PROPERTY OF EDMONTON USERS GROUP

tidings

VOLUME 2, No. 5

OCTOBER, 1982

iingsTldi

TIHONE

VOLUHE 2 , NUHBER 5 NORDEN SURREY

21st October 1982

TIHOME is not affiliated with Texas Instruments in

any way and is supported only by its subscribers.

IdingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidings ingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidingsTidings

Contents

Editorial	Paul Dicks
Random Dots	Mike O'Regan
Dorset Dialect	Jeff Freeman
Babbling Brooks	Peter Brooks
Enhanced Basic	Paul Karis &
	Franc Grootjen
Rambles	Stephen Shaw
Software Review	Arieh Yacobi
Letters to the	
Editor	
Postscript	Paul Dicks

EDITORIAL

First, apologies to Mike O'Regan for not including him in the Contents of the last issue of Tidings. I sincerely hope he does not cut off supplies of seed or heer to myself and Secretary Birds. I like to sing and I am sure the Secretary Birds would get very dry.

Referring to Peter Brooks comments on the contraction of the command LIST "TP.U.S.E". On my 99/4A, ".U.E" definitely does not work. I just get rude messages.

On the subject of the 99'er magazine. I am hoping to distribute this excellent magazine in this country after January. TI will do the importing along with all the rest of the stuff they import. I will include a subscription form with the December Tidings and will probably charge about £13.50 for a years subscription. I have no way of dealing with back copies.

I get a lot of enquiries from people trying to locate supplies of TI hardware and software. I suggest you look at the adverts in this magazine. A.R.&C. in Cornwall offer very good prices to TINOME members.

For those of you with ExBas it is useful to remember that the command SIZE gives the load size of the program. It does not tell you if it will run. Try loading a program and finding the size.

t. .

Run the program and break it while it is still running. Check the size again. You will find quite a difference. While I am on the subject of size, do not attempt to RESequence YAHTZEE. There is not sufficient space to allow it. You will crash the system and lock your console.

If you have a look at the back of any of your GROM's you may find a serial number starting with the letters LTA or ATA. I am informed that LTA means that the module is for the 99/4, and ATA means that the module is for the 99/4A. This may make some difference to performance, especially when running games like TI Invaders. Let me know if you find out anything connected with this piece of information.

I hope you enjoy this edition of Tidings. Please continue to let me have your comments. They are extremely useful.

Paul Dicks.

ADVERTADVER

Hardly used: -

TI 99/4A TERMINAL EMULATOR II S/SPEECH

All one package...£270 o.n.o.

Telephone: - 07.328-62980 after 6 p.m.

ADVERTADVER

LETTER TO THE EDITOR

- 1. I have just taken out a subscription to the 99er magazine direct from the publishers in Oregon, USA. They DO accept credit cards (Visa, Access known in the States as "Mastercharge") and if you pay by this medium, it does take care of any problems regarding exchange rates, transmission of funds etc. Also, although surface mail is of course slower (taking about a month to arrive) it is much cheaper (\$28 v. \$43 by airmail). So, if you do have the patience to wait for your first copy, then it is worth ordering by surface mail. (After all, how long did you have to wait for the June edition of TIdings?!!)
- 2. I would be most interested in meeting other users in the North and North-West of London (I live in the Harrow area). If their are any other members who would like to get together with me to arrange meetings, please phone evenings/weekends 01-206 0796, or you may be able to get me at work on 01-348 5186. I am VERY new to computing, but very enthusiastic about

2.

programming and exploring the facilities, especially the educational ones, on the TI machine. (I am also a bit worried that my five-year old son appears to have got the hang of the machine quicker than me!)

- 3. I look forward to receiving the revised library list, but I would like to make a personal "plug" for the really brilliant "YANTZEE" program. TI do the game on a command module. Although I have not seen the official TI version, I don't believe that it could be much better than the version obtainable from our library - and of course, you don't have to pay TI's high price!
- 4. How about a regular column for a "sale, wanted, exchange" for modules, peripherals, programs, stc for members? Ferhaps something on the lines of the "Transaction File" published in Personal Computer World.
- 5. I was a bit puzzled by different prices given on various pages of the June edition of Tidings for the Mini-memory Module. Robin Frowd of TI says in his epistle that it costs £89.95 but elsewhere in Tidings it is stated that it costs £115. What is going on? My local friendly and very helpful computer shop, Micro C in London N.W. 1., have also not even heard about it, and after checking with other ntockists of TI equipment in my area, I began to think that the Mini-module was just a figment of my imagination as noone else had heard of it either! I was pleased to read that TI are bringing out the Editor/Assembler kit shortly at what seems a most reasonable price. However, this system does require the disk memory system which at the moment is prohibitlyely expensive. More strength to BB's campaign to get TI to price all their equipment at levels we can afford!
- 6. I enjoyed Stephen Shaw's review of Tombstone City but I cannot really agree with him that the title music is facinating. It is the most dreadful and dreary quasi-country and western music that I have ever heard. (A tip for new users of this facinating game get out and get them before they get you! Start shooting at the pair of "saguaro" cacti at the top left of the screen and work across and down the screen until you have destroyed all adjacent pairs of generating saguaro, and a new day begins.) My maximum so far is just over 100,000 on day 11 but this was on level 1. On level 3 I couldn't get passed 12,000 on day 3. Can anyone do any better? WARNING the game is highly addictive and you know you have been playing too long when your eyes can no longer focus on the screen and you begin to see little green men in front of your eyes even when the game has finished!

Yours

Arich Yacobi



ARITHMAGRAPHS 111

I was about to give you the complete solution to my previous runs of this puzzle when I thought it would be better to give you port of the onswer instead. Those of you who connot now work out the complete digit set from the puzzle below had better follow Pete Brooks' new series on Basic Maths!!

ARITHNAGRAPHS

HUNISED BY HIKE DIT ON MANAN STRAMMANANANA THESE SYMBOLS REPRESENT NUMBERS TRY TO FIGURE THEN OUT!

4≇I +	Х	≇4 +	=	24 815 +
≩ 4	х	34	=	1938
 ≹11		<u>55</u>		2#\$14
4 5 0	x	105	ŧ	103540
÷		+		÷
10%	Х	12	Ξ	124#
1055		120		10113

UDYSTICKS WITHOUT TEARS

Remember me clopping my ting hands and generally Feaming at the wouth (as Pete Brooks Hould say) at the introduction of new joysticks (on wired nemote controllers if you are a stickien for occuracy). Well, My joy Was nother short-lived when I realised that the new goodles were most neluciont to MOVE ANYTHING DIAGONALLY!! Perhaps some of you out there have also noticed? Well this little Foult, (which should really have been spotted by TI before distribution began), is because of the internal construction of the 'sticks. There one only 4 contacts (connesponding to North, South, east, & West) and the in-between (diagonals) one selected by the ming on the stick moking TWD contacts simultaneously. The thouble is that the foom rubber which lies between the ring and the contacts is too 'Floppy' to ensure that two contacts con be mode without undue pressure (which, in turn will break your sticks). Thonkfully, the cure is quite simple: Conefully open your 'sticks by removing the two screws. with a small cross-head schewdriver. Remove the stick and use the ring at the base to mark out a small ring of thin plostic (about the some thickness and consistency as a layer of a cheque-book cover) and insent this between the shoft base hing and the foom nubber, Now neassemble and you will see that diagonal movement is now a doddle.

Another tip on Joysticks. If you are heavy-honded and play lots of joystick-openated games, then change the shofts between sticks accessionally to avoid all the strain being applied to the same stick. SPEAK UP!!

Here's a short prog to exercise your speech synthesizer and Editor on EvEas module. Alas the vocabulary is a bit stilled but it should be DK for demos of speech on for your children to play games! Next week, when I expect to receive my Terminal Emulator II, I should be able to improve on the game considerably.

110 FOR J=1 TO 9 120 CALL COLOR(J,16,5) 130 NEXT J 140 CALL SCREEN(5) 150 DIH WORD\$ (25) 160 PRINT "ELEMENTARY SPELLING P RACTICE": : : 170 PRINT " COMPILED BY MIKE D' REGAN": : : : : 180 PRINT "IF YOUR SPEECH SYNTHE SIZER AND EITHER SPEECH EDITOR TR EXBAS IS IN PLACE, THEN PRESS ANY KEY TO START" 190 CALL KEY(0,KY,ST) 200 IF ST=0 THEN 190 210 CALL CLEAR 220 DATA ANSWER, BETWEEN, CASSETTE , CONTA, CONMAND, COMPLETE, CONNECTE D, CONSOLE, CYAN 230 DATA DIFFERENT, EXACTLY, FIGUR E, GUESS, HIGHER, INSTRUCTIONS, MAGE NTA, MESSAGE, MODULE 240 DATA NEGATIVE, POSITION, RANDO MLY, SHOULD, THROUGH 250 REM READS WORDS INTO WORD\$ A REAY. 260 FOR K=1 TO 23 270 READ WORD&(K) 280 NEXT K 290 CALL SAY ("PLEASE+SPELL+THESE -+WORDS") 300 C=0 310 FOR I=1 TO 10 320 REM RANDOM SELECTION OF WORD FROM ARRAY 330 RANDOMIZE 340 SPEL\$=WDRD\$((RND¥22)+1) 350 CALL SAY(SPEL\$) 360 INPUT "SPELL IT NOW ": GR 370 IF GB=SPELT THEN 560

380 REM SELECTS DME DF TWO ANSWE RS AT PANDDH 390 Q=INT(RMD*2)+1 400 DN Q GDTD 410,430 410 CALL SAY("ND") 420 GDTD 440 430 CALL SAY("#THAT IS INCURRECT #") 440 CALL SAY("IT+SHOULD+BE") 450 PRINT "IT SHOULD BE "; 460 REM SPELLS OUT WORD DNE LETT ER AT A TIME 470 FOR K=1 TO LEN(SPEL1) 480 CALL SAY(SEG\$((SPEL\$),K,1)) 490 PRINT SEG&(SPEL&,K,1); 500 NEXT K 510 GOTO 640 520 Q=IMT(2MRMD)+1 530 DN 0 CDTD 540,560 540 CALL SAY("0+K") 550 GOTO 570 560 CALL SAY("RIGHT") 570 C=C+1 580 FOR PSE=1 TO 200 590 NEXT PSE 600 Q=INT(2*RND)+1 610 DN 0 COTO 620,640 620 CALL SAY("WHAT+ABOUT") 630 GDTD 650 640 CALL SAY("NOW") 650 CALL CLEAR 660 MEXT I 670 REN TELLS YOU THE SCORE ETC. 680 CALL SAY("YOU+HAD") 690 IF C=10 THEN 700 ELSE 730 700 CALL SAY("TEN") 710 CALL SAY("#GOOD WORK#") 720 0010 740 730 CALL SAV(STR&(C)) 740 CALL SAV("CORRECT") 750 IF C (10 THEN 760 ELSE 770 760 CALL SAY("TRY+FOR+TEN") 770 FOR PSE=1 TO 200 780 NEXT PSE 790 Q=INT(2*RND)+1 800 DN & GOTO 810-820 810 CALL SAY("AND") 820 CALL SAY("NDW") 830 GOTO 290

Observont members mouhave noticed that a couple of us have at last managed to get some 99/4 progs published in the 'populor' micho press (as Far as I know Stephen Show and yours truly one the only ones to date (10 Dct), so it seems that Robin Frowd's kind offer on Page 68 of Tidings (90% 2, No. 4) may have come too late For most of you to benefit. The micho press seems to publish about two menths. chead, so the 'deadline' of Si December may be too tight Anyway, on the general subject of selling orticles/ programs to magazines, it seems that there are quite a few pitfalls for the unwong. First is the vext question of poyment. Τo be realistic, I consider that the Fees paid For moterial in the micro press one, to say the least, wildly different, from 13-6 ot the bottom end to £100+ ot the top end. To make this even more confusing, the scale of fees is not even roughly related to the extent of copyright demonded. by each magazine. I get the distinct impression that some of the smaller (and dare I say less experienced) mogazines are paying much too little for Material. This may account for the low stondords mentioned by Stephen Show in RAMBLES. Personolly, I would not sell any of my programs for Five on six pounds to ony magazine!! It's just a pity that so many micho-Fons are so eager to see their name 'in lights' that they are queuing up to self. what must amount to many hours work for a mess of potoge!!

Think of it this way, what does a magazine pay for editorial matter other than programs and consider that both represent pages of copy. I can't see any of the well known names which, os Stephen optių points out seem to appear in Many different mogozines, accepting 13 for a page of text. If a small new mogazine such as PCT (Personal Computing Today) can afford £20 FDR A SUBROUTINE ONLY then surely the big boys can afford a realistic fee For your brainchild.

It's up to us, really to decide what we think is fair and to shun the mags who consistently pay well below the odds.

Before I leave the subject of mogozines, just a few words about listings. Some of you will have thied to run my game 'Blind Maze' (PCT October) and found that the listing, as printed would not run. This is too bad, as I am not in the habit of publishing programs which will not run. One reason why I bought my Thermol Printer was to avoid just this foult. In other wonds, if the program listing is printed. out by the computer, then mistakes in transcription are avoided. As usual, I sent PCT a 'bug-free'listing, which they, for some reason of their own, gow fit to have transcribed to onother printer, at the some time generating three mistokes, one of which stopped the program running. I will correct the offending lines at the end of this onticle.

In one of the conlier. DDTS opticles I mentioned that I use EXBos For working on TIBosic progs. becouse of the better Focilities of the Former. At the some time, I like to ensure, as far as possible, that my TIBosic programs will run (usually) Faster) in ExBas. (IF you hoven't yet got Exbos then been with me.) Although ExBos will 'thonslote' poins of colons. lused as PRINT spacers in TIBOSic) if the program was originally written in TIBogic, it will not space them out if they are written during on editing session in ExBas, but will leave them in points and necognise them as multistatement seperators if the program is subsequently RUN. in ExPos. I must admit that this one Foxed me For a bit. The moral is to leave spaces between colons, if you wont to use them os PRINT spocens in either ExBas on TIBosic.

UNCONNECTED DOTS

I like the new Format of Tidings - If the SECRETARY BIRDS on the EDITOR insist on leaving RANDOM DOTS OFF the 'Contents' page they will have their birdgeed/ been supply cut! - what hoppened between August and October ~ I often morvel of Pete Brooks' prodigious output and shudder to think. what it would be like if he used oll ten fingers! - seriously, though, i very much like the BB new look! ~ plone to swomp the micro press with dozens of TI 97/4 Christmas Carols seem to have been delayed. until next year HERRY CHRISTHAS to off !!

We went on the Thursday. to avoid the crowds - HAHA. It must have been munder on the busy doys'! I know that We are glad that my pol Les left his guide dog at home - it would have been kicked to death. It seems that this show is a victim of its own success. The venue was much too small and so were most of the stonds, TI included. Moybe next year it will be at the NEC and save us 'northerners' a long trip to the 'smoke'. think that TI could have done a roaring trade with the notty I'M A PPER tee-shirts worn by Robin Frowd and his mates. However, when I enquired about a free shirt for some of the TINDME stolworts I was told that the shirts one og nore og nocking-honse sett!! I am now exploring the possibility of having o nice swepter, complete with TI logo, mode up to motch my HEWLETT-PACKARD. onettt

CORRECTIONS to "Blind Moze"

Delete the following lines and substitute these correct ones:

1580 IF (J(2)+(J(3))+(I(4))+(I)))+(M(I,J)=128)THEN 1660

1860 CALL SCREEN(11)

1890 CALL SCREEN(5)

Mike o'Rega

Flat 2, 12 Belmont, Lansdown Road, BATH BAISDZ.

12th. October 1982

Dear Paul,

I've just received "Tidings" Volume 2 Number 4, & I'm very impressed with the new compact format. In your editorial you ask for "Letters to the Editor" (what about letters to the Assembler, eh?.... just my little joke), so here is my effort! I've picked up a few things of interest in the 6 months I've owned my 99/4A - unfortunately I've no means of typing them. I'd invest in a typewriter, but most of my spare cash seems to mysteriously disappear in the general direction of Dallas. A not uncommon affliction amongst 99/4 (A) owners, I imagine.

Anyway, on with the waffle. I shall try & make it as legible as possible.

Firstly, an update on the Personal Computer World benchmarks for the 99/4A which appeared with the somewhat lukewarm review of our hero in the March 1982 PCW. The timings for Extended Basic were painfully slow (50-100 per cent slower than TI Basic) but, as Stephen Shaw reports in August's "Tidings", the new Version 110 of Extended Basic is much faster than the Version 100 that (presumably) PCW used. I'm not sure I'd go along with his theory that Version 110 ExBas runs 30 per cent faster than TI Basic, though. It still runs marginally slower than TI Basic on my console.

The 99/4A PCW benchmarks appear in the first two columns of the following table, with my timings (using the PCW programs) for Version 110 ExBas in the third column. As you can see, the speed improvement is quite remarkable.

BENCHTEST	TI BASIC	EXBAS 100	EXBAS 110	
1	3.0	6.2	4.1	
2	9.0	18.5	11.6	
3	24.0	40.0	29.6	
4	24.8	40.1	29·6	
5	26.2	42·0	32.5	
6	61-9	98.4	62 [.] 3	(all timings
7	84.6	140.3	92.9	in seconds)
8	38.4	24·0	21.1)

Pete Brooks, in August's "Tidings", wondered why he was unable to "peek" his Extended Basic program. This is because 'EEK (& LOAD for that matter) can only look at those memory locations which are directly addressable by the main TMS9900 nicroprocessor, i.e. CPU RAM (& ROM); & under TI Basic (or Extended Basic without the Memory Expansion), programs are stored in the RAM which belongs to the separate TMS9918 Video Display Processor (VDP). This memory cannot be accessed directly from the PEEK command & sor would make it seem like the program wasn't there at all. In fact, in the basic (small "b") console there are only #kbytes of CPU RAM, and those are purely for the operating system etc. The 16K RAM which is so oft-mentioned by the bespectacled man in the pullover who can't afford a shaver is all VDP RAM. And since the VDP needs to grab some of that for its screen & colour tables, only about 14'2 K is available for Basic program / data storage. Still, what's 1'2 K between friends?

So, the best solution to the problem is to get hold of the Mini Memory module & use its PEEKV command, which allows you to examine VDP RAM. Plus you get an excellent memory map which should clear a lot of the mist, not to mention mystery, which hangs over the internal workings of the 99/4 (A). While we're on the subject of the Mini Memory, I don't 9. think it has been emphasised enough that the Mini Memory and its Line-ty-Line Assembler contain no information whatsoever on programming in TMS9900 Assembly Language. The manual itself warns that "it is assumed that you are experienced in TMS9900 assembly language programming." Whilst that is fine for those who have this experience (myself included, I'm relieved to say), it's not much fun for someone who thinks it will be the answer to his/her prayers when they find they are referred to the Editor/ Assembler manual for further details whenever anything useful seems to be happening in the Mini Memory. To paraphrase Private Eye, "I think they should be told!"

Right-off my mini-scraptox now and on to matters more serious - like an error in the Mini Memory manual. It concerns one of the ROM utility routines called via XMLLNK. On pages 46 & 50 of the manual, it is stated that a code of 23 should be used to link to the CIF (convert integer to floating point) routine. This part of the manual has obviously been copied wholesale from that for the Editor/Assembler, where 23 is the correct code to use. However, with the Mini Memory the code to use is 72, i.e. to call CIF, use: BLWP @XMLLNK DATA >7200.

This is quite important if you want to pass arguments back to a Basic program from a TMS9900 subroutine - vital, in fact!

One of the main differences between the 99/4 & the 99/4A is, as Stephen Shaw points out, the VDP chip. The 99/4's use a TMS 9918 whereas the 4A uses the newer TMS 9918A. This newer processor can be configured into an extra graphics mode in which individual pixels on the screen can be turned on or off, with a greater degree of flexibility of colour definition. This can only mean - I presume - the advent of graphics software which will run on a 99/4A trut not on a 99/4. The high-resolution demonstration program which accompanies the Mini Memory's Line-by-Line Assembler (and which caught my eye on the TI stand at the PCW Show in September) may be just the beginning. An interesting thought, no?

For those who do have a 99/4A and the Mini Memory hi-res demo program, it is possible to control the number of lines drawn by the program in each picture before it freezes & starts again. The memory location containing the number of lines drawn is the word (2 bytes) at address 7ED4 (hexadecimal). The standard number of lines drawn is 80, so the normal contents of 7ED4 are 0050 (hex again). But using the M option of Easy Bug (what a name!) you can vary this up or down. For example, 0001 will draw one line, & 0200 will draw 512. But beware - a value of zero (0000) will cause 65536 lines to be drawn per picture, & even at the rate of 3 per second, that means 6 hours per picture!

of 3 per second, that means 6 hours per picture! One last point on the Mini Meniory. If you use the 4K RAM in the module for storing Basic programs or assembly language programs already developed with the Editor/Assembler, then most of the 4K bytes are available to you. However, if your only means of developing assessibly language programs is the Line-by-Line Assembler (red that's not much fun if you don't get it right first time, with no Disassembler available), then you end up with only 3/4K to play with. This is because the Assembler itself occupies over 3K of module RAM, which to my mind is a little unfortunate, especially when you consider that over 1/4 K of the 4K ROM in the module is not used at all (go on, use Easy Bug & look at addresses 6980-6F00). Surely some of the Assembler's routines or data could have been put in ROM to give us users a bit more room to swing a transfer vector. Still, I'm not knocking it - 3/4K is better than nothing at all!

Now how about a change of subject? I noticed that Pete Brooks, in his review of Version 110 Extended Basic in August's "Tidings", twigged that the bitwise Boolean algebraic operators make the process of producing a high-resolution plotting subroutine very much simpler. In a vain attempt to beat Pete into print, I've produced an Extended Basic subprogram which, whilst modelled closely on Mr. Brooks' original, utilises ExBas' facilities and requires less initialisation in the calling program as a consequence. Of course, with ExBas you run out of redefinable characters when you reach 143 rather than 159, so you pay for the increased speed & simplicity with a smaller scope for plotting over the whole of the screen. Nevertheless, it's a nice routine. Well, I think it is, anyway!

Initialisation required: 80 CALL SCREEN (2) :: S = 31 :: CALL HCHAR (1,1, S, 761 90 FOR I=1 TO 14 :: CALL COLOR (1,16,2) :: NEXT I & the subprogram itself :-

SUB PLOT (R.C.S) 1000 Y = INT (R/8 + .875) :: X = INT (C/8 + .875)1010 1015 H\$ = "0123456789ABCDEF" B = C - X * 8 + 8 :: P = 2 * R - 16 * Y + 16 + (B < 5)1020 IF B > 4 THEN B = B - 41030 CALL GCHAR (Y, X, H) 1040 IF H>31 THEN 1080 ELSE IF S=143 THEN SUBEXIT 1050 S = S + 1 :: D = RPT ('0'', 16) :: CALL CHAR (S, D)1060 CALL HCHAR (Y,X,S) :: H=S :: GOTO 1090 1070 CALL CHARPAT (H, D\$) 1080 $N = (POS(H\$, SEG\$(D\$, P, 1), 1) - 1) OR (2 \land (4 - B))$ 1090 D\$ = SEG\$ (D\$,1,P-1) & SEG\$ (H\$,N+1,1) & SEG\$ (D\$,P+1,16-P)1100 CALL CHAR (H, D\$) "SUBEND 1110

The Bodean "OR" in line 1090 effectively sets the bit in the relevant digit of the character-definition hexstring corresponding 12.

to the pixel which it is required to plot. Or something like that. Pete Brooks always was better at explaining things than me.

I'm a nosey blighter at the best of times, but the way TI (before Ed/As & MM) kept any information on the workings of the 99's under seemingly armed guard really increased my curiosity. So much so that I decided to take advantage of PEEK & the boolean operators in Extended Basic to write a disassembler for my 99/4A. Being totally non-commercial at heart, I'm submitting it to the TIHOME library. Besides, a) it's not terrifically fast in Basic anyway,

b) I couldn't be bothered to put in any special features,

& c) unless you have a Memory Expansion to load assembly language programs into, all you can usefully disassemble with it is the console ROM & the ROM in the Extended Basic module itself (0000-1FFF & 6000-7FFF hex respectively)

So, anyone who understands TMS9900 & wants to know how

To answer Mike O'Regan, there's no chance of an 80-column Wordstar on the 99's - at least not an 80-column screen. The most characters that the VDP can fit on the screen-in its Text Mode-is 960, in a 40 × 24 format, so the only way to fit 80 characters on a line is to use horizontal scrolling, like the Editor in Ed/As. However, I was intrigued to see an advert in an American magazine to ther day for a new module (PHM 3111) called TI Writer, which requires the Memory Expansion. Could this be the official 99/4 (A) Word Processor?

Gary Harding

DORSET DIALECT

Jeff Freeman

CASSETTE PLAYERS:

A popular c_nssette player on sale in such as W.H. Smith is the Ferguson 3TO7. It has all the relevant connections and controls <u>but</u> from personal experience it is <u>not</u> one I would recommend to 99°ers. The problem is that it does not play at constant speed at least not constant enough for the 4A. Interestingly, the recorder worked well for some time but the wailing banshee of the carrier tone at the start of data transcription soon became a signal for either NO DATA FOUND or ERROR IN DATA.

I had the cassette player tested and it plays classical music as well as any cheap, portable might be expected to. I even in desparation sent the 4A back to TI for inspection (see below). Other 99'ers may find the 3TO7 suitable but I would warn fellow 99'ers away.

On the other hand, the SANYO SLIM 3G I have used as a replacement is superb. Whilst it has no tone control or counter, I am yet to have a single failure of either SAVE or OLD.

Incidently, for newcomers, when you record data using SAVE CS1, the volume setting on the recorder is irrelevant.

CASSETTE TAFES:

I can recommend DATA TAPE C12 cassettes. They are well made (in England) by BiB₁ Magnetics Ltd. and should be available from decent cassette shops. The blurb on the card states:-

> "This C12 DATA TAPE cassette includes both mechanism and tape which have been batch-test certified for analogue and digital information storage and replay on most home computers including VIC/2X/PET/CBM."

> > I add TI 99/4a. The C12 cassette costs about 35p.

TI CASSETTE LEADS:

Watch the back of the 4A where the cassette cable plugs in. The cable and connector are too heavy for the socket and tend to bend the socket down. I support mine with an empty match box.

TI SERVICING: -

My 4A has just been away for six weeks. TI say their turnaround is five days whilst Dixons claim six weeks. Someone somewhere is either lying or, more probably, sitting on repairs to show how busy they are. Anyway, there was, I assume, nothing wrong with the computer. I say 'assume' because I specifically asked TI to let me know what they had done or not done and what they had checked. For all I know they could have rewired the entire machine. No return was forthcoming.

The computer was returned to Dixons at Yeovil (via Securicor) packed in foam chippings and shredded paper but <u>not</u> in a plastic bag. We spent twenty minutes blow-dusting the 4A and cleaning it up.

Dear TI. Please give servicing information even when it is negative and when I spend £300 I expect <u>my</u> computer to be better treated. A great little programme that tests observation more than anything else. There are a few misprints in the listings:-

1. LINE 1580 should read 1580 IF(J 2)+(J 31)+(I 4)+(I 19)+(M(I.J)=128) THEN 1660

2. LINE 2210 should read

2210 MS= "PRESS Y FOR SAME SET-UP"

The programme draws a maze which you have 5 seconds to memorize before it vanishes. Then you have to steer a little man to the finish in as short a time as possible.

MAKING A GRID FOR GAMES: (TI BASIC)

The following will place a grid onto the screen. Each square is equivalent to one character i.e. 8x8 pixels.

10 CALL CHAR(128,"FF8080808080808080") 20 CALL HCHAR(1,2,128,640) 30 CALL CHAR(129,"FF") 40 CALL HCHAR(21,1,129,32)

- LINE 20 : Forms a grid 20x32 by filling the rows with the character **F** which is defined in LINE 10
- LINE 40 : Closes the grid along the bottom line by filling row 21 with which is defined in line 30. <u>Note</u> when calling CHAR and redefining or user-defining characters, the code between the quotation marks does not require to have trailing zeroes. Hence "FF" rather than "FF0000000000000". <u>Note</u> that line 21 is now full of a defined character and is not empty as it appears on screen.

99'er MAGAZINE:

I am interested to hear of others having trouble obtaining this excellant magazine. My experience has renewed my faith in the commercial system! I sent a cheque in dollars drawn on a U.S. bank to the publishers in Oregan U.S.A. and recieved 99'er <u>1</u> 6 within four weeks - this being the latest issue.

Go to your bank and ask them to give you a cheque in dollars made out to 99'er Magazine and drawn from the U.S. bank your bank has an arrangement with. The cheque needs to be for \$43. They should be able to give it to you immediately.

Then write a covering letter clearly giving your name and address <u>IN FULL</u> - post-code and all - and requesting one years subscription. Then post, with the cheque, to:

> 99'er Magazine, P.O. BOX 5537 EUGENE OR 97405.

Don't use the subscription cards found in issues of 99'er. I think that is what confuses them.

TIDINGS:

May 1 offer my congratulations to Faul Dicks on doing a magnificent job with TIDINGS. The new, improved booklet is excellant. My usual cynical and critical ego was well impressed. I have written separately to Faul with some suggestions!!

For myself, I work with my 4A when I can - which during term time is not often enough. I am still very much the begginner (sic) though I have studiously worked through both the Beginner's Course and Peckhams book 'Programming Basic with the TJ Home Computer'. Incidently, this book was sent return of post from the publishers McGraw Hill of Maidenhead.

DORSET:

Any TI 99/4A owners in the Dorset and YeoVil areas??? Or am I the only one??? I may not always be in (being term time and all that) but please give me a ring and perhaps a Noggin 'N Natter at a local ale house can be arranged. If I am out, one of the lads should answer and you can leave a message.

(DR) JEFF FREEMAN 0935 813439 Sherborne

I cannot answer sophisticated questions - I am not that far ahead yet. But can I thank Steve Shaw for the help <u>he</u> gives so readily over the phone. Fancy my buying a computer that can't PRINT AT.....

Babbling Brooks

After having been so critical in the past about authors who don't check their software before sending it out, it is perhaps fitting that I should award myself FRIZE PRAT OF THE MONTH for having failed to notice one simple mistake in the listing given in BB a couple of issues ago (Designs For Fun). Fortunately, Allen D. Burt of Reading spotted it and let me know. $D_{\pi}^{(2)}()$ should have been DIMensioned to 121, not 64, elements. The reason for such a stupid mistake is that I have two versions of that program, one with $D_{\pi}^{(2)}(64)$ and giving a number of options - available from the library - and one with $D_{\pi}^{(2)}(121)$ which was listed in BB. It won't happen again, your honour.

Allen also sent me some timings for one cycle of the Designs sequence for each RFA, using both TI BASIC and a version written by him in Extended BASIC:-

RFA	TI BASIC	EXTENDED BASIC	(Time in decimal minutes)
1	0.034	0.047	
2	0.125	0.195	
3	0.250	0.450	
4	0.440	0.900	
5	0.700	1.250	
6	1.050	2.200	
7	1.370	2.600	
8	1.850	4.200	
9	2.270	4.700	
10	2.820	6.200	
11	3.450	7.900	

The Extended BASIC version made use of RFT\$ and multi-statement lines. The initial run, when the tile shape is produced, was 0.35 to 0.5 minutes in TI BASIC and 0.25 to 0.35 minutes in Extended BASIC. I wonder what it is about the rest of the program that Extended BASIC doesn't like ? Allen also points out that as there are only 112 character available under Extended BASIC suitable adjustments have to be made. In addition he found that using a BLACK screen (he uses a Black and White TV - how many of you also use one ?) and FOR L = 1 TO 14 :: CALL CCLOR(L, 16, 1) :: NEXT L gave another set of very attractive patterns.

Hands up all those who saw the two programs published recently in the popular computing press ? Congratulations to Mike O'Regan for having at last breached the defences of the Vic/Tandy/Apple/Fet/ZX stronghold - they still managed to knock the listing about

a bit though - and to Stephon Shaw, who has chalked up his second success in having a program published. Congratulations also to the Reverend C. D. Blount of Wakefield (I haven't found out yet whether he is a member) who managed to sneak one in under the defences of Computing Today by disguising his program as a letter!

Before I go any further I ought to point out one or two things which may not have been made clear before: because my typewriter doesn't possens the dollar sign, I tend to use an '\$' to represent it - someone wasn't too sure what it was - and some of my items are developed away from the 99, using a calculator (only accurate to 10 digits, 12 internally, compared with the 99's 13!): this applies in particular to the Beginners' Mathé series. This is really just an excuse for the difference you will occasionally find between what the article says you will see on screen, and what you actually see!

Now, in order to make up for the foul-up In Designs For Fun, here is another thrilling episode in the 'Coo, I didn't know the 99 could do that' series.

Not many people know this, but...you can add comments to certain TI BASIC lines, just as you can add 'tail remarks' to Extended BASIC lines. At present the best candidates are:-

> GOTO GOSUB ON GOTO ON GOSUB IF...THEN...EISE

There are others, but these are the best examples. How do we do it, I hear you ask. (Go on, then, ask!). Well, all you have to do is to enclose your comments in quotes and place them after the <u>last</u> 'destination' line number in the statement. For example,

100 GOTO 220"JUNP OVER SUBROUTINES AND CONTINUE WITH MAIN FROGRAM"

or:

770 GOSUB 330"DISILAY MESSAGE"

or:

1000 IF blah blah TREN 630 ELSE 1010"JUMP BACK IF blah blah IS FAISE"

Note that the comment appears AFTER the last destination line number in the statement. Also:

1760 ON blah GOTO 100, 220, 350, 700, 100, "BRANCH TO MAIN SUBFROGRAMS" 18.

Although I tend to avoid the use of REMs in programs, the use of this kind of comment can be of help when preparing programs, as you don't run the risk if making a REM the destination of a jump, and you can delete the comments later without altering the line number sequence. In the example using ON GOTO, don't forgot to make the line list as long as is required by the value given by 'blnh' (an original expression if ever 1 saw one).

Other possibilities are RESTORE (with a line number), TRACE, and even END. The format for these is not so straightforward or as readable as with the others, so I have not delved as deeply into them. The format looks like this:

RESTORE 200+CONNENTS+NUST+NOT+EXCEED+FIFTEEN+LETTERS+LONG+AND+MUST+BE+ SEPARATED+BY+A+VALLD+MATHS+FUNCTION

Instead of spaces, */+- should be used, and even :; and , are permissible, but not in all cases. In the case of RESTORE, no reserved words may be used as comments, as the computer treats the comment line as an expression involving variable names (hence the 15 character limit on individual words). I think you'll agree that this format is nowhere as useful as the first; Interesting, though, is it not ? There is more...

Not many people know this, but....you don't have to specify TP when opening files to the thermal printer either in programs or when LISTing programs. The period (full stop: '.') appears to be the signal to the computer. For example:

"." is equivalent to "TJ" ".E" is equivalent to "TF.E" ".S" is equivalent to "TF.S" ".U" is equivalent to "TF.U" so, ".U.S.E" is the same as "TF.U.S.E"

A word of caution with respect to the above two items. Because no details have been given by TI themselves, it is doubtful that you will be able to use the extra functions every time without coming unstuck. I have written to Robin Frowd of TI about the first item, and he may have comments to make in TI's page elsewhere. So use them with a little caution, just in case. By the way, you can still RESEQUENCE those commented lines!

I am toying with the idea of placing reference or keywords in the margins of future Babbling Brooks articles, so that if you are compiling a reference library for any of Tidings little gems you will be able to categorize items more easily. Any comments ? Write to me at 68, Kelburne Road, Cowley, Oxford OX4 35H if you have.

Beginner's BASIC

This series will attempt to slowly introduce the novice to BASIC on the TI 99 and to the principles of 'programming'. It is not intended as a replacement for the TI manual, but will try to offer a different perspective so that your chances of understanding the commands and functions are increased. If, as the series progresses, there are still points which you feel have been inndequately covered, please write in with details of the problem aren(s).

If you have ever used a calculator which possesses one or more 'memories', you will be familiar with the idea of 'storing' numbers in a machine. On calculators, however, the 'memories' tend to be identified by numbers also: Nemory 0, Memory 1, Nemory 2, and so on, so that 'storing' 26.5 in Nemory 7 is achieved by keying '26.5 STO 7', where STO is the 'store' command. To recall the contents of Nemory 7 to the display, you might use 'RCL 7', where RCL is the 'recall' or 'retrieve' command.

On computers, a similar system exists. In this case though, the memories are not preset as they are on calculators, and their identification is made by 'name', not number. Thus the computer 'memories' can be called A or SOCK or MEMORY or EGBERT or even something which gives a clue as to what is being stored there - for example, if you needed to store 365 as part of a calculation involving time in years, you might call the 'memory' DAYS.

BASIC's way of storing and recalling numbers is different from that used on the calculator. To store 365 in DAYS, BASIC uses:

LET DAYS = 365

The number or 'expression' (equation) on the right of the equals sign is 'assigned to' (stored in) the memory indicated on the left of the equals sign; in this case, the memory is called DAYS. On the TI computers, as on many others, the use of LET is optional - which means that if you leave it out, the computer won't throw a fit - so that:

DAYS = 365

is also acceptable. The 'memories' in computers (which are really storage areas inside memory chips) are called 'VARIABLES', and are more versatile than on most calculators. You can use one sort of Variable to store numbers - NUMERIC VARIABLES and another port to store letters (letters, numbers as sequences of digits, punctuation marks, etc.) called STRING VARIABLES. To enable you and the computer to distinguish $2 \odot$. between a variable which stores numbers from one which stores letters, the name of the letter-storing variable has a dollar sign tacked onto the end. The assignment (storage) of data to such variables is also carried out differently:

DATS = "NONDAY"

Whatever is to be ansigned to a string variable needs to be enclosed in quotation marks. There are other ways of assigning data to these variables which don't require the use of quotes, but we will delve into these later.

Another difference is that although you can assign a string of digits (a number!) to a string variable, that variable can't be used directly in expressions (equations). It can be used indirectly, but again, we will delve into that later.

If you find it difficult to think of the variables in terms of 'numeric' and 'string', it might help you to think of them as 'mathematical' and 'text' or 'number memories' and 'words memories'. As long as you are familiar with the terms NUMERIC and STRING that's all that matters.

We'll try out a few examples on the 99s. In order to save repeating instructions, J will 'indent' anything which is to be typed into the computer followed by ENTER, thus:

1CKALOO = 5

As you can see from the variable names, this is going to be a rather informal series. Switch the computer on, and melect TI BASIC. We will initially be using the computer in the so-called 'IMNEPIATE MODE', where the computer will execute any instructions there and then, instead of storing them and executing them later, as in a program.

Let us try out one or two things.

$$DAYS = 365$$

The computer will have created a numeric variable called DAYS and analyzed the number 365 to it. The question now is: how can we recall the contents of the variable to the screen 7 What is the recall or retrieve instruction 7

There is a command available, called FRINT, which allows us to print data on the TV screen. If FRINT is used with a numeric variable, it will cause the contents of that variable to be printed on the screen.

The number 365 will be printed out underneath. It is printed with both a leading and a trailing space (i.e., one in front and one behind), which of course you cannot actually see. The leading space will be replaced by a minus sign if the number is negative. The trailing space prevents any following information from being confused with the number, a form of 'formatting' of the display. Formatting can involve a lot more, but again we can deal with that in more detail later.

Let's try some other variables:

NAMES = "DONALD DUCK"

If we try printing the contents of the string variable called NAMES.

FRINT NAMES

Donald Duck is printed underneath WITHOUT any leading or trailing spaces, which is something to bear in mind for future use.

FRINT NAMES : NAMES

Now, if you entered this correctly, your display now contains a line which reads: DONALD DUCKDONALD DUCK. The semi-colon (;) is known as a PRINT SEPARATOR, and tells the computer that once it has printed something, it should wait on the same line, as the next PRINT instruction should have its information printed directly after the previous information. This also demonstrates the lack of spaces between the text! There are two other FRINT SEFARATORS: they are the comma (,) and the colon (:).

PRINT NAMES . NAMES

This time the second printing places the Donald Duck about halfway across the screen from the beginning of the first printing. The comma separator tells the computer to begin the printing of the next piece of information at the hulfway point, unless it has already passed that point, in which case it will print on the beginning of the next line down.

FRINT HAMES : NAMES

This time the two items are printed one under the other; the colon tells the computer that it should begin printing the next item on the next line. The colon is actually a very handy separator in that if you use several of them together you can print several blank lines between items, or even just print several blank lines after the last printed item, which causes the screen's contents to 'scroll' upwards; for example:

PRINT :::::

A quick recap, then, on FRINT SEPARATORS: after the data in an instruction to FRINT, a semi-colon (;) means: hang about, there's more to go next to this lot; a comma (,) means: start the next lot halfway across the screen, unless you're already past it or the next lot is more than half a screen's width in length, in which case start at the beginning of the next line; a colon (:) means: start the next lot at the beginning of the next line.

The PRINT instruction is a very flexible one, and there are more facets to its format which we will look at later.

A = 10 As = "green bottles" Print A : As

The above is an example of the kind of thing that you can do with separators. You have told the computer to store the number 10 in a 'number memory' called 'A', and to store the phrase 'GREEN BOTTLES' in a 'word memory' called $A_{\mathcal{S}}^{\mathcal{S}}$ (pronounced A STRING), and then to print the contents of number memory A, to wait on the same line, and then to print the contents of word memory $A_{\mathcal{S}}^{\mathcal{S}}$ straight after the first item. The result is '10 GREEN BOTTLES'. You may now gasp with amazement.

Now let us introduce the dreaded line numbers. Suppose we wanted to store the three statements given above without executing them there and then, and check that they had been stored correctly ? Let's call them statements 1, 2, and 3 (complicated, eh ?):

1 A = 10 2 A# = "GREEN BOTTLES" 3 FRINT A ; A#

Note that by giving each statement a number, you have told the computer not to execute each statement as it is entered, but to store it and wait to be told when to do something else. The computer will list out the statements in order when you tell it to:

LIST

and you can check to see if everything has been entered correctly.

23.

Finally, we tell the computer that we'd like it to execute our statements by giving the instruction:

RUN

whereupon 10 GREEN BOTTIES appears on screen. The computer screen colour changes from cyan (light blue) to green for the time it takes to execute the three statements, and then returns to cyan when finished, as well as printing **DONE** to make sure that we know that the computer is ready to accept further instructions. The cursor (that little square box that keeps flashing on and off) also returns.

In effect what you have done is to enter a PROGRAM into the computer, admittedly not a particularly scintillating one, but a program nevertheless. Ah, but...I hear you say, we've seen REAL programs in the magazines, and they don't have nice neat 1, 2, 3 line numbers, they have 10, 20, 26, 30 or 100, 110, 120, 121 line numbers. How come ?

There's no great mystery. If you wanted to insert another statement in our little program to get the screen to be scrolled a little first before printing 10 GREEN BOTTLES, by adding FRIMT ::::: as a first line, you'd need to rewrite the whole program, UNLESS... you'd already written the program with big gaps between the line numbers just so that you could insert any extra lines as and when you needed them. On some computers you actually have to do things this way, but on ours, as on many others, there is a command which can help you out.

RESEQUENCE

LIST

Well, well, our program's changed a little. The RESEQUENCE command (RES for short, which the computer will also respond to) has changed the first statement number into 100, the second into 110, and the third into 120. As standard, the computer starts numbering at 100 and goes up in steps of 10. You can even specify what the first line number will be, and what the step or 'increment' will be. For example:

RES 117, 26

LIST

See what I mean ? You can now add the extra line of FRINT ::::: as say line 17, and then RES again to smarten it all up. Experiment a little and see what you can find out! 2.4.

A Re-Introduction To Mathematics

Last time we began looking at INVOLUTION (also called EXPONENTIATION), and hopefully saw that it can be a useful tool for manipulating numbers. On the 99s, the symbol for Involution is the caret: \wedge ; it is used between a number and its power (also called EXPONENT), so that for example 5^3 would be written as $5 \wedge 3$. 5^{-3} , which, if you remember, is equal to $1 / 5^3$, would be written as $5 \wedge -3$.

Switch on your 99 and select TI BASIC. Let's check a few things, just to demonstrate Involution, and to give you a feel for playing with numbers on your machine.

Whenever there is something to be typed into the computer, it will be 'indented' on the page, like this:

PRINT " FOR EXAMPLE " :::

You simply key in whatever appears in the indented section, and then press ENTER when you are sure it is correct. It will save me having to give separate instructions every time.

FRINT 5A3

Underneath this the computer should have printed 125. Now, to see if 7^{-2} really IS the same as 1 / 7^2 .

PRINT $7 \wedge -2$, $1 / 7 \wedge 2$

Both answers should be the same. I also said that $7^2 * 7^7 = 7^{(2+7)}$; try

PRINT $7 \wedge 2 * 7 \wedge 7 : 7 \wedge (2 + 7) : 7 \wedge 9$

just to make sure that ALL the answers are the same. Also check that any number raised to the power of zero is always equal to 1:

PRINT $1 \land 0 : 2 \land 0 : 0 \land 0 : .5 \land 0 : (-4) \land 0$

Note that in the last case, I have placed brackets around the '-4'; this is because the mathematical 'hierarchy' - which parts of an expression are calculated first of the 99s would cause an incorrect answer to be produced without them. Towards the end of the first article I said that dividing the power of a number by 2 was equivalent to finding the square root of that number. Thus the square root of 5^{6} is $5^{6/2} = 5^{3}$. There is a square root function available on the 99s : SQR(). You place the number or expression to be rooted between the brackets.

PRINT SQR $(5 \land 6)$, $5 \land 3$

The answer is 125 in each case. The cube root (for which there is no built-in function available) is found by dividing the power by 3:

PRINT $(5 \land 2) \land 3$

is the same as $5^2 * 5^2 * 5^2$. By now things should be clear, as you confirm what you read by checking with your computer.

The final part of the first article left us with a problem: according to the rules, the square root of 5^3 will be $5^{3/2}$ or $5^{1.5}$. But how do you evaluate a power of 1.5 ? Is it $5 * 5 * \frac{1}{2}(5)$?? Cheat a little and:

PRINT 5A1.5

Remember that we suggested that the square root would lie between 11 and 12, probably closer to 11. The answer given is 11.18033989 according to the computer. Now, there is not sufficient information available about the 99s to know exactly how the computer worked it out, but there is a way using the dreaded LOGARITHMS. A little history first.

The word LOGARITHM is apparently derived from two Greek words: logos, meaning ratio or proportion, and arithmos, meaning number. It is described as 'one of a class of arithmetical functions, invented by JOHN NAFIER of Merchiston (died 1617) and tabulated for use in abridging calculation. Abbreviated "log". There are two major logarithmic tables: those of Napier, called Natural, Hyperbolic, or Napierian logarithms, whose base, 'e', is 2.71828, used 'in analytical investigation', and Common, Decimal, or Briggsian logarithms - those tabulated by Henry Briggs (died 1630), of base 10, which according to the definition, are used in practical calculation.

The distinction between the two types with regard to their use is one that is not known to me; to the best of my knowledge, when one particular type of logarithm is used in an equation, it is because that particular logarithm is the most suitable, not because the work is analytical or practical. There are two difficulties facing us even before we start. The first is that there is a customary way of abbreviating the logarithm names, the definition notwithstanding, to 'log' or 'log₁₀' for Briggsian, and 'log_e' or 'ln' for Napierian logarithme. Those available on the 99s are unfortunately Napierian; unfortunate because TI use the term LOG (by definition, correct, but by useage, misleading), and because Briggsian logs are easier to get to grips with and use. The second is that the traditional pen-andpaper notation for logarithms is not used by calculators and computers, so that if you look up values in a table of logarithms you may not recognise the correct logarithm when you see it.

However, we won't let a little thing like that stop us.

What we can do is to use the computer's LOG function to produce Briggsian logs by defining our own function: BLOG(). Later, when we have uncovered more, we will also discover how to create logarithms to any base, but for the time being you will have to accept certain things as being true until you have enough knowledge to test their 'truth' for yourselves.

First, defining the function. We are going to be working in the so-called Immediate Mode, and in this mode it is possible to use functions which have been defined using the DEF command in programs.

100 DEF BLOG(X) = LOG(X) / LOG(10)

Now RUN this 'program'. When you do that, the computer will set up the function BLOG, and you will then be able to use it in the Immediate Mode. If at any time you type NEW or BYE or use Shift Q, you will need to re-onter the program and run it again.

This new function, BLOG, is actually the Briggsian logarithm function. Use it like you would the SQR function: when you want to find the BLOG of a number,

FRINT BLOG(1000)

which should print 3 on your screen. Now for some fun. Print out some BLOG values for the numbers 1000, 100, 10, 1, .1, .01, .001. If you manage to do so without any errors, you should get the numbers 3, 2, 1, 0, -1, -2, -3. Now where have you seen 'that series before ? If you have a copy of the first article, thumb through it until you find the answer. If not, turn to the next page where all will be revealed.

Number	<u>Involuted</u>	BLOG	
1000	10 ³	3	The pattern should be obvicus: for each of the
100	10 ²	2	numbers, the BLOG turns out to be the same as
10	101	1	the power to which 10 (the base of the log) is
1	10 ⁰	0	raised. The BLOG of 100,000,000 or 10 ⁸ would
.1	10-1	-1	be 8, and of 0.000 000 000 01 or 10 ⁻¹¹ would
.01	10-2	-2	be -11.
.001	10-3	-3	

case so far, I have used numbers whose BLOGs are integers (whole numbers). What number would be represented by a BLOG of 1.5 ? Well, there are things called ANTI-LOGARITHMS which are usually a set of tables in which you can look up what numbers are represented by given logarithms. Anti-logarithms are very easy to use: you simply take the base in this case 10 - and raise it to the power of the logarithm. If we need to find the number that a BLOG of 1.5 represents, we simply calculate $10^{1.5}$. You should be able to see that from the table above; if the BLOG is 2, then 10 raised to the power of 2 is 100.

Now we begin to enter murkier waters. In every

PRINT 10 A1.5

The answer should be around 31.6227766. If you cast your minds back to an earlier demonstration, we discovered that dividing the power by 2 was equivalent to finding the square root of a number, and although the example used then was derived from a base of 5, the principle still holds. By rights, then, $10^{1.5}$ should be the square root of 10^{3} , or, put another way, 31.6227766 should be the square root of 1000. Is it ?

FRINT SQR(1000)

So far so good. Let's have a look at the anti-logs of some other numbers. Find the anti-logs (base 10) of .5, 1.5, 2.5, 3.5 and what do you notice ? You should have produced the numbers: 3.16227766, 31.6227766, 316.227766, 3162.27766. Not surprising, really, because you've been calculating the square roots of 10, 1000, 100 000, etc. Notice that although the decimal point moves about, the sequence of digits in each of the numbers is the same; in fact, any power of 10 which ends in a fraction of 5 will produce that sequence. Looked at another way, the sequence 316227766 will always produce a BLOG which has a fractional value of .5, regardless of the integer value. A number like .000316227766 will produce a BLOG of nn.5.

This is the basis of any logarithm: adding logarithms of numbers is the same as multiplying those numbers together. Take two BLOGs: 1.5 and .5; add them together.

The result is 2. Anti-log that: 10^2 , is 100. What have we done, using the 'roal' numbers this time ? We took 31.6227766 (= DLOG value of 1.5) and multiplied it by 3.16227766 (= BLOG value of .5) to get an answer of 100 (= BLOG value of 2). For a calculation like this, multiplying the two numbers would take agos on paper; but by finding the BLOGs of the two numbers from a set of tables, adding them together, and looking up the resulting value in a set of anti-BLOG tables, we have seved a large amount of mental effort, although it must be said that these days such multiplication is more likely to be performed on a calculator! We now come to another hurdle: up to this point, we have been using the computer to 'look up' the logarithms for us. Suppose that we had only a set of tables ? If you actually possess such a set, you will be able to grasp this next section a little more easily.

Before attempting to find the logarithm of a number, that number must be 'normalised'. This simply means that the number needs to be expressed in a standard format before you attempt to use it. The etandard format is one in which all numbers are expressed as an integer + fraction with exponent. That isn't as complicated as it sounds. The integer must lie between 1 and 9, so that a number like 123, when 'normalised' becomes 1.23 x 10^2 . 1001 is 1.001 x 10^3 , 15 is 1.5 x 10^1 , 0.246 is 2.46 x 10^{-1} . In other words, you shift the decimal point about until you have one digit to the left and the rest of the digits to the right of the decimal point, and then multiply by a power of 10 to give the correct value. Thus 12345 can also be expressed as 1.2345 x 10^4 (in publications you may see another '.' in place of the 'x'). On the 99s, the exponent (10 to the power) is 'E' followed by the power, which makes the format 1.2345E4 for example.

Any logarithm is made up of two parts: the 'characteristic' and the 'mantissa'. Those are just confusing jargon words for the integer and fraction of which the logarithm is composed. If the log is 7.25 (the log of 17782794.1), then 7 is the characteristic, and .25 is the mantissa. The characteristic is related to the 'size' of the number, which when the number is 'normalised', turns out to be the same as the power of the exponent: 1.2345×10^4 has a characteristic of 4. The mantissa is found by taking the log of the 'normalised' integer+fraction - in this case, 1.2345, - and you then ADD the mantissa to the characteristic to get the logarithm. (It's a lot easier getting the computer to do all this!) For example: take 238,567. When 'normalised', this becomes 2.38567 $\times 10^5$. The power is 5, so the characteristic is 5. The mantissa is found from the BLOG of 2.38567 which is around 0.377610369. Adding the characteristic and the mantissa you get the logarithm, which is 5.377610369. So what, you might think. Why all the fuss 7 well, try explaining this:

FRINT BLOC(.238567)

This time the system seems to have fallen down. We have said that the sequence of digits is unimportant, so the series 238567 should always produce the same fractional part of the logarithm. Or should it ? Look back a few lines to where it says: '..you then ADD the characteristic and the mantissa to get the logarithm...'. The mantissa is the fractional part which represents the sequence of digits in your number. The characteristic is the integer part which represents the power of the number whon it is expressed via involution. Let's look at .238567 again. To express it using involution, it becomes $2.38567 * 10^{-1}$. It lies somewhere between 10^{0} (i.e., t) and 10^{-1} (i.e., 0.1). Its power or characteristic is therefore -1. The mantissa is

FRINT BLOG(2.38567)

which is .377610369. When you add -1 and .377610369, you get -0.62238963, which is, surprise, the answer the computer gave you.

Now it is unlikely that you have followed everything that you have read. There is too much to absorb all at one go. Keep coming back to the bits you haven't quite followed, and go through them slowly. If nothing revelationary happens, write in to the address given in Babbling Brooks, and describe the problem area(s). If I think that it can be explained more easily over the phone or in a personal letter or even in person, then I will do so, otherwise a more detailed explanation will be given in Tidings. Whatever the outcome, never give up. If there is anything which you have not understood, remember that the fault is NOT yours, but mine!

If you fancy some home-work, try your hand at producing BLOGS for the following numbers, and see if you can explain to your satisfaction how they are obtained:

1.7	10.65	26.1	345.678	24315.9986	123456.789	.17	.00138652
.02	.0001	1.0001	119.111	1385.4557	31		

One final thing: look back at the tables given here. You may have noticed two things about the numbers which we have been BLOGging. The first thing is that they are all positive. The eccond is that none of them is zero. The numbers may get very small, but they never quite reach zero. And if they never quite reach zero, they can also never become negative (which involves passing through zero). So the rule is that you can only find logarithms of positive, non-zero numbers. If you don't believe me, try using your BLOG function to find values for 0 and -1.

Next time we will delve into the intricacies of Napierian logarithms, and of producing logarithms to any base. Keep the aspirin handy!

THREE - DIMENSIONAL NOUGHTS & CROSSES

Continuing the 3DOXO saga ...

The end of the first article left the reader (if there is one) with a small task: to map out the linkage values for the N = 4 boards. The first of the two diagrams on this page shows the result which you should have obtained. Note that there are only two different linkage values - 7 and 4 - hence my remarks about the description of moves in

7	4	4	7
4	4	4	4
4	4	4	4
7	4	4	7

4	4	4	4
4	7	7	4
4	7	7	4
4	4	4	4

4	4	4	4
4	7	7	4
4	7	7	4
4	4	4	4

7	4	4	7
4	4	4	4
4	4	4	4
7	4	4	7

this game as being only either 'good' (7) or 'bad' (4). If you have the first article, item VIII in Figure 1 shows the positions of the 7 - type linkage values, and thus the stronger positions on the boards. If you have difficulty envisaging the 7 - types, look at items I to VII in Figure 1 (last issue). They also happen to show the range of possible winning lines (pwls) for Level 1, Row 1, Column 1 as an example.

1	2	3	4		17	18	19	20	33		-	-	49	-	-	-
5	6	7	8		21	-	-	-	-	-	-	-	-	-	-	-
9	10	11	12		25	-	-	-	-	-	-	-	-	-	-	-
13	14	15	16	ŀ	29	-	-	32	-	-	-	48	-	-	-	64

Before continuing, you will need to become familiar with two different ways of referring to any position on the boards. The first has already been discussed: the use of Level. Row, and Column numbers, which is very easy to adjust to, and is more convenient as far as we humans are concerned. However, when it comes to programming, this system is far from convenient for use by the computer; although information on positions COULD be placed in three-dimensional arrays to correspond to the human-orientated reference system, in practice it is easier to use a ONE-dimensional system, running from 1 to 64. The second figure above shows the positions in these terms. Not all of them have been displayed, as it would have taken almost as long to draw as to write the entire Babbling Brooks article! The problem facing us is one of translating our friendly three-dimensional coordinate system into the preferred one-dimensional one. The full details of how

31.

to carry out this kind of translation will be given in a future edition of the Maths series; for now, you will have to accept that the following equations work. If your Maths is good enough already, you might try improving my efforts!

To translate from three-dimensional to one: using L for Level, R for Row, and C for Column (really original, eh ?):-

Position = L + 16 + R + 4 + C - 20

To test this for yourselves, try running the following program and comparing the results with the second diagram on the previous page (note that the output won't be in the same format as the boards!):

100 FOR L = 1 TO 4
110 FOR R = 1 TO 4
120 FOR C = 1 TO 4
130 FRINT L;R;C, L * 16 + R * 4 + C - 20
140 NEXT C
150 NEXT R
160 NEXT L

The printout should be fairly swift, so you may need to either BREAK in order to check the results, or of course you could always put in either a delay loop between lines 130 and 140 or use a CALL KEY statement to continue only when a key is pressed.

To translate in the other direction, from one-dimensional back to three, is not so easy, and requires several equations. If we let U stand for the position on the scale 1 to 64, then:-

L = INT(U / 16 + .9375)I = U - L * 16 + 16 R = INT(I / 4 + .75) C = I - R * 4 + 4

Notice that an intermediate value has to be determined: I. I am reasonably sure that there is a shorter route available, but I have yet to spend time looking for it!

Using these two sets of equations we will be able to allow the human opponent his threedimensional coordinate system and at the same time use the easier one-dimensional system for the computer program. It has other advantages, as you will see.

DIAG. 2:	LINKAGE	VALUE	DISTRIBUTION	FCR	3 =	3:	M	= 3	5
----------	---------	-------	--------------	-----	-----	----	---	-----	---

7	4	7	4	5	4	7
4	5	4	5	13	5	4
7	4	7	4	5	4	7

2 (i)

7	4	4	4	7	4	
4	4	3	4	4	4	
4	3	5	3	4	3	
4	4	3	4	4	4	
7	4	4	4	7	4	

4	4	3	4	4	
4	7	4	7	4	11
3	4	5	4	3	11
4	7	4	7	4	11
4	4	3	4	4	11

. .

4	3	5	3	4
3	4	5	4	3
5	5	13	5	5
3	4	5	4	3
4	3	5	3	4

4	4	3	4	4
4	7	4	7	4
3	4	5	4	3
4	7	4	7	4
4	4	3	4	4

7

4 5 4

4 7

7	4	4	4	7
4	4	3	4	4
4	3	5	3	4
4	4	3	4	4
7	4	4	4	7

WW

Again, before we go any further into the theory behind the game, let us look at the linkage values which are obtained for each position when a board size of N = 3 and N = 5 is ed. (Look at Diagram 2). The first thing which should be obvious is that there is a greater range of linkage values, and that N = 5 (2(ii)) has an even greater range than N = 3 (2(i)). The second thing which you might notice is that in both cases there is one single position which has the highest LV (linkage value) by far: the very central position which lies at the centre of the central board. This position is a component in no less than 13 different winning lines! You can perhaps now see why it is not such a good idea to use a 3^*3^*3 board for Three-dimensional Noughts & Crosses: the first to move would inevitably control the game. I've played against a ZX81 which had a 3^*3^*3 implementation and which always made the first move (guess where!) and which was unbeatable. I wonder why ?

Back to the theory again. Now things really begin to get complex. Before looking any further at strategies, we need to sort out one vitally important thing. If we are going to program the game so that a computer can play, how can we design things so that the machine can recognise your moves and its moves as being different (it's easy for us: we use the Os and Xs, but the computer will need a more suitable substitute), and how can we make it so that a distinction can be made between a winning line of moves for the computer, and a similar situation for us ?

Actually it's quite simple. We can use a number instead of a symbol (0 or X) when storing and manipulating information inside the computer, and revert to the symbol when displaying the boards. To evaluate a possible winning line - a sequence of four position on the boards - we need only add up the numbers representing the moves which have been made. We need one number to represent a move made by the machine, and another number to represent a move made by the player. The two numbers need to be sufficiently different so that when added up they produce different totals depending upon the situation which exists. Sound complicated ? It is easier than it looks. Let's examine the range of winning lines which are likely to exist. (See table 3). The first is an empty line - no moves made in it. The second has one move - doesn't matter where - made by the program. The third has two moves made by the program, the fourth has three, and the fifth has four - the completely filled Winning Line which marks the end of the game. The next four correspond to the same situation for an opponent. The rest correspond to what we will call 'Blocked Lines' - lines which have moves made by both players and cannot therefor be turned into Winning Lines. Now, suppose we made the numbers which represent moves made by both players to be 1 for the machine, and 2 for the human opponent. We'd run into problems straight away because there is no way of distinguishing a line of two moves made by the machine from a line of one move made by the opponent. What about 1 for the machine and 3 for the opponent, then ? That still gives problems, as a line of three

34

machine moves have the same total as a line with just one opponent's move. OK, so what about giving the human player's move a value of 4 ? Looks promising...but wait, how can you distinguish a line with four machine moves from a line with one human move ?

The answer is that you don't need to. If there is a line with four machine moves in it, it means that the machine has just won! In fact, our program will react if it finds a line with three machine moves in, as on the next move it can fill the remaining position and win, unless blocked by the opponent, in which case that particular line becomes a blocked line and is not worth considering further.

Table 3. Some Possible Winning Line Sequences

Position	Opponent's Proposed Values:	2		4	
All empty (empty counts as	zero)	0	0	0	
1 move by machine		1	1	1	
2 moves by machine		2	5	2	
3 moves by machine		3	3	3	
4 moves by machine - a win	1	4	4	4	
1 move by opponent		2	3	4	
2 moves by opponent		4	6	8	
3 moves by opponent		6	9	12	
4 moves by opponent - a win	n t	8	12	16	
1 by machine, 1 by opponent	t	3	4	5	
2 by machine, 1 by opponent	t	4	5	6	
3 by machine, 1 by opponent	ŧ	5	6	7	
1 by machine, 2 by opponent	t	5	7	9	
1 by machine, 3 by opponent	t	7	10	13	
2 by machine, 2 by opponent	t	6	8	10	

Although it may not be immediately clear, the third column comes closest to our needs. Yes, we could use a value of 5 for the opponent's moves. We could also use a value of 40, 5000, 10 million, or anything else, but 4 is the lowest that we can get away with. We could even use fractional values, but as you will see (I hope) that wouldn't be very practical. So let's stick to move values of 1 for the machine and 4 for the opponent for the time being, and examine the totals we get for particular winning lines. We've already seen that strictly speaking the only positions worth considering are those which can be turned into wins for either the machine or the opponent; i.e., all those which are not 'blocked'. That means that our program will need to look for winning line totals or 'line-sums' of 0, 1, 2, 3, 4, 8, 12, and also 16 (the reason why will be given later).
But which ones should it look for first ? On the basis that the computer will only examine the position AFTER you move and BEFORE it moves, there is the possibility that if the opponent has just made a move, he could have completed a winning line which the computer had been unable to block, and has therefore won. That situation is given by a line-sum of 16 (4 moves on a line, each with a move value of 4), so that is the first value to check for. Our program will need to search through all the winning line sequences and compare their totale with 16 to see if it has just lost. If no line-sum of 16 is found (i.e., the opponent didn't win on his most recent move) what should the program lock for next ? What about a line containing three of its moves and one empty position, where it could move into the empty position and win ? Such a line-sum value is given by 3 (3 moves on a line, each with a move value of 1). Supposing that no such position is found: what then ? What is the next greatest danger as far as the computer is conversed ? How about a line of three opponent's moves with one empty position, which if not blocked (and not missed by the opponent!) could lead to an opponent win on the next move ? The computer would need to move into that remaining position and stop the opponent from winning. Such a position is represented by a line-sum value of 12.

So far we have prepared a strategy which looks for line-sum values of 16, 3, 12, in that order. What follows is debatable; it will depend on whether you wish to make the program an attacking or defensive one. One example of a defensive one might be:-

16, 3, 12, 8, 4, 2, 1, 0

An attacking one might be :-

16, 3, 12, 2, 1, 8, 4, 0

It might help you to follow the reasoning if the 'verbal' equivalent of the sequence is given:

- 16 : The opponent has won; declare the winner and sulk.
- 3 ; The machine can win by moving into the unoccupied position, and then notifying the opponent of this fact and gloating over it.
- 12 : Botter move into that remaining position and block otherwise that opponent might notice it and win.
- 8 : Don't give the opponent a chance to make this line into a three-move line - block it.
- 4 : Don't even give the opponent a chance to breathe! Block the line.
- 2 : Turn that line with two machine moves into a three machine move line.
- 1 : Turn that one-move line into a two-move line.
- 0 : I haven't got any lines which might lead to a machine win! Better start one quick!

Alright, so it's a bit Mickey Mouse, but you should get the idea. We are now about halfway to completing our strategy (and this is actually quite a simple strategy; you should see the one in the library!). Let's stop for a moment and consider these 'winning lines' and how they are made up.

Each winning line consists of 4 positions following a sequence of 'straight' lines. There are 76 of them in the 4*4*4 game, and some are more powerful than others, when looked at according to their linkage values. Look at the winning line which consists of positions Row 1, Columns 1 to 4, in Level 1. The sequence of linkage values makes this winning line 7, 4, 4, 7. Look at the next row down however, and the linkage values are only 4, 4, 4, 4. Now look at a fairly obscure line: it begins Level 1, Row 1, Column 1, then Level 2, Row 2, Column 2, then Level 3, Row 3, Column 3, and finally Level 4, Row 4. Column 4. The sequence of linkage values this time is 7, 7, 7, 7. Clearly, this line is of the most powerful type, as the positions in it link up with the largest number of other winning lines. We have three types of linkage sequence here: 7, 7, 7, 7; 7. 4, 4, 7 (also equivalent to 4, 7, 7, 4); and 4, 4, 4, 4. This is where the onedimensional coordinate system begins to come into its own. If we were to list out all the 76 winning lines as firstly sequences of coordinates (1, 2, 3, 4; 5, 6, 7, 8; etc.) then as their equivalent linkage sequences (7, 4, 4, 7; 4, 4, 4, 4; 4, 4, 4; etc.). and then analysed the resulting table, we would have a good idea of the best sequence for checking winning lines. (It's better to check a line which gives maximum advantage first before checking one which gives only minimal advantage). To this end we could perform a 'Tag sort' - a special kind of shuffling around - using the linkage values as the criteria, and swapping around the coordinates to the same degree. For example, winning line 1, 2, 3, 4 has a linkage sequence 7, 4, 4, 7, where each coordinate has a corresponding linkage value. Take the last '7' and place it second in the sequence thus: 7, 7, 4, 4, and copy that manoeuvre with the coordinates: 1, 4, 2, 3. When we have done that for all 76 lines, we will end up with a jumble of linkage sequences which range from 4, 4, 4, 4, to 7, 7, 7, 7, but not in any order. So we sort them again, this time not individually, but by sequence, and do likewise with their respective coordinates. What we end up with is a list ranging from 7, 7, 7, 7 numerically down to 4, 4, 4, 4, each with a corresponding coordinate sequence. You are no doubt utterly confused by all this, but there is method in my madness. All this sorting (there will be a future article on sorting unless anyone feels up to writing one) is being done for a purpose, one which will be explained next issue.

Remember that our strategy has been developed to look at line-sum totals, not individual move values; when making a move then, it will be helpful (and time-saving) if we only have to increment a line-sum total array each time, and even better, if we only do so for those winning line sequences involving the position which has been occupied. We will leave things for the moment, to give you time to recover, ready for next time!!

37.

SOAFBOX

Not a great deal to get worked up about this issue, but what there is, is well worth getting steamed up about! I'm always complaining about the price of things, even more so since I discovered that the UK is generally regarded as a dumping ground for very high-priced goods, and Europe generally is an area prone to exploitation as far as prices go. It has always bothered me that our 32K RAM expansion (yes, I'm on about that again!) costs so much (last known price: £297) compared with RAM offered for other machines, so I've done a little survey on RAM prices by looking at the adverts in the popular micro press in the UK. It is well worth noting that some of the RAM packs on offer in the list below also include additional facilities, like room (and necessary hardware) for further expansion, or even a 'motherboard', allowing other items to be added. Anyway, here is the cost of RAM at August/September 1982, and spot TI's if you can...

RAM PRICES : £ INCLUDING VAT

16K 26.50 22.00 25.00 25.50 25.24 26.50 24.95 17.00 30.00 35.00 32K 29.00 46.00 69.00 39.95 60.00 39.50 99.00 44.90 56K 64K 62.95 53.95 70.00 80.00 74.69 54.95 75.00 79.00 128K 130.00 135.00 569.25 256K 245.00 512K 445.00

Some of the prices vary wildly, usually because they are offered by companies whose pricing policies are just as weird and wonderful as shhhh! you know who; to point the grubby accusing finger at one, it is ACT (pushers of the Sirius 1) who are asking 569.25 for 128K, or at least, their agents are.

I don't expect anyone to actually take any notice of this little table, but at least the beginners amongst you may now know something you didn't <u>before</u> you read it! Namely that someone is not altogether with it as far as memory pricing is concerned!

If YOU have something about which you'd like to let off a little steam, then write in and get your views aired, perhaps even with some results. Please make any adjectives more than four eyllables long if you intend being abusive; fewer people are likely to be offended if they don't know what you are calling them!! The address to which to send your means is given elsewhere, and if you don't wish to be quoted directly, or don't wish your name to be given, write 'PRIVATE' at the top of your letter.



AB # C Compute	15 sf	MAIL ORDER PECIALISTS	for 99'ers
	INTER PARTY	MIND CHALLENGES SOCCOR ZERO ZAP HUSTLE BLACKJACK/POKER BEGINNING GRAMMAR ADD/SUBTRACT 1 ADD/SUBTRACT 2 PERSONAL REPORTS TERMINAL EMULATOR 2	$\begin{array}{c} \underline{199/4A} \\ \underline{112.75(A)} \\ \underline{120.95(A)} \\ \underline{120.95(A)} \\ \underline{120.95(A)} \\ \underline{120.95(A)} \\ \underline{133.75(B)} \\ \underline{116.95(A)} \\ \underline{124.95(A)} \\ \underline{124.95(A)} \\ \underline{142.25(B)} \\ \underline{142.25(A)} \end{array}$
TI INVADERS A-MAZE-ING TOMBSTONE CITY ATTACK YAHTZEE MUNCHMAN NUMBER MAGIC HANGMAN EARLY READING HOME BUDGET SPEECH EDITOR EXTENDED BASIC	£16.95(A) £20.95(A) £20.95(A) £20.95(A) £20.95(A) £20.95(A) £24.95(A) £20.95(A) £20.95(A) £20.95(B) £16.95(A) £69.00(C)	MINI MEMORY %	£75.00(C)
ED ITOR/ASSEMBLER* TEXT FORMATTER* ADVENTURE & PIRATE%	£75.00(C) £49;95(B) £33.75(B)	VIDEO GAMES 1 CONNECT FOUR WUMPUS BLASTO CARS WARS CHESS PRE-SCHOOL FUN MULTIPLICATION MUSIC MAKER PERSONAL RECORDS STATISTICS TI-LOGO *REQUIRES DISCS	£20.95(A) £20.95(A) £20.95(A) £20.95(A) £24.95(A) £33.75(A) £14.75(A) £24.95(A) £24.95(A) £24.95(A) £24.95(A) £42.25(B) £42.25(B) £69.00(C)
Every item of software comes complete with full operational instruct	ions.	%MODULE & CASSETTE VAT <u>INCLUDED</u> IN ALL	PRICES

TEXAS ORIGINATED SO	DETWARE CAS	SETTES - TI99/4 and 1	199/4A
ADVENTURE LAND% THE COUNT% GHOST TOWN% STRANGE ODYSSEY% GOLDEN VOYAGE% MISSION IMPOSSIBLE% MYSTERY FUN HOUSE% SAVAGE ISLAND 1+2% %REQUIRE ADVENT'/PIH PROGRAMMING AIDS 1 TEACHYOURSELF BASIC EXTENDED BASIC PERSONAL FINANCE MARKET SIMULATION OLDIES/GODDIES 1	£20.95(A) £20.95(A) £20.95(A) £20.95(A) £20.95(A) £20.95(A) £20.95(A) £20.95(A) £20.95(A) £20.95(A) £24.95(B) £8.25(B) £8.25(B) £8.25(B) £8.25(A) £8.25(A) £8.25(A) £8.25(A)	VOODOO CASTLE% PYRAMID OF DOOM% OLDIES/GOODIES 2	£20.95(A) £20.95(A) £ 8.25(A)
TEXAS ORIGINATED S	DETWARE DIS	SKETTES - TI99/4 and 1	<u>199/4A</u>
		INVENTORY PROGRAMMING AIDS 2 PROGRAMMING AIDS 3 TEXT FORMATTER INVOICING PASCAL EDITOR PASCAL EDITOR PASCAL LINKER PASCAL COMPILER MATHS LIBRARY ELECT/ENG LIBRARY STRUCT/ENG LIBRARY MAILING LIST	£49.95(B) £16.95(A) £16.95(A) £49.95(B) £49.95(B) £49.95(B) £67.50(E) £79.95(B) £24.95(A) £24.95(A) £24.95(A) £24.95(B)
OTHER SOURCES CASSE	TTE SOFTWAR	RE (BASIC) - T199/4 ar	nd TI99/4A
GAMES TAPE 1 GAMES TAPE 3 HAUNTED HOUSE FRUIT MACHINE PLANET LANDER/LIFE WUMPUS BLACKJACK	£ $1.75(A)$ £ $4.95(A)$ £ $5.95(A)$ £ $5.95(A)$ £ $4.95(A)$ £ $4.95(A)$ £ $4.95(A)$ £ $5.95(A)$	GAMES TAPE 2 O'S & X'S/MASTERMIND MAZE/TOWERS OF HANOI ROULETTE/CRAPS FOUR IN A ROW TEN PIN BOWLING NIM & O'S + X'S	£ 3.95(A) £ 5.95(A) £ 5.95(A) £ 4.95(A) £ 5.95(A) £ 7.95(A) £ 4.95(A)
VAT	INCLUDED I	N ALL PRICES	

TEXAS TI99/4A HARDWARE (**£50 HANDBACK TI99/4A**)			
TI99/4A COMPUTER£198.95(D) SPEECH SYNTHESISER£46.58(E)PERIPHERAL BOX£137.75(F) DISC CONTROLLER£127.35(E)DISC DRIVE (INT)£238.95(F) DISC DRIVE (EXT)£317.00(F)RS232 CARD£103.49(E)32K RAM CARD£119.39(E)PASCAL P CODE CARD£159.22(E) MATRIX PRINTER£363.78(D)CASSETTE CABLE£9.15(A) JOYSTICKS PAIR£19.49(C)			
PERIPHERAL EXPANSION BOX SUPER VALUE COMBINATIONS *****			
OPTION 1: EXPANSION BOX, 32K RAM £249.00(D) OPTION 2: EXPANSION BOX, RS232 CARD £235.00(D) OPTION 3: EXPANSION BOX, 32K RAM, RS232 CARD £345.00(D) OPTION 4: EXPANSION BOX, RS232 CARD, 32K RAM CARD			
OPTION 5: EXPANSION BOX, RS232 INTERFACE CARD			
OPTION 6: EXPANSION BOX, 32K RAM, LOGO MODULE £315.00(D) OPTION 7: EXPANSION BOX, 32K RAM, DISC CONTROLLER			
OPTION 8: EXPANSION BOX, 32K RAM, DISC CONTROLLER INTERNAL DISC, PASCAL P CODE CARD £745.00(G)			
INTERNAL DISC, EDITOR/ASSEMBLER MODULE. £675.00(G) ALL PRICES INCLUDE VAT			
CERTAIN ITEMS ARE IN SHORT SUPPLY AND ARE OFFERED SUBJECT **TO AVAILABILITY. ORDERS WITH 20% DEPOSIT ARE TAKEN FOR ** **THESE ITEMS. IN ORDER TO SECURE THE SPECIAL TI HOME PRICE** **OFFERED TO YOU, PLEASE MENTION TI HOME WHEN YOU ORDER. ** WE HOLD A WIDE RANGE OF BOOKS AND ACCESSORIES, SAE FOR LISTS.			
*****TERMS CHEQUE/CASH/ACCESS PLEASE WITH ORDER***********************************			
CHRISTMAS ORDERS ARE BEING TAKEN. 150 HANDBACK TI99 CLOSES 31 JAN 83. CLOSES 31 JAN			

SCIENCE WATCH

Mass Drivers

Like the implementation of Nuclear Magnetic Resonance presented last issue, the Mass Driver lies at the fringe of scientific research. It is in its infancy at present, but its potential may prove to be tremendous.

The principle involved is one of 'magnetic levitation' (maglev), which you may know in its forms of British Rail's experimental maglev transport system and the Japanese Bullet trains. Two physicists, Dr Henry Kolm, and Dr Gerard K O'Neill, came together in the early '70s. Kolm was working at the Massachusetts Institute of Technology (NIT) on a new transit system (i.e., 'mass transit system' - bus or train to you and me) using maglev. O'Neill, an ardent proponent of space colonisation, was lecturing in physics at Princeton University. His interest lay in uncovering a viable alternative to the costly and inefficient chemical rocket as a way of launching payloads into space.

Kolm and a colleague published an article in Solentific American about their work on the 'Magneplane'. O'Neill read this with interest, and realised that a system using maglev could provide an answer to his rocket problem. O'Neill went to Kolm and presented his ideas, and initially Kolm thought the whole thing hare-brained. But he swiftly changed his mind.

In 1975, the Federal government withdrew funding from Kolm's Magneplane project, and so he began working with O'Neill on the mass driver. Like the magneplane, the new machine would use a magnetic field from a system of coils to levitate a payload, but would accelerate it to high speeds within a metal tube (perhaps several miles long) surrounded by thousands of coils, before releasing it for its half-second trip through the atmosphere. That was the idea, anyway.

In 1977, after having built a model of the launcher - a 6 foot acceleration section with a 24 foot deceleration section - with the aid of some graduate students, using scraps from Kolm's laboratory, old TV gun coils, plumbers' copper pipe, starter motor brushes, and flash-gun capacitors, they demonstrated it at a Princeton symposium.

The payload rocketed out of the 6 foot section. In a tenth of a second it was accelerated from 0 to 90 mph, experiencing 35G (35 times the pull of Earth's gravity). In fact, it moved so quickly that it had reached the end of the deceleration section before its pre-acceleration image had faded from the retina of the eye, making its travel appear

43.

almost instantaneous. The model was then taken to California for further demonstrations at various conferences. Then O'Neill and Kolm began designing a second, more advanced model. Although they had funding through research grants from NASA in 1980, the two were still gleaning most of their parts from scrap - they even stripped Princeton's old particle accelerator (used to study the interactions of sub-atomic particles). When it is tested (no details available) they expect the payload to reach supersonic speeds in a distance of 20 feet. In one thousandth of a second it will be accelerated at more than 250G.

No human being could survive such acceleration (Shuttle achieves about 3G, and early manned launches of conventional rockets achieved around 10G momentarily), so the mass driver is suitable only for materials and supplies. The working version is envisaged as being laid along the vertical slope of a mountain, in the form of a loop, with the payload riding in a 'bucket' so that it is released, sling-shot fashion, at the top of the tube, while the bucket returns via the loop to pick up another load. In order to reduce friction, a vacuum will be maintained within the tube; and the system will probably require its own power station in order to produce the large amounts of electricity to charge the giant capacitors which feed each coil.

A low-powered mass driver could also be set up on the Moon to launch lunar materials for space engineering projects; it would even be used to 'push' small asteroids to construction sites, by firing small pieces of the asteroid out behind, using the principle of 'equal and opposite reaction' for propulsion.

There are two things not fully covered in the reference. One is the immense shock wave which will be generated in the atmosphere caused by something the size and shape of a telegraph pole hurtling through for $\frac{1}{2}$ a second (what a gun-shot that will makel). The researchers anticipate launching a 1 ton payload from Earth every few minutes, (provided it doesn't melt during its high-friction passage through our atmosphere), or a lesser payload every few seconds from the Moon. The second thing which hasn't really been explained is how they intend catching telegraph poles travelling at probably thousands of miles an hour. It seems that it will be possible to aim the payload fairly accurately, but the only details given with regard to retrieval refer to the capture of lunar payloads (presumably slower-moving) by a massive fabric-covered metal frame with an opening half the size of a football field, where the payload will be about 20 lbs of lunar soil.

Although this particular research project has left many questions unanswered, it is fascinating because it has left the drawing board and is being tested.

Reference: Science Dignst, Nov/Dec 1980. pp 56 - 61. 4.4.

Postscript

It takes about two weaks to put together a Babbling Brooks article, so that even as I write, things are changing. For one thing, Mike O'Regan had another program published. For another, two mentions in the popular micro press about the 99s have me on the edge of my seat. The first gives the cost of PASCAL (or Pascal, as some insist) as C30, which, if true, will send my writing hand racing for my cheque-book. I suspect that it is a printing error (as usual), but I won't know until after I send this off to Faul for publication. The second mention had me wearing the edge of the eeat down again. Fersonal Computing Today's editorial says that FORTH is available on the Texas. Again I won't know if that is true until later, but if so, I'm going to jump at it subject to the usual provise that the price is set intelligently!

I've had no takers for improving the Medium Resolution I plotter given a while back (surprise, surprise!) but I live in hope (and in Cowley). I've a feeling that I may even have to resort to telling you the answer; but not just yet...

Just as I finalise Babbling Brooks to be sent off to Faul, lo and behold, the latest issue of Tidings drops through the letter-box! Looks a bit parish-magozine-ish, and the quality of the copying varies (p6, line 8 "by responses", and p8, line 10 "every waking", in case those bits are missing from yours as well!), but it looks a little more professional, it costs less to post, and you can carry it in your cost pocket on the bus without dropping A4 sheets all over the conductor! I won't have time to fully run through it before sending this off, so a detailed post mortem will be left to the next issue...

In the meantime, I see an advert for a 32K RAM card for £165 + VAT for the 99, but be warned: this is most probably a printed circuit board for insertion into the new Expansion Box (already christened the TIBOX - pronounced tie-box), NOT the 32K RAM Expansion Unit, which costs a bit more. Come to think of it, why should a 32K card, which has no packing to push its price up, still cost so much ? Ah, well....

And finally, if you're using Extended BASIC and developing a program which contains your own subprograms, beware of breaking into the program and altering the value(s) of variables, then continuing. If you have managed to BREAK while the subprogram is being executed, then you may attempt to alter values in vain. Try and BREAK outside the subprogram, otherwise your modifications will be without effect.

45.

Good Programming, and this time next year in the Barbican

Pete Brooks

11.1 1.1.1 110 PRINT TABUS FITDUERS OF BRAC 0.. 120 FFINT
 120 FF100
 610 FB10
 620 IF T(R,C1)=D1 THEN 650

 130 PRINT TAB(7); "BY CHP13 EVERN
 620 IF T(R,C1)=D1 THEN 650

 DEN"
 630 NEXT C1
 140 FOR FIE=1 TO 1000 150 NEUL FOE 160 CALL CLEOP 165 REM INITIALISE 170 DIM T+9+3) 180 E=0 190 FOP D1=1 TO 8 200 FOR N=1 TO 3 210 T(D1+N)=0 220 NEXT N 230 HEXT D1 240 PEINT "TOMERS OF HANDI PUZZL F" 250 PRINT "YOU MUST TRANSFER THE DISCS FROM THE LEFT TO THE RIGH Τ" 260 PRINT "NEEDLES, DHE AT A TIME *NEVER PUTTING A LORGER DISC ON A SHALLER DNE. 265 PPINT "DISCS ARE A TO H-NEED -

 LES HRE 1 TO 3."
 790 GOTO 730

 270 INPUT "HOW MARY DISCO DO VOU
 800 PRINT "I TPIED TO WARN YOU,

 MANT TO MOVE(8 11 MARY 1:2
 GOODBYE!"

 280 PFINT
 810 STOP

 290 M=0
 820 FOP P=1 TO 8

 300 FOR 0=1 TO 8
 830 IF T(R+N) © 0 THEN 860

 310 IF 0=5 THEN 370
 840 NEXT P

 320 NEXT 0
 845 REM CHECK IF DISC TO GO ON L

 330 E=E+1
 APGER DNE,

 340 IF E22 THEN 360
 GEO CHER 201

 340IFE)2THEN36085060T0890350FRINT"CANNOTDOTHAT"860IFD1<T</td>890360FRINT"DOYOUMANTTOFLAY870FRINT"YOUCANNOTFLAY360FNDTS"S55Coro"YOUS70FRINT"YOUCANNOTFLAYB70FNDTS"S55Coro"YOUS70FRINT"YOUCANNOTFLAYB70FNDTS"S55Coro"YOUS70FRINT"YOUCANNOTFLAYFNDTS"S55Coro"YOUS70FRINT"YOUCANNOTFNDTS"S55Coro"YOUS70FRINT"YOUCANFNDTS"S55Coro"YOUS70FRINT"YOUCANF"S55Coro"YOUS55S70FRINTFRINTF"S55Coro"YOUS55S70FRINTFRINTF"S55Coro"YOUS55S70FRINTFRINTF"S55Coro"YOUS70FRINTFRINTFRINTF"S55Coro"YOUS70FRINTFRINTFRINTF"S55Coro"YOUS70FRINTFRINTFRINTF"S55Coro"YOUS70FRINTFRINTFRINT<tr

 330
 FFINT
 880
 GOID 490

 320
 7=8
 885
 REM MOVE RELOCATED DISC.

 400
 D1=17
 885
 REM MOVE RELOCATED DISC.

 410
 FOP X=1
 10
 10

 420
 107,1:=D1
 910
 FOP M=1
 TO

 420
 107,1:=D1
 910
 IF T(V,M)=D1
 THEN 940

 430
 D1=D1+2
 920
 NEXT M
 940

 440
 V=7-1
 930
 NEXT V

 450
 NEXT X
 940
 FOP U=1
 FO

 460
 N=1
 920
 FOF U=1
 920

 460
 N=1
 920
 FOF U=1
 920

 470
 603/UP
 1200
 920
 FOF U=1
 920

 330 PPINT 470 603UP 1200 480 PRINT 490 INPUT "WHICH DISC MOULD YOU LIKE TO MOVE?":D& 500 D1=ACC(D9) 7:=0 THEN 600 540 PRINT "ILLEGAL ENTRY YOU MAY 1030 M=M+1 ONLY TYPE A+B+C+D+E+F+6 OR H." 1040 FOR P 550 E=E+1 560 IF E. 1 THEN 580 570 GOTO 490 570 GOTO 490 580 PRINT "STOP WASTING TIME." \$1070 NEXT C1 \$00 NEXT R 46. 590 GIDP

SP5 REM CHECK IF DICC IS BELOW A NOTHEF. 600 FDP P=1 10 8 610 FDP 01=1 TO 3 630 NEXT C1 640 NEXT R 650 FOP Q=P TO 1 STEP -1 660 IF T(Q+C1/=0 THEN 680 670 IF T(Q+C1)(D1 THEN 700 680 NEXT Q 690 GUTO 780 700 PRINT "THAT DISC IS BELOW AN OTHER TRY AGAIN." 710 GOTO 490 710 6010 490 720 E=0 730 INPUT "PLACE DISC ON WHICH N EEDLE?":N 740 IF (N-1) = (N-2) = (N-3) = 0 THEN 82.0 750 E=E+1 760 IF E'1 THEN 800 770 PRINT "YOU HIT THE WRONG MEY TRY AGAIN." 780 PRINT "I DNLY ALLOW ONE MIST AME!" 960 NEXT U 970 U=8 980 GDTO 1000 990 U=0-1 1000 1000 T(U,N)=T(V,W) 1015 REN PRINT OUT CURRENT STATU 1025 REM CHECK IF DONE. 1040 FOR P=1 TO 8 1050 FOP C1=1 TO 2 1060 IF T(R)(1) (0 THEN 1100

1090 6010 1130 1100 IF MG=256 THEN 480 1110 FRINT "SORRY BUT I HAVE DRD ERS TO STOP IF YOU NAME MORE THA N 256 MOVES." 1120 STUP 1130 IF MO2 S-1 THEN 1150 1140 FRINT "CONGRATULATIONS!" 1150 PRINT "YOU HAVE PEPFORNED T HE TASH, IN" MI "NOVES." 1160 INPUT "TRY AGAIN? (Y DR N) ": A1 1170 IF AS="N" THEN 1350 1180 IF A&="V" THEN 170 1190 GJBP 1195 PEN PRINT SUBROUTINE. 1200 FOR Y=1 TO 8 1210 2=10 1220 FOR J=1 TO 3 1230 IF T(G_D=0 THEN 1290 1240 PRINT TAB(Z-INT(T(K, J)/2)); 1250 FOP V=1 TO INT(T(K,J)/2)+1 1260 PRINT "*"+ 1270 NEXT V. 1280 GUTD 1300 1290 FRINT TAB(Z);"!": 1300 C=Z+9 1310 NEXT J 1320 NEMT R 1330 CALL SOUND (400+131*(N+1)+2) 1340 RETURN 1350 PRINT "THANKS FUR THE GAME! 1360 END

THE

TOWERS

f BRACO

C. A. EVERNDEN

```
100 CALL FLEAP
110 MA="BRACE CODE FROGRAM"
120 7=4
130 GD3HB 200
140 MR="BY CHRIS EVERNDEN"
150 7=10
160 GDEUB 200
170 FOR PSE=1 10 2000
180 NEXT POE
190 6010 290
195 REN PRINT TITLES
200 FUP I=1 TO LEN(M$)
210 A=A00 (CEG8 (MS+1+1))
220 CALL CHAR(104, "0000001818")
230 CALL COLOR(10,2,16)
240 CALL HCHAR(7+1+7+104)
250 CALL HCHAR (1+1+7+A)
260 CALL SOUND 201-3100
270 NEUT 1
280 PETUPN
290 CALL CLEAR
300 PANDUMIZE
310 LET N=INT (PND*24)+1
320 LET N1=N
330 TE N#13 THEN 310
340 LET 11=64
350 LET B1= (+1-44) /2
360 LET F=44k1
370 LET A1=1
380 GD2UB 500
390 FOR 1=1 TO 25
400 LET N1=N1+N
410 IF M1 26 THEN 430
420 GBTD 440
430 LET N1=N1-26
440 GHEUB 500
450 IF N1=26 THEN 470
460 GDTE 480
470 LET N1=1-N
480 NEST I
490 6010 580
495 REM TO DIGPLAY CODE
500 LET 1.1=11+1
510 LET B1=B1+.5
520 LET N2=N1+64
530 LET C=26+(001-1) 2-INT(001-1
1-2-2+2
540 LET E=1.06+F
550 CALL EDUND(100.F.2)
560 DIGPLAY AT(B1,C):CHR$(K1);"=
"; CHR$ (H2) +
570 PETURN
575 PEN TO CHONGE LETTERS
580 INPUT "LETTERF": K& NS
590 LF 1 $="." THEN 670
600 LET M2=630 (N$)
610 FET A1=A1+1
620 TET 1:1+ASC+1*+
630 LET B1=011-420/2-01
640 GD3UB 530
650 GUTD 580
660 GOTO 670
670 END
                              47.
```

-1-

Enhanced Basic in word processing

The term Enhanced Basic is used to indicate the extra statements that are available in addition to TI Basic when the Personal Record Keeping (PRK) or Statistic module is present in the GROM-port.

The exact mechanism of these extra commands with two seperate memories (MEM1 and MEM2) is explained in a previous article.

The word processing features of your TI $99/4(\Lambda)$ are greatly inproved by Enhanced Basic and it permits you to load a PRK file and use the data in this file in your TI-Basic programme. An example may show more than many words, therefore allow me to introduce the chess club Excelsior.

A sample members PRK file is illustrated in appendix 1. This needs to be created in the module mode, saved and then loaded when the main programme (appendix 2) is RUN.

As example letters we have taken:

I an invitation to a general meeting (all members) II an invitation to play (selection on team no) III an request to pay the (balance of the) membership fee (selection on fee)

Key this example in, study the programme closely, RUN it and your BASIC knowledge wil be greatly ENHANCED.

Paul Karis & Franc Grootjen Blauwgras 2 3902 AA VEENENDAAL

The Netherlands



FOR DEPARTURE PRESSION

49.

```
建铜 行性 十百斤进 化硝基钠酸盐
500 OH TEAM GOSUB 1010.1040.1070.1100
510 REM ACTUAL LETTER
520 FOR 1=1 TO N
530 CALL G(1,1,5,NI5,TEST)
540 IF TEANK STEST THEN 600
550 GOSUB 790
560 PRINT #1: "YOU ARE COEDIALLY INVITED
TO FLAY ON ":FLAYDATE$:" AT ":FLACE$:" A
GAINST": OPPONENT#
570 PRINT #1::: "PLEASE TELEPHONE YOUR TE
AM LEADER": LEADER$ :". TELEFHONE NUMBER:
":TEL: "IF YOU CANNOT COME."
580 PRINT #1::: "GREETINGS"::: "FRANC GROD
TJEH": "EXTERNAL COORDINATOR"
                                         1 4
590 CLOSE #1
600 HEXT I
610 GOTO 130
620 PEN DUNITING LETTER
630 605U8 910
649 FOR 1=1 TO 11
650 REN GET PAID UP AMOUNT
660 CALL G(1.1.6.MIS, PAID)
670 IF PAID=100 THEN 770
680 REM ACTUAL LETTER
690 GOSUB 790
700 PRINT #1: "IT HAS COME TO HY ATTENTIO
N THAT YOU": "HAVE NOT YET FULFILLED YOUR
 FINORCIAL"
710 FRINT #1: "OBLIGATIONS TO OUR CLUB"::
"AS YOU KNOW THE ANNUAL MEMBERSHIP FEE I 📑
ς"
720 PRINT #1: "#100 AND SINCE MY BOOKS SH
OW THAT YOU": "HAVE TO DATE FAID $":FAID:
" THE BALANCE"
730 FRINT #1:"OF $":100-FAID:" IS STILL
OUTSTANDING AND": "OVERDUE"::
740 FRINT #1:"FLEASE FAY $":110-FAID:" (
BALANCE + $10 EXTRA": "CHARGES WITHIN 14
DAYS INTO OUR ACCOUNT"::
750 PRINT #1: "YOURS TRULY":::: "G.RABBER":
"<CONTROLLER>"
760 CLOSE #1
770 NEXT I
780 6010 130
790 REM SUBROUTINE ENTRY FOR LETTERHEA
D
800 REN GET MEMBER.STPEET/NO.ZIP/TOWN.S
EX
810 CALL G(1.1.1.MIS.A#)
820 CALL G(1.1.2.MIS.5#)
830 CALL G(1,1,3,MIS,T$)
840 CALL G(1.1.4.NI5.F#)
```

```
$50 OPEN #1: "R5232"
860 AHt="MR"
870 IF Ft="M"THEN 890
880 AH#=AH#&"S"
890 PRINT #1: TAB(20): "CHESSOLUB 'EXCENSI
OR '": TAB( 20): "BROOKLYN"::: TAB( 20); "DATE :
":DATE$::A$:S$:T$::"DEAE ":AH$:" ":A*:".
.,
900 RETURN
910 REM SUBP SCREEN MESSAGE
920 CALL CLEAR
930 PRINT "PRINTING"
940 RETURN
950 REM LOAD PRK-FILE
960 CALL L("CS1".Y)
970 IF Y=0 THEN 990
988 6010 130
990 PRINT "* FRROR"
1009 GOTO 960
1010 LEADER#="HR.B. FISCHER"
1020 TFL=99444
1030 RETURN
1940 LEADER#="NR.P.SECOND"
1050 TEL=12345
1060 RETURN
1070 LEADER#="MR.A. THIRD"
1080 TEL=98765
1090 RETURN
1100 LEADER#="MR.B. BOTTOM"
1110 TEL=34521
1120 RETURN
```

Remarks:

- 1. Prepare your memory partition in this example with CALL P(10792) as the TI BASIC program is about 3} K in size. Don't forget to follow up your CALL P(p) with NEW.
- Your previously saved main program is loaded in the normal way with OLD CSI. When it is RUN, choosing 'M' from the menu allows you to enter the previously recorded PRK-data. (in this case the sample file of club members)
- 3. Note that the variables N and N\$ are automatically assigned values from the permanent memory, also after a BREAK, reRUN, SAVE or alteration in the program lines without the PRK-data having to be reloaded.
- 4. Study the CALL H and CALL G statements of this example and trace their functions.
- 5. This example program happens to take data from CSI and output is directed towards an RS232-printer with the width set at 40 characters. Obviously one must alter the program to suit other peripherals if so required.

FILE S	STRUCI		<u>,</u>	FILE: MTE: THRE:	EXCELSIOR 10:20-82 6 Sonflem	IVERS				
HANE:	EXCEL	_S10R		9.	1	2	3	4 :	5	6
ІТЕМ	TYPE	WIDTH	DEC	t B.I 2 P. 3 L.I	LJ KING LAMER L. ANDEL	RUEENSSTR. 14 Blackfilley 1212 Hervenstr. 1	1313 YEV 1094 2048 VIISHINGTO 1290 L.A.	H H H H	4 2 1	190.60 75.00 199.00
1 MEMBER 2 STREET/NO 3 ZIP/TOWN	char Char Char	15 15 15	0 0 0	4 1.1 5 0.1 6 BJ	D, SER P.D., HEHL YCKJACK	ditip 12' Frinflace 12 Cloud 9	1212 NEW YORK 5678 LUEBOCK 234 ACROPOLIS	F H F	3 1 4	12,34 180,09 .91
4 SEX (M/F) 5 TEAM 6 FRID	char Int Dec	1 1 8	0 0 2		4					

CHESSOLUB 'EXCELSIOR' BROOKLYH

DATE :28 AUGUST 1982

÷

1

1.

Letter J

is printed for every member. 221 members could have been entered in the PRK-file.

100.00 75,00 169.09 12,34 190.09 .91

B.L. KING QUEENSSTP. 14 1313 YEM HORK

DEAR MR B.L. KING WE SHALL CONVENE FOR AN ANNUAL GENERAL MEETING ON SATURDAY 25TH OF AUGUST 1984

WE SHALL DISCUSS

1) INCREASE IN MEMBERSHIP FEE

2) CHOOSING OUR TEAM LEADERS

3) NO SMOKING SECTION

WE ARE COUNTING ON YOUR PRESENCE

YOURS TRULY PAUL KARIS (SECRETARY)

52.

CHESSCLUB 'EXCELSIOR' BROOKLYN

DATE :1 HOV. 1982

.

L.L. ANGEL HEAVENSTR. 1 1290 L.A.

DEAR MR L.L. ANGEL, YOU ARE CORDIALLY INVITED TO PLAY ON 15 NOV. 1982 AT "THE SOUGRES" AGAINST THE CHESSMEN

PLEASE TELEPHONE YOUR TEAM LEADER MR.B. FISCHER, TELEPHONE NUMBER: 99444 IF YOU CANNOT COME.

GREETINGS

FRANC GROOTJEN EXTERNAL COORDINATOR

> CHESSCLUB 'EXCELSIOR' BROOKLYH

DATE :1 HOV. 1982

0.P.O. MENT PAWHPLACE 12 5678 LUBBOCK

DEAR NE O.P.O. NENT, YOU ARE CORDIALLY INVITED TO PLAY ON ' 15 HOV. 1982 AT "THE SOURRES" AGAINST THE CHESSNEN

PLEASE TELEPHONE YOUR TEAM LEADER MR.B. FISCHER, TELEPHONE MUMBER: 99444 IF YOU CANNOT COME.

GREETINGS

FRANC GROOTJEN EXTERNAL COORDINATOR Letter II

team no. I has been chosen so that the program only selects the members of that team to send this letter to.

Note that the program allows for various teams to have various team leaders. Their names and telephone numbers, here chosen with ON team GOSUB.. (line 500) could also have been stored in string arrays. CARSOLING YEARD STORY **BECOMENT**

LINE: 18/10/82

P. LEATR BLOCKALLEY 1212

2348 105406100

DEAR IR P. LANEP, IT HAS COME TO MY ATTENTION THAT YOU HAVE NOT YET FLUEFILLED YOUR FINANCIAL OPELIGATIONS TO DUR CLUR

AS THE MARK THE ANALY INTERFECTIVE FEE IS \$100 AND STREE MY EDOKS SHOW THAT YOU INGE TO LATE FAID \$ 75 THE BALANCE OF \$ 25 IS STILL OUTSTAIDING AND OVERDATE

ALEASE FAY \$ 35 (BALANCE + \$10 EXTRA CHAPTERS WITHIN 14 DAYS INTO OUR ACCOUNT

YOUS TELLY

OFESSOLUB 'EXTELSIOR'

G.FIEFER

(CONTROLLER)

CHESSELUS 'EXCELSIOR' 6F00(1)/H

LATE : 18 10 82

L.0. SEP NRD 15 1212 HEW YORK

YOURS TRUEY

-

PEAR MES L.O. SER. IT HAS COME TO BY ATTENTION THAT YOU HOVE HOT YET FOLFILLED YOUR FINANTIAL OPLIGATIONS TO OUP CLUB

AS YOU KNOW THE ANNAUL HEIREFSHIP FEE 15 \$100 AND STACE BY BOOKS SHOW THAT YOU HAVE TO DATE FAID \$ 12.34 THE BALANCE OF \$ 87.66 IS STILL OUTSTRIPTING AND OVERILE

PLEASE FRY \$ 97.66 (BALAIKE + \$10 EXTRA CHEETES WITHIN 14 DATIS INTO OUR ACCOUNT

G. RIEER

(CONTROLLER)

Letter III

Only those members are selected that still have a debt.

Note that ENHANCED BASIC allows manipulations with PRK-data that are not possible in the PRK mode.

BPOCKLYH

COTE : 18/10/82

BLACK HICK à aid 3-234 ACROPOLIS

DEFR MPS BLACKJACK,

IT INS COME TO MY AFTERTION THAT YOU HAVE NOT VET FULFILLED YOUR FINGHCIAL OBLIGATIONS TO OUR CLUB 1

AS YOU KNOW THE ANNUAL HEMBERSHIP FEE IS 1100 AND STACE MY BOOKS SHOW THAT YOU TRIVE TO DATE FAILD \$. BY THE BALINICE OF \$ 99.99 IS STALL OUTSTANDING AND INTERNAL

PLEASE PHY # 189.99 (BALANCE + #10 EXTRA OKPOES WITHIN 14 DAVIS THID OUR ACCOUNT

YOURS TRULY

- 1-

RANADLES

by Stephen Shaw

Greetings & welcome any new readers. Here are some Rambles.....

Starting this month with a brief look at 99'er Magazine, Issue 6.

If you dont subscrabe, the magazine is recommended to you. At time of writing the only reliable source is direct sub, from the USA at \$43 for 6 issues (air-mail), but there may be news of supply elsewhere in this TIdings -or coming soon.

Issue 6 has the usual crop of games & other programs for the 99/4A, in TI BASIC, Extended Basic, Assembly Language, and LOGO.

The Games programs this time are quite simple - and one game has the final lines omitted!

The Assembly Code program uses the 'Multi-Color' mode, to draw pictures using joysticks. The mode has a resolution of 64x48, and each square can be any colour.

There is an ad on the back page which lists some of the new modules to come - and very exciting they seem too. One new 'independent' module is OTHELO by Gabriel Industries - they own the trade mark, so the program should be pretty good.

If you have the Expansion Memory (32k), and the Editor/Assembler or Mini-Memory modules, then you can run Assembly Programs - in theory you should also be able to use Extended Basic, but there seems to be some problem with this.

TI have now brought out in the States DISK-BASED versions of Tombstone City, TI Invaders, and MunchMan — at half the module price so if you are able to run Assembly language disks, these are good buys for you!

Not all assembly language games can be made available on disk, as the MODULE can contain programs up to 40kk whereas Extended Basic can only run up to 8k, although you can use all the machine's memory with the Editor Assembler.

You may feel unhappy to know the US price war result- a 99/4A for \$299 - LESS a rebate of \$100. e.g. around £118 before sales tax!! Could be the reason I keep hearing about the 99/4A as 'the fastest selling consumer computer' in the States.

99°er Issue 6 warns us of another bug in Extended Basic Version 110 relating to SUB PROGRAM errors - user definitions and recursive sub program calls can cause problems. TI are rewriting the module apparently, but with so many released with the bug, future programmers are going to have to assume its there:

Issue 6 has an EXCELLENT article on CASSETTE operation. Recommended.

Programming Basic with the TI HOMB COMPUTER by H D Peckham is reported as containing MANY errors. The alternative is 'Introduction to TI BASIC' by Inman, Zamora and Albrecht, published by Hayden.

LOGO 2 is on the way ... with music, double the user memory etc etc

TI HOME RAVILLES (page 2) OCT 82 U.S.User Group: Way back in Volume 1, issue 2 of TIdings, we received a copy of a US Newsletter courtesy of Charles LaFara. You may wish to know that his Group continues the International 99/4 Users-Group are at: P O Box 67 Bethany OK United States of America 73008 & the annual sub. is US\$12 - for about 8 newsletters per year. This is THE first User Group, and the President of TI -Mr J Fred Bucy - is a subscribing member. Volume 2 Issue 4 of THIS newsletter gives interesting information-There are disagreements with TI's marketing policy in the States too! The Box system is in very short supply (delivery Spt-Oct) -largely due to incredibly fast expansion of the market. TI WRITER is a word processor module (US\$100 only) which will only work on the A model. Includes text/line insertion/deletion. automatic paragraph indentation, right justification, automatic word wrapping (? in brown paper ?), overstriking and underlining. etc etd etc. Incredible value. uh oh - snag - it requires the 32k memory expansion, disk system, (The new 80 col printer is £400 here...). RS232, and a printer.... If you have been looking enviously at VISICALC and like ilk, watch out for Microsoft Multiplan (US\$100 !) - also requires disk and 32k memory. The new games are reviewed- no mention of Parsec NOT running on a 99/4, but apparently it breaks new ground by using -for the first time - 'digitised speech' - the review does not say if the synthesiser is required - possibly not? The voice is female and the game similar to Defender. TI LOGO II requires 32k memory expansion system and has a US retail of US\$130. TI recently ran a promotion in the States - buy 4 modules and receive free a MUNCH MAN module. They now have on offer- buy 6 modules and receive free a Speech Synthesiser. Would it not be nice if we had offers like this ????? With so many moans about fils pricing policies, permit me to state:

The new prices (from Oct 15th) are <u>REALLY</u> nice. There can be no doubt that sales will respond accordingly! Well done. TI HOME OCT 82

RAMBLES P.3

GOSSIP

Remember my writing that DIXONS had the 99/4A and were not trying very hard to sell it ? They've given up, and now sell the Vic2O & Atari computers- this time with quite good displays. Meanwhile, here in Manchester, GREENS (in Debenhams) have started to sell the 99/4A - funny thingalthough they display prices for the Vic2O & ZX81, not a single price on the TI products.....frice in WiNbow DispLAY = f 190-

Of the two dealers selling the 99/4A who will talk to me (!! !), one selling the 99/4A and Vic20, the other selling EVERYTHING, both indicate that the 99/4A sales are in the lead.

Although I mention here interesting snippets of news from other journals, please bear in mind the rather long press dates. The early pages are written towards the beginning of August, and the final pages (of Rambles) were written at the end of September. For up to date news, do subscribe direct! (to the other journals that is - as well as TI HOME TIdings of course!!).

Why is the 99/4A superior to the Atari ? Among a host of reasons the 99/4A Modules can contain 40k, the Atari is limited to 4k long machine code programs for instance have to be loaded from tape or disk. Amazing what you CAN crem into 4k of course - but with 40k..... I look forward to seeing PARSEC (size unknown).

Another new Manchester dealer: ARGOS (and 113 showrooms around the nation...). They have a small range of modules - and the NMENW joysticks.

99'er Issue 6 has an Assembly Language source code program to use the Multi-Color Mode -and joysticks. Do I try to rewrite it- or do I buy joysticks - thinx.

The Summer issue of the Gubic Circular (UKCA for 4 issues- David Singmaster Ltd., 66 Mount View Rd, LONDON, N4 4JR) has 4 pages on RUBLKS REVENCE (#130 g 99/4A program in TI RASIC £9 from WORKFORCE).

The mathematicians have decided the 4x4x4 cube has

7.4 × 1045 patterns.

(The 99/4 program is called 'Quadcube')

HARDWARE REVIEW: NEW JOYSTICKS:

Well- they look nice. The 'stick' is quite long. First noticed- only the 4 cardinal points are marked. The diagonal moves are quite difficult as

- 1) The position of the stick has to be within about one degree
- ii) They are VERY stiff and for diagonals you really have to push the stick.

TI consider the joysticks better than the old ones- guarantee has been doubled to 12 months.

TOMESTONE CITY plays much better with these joysticks. Probably not suitable for small children due to the size of the base & the pressure required.



You guessed it- I bought the joysticks to play with the multicolour mode Assembly program in 99er. It is very good - except that it uses absolute addresses, and so MUST be run with the 'LOAD & RUN' option of the Editor/ Assembler module --- and may not work if TI change memory addresses around. Using GALL LOAD produces an interesting but useless pattern on screen. SEPT ((As at 21st ANG TI have NOT come back to tell me why my Extended Basic refuses to run assembly programs)). The program can save the screen to disk - and when reloaded your design appears VERY quickly. Interesting- the screen design is saved as a PROGRAM file (7 sectors). Although taking up only 10 sectors of disk, attempting to

Although taking up only 10 sectors of disk, attempting to load the program to the mini-memory module produces an 'out of memory' error - possibly because of the plentiful use of labels in the program.

HEALTH HAZARDS:

If you use an earthed bracelet or strip to reduce staticinduced system crashes, you should be aware that if your other hand should come into contact with a live conductor, the current will flash through your heart & you will be dead.

You can insert a large resistor (over 1 megohm) in series with the lead to earth, and reduce your personal risk while still discharging static (albeit slowly).

If you wear glasses, whether for long or short sightedness, they have not been designed for computer use. In general the computer will be farther than a reading book and nearer than the horizon (1).

If you do a lot of computing, you will be more comfortable wearing glasses designed for work at that particular distance - which may be useful for to watching too - and for indoor wear,you may be satisfied with the cheapest NHS frame. Ask your opticians advice.

If you DON'T wear glasses - abill take care. The recommendations to business users of VDUs are that:

Staff shall have ANNUAL eyechecks.

Staff shall have regular rest periods - amounting to 20 minutes per hour.

Treat yourself gently - at least look at a distant object every so often, to relax your eyes.

Some folk are affected by close proximity to monitors the air is charged in their vicinity, and there is usually more dust around than usual. There may be breathing problems or in some cases outbreaks of spots or skin irritation.

Your computer is NOT out to kill you, but as with so many things, excessive use requires that you take care, and are at least aware of the potential problems.

My bent disks (see last TI HOME) have now been replaced - the chained Extended Ensic program is very good, with many unique features - a sort of cross between Adventure & War Gaming a puzzle to solve. Nice graphics. Needs disk drive. Watch the adverts for a price. There was also a 'self-test' chemistry program dealing with element symbols and oxidation states etc.

GREENS in DEBENHAMS do not stock the peripherals, but WILL take your order. Most peripherals are listed.	MICRO C do not, at the time of writing, stock peripherals. I understand they are TESTING some peripherals and these may be available to order soon. Watch this space
Huge shortage of CASSETTE CABLES in ARGOS (two shops) -NONE IN STOCK. MICRO-C -NONE IN STOCK	MANCHESTER on 27th August - BOOTS-NONE IN STOCK. GREENS- TWO ONLY IN STOCK !!!
Yet another chain has taken the 99/4A - 'SHOFFERS WORLD',a division of F W Woolworth - about 45 shops around the country. Console, joysticks, speech synth, few modules. News that BOOTS are dropping the TI in favor of the Dragon. Bosoh.	I understand MICRO C take 99er. If you have problems,call in to see your MICRO C manager & ask him very nicely if he will put a copy aside for you! Micro C are extending their computer sales to the retail branches of CURRY's - about 100 outlets in next few months.

.

Do you feel that not many people are mentioning the 99/4A ? That dealers neem reluctant to help ? If so, it may be your fault for being so quiet! Write to people - call in to your dealer and speak with him (buy things from him!!). Tell him about TI HOME. Dealers can subscribe too.

There is news that system crashes are very rare with the 99/4A and the Box system - if you have a Crash, let us know.

An excellent way of seeing one is to use Extended Basic Version 110 and induce a few errors into a sub-program, such as defining the same thing in two different sub-programs (EG DEF A=A*A).

Read the module instructions very carefully - for instance, with MINI NEMORY switch the console OFF before you insert or remove the module!!!

As a result of the improved availability of 99er (see news in this issue) I shall not in future be reporting on the contents.

If you wish to know what is in 99er - buy it!

It is VERY strongly recommended to you.

An additional dealer chain reported to me - WIGFALLS - an electrical chain mainly in the North East - about 100 shops. The $99/4\Lambda$ has fully penetrated the market.

	TL NOGE TID DA OCT 82	n RAMBLES p.6
í í í í í í í í í í í í í í í í í í í	Gentle reminder- Computer & Video Gnmes' are Ceaturing the 99/4A in their Oct-Dee 82 issues. The November issue has an interesting TI BASIC program listing - should be on sale Mid-October. Remember to write 'thank you' to Terry Fratt & maybe we'll see some more lists! What They pay £10 for first publication rights, you may retain copyright.	Congratulations Mike on your program listing in Personal Computing Today (Oct 82 issue). BYTE recently had some interesting articles on LOGO, also on the TI VDP chip. 'twould appear LOGO I had several problems. Maybe TI LOGO II will solve some of them
• • • • • • • • • • • • • • • • • • •	HELLO ANYONE THERE ?	<pre>You are cordially invited to submit programs & articles to Tidings. No fee is paid. This is YOUR newsletter - send in your news r.s.v.p.</pre>
ADDRESSES	If you collect addresses th you. They are passed on for Friends of LISP/LOGO & Kide (FOLLK) 436 Arballo Drive San Fransisco CA USA 94132 Young Peoples LOGO Assn, 1208 Hillside Drive, Richardson, TX USA 75081 Journal of Fascal & Ada, P O Box 327 Fayson Utah USA 84651 National Logo Exchauge, FOB 5341 Charlottesville VA USA	<pre>he following may be of some use to pr information & without commendation:- h, Friends of the Turtle (*thats LOGO Turtle 1*) P O Box 1317 Los Alton CA USA 94022 SofTech Microsystems (they market the P-System*) 9494 Black Mountain Road San Diego, CA USA 92126 Pascal Market News, FOB 5314 Mount Carnel. CT USA 06518 Logo & Educational Computing Journa Krell Software Inc 1320 Stony Brook Drive Stony Brook Ny USA </pre>

There - there IS someone using LOGO/ F-Code out there after all!!!

If you contact any of these, please report the results to Tidings. Thank you.

Rambles. p.7

JOYSTICKS :-

Sorry about this, yet another health hazard - the new joysticks. They can give rise to a masty case of congested thumb, if you support the control with your fingers and place the ball of your thumb over the top of the stick.

It looks like this:



And protouged use gives you a very sore thumb, which takes a while to recover. Recommended: You fill in that depression with a filler such as Araldite etc.

RODUCT HEWS	News selli consi draft Un avail Comme faith The I and T <u>expec</u> Perha achie ensur Here the F none And w	from the States (dd 31.8.82) that the new BOX system is ing much faster than TI's wildest dreams - leading to a iderable shortage. Extra production facilities have been adder these circumstances perhaps we should not expect much ability (or marketing-which would be wasted!) here in the UK. ent from the States 'feel that they (TI) put too little in their own products' (Agreed.) DISK versions of Invaders & Munch Mon are NOW available,(In USA), PI WRITER and P-Code Disk Rased software products were ited to be available October 15th. aps we should rejoice that the product has now obviously eved viability - even if only in the States - as this should be continuity. In the UK TI are really up against stiff competition with BBC and Dragon (and even the Spectrum). At the time of writing of these had the expansion facilities of the TI. when (ultimately) you see what the 99/4A can do in Assembly age
Oklad Grou	ана чр:	Catalog just in from the Oklahoma User Group, with over 600 user programs. The various user groups DO exchange programs- Oklahoma have SOME of ours and we have some of theirs - although there are obviously delays before we receive programs which are new to other groups. Of interest to UK owners- Oklahoma Can supply TI software at discount prices AND they are experienced in the use of the necessary customs declaration forms. Details of membership given in the Tidings. In particular, you may be able to buy TI software which, for various reasons, TI UK may not be bringing in, or are bringing in only on punitive terms. A small range of independent software is also offered. Of great interest: The EDITOR/ASSEMBLER MANUAL is on offer at US\$12 - a VERY low price (it weighs 2.5kg so postage will probably be more than that!) - No details ou postage charges. I've sent in a small order (for MUNCH MAN on DISK -half module price) and will report what happeds
QUL	GK 140.	TO TI BASIC published by HAYDEN for under £7. Relates to the 99/4 but is good reading if you are struggling a bit.

I see that in my error I have been referring to TI HOME, which is incorrect. It should be TIHOME. Apologies.

I received two cassettes in Assembly code for possible distribution, and the programs were VERY VERY good. The Author knew the 9900 CPU inside out and had avoided using ANY console utilities, resulting in a very fast program! I would have loved to bring them in. but he was offering only a 15 day warranty (!) and the tape was recorded at 2100 Baud, resulting in a short life when used with most cassette recorders. I om sending in a detailed review with this copy - and have offered the supplier the right to reply.

This years PCW Show has been & gone - with any luck the organisers will move it to the NEC at Birmingham next year, and perhaps the visitors (and exhibitors) will have some air to breathe and space Moving to Birmingham did the Car Show no harm, to breathe in! but other exhibitors seem very wary of moving from London. Nice to see so much interest in the TI stand and to meet (for the first time!) some fellow members (also for the first time, some fellow OWNERS!).

R The signs are that this issue will be going to lots of new owners, Ą who by this page may be wondering what RAMBLES is ? You have no doubt realised that I run NOT a writer by profession.... and I dont even work in the computer industry - just a bank clerk. RAMBLES is therefore not a profound look at any one (or two...) subject, but a 'pot-pourri' of news items and random comment. which may be of interest to 99/4A owners. Your good Elitor has considered it to be in a word, a charivari. (Dictionary excercise).

There is a great deal to learn about our computer - how best to program it, how to use it, program conversion etc etc. YOU may be the person to write in and tell us....

HIGH SCORES :-

Here are some authentic high-scores to beat:

Car Wars- 20700 (Joe Dyleski) TI INVADERS-31215 (W Dollard Jnr) The Attack- 1022300 (J W Kalinski) Pin Ball (Video Games 1) - 10028010 (S Shaw)

was weed a strand week to be a

Let me know if you have some high-scores! (Claims will be taken as correct, so no cheating OK 1)

My address is:

	II you would like anything
10 Alstone Road,	special in TIdings, please consider
STOCKPORT,	writing it! or if not, write and
Cheshire,	tell us.
SK4 5AH	Plense be as detailed as you can.

(s.a.e. for a reply!)

Note to suppliers: PROTECTED PROGRAMS CAN BE LISTED. Members will find sufficient hints in back issues of TIdings- I'm not going to give full details to avoid any claims that I'm encouraging piracy! Members are requested to respect program copyrights. 62.

MBLES

P.

Ċ

W.

CASSETTES

The following cassette recorders may be added to the list of those that work: TENSAI CRE 105 from Comet Warehouses and INGERSOLL XK691 from ARGOS -(14 day approval!)

Cassette Operation Hints:

As our membership is now quickly growing it is not amiss to include some helpful hints on cassette operation-

First- keep the tone control at maximum treble Also- keep the ALPHA/CAPS key locked DOWN

Setting the volume:

With grossly insufficient volume you will receive: E RROR - NO DATA FOUND (also if volume much too loud)

With not quite enough, or slightly too much volume, ERROR DETECTED IN DATA

To fine tune the 'slight error' you can use your tape counter - note where the ERROR message appeared, make a very slight adjustment and try again - did the computer reed MORE (move volume a bit more in same direction) or did it read LESS (move volume control in opposite direction).

An important note: Every time the tape passes the recorder heads, a little bit of the signal is lost due to the minute magnetic field which slowly builds up on the head. This will limit the life off your tapes, and where possible you should keep a backup copy on a separate tape.

The use of a head demagnetiser, regularly, is of benefit, and the demagnetisers built into a cassette case are very easy to use.

You should also use a head cleaning tape from time to time (but not too often as they tend to increase head wear!).

Of course you should store your tapes AWAY from magnetic fields (eg the TV!)

And bear in mind that as the width of recorded tape is so narrow, only a very small change in the position of the head will stop you reading your old tapes - or anyone elses although of course you will be able to play recent recordings. The change will not be audibly noticeable, but your computer will spot the difference! Treat your recorder gently!

International Home Computer Users Association-I gave their address in last issue - first copy of their newsletter now in -NB: They ARE NOT a 99/4A group- they cover EVERY home computer. The newsletter runs to just 8 pages & does not justify the very high sub requested. Not recommended. FS SOFTWARE- more details in add but I have to take this small space to say they are the best Extended Basic arcade type programs I have seen. They are very good. See ad in this issue. Thank you.

NICE: ARGOS have a 99/4A actually on display for customers to use.

(The OKLAHOMA group ARE recommended however! See p.2 of RAMBLES this issue)

63

One criticism or comment from DATA FORCE regarding my criticism of their tapes - they say they have had no complaints. Some of the programs I am offering have been on the US market for TWO YEARS - and still I have to remove the bugs or request a re-write!! In fairness, I have received great cooperation from other authors, who clearly have NOT received any complaints either - it implies nothing. All the programs I have have been very carefully checked. In some cases the programs are limited by the system -either the language or free memory - but within those constraints they are considered (by me) to be good value. (I think that was a moan not a Ramble???? Sorry.)

Good news if you live in the North West - the first TI peripheral ever to be displayed in a Manchester retailers has now been sighted - the stand-alone 32k memory expansion has been seen in Manchester's newest TI dealer - a branch of The Computer Supermarket. (Curiously - they are in a shop which TI once used, and which has been 'To Let' every since TI moved out over a year ago...). As you may have seen from their ads, they have most of the peripherals and a good range of modules. If you dont see what you want,ask - the Personal Record Keeping Module is not in their current list, but it IS available from them.

PRICES How can I describe my feelings on seeing the price of the new Othello module in the UK ??? In the States, for US\$35 (discount price, excludes sale tax) you may buy any one of: TI INVADERS, TOMBSTONE CITY, CAR WARS, OTHELLO. The Computer Supermarket price, in UK £ is as follows: £17.25 £21.00 £25.00 £40.00.111 While Video Chess at US\$56 compares to UK £32.00 These strange anomolies are not the fault of TCS; but of TI deciding on their UK prices by using a RANDOM function. Do not pay \$40 for Othello - its a rip-off price to beat them all!!! Come on TI - show us that you're sane - eh???? Well done Mike- another program published - in November 82 issue of PCT -

which goes to show folks- some UK magazines will publish programs for our machine - so why not start writing & submitting right now!!!

TAPE BAD NEWS: News from the States (backed up by personal experience)although you can always read your own programs, and with greater or lesser difficulty read programs someone else has recorded, it appears to be very much more difficult to read someone elses taped data files, and an error condition can occur other than I/O ERROR. If you have a really good cassette like the Boots CR325, there should be no problem, but with some of the more marginal tape recorders (which many of our members have) the distortion

introduced by the input circuits can mean you wont be able to read someone elses data files. There is no cure.

By now, shme of you may be wondering about TI's UK pricing policy. It works the other way too - again in favour of the US computer owner.(Well,sometimes anyway!). Have you heard of BUG BYTE (rumoured to be developing 99/4A software) ? They produce programs for (among others) the ZX81. They are British. And their programs sell in the States. Have a look at comparison prices: BUG BYTE UK PRICE: US ADVERTISED PRICE: PROGRAM: £9.00.L DICTATOR.....US\$15 (£9) INCLUDES £4.00 IN VADERS 10 (6)EXCLUDES VAT SALES TAX £5.00 STARTREK 10 (6)15% (3 TO 6% - Depends on Stat £10.00 MAZOGS US**\$1**0 (6) Well, the exchange rate fluctuates a bit there - the UK equivalent has been placed in brackets after the US price. (at 1.65). The US purchaser may not be getting a very good deal on Invaders, but MAZOGS seems especially cheap! Interesting to see comparison prices for programs going across the water in the other direction isn't it! Somehow international trade in computer programs seems to keep hitting RND. Other Bug Byte programs over there-Multifile-UK $\pounds 17\frac{1}{2}$ - US\$35 (= $\pounds 21$) ZXAS & ZXDB-UK $\pounds 5$ - US\$ 10 (= $\pounds 6$) PRINTERS :-New members who feel the need for a printer - it is easier to debug a printed listing - may be put off by the requirements-A box system, an RS232 card, and then £400 for an 80 column printer. Comes a bit pricy. If you are new to the scene, you may not be aware that TI did have a cheaper printer, a 32 column Thermal Printer, for only £270, which just plugged into the side. Quite adequate for lists. If the thermal printer had not been available. I would not have purchased a TI Home Computer. If you feel that TI should make an economy printer available again, do not bother writing to TI UK - they don't decide on what is manufactured. Try writing direct to TI in the States -TI Inc, Customer Relations, P O Box 53, Lubbock, Texas, USA, 79408 Should they receive a large number of requests, they may be tempted to do something! ((Memo to TI UK: In the States TI put their address on their press ads. TI UK do not - whats up lads, dont like writing to the punters?)) Subject to certain legal problems there should be another 99/4A program in Computer & Video Games December issue -on sale mid-Nov. Someone is apparently throwing their weight about regarding my program (totally original program but similar to a mechanical puzzle) in the October issue. There are apparently one or two people who object to computer simulations, but fortunately for those of us with computers, they are fairly fewl

but fortunately for those of us with computers, they are fairly fewl In the instant case, the only possible infringement would be of copyright,& there is definite room to doubt if that would apply to a simple mechanical puzzle (check how many CUBE simulations there are!) bear it in mind if you write a simulation though - someone may not like it!

RAMBLES

TIDINGS 2,4: Lovely format. Now we need to improve the Xeroxing. A few points: My version 100 Extended Basic gets on very well with my thermal printer. Also I've had good service from <u>DATA-ASSETTE</u> (some cases broken in transit, a couple of dodgy tapes - even a CO (C-Zero) tape - but they've replaced them OK). Delivery of my tapes has been within 2 weeks, so I can't say what went wrong with Pete's order.

You can write an evaluation procedure for yourself, to remove the quotes from an input string such as:

"A= B/COS(J)+ SIN(Y) "

You will need either Extended Basic & 32k memory

or Mini Memory Module.

If anyone is interested, let me know and I'll prepare an article on the procedures to be used.

I am now busy rewriting all my Extended Basic data handling routines back into TI BASIC so I can use those routines on p.42 of last TIHOME tidings - superb. They not only permit 'verify' option on tape, but use up a great deal less tape/disk.

Extended Basic v.110 will only run <u>faster</u> if you have the 32k RAM - this is CPU RAM as opposed to the normal VDP RAM that your program resides in.

I apologise for the listings on pp 60 & 61. p.60 will not run as it stands, as it is the OPEN command which winds the tape header on - you have to close the output file before you open the input file,(rewind the tape of course!). Sorry.

The Extended Basic version on p61 is OK but the TI BASIC is daftsorry. As penance, no listings in this copy.(Tusk this one):

If you dont have the 32k expansion memory but do have the Mini Memory, you can still see what the multicolor graphics look like- try this program- Press a key to start it going. When the squares stop changing, press a key to return to normal mode. The speed of the changes is quite rapid.

66. Refer to last monthis issue for more ideas- note, you do not need CALL INIT.

100 CALL CT FOR 'Γ (-31788,204) :Υ(0,Α,Β) CALL ŘΕγ. OFFE (1 THEN 120 B3="1234567890ABCDEF0774516 CBEA4321952267" FDR T=32 TD 100 30 āñ T=32 TO 100 CHAR(T+3EG\$(83+RND*20* CALL ŃEXT T FLAG=FLAG+t FDF Z=1 TH SO _CMLL_HCUM: (Z3MRND+1,S1MRND+ *ŘŇĎŦ30,3×kNĎŦ1) NET ÊFLĂG=2 THEN 150 ? Z≍1 TD 700 FUP I≃1 TB 700 HCHAR(22%RND+2,30%RND+ èñi e ÏĒ FLAG=3 THEN 290 260 FLAG= 70 150 έŌ GUTU ĎÃD(~31788,224) FEY(0,A,B) THEN SOO

p.13

67.

MINI MEMORY:

After a brief look at this module in an earlier tidings, another look, after I have had a chance to use all of its facilities:

The new BASIC commands - CALL INIT, CALL PEEK, PEEKV, POKE, POKEV - these are useful for booking at and amending <u>all</u> the RAM in the machine.

You may POKE to the screen, or PEEK at the screen - this is made a little confusing because ASCII codes are not used. 'A' with an ASCII code of 65 has a PEEKV code of 161 (etc) top left hand corner starts at memory location 0. You may POKE & PEEK your PROGRAM - this enables you to write interesting programs which write themselves, or facilitates such things as a VAL function which can handle math functions. The screen, character & color definitions, and your program, reside in VDP RAM and PEEKV and POKEV are used.

You may SAVE and OLD programs up to 4k TO THE MODULE - and when you power down, the program stays there. OLDing from the module is considerably faster than even disk!

You may use the module (and the 32k ram if you have it) as solid state disks, to store data. You open a file and save or read in almost the same manner as to tape or disk - but saving and loading is very much faster than disk. If you use the minimem then the data stays there when you power down. If you use the 32k ram (of which you can use 24k) then switching off destroys your data.

You may load an assembly program into the module (up to 4k) from tape or disk, and that also stays there on power down. As a Basic program can utilise assembly subprograms (Call LINK is used), this makes it possible to do some otherwise impossible thingssuch as using 40 column text mode. NB: The programs to do this are NOT yet available.

There is a cassette provided, with a line-by-line assembler, to enable you to write assembly programs - but it is not a simple matter, and there is a definite need for more literature on the subject. The manual provided is not sufficient for a beginner.

(CALL LOAD is TI's equivalent of POKE,and applied only to CPU RAM. CALL POKEV applies to VDP RAM). There is a lot in this little module.



001 82

ADVERT



TI HOFE OCT 82 Paid Advert

PROGRAMS BY PRP COMPUTERGRAPHICS:::-

positions on the board (different each game) yield bonus points when used Vertical and Horizontal words may be formed. Computer displays scores and recognizes winner Exciting game that also increases word power!!

BIO-RHYTHMS: (BASIC) After entering name and date-of-birth, computer will graphically display, in full color, player's MENTAL, EMOTIONAL, and PHYSICAL status for any given date. Also indicates TREND for following days. The change of status for succeeding days is shown with a single key input Additional routine allows computer to calculate and display on a color bar-graph the COMPATIBILITY of any two persons in the 3 categories listed. Great Graphics and Color...makes a terrific Party Gamel!!

BLACKJACK: ("BASIC) Las Vegas rules are used in this computer card game. Screen displays the face of cards as they are dealt, then displays the point value of the hand, Player may elect to take a "hit" for up to 3 additional cards (5 totally) or to stand pat. Computer plays as dealer with automatic hits when its hand is 16 or under, automatic stand when its points are 17 or more. Aces are automatically calculated as 1 or 11 to gain the best score. For 1 or 2 players.

NOTE: BLACKJACK is also available in an EXTE **** BASIC version for faster play and additional on-screen : Teatures. When ordering, please specify which version pestred!

JUMBLE(Anagram) SOLUTETH: Player may enter any scrambled series of latters. Co. - in will re-arrange and display latters in groups of 24 words at a time, until player indicates that the proper word has been formed. Great for solving JUMBLE problems WIP continue to display every possible combination of the letters unless stopped (BASIC)

CHE -: In IARD SQUARE: (EXTENDED BASIC) This game will - i you of the "cube" game. First, Computer displays a perfect Checkerboard, then acrambles the design (differently each time). The player can then move the vertical or horizonlines of the checkerboard. The object is to return the checker board to its original design. (Not as easy as it may sound) Computer calculates and continously displays the number of moves used. When design is perfect again the Compuler recognizes this and announces score VERY COLORFUL AND FUN TO PLAY!!!

5-CATIVE SETTIC POKERComputer denis all players one card is ... and one card face up to start. Each player is allowed to see his face card down privately. Thereefter players may bet, raise, or fold after each new round of cards is dealt. When a player folds, those cards disappear from the screen. Cards are dealt from a 52-card deck with no repeats per shuffle. You'll enjoy this one! (EXTENDED BASIC only)

HORSERACE: (EXTENDED BASIC) Up to 4 players can participate in this realistic and exciting game. First, computer randomly selects from three track conditions- FAST, SLOW or NORMAL. Next, Each player is identified by name, and given \$100 to start. Next, the betting takes place on any of 4 horses that will race. Odds for each horse are displayed before betting commences. After all player bets are down, Computer displays four horses on the track The bugle to start the race sounds, and "They're-Off" After the race the winning horse is announced (Computer accurately determines "photo-finishes") and the dollar winnings of each player displayed. This is added to each winning players purge and a new race is set up. Losers bets are deducted from their purge' Tests of this game show continued interest for Hours' You'll love the way the horses run ... and you'll cheer them on!

CRI "** *I' CHALLEY if (EXTENDED BASIC) The screen *** * playing * *which allows for only six 5-letter words to be entered 3 vertically, and 3 horizontally, to form a crossword. First Player enters a word, selects V or H and position. 2nd player follows suit But wait, can you make a word to fit? Could be harder than you think! Routine allows for passes, as they will be needed' At end of pame computer shows the winner. Score is continuously displayed in personalized "acore-boxes". The design of this game is delightfully graphic and colorful. Playing it can be more of a challence...thus its mamel Good Luck'

VALID! TO: 30-1-83

ALL ONE PRICE: Two For 29 or Fo	DUR FOR 216 (SUPPLIED ON ONE CASSETTE)
ALL NOW AVAILABLE from S Shaw, Send 22p IN STAMPS	10 Alstone Rd STOCKPORT Cheshire SK4 5AE for large illustrated watalogue. ALL CHEQUES TO "S SHAW"
NEW FOR SUMMER 82 Not just another copy! PESTEROIDS (tape) PS PESTEROIDS has festures like changing characters and special options the space-Rock Psckl	Also from PS Software: KEYS OF THE CASTLE: Is it a maze game? Explore 6 levels of 3 castles, collect keys & spells, fight ghosts, open chests, discover pass- words. First to final solution will win a prize! Good Graphics. Comes with OCTAL 1 - a fast-action arcade style game. In extended basic for just £9 (IN PROTECTED FORMAT)
SPACE (Extended BASIC) - Eved Hordes and rescue the performance on table 20 (Extended BASIC) - Eved Hordes and rescue the performance on table 20 (Extended BASIC) - Eved PS SOFTWARE's most performance on table 20 (Extended BASIC) - Eved not set the performance of the performance	e the Xyollen power pods in popular game. 1.00 JLY. PS SOFTWARE IS HIGHLY RECOM. ENDED! Mr. 4 Mrs 8. 6hav. 10 Alstone Road STOCKPORT Cheshire SK4 5AH
SUPPLY TO U.K. ONLY	MAIL ORDER ONLY. PRICES INC. P&P. 69.

TI HOME OCT 82

SOFTWARE REVIEW:

KIPPYS NIGHTMARE & SPACE STATION I (two programs)

Supplier: Data Force Inc

10 S.312 Hampshire Lane Bast, Hinsdale, IL, USA, 6052 Price: US\$35 IN THE USA. No overseas price quoted.

Language: Assembly Media: Cassette

REQUIRED: Console, Expansion Memory, Extended Basic (Optional: Joysticks)

First a word of confirmation: These assembly code programs ARE supplied on cassette (disk also available). The cassette contains a program in Extended Basic which writes an Assembly Code routine to read the Assembly Code program that follows on the tape.....

The Extended Basic program loads very easily.

The Assembly Code data however is recorded at 2100 Baud (normal is 1200 baud) - this results in increased sensitivity to volume & tone settings, and to normal tape wear & tear,

I was able to load each of these - twice - all attempts to load again have been fruitless. This supplier therefore receives 1/10 for ease of loading and reliability.

This is very unfortunate, as the programs score 200/100 - they are VERY good.

KIPPY'S NIGHTMARE involves the caging of some very masty beasts, by means of POOFS (sorry, the supplier used that word, remember the program comes from America....) of which you have a limited but reusable supply. (You can however permanently lose your ---poofs?---). The animated beasts are VERY good indeed, the program speed is very good, and if you could load the program it would be one you would play again & again.

SPACE STATION I involves the defense of a revolving space station. The shots you fire are on a similar basis to the arcade game where you shoot down missiles - you position a sight and then press 'fire' - a missile speeds to that spot and detonates there. You can score by shooting down various items. Your space station can score limited hits and looks more & more damaged as you go along. The graphics are very good. Another game you would play again & again -if you could!

No doubt the supplier wanted the tape to load as quickly as possible, but it was no accident that everyone else stopped at 1200 BAUD, instead of 2100 baud. It simply is not reliable.

If you have a disk system, you may wish to try the programs on disk, but I am informed this supplier has also speeded up disk loading.....

> A copy of this text was sent to DATA FORCE for comment for publication. In view of their response my original comments are given, and their full reply is given overleaf, to permit you to make your own judgements.

Reply from:

DATA FORCE INC. 10 S. 312 HAMPSHIRE LANE FAST HINSPALE, ILLINOIS 60521

DEAR SIR:

While it is somewhat gratifying that you seem to like our two products, KIPPY'S NIGHTMARE and SPAC STATION I, I cannot help but being somewhat put out by your taking the liberty of reviewing these products without contacting us as regards to your problem.

First, it is not by choice that we took on the task of developing a cassette loader for assembler products. Ti's tape load in EXTENDED BASIC does not work.

SECONDLY, this product has been pre released to these responsible individule: with no reports of ANY problems in versions as fast as 2760 baud.

GARY KAPLAN, PUBLISHER 99'ER MAGAZINE. SAM PINCUS, CONTRIBUTING MARK SUNNER, PS SOFTWARE. SAM PINCUS, CONTRIBUTING CHARLES EININGER, FUTURA SOFTWARE.

THIRDLY, when marketing this product, we felt we would give the user the opportunity to use the fast load if possible for his equipment. All purchasers have been offered the 1200 baud version if they experienced any difficulties. NONE have. Obviously the use of these tapes require good equipment and adequate care.

FUTURE software is marketing the 1200 baud version., only.

FOURTHLY, the implication that any problem you may have experienced with our tape version would reflect on our disk version shows a lack of rational thought, obviously the circumstances are entirely different. If that is not obvious to you, I wonder how qualified you are to review software. The reason the product includes its own disk loader is to find the user of a peerly written TI loader that takes 3 1/2 minutes to load a 16k program, while ours (or TI's own better loader in the assembly module) takes less than 30 seconds.

FIFTHLY, these products were sent to you for the explicit purpose of having you review them in conjuction with the offer made by you to DATA FORCE INCORPORATED for distribution of this product. In no way did we understand that your intention was to review these products in any newsletter or other sort of publication. It would seem that if you are seeking business contacts, a more constructive, solution oriented, approach might be in order.

So our custom here of offering replacement of the 2100 baud version with the 1200 baud version, free of charge seems a reasonable position for us to take. We ARE aware that some equipment may not consistently load these tapes at 2100 haud. ALSO in the USA the TI equipment loads at less than 600 baud. If suppose it was no accident that they stopped

at 600 baud, but it certainly was not because it represented some prudent limit.

Naturally, if we have additional problems reported to us we will discontinue the 2100 baud versions altogether, there is no advantage to us to market this in ielu of the 1200 baud. The advantage was all to bhe user. We have also considered marketing the 2100 baud on side 1 and the 1200 baud on side 2, which would give the user both worlds.

The fact that the 2100 haud version seems not to be reliable, and your reference to other people's decisions to stop at 1200 haud is not a valid conclusion, the RELANDELITY threshold of a tape recorder is in WRITING the high baud rates. Most recorders will reliably read baud rates from a good master, at a much higher rate than they could themselve write.

It is not out of line to market a read-only system it bluber rates than might be us able by a system requiring writing at those rates.

ATA FORTS INC . OR'T D D INLC J 1 SYSTEH MISIGE Jemenne & Mille

*The original documentation did not mention the availability of 1200 Baud recordings.

At 1200 Baud these programs are well worth your consideration.

Higher baud recordings are by their nature more fragile & shorter lived.

Sorry about the Print quality at the end, the original WAS like this
ISS4E INDEX ISSUES 1 TO 4 14BIT MICEOS - 3000 REVIEW.... 2 ELECTRONIC COMPUTERS.BODK REVW 1 3D NOUGHTE % CROCCEC: PT 1 4 FTCH A CHETCH. LICTING. . . . 2 99 ER MAGAZINE IJDUE 4:REVIEW. 2 👘 EV U MANT TO KMART RONL CMP:RV 2 99 ER MAGAZINE 1 EXTENDED BASIC (V.100) 1 9974 % 48 FUNCTION KEYS 3 EXTENDED BASIC .. OVERVIEW 4 ADVERTISEMENTS IN TIHOME: PATES 2 EXTENDED BASIC VIAO & VIIO - 4 APPLE COVERSION. 1 FIRST COMPUTER . TRUE STORY!... 4 BASIC-INTPO. PART ONE 4 FLAIHING DOUAPES.LISTING 2 BENCHMARKO (TIMINGE) 3. GRAPHICS. . . LISTINGS. . . 1 BOUNCING · . LISTING . . 1 GRIDS FOR GAMES--HINTS 1 CALL D. 1 HEX TO DECIMAL CONVERSIONS 2 CALL LOAD :: PEWRITING PROGS 4 HI RES PRINT -LISTING 4 CALL PEEK. . . . CRASHES 1 HI-RES GRAPHICS.LISTINGS. . . 2 CALL SOUND BELOW 110HZ 2 HI-RES PLUTS INTI BASIC LISTS 1 CALL SOUND . ODDITIES. . . 1 IMPORTING SUFTWARE: ADVICE 2 CALL POUND... LIMITATIONS 4 IMPORTS-METHOD (PERSONAL). . . 2 INDEX VOLUME 1 .ALPHA.ORDER TROUBLES. . . . 2 4 CASSETTE CASSETTE DATA FILES: WITH PRK 4 INTRO TO BASIC .PART ONE 4 CASSETTES YOU CAN USE. . . 1 JOSEPHOON JUNCTION 3 JUSTIFICATION TO THE RIGHT CHARACTER . HENCODES . . 4 1 LEDGERS PROGRAM (ADVERT) 1 LISTING..... VERBALLY... 4 CRASHING YOUR COMPUTER: HOW TO 1 DATA FILES WITH VERIEY 4 MARKET SINULATN (TI PROG) REVIEW 2 DESIGNS FOR FUN (PPDG) 3 MATHEMATICS: PART ONE 4 MEMORY: . . . ADDRESSES. . . 2 DIFFERENCES IN .99/4 CYSTEMS 4 DISKS: FLIP FLOPPIES 2 MFRGE REMOVES FIND 1

	21	SUE 1			issue J.
MICROREFRIGER-	ATOR	3	QUADCUBE (CUBE	.REVIEW	e V
MINIMEMORY	13T THOUGHTS	4	REFLICATOR THE	(SCIENCE ITEM)	. 2
MIRROR GRAFHIC	S (LISTING)	3	REWIEW MODULE	LIPPAEY	3
MULTICOLOP	GEAPHICE	4	PIGHT\$ (AB•N)	-CONVERCION	1
NORTON	COFTWAPE(AD)	3	SOFTWARE GUIDE	-LINES	3
NUCLEAR MAGNET	OPENNCE OPOTROP	4	SPOKEN LISTS	-ном то	4
PATTERNO: PANDO	M.LISTING	1	STAPLOPD'GAME'	⇔EVIE⊎	2
PET PROGRAM	CONVERSION	3	STARSHIP	CONCORDE.PEVIE	hį 1
PIPBCY	(SEFTWARE)	3	STATIC PROBLEM	3	• 1
PRIME FACTORS.	LISTING	1	TAPE RECORDERS	ΤΟ ΒUY	. 1
PRINT AT IN	TI BAGIC	3	TERCH YOURSELF	EXT.BASIC.RVIE	W 2
PRK FILES	WITH BASIC	4	TERMINAL	EMULATOR II	3
PRK MODULE	CALLS: BODKLET	1	TERMINAL EMULT	RMARK 2.	1
PRK MODULE:	REPORT FORMATS	4	TI HOME LIBRAR	GUIDELINES	3
PRK MODULE:	ENTERING DATED	1	TI PPICES	CRITICISM	3
PRK MODULE:	THERMAL PRINTER	2	TI WRITES BACK	(AT LAST!)	3
PRK MODULE:DAT	A.FILES IN BASIC	4	TOPENISATION	MEMORY USED	3
PPOGRAM PEVIEW	ž	3	TONES BELOW	110HZ	5
PROGRAMMING	AIDS S:REVIEW	2	TRSSO PROGRAM	CONVERSION	3
PROGRAMMING	AIDS 3:REVIEW	З	ZEROZAP	PEVIEW	. 2

.

PRESS CUTTINGS:

Computer Business Europe September 1982

It seems Texas Instruments has cut its prices more severely than the others, with the cost of a T1 99/4 down from its mipinal price of £325 to £199. The Atari 4** is down to around £250 from its price of £345 at the beginning of the year. It also seems that the Commodore Vic 20 has suffered, with reports that some retailers are offering the machine for as little as £179.

This is particularly crucial in view of some of the new entrants on the market. An example is the 16K Sinclair Spectrum which can be bought, on mail order, for $\pounds 125$. The machine hasn't reached the high street shops yet, although Smiths are said to be keen to get hold of it.

These moves have already been reflected in the U.S. where market analysts viewed Texas instruments' recently announced rebate plan for its 99/4A home computer as a **bold price-culting move to** suatch market shares from its competitors, one of TI's competitors privately called it a throat-cutting move, noting it was TI's own throat that would be slit.

Catalogue sales for micro

TEXAS INSTRUMENTS, now selling its home computer, the T199/4A, through the Argos catalogue, is determined to reach a wider market than it has achieved to date in the U.K.

Aimed firmly at the home market, and making no pretentions of being a business machine, the T199/4A is listed in the catalogue — published in early August with a range of software, supplied by TI, and covering games, educational applications and home management applications.

The 16-bit kit costs £200, a price set several weeks ago when dropped from £300. Mike Lunch, general manager of Tt's consumer division explained:

"We dropped the price — which we were able to do as a result of large volume sales in the U.S. — in order to reach a wider market through a more attractive price point."

TI has been trading with Argos for a number of years. Its products, such as calculators, have been listed regularly in the catalogue, and Lunch said that given the market the company was trying to reach, the catalogue was an excellent outlet for the micro.

The T199/4Å is also distributed through high street retail outlets including Curry's, Greens (Debenhams) and Rumbelows, but despite increased availability and TI's confidence in the machine, it still faces stiff competition from its rivals, Commodore's Vic 20 and the Atari 400 and 800.

Computer Business Europe September 1982

A SFECIAL WELCOME TO NEW MEMBERS: With new low prices and the usual Christmas purchases, there are now many more 99/4A owners : Welcome! If you like what you see,tell us. If you don't - tell us. Perhaps you could submit an article or short program to Tidings ? (NB: We don't pay!).

WELCOME

74.

Courtesy of a certain word processing program by someone well known to you allyhere is Rambles on the recently withdrawn thermal printer. Would you like rambles in

this format or typed? If typed would you like the mider spacing as used by P.Brooks?

As I am beginning to run out of subjects perhaps you would drop me a line to say what you want: Mrite to: Stephen Shaw 10.Alstone Road Stockport Cheshire Sta Sou Mr. P. Dicks, TIHOME, 157, Bishopsford Road, Morden, Surrey. 56, Winchester Road, Kenton, Harrow, Middlesex HA3 9FE.

25th. October, 1982.

Dear Mr. Dicks,

Further to our telephone conversation this evening, I am sorry to say that I have still not discovered the page in TIDINGS with the advertisement rates. However, I enclose $4X^{15}_{27}$ stamps and I hope that this will be enough to cover the following advert (if not, let me know, and I will make it up for you).

For sale: "Tombstone City" command module. Price £15 or would consider swop for other entertainment or education module. Phone 01-206 0796 evenings or weekends.

Re: Jack McKillip's problem with the 'Mystery Words' program. I solved the problem by entering FOR MMM =1 TO 3 and it worked! I don't know if this was the correct or only solution (which was arrived at by a lot of trial and error) but the program seems to work o.k. with it.

REVIEW - ATTACK MAN (Norton Software)

This is one of a number of cassette-based programs imported from the United States by Stainless Software (Stephen Shaw, 10, Alstone Road, Stockport, Cheshire SK4 5AH to most of us!)

The game generally follows the usual Pacman formula - you try to eat all the dots on the screen whilst being chased by multi-colored monsters. However, there are a number of interesting variations in this game which set it apart from most of the other versions of Pacman that I have seen. For a start, instead of being a round sphere with a big mouth, this Pacman is a thick yellow cross - the result is the same - but why a cross?? The monsters themselves have horizontally across the screen ignoring the maze walls. There are the usual green pills at each corner of the maze, and eating them causes you to grow in size and then eat the monsters! However, time is limited, and seems to get shorter on each screen you complete, so you have to be quick and eat as many monsters as possible before you are changed back to your normal size again. For each monster you eat your score increases exponentially. You can also score extra points by eating a peculiar shape to the left of the centre of the maze and each screen has its own peculiar shape for you to eat.

75.

Once a screen has been cleared another appears - at a higher level with the monsters moving with a little more energy. At the top and bottom of the screen are 'transporter' tunnels. Usually, upon entering this tunnel you will appear at the other side of the screen - but sometimes you will quite unpreictably end up somewhere else on the screen, and that could be straight into the jaws of a waiting monster! At the start of the game you are asked for your skill level - beginners type in '1', but the higher levels (there are 4 in all) require a password which you will only get after you reach a particular level (I reached levels 2 & 3 quite quickly, but it did take some time for me to get to level 4). In summery, this is quite a slow version of Pacman compared to some of the other versions (usually in assembly code) around. However, it makes EXCELLENT use of all the extended basic facilities available, particularly, of course, sprites and the 'Magnify' facility which turns your dopy cross of a Pacman into a much more virile smiling kite after you eat your 'trans-molecular diversifier' - or green pill! Yacobi ratings: Program Quality **** Value for Money ***** Presentation On-Screen ****

Supplied Instructions ****

Ease of Use **** Interest-Holding ***

I hope that this helps fill out the next edition of TIDINGS!

Best wishes, Arieh Yacobi

COMMENTS ON MEMORY EXPANSION AND DISCS.

To many the decision to buy a TI99/h is regretted due to the high cost of upgrading to more memory or discs. The following describes a D.I.Y. Expansion Memory and the experiences of connect-ing disc drives from other manufacturers on to the TI machine.

The Expansion Memory was built into a box which plugs into the console and is powered by a calculater charger. The total cost was about £94, excluding the cost of tools.

To build the memory requires knowledge of the addresses where the 32K fits, the layout of the 44 pin socket into which extras are plugged. And as TI do not publish such things, some detective work was required.

The first part was easy, from the Editor/Assembler manual it appears that the memory is split into two blocks of 8K and 24K, accessed a byte (8 bits) at a time.

The second part required taking apart a $99/4\Lambda$ and disc controller. Then tracing the maze of interconnections in an attempt to understand the internal workings of the computer.

After many hours, I located the position of the address, data and control signals sufficient to add on an Expansion, The circuit for which contains 16 memory chips each holding 2K plus 8 others.

In all mass produced computers, the chips are soldered onto a preprinted circuit board, but for the home constructer who wants a one off, this is expensive and impractical. But another method which involves no soldering is available, known as wire-wrap. Connections are made by wrapping wire around connecting pins using a simple hand tool.

There are about 500 connections to make and this accounts for most of the 20 to 25 hours spent on construction.

The wiring is not as difficult as it seems, as 80% is repetitive and can be checked in 30 minutes with a battery and bulb.

Should any reader like further details, parts list, plans, etc please contact me.

All 57" discs have a standard connection plug and differ only in the amount of information that can be stored on them and the time taken to access it.

To connect the computer to this standard plug requires a disc controller. So once the controller has been bought it should be possible to plug in compatible disc drives i.e. single sided, 40 track.

I have tried two disc drives, one a Tandy manufactured by Teak model FD50-A and another compatible but unbranded disc supplied by Cumana Ltd. Although both discs will run on a Tandy TRS80 only the Teak FD50-A will run successfully on my 99/4A. The unbranded disc will format a write then read the whole of the disc, but fails when saving or reading a file, maybe it is not quick enough for the 99/4A.

Anyway I can recommend the Teak FD50-A which is used by various computers, possibly even by TI. I would be interested if anyone would look inside a TI disc for a FD50-A label and reply via Tidings.

Eric Hutton, 20 Nightingale Walk, Stevenage, Herts.

CLOSE ROUTINE.

In the last edition of Tidings I asked for members to come forward as local contacts. Well, the response has hardly been overpowering. However, I publish below those who have come forward so far.

Nottinghamshire.

Mike O'Regan 130 Stapleford Lane Toton Beeston Notts NG9 66B

Tel:- 06.076-5482

Oxfordshire.

Peter Brooks 68 Kelburne Road Cowley Oxford 0X4 3SH

Strathclyde.

Peter Phillips 16 Lomond Road Bearsden Glasgow G61 1BA

Lancashire.

Gerry Howard Briarcross Cottage 72 Watling Street Assetside Bury BL8 32W

Well, that's the best the members can do at the moment, but perhaps some other counties will have their local contact soon.

Best wishes and good computing.

Published by: TIHOME, 157 Rishopsford Road, Morden, Surrey。 Printed by: Secretary Birds, 19 Coombe Road, New Malden, Surrey。