run this program after typing it in use Easy Bug. After running the program you will find the delay is only a moment long. For longer delays you will need to use nested loops. We will now make a nested loop which will make the next program five times longer than the first.

| | | |
|------|-----------------|---|
| 7D00 | LWPI.70B8 | Loads memory area for Registers |
| 7D04 | LI R12,5 | Outer loop count |
| 7D08 | L1 LI R5,>FFFF | Inner loop count |
| 7D0C | L2 DEC R5 | decrease inner |
| 7D0E | JNE L2 | |
| 7D10 | DEC R12 | decrease outer |
| 7D12 | JNE L1 | |
| 7D14 | LI R0,300 | Loop finished load screen display start |
| 7D18 | LI R1,TX | |
| 7DIC | LI R2,5 | |
| 7D20 | BLWP@>6028 | |
| 7D24 | B*R11 | |
| 7D26 | TX TEXT 'READY' | |
| 7D2C | END | |

All I have commented is the important parts to this program the rest is the same as above example except the word is different and the lengths used.

CLEARING THE SCREEN

This will be one of the most common things you will do in a program. You always, or should do, clear the screen before you start to run your program so that all the mess on the screen before you ran the program is cleared. What we will do is make do is make our own CALL CLEAR as in basic.

| | | |
|------|----------------|---|
| 7D00 | LWPI>70B8 | Load memory area for registers |
| 7D04 | CLR R0 | Clear R0 by putting in 0 |
| 7D06 | LI R1,>2000 | Load ASCII code (SPACE) into R1 left Byte. |
| 7D0A | LP BLWP @>6024 | Print the space at location given |
| 7D0E | INC R0 | Increase the screen location by one |
| 7D10 | CI R0,768 | Compare and see if the last screen location was equal to 767 (last one) |
| 7D14 | JLT LP | If screen location smaller go back and do it again. |

```

7D16      B *R11          Return to Easy Bug
7D18      END
    
```

If you look at the line 7D10 you will see that the screen location is set to end at 767. This is because your computer counts the first position as 0 and not one. This is called Option Base 0 in Basic. The instructions used in the example above are as the previous examples, except the instruction CLR or (CLear) location. This puts a zero into the Register being cleared. When it clears it clears the whole word of that register, so beware. It is better to clear CLR than LI with a value of 0 because CLR uses only two bytes of memory with registers and also can be used directly to clear memory locations.

Now run your program. Keep an eye on the E7D00 message from Easy bug. See how quickly it was erased. Good TIP!!! From now on keep a copy of all the small routines that you know work and you can use them later on in other programs. Like the above program you can use this and then continue with another bit of code from the end or put it in after your code.

Now we come to a bit of real coding, we will start to put things on the screen and make them move. You remember this when you first had your machine? Remember the excitement? Well here goes.

We will send a @ sign across the screen from top left to top right. This routine uses the screen location of 0 to 31. As we did in Basic we print and erase at each screen location.

MOVING THE @

```

7D00      LWPI >70B8      Load memory area for registers
7D04      L1 CLR R0
7D06      L2 LI R1,>4000  ASCII code for @ loaded in R1
7D0A      BLWP @>6024    Print symbol on screen (VSBW)
                          See page 72 of Minimem Manual
7D0E      LI R1,>2000    ASCII code for space loaded in R1
7D12      BLWP @>6024    Print space over @ sign
7D16      INC R0         Increase printing position by one.
7D18      CI R0,31      Is the position in R0 31?
7D1C      JNE L2
7D20      END
    
```

Bit fast that was it not? In fact you could hardly see it. Now you can see the speed of assembly in action. What we need to do as we discussed a short while ago, is to add some delay loops. What is required is a delay loop in between the two dis-

From the Chairmans Chair

plays of the @ and the space . Try altering the delays to get the best effect. As try leaving out the delay loop after the space is printed.

Try this:

```
7D00      LWPI >70B8      as prog 1
7D04 L1   CLR R0
7D06 L2   LI R1,>4000
7D0A      BLWP @>6024
7D0E      LI R7,2000      delay start
7D12 L3   DEC R7
7D14      JNE L3
7D16      LI R1,>2000      as prog 1
7D1A      BLWP @>6024
7D1E      LI R7,2000      delay start 2
7D22 L4   DEC R7
7D24      JNE L4
7D26      INC R0          position inc
7D28      CI R0,31       last pos check
7D2C      JNE L2
7D2E      JMP L1         redo's routine again from L1
7D30      END
```

I have not fully commented this code as now I want you to work it out for your self. Have a look at the code and see how it works. I gave you the BIG clue before the listing. Having worked it out try altering the values around.

Did you work it out then? I hope so. If not go back and re read the article and all will become clear. TAKE YOUR TIME.....

TIP... To run these programs and change the program you do not have to type the whole lot in again. Here is how. Return to the title screen. (DO NOT TURN OFF YOUR MACHINE) select (3) Minimemory (2) RUN Type OLD and then press enter. Then use this command to go to the memory location you wish to alter about. Its AORG. This directive allows you to go to memory addresses like this :

```
AORG >7D0E
```

This will take you to the memory loction where you wrote the first delay loop. Now type LI R7, XXXX X= your number of the delay. You do the same for the next delay but using the memory location 7D1E and the input of LI R7.YYY where Y is the new value. AORG to 7D30 and type END

You can now rerun your program. Try this value 1* = 2000

2nd of only 2.

Well we have covered a fair bit this time and we are now seeing some results for the ground work we put in. Just remember take it slowly and it will all come together. Next time we will be looking at more screen inputs and memory addressing.



NEWS NEWS NEWS NEWS NEWS

SANDBACH YEARLY TI WORKSHOP!!!!!!!

This will be held again at the

WHEATSHEAF Public house.

Date.. Saturday 29th November 1997

Time.. Setup 9am

Doors open 10am to 5pm

Remember that this is a PUB and the food and drinks area good so do like I did last time. have a sit down with your fellow TI fans and have a TI lunch for about £ 3.00 all in . I believe the place also does rooms for the night, so Ring the Pub on 01270762013. I am hoping that Francesco Lama will be along, as I am hoping he will be demonstrating the NEW German cards. These include the TI in the BOX and 80 column cards which Francesco has. See YOU there.....

That is it folks for another time. However do not forget the BBS.

Ring us on 01623 491282 any time and you will be able to look for friends and help. Also TONS of files to look at. These include TI , AMIGA and IBM .

Memory full , Function / Quit.



NEWS AND REVIEWS

From the man with

THE BLUES.



By

Richard
Twynning



Dear TI'ers,

How are you all? I hope you are all well?

I know we said that we want to get things back on track with the newsletter production, but we do have busy schedules, and it does become difficult trying to find time to fit everything in. Everyone has other interests outside the group, and sadly they do have to take precedence over other things.

At this years AGM I was unemployed. I had a brilliant job, earning the most I had ever been paid, and the concept of what work was had completely gone out of the window!

Ultimately I was working for Project Coin, who are a fruit machine manufacturing company based in London, but I was based at their software development section (Project Design Technology) which was based in Langley Mill, near Heanor in

Derbyshire. This was only just over 14 miles from Mansfield, and once I got to work, I was doing silly things with Borland C for DOS, such as flashing lights in certain sequences, and scrolling messages across Vacuum Fluorescent Displays. All of the support routines were in place, and all I had to do was call 'em with a lamp address etc... to light a specific bulb. If you look at a fruit machine in a pub, and watch it flash pretty patterns, then this is called a standby routine, and that's what I was writing.

I also had to write a few "features", which is the term for a little game, within a fruit machine game, that tests your skill and allows you to collect extra cash.

In 'C' terms it was kids stuff, and was money for old rope, and took almost as little effort as presenting Rainbow!!!

2023 note: Rainbow was a beloved children's tv program

I was only out of work for two or three weeks, when I found a new job in Newark of all places, which is where Gary used to live. I'm working for B*WB, who are owned by Barcrest, and Barcrest are owned by Bass Brewery. I'm programming fruit machines again, and now this is the most I've ever been paid!

I've got my own office, with my own settee, and air conditioning! And, for the past two weeks I've been paid good money to play with Deluxe Paint working on a video display based fruit machine originally sold in Germany, converting all the text into English!

I'm programming now in 68030 Assembly Language, which is a lot heavier going than C, but they're changing to C soon.

I'm not sure how late this issue of TI*MES reaches you, but my apologies if it's extremely late! Ian does have a very busy schedule running his business, and so do Ross and Christine running theirs. They did request that they have the Autumn magazine submitted very early, because they'd got family commitments, such as weddings etc.. But, I think that we'll just try and produce the newsletters when we can. Then Ross & Christine can duplicate and send them out when they can.

I just hope you don't feel disillusioned when you get your newsletter late. It really upsets me if our members are upset, and it upsets me when they call, and I sometimes don't have the time to devote to them to answer their problems.

This leads me back to what I wasaying about being able to devote time to answer members questions. It is one of the things I had in mind when I bought the phone, that it would help me to help our members.

I'm mad when I get back home to find out that John Murphy, or David Caine, or Alan Bray etc.. had called me for help, or to give me important information, and I wasn't there to help them, because I was out chasing women!!!!

I'm too much into gadgets though I'm afraid, and I always buy a new gadget when I'm feeling a bit down, and I always seem to spend more money when I'm more down!

Retro Review

By Ian Pare

Does anyone remember these? I scanned them from some old issues of Home Computing Weekly from 1984/85.

Cruiser/ Character Generator

TI-99/4A £5.55

Solway Software, 6 Curzon Street, Maryport, Cumbria CA15 6LL

In *Cruiser* you go on a long pub crawl round a canal seeking refreshment at each of the lockside pubs. It doesn't matter if you're not a drinker as you may either collect beer or lemonade!

Using the arrow keys, you steer round the waterway starting from a marina at the top. The course becomes gradually more blocked as other boats appear and moor. Crashing into these too often results in a long walk home or a soaking.

You are given a bot load of

provisions, which gradually become depleted. Re-stocking can only be achieved by returning to the starting point.

The lockside pubs close after serving each pint, so during your journey they must be regularly reopened to continue scoring.

Overall, amusing with plenty of variety, skill levels run from 1 to 30, well crashproofed and even an option for users with black and white TVs.

Side 2 has a useful character generator for defining your own characters and obtaining their hexadecimal codes.

J.W.

| | |
|-----------------|------|
| instructions | 100% |
| playability | 75% |
| graphics | 80% |
| value for money | 100% |



TNT TI-99/4A Ex BASIC £7

SP Software, from Stainless, 10 Alstone Rd, Stockport, Cheshire SK4 5AH

A fast moving action game in which a bomb must be defused before time runs out.

The screen displays an 11 by 11 grid on which appear skulls, flags, the bomb and your man. Using the keyboard to control movements the man may be moved up, down, left or right. As each square is crossed it is blanked out and may not be crossed again unless "slid" over. Sliding, however, may only be down left or right. Landing on a square with a flag scores bonus points, on one with a skull loses a life.

As the game starts a digital

display on the TNT square begins the countdown. When a total of five have been disarmed a bonus screen is entered. Here your man zooms rapidly across and down a grid, on the bottom line of which are skulls, except for one square where there's a flag. This must be reached to save a life.

The game continues on a different "sheet" which has even more skulls and on the fifth there's also a stamping boot to avoid!

A sufficiently high score qualifies you to enter the Hall of Fame, among those other greats such as Popeye and - Bagpuss?

J.W.

| | |
|-----------------|------|
| instructions | 100% |
| playability | 80% |
| graphics | 80% |
| value for money | 75% |



Mania TI-99/4A £5.95

Intrigue, Cranbrook Rd, Tenterden, Kent TN30 6UJ

A graphics and text adventure in which you escape the strange lands of Mania, in order to find the legend of the Ultimate Quest.

At the beginning of each move the screen displays your score,

wealth, IQ and strength together with a graphic representation of your position and surrounding objects.

Although the graphics use the TI's facilities well, they don't equal the quality of those used in *The Hobbit* or *Valhalla*.

The pictures of your surroundings are rather small — about an eighth of a screen — but they are accurate, portraying 3D very well in those pictures where it is used.

Some backgrounds are used more than once, but the foreground objects are usually different.

There are 17 commands. The command "say" enables you to ask a question to the characters which you meet on your travels. These include wizards, Manians and serpents.

When you come across a nasty creature you can choose to fight it with any of the weapons that

you have acquired along the way. I would certainly recommend *Mania*.

J.J.

| | |
|-----------------|-----|
| instructions | 75% |
| playability | 87% |
| graphics | 85% |
| value for money | 90% |



Pearl Diver TI-99/4A (Extended BASIC) £8

Lantern Software, 4 Haffenden Lane, Tenterden TN30 6QD

Pearl Diver must be the under water version of *Frogger*. Two divers must dive to the sea bed and gather pearls, before their air runs out. But that's not all — they also have to avoid the sea creatures that swim across their path.

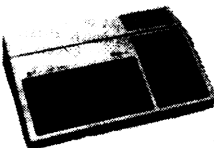
When the diver's air supply is running short, a siren sounds and a red flag is raised. Failure to return within the warning time means the end of the hapless diver. The game ends when no divers are left.

Control of movement is by the keyboard. It's disappointing that there is no option for a joystick.

A choice of two skill levels make this quite enjoyable to play, but it is certainly overpriced.

J.W.

| | |
|-----------------|------|
| instructions | 100% |
| playability | 85% |
| graphics | 90% |
| value for money | 60% |



3-D Race

TI-99/4A £6

Stainless Software, 10 Alstone Road, Stockport, Cheshire SK4 5AH

You are at the wheel of a high speed racer and you must overtake five other cars plus a ghost car which appears from time to time. After selecting a skill level (one — six), the five cars appear on the track and zoom off. You select first gear and accelerate after them. You can change lanes, accelerate and brake.

Even at level one the game turned out to be pretty difficult. Although instructions accompany the tape I found difficulty at first in understanding what was going on. In particular which car I

was supposed to be driving.

However, after several plays I got the idea and started enjoying the game. Speed, time, temperature and fuel are at the bottom of the screen. Graphics, giving a drivers eye view of the track, are excellent.

There are some pretty sophisticated car racing games on the market and, to be fair, 3-D Race does not come up to their standard but then it is written in BASIC (it has to be for the standard TI) and the programmers have used the language extremely well. All in all, good value for money. D B

| | |
|-----------------|-----|
| instructions | 80% |
| playability | 80% |
| graphics | 90% |
| value for money | 90% |



TI-99/4A Surplus

If you have any equipment you no longer need or is faulty, Please let our hardware Guru Know. Fair Prices paid. Also Repairs at no charge for group members.

Please do not throw anything away !!

Ross Bennett, 20 Oak Avenue, Romiley, Stockport, SK6 4DN.
TEL :0161-430-7298 Evenings/Weekends,
FAX :0161-483-4516 (24-Hour)

THE MOBB - BBS

+44 (0) 1623- 491282

The TI-99/4A User Group UK Official BBS
On-line 24 hours a day !

A full set of pictures from the 1997 AGM will be available for download in GIF & JPG format.

Wanted

**Any surplus TI-99/4A Cartridges & Also other 8-bit computers
Oric, Enterprise, Sinclair ZX80, Newbrain, Lynx, Aquarias, Colour
Genie, Dragon, Atari 400/800, Adam, Jupiter Ace, Tandy, Acorn
Atom etc !**

for private collection, send details to :

*Ian Pare, 10 Sotheby Avenue, Sutton-In-Ashfield,
Nottinghamshire. England. NG17 5JX.
Tel : +44(0)1623 552549 or E-Mail Ian@infoserv.demon.co.uk*

Listing

This listing is from Personal Computing Today April 1983, I think the statute of limitations on the £10 prize ran out quite a while ago. Give it a go all the same. I never did find out what the message read !

Answers on a postcard anyone !

TI-99/4A

SOFTWARE

CODE CRACKER

Have a crack at codebreaking and win £10 if you succeed in David Vincent's program

This code cracker program is no ordinary one. David Vincent has set you what he believes to be an impossible task. Within his program is a message which you must decode. If you can do it David will send £10 to anyone who sends him the decoded version of his message by the end of the month of publication, i.e. the end of April.

The system is based on using a word, phrase or series of letters (previously agreed with your correspondent), each letter of that "Codebreaker" then being used to start the code "alphabet" of the corresponding letter of the message being coded. Sounds confusing! Perhaps a simple

example will clarify things.

I chose as my "Codebreaker" the word "DAVID". My message is simply "HELLO". The first letter of my message ("H") is coded by starting the alphabet with the letter D (the first letter of "DAVID"). Thus "H" is represented by "K" when coded. The second letter ("E") is coded using "A" as the start of our code alphabet, thus "E" remains unaltered. The third letter ("L") is dealt with differently inasmuch as, "L" being the 12th letter of the alphabet and, starting our code alphabet at "V" (the 3rd letter of our "Codebreaker") we run out of letters when we reach Z! But, continuing again at "A", "L" in this case will be represented by

the 7th letter, "G". The alphabet is therefore used as an endless loop. We continue in this manner, our final coded message being written as "K E G T R".

When the message is longer than the "Codebreaker", then the series is repeated until the whole message has been coded.

David did not cheat in any way when coding his message (for example, by putting the spaces between the words in the wrong places, or by leaving them out altogether!) and the "message" is as follows:

**WMGCY TLCFU RERWQ
RKECX JAEKG.**

HOW IT RUNS

| | | | |
|---------------|---|---------------|--|
| Line 100 | Set up arrays to store character values of "Codebreaker", message and coded message. | | |
| Lines 110-120 | Set up title screen. | | |
| Lines 130-160 | Give option to receive instructions before proceeding. | (510-610) | an endless loop. (C is the length of the "Codebreaker" array CB; M pinpoints the character from the array currently being used). |
| Lines 230-320 | Accept input of "Codebreaker" word/phrase, then assess each character in turn (by means of its ASCII number) eliminating any not in the range A-Z. The new string (minus spaces or illegal characters) is then stored in ASC number format in array CB. | | Calculate the ASC numbers of the coded letters by adding (to code) or subtracting (to decode) the ASC number of the "Codebreaker" letter to or from the corresponding letter in the message, then subtracting or adding 65 (the ASC number for the letter A) to bring the number back into the required range. |
| Lines 330-410 | Accept input of message (or coded message) then convert all characters into ASC numbers. No characters are eliminated in this stage. This string of ASC numbers is stored in array ML. | (540 & 580) | Add or subtract 26 when necessary to ensure a continuous loop in the alphabet is achieved. Print out the coded or decoded message using the CHR3 function. This is a reversal of the ASC function, converting an ASC number back into character form. |
| Lines 420-610 | This section computes and stores the coded (or decoded) message in ASC number form in array CM. | Lines 620-710 | Print out instruction when requested by pressing "Y" in response to line 130. The instruction total 3 screen "pages", each page being held on screen until any key is pressed by sub-routine 880 920. |
| (440 & 450) | Cause any character outside the range A-Z to be stored without alteration. | Lines 720-860 | |
| (480 500) | Cause the "Codebreaker" string to be used as | | |

PROGRAM LISTING

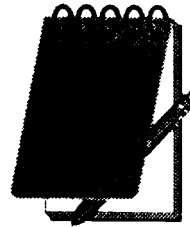
```

100 DIM CB(110),ML(110),CM(110)
110 CALL CLEAR
120 PRINT TAB(7);"ALPHA-GRID COD
E":TAB(7);"-----": : :
: : : :
130 PRINT "DO YOU REQUIRE INSTRU
CTIONS?":TAB(7);"(PRESS Y OR N
)": : : :
140 CALL KEY(O,KEY,STAT)
150 IF KEY=78 THEN 170
160 IF KEY=89 THEN 720 ELSE 140
170 CALL CLEAR
180 PRINT "SELECT NODE": : : :T
AB(6);"1. ENCODE MESSAGE." : : :T
AB(6);"2. DECODE MESSAGE": : : :
: : : :
190 CALL KEY(O,S,STAT)
200 IF S<49 THEN 190
210 IF S>50 THEN 190
220 S=S-48
230 CALL CLEAR
240 PRINT "CODEBREAKER STRING": :
: :
250 INPUT CBS
260 M=LEN(CBS)
270 FOR I=1 TO X
280 IF ASC(SEGS(CBS,I,1))<65 THE
N 320
290 IF ASC(SEGS(CBS,I,1))>90 THE
N 320
300 C=C+1
310 CB(C)=ASC(SEGS(CBS,I,1))
320 NEXT I
330 ON S GO TO 340,360
340 PRINT : : "MESSAGE": : :
350 GO TO 370
360 PRINT : : "CODED MESSAGE": :
: :
370 INPUT MS
380 M=LEN(MS)
390 FOR J=1 TO Y
400 ML(J)=ASC(SEGS(MS,J,1))
410 NEXT J
420 FOR K=1 TO Y
430 L=L+1
440 IF ML(L)<65 THEN 600
450 IF ML(L)>90 THEN 600
460 M=M+1
470 CL=CB(M)
480 IF M<=C THEN 510
490 M=M-C
500 GOTO 470
510 ON S GO TO 520,560
520 CM(K)=ML(L)+CL-65
530 IF CM(K)<90 THEN 610
540 CM(K)=CM(K)+26
550 GOTO 610
560 CM(K)=ML(L)-CL+65
570 IF CM(K)>=65 THEN 610
580 CM(K)=CM(K)+26
590 GO TO 610
600 CM(K)=ML(L)
610 NEXT K
620 CALL CLEAR
630 ON S GO TO 640,660
640 PRINT TAB(8);"CODED MESSAGE:
": : : :
650 GO TO 670
660 PRINT TAB(7);"DECODED MESSAG
E": : : : :
670 FOR L=1 TO Y
680 PRINT CHR$(CM(L)):
690 NEXT L
700 PRINT : : : :
710 STOP
720 CALL CLEAR
730 PRINT " THIS PROGRAM WILL CO
DE OR": : " DECODE MESSAGES USING
THE":TAB(3);"ALPHA-GRID"
: : " THE MESSAGE "
740 PRINT " IS CODED USING": : "A
CODEBREAKER WORD OR PHRASE": : "
UP TO 110 CHARACTERS), EACH": : "
LETTER OF THE "
750 PRINT ""CODEBREAKER"": : "
BEING USED SEQUENTIALLY AS": : "T
HE FIRST LETTER OF THE CODE": :
760 PRINT TAB(5);"ALPHABET"
: : :
770 GOSUB 880
780 PRINT " THE MESSAGE MAY BE U
P TO": : " 110 CHARACTERS IN LENG
TH." : : :
790 PRINT " WHEN THE CODEBREAKE
R IS": : " SHORTER THAN THE MESSA
GE," : : " THE CODEBREAKER "SERIE
S"" : : :
800 PRINT " IS REPEATED UNTIL CO
DING":TAB(8);" IS COMPLETE." : :
: : :
810 GOSUB 880
820 PRINT "THE COMPUTER IS PROGR
AMMED": : " TO ACCEPT ONLY UPPER
CASE": : "LETTER INPUT (A-Z) FOR
BOTH": : :
830 PRINT " CODEBREAKER & MESS
AGE." : : :
840 PRINT " ANY OTHER CHARACTERS
INPUT": : " (INCLUDING SPACES) W
ILL BE": : " IGNORED IN THE CODEB
REAKER": : :
850 PRINT "OR RETURNED UNALTERED
IN THE":TAB(1);"MESSAGE." : : :
: : :
860 GOSUB 880
870 GOTO 190
880 PRINT " PRESS ANY KEY TO CON
TINUE"
890 CALL KEY(O,ANY,S)
900 IF S=0 THEN 890
910 CALL CLEAR
920 RETURN

```

**Minutes of the
TI-99/4A User Group U.K.
Annual General Meeting.**

**Saturday
10th May 1997**

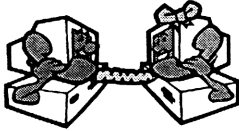


Trevor Stevens opened the meeting with his usual welcoming message.

He then read out apologies for their absence from Stephen Shaw, Trevor Taberner, and Richard Speed.

Congratulations must be given to Richard Speed at this time, because his absence was due to his wife having their first baby.

Trevor then gave a report in his other roll, as the SYSOP of The MOBB, the group's Bulletin Board System.



The BBS is coming on quite nicely after our previous problems with chips blowing on the MYARC Hard & Floppy disk controller causing our move to using a PC for the BBS.

Many thanks go to Ross Bennett for trying to fix the MYARC HFDCC, but he could not obtain the replacement chips from CECURE, despite many faxes and e-mail's to Don Walden, and even flags on the rocks at Lands End!!!

We were up the valley of sewage with no means of propulsion!!

The only remaining BBS software that was "working" was based on floppy disks, and called SMALLTALK. It was virtually useless for our purposes. The reason we couldn't carry on us-

ing the S&T BBS was that the software was written specifically to take advantage of the 8K RAM CACHE chip that is present on MYARC Floppy controllers, and on the MYARC HFDCC. It uses it as a data buffer when performing a file transfer. But we really also need the hard disk capability, so that we've got a lot of space on-line for files to be uploaded and downloaded, and to provide storage for a large on-line messaging system.

At last years AGM we did have a plan worked out, whereby if anything did go drastically wrong with the BBS, then it would be a decision between only Trevor, myself, and Alan Rutherford, as what to do in the best interests of the group to get the BBS up and running again.

It was Richard Speed who ultimately swung the idea, and I realized that it would be a good idea to have a PC running the BBS, because the hardware is much more expendible and easy to replace, and I'd sooner burn out a PC for the benefit of the group than burn out a good TI. It also means that Trevor's main TI is not tied up, and the advantage of having Windows 95, means that we can mess around in the background copying files, or accessing the BBS direct from the PC keyboard, at the same time an-

user is on-line.

Plus, for those members who do have access to PC's, it means that data can be uploaded and downloaded to the BBS slightly faster, and the PC can be backed up much easier.

Trevor managed to get a 50MHz 486 with a CD ROM drive and all the standard stuff, and the BBS program that is controlling it all at the moment is Wildcat 7 for Windows 95.

I've found the optimum setting on my PC now. I've got the same MODEM as the group, which is a MULTI-TECH 192ZDX, which is 19200 bits per second, and I've set my maximum serial port rate to 115000 bits per second, and I used XMODEM 1K transfer when uploading and downloading files, and it seemed to give me a transfer rate of around 2K per second!!!

Also, Trevor is planning to properly organize his computer room at home, and build himself a proper workstation. He's also going to eventually build his own PC for his own purposes, but it will be possible to use it to extend the capacity of the existing machine, because he'll be able to network them together

using the networking that's built into Windows 95 and Windows NT, and he'll be able to share drives between both machines.

Currently there are over 500 files on the BBS, and 90% of it is all TI files.

Back to the minutes....

Trevor thanked our Dutch visitor, Berry Harmsen, the chairman of the Dutch TI group for a CD that he brought with him, and allowed us to copy, which contained alot of decent TI shareware files.

Then, Trevor mentioned the Modem giveaway of 2400 baud MODEMs that I'd been given by Hays Distribution, which is one of the many companies I've worked for over the past few months!!!

Trevor says the group is ticking over nicely, but he does have reservations in certain areas, which will be discussed in area 3.

VICE CHAIRMAN -

Mark Wills

Mark admits to being very quiet lately, and his system has been powered down for a long time. He has changed jobs again which means that he does have slightly more time to produce articles, and now he's bought my old lap-top off of me, he has a machine that can be quickly put away, out of the way of the children, because they ain't half a right pair of little shockers!

Because he's got access to what is basically a portable PC, he can more quickly access the BBS, and more importantly, he can more easily write and submit articles in a form that we can easily include in the magazine (yes Mark, that is a hint for you to write some articles!!!!).

**GENERAL SECRETARY
& CO-EDITOR -**

Richard Twynning (me!)

Well, like Mark, I've also been VERY quiet lately, and I've committed the crime of not turning on the GENEVE for well over six months!

I've been waiting to get my

SCSI card working properly, and I only had my drive formatted for the first time at the AGM by Berry Harmsen. What I didn't have a clue about was that it's a bit PC'ish in that you've got to waste time formatting your drive twice, instead of just format and be done with! It didn't mention about this anywhere in the documentation I received from Bud Mills. Bud Mills, wasn't that the guy that went to the moon with Buz Aldrin, saw a UFO and then avoided people when he got back to earth!?!?

No, maybe that was somebody else!

Thanks to Berry Harmsen, for formatting my drive at the AGM, to around 220000 sectors. He said though that this was an hexadecimal number, which works out as follows:

Hex > 220000

Converted to Dec > 2,228,224

Assuming 256 bytes per sector like normal TI devices, including MYARC HFDCC:

$2,228,224 * 256$ bytes

$= 570,425,344$ bytes

(which is more than a few!)

Divide that by $1024 = 557056$ K

which I think means that I've got my 1 Gig drive formatted to about half a Gig, but don't quote me on that until I know more about the way it's formatted.

Hopefully now that the Germans are playing with the SCSI card, the software should improve alot. I'm not sure how things work in MDOS yet, but on the 4A, you can only copy one file at a time onto a SCSI drive! MDOS might work OK, but I'll have to wait and see. I must get something done on the GEN-EVE, and therefore really need to get my SCSI card up and running, but I seem to keep putting off buying a new SCSI cable. I'll have to make a trip down to Mansfield Television and Radio Spares to get the bits and make one up.

Then I can get my projects finished, which include my CAD program, and the Dark Star game that's in the pipeline. Dark Star WILL be in both assembly language, and XB, i.e. there will be a small version that runs on the lone console with no memory expansion, there'll be a version in XB that obviously will have

more screens, but will make Assembly calls to handle screen updates, and smoothish screen scrolling. This is not "VAPOURWARE"!!! The pattern mode assembly to achieve this is simple, and I'm going to collaborate with Trevor on writing all versions of the game.

I want it to offer the same, or hopefully much better quality of game than the "Legends" adventures that many members may have seen.

I've just worked out how much it will cost as well.

XB & No 32K

| | |
|---------------|---------------|
| BBS Users | Free Download |
| Group Members | £1.00 |
| Others | \$5.00 |

XB & 32K

| | |
|---------------|---------------|
| BBS Users | Free Download |
| Group Members | £2.00 |
| Others | \$10.00 |

I must now thank Mark Wills and Francesco Lama for the help and advice they've given me on the CAD program. Mark helped me to see sense when it came to maintaining a copy of the screen in memory that would enable me to see exactly what's on the screen, without needing a pixel reading routine, which is what put

me off of writing it in FORTRAN.

I'm thinking of writing an identical program on the organizer, (and I mean identical!) and when it's complete, just convert it into either C or FORTRAN on the 4A. This is also not "VAPOURWARE". I WILL WRITE A CAD PROGRAM, and writing on the organizer first might be a much easier and reliable way of testing out my theories, and some of the limitations on the organizer, that I will have to work around, might help make memory usage on the 4A a little more efficient.

As far as my other role as TI*MES Co-Editor was concerned, the Spring issue was two months behind schedule, (this one is getting behind! 12-7-97) but at the AGM we did have the A4 printed copy of the magazine, ready to be given to Francesco for reduction. Unfortunately there were three pages missing because I'd run out of ink at about 7pm the night before, and PC World at Derby had sold out of Stylus cartridges, and I couldn't think of anywhere else that would have been open!

I had to print the remaining three pages and send them to Francesco during the following week.

To prove that we did have the completed mag, Trev held up the front cover, a picture of which, Ian should have inserted somewhere in this mag

THE OTHER CO-EDITOR -

Ian Pare

Trevor introduced Ian as a new member, and as the new co-editor.

He didn't have anything to report, because the Spring issue was our first collaborated attempt at editing, but no doubt Ian will have much more to say at next years AGM!

Recently, like myself, Ian had had a share of PC problems, which caused him to reformat the hard disk once, and re-install Windows 95 about six times over! It's no fun for Ian to format his hard disk, because it's over SIX GIG'S on his 200 mhz Pentium Pro tower!

Eventually he tracked it down to his fan not receiving enough current to overcome it's own inertia and start spinning. Some machines at (SH)CITEL had the same problem, and it seems to be a common and worrying thing on alot of new PC's. So watch out if you decide to buy a PC!

TREASURER -

Alan Rutherford

Over the past year the costs of producing the magazine have been kept down, thanks to Ross and Christine spending many, many hours duplicating each issue!

There has been the expense of the 486 PC for running the group BBS, and group subscriptions are down.

Alan says the drop in subscriptions is due to him not sending reminders out. The time when all members should renew their membership will be reviewed later.

MODULE & CASSETTE LIBRARIAN -

Francesco L. Lama

Francesco has bought a few things and sold a few things, usual run of the mill Module Library stuff, but he's got hold of some Magic Memory Modules from Texaments.

The Magic Memory Module was first demonstrated at last

years AGM by John Murphy, and contains everything you might need for Assembly Language programming. It contains the full Editor Assembler, as well as a complete disk manager, and other disk utilities, such as a Sector Editor.

If you are interested, then please contact Francesco for more information or to order one. If you all order them through Francesco, then he can put a bulk order in to Texaments, which will reduce your postage costs, and you never know, you might even get a bulk discount on the module itself!

HARDWARE SPECIALIST - **Ross Bennett**

Ross had a great deal of hardware to sell at the AGM, and in fact he auctioned most of it off. When I say a lot, I mean around a quarter of a tonne that he'd somehow managed to squeeze into his van!!

Ross reported that he'd had great success in fixing 4A consoles, and due to the number of scrap consoles that are available for spare parts, there's no reason

why any console cannot be fixed.

There are also replacement controller chips for the TI Disk Controller card, but the PAL chip (Programmable Array Logic) would need decoding (Gary Smith!) in order to totally reproduce new controller cards from scratch.

As we can all guess, there is now a shortage of TMS99 series of chips.

The TMS9902 is currently running at \$30 each, and commercially, the TMS9900 CPU went out of production around ten years ago.

Although Berry Harmsen says his group has got contacts to get military 9900's out of cruise missiles!

Ross says the average that he's currently working on is scrapping 3 consoles to reclaim the spare parts to repair 5 or 6 others

Peripheral Expansion Boxes are available, and Ross had two for sale at the AGM.

Ross has not had great success with the MYARC HFDCC, be-

cause it's a nightmare to work on without any circuit diagrams, and as you heard in Trevor's report, we don't seem to be able to get any response or replacement chips for the HFDCC from Don Walden at CECURE, but Master of Acquisition, John Murphy called me the other week to say that Don Walden was sending Ross the replacement chips for the HFDCC, but I don't know if he has, or if Ross has received them or not yet.

40 track floppies are becoming very scarce, and Ross has only come across three new ones in twelve months.

80 track floppies are as common as bugs in Microsoft software, and you can pick them up easily for £3 each.

Ross is considering a way of jiggering with the electronics to make them double step so that they behave like 40 Track drives.

Hard Disks for the MYARC HFDCC (Hard & Floppy Disc Controller Card) are around, and the best place to find these are things like amateur radio rallies. We saw quite a few at the Elvas-ton Castle rally in Derby in June. This is probably the biggest and best in the country.

Ross's main important message to members is that you should **NOT THROW ANYTHING AWAY!**

If you do have any faulty equipment, which would most likely be a faulty console, then you should send it to Ross, and he will repair it for you, or if you do not want to keep it, then if it cannot be repaired, then Ross will disassemble it for spare parts.

Adverts in TI*MES have turned up three faulty console so far, which Ross will have a go at fixing, and if they can't be, then strip out any spares.

When Ross gets the information and spares for the HFDCC, then he'll fix the HFDCC that the group still owns, and this can then be possibly used as a spare in case anyone else has problems with their HFDCC.

Ross is also considering making a new third party RS232 card. He made one himself ages ago which only had an RS232 port and didn't have a parallel port.

To make a new one would mean trying to obtain TMS9902's which are VERY expensive if you do manage to find them. It would also mean copy-

ing the DSR EPROM, which is technically an infringement of copyright, but I can't imagine TI enforcing this, since it's all obsolete technology as far as they're concerned.

Ross estimates that the production costs per card would be \$50, which as yet makes it unviable as there are so many original TI or MYARC cards available in the States for cheaper than this. But, it does mean that the ability is there, should things become more desperate in the future.

I propose that the group funds Ross to develop a new RS232 card so that we're ready first and can get our group's card onto the market before others.

Write in to the Letters page and let the rest of the group know your views.



COMMITTEE RE-ELECTIONS

Following the re-elections of the committee members, committee positions are as follows:

CHAIRMAN -

Trevor Stevens

VICE CHAIRMAN -

Mark Wills

GENERAL SECRETARY -

Richard Twyning

TREASURER -

Alan Rutherford

MODULE & CASSETTE LIBRARIAN

Francesco L. Lama

DISK LIBRARIAN

Stephen Shaw

GENERAL DISCUSSION

The General Discussion started off as it does every year, with the **state of the group** again!

After reviewing our expenditure, it leads us to believe that we're in a steady and unstoppable decline, since our funds seem to be constantly decreasing. Since 1995 our funds have fallen by £1200 pounds, at a rate of around £400 per year, which

causes us to predict a financial future of another six years.

However, this year the group has had a big financial outlay for the PC for the BBS, and Alan admits to not chasing up members that should have been sent resubscription reminders!

What can we do about it?

We agreed that the membership fee is O.K. and some money has been raised by the sale of hardware.

Some hardware was donated to the group by Walter Allum after he sadly died recently, and in return, the group should make a charitable donation.

It was also reported at the AGM that sadly Raymond Williams has died. I don't believe that he was a well known member, but some people may have met him at the excellent workshop that was organized at Cuffley by Peter Walker a few years ago. Trevor met him and said that he was a very nice chap.

John Murphy mentioned having the renewal for all members on the same date, but he didn't see we'd already included this point later on the agenda!

GROUP MEMBERSHIP

In Trevor's words, "group membership is in the air!!!"

Strictly speaking, the role of membership secretary has gone, and has been absorbed into other jobs.

Things are delayed by an editing triangle which involves sending our original A4 copy to Francesco for reducing, and then Francesco sends it to Ross and Christine for their excellent job of duplicating it.

This should be made easier soon, because we're using Microsoft Publisher which should eliminate the reduction problems, because it will allow us to automatically put two A5 pages onto one page of A4, and it will automatically take into account the necessary wider margins in the centre to allow for stapling!

The list that Ross's used to send out the Spring issue was at least a year old, and one problem that Ross has to worry about when sending out the mags is knowing which members receive a subscription reminder. but this problem has been overcome by having the fixed renewal date.

whereby every member will receive a reminder with their summer issue.

Alan favours the summer renewal, because it fits nicely into the financial year, and the way he looks after the accounts.

Alan had a copy of the definitive, up-to-date membership list on a PC disk with him at the AGM.

It was decided that it's better if Alan still handled the membership, and Ross just receives an up-to-date membership list when he sends out the magazines. That way, because Alan is handling both roles as Treasurer and Membership secretary, the subscription money being sent in is immediately put into the group's account, and we haven't got a lot of money needlessly changing hands all the time.

Then, all there is left to do is work out a suitable form in which to send the group database, or just the updates, to Ross and Christine.

When Trevor first took over handling the membership he sat down and wrote a full membership database system in TI base, which did just about everything!

If a member's subscription ran out, then their details would be automaticall moved into a scrap database so that their details could be stored, but they would not be confused with active members until they had re-subscribed.

As I said, we have decided to fix the renewal date for every member. If you have renewed your membership after receiving the Autumn, issue until just recently, then you will not have to pay anything else until everyone renews next Summer.

If you are due to renew now with the Summer Issue, which is the majority of members, then you will carry on as normal as though nothing has happened.

We also discussed methods of payment! We have no objection to you setting up a standing order to pay the group directly to save time on both sides. Alan is going to include this as option for people to tick, on the next Group Renewal Form.

We reviewed the cost of producing the newsletter, but thanks to Ross and Christine's efforts, it's something we don't have to worry about for the moment.

Mark argued that we were making a massive profit, especially now that Ross and Christine are doing the duplication. Mark says that we should be a non-profit-making group, but no one actually receives any money, other than what is required to cover their expenses.

Any extra money that is made goes straight back to benefit our members.

I can't remember the last time I had to pay to enter one of our workshops!

There is also the BBS which the group funds have completely paid for, and continue to support, and at the time of writing (18th July 1997) the group is paying £50 to upgrade our 850 Meg hard disk to 2.1 Gigabytes!!!

We can also spend money on finding new members by paying for adverts etc. and also we can treat our members with a completely free disk full of software, as we did a couple of issues ago.

Attracting new members.

Trevor is going to continually FAX micromart to place a free advert to publicise the group, and the BBS.

We should look at ways of mak-

ing our adverts more prominent because there must be plenty of people still out there who have TIs tucked away somewhere and would like to know that the user group is still going.

Ian says we're at the right stage in the history of computing, because the older computers are going through quite a revival in popularity at the moment, and most computer magazines are doing "Retro Reviews" of the old machines, and old software.

Not long before the AGM, Personal Computer World magazine did a full page review of one of the original home computers.

Therefore, it's been left to me to look into producing a letter for PCW to hopefully raise awareness about the TI, and about the group, and to let people know that there is still strong support for the machine.

There are also small groups producing newsletters for old computers, and I've just thought that it would be really funny if another TI group formed without knowing that we existed!!!

We might be able to approach some of these small groups and ask if we can advertise our group in their newsletter, because it's possible that someone in their group might have a

TI sat in a cupboard somewhere.

It is more likely now for people to be interested in more than one old machine, because they are becoming very collectable.

Maplin magazine are also doing adverts for groups and their bulletin boards, and we also need to get publicity in there.

Mark said "Can we post a global message to the planet!!!", to advertise ourselves. This made me think "why not?" It would be nice if it was possible to instantly post the same e-mail message to everyone on the planet. Ian pointed out that there are what is called "newsgroups" that people can subscribe to by sending an e-mail. The system then sends everyone in the newsgroup an e-mail when there is an update of information. There are several newsgroups dedicated to the TI-99/4A.

I know very little about the internet and the way that e-mail finds its way round the world, so I think this could be a cue for Ian to write an article about it, and about the TI home pages and newsgroups that appear on the net.

Ross says there's a dragon user group, and the organizer claims

says the problem is, "they're all from Wales!!!"

Berry Harmsen from the Dutch group suggested that we write to our old members to try and reclaim some members back who have become disillusioned. He attracted his members by offering those members who had gone over to PC, free copies of the TI emulator. Berry has had alot of success with doing this and has attracted alot of members back.

Ross sent out one of the recent newsletters with a quite old mailing list, but I'm not sure what success he had from it, or what response it generated from members that had left.

There are probably alot of people out there who don't have any idea that we exist, and we need to reach them.

John Murphy has been given the post of new publicity officer, which doesn't mean that he will be handling all of the advertising himself, even though he may advertise us in publications in his local area, but it means that he will be the coordinator of the efforts of the rest of us.

We are all responsible for advertising the group, in our local area, or nationally, but if you do want to do anything that goes

national, then you'd better clear it with John first.

When John was "volunteered" for the role, his response was "Oh I!!", and Mark Wills said he would second the motion.

The conversation then seemed to turn to the subject of the replacement chips that Ross needed for the HFDC, and John said that he could order them from CECURE. Ross has tried and failed.

Trevor's given up on Don Walden! Him and Bud mills must have gone on holiday together!!!

TI*MES Newsletter production.

Ross and Christine are doing an amazing job printing the newsletter. The only problem they have in doing it is their nearly 20 year old photocopier which has to be fed one sheet at a time!

Just before the AGM, Ross and Christine were looking at new copier prices, and we offered at the time we offered that the group would pay a contribution to buying them a new one.

We are waiting to hear from Ross & Christine to tell us exactly what their plans are and what is

happening on the subject, but the last I heard was that they had already ordered one, but had run into difficulty with it.

I will leave this to Ross to write about.

There is no valid reason though why the group can't contribute to buying Ross and Christine a new photocopier, because it does keep our costs down.

The price for a brand new copier now, is not much more than they originally bought theirs for second hand.

The price range they are looking at is around £550 brand new, and they bought their existing one for £450.

What happened to mid-issue flyers?

Trevor looked at me, and then I looked at Mark!

Mark volunteered to do the mid-issue-flyers as the last AGM, but then was very busy with his work sending him half way around the world to Singapore.

Mark was side-tracked, reading MICROPENDIUM, which he's allowed to do in the middle of an AGM, because he is the Vice Chairman after all!

Mark had completely forgotten what he was supposed to do!

The mid-issue-flyers were going to include little XB programs to type in, and any important information that we need to get to our members, such as the dates of workshops etc. This idea is even more important lately, especially with the delays we keep having with producing the newsletters on time!!!

The mid-issue-flyers should also be easier for him to do now, with the laptop he's just acquired!! Yes Mark, I am giving you the hint that we could have done with a mid-issue-flyer, sometime before you are reading these minutes!!

All you need to do is to produce a couple of pages of A4, and include some little XB programs, but contact either Ian or myself to ask the expected delivery date of the next newsletter, and if there are any workshop dates planned, and put the two sheets together and send them to Ross & Christine to duplicate and post. And that's it!

Official Newsletter Deadlines.

They've gone adrift!

But, the official deadlines when

But, the official deadlines when articles for submission should be received by either of the co-editors are:

1st of March for the Spring issue.

1st of June for the Summer issue (or in person at the AGM!).

1st of September for the Autumn issue.

And the 10th of November for the Winter issue.

(But as we're not getting many contributions from the majority of members, these dates have really been made irrelevant !! Ed.)

Other Points Of Discussion.

The only other point of discussion was the C99 disks that John Murphy received from the States, a game by John Bull, Bruce Harrison's poker game, and Bruce Harrison's AMS card.

John had all these disks and the AMS card to demonstrate at

the AGM, and they were also available for anyone that wanted them, as long as they paid John the cost of Royalties, and then John was going to re-imburse the authors later.

John also had another set of free-ware on either one or two disks which Trevor asked him for so that he could put it on the BBS.

So at this very moment, these programs are available for BBS users to instantly download and try out!

And that's it! Trevor closed meeting at 2:55pm and then handed over to me to distribute the MODEMs!

I was going to have a bit of a £1 a go raffle to raise some money for group funds, but the turn out was so poor, that there were enough to go round anyway, do everyone that wanted one, had one!!!

Well, that's about it! How did I do the second time around!?!?!??

■

TI-99/4A EMULATOR - PC99

by *Richard Speed*

Greetings from the unacceptable face of real-world computing. Since I spent much of my editorship trying to get submissions in, I figured it would be immensely hypocritical of me not to submit something myself now the burden of editing TI*MES has been lifted from my shoulders.

In this article (which will hopefully become a series) I'm going to take a look at a TI Emulator. Most of us know of two emulators – TI Emulator (now known as V9T9) and PC99. Stephen Shaw has covered V9T9 in past issues so I'm going to take a look at PC99.

So, to start, what is an emulator? Quite simply it is a program that convinces one computer that it is actually another. In this case an IBM compatible PC is persuaded that it is actually a fully loaded TI99 with PEB, disk drives, 32k expansion, P-Code card and so on.

What do you get with PC99? CaDD Electronics currently manufacture two versions of PC99 (at two different prices,) a full version and a cut-down 'lite' version.

| | PC99 Full | PC99 Light | |
|-----------------------|-----------|------------|-----------|
| | PC99.EXE | PC99A.EXE | PC99L.EXE |
| Sound Blaster support | Yes | Yes | Yes |
| p-System | Yes | Yes | No |
| 16 GROM banks | Yes | Yes | No |
| Mini-screen debugger | Yes | No | No |

The full PC99 configuration is the equivalent of: a TI-99/4A with Peripheral Expansion Box containing 32K Memory Expansion; TI Disk Controller; TI RS-232 card; TI p-Code card; TI Speech Synthesizer; together with TI Extended Basic, TI Editor/Assembler and Tombstone City modules.

Actually installing PC99 is a little tricky due to a somewhat arcane (by current PC standards – its’ simplicity itself compared to the majority of TI disk software!) setup routine, but once installed and configured the program can be run with a simple command and your IBM compatible PC is transformed into a living breathing TI99 system.

So far I’ve tested PC99 on a simple MS/DOS based system, on a Windows 3.x based system and on Windows 95. In all these cases PC99 performed faultlessly. Under my operating system of choice, Windows NT 4, PC99 was a little less happy unless Sound Blaster support was removed – Windows NT is Microsoft’s attempt at a ‘proper’ operating system and does not allow software to write to hardware directly. With Sound Blaster support removed, PC99 uses the PC’s ‘beeper’ to emulate the TI’s sound chip. However, it has to be said that the majority of users with a Sound Blaster compatible sound card are unlikely to be using Windows NT for a few years yet!

Having used PC99 for a couple of months I’ve come to the conclusion that it is a far more accurate emulation than V9T9 (TI Emulator as was), although it’s hardware requirements are greater. TI Emulator could chug along on a 386 if pressed, while PC99 prefers at least a 486 or Pentium. Of course – with computer prices in free-fall at the moment it is nearly impossible to buy a new 486 any more, and the life span of the Pentium (even the new MMX versions) can be measured in months rather than years.

In the coming articles I’ll be going into PC99 in much more depth and letting you know what it can and can’t do – but for the moment I’m very impressed, and would recommend it to anyone thinking of upgrading to an IBM compatible PC.

Below is an on-line interview I conducted with Mike Wright, one of the authors of PC99. It is certainly interesting reading and will, I hope, give some insight into PC99.

PC99 seems fairly complete as far as an emulation of a standard TI goes. Do you plan to emulate any more bits of TI hardware – maybe a hard disk controller?

“We are currently working on releasing PC99 Stage 4. This will contain the Myarc disk controller and allow you to handle up to four DSDD drives. We have the basic routines working, but they are not robust enough for release. The Myarc controller is in addition to the standard TI controller, and can be enabled using the PC99 configuration program. We have finally received tacit permission from Lou Phillips to do this, but final approval is subject to his inspection (and he is a hard person to track down!).

We would also like to take a stab at getting audible speech, but have had not had much success in getting information from Yamaha (makers of the chip used in the Sound Blaster).

With regard to hard disk support, we have not considered that since essentially you are using the PC hard disk and get all the benefits of the speed. The only things you lack are the sub-dirs, etc. The Myarc HFDC code is not as good as the FDC. In fact there is a killer bug in it which we once showed to Lou at one of the Chicago shows. Under fairly common circumstances, TI Writer files on SSSD floppies would be trashed -- and it was easily repeatable. Lou looked mildly interested, but never fixed it in the ROM. As a result, my one HFDC system has an FDC in it for handling the floppies.”

How much do you charge for upgrades?

“Our policy is to offer upgrades to existing customers at a nominal charge, usually about \$10. However, we make no promises about future products, nor will we give an expected release date. If you note the order form, it warns that there may be no further developments. We know that we have probably lost some sales because of this, but we will do

anything to avoid ending up as another 'Press' (of Asgard infamy)."

The emulation itself is great. All the Extended Basic programs I've tried so far have worked perfectly – even ones using sprite coincidence.

"There is no Extended Basic emulation, per se. There is the 99/4A emulation. If you "plug in" an XB module, then all the things you would expect to see, including sprite coincidence, simply work correctly.

It is sometimes interesting to watch first-time PC99 users. They are amazed when things like the PC F8 key does an XB REDO. In fact, the PC F8 key is passed to PC99, which tells the emulation that the corresponding TI cru lines for the keyboard have been raised. The application (such as XB), then does what it does when that key is pressed on the 4A.

We have gone to great lengths to ensure that our emulation is as accurate as possible. We have no "kloodges" in the code. For example, since PC99 knows the value of the program counter in the emulated TMS9900, we could detect when the ROM addresses are dealing with a keyboard scan. We could simply intercept that, process the key ourselves, and then tell the TI to jump to the end of the ROM routine. We consider that a "kloodge" because it is not true emulation. Similarly, we could detect two floating point numbers being added and let the code handle that. Instead, we let the application put them at FAC and ARG and XMLLNK to the 99/4A ROM.

Because of this, there is no known 4A application that does not run under PC99. Even things like sector editors, the Millers Graphics Explorer, MG Advanced Diags, Rapid Copy, and Turbo Copy work under PC99. The only exception may be Term 80, which does some interesting stuff to the TMS9901. However, if you have a PC, then you probably have something like ProComm (a terminal emulator, and more), so why bother with Term 80?"

But PC99 is still DOS based. Most users are being dragged kicking and screaming to Windows 95 (or NT4, like myself.) Are you planning to

support those operating systems?

“One theory has been all along that Win 95 was just a stop gap to bring in a few needy millions (or is that billions) for poor struggling Microsoft. The kernel is still 16-bit based and needs a hefty re-write to bring it into the 32-bit world. On the other hand, NT was developed by someone MS imported from DEC, who had been involved with VMS, and that has a good reputation in the industry for OS stability. Therefore, as soon as the public can stomach yet another upgrade, MS will dispense with Win 95 and use NT 4.0 or later with the Win 95 interface.

At this point, it is still not official. When it is, we will simply bypass all Win 95 development, and have a hard look at whatever the new thing is called. Hopefully this will be some sort of stable base for some reasonable time.

Nearly all of the PC99 code is written in C, so it should prove a manageable task to convert it to Winspeak C. At this point things like DirectX (or a third party graphics package like we use now) would be used.”

But why did you write PC99 in the first place? It seems a huge undertaking – how many people were involved?

Some PC99 nuggets that few people know about:

“1. The main brains behind the code is Greg Hill. He is currently working in Florida on an IBM-funded project to put email in all South American schools. When I first broached the subject of an emulator, he claimed it shouldn't be that hard. A week later, he showed me the first draft running on a PC under SCO Unix with X-emulation. We then redid the code for a DOS-based machine.

2. All of the difficult hardware stuff and most of the grungy low-level stuff is done by Mark van Coppenolle. He started CaDD Electronics by

designing the Gramulator -- a superior replacement for the MG Gram Kracker. Few people believe this, but I know the following is true: Mark had never seen a Gram Kracker and designed the Gramulator from scratch.

3. I met up with Mark at a Magnetic meeting (Massachusetts Group of Ninety-Nine Equipped Texas Instruments Computers). He quietly asked if we would like to see a demo of a hardware project he had been working on -- and there was the first Gramulator, still wire-wrapped. Greg and I used to work at Xyvision (I still do). Our main project was xypc -- an emulation of a Xyvision character-based terminal on a PC.

Somehow the three of us hooked up about four years ago, and have been together ever since. We flew a test balloon by writing an article for Micropendium that appeared in the Aug 92 issue. The premise was that we would go ahead with the project if 1,000 people would each send us a non-refundable \$1 to show there was support out there.

We only got about 100 replies -- but a lot more money. One guy sent \$50, of which we returned \$49. Right then we should have walked away from the project as it was clearly not commercially viable. But I kind of conned Greg and Mark to go for it as a "fun" project.

One of the premises was to develop the software in "stages". Stage 1, for example, didn't have sprite support in the 9918A emulation, and so on. The idea was that you would subscribe to the project and it would be completed in stages until "everything" was emulated. We envisioned five stages, and set a price of \$49 per stage, for a total of just under \$250.

Things were going along reasonably well until the release of TI Emulator (later V9T9). Since it was given away (with virtually no support), it was the de facto choice and was embraced by the TI community. We looked at one version (I think it was 5.0) and found many glaring faults

and omissions. We were also horrified that it had been written in assembly code and that the code was almost undocumented.

The thing that hurt us the most was that TI Emulator blew us out of the water in terms of performance. Some people did speed comparisons. We did too. Ours showed that in some cases the asm code was 10 times faster than the C code. There were also some unfair external tests. TI Emulator does stuff like its own floating point arithmetic. The danger here is that the result may not be exactly the same as the 4A's. In these cases, there was about a 30:1 disparity in speed.

So we bit the bullet. We yanked the debugging code into a series of `ifdefs` and introduced PC99A in addition to PC99. The "A" was for accelerated, and we got to the point where the minimum recommended machine became a 486 66. I never wanted to worry about the speed issue because it was my contention that the PC hardware power curve would soon be at the point where it didn't matter. Instead, I wanted to concentrate on the accuracy of the emulation. But because of the presence of TI Emulator we were forced to improve performance.

We also suffered one other disadvantage: We had gone to the trouble of negotiating with TI for a software license to distribute the console ROMs and GROMs, as well as the ROMs and GROMs in the command modules. We pay TI a royalty for each PC99 sold. It didn't seem to bother the author of TI Emulator (or the rest of the TI community) that copyright laws were being broken with its distribution.

From the beginning our goal was to emulate the 99/4A as closely as possible. Because of that, programs such as Bruce Harrison's lute music (which uses a timing loop in the TMS9901); Advanced Diags which reads inter-sector information on the disk; and Fast-Term which gets down to the TMS9902 chip level on the RS232 card, all work correctly. We also do the p-Code card, which is still a mystery to many 99/4A users. One of the strengths of PC99 is the "mini-screen debugger". This

tool allows you to stop the emulation at any point, and change virtually anything. There is no debugger running on a 4A that can do this. We can even explore MG'S Explorer!

The code for PC99 is nearly all written in C. We use the Watcom 10.0 C compiler. We went through the pain of the bugs in Microsoft's C 6.1, and C 7.0 and then switched to Symantec. When we found a repeatable but in the Symantec compiler, we couldn't find anyone to talk to us. Eventually some email informed us that we would have to pay for support! We have called Watcom twice. Both times we spoke to a person, and twice they actually answered our question. That sure beats "press 1 for..."

I also wanted some useful utilities for PC99 and ended up writing most of those. For example, a PC99 "disk" is a DOS file, laid out in TI order. The utility "dskdir" can read this disk from DOS, and display a Disk Manager-like output of the TI contents of the disk.

Other important utilities allow you to import and export files to DOS, and to send and receive disks from a TI system over a serial line. As part of a demo we usually show TI Writer in PC99, create a small file, export it to DOS, convert it, and then import it into WordPerfect. We also finally tracked down a version of PC Multiplan, and do the same with the SYLK files. It all works quite well."

Tell me a little about CaDD Electronics - is PC99 all you do?

I looked back at some of the stuff I sent you, and there isn't too much more to tell about CaDD Electronics, but here goes:

After the wire-wrapped Gramulator had been developed and debugged, Mark (van Copenolle) set about making a production version. This was created on an expensive 4-layer board. There is quite a lot of preparation that has to be done before you submit the design to a

production house. And, the worst thing about hardware projects, there should be no elementary (or other) mistakes, as they are very costly to rectify.

As the Gramulator took shape, Mark decided he needed a company name to take the product to market. He came up with CaDD (which stands for Charles [his son], and, Desiree [his daughter], Diane [his wife]). Very few people know this.

A real hassle, and a lot of expense, was caused by the development of the outer case. One thing in particular that was designed into the Gramulator was to make it easy to change the battery. This was a front-mounted holder needing just a coin, compared with the taking apart of the Gram Kracker).

One Sunday morning I was sitting at home when there was a knock on the door. It was Mark, and he was holding Gramulator 00001. I still have that first one, and it was instrumental in converting many of the TI carts for use with PC99.

The next problem had to do with documentation. In a previous life I had been involved in tech doc, and so I volunteered to do the manual for the Gramulator. This was well before decent PCs and decent printers, so I did it on a Xyvision system, after hours. We tried to follow standards for typeface use (e.g. Courier for messages, etc), and auto-generated things like the table of contents. Today, we would do much of that on a PC (probably using WP 7.0).

We also generated a couple of ads and placed them in Micropendium. The Gramulator was available in kit or fully-built form. One of the differences between it and the Gram Kracker was that it did not have a built-in editor. This had to be loaded from disk. Mark wrote this code (TI assembly).

The next step was the development of the MBX emulation. This became an "option", and we tested it and the documentation on Gramulator 00001. We now had something that the Gram Kracker could not do. The MBX emulation also required us to extend the "MG header" on GRAM files so that the Gramulator would recognize them and load them into the correct memory areas. This scheme was carried over to PC99.

For the next couple of years, Mark continued to sell Gramulators, but arrived at a critical cost decision. It was only economic to make boards in runs of 100, and as the first batch was getting low the question came up for the next run. The boards were just within budget, but the thing that broke the back was the cost of the outer cases. As a result no more were made.

Around that time PC99 got under way, and we incorporated it into the CaDD umbrella. For the first couple of years Mark did all the order handling, but it started to prove too much. So I took over all of the boring (but horribly important) stuff like customer records, order servicing, and so on. We have tried to maintain a standard of excellence in dealing with customers. Except for one or two cases where I have been overseas, we have always been able to ship an order the day after receipt [*RS – I can confirm this; the standard of service from CaDD is very high*]. Very few firms involved with the TI can claim that.

[As an aside, I've never really understood why this can't be done. Since the same amount of work has been done sooner or later, it seems logical to do it sooner rather than later!]"

PC99 can be ordered from CaDD electronics. In addition to the core PC99 software, a comprehensive library of TI module, disk and cassette software is available. There is a nominal fee for each item purchased.

PC99 Stage 3A pricing

New purchaser:

| | |
|---------------|------|
| Full product | \$94 |
| Light product | \$47 |

WARNING: There is no guarantee that any further development will take place after stage 3A. Please understand this before placing an order.

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Group Financial Report

| INCOME | 1995 | 1996 | 1997 |
|---------------|-----------------|---------------|----------------|
| Subscriptions | £967.5 | £765.98 | £625.5 |
| Interest | £14.08 | £12.22 | £11.24 |
| Sales | £47.25 | £0 | £11.25 |
| Donations | £0 | £13.5 | £26.75 |
| Total | £1028.83 | £791.7 | £674.74 |

EXPENDITURE

| | | | |
|--------------|---------|-----------|---------|
| TI*MES | £524.57 | £1,321.75 | £315.91 |
| Room Hire | £80.00 | £147.00 | £40.00 |
| Expenses | £14.90 | £41.33 | £0.60 |
| Bank Charges | £0.00 | £10.00 | £0.00 |
| Equipment | £614.16 | £127.81 | £586.58 |
| Disk Library | £0.00 | £0.00 | £80.00 |

| | | | |
|--------------|------------------|------------------|-----------------|
| Total | £1,233.63 | £1,647.89 | £1023.09 |
|--------------|------------------|------------------|-----------------|

| | | | |
|----------------|------------------|------------------|------------------|
| Balance | £4,049.18 | £3,192.99 | £2,844.64 |
|----------------|------------------|------------------|------------------|

EXPENDITURE

| | | | | | |
|--------|-----------|--------|--------|----------------|----|
| TI*MES | Summer 96 | £60.73 | £39.44 | £100.17 | 53 |
| | Autumn 96 | £71.75 | £35.44 | £107.19 | 54 |
| | Winter 96 | £71.75 | £36.80 | £108.55 | 55 |
| | | | | ----- | |
| | | | | £315.91 | |

Cont...

Group Financial Report

BBS EXPENSES etc.

| | |
|---------------------------------------|----------------|
| Phone Bill for BBS (Mar 96 - May 96) | £24.78 |
| Phone Bill for BBS (June 96 - Aug 96) | £24.78 |
| Phone Bill for BBS (Sep 96 - Nov 96) | £25.68 |
| Phone Bill for BBS (Dec 96 - Feb 97) | £25.68 |
| Sundry BBS expenses | £30.10 |
| PC for BBS | £370.00 |
| Graphics card | £70.00 |
| Disks for TI*MES 55 (87 @ 18p each) | £15.56 |
| | ----- |
| | £586.58 |
| | |
| Room Hire AGM 1996 | £40.00 |
| | ----- |
| | £40.00 |

Subscriptions Renewal

As I am sure most of you are aware, at the 1997 AGM it was decided that all Memberships would be synchronized from June 1st.

So renew your subscription now and continue getting TI*MES four times a year.

| | | |
|---------------------------|-------------------|---------------|
| Renewal rates are only :- | UK Members | £15 Per Annum |
| | Overseas Europe | £18 |
| | Worldwide Airmail | £22 |

Subscriptions To :

**Membership Secretary /Treasurer - Alan Rutherford
13 The Circuit, Wilmslow, Cheshire, England. SK9 6DA**

12th International TI-Tref Oktober 24, 25 and 26, 1997 Ibis Hotel, Utrecht Holland

Come to Holland for the dikes, tulips and cheese. See Amsterdam, Rembrandt, Van Goch and the windmills. Drink the dutch beer and gin and.. visit the TI-Tref in Utrecht. What more do you want from a nice holiday in the old historic country of the Netherlands.

The Dutch TIUG (TI-Gebruikersgroep Nederland) is the 1997 host for the 12th international TI-Tref. All European groups will come to Utrecht Holland to celebrate the survival of Taxy and the Geneve.

See the latest European and American soft- and hardware for your favourite computer and meet TI users from many countries.

The event will be held in the Ibis Hotel in the old town of Utrecht. Address: Bizetlaan 1. The hotel has special roomrates in the weekend of the Tref: \$40.- for a double room/night. telephone: 00 31 30 2942066

The Tref will be a three days event: we start to built up Friday Oktober 24 at 5.00 pm and leave the Ibis Hotel Sunday in the afternoon.

For more Tref-information write or phone to Berry Harmsen:
1e Oosterparkstraat 141 E
1091 GZ Amsterdam (Holland)
telephone: 00 31 20 6941047



The European TI Fair of the year hosted by the Dutch TI User Group.

