820 NEXT J 830 IF L=5 THEN 1010 840 FOR J=1 TO 4 850 FOR J1=1 TO 4 860 IF D(J)<>B(J1) THEN 920 870 CALL HCHAR (IA.21+L,120) 880 B(J1)=0 890 D(J)=8 900 L=L-1 910 IF L=5 THEN 540 920 NEXT J1 930 NEXT J 940 GOTO 540 950 CALL SOUND (150,330,2) 960 CALL SOUND(150,262,2) 970 FOR J=1 TO 4 980 CALL HCHAR(23,8+2\*J,C(A(J))) 990 NEXT J 1000 GOTO 1060 1010 FOR J=1 TO 3 1020 CALL SOUND(100,262,2) 1030 CALL SOUND(100,330.2) 1040 CALL SOUND(100,392,2) 1050 NEXT J 1060 PRINT "TRY AGAIN?(Y/N)"; X+8,AI) AAHOH LIAO 080 1070 CALL KEY (0,K,S) 1080 IF K=89 THEN 380 1090 IF K<>78 THEN 1070 1100 CALL CLEAR 1110 END AND FINALLY ..... Get those articles in.....



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All items in this magazine are the views of the authors. Any item which is submitted may be edited to fit the magazine, however we do try to insure the author's message is transposed.

The EDITOR cannot be held responsible or financial loss from any article produced.

In line with the new policy, the TI\*MES will now be mostly of a text nature, which gives you a more compressed format.

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### Contents

### The Editor Writes

Pg 1 The Cover.

Pg 2 Committee

Well the AGM has come and gone and we are now looking forward to the TREFF. It was good to see all the old faces again and some new ones. As well as being the editor I will now be duplicating and posting the magazine. Quite a few comments were made about the content of the magazine and the fact that it was just being filled by world e-mails. So to fix this what do we need? Yes more articles. Please can you send in any articles which you may have. If you have a different opinion please email me or call me. I would like to know what people think of the magazine be it good or bad.

Although I have my trusty old TI set up in my office I never get time to use it. I was hoping to play some of those old games again but I just don't get time any more. I will try and set up a TI emulator on one of my PCs, to try and make using the a Ti easier. I think that it could be much easier running it in a window. Pg 24 And Finally....

One thing I have noticed with the group over the years is the constant decline in membership. We are now left we the few die hards. Yet there must be many more TI's in circulation. Every two weeks one is sold on Ebay for around £25. Would it be worth e-mailing these people and asking them if they want Derek Hayward: derekthayward(@supancnioj of

Since the last mag we have also had a addition to our family. We had a baby girl, Emily, born on the 4th April. The was our first child and it was a momentous occasion for me.

I am still busy with work doing all my clients P11d's and end of tax year forms. Contract and the contract of the second s

If any member wants their tax return completed I will do it from £25 + VAT. Doog abis doi: boog 2 bis doi 1 Trevot Stevens: trev@mansfield-notts.co.uk PAGE 4

One thing that has been happening recently is their is a number of people setting up small companies selling computer equipment. However they are only replacing small companies with 2 or more employees as these seem to be going out of business as do other small shops such as cafe's.

Unfortunately I am handling some insolvencies at the moment and have a number of 2<sup>nd</sup> hand monitors, Laser Printers and network cards for sale on behalf of the insolvent companies. If any one is interested please e-mail me. If no buyers come forward these items will be auctioned or offered to the highest offer.

Below is a change of address form, please use this to change details.

Name		

New Address

New Post Code

New e-mail

### 16TH TI TREFFEN Wuppertal, (by Francesco Lama)

Last October Claire and I attended the 16th TI Treffen in Wuppertal. We had booked up to go in August, and managed to get cheap air tickets with Buzz, a subsidiary of KLM who operate out of Stanstead airport. Since we were flying I was unable to take any equipment with me, and this gave me more time to chat to other participants and to enquire about various new developments. The flight over on Friday the 5th October was uneventful, though it was impossible not too feel a certain apprehension after the events of September 11th. Despite flying with a low cost airline we landed in Dusseldorf ahead of schedule, and were very grateful that Michael Becker (SNUG) had sent us precise details about reaching Wuppertal by S-bahn changing only once at Dusseldorf Central Bahnhof. You soon realize you are in one of the main industial areas of Germany, the Ruhr, and vet there is a lot of open countryside between towns. It was getting dark when we reached Wuppertal (about 20 km from Dusseldorf) and we decided we would not risk getting lost in a strange city, but rather get a taxi from the main station to United Evangelical School of Mission, which I expected to be a fairly modest building somewhere in town. I could not have been more mistaken. The taxi ride seemed to be taking us up a steep hill enveloped in rather thick vegetation, and we certainly did go round a number of hairpin bends. We soon reached what looked like a small university campus with a number of nice 4 or 5 storey buildings situated in pleasant grounds. We knew all the other participants were having dinner at the "Brauhouse" somewhere in town, but we soon found our way to a very comfortable room on the third floor. A little later Michael Becker came to invite us downstairs for a snack and some drinks, which were available in the meeting room. There we found Goetz Feuerstein, the organizer, Wolfgang Bertsch, Oliver Arnold, Berry Harmsden, and a few others, who had just returned from the restaurant. It was then that Wolfgang decided to show Claire and I a game he had been writing, called TIL-

LIONAIRE. Yes, I don't need to tell you what it was inspired by. The German counterpart is clearly very similar to the British TV quiz, because we could almost immediately guess what all the options were. The only problem was that the questions were in German, and Wolfgang had to translate for us. We didn't do too badly, considering that the questions were tailored for a German public: Claire managed to win 50000 (it does not say what) with some help, I risked much more and won much less. The game is certainly entertaining and beats having to pay for the pleasure of playing it on the net. It would however require an English database of questions and answers clues, in order to make it plavable by English speakers. More about this later. After a very restful night and a hearty German style breakfast, including salame, cheese, toast, rolls, honey, jam etc., all served in the canteen down the corridor, the meeting got under way in earnest. There were a large number of demos, some of which I am afraid I do not remember well enough to report about. These took place in a room on the opposite side of the corridor from the meeting room which was equiped with a wide screen television, so as to enable a larger audience to follow what was being shown.

After Wolfgang Bertsch demonstrated "Tillionaire", of which Claire and I had had a preview the night before. Many more features were highlighted now, making it clear to me that I would have to get hold of a copy of this before returning to England, with a view to creating an English version of the database, so that this very good game could be enjoyed by English speakers in the absence of a translator (I have, of course, informed Wolfgang of my intention, and he is in favour). I have today received version 1.1 of this game. I hope to be able to produce the database early in the new year, so, if you are coming to the workshop in Milton Keynes (February or March), it will probably be ready.

Fred Kaal, from the Dutch TI User Group, and author of the famous DM2K (the only disk manager with an MDOS version which can handle SCSI drives on the Geneve), presented DU2K. This is a disk utility (written from scratch) which can be used to format and initialize SCSI drives to a maximum of 260Mb on the TI99/4A and the Geneve (yes, Geneve users no longer have to resort to formatting their drives on the TI99 first!). The same utility can also format ordinary floppies. This utility also makes it possible (here I am just quoting Fred) to create a mirror from the disk structure to sectors >20 through >3F or to a file". "Restoring a mirror back to sectors >00 through >1F from the mirror or file is also possible". The program has been tested using a SNUG built ASCSI card and an Iomega ZIP drive and Quantum Lightning 540S hard drive. I am also going to distribute this at the workshop, or to anyone who asks me for a copy.

Oliver Arnold demonstrated the latest version of his Multi Disk Commander (MDC) program, which is a very sophisticated disk manager for any type of medium which can be used on the TI99/4A. Unfortunately all the documentation on this program is in German, so I'll have to write about the new feature which really impressed me during the demo (hence I can still remember it): backing up a hard drive need no longer be a pain. Oliver has enabled his program to copy directory structures. This is really great news! We can now set our TI copying a whole hard disk to another from the root directory, go away for the day (maybe longer if it is really full) and come back to find the job done! I will show this too at the next workshop.

Michael Becker demoed another excellent program by him and Harald Glaab (not present) called HRD16SAV. As you may have guessed by the name, this program enables one to make RAM-DISK image on a SCSI hard disk in the shape of a single file which incorporates every detail of the RAMDISK, down to the DSR. After your RAMDISK becomes corrupted all you have to do is save this file back to the RAMDISK and all will be back to normal (as far as your last backup). Anyone who has gone through the rigmarole of disconnecting the battery, reloading the DSR, re-setting the sizes of all the partitions, and re-loading all the contents of each partition knows what a godsend this utility is. Unfortunately, for copyright reasons, the present version is not enabled to run on Horizon RamDisks, but only on Michael's HRD16. Michael also demoed a variety of new features to his cards latest DSRs, and talked about his future projects which include a suped up version of his 80 column card (EVPC2). Though during the demonstrations the language used was mostly German, Berry Harmsen acted as an interpreter. This was extremely helpful for those of us not familiar with the language, and greatly enhanced our appreciation of the finer points. The attendance was very good, proving that there is still a great deal of interest in our old TI99. The room we were in was absolutely chock-a-block with hardware and people. I was very tempted to purchase a number of things, but the restrictions due to having to fly back prevented me and others from buying bulky items.

After Lunch I had to deputize for Trevor Stevens (who could not attend for medical reasons) at the group leaders meeting. This was conducted in English for my benefit and that of a few others. I had been informed that the Austrian group had also offered to hold next years Tref in Vienna. I explained that we were not trying railroad things by offering to hold it in Nottingham again, and they accepted the explanation and the assurance that the 2003 tref will be held in Austria. I must admit that Claire was very disappointed when I told her that it was going to be Nottingham. She really did fancy the idea of walking around in the old imperial city. She'll have to wait another year. I must admit that I did not spend a lot of time exploring the grounds around the school, but Claire did. She walked for two and a half hours exploring the hill we were on and discovered, among other things, a large botanical garden. Full marks to Goetz for choice of venue! On the Saturday evening we had the official tref dinner at a very nice restaurant by the river Wupper called "Kornmuhle". The food was excellent and the wine even better. Before desserts were served this year's Eddie Mauk Awards were given out. SNUG's Harald Glaab got the award for best software developer, Thierry Nouse-Pikel (France) got the hardware one, Wolfgang Bertsch was given the award for his contribution to activity in the TI community, and Fabrice Montype (France again, I believe) got the one for best TI Website. Everyone seemed to really enjoy the evening.

On Sunday 7th morning Claire and I had a fairly late breakfast, and subequently walked down the hill and into town. In this way we had a clearer view of what we had only caught glimpses of before: an aereal tramway. Suspended 60 ft or so above the river on a metal gantry (resembling a monorail), it must be one of the most unusual urban transport systems in the world. Unfortunately it was not running that week-end, because it was undergoing some major engineering work. Still it was an amazing sight, especially considering that it dated back to the early 1900s.

When we returned to the school, in the early afternoon, some of the participants who had to catch early trains or flights had already left. Claire and I were among the last to leave. Our flight back to Stanstead was not until early evening. All in all it was a very successful event. Well done Goetz Feuerstein and all the others who contributed! We hope to see you all in Nottingham next year.

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### better one in me files. I'm baseid gitrod<sup>2</sup> out or modifying programs. Still must get the old bran cells organised.

## 2002 yraunat 8 - So far we have escaped the worst of the winter weather and now

Here I is starting the New Year with the long delayed letter from DORTIG DORSET due mainly laziness but also to other problems. Trevor Tabener had suspected slight stroke a few weeks ago but came out of hospital before Christmas but he is not really mobile. We hope to visit him now the holiday period is over. Again programming here has been very little mainly for me own personal needs but with a bit of effort I hope to send something in with this letter.

We have been very lucky down here one light fall of snow before Xmas which cleared during the day cold and frosty at nights but no rain to speak of so the roads have not been to bad, mind you I'm out before the sun is warming the front garden!!

Had a word with John Bull, he who wrote the bridge program, he is keeping reasonable, 85 years, but does not use the TI now. Spoke to Bruce Harriaon he is getting over his bad spell and can now walk with the aid of a stick, Bruce does not use the TI all PC and internet, though he does help people set up web sites on their PC's. Bruce sends his wishes to all.

Hope to see the regulars at the next TI meeting which I presume will be in Mansfield.

At last here I sitting and me fingers are slowly hitting the keyboard to finish this, date now 22/01/2002, and hopefully dig up a few old programs to help fill the mag: pages. Trevoe Tabner is a lot better and I went to see him and help sort out a problem with PC99 V6, same old problem 'If in doubt read the instructions!!'. Contacted the new editor, Paul, and promised to pass on some of the old TI programs, have dug some out from my disorganised system and hope to get them away soon. Every time I get an idea for a program I realise that there is a better one in me files. I'm better at helping out or modifying programs. Still must get the old brain cells organised.

So far we have escaped the worst of the winter weather and now the local water supplies tell us that unless we get quite a lot of rain there could be a water shortage come summer. This time last a lot of the areas around were flodded.

01/02/2002 Back again still sorting any decent programs for the mag : but every time I look methinks thats been in the mag : before or these are all on the disk that Richard Speed is doing ! ! . My ideas seem to be deserting me but maybe one day inspiration will strike . Trevor Taberner is still awaiting to be treated for his prostate cancer but they will wait untill he is well enough to be treated . Weather here the same as the rest of country gales rain sometimes heavy . Still sofsr we have not experiences the flooding that happened last year . The threat of water shoortage must have been heard by the rain gods ? . Still having problems with me TI Expansion Box so most of me work is done using PC99 , this is a real stand by for me as I've still not got around to using the PC programs for letters or programs .

14/02/02 Once more in FUNWEB. Paid a visit to the Trevor he is starting treatment this week, due to his condition he is having a new treatment injections by his doctor as he is not strong enough to have Chemophery or Radio treatment. Touch wood my cancer is still dormant I go for a check later this month. Today has been the first day for weeks no high winds or rain but a lot colder waiting for the garden to dryout so as to get it ready for planting. Done a disk for the Editor and when sorted out will post

this on for the next TIMES issue ... glad of analog blo was a qu

First vitte PCS9 vice and I want to see him and help sort out a problem is a not see out a problem with PCS9 vice and the index of t

At the AGM people arrived early. I arrived at 12:0 **MDA arr** the last to arrive. Beery from Holland also came and took seme great photos

This years AGM was held in Chessington at SunRise software near the zoo.

I would like to thank Sunrise software for letting us use the conference room for the AGM.

Below is a picture of the view from the conference room.



At the AGM people arrived early. I arrived at 12:00 and was the last to arrive. Beery from Holland also came and took some great photos.

Richard and Francesco bought their TI equipment and Trevor bought a PC.

At the meeting the main point of discussion was the groups finances and the current treasurer. It was voted that Richard would take over as treasurer.

The AGM finished at about 16:00 and we all headed off.



Berry and his digital camera.



This is Richards village which he drew several years ago.



A group photo. "I alrud ad I di ot navig abnam

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## **TI Logo**

Logo was created in 1968. Most Logo work during the 1970s was conducted using large research computer systems. One of the very first commercial versions of Logo for a microcomputer was a coordination of efforts between MIT and Texas Instruments in 1979.

The purpose of this page is to document the versions of Logo available for the TI-99/4 computer, *TI Logo* and *TI Logo II*. Within this document, whenever TI Logo is discussed, you can assume that it applies to both TI Logo and TI Logo II.

### System Requirements

First, let's go over the system requirements for Logo on the 99/4. These are the Logo command module, 99/4 or 99/4A console, 32k (yes, that is thirty-two kilobytes) of RAM, monitor or TV, and a storage medium. The storage medium may be cassette recorder or disk drives.

### Logo Features

Logo has the following features:

- Logo is a procedural language.
- Logo is an interactive language.
- Logo's data structures include numbers and characters strings, but most important to Logo (from its LISP ancestry) is *lists*.
- Turtle graphics. Logo has a turtle that lives "on-screen". This turtle responds to commands given to it. The turtle has the ability to

### resolution is 256 columbia de behind a trail....los 255 si notuloso

ediate mode, type "NOTUR11.E".

### TI Logo Features

TI Logo adds the following features:

- Sprites. Sprites, like turtles, live on the screen. They do not leave behind a trail, but unlike ordinary turtles, can be given a color and shape and can move across the screen smoothly and continuously, without further program control.
- TI Logo II includes *music* commands with up to three voices plus a "drum". Music can be made to synchronize with graphics, and can be played concurrently with other actions without further program control.
  - Integers. TI Logo represents numbers in the range of -32768 to 32767. All mathematical operations are integer operations.
  - Music. TI Logo II adds the capability of music using three tone generators and a noise generator. Music can be synchronized with other processes or played concurrently.

### Modes of Operation

TI Logo has three separate modes of operation. When you first enter TI Logo, you enter the immediate mode, and see the message:

### WELCOME TO TI LOGO!

At this point you can type in immediate commands. To enter edit mode, for example to create a procedure called test, you enter "EDIT TEST" or "TO TEST". The screen will change from CYAN to <u>GREEN</u>, with a red cursor. In the editor you may type as many procedures as you wish. Function-BACK returns to immediate mode. The third mode is Turtle graphics mode. This is entered by typing "TELL TURTLE". The upper portion of the screen becomes a graphics tablet for the turtle. The lower six lines becomes a text window for you to type commands. The TI screen is 32 characters wide by 24 rows. Pixel resolution is 256 columns by 192 rows. To return to immediate mode, type "NOTURTLE".

TI Cartridge Question—From world e-mails

nary turlics, can be given a color and shape and can move across the screen smoothly and continuously, without further program control, collett

I couldn't find any information on cartridge compatibility on the web, so I thought I'd ask the experts here:

Can I use TI 99 cartridges made for US machines with European models, and vice versa? And if so, will a US cartridge in a European model produce PAL or NTSC output?

Any hints appreciated.

Music. TI Logo II adds the capability of the Read a noise generators and a noise generators

You can use the cartridges on either the US or European. NTSC or PAL

output is determined by the version of console (US or European). Ernie

WELCOME TO TI LOGO!

At this point you can type in immediate commands, To enter edit mode, for example to create a procedure called test, you enter "EDIT TEST" or "TO TEST". The screen will change from <u>Corrections</u> to <u>GREEN</u>, with a red cursor. In the editor you may type as many procedures as you wish. Function-BACK returns to immediate mode. The third mode is Turtle graphics mode. This is entered by typing "TELL TURTLE". The upper portion of the screen becomes a graphics tablet for the turtle. The lower six lines becomes a text window for you to type commands. The TI screen is 32 characters wide by 24 rows. Fixel TI VIDEO FAULT-From World e-mails

After more than 12 years of absence I bought a used TI again. The machine is in a very good condition and everything works well ... apart from one bug. Every time there is a graphic with a white background, the picture be-came unsharp, flickering and there is some noise.

My machine is a model with external HF-modulator (pal) ... I cleaned every-thing with contact-spray, but the problem is still there. Has anyone a idea what it could be?

bug. Every time there is a graphic with a white background, the picture be- came unsharp, flickering and there is some noise. My machine is a model with external HF-modulator (pal) ... I cleaned every-

First, I'd suggest replacing the modulator with RCA jacks. Much better picture (mine probably does this because I hacked on it a bit). If you keep the modulator, you can open it up and adjust a pot in there for optimum picture.RCA jacks (called "cinch" in Germany) are not an option for the PAL console, it has no composite video output!

Trying to adjust the coils can help, but mark the original position the are easy to de-tune and hard to re-tune. Sometimes it helps to use the fine-tuning on the TV to get an undisturbed picture.

fault of the computer. When I lived in Florida, a cheapo TV station (69) used to show alot of graphics with white, which would make my TV go buggy like yours... there is a technical term for the problem, it happens often...

cross modulation - the high frequencies from black/white edges interfere with the sound subcarrier.

and told the other stand to a linear materia side , if a

### THE MBX VOICE RECOGNITION SYSTEM------

This is an informative page designed to show you what the MBX system is, how it works with the TI-99/4a, and what kinds of special features it has. It will probably answer many questions you may have about it. I own one, so I took most of this information from the manual. Screen shots of the system and the game I have for it will come later.

An MBX Expansion System is a 3-part system that lets you interact with your computer in a whole new way. The MBX system uses special "Solid State Speech" cartridges from Milton Bradley.

The 3-part system includes a headset microphone; a triple axis analog joystick; and a console with a built in keypad. The console and the headset microphone allow you to use voice recognition, away to control screen action, by spoken words. The console also includes a built in upgraded speech synthesizer. This speech synthesis allows for more realistic speech, character voicing etc. Built in to the main console is a 64 key keypad. An overlay, depending on the game can fit over this, to illustrate the special functions in the game.

The other interesting accessories is a triple axis analog joystick that offers proportional control and total maneuverability of screen graphics. This joystick also features a control knob that can turn counterclockwise or clockwise, it will allow you to control screen objects and turn them 360 degrees!. The way your voice command works is simple, depending on the game, the MBX system will ask you a variety of questions so you can "teach" it your voice. It can adjust to your tone as well, this is thanks to the fact that it asks you the questions 3 times over.

Unfortunately, this system wasn't out long enough for many games to be developed for it. Here is a listing of all the games

### and educational cartridges that were offered:

Honey Hunt- (Bright Beginnings series)- Helps kids out with prediction and pattern skills.

PROGRAM OF THE MONTH

Bigfoot-(Arcade Series)- Much like the TI game alpiner, you get to climb 6 of the worlds tallest mountains. But the Abominable snowman is on top!

Championship Baseball-(Arcade Series)- An extremely realistic arcade style baseball game. The user gets a ton of control with voice, keypad and joystick with batting, base running, sliding, and pitching.

I'm Hiding-(Bright Beginning Series)- Based on bugs who play hide and go seek, the child learns about size shape and color.

Meteor Belt-(Arcade Series)- An interesting intergalactic duel, that's fast paced and fun.

Sewermania-(Arcade Series)- A subterranean search in the sewers, But watch out for the tiny crawling creatures!

Soundtrack Trolley-(Bright Beginnings)- An excellent game which you try to guess the melody that is playing. For all ages.

Space Bandits-(Arcade Series)- I don't know much about this one.

Superfly-(Arcade Series)- You are the fly, trying to survive a cosmic bug attack.

Terry Turtle's Adventures-(Bright Beginnings)- This is a good program that helps kids start to learn basic programming skills. and educational cartridges that were offered:

### **PROGRAM OF THE MONTH**

FEBRUARY 1998 - (asing a grinning of IdginEl) - hull vonoli Brought to you by Thomas Charnota.

Biefoot-(Arcade Series)- Much like the TI game alpiner, you 120 CALL CLEAR matter tailest mountain b o d min at the 130 PRINT TAB(7);"COLOR CODES" got no al manyone elden 140 CALL CHAR(93, "3C7EFFFFFFFFFFFFF7E3C") 150 PRINT :::: "GUESS THE CORRECT SEQUENCE" 160 PRINT "OF FOUR COLORS" 170 CALL CHAR(120,"3C7EFFFFFFFFFFFF7E3C") 180 PRINT :"BY PRESSING THE" 190 PRINT "COLOR NUMBERS" 200 CALL COLOR(12,16,1) 20 printing of interval - patient mil 210 PRINT ::: CHR\$(93);" RIGHT COLOR AND POSITION" 220 PRINT :CHR\$(120):" RIGHT COLOR ONLY" 230 FOR I=1 TO 3 different nA -(estree sherra)-tiell rootsM 240 CALL CHAR((11+I)\*8,"0") 260 NEXT I 1998 Inconstruction A - (20102 obert A) - Birlinger 1999 270 FOR I=1 TO 6 Saliwara unit and not no datew toll growse 280 READ C(I) Soundtrack Trolley-(Bright Beginnings)- An excel J TX3N 062 300 DATA 96,97,104,105,112.113 an oil agong of yit noy doidw 310 CALL COLOR(9,3,16) 320 CALL COLOR(10,5,12) 330 CALL COLOR(11,7,14) 340 CALL CHAR (92, "FFFFFFFFFFFFFFFFFFFFF") 350 PRINT ::: "PRESS ANY KEY TO START!"; 360 CALL KEY (0 K S) 360 CALL KEY (0,K,S) 370 IF S<1 THEN 360 380 CALL CLEAR Innie Chiefeld Hender A solar Terry T 390 FOR I=9 TO 17 and mand of these shill easily that manyong 400 CALL VCHAR (4.1.92.20) 410 NEXT I 420 FOR I=1 TO 4 430 RANDOMIZE

440 A(I)=INT (RND\*6+1) 450 NEXT I 460 FOR I=1 TO 6 470 CALL HCHAR(1,3\*I-1,48+I) 480 CALL HCAHR(1,3\*I,C(I))490 NEXT I 500 FOR I=1 TO 7 510 CALL HCAHR(1,21+I,ASC(SEG\$("0-ERASE",I,1))) **520 NEXT I** 530 I=0 540 I=I+1 550 IF I>9 THEN 950 560 IA=3+2\*I 570 CALL HCHAR (IA,8,48+I) 580 FOR J=1 TO 4 590 JA=8+2\*J 600 CALL SOUND(100,1497,2) 610 CALL KEY(0,K,S) 620 CALL HCHAR(IA, JA, 92) 630 CALL HCHAR(IA,JA,32) 640 IF S<1 THEN 610 650 IF (K>47)\*(K<55)<>1 THEN 610 660 IF K<>48 THEN 710 670 FOR K=J TO 1 STEP -1 680 CALL HCHAR (IA,8+K\*2,92) 690 NEXT K 700 GOTO 580 710 B(J)=K-48 720 CALL HCHAR(IA, JA, C(K-48)) 730 NEXT J 740 L=1 750 FOR J=1 TO 4 760 D(J) = A(J)770 IF A(J) >B(J) THEN 820 780 CALL HCHAR(IA,21-L,93) 790 B(J)=0 800 D(J)=8 810 L=L+1

# REFF

## September 13<sup>th</sup> 14<sup>th</sup> and 15<sup>th</sup>

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